

BALFOUR BEATTY UK

**WOKINGHAM MAJOR HIGHWAYS
PROGRAMME**

**SOUTH WOKINGHAM
DISTRIBUTOR ROAD**

**SPINE ROAD AND WESTERN
GATEWAY PHASE ONE**

**CONSTRUCTION ENVIRONMENTAL
MANAGEMENT PLAN (CEMP)**

MAIN CONSTRUCTION WORKS

WMHP-BB-SRWG1-PLN-PM-0005

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Appendix E: Works Programme and Construction Phasing Plans

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Appendix I: Not Used

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Appendix K: Green Travel Plan Survey

Appendix L: Bulk Delivery Schedule and Traffic Management Plans

Appendix M: Construction Methodology for Spine Road and Western Gateway 1 FRAP

Glossary of Terms

AQMA	Air Quality Management Area
BPM	Best Practicable Means
CEMP	Construction Environmental Management Plan
CoCP	Code of Construction Practice
CDMP	Construction Dust Management Plan
CIRIA	Construction Industry Research and Information Association
CTMP	Construction Traffic Management Plan
COSHH	Control of Substances Harmful to Health (Regulations 2002)
EHO	Environmental Health Officer (Wokingham Borough Council)
EM	Environment Manager
HEPAO	Historic Environment Planning Advice Officer
HGV	Heavy Goods Vehicles
HSE	Health and Safety Executive
PLO	Public Liaison Officer
PPV	Peak Particle Velocity
PIRP	Pollution Incident Response Plan
PPG	Pollution Prevention Guidelines (published by Environment Agency)
QMS	Quality Management System
SuDS	Sustainable Urban Drainage Systems
SP	Sustainability Plan
SWMP	Site Waste Management Plan
VERs	Valued Ecological Receptors
VDV	Vibration Dose Values
WSI	Written Scheme of Investigation

1 Introduction

1.1 Description of the Programme and Project

Balfour Beatty (BB) has been commissioned by Wokingham Borough Council (WBC) to carry out the design and construction or design only of 10 discreet highway infrastructure projects as part of the Major Highways Programme. The completed projects will provide access to and congestion relief from four Strategic Development Locations (SDLs) around Wokingham Borough. These SDLs will separately provide twelve thousand housing units once developers have completed construction works. These projects when linked to the highway infrastructure constructed as part of the ongoing residential developments will provide greatly improved access around the borough.

The Spine Road and Western Gateway Phase 1 Project (SRWG1) forms part of the South Wokingham Distributor Road (SWDR). The project consists of the upgrading of the existing (Tesco) roundabout on Finchampstead Rd, construction of a new road and roundabout providing a new entrance to the Tesco site (Western Gateway Phase 1), a new road bridge and highway works over the Emm Brook and construction of a new junction at Easthampstead Rd (including a new spur road), and continuing to the new William Heelas Way / Waterloo Rd Roundabout whilst allowing for connections to future housing development (Spine Road).

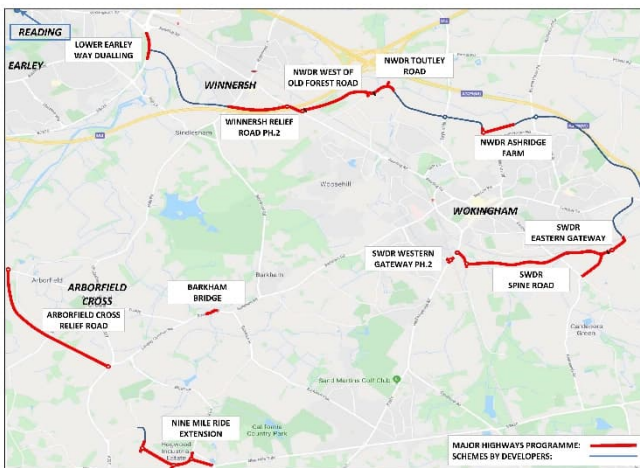


Figure 1-1 Programme Layout

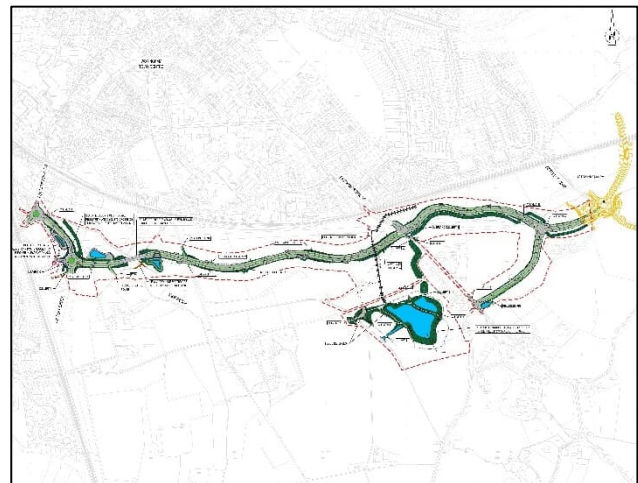


Figure 1-2 Project Layout

1.2 Planning Conditions and Discharge

Planning permission has been granted for the Spine Road and Western Gateway Phase 1 Project subject to a number of planning conditions (Planning Permission Reference 192928). These planning conditions include requirements for the contractor (Balfour Beatty) to produce management plans to mitigate the environmental impacts of construction. It is intended that this CEMP be reviewed as a whole, as aspects described throughout this document will support the discharge of the listed planning conditions, however details for the proposed adherence to and discharge of the particular planning condition specifics are given on the following pages:

- Planning Conditions 10 & 11 – Protection of Trees and Vegetation

Planning Note / Informative Note	Relevant Section of CEMP	Page
10) Compliance with Approved Tree Protection Scheme (informative of the AMS)	4.4 Vegetation and Arboriculture Appendix J - Arboricultural Method Statement	29 Appendix J
11a) Approved Scheme for the retention and protection of trees, shrubs and hedges.	4.4 Vegetation and Arboriculture Appendix J - Arboricultural Method Statement	29 Appendix J
11b), 11c), & 11d)	N/A (Planning notes refer to discharge of the condition by compliance with the Approved Scheme)	N/A

- Planning Conditions 14 – Assessment of Construction Impacts

Planning Note / Informative Note	Relevant Section of CEMP	Page
14(a) Haul Road in relation to existing ground level	4.14 Traffic and Transport – Site Roads Appendix F Site Plans Appendix M: Construction Methodology for Spine Road and Western Gateway 1 FRAP	45 Appendix F Appendix M
14(b) Material and Topsoil Storage	4.6 Water Resources	32
14(c) Otters ecological mitigation measures for protected species	4.3 Ecology – Otters and Water Voles	24

- Planning Condition 17 – Archaeology

Planning Note / Informative Note	Relevant Section of CEMP	Page
i. A programme of archaeological works and recording in accordance with a written scheme of investigation (WSI)	4.8 Archaeology Appendix G – Archaeology Plan	36 Appendix G

- Planning Condition 24 - A Construction Environmental Management Plan (CEMP);

Planning Note / Informative Note	Relevant Section of CEMP	Page
i) measures for the control of dust, odour and other effluvia;	4.5 Dust & Air Quality 4.14 Traffic and Transport – Site Roads	31 45
ii) measures for the control and monitoring of noise and vibration (including noise from any piling and	4.2 Noise and Vibration 4.10 Excavation, Piling, Ground Conditions, Contamination and Hazardous Materials	22 36

Planning Note / Informative Note	Relevant Section of CEMP	Page
hours during which such works will take place);		
iii) the proposed method of piling (if any);	4.10 Excavation, Piling, Ground Conditions, Contamination and Hazardous Materials	36
iv) proposed construction and demolition working hours	3.2 Working Hours	13
v) measures for the control of noise from delivery vehicles and times when deliveries will be accepted;	4.2 Noise and Vibration	22
	4.14 Traffic and Transport - Deliveries	45
vi) measures for the control of pests and other vermin (particularly during site clearance);	4.16 Pest Control	54
vii) pollution control measures;	4.6 Water Resources	32
	4.10 Excavation, Piling, Ground Conditions, Contamination and Hazardous Materials	36
	4.11 Material Resources and Waste Management	48
viii) measures to control of surface water run-off including protection of the aquatic environment in terms of water quantity and quality;	4.6 Water Resources	32
ix) measures to prevent spoil or building materials being deposited or stored within any area of the site liable to flood;	4.6 Water Resources	32
	4.10 Excavation, Piling, Ground Conditions, Contamination and Hazardous Materials	36
	Appendix M - Construction Methodology for SRWG1 FRAP	Appendix M
x) a construction travel protocol or Green Travel Plan for the construction phase;	4.14 Traffic and Transport – Green Travel Plan	45
xi) construction traffic management plan comprising: a. analysis of the volumes of construction vehicles during construction phases for both light and heavy vehicles. b. vehicle routes and notably lorry routes, with volumes of lorries. c. traffic management proposals including any mitigations, hours of operation and signage	4.14 Traffic and Transport – Deliveries	45
	Appendix L: Bulk Delivery Schedule and Traffic Management Plans	Appendix L
xii) site construction access;	4.14 Traffic and Transport – Construction Accesses	45

Planning Note / Informative Note	Relevant Section of CEMP	Page
	Appendix F Site Plans	Appendix F
xiii) haul routes within the site (supported by relevant surveys if not already adequately covered);	4.14 Traffic and Transport – Site Roads Appendix F Site Plans	45 Appendix F
xiv) details of any site construction office, compound and ancillary facilities;	Appendix F Site Plans	Appendix F
xv) cycle storage and motor vehicle parking and turning for site operatives and visitors;	Appendix F Site Plans	Appendix F
xvi) loading, unloading and storage of plant and materials;	4.14 Traffic and Transport – Deliveries Appendix F Site Plans	45 Appendix F
xvii) measures to prevent deposit of mud on the highway;	4.14 Traffic and Transport – Wheel Cleaning	45
xviii) provision of an emergency water supply including fire hydrants to meet firefighting needs (including the installation arrangements and the timing of such an installation);	4.9 Fire Management	36
xix) provision of boundary hoarding;	4.18 Site Fencing	55
xx) lighting;	4.17 Site Lighting	54
xxi) a site security strategy;	Appendix F Site Plans	Appendix F
xxii) Details of any temporary diversions of Public Rights of Way and how they will be managed to minimise disruption to users (both distance and duration of diversion);	Appendix E- Works Programme and Construction Phasing Plans 4.14 Traffic and Transport – Traffic and Pedestrian Management	Appendix E 45
xxiii) protection of important trees, hedgerows, and other natural features;	4.4 Vegetation and Arboriculture Appendix J - Arboricultural Method Statement	29 Appendix J
xxiv) relevant ecological mitigation measures for protected species and species of principle importance;	4.3 Ecology - General 4.3 Ecology – Bats 4.3 Ecology – Badgers 4.3 Ecology – Amphibians and Reptiles 4.3 Ecology - Nesting Birds 4.3 Ecology – Invertebrates 4.3 Ecology – Otters and Water Voles	24 24 24 24 24 24 24
xxv) updated survey information (due to long build out period), for example arboricultural and ecological surveys;	Appendix H - Ecology Plans and Reports Appendix J - Arboricultural Method Statement	Appendix H Appendix J
xxvi) an invasive, non-native species strategy;	4.3 Ecology - Working near invasive species (Himalayan Balsam)	24

Planning Note / Informative Note	Relevant Section of CEMP	Page
	4.3 Ecology - Working near invasive species (Japanese Knotweed)	24
xxvii) measures to protect the Emm Brook buffer zone, consistent with the details pursuant to condition 12;	4.6 Water Resources	32
xxviii) contact details for complaints construction liaison officer;	3.7 Stakeholder Liaison	15
xxix) communications Plan to keep local residents, town/parish councils and ward members informed;	3.3 Roles & Responsibilities 3.7 Stakeholder Liaison	13 15
xxx) programme of works, including measures for traffic management and operating hours;	Appendix E- Works Programme and Construction Phasing Plans 4.14 Traffic and Transport – Traffic Management 3.2 Working Hours	Appendix E 45 13
xxxi) monitoring and review mechanisms;	2.3 Monitoring and Review	12
xxxii) implementation of the CEMP through an environmental management system; Construction activity shall be carried out in accordance with the approved CEMP.	3 Environmental Management System	13

- Planning Condition 25 – Hours of Work

Planning Note / Informative Note	Relevant Section of CEMP	Page
iv) proposed construction and demolition working hours	3.2 Working Hours	13

This CEMP is supported and should be read in conjunction with the following documents where applicable for this project:

1. Balfour Beatty – Project Management Plan (PMP)
2. Balfour Beatty – Construction Phase Plan (CPP)
3. Balfour Beatty – Quality Plan
4. Balfour Beatty – Fire Risk Assessment and Fire Safety Plan

2 Purpose and Scope

2.1 Purpose

This document is the Construction Environmental Management Plan (CEMP) for the Spine Road and Western Gateway Phase 1 Project. It describes how construction activities shall be undertaken and managed in accordance with commitments and requirements identified to:

- Ensure compliance with all applicable UK Environmental Legislation and statutory controls.
- Ensure compliance with the requirements of the planning permissions for the individual projects.
- Ensure compliance with contract requirements.
- Ensure conformance with the Balfour Beatty Environmental Policy Statement (Appendix D), including all associated Balfour Beatty standards and procedures.
- Achieve Balfour Beatty and Project Objectives and Targets

This CEMP describes methods, controls, monitoring and reporting procedures that need to be employed to satisfy the general requirement to safeguard the environment and mitigate any adverse effects of the works. The requirements presented in this CEMP will be communicated to the Balfour Beatty Project Team and all associated sub-contractors and must be adhered to throughout the full period of works.

2.2 Phasing & Scope

There are currently two proposed phases of works planned for the Spine Road and Western Gateway Phase 1 Project

- Phase 1 Commencement works (Carried out by WBC – DATE TBC)
- Phase 2 Enabling works, Main Construction Works and Maintenance and Defects Period

This issue of the CEMP has been produced to cover activities carried out as part of the Phase 2 Enabling Works and Main Construction Works for the Spine Road and Western Gateway Phase 1 Project.

This works will include but may not be limited to:

- Drone Surveys
- Trial Holes
- Site Fencing and Hoarding
- Site Clearance works.
- Construction of the Site Compound and site roads (including plant crossings and temporary crossings of waterways).
- Required statutory utility diversions.
- Construction of flood alleviation features.
- Construction of piling and crane platforms.
- Bulk Earthworks (cut & fill).
- Groundworks including:
 - Installation of Drainage Infrastructure (pipes, chambers, headwalls etc.).
 - Installation of Utility Ducting and Chambers.
 - Placement of Kerbs and Paving.
- Roadworks including:
 - Placement of Hydraulically Bound Material (capping and sub-base).

- Placement of Asphaltic Surfacing (base, binder and wearing courses).
- Construction of a new bridge over the Emm Brook including:
 - Piling.
 - Reinforced Concrete works (Pile Caps, Bridge Abutments, Wing Walls).
 - Installation of bridge beams, deck and parapets.
 - Backfill abutments with Engineered Fill.
- Construction of a new footbridge over the Emm Brook.
- Installation of Street Lighting.
- Installation of Signage.
- Road Marking.
- Topsoiling.
- Installation of Fencing.
- Landscaping and Planting.

2.3 Monitoring and Review

The CEMP is a live document which will be reviewed on a regular basis (every three months or following any significant change to the status of the works) by the site Environmental Management Representative (EMR) and Project Manager.

The Environment and Sustainability Manager will also review CEMP regularly to ensure that:

- The objectives and requirements are still valid, and being met
- Forthcoming activities are reviewed, and any necessary amendments are identified before the relevant works begins
- Current processes continue to be suitable and effective for the project

Should the environmental impacts caused by works activities on site and their management change so that they differ from that which is described in the CEMP then the CEMP must be updated to reflect said changes.

An electronic version of the latest update of the CEMP will be circulated to the site team and made available upon request at all times.

Minor changes to the CEMP caused by the gradual completion of site works (e.g. minor adjustments to site routes around drainage works) need not trigger a resubmission of the CEMP to WBC Planning. However major changes (e.g. the establishment of new site roads and accesses) will require the resubmission of the CEMP to WBC Planning for approval.

2.4 Objectives

The overall objectives that will be applied to the project are:

- All practicable steps shall be taken to minimise the environmental impacts of construction works.
- All activities shall be conducted in accordance with the CEMP as well as the complementary Balfour Beatty management plans, relevant legislation and Codes of Practice for Construction Sites.
- All staff and sub-contractors shall be aware of the environmental issues relevant to the works, the environmental impacts of construction and the mitigation measures to be applied during inductions, briefings, toolbox talks and other means of communication as required.

3 Environmental Management System

3.1 Construction Programme

Please refer to Appendix E for Phasing Drawings and Programme .

3.2 Working Hours

Working hours are to be in accordance with works information and planning permissions (Condition 25) issued by WBC for this project. Working hours will be as follows:

- i. Between the hours of 08:00 to 18:00 Monday to Friday; and
- ii. 08:00 to 13:00 on Saturdays;
- iii. at no time on Sundays or Bank or National Holidays; except for
- iv. individual operations which cannot reasonably be undertaken within the construction working hours defined above and have been notified to the Local Planning Authority (including details of the nature extent and timetable for the works) at least two weeks in advance and agreed in writing (by exchange of letter).

The working hours detailed above will be adhered to unless otherwise agreed in writing with the LPA and the client, Wokingham Borough Council, as above, at least two weeks before said works have been scheduled to commence.

Where works are agreed by the LPA under iv) above, key stakeholders including residential properties within an identified zone that has first been submitted to and approved in writing by the Local Planning Authority, ward members and town/parish councils shall be given written notice at least one week in advance of the works taking place. The notification shall include details of the nature, extent and timetable for the works and telephone number that the party responsible the works can be contacted on for the duration of the works.

3.3 Roles and Responsibilities

Balfour Beatty will be responsible for the overall management of the CEMP. Balfour Beatty shall work in conjunction with other contractors on site and other key personnel to ensure it is implemented effectively. For the purposes of the CEMP the Balfour Beatty Project Manager will be deemed to be the Construction Liaison Officer.

The CEMP Roles and Responsibilities can be seen in the following table.

Role	Responsibility
Client - Wokingham Borough Council (WBC)	Responsible for producing the Works Information and Project Information to be used in producing the CEMP and to review and approve / reject said documents in accordance with planning conditions as required. Responsible for managing communications to and complaints from all stakeholders including Neighbouring Authorities and members of the public.
Contractor - Balfour Beatty (BB)	Responsible for the overall management of the CEMP and ensuring compliance with the CEMP and relevant legal requirements including appointment of a Construction Liaison Officer for each project. Ensure that a project specific Construction Environmental Management Plan is produced for and approved by WBC prior to commencement of works and ensure that the CEMP is included in tender and contract documents.

	Responsible for managing the environmental risks and site waste management throughout the construction of each specific project and obtaining any environmental permits required from the respective agencies (EA, Natural England etc.).
Sub-Contractors	Commit to responsibilities detailed within the CEMP. This document shall be a contractual obligation for all sub-contractors. Sub-contractor Managers are to ensure that their staff works to agreed plans, methods and procedures to minimise environmental impacts; and comply with directions given by Balfour Beatty Project Management.
Site Personnel	Undertake to work in accordance with the CEMP and comply with directions given by Balfour Beatty Site Management.

3.4 Legal Permits, Consents and Licences

The project has the following permits, consents, licences and exemptions in place. They hold legal compliance requirements that are met within the project operational activities. Copies can be located in section 01 SRWG1 / 09 HSES of the contracts document filing system on BIM 360.

Permits, Consents, Licences and Exemptions	Requirements	Monitoring and Inspection Arrangements for Compliance	Responsibility
Environment Agency – Flood Risk Activity Permit (FRAP)	A FRAP will be required for any excavation works within Flood Zone 3 to the west of Waterloo Rd	Controls and Work Package Plans need to be agreed with and approved by the Environment Agency. The permit can take up to 8 weeks to be issued following full submission of the permit application. The EA may inspect the site at any time at their discretion.	BB Project Lead;
Wokingham Borough Council (Unitary Authority) Ordinary Watercourse Consent (OWC)	Ordinary Watercourse Consents are required for works within the ditches to the west of Waterloo Rd	Controls and Work Package Plans need to be agreed with WBC. The method of application for consent is to be confirmed. WBC may inspect the site at any time at their discretion.	BB Project Lead; WBC Project Manager
Natural England – Bat Licence	The felling of any trees identified as bat roosts can only occur under licence	All licence conditions are to be met. Typically trees are to be soft felled under supervision from a SQE	BB Project Lead;
Natural England – Protected Reptiles and Amphibians – Translocation Licence	The translocation of certain species (e.g. Great Crested Newts) can only occur under licence	All licence conditions are to be met. Translocations are to occur under supervision from a SQE	BB Project Lead;

3.5 Environmental Training

Environmental awareness and training shall be achieved by:

- Site induction which shall be given to all personnel who work on site and will include an overview of site specific environmental issues and details of how these issues shall be managed
- Detailed CEMP/SP briefings for managers and supervisors
- Balfour Beatty bespoke SEATs and ESSA training
- Toolbox talks for personnel as required on key project- or task-specific environmental issues
- Environmental posters and site notices

3.6 Monitoring

Monitoring of the implementation of the CEMP shall be undertaken through:

- Weekly site checklists completed by each contractor
- Quarterly status/progress reports by Balfour Beatty to the WBC

Where non-conformities are identified (defined as either an environmental incident on site, or where work that has not been carried out in accordance with the CEMP), corrective action shall be taken. All non-conformances and subsequent corrective actions shall be logged in the weekly checklist.

3.7 Stakeholder Liaison

Site Notice Boards

Notice boards at the site entrance should display the following information:

- Name and brief description of the project and phase
- Outline programme
- Name and contact details for enquiries and complaints, including a single telephone number for the project (TBC) and Email contact : SWDR@balfourbeatty.com

The specified telephone must be attended during all standard working hours by a person or persons with the appropriate authority to act to resolve any problems that may occur.

Complaints Procedure

A Complaints Register will be set up and maintained by the Stakeholder Manager. All complaints will be recorded for action in the register received from telephone call and site email address. The Complaints Register will include information on: – the name (can be anonymous if preferred) and location of the affected party; – the time and nature of the event that caused the complaint; and where appropriate, – the remedial action taken. The Stakeholder Manager shall ensure the complainant is notified of what action is being taken to address the complaint, by telephone if possible, and by email/letter once appropriate action has been undertaken.

Stakeholder engagement

Periodic newsletter sent out to Stakeholders by email, used as a means of keeping them informed of the activities taking place relating to the SWDR scheme. This would also be useful as a source of information, keeping readers informed about the plan for the works, the progress of the works once these have started, as well as any potential disruption that may occur.

We are keen to ensure that we focus the appropriate degrees of communication on the relevant stakeholders. We understand that the various stakeholders have varying amounts of involvement in the project as the construction is taking place, of which some will want to be extensively involved and others will only wish to be informed at key junctures in the schemes' progression. Effective channels of communication must be established both within the project team and with the relevant stakeholders, to ensure that genuine dialogue can take place. With this in mind, we have identified our stakeholder audiences as being in two groups – these being the Primary and Secondary stakeholders. This audience segmentation is based on the scale of likely impacts resulting from the works, which will require different communications channels, activities and messages.

Primary Stakeholders

This group includes stakeholders that are associated with each of the projects. Balfour Beatty will ensure that all stakeholders are always kept up to date, and that Ward Members and WBC communications are updated prior to all other stakeholders. This will ensure they are fully up to speed on the WMHP and can respond from an informed position when they are contacted by other stakeholder and secondary audiences.

The primary stakeholders are as follows:

- Nearby businesses
- Nearby residents
- Town and Parish Councils near the proposed road schemes
- Motorists (including business travellers) who use nearby roads that may be affected
- All other road users that pass through the vicinity of the WMHP schemes
- Nearby community facilities
- Nearby education facilities
- Ward members / Councillors
- Local emergency services (police, fire, ambulance).

Secondary stakeholders

This group will be kept apprised of the WMHP by social media, press releases, text or email alerts, and via information leaflets and newsletters distributed locally. We will also work alongside the WBC communications team, who will publicise the works further through the Borough News. Information for these communication channels will come from Balfour Beatty and will be passed on to the WBC communications team, who will assess the importance of releasing this information among the secondary stakeholder audience via the mediums mentioned above.

- Members of the public within Wokingham Borough
- Remaining Town and Parish Councils that are more distant from the road schemes
- Local Members of Parliament and other political figures
- The Business community (e.g. chambers of commerce)

- Community groups
- Voluntary organisations
- Education organisations
- Local and national media (newspapers, radio, TV)

4 Environmental Impacts

The following section of this document provides information on mitigation measures and monitoring controls to avoid or minimize environmental impacts. The following environmental topics have been included:

- Sensitive Environmental Receptors
- Noise and Vibration
- Ecology
- Air Quality
- Dust
- Water Resources
- Heritage
- Archaeology
- Ground Conditions, Contamination and Hazardous Materials
- Material Resources and Waste Management
- Traffic and Transportation
- Visual Amenity
- Pest Control
- Lighting
- Fencing

4.1 Sensitive Environmental Receptors

Residential		Commercial & Agricultural Sites	
Ifould Crescent	Southlands Close	Burger king	Eileen Douglas Tack Shop
Bremner way	Erica Drive	Corsair	South England Pastries
Waterloo Road	Gipsy lane	Majestic Wine Cellars	The White Horse Public House
Clay Lane	South Drive	CarpetRight	Holme Park Game Hatcheries
Priest Avenue	South Close	Pets at Home	Gray's Farm
Waterloo Crescent	Kendrick Close	BP Service Station	Adjacent Arable Farmland
Rances Lane	Carey Road	M&S Food	
Tudor Close	Davy Close	Tesco Superstore	
Buckhurst Grove	Finchampstead Road	Eden Cars	
Easthampstead Road	Oakley Drive	Molly Millars Lane Businesses	
Southlands Road	Tangley Drive	Two Poplars Public House	
Green Drive	Beaver Close	Wokingham Equestrian Centre	
Southwood	Luckley road		
Local Amenities		Hydrological Features	
Floreat Montague Primary School		Surface Water Drainage to Ordinary Watercourses and the Emm Brook	
Holme Grange School		Foul Drainage	
Ludgrove School		Groundwater	
Chiltern Way Academy			
Heritage & Archaeological Assets		Ecological & Arboricultural	
Late Iron Age to Roman Period finds within project boundary - Site to undergo archaeological excavation as per WSI.		Buckhurst Meadows Nature Reserve	
The Barn at Brittons Farm is grade 2 listed.		Trees and hedgerows within the site containing roosting and foraging bats.	
		Nesting birds	
		Reptiles and Amphibians	

The project's sensitive receptors have been assessed and are listed below.

Feature/Issue	Details	
Protected Sites e.g. SSSI	Buckhurst Meadows Nature Reserve lies near the site on the north side of the railway. It is not expected that it will be adversely affected by the works.	
Water courses	Water courses are expected to be encountered as detailed in Section 3.4 above.	
Ground water / aquifer	Ground water may be encountered at Spine Road and Western Gateway Phase 1 project. Mitigation measures will be determined by the level and nature of any groundwater intrusion into the project works.	
Cultural Heritage	No specific areas of Cultural Heritage are expected to be detrimentally affected by the proposed works. The Grade 2 listed barn at Brittons Farm will not be adversely affected by the works.	
Archaeology	An area of specific archaeological interest has been identified at the Spine Road and Western Gateway Phase 1 Gateway Project. A Written Scheme of Investigation has been produced by Wessex Archaeology for this project to be approved by Berkshire Archaeology. It is currently planned to carry out any required archaeological investigations during the enabling works phase for these projects.	
Protected Species e.g. Bats, Badgers	Controls as detailed in Section 4.3 below	
Injurious & Invasive Animal Species e.g. Signal Crayfish	Controls as detailed in Section 4.3 below	
Industrial / retail / business units	Burger king Corsair Majestic Wine Cellars CarpetRight Pets at Home BP Service Station	M&S Food Tesco Superstore Eden Cars Molly Millars Lane Businesses Two Poplars Public House
Residential properties	Ifould Crescent Bremner way Waterloo Road Clay Lane Priest Avenue Waterloo Crescent Rances Lane Tudor Close Buckhurst Grove Easthampstead Road	Southlands Close Erica Drive Gipsy lane South Drive South Close Kendrick Close Carey Road Davy Close Finchampstead Road Oakley Drive

Feature/Issue	Details	
	Southlands Road Green Drive Southwood	Tangley Drive Beaver Close Luckley road
Educational establishment	Works will occur adjacent to the Ludgrove School on the north side of the railway at the Spine Road and Western Gateway Phase 1 Project. Works will be managed so as to minimise any detrimental effects to the school.	
Hospitals / medical facilities	n/a	
Public buildings (not otherwise mentioned)	n/a	
Woodland / Trees	Clearance of certain woodlands and trees will be required on specific projects. Works will be managed so as to minimise any detrimental effect on adjacent woodland or trees.	
Tree Protection Orders (TPO)	Trees that have current Tree Protection Orders will be required to be removed according to the relevant WBC protocols. Works will be managed so as to minimise any detrimental effect on adjacent trees with Tree Protection Orders.	
Hedgerows	Clearance of certain hedgerows will be required on specific projects. Works will be managed so as to minimise any detrimental effect on adjacent hedgerows. Hedges to be cleared are shown on the site clearance drawings (Appendix J)	
Injurious & Invasive Plant Species e.g. Japanese Knotweed	n/a	
Public footpaths	Public rights of way will be maintained wherever possible and only diverted around the works when absolutely necessary. Should safe diversion of public rights of way not prove possible only then can they be temporarily closed according to the relevant WBC protocols.	
Farm Land / Crops	All works are to take place on lands acquired by WBC (including former farmland). Works will be managed so as to minimise any detrimental effect on adjacent farmland or crops.	
Farm animals	All works are to take place on lands acquired by WBC (including former farmland). Works will be managed so as to minimise any detrimental effect on adjacent Farm animals.	
Derelict Land	n/a	
Parks/recreation areas	All works are to take place on lands acquired by WBC (including former parkland). Works will be managed so as to minimise any detrimental effect on adjacent parkland or recreation areas.	
Other	n/a	

4.2 Noise and Vibration

This section describes the noise and vibration plan to manage the potential impact during construction phase to sensitive receptors in the vicinity of the works. It covers requirements for noise monitoring, prevention of excessive noise pollution to the surrounding area and allowable limits during construction hours as appropriate.

Balfour Beatty will ensure that works are undertaken aligned with the requirements of the planning condition 25 associated with the planning permission and as such works will only be undertaken within the hours of 08:00 to 18:00 Monday to Friday and between 08:00 to 13:00 on Saturdays. Works will not be undertaken on Sundays or Bank or National Holidays, except for emergency works or works notified to the LPA and agreed. Works for sheet piling will be carried out after dawn and before dusk to reduce impact on wildlife.

Noise and vibration issues on the Wokingham Highways project are likely to arise from demolition, excavations and earth works. Plant and Equipment such as excavators, cranes, compressors, and generators are not considered to be sources of significant levels of vibration. However, driving of piles can be a source of ground vibration and noise.

Balfour Beatty shall be required to follow Best Practicable Means and adhere to the codes of practice for construction working given in BS 52281 and the guidance given therein regarding minimising noise and vibration emissions from the site. Provisions of BS 5228 are summarized as follows:

- Use of hoarding around the work site perimeter, where practicable, to assist in the screening of noise generation from low-level sources.
- Wherever possible, locating noisy activities away from sensitive receptors.
- Construction compounds will be located, as far as is reasonably practicable, away from adjacent occupied buildings or as close as possible to noise barriers or site fencing where these are located between the plant and the buildings.
- Off-site pre-fabrication to be adopted where practical.
- Loading and unloading of vehicles, dismantling of site equipment such as trench sheets, manhole chambers and temporary trench support systems or moving equipment or materials around the site to be conducted in such a manner as to minimise noise generation and where practical to be conducted away from noise sensitive areas.
- Materials should be handled with care and be placed, not dropped.
- Proper use of plant with respect to minimising noise emissions and regular maintenance. All vehicles and mechanical plant should be fitted with effective exhaust silencers and should be maintained in good efficient working order.
- Selection of inherently quiet plant where appropriate. All major compressors should be 'sound reduced' models fitted with properly lined and sealed acoustic covers which should be kept closed whenever the machines are in use and all ancillary pneumatic percussive tools should be fitted with mufflers or silencers of the type recommended by the manufacturers.
- Machines in intermittent use should be shut down in the intervening periods between work.
- White noise type reversing warnings should be used on mobile plant in preference to beepers.
- All ancillary plant such as generators, compressors and pumps should be positioned so as to cause minimum noise disturbance, i.e. furthest from sensitive receptors or behind close boarded noise barriers. If necessary, acoustic enclosures / shielding should be provided.

- Substitution: Where reasonably practicable, plant and or methods of work likely to cause significant levels of vibration at the receptors identified, will be replaced by less intrusive plant/methods of working.
- Vibration Isolation of plant at source: This may prove a viable option where the plant is stationary (e.g. a compressor, generator) and located close to a receptor.
- The potential auditory aspects identified for this project are as described in the following table and will be communicated in the Site Induction:

Environmental Aspect	Environmental Category	Environmental Impact and Risk	Control Measure to Mitigate Risk and Realise Opportunity for Improvement	Who is Responsible for the Control Measure
Noise and Vibration	Operations	Impact: human health impacts / noise, causing nuisance for local community / vibration, causing damage to existing buildings and structures Risks: failure to fulfil compliance obligations, reputational damage, negative publicity, costs of repairs, possible prosecution and fine.	<u>Normal / Abnormal:</u> Restrict works to mandated working hours: 08:00 to 18:00 weekdays; 08:00 to 13:00 on Saturdays; Out of hours works only by prior agreement in writing from WBC 2 weeks before proposed works commence. Turn off all plant when not in direct use. Use silenced plant (both static and mobile) where possible. Utilise non-vibratory compaction when within 45m of an identified sensitive receptor site. Refer to Chapter 10 of the Environmental Statement to access background and predicted noise information. Background and operational noise and vibration monitoring is to be addressed within specific site activity ITPs and RAMs Control measures for noise and vibration as per the Section 61 agreement (where applicable) are to be adhered to. <u>Emergency:</u> n/a	Construction Team

4.3 Ecology

This section describes the Ecology plan to manage the potential impact during construction phase to sensitive receptors in the vicinity of the works. Bats, birds, reptiles, otters, water voles and amphibians (GCN) have the potential to be impacted by the construction works and as such the hierarchy of mitigation will be applied:

- Avoidance / prevention - measures taken to avoid or prevent adverse effects, for example, scheme layout or timing of site works.
- Reduction / mitigation - measures taken to reduce adverse effects, for example, retaining walls or pollution interceptors; and
- Compensation / offsetting - measures taken to offset significant residual adverse effects, i.e. those which cannot be entirely avoided or mitigated to the point that they become insignificant, for example, habitat creation or enhancement.

A number of generic control measures will be undertaken to avoid or reduce any potentially adverse ecological impacts on the receptors identified in the introduction. These are as follows:

- The Project HSE Advisor will advise on implementation of this CEMP and to provide on-site ecological advice.
- Construction activities will be confined to the defined working footprints.
- Protection of important habitats such as watercourses from accidental leaks or spills of oil or other petroleum- based / harmful chemicals will be implemented. This will be achieved by storing such substances in securely bunded areas away from sensitive habitats. No potentially contaminated drainage will be discharged directly to any surface water.
- All equipment will be stored as far as reasonably possible from water courses.
- The site induction, briefings, toolbox talks and instructions will include relevant ecological risks and mitigation.
- Vehicle movement will be confined to existing roads and newly created access tracks.
- The Project HSE Advisor and/or MER will undertake monthly inspections and carry out an assessment of environmental performance during construction, measured against environmental standards, relevant legislation, and the CEMP objectives.
- Ecological Risk Assessments of site activities have been conducted and will be fully documented in the individual Risk Assessments and Method Statements (RAMS) for each site activity.

The significant ecological aspects identified for this project are as described in the following table and will be communicated in the Site Induction:

Refer to Appendix H - Ecology Plans and Reports for full Mitigation Report

Environmental Aspect	Environmental Category	Environmental Impact and Risk	Control Measure to Mitigate Risk and Realise Opportunity for Improvement	Who is Responsible for the Control Measure
Working near protected species (General)	Ecology & Biodiversity	Impact: Disturbance or damage to protected species and their habitats / loss of biodiversity Risks: possible fine, prosecution, reputational damage, delay to works	Normal / Abnormal: Consult with Client to establish whether ecology survey has been carried out / preconstruction ecology survey is carried out / species specific surveys carried out / fingertip searches / apply for protected species licence and follow conditions / controls such as translocation, watching brief or other suitable mitigation measures to be included in method statements / teams to be briefed on controls / mitigation measures to be implemented / support to be provided by environmental advisor or specialist ecological resource where required. Refer to Chapter 7 (Nature Conservation) of the Environmental Statement for information additional to that described below for the protection and conservation of flora and fauna within the proposed site boundary. Refer to Appendix H – Ecology Plans and Reports for full details of mitigation required	Construction Team
Working near protected species (Bats)	Ecology & Biodiversity	Impact: Disturbance or damage to protected species of bats	Bat Activity and Tree Roost Potential surveys have been carried out at the Spine Road and Western Gateway Phase 1 site. Trees contained within the construction footprint have been identified as having negligible to low bat roost potential. Trees scheduled for removal with low bat roost potential are to be inspected by a suitably qualified ecologist (SQE) prior to their removal. The felling of trees is unavoidable, and these will be carried out under the supervision of a bat licenced ecologist, using soft-felling techniques. In this case, an at-height inspection by a bat licenced ecologist, or an arborist under the direct supervision of the licenced ecologist, will be undertaken to enable a thorough assessment of the PRFs for the presence of roosting bats. If roosting bats are absent, then the PRF-I trees can be soft felled by a suitably experienced person. If the presence of a bat roost is highlighted at this stage, then the roost will be left in-situ and works affecting the associated tree stopped immediately. A licence would then be sought from Natural England to permit the works to proceed, with the licence application being subject to a detailed method statement. Installation of alternative roosting features; Monitoring and maintenance of the alternative roosting features post works. Protection of the alternative roosting features into perpetuity. Any structure scheduled for demolition on site that is deemed to be suitable for roosting bats should be subject to a detailed internal and external inspection by a SQE prior to the start of works. Features that may support roosting bats should be soft stripped under ecological supervision. Further works / surveys may be required following the inspection. The positioning and illumination direction of any site / task lighting is to be made with consideration to minimise any detrimental effect on bat roosting and foraging sites. This will include not lighting up adjacent hedgerows and woodlands immediately adjacent to the works.	Construction Team
Working near protected species (Badgers)	Ecology & Biodiversity	Impact: Disturbance or damage to badgers	Badgers have not been identified at the Spine Road and Western Gateway Phase 1 Site, however should any badgers inhabit the site before or during the proposed works then the following measures are to be followed. An updated badger survey was undertaken by WSP in 2024 which did not identify any evidence of badger on the Site or within 30m of the Site. Habitats on the Site are suitable for the creation of setts, commuting and foraging.	Construction Team

Environmental Aspect	Environmental Category	Environmental Impact and Risk	Control Measure to Mitigate Risk and Realise Opportunity for Improvement	Who is Responsible for the Control Measure
			Any temporarily exposed open pipe systems should be capped in such a way as to prevent badgers gaining access as may happen when contractors are off site. Badgers and other mammals can quickly move into and out of areas on site, creating new holes or setts that could be impacted by the works. Therefore, prior to the start of any earth works on site, any change to the number and status of mammal holes on and adjacent to the site will be checked. If any new mammal holes are observed or if the existing mammal holes show signs of mammal use, an SQE should be consulted prior to any works that may impact the holes or associated tunnel networks. As badgers can be subject to persecution from illegal badger baiting activities, details of the sett locations on site should remain confidential and should only be revealed on a 'need to know basis'.	
Working near protected species (Reptiles and Amphibians)	Ecology & Biodiversity	Impact: Disturbance or damage to reptiles and amphibians	Reptiles and amphibians (potentially including Great Crested Newts) have been previously identified at the Spine Road and Western Gateway Phase 1 site. Reptiles have not been identified on site in the latest survey (see Appendix H - Reptile Report). However, because viable habitat remains as part of the site mitigation measures must be adhered to. Reptiles and amphibians likely to be found on site are to be identified and communicated to construction staff via a poster / briefed as part of site induction. Where clearance of suitable grassy or ruderal vegetation is unavoidable, precautionary methods of clearance should be used including a toolbox talk, supervised strimming and soil stripping in phases and in a directional manner to the south, during the active season (indicatively March to September / October inclusive). Upon completion of the vegetation clearance, a destructive search should take place under ecological supervision as outlined in Appendix B. Any reptiles found during the habitat manipulation and destructive search will be captured by hand and released into adjoining retained and protected habitat (i.e. the railway sidings). Features that may be used by reptiles for hibernation such as tree roots, stumps, hedgerows, rubble and brash piles must be removed under ecological supervision, by hand, during the active season (March to October, inclusive). Disturbing reptiles during hibernation causes a high risk of death to individuals. Summer clearance of hibernation features should be undertaken by hand, with any reptiles discovered being removed and moved to suitable retained habitat within the Survey Area by a suitably experienced ecologist. Should any reptiles or amphibians be found, the supervising ecologist would advise on what action is required including translocation of animals to appropriate receptor sites. Where required by Natural England any translocation can only occur under appropriate licenses. Amphibian / Reptile presence / activity surveys were carried out in September / October 2024. The results of these surveys will inform any reptile and amphibian management programme and are included in Appendix H.	Construction Team
Works near nesting birds	Ecology & Biodiversity	Impact: Harm or disturbance to nesting birds and their habitat, loss of biodiversity Risks: reputational damage,	<u>Normal / Abnormal:</u> Avoid works in nesting season (March to September inclusive) / pre-construction nesting bird survey / check structures prior to nesting season and remove nests / use bird deterrents (passive reflective measures only) / Vegetation clearance and removal of suitable habitat should be confined to outside the nesting season and any regrowth suitably controlled. Consideration must also be given to controlling the habitat of ground nesting birds (e.g. skylarks and lapwings). Where works cannot be conducted outside the nesting bird season, they	Construction Team

Environmental Aspect	Environmental Category	Environmental Impact and Risk	Control Measure to Mitigate Risk and Realise Opportunity for Improvement	Who is Responsible for the Control Measure
		negative publicity, prosecution, fines, delay to works	should only be conducted after a SQE has checked the area and found it to be free of nesting birds / If nesting birds are found to be present at any time, a buffer (as defined by a SQE) must be created around the nest in which no works take place until the chicks have fledged /consult ecologist if works unavoidable to agree working methods and mitigation measures / obtain appropriate licences from regulator (Natural England) for disturbance or relocation <u>Emergency:</u> Utilise warning signs to warn project team of nesting birds / stop work if nests are identified and contact environmental advisor or ecological specialist	
Works near Sensitive Invertebrates – Worms and Arthropods.	Ecology & Biodiversity	Impact: Harm or disturbance to nesting birds and their habitat, loss of biodiversity Risks: reputational damage, negative publicity, prosecution, fines, delay to works	Sensitive Invertebrates have not been specifically identified at the Spine Road and Western Gateway Phase 1 Site. However, invertebrates form a major food source for other sensitive fauna and maybe adversely affected by construction works. Methods to protect their habitat will match those designed to protect reptiles etc. Field margins and hedges remain as suitable habitat / corridors for invertebrates. Exclusion fencing can be installed adjacent to the site / compound fencing to prevent access to the site for invertebrates. Receptor sites (as close as possible to the SRWG1 site) should be identified, e.g. Ancient Woodlands provide preferential habitat for Stag Beetles and other large terrestrial invertebrates. Any areas identified as suitable habitat likely to be disturbed by the construction works should be subject to fingertip searches and/or destructive searches carried out under licence by SQEs. Phased vegetation removal to allow natural dispersal of invertebrates should occur under direction of a SQE prior to the commencement of any fingertip / destructive searches. Any large invertebrates captured during the destructive searches are to be transferred to the previously identified receptor site. Exclusion fencing maybe installed post translocation / capture so that it will be considered unlikely that residual large invertebrates may remain on the site within suitable habitat. Where possible aforesaid vegetation clearance, searches and installation of exclusion fencing is to occur in the appropriate season. Residual large invertebrates are also likely to be present in features such as log piles and rubble piles. Residual aquatic invertebrates are likely to be present in features such as ponds, ephemeral water bodies and wet meadows. Where possible, these features should be retained until the invertebrate active season, when they can be dismantled / removed under ecological supervision. If it is not possible to retain these features, they should be hand searched by a SQE and removed under a suitable licence obtained from Natural England if required. Should any large or sensitive invertebrate species be found, the supervising ecologist would advise on what action is required including translocation of animals to appropriate receptor sites. Where required by Natural England any translocation can only occur under appropriate licenses.	Construction Team
Working near invasive species (Signal Crayfish)	Ecology & Biodiversity	Impact: Harm or disturbance to native fauna and their habitat, loss of biodiversity Risks: reputational damage, negative publicity, prosecution,	Signal crayfish may be present in the ordinary water courses adjacent to the site. They are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). As such it is an offence to release or to allow the escape of this species into the wild. A SQE should provide a Tool Box Talk prior to any works to or near the riverbank or watercourses. The Tool Box Talk should include: • how to recognise a signal crayfish; • what to do if a signal crayfish is found during works; and	Construction Team

Environmental Aspect	Environmental Category	Environmental Impact and Risk	Control Measure to Mitigate Risk and Realise Opportunity for Improvement	Who is Responsible for the Control Measure
		finest, delay to works	• Precautions to minimise the risk of spreading crayfish plague.	
Working near protected species (Otters and Water Voles)	Ecology & Biodiversity	Impact: Disturbance or damage to Dormice	Otters and Water Voles have not been previously identified at the Spine Road and Western Gateway Phase 1 site.; however, the potential for them to pass through the site via the Emm Brook has been identified. Works within or immediately adjacent to these watercourses are to be assessed by a suitably qualified ecologist before commencing so that suitable access through the site for otters and water voles can be maintained. No night work should take place to avoid disturbance to otter when they are most active; Open excavations should be kept to a minimum across the whole Site and covered overnight or fitted with a means of escape to prevent otters or other animals becoming trapped by means of ramped access / egress. These should be inspected every morning to ensure no animals have fallen in. Pipes stored on site should also be inspected. Any water course crossing points (i.e. bridges or culverts) associated with the Scheme should be designed to limit otter vulnerability to road traffic by creating dry otter underpasses and otter-proof fencing to allow otters a safe passage through the works area and direct them to a safe crossing point.	Construction Team
Working near invasive species (Himalayan Balsam)	Ecology & Biodiversity	Impact: Harm or disturbance to native flora and their habitat, loss of biodiversity Risks: reputational damage, negative publicity, prosecution, fines, delay to works	Himalayan Balsam has been identified within the riparian zone of the proposed works area (Flood Zone 3). And identified downstream in the Emm Brook. This is an annual plant and the seed maybe present in the existing soil and borne in by annual floodwaters. To control Himalayan balsam we will focus on preventing seed production. This can be achieved through a combination of methods, including cutting, pulling, herbicide application, and biological control. Cutting should be done below the lowest node to prevent regrowth, while pulling removes the entire plant, including the root system. Herbicides can be used, but must be applied at the correct time and with Environment Agency approval. Soil to be stripped within areas of Himalayan Balsam will be kept stockpile within site boundaries and segregated from other stockpiles to prevent spread. This topsoil will be reused to reinstate the areas within the contaminated areas after construction. Any excess seed bearing soil not to be kept on site is to be removed from site under controlled conditions to an appropriately licenced landfill facility.	Construction Team
Working near invasive species (Japanese Knotweed)	Ecology & Biodiversity	Impact: Harm or disturbance to native flora and their habitat, loss of biodiversity Risks: reputational damage, negative publicity, prosecution, fines, delay to works	A stand of Japanese Knotweed has been identified adjacent to River Emm Brooke outside the site red line boundary. No works are proposed within the vicinity of the Japanese Knotweed. The Japanese Knotweed area will be fenced off and warning signs and to be regularly monitored during the works to ensure that there is no incursion by the Japanese Knotweed into the works.	Construction Team

4.4 Vegetation and Arboriculture

Tree and Vegetation removal is to occur as part of the construction works. The extent of the vegetation to be removed is shown on the site drawings. Retention of as many trees and vegetation (primarily hedgerows) as possible is a priority of the project. All opportunities to retain trees and hedgerows will be taken and are clearly shown in the Arboricultural Method Statement within Appendix J. The project will appoint an arboriculturist to perform regular inspection audits and reporting to ensure all tree and hedge protection measures are being adhered to, as well as to be available to provide specialist support should any unforeseen tree issues arise during the construction process. Tree and vegetation will only be removed outside of bird nesting season and under the supervision of the Ecologist. The site trees and hedgerows will fall into the following categories.

Trees and Hedgerows scheduled to be removed – Trees and hedgerows to be removed will be inspected by a suitably qualified ecologist prior to being soft felled. Potential bird or bat roosts and nest features will be identified and investigated prior to felling. Any trees showing potential bat roosts have been inspected and are identified within Appendix H - Ecology Plans and Reports, along with method of felling required. The ecologist will inspect any potential Bat Roosts within the trees by MEWP or climbing and confirm works can continue. Previous Bat Surveys indicated no activity but potential roosts and if any evidence of Bats are found, then will be referred back to Natural England for licence.

Trees and Hedgerows scheduled to be reduced – Trees and hedgerows to be reduced will be inspected by a suitably qualified ecologist prior to being pruned. Potential roost and nest features will be identified and investigated prior to felling. Any trees or hedges that have been determined as roosts or habitat for protected animal species will be removed under licence from Natural England. Where the reduction has been scheduled to accommodate visibility splays for temporary site accesses then only the minimum number of branches is to be removed from the tree canopy and hedges will be reduced to a minimum height of 600mm above ground level.

Trees and Hedgerows scheduled to remain where works will occur within the root protection area – Works are to be avoided if possible within root protections area however should such works prove unavoidable, they must be as limited as possible and will only occur following consultation with a suitably qualified arboriculturist and the methods described within the Appendix J - Arboricultural Method Statement. Tree protection measures are to be installed as per the direction of the arboriculturist.

Trees and Hedgerows scheduled to remain in close proximity to the works - Where trees are in close proximity to the works and / or there is a risk of site traffic encroaching into the root protection area then the following measures shall be implemented:

- Identification of at-risk trees and hedgerows will be continuously reviewed during the construction process.
- Protection of trees and hedges to be retained in proximity of works will be protected in accordance with BS 5837:2012
- Tree, Hedge & Ground Protection incorporating Root Protection Areas (RPAs) shall be established using Heras fencing to delineate Construction Exclusion Zones (CEZs).
- Locations of required Tree & Hedge Protection Fencing are detailed in Appendix J – AMS and Tree Protection Fencing Drawings.

- No work shall take place within CEZs without the prior authorisation of a suitably qualified arboriculturist.
- Clear signage shall be placed on all fencing surrounding the protected tree / hedge area. The fencing shall be regularly checked, and any areas found to be of poor quality or damaged shall be repaired or replaced immediately.
- All site personnel shall be made aware of the presence and purpose of CEZs during the initial site induction and this shall be reinforced throughout the duration of the works through regular toolbox talks.

Trees and Hedgerows scheduled to remain distant to the works - Where trees are not in close proximity to the works and / or there is very little likelihood of site traffic approaching the root protection area then signage and indicator fencing (stakes and bunting tape or similar) are to be installed to establish a line at least 1m from the RPA. This fencing is to be of a kind as to not create an entanglement hazard for fauna. All site personnel shall be made aware of which areas are not to be entered within the induction and this shall be reinforced throughout the duration of the works through regular toolbox talks. This type of fencing is to be installed in order to reduce the amount of Heras fencing required on site.

The significant arboriculture aspects identified for this project are as described in the following table and will be communicated in the Site Induction:

Environmental Aspect	Environmental Category	Environmental Impact and Risk	Control Measure to Mitigate Risk and Realise Opportunity for Improvement	Who is Responsible for the Control Measure
Working next to Trees scheduled to remain.	Ecology & Biodiversity	Impact: Harm or disturbance to native flora, fauna and their habitat, loss of biodiversity. Particularly damage to branches and roosting sites, root severance and ground compaction. Risks: reputational damage, negative publicity, prosecution, fines, delay to works	Trees scheduled to remain are to be found across and at the periphery of the site. These trees are to be protected throughout the works. This protection will consist of the following. • Fencing is to consist of braced Heras panels as described in section 4.18 • Fencing is to be located a minimum distance of 1.5 times the spread of the tree canopy + 1metre or 12 times the diameter of the tree trunk measured at 1.5m above ground level + 1 metre from the trunk of the tree (whichever is greater). • Where the fencing cannot be kept at this distance each circumstance is to be assessed by a suitably qualified arboriculturist and fencing established to suit. • Groups of trees can be fenced together. Signs declaring 'Tree Protection Area – Keep Out' or similar are to be attached to the fencing.	Construction Team

4.5 Dust and Air Quality

Construction results in increases in vehicles and plant on and off-site, which in turn increases particulate matter and nitrogen dioxide levels, which can be detrimental to human health.

Mitigation measures to be applied are as follows (specific mitigation measures will be included in individual activity risk assessments and method statements):

- Ensure that the engines of all vehicles and plant on site are not left running unnecessarily. No idling vehicles or Plant on site.
- Should any emissions of dark smoke occur (except during start up) then the relevant machinery should be stopped, and any problem rectified before being used.
- Requiring that plant will be well maintained, with routine servicing of plant and vehicles to be completed in accordance with the manufacturer's recommendations and records maintained. Balfour Beatty Daily and Weekly Plant check sheets to be completed prior to use of any plant or equipment.
- Siting fixed plant away as far away from sensitive receptors as possible, minimising where possible the use of diesel or petrol powered generators and instead using mains electricity or battery powered equipment.

Whilst exhaust fumes from machinery and plant will produce odours in their direct vicinity associated with internal combustion engines, the nature of the works and associated construction activities are not alike to industrial processing and as such no odours will be created through the works alike to a recycling plant/centre or a sewage treatment works. Further to this, the burning of materials for disposal is inhibited.

Construction activities have the potential to generate dust emissions, which can affect the surrounding areas and facilities, as well as ecological and hydrological receptors within the typical dust soiling threshold radius of 100m. In addition, the transfer of debris off site can affect local roads surrounding the site, and residential and commercial receptors alongside these.

- Avoid the siting of dust creating activities and material storage / handling sites in close proximity to sensitive receptors where practicable.
- All vehicles carrying loose materials (aggregates/ waste) must be sheeted at all times.
- Use of water suppression during activities which have the likelihood to create dust e.g. use of mobile bowers to dampen haul routes.
- Cutting and grinding works: all cutting and grinding operations to be conducted in ways to reduce risk of dust migration e.g. wet cutting techniques, use of water suppressed tools and equipment.
- Fires and bonfires: these will be prohibited on site.

For all works, Balfour Beatty shall undertake routine dust monitoring on a weekly basis. This forms part of the weekly site checklist for visible signs of dust emissions and deposition originating from the site to ensure the adequacy of the mitigation measures being employed.

Activities which have been identified of having a high risk of creating dust, Balfour Beatty shall perform visual monitoring of airborne dust daily. A weekly record of such visual observations made, together with weather conditions and any actions taken shall be kept on site – Weekly Check sheet will be the basis for recording this information.

High wind speeds and inclement weather conditions can increase the propagation of dust. Activities which have an increased risk of causing dust nuisance (e.g. earthworks / breaking / cutting) during periods of high winds will be monitored and restricted or the mitigation level increased.

The significant atmospheric aspects identified for this project are as described in the following table and will be communicated in the Site Induction:

Environmental Aspect	Environmental Category	Environmental Impact and Risk	Control Measure to Mitigate Risk and Realise Opportunity for Improvement	Who is Responsible for the Control Measure
Dust and Air Quality	Operations	Impact: human respiratory health impacts / dust, causing nuisance for local community, causing staining to existing buildings and structures Risks: failure to fulfil compliance obligations, reputational damage, negative publicity, costs of cleaning, possible prosecution and fine.	Normal / Abnormal: Site haul roads and stockpiles so that they are not adjacent to sensitive receptors. Turn off all plant when not in direct use. Background and operational dust and air quality monitoring and control is to be addressed within specific site activity ITPs and RAMs. Refer to Chapter 4 of the Environmental Statement to access background and predicted air quality information. Refer to section 4.6 for possible further control and mitigation measures. Typically, on site sampling using PM10 real time monitors at site boundary adjacent to works where practicable. Acceptable controls for atmospheric dust may be that it remains within the following prescribed 8 hr total exposure limits. Typically, 10mg/cm ³ (inhalable dust) 4mg/cm ³ (respirable dust) and 6mg/cm ³ (inhalable dust) 2.4mg/cm ³ (respirable dust) for amorphous silica. <u>Emergency:</u> n/a	Construction Team

4.6 Water Resources

The Spine Road and Western Gateway Phase 1 site is primarily arable farmland. Any rainwater run-off on site is expected to remain and soak away on site. Temporary rainwater attenuation measures (e.g. balancing ponds, temporary drainage) may be required to ensure that any rainwater run-off stays on site, such attenuation will be designed using Balfour Beatty's temporary works management system and then approved by the Project Temporary Works Co-ordinator. There is potential for direct impacts on ordinary water courses and an EA Main River (Emm Brook) as a result of runoff of suspended sediment, leakage or accidental spillage of oil/chemical/fuels and pollution arising during construction entering the watercourse.

There is a buffer zone covering the areas contained within 8m of the banks of the Emm Brook. Activities within this buffer zone will be limited with no storage of any materials permitted. This is to allow the transient movement of otters and wildlife through site. The Buffer zone is to be demarcated using suitable fencing. No refuelling of plant, storage of materials or spoil will be stored or stockpiled within 8m of watercourse or within Flood Zone 3.

Any works occurring within 8m of watercourse or within Flood Zone 3 will be subject to a Flood Risk Activity Permit (FRAP) issued by the Environment Agency. Controls and methodologies detailed in the FRAP are to be

strictly adhered to. Details of FRAPs are further described in Section 3.4 of this document. See Appendix M - Construction Methodology for SRWG1 FRAP for full details and controls methods.

Storage of Materials within the Flood Zones may only be permitted if additional approved flood mitigation measures have been agreed with the Environment Agency.

Control and management of potential pollution sources along with response to pollution incidents is further detailed in Section 5 of this document.

The following mitigation measures should be applied where appropriate:

- Provide spill kits.
- Minimise silty runoff generation, isolate silty runoff from surface water systems and treat it.
- Wash down of vehicles must only be undertaken in designated areas isolated from the surface water system.
- In the event of an emergency, if it is necessary to discharge contaminated water to a drain, then it will be discharged to foul sewer not a surface water sewer, controlled via the Balfour Beatty Permit to Discharge System.
- Where wash water is to be routinely discharged to the foul sewer, then consent to discharge trade effluent' will be required from the appropriate regulatory body.
- Locate chemical stores and machinery greater than 10m away from watercourses.
- Containers will be leak-proof and kept in a safe and secure area from which they cannot leak, spill or be open to vandalism.
- All fuel bunds to be double-bunded.
- The containers will be protected by temporary impermeable bunds with a capacity of 110% of the maximum stored volume. Areas for transfer of contaminating substances will be similarly protected.
- All refuelling, oiling and greasing will take place above drip trays or on an impermeable surface which provides protection to underground strata and watercourses and away from drains. Vehicles will not be left unattended during refuelling. Refuelling activities to be in accordance with the Balfour Beatty refuelling procedure and PVMP. If bowsers are to be used for refuelling, then the bowsers will carry spill kits.
- Stationary plant is to be internally bunded or fitted with drip trays, plant nappies or similar.
- It is intended to only use concrete delivery vehicles with enclosed chutes capable of clean out at source (batching plant) however where it is required to clean out concrete wagons or skips containing wet concrete mixes, a designated area must be made available clear of watercourses or drainage systems so that the cement content does not enter water systems or block or blind drainage networks. This area may require an impermeable surfacing to prevent seepage into underlying soils.
- All foul water from onsite washroom/welfare facilities will be disposed to the public foul sewer with the necessary discharge consent or be removed off site and disposed of appropriately.
- The significant potential pollutant risks identified for this project are as described in the following table and will be communicated in the Site Induction:

Environmental Aspect	Environmental Category	Environmental Impact and Risk	Control Measure to Mitigate Risk and Realise Opportunity for Improvement	Who is Responsible for the Control Measure
Working on banks of a watercourse or ditch	Ecology & Biodiversity	Impact: Water pollution from silt / oil pollution from use of vehicles / loss of biodiversity Risks: possible fine, prosecution, clean-up costs, reputational damage	Normal / Abnormal: Hand dig riverbanks where possible / avoid use of heavy machinery / spill kits on site / avoid work on bank of watercourse where possible Emergency: Stop work Permits required as per Section 3.4	Construction Team
Spillage of diesel through damaged tank or drips	Material use & storage	Impact: Contamination of ground / ground water / surface water / damage to habitats / disposal of spill kits and hydrocarbon contaminated waste Risks: costs of disposal, waste exceeding hazardous waste landfill acceptance criteria, reputational damage, prosecution, clean-up costs	Normal & Abnormal: Provision of spill kits / use of drip trays / maintenance of tanks and bunds Emergency: Stop work / refer to project environmental plan / utilise emergency response contractor if significant spill which can't be dealt with in-house	Construction Team
Storage of fuel & oil	Material use & storage	Impact: Contamination of ground / ground water / surface water / damage to habitats / disposal of spill kits and hydrocarbon contaminated waste Risks: costs of disposal, waste exceeding hazardous waste landfill acceptance criteria, reputational damage, prosecution, clean up costs	Normal / Abnormal: Double skinned fuel tank / tank & associated pipework within bund / drums stored on spill pallets / locked tank / use of drip trays or plant nappies / concrete hard standing / bund maintenance / spill kits / pollution incident plan / drainage plan / regular inspections of fuel storage areas / store fuel away from watercourse / availability of spill kit materials to deal with large spills Emergency: Refer to project environment plan. Utilise emergency response contractor if significant spill which can't be dealt with in-house	Construction Team
Cleaning & washing of plant, equipment and work areas	Operations	Impact: Depletion of natural resources, runoff of liquids into drains/watercourses without consent causing pollution / global warming / climate change Risks: Reputational damage, negative publicity, fines, prosecution, clean up costs	Normal / Abnormal: Implementation of an environmental management plan / invasive species management plan in place where applicable / implementation of grey water recycling facilities / obtain environmental permit or consent for discharging to watercourse / sewers Emergency: Stop work and seek professional advice	Construction Team
Concrete washout	Operations	Impact: Pollution to water / pollution to ground / damage to flora and fauna / loss of biodiversity Risks: Reputational damage, negative	Normal / Abnormal: designated area for wash out away from drains and watercourses / use concrete washout skip / vehicle to return to concrete depot for washout / waste to be removed by licensed waste contractor / use of concrete	Construction Team

		publicity, fines, prosecution, clean up costs	sock <u>Emergency:</u> Stop work	
Refuelling of plant and vehicles	Operations	Impact: Depletion of natural resources / global warming / climate change / contamination to watercourses / contamination to land / impact on ecology Risks: cost of fuel, cost to the business, prosecution, clean up costs Opportunities: Use of electric vehicles and battery operated plant	<u>Normal & Abnormal:</u> never leave plant/vehicles unattended when refuelling / use of drip trays or plant nappies / availability of spill kits / clean up any spills or leaks / report spills and leaks into iSMS regular inspections of refuelling areas / availability of spill kit materials to deal with large spills <u>Emergency:</u> In the event of a significant spill which can't be dealt with in-house, utilise emergency response contractor.	Construction Team
Vehicle washing	Operations	Impact: Depletion of natural resources / global warming / climate change / unauthorised discharge to sewer or surface water / negative impact on ecology / biodiversity loss Risks: failure to fulfil compliance obligations, reputational damage, negative publicity, possible prosecution and fine.	<u>Normal / Abnormal:</u> use designated wash bays only including third party wash bays at garages / ensure trade effluent discharge consent in place / ensure consent conditions are being met / no jet washing in undesignated areas <u>Emergency:</u> Security personnel and CCTV on high risk sites.	Construction Team
Compliance with legislation / compliance with Balfour Beatty reporting procedures	Reporting	Impact: Incidents don't receive adequate response Risks: Negative publicity, reputational damage, fines, prosecution Opportunities: Build good working relationship with regulators by self-reporting	<u>Normal & Abnormal:</u> All environmental incidents and near misses recorded on iSMS / BB legal team to be consulted if required <u>Emergency:</u> UK Environment Team to be consulted	Construction Team

4.7 Heritage

It is not anticipated that any works within the construction scope will impact any heritage assets. If any situation or works activity arises which may impact any of the surrounding heritage areas, then suitable mitigation measures shall be implemented, and a detailed sequence of works shall be produced and included/appended to this document. The Project Manager (Wokingham Borough Council) shall be contacted and informed prior to the undertaking of any works.

4.8 Archaeology

There is potential for direct impacts on buried archaeological features as a result of excavation activities. Areas of archaeological significance have been identified that could be affected by the works have been identified at the Spine Road and Western Gateway Phase 1 site. They are to be investigated in accordance with an approved Written Scheme of Investigation (WSI) This document has been issued for acceptance and will be included in Appendix G . An archaeological watching brief may also be maintained during the topsoil stripping works required to create the compound area. Any potential archaeological finds are to be investigated as detailed within the WSI.

If archaeological remains are found after main construction works have begun then the Responsible Person will carry out the following: -

- Stop work immediately in the area.
- Mark the area to avoid further disturbance
- Protect the find by fencing/blocking it off;
- Inform the Project Lead immediately.

4.9 Fire Management

A Fire Risk Assessment & Fire Safety Plan will be produced for the site. It will include:

- A description of the methodologies to be used to help prevent fires on site e.g. Hot Works Permits, Reducing the requirements for cutting on site, hot works exclusion areas etc.
- A detailed plan showing the location of all fire detection, fire alarm and firefighting equipment both within the site compounds and buildings as well as on site. The plan will also detail emergency escape routes and assembly points.
- Mains Fire Hydrants are located on Easthampstead Rd, Finchampstead Rd, and the Tesco Superstore. There locations are detailed in the Fire Safety Plan.
- Protocols to be followed upon the discovery of a fire on site.

The burning of rubbish or other materials on site without the prior written consent from the appropriate authority is strictly prohibited. All necessary measures (including employment disciplinary measures) will be made to enforce this rule.

4.10 Excavation, Piling, Ground Conditions, Contamination and Hazardous Materials

Excavation

Excavation is intended to be kept to the minimum required to carry out the works. Excess excavation produces additional waste both in terms of excess spoil for disposal, but also requires additional materials and activity during backfill works.

Excavation for the installation of drainage, ducting and utilities, formation of the road box and construction of reinforced concrete structures will be designed using Balfour Beatty's temporary works management system and then approved by the Project Temporary Works Co-ordinator.

Excavation and Filling operations will be controlled by Work Package Plans, Risk Assessments and Method Statements prepared for that section of works. The works will be carried in accordance with the relevant section of the Contract Specification.

Temp sheet piles will be installed using an excavator with mounted Vibro Hammer from the working platform. The vibro hammer has a steady build up to the max vibration frequency of the side grip pile driver. Works will be limited to normal working hours only between 8am to 6pm.

No spoil is to be stored / stockpiled in areas subject to Flood Zones 2 and 3. Spoil may only be stockpiled within these areas if additional approved flood mitigation measures have been agreed with the Environment Agency subject to a Flood Risk Activity Permit.

Piling

The Emm Brook Bridge is to be supported by a single row of piles at each abutment. Each abutment pile group comprises a single row of six 1200mm diameter piles. Each abutment is flanked by two wing walls, all of which are orientated at 45° to the abutment.

Due to the orientation of the Emm Brook to the bridge, each of the wing walls are of differing length and are supported by a different number of piles, although all comprise a single row of 1200mm diameter piles. Control measures (including, bunding, sheeting etc.) are to be in place during all piling works to segregate any arising material and ensure that there is no contamination of adjacent areas and water channels etc. Where there is potential for piling works to adversely affect groundwater, then monitoring wells or similar are to be installed in order to monitor the level and quality of the groundwater.

Pile foundations shall be constructed using either bored cast in-situ or CFA techniques. All piles shall be constructed under the direction of an experienced and competent engineer with adequate experience in the construction and recording of pile installation using the proposed method.

Restrictions on noise, vibration levels and hours of working are to be in accordance with the requirements of Wokingham County Council (WCC) as advised by the Principal Contractor. (See section 4.2 Noise and Vibration)

Piling works are to be managed and controlled by an in-depth Works Package Plan (WPP) which will provide details of all the environmental controls that will be in place during the piling operations.

Ground Conditions

The receptors potentially at risk from ground conditions, contamination and hazardous materials include construction workers; site neighbours (residential, education, commercial and amenity areas in the vicinity of the development); as well as ecological and hydrogeology and hydrology of the site and its surrounding area.

Ground investigations have been conducted prior to the commencement of any works and formulated reports and risk assessments which have been provided to Balfour Beatty during the Pre-construction stage. The reports dealt indicate that no significant contamination is expected within the Balfour Beatty scope of works. Prior to commencing works site and task specific method statements and risk assessments will be carried out which will outline the use of PPE and if necessary, any other measures if any unexpected contamination is to be encountered during the works.

Control Measures in the Event of Unknown Contamination Being Encountered

Where unexpected contamination is encountered, work in the area of concern should be halted. The incident will be reported to the Balfour Beatty Project Manager, who will in turn report this in writing immediately to WBC.

The Balfour Beatty Project Manager will contact a suitably qualified specialist to investigate. Construction work cannot then re-commence until an amended investigation and risk assessment, and where necessary, a remediation strategy detailing how this unsuspected contamination shall be dealt with, has been submitted and approved by WBC. Remedial works shall then be undertaken, and works can re-commence. Following completion of measures identified in the approved remediation scheme a verification report demonstrating completion of the works, and which outlines the effectiveness of the remediation, shall be submitted to and approved in writing by WBC.

4.11 Material Resources and Waste Management

Balfour Beatty shall follow the principles of the waste hierarchy, outlined below, is a fundamental principal to waste management on site and is the responsibility of all personnel and supply chain members to implement.



Figure 4-1 Waste Hierarchy

4.12 Waste Disposal

Waste will be disposed of in conjunction with our legal Duty of Care requirements.

Hazardous and non-hazardous waste will be stored separately and where possible non-hazardous waste will be segregated on site.

Hazardous wastes include, but are not limited to the following:

- | | | |
|--|---|---|
| <ul style="list-style-type: none">• Oils and fuels• Chemicals e.g. solvents• Batteries• Paints• Fluorescent tubes• Tar containing products. | } | <ul style="list-style-type: none">• ALL COSHH• ALL items marked with hazard symbols• Wastes with an *EWC code |
|--|---|---|

Non-Hazardous Waste

Prior to ANY waste movements the following needs to be checked:

- Waste Management Permit – does the destination site have a permit and is the permit valid (within date and is able to accept the waste stream leaving site).
- Waste Carriers Licence – these can be checked online: <https://environment.data.gov.uk/public-register/view/index> . To be checked prior to ordering waste removal
- A Waste Transfer Note (WTN) has been fully and correctly completed – to be checked on site at time of disposal.

The above are the responsibility – Balfour Beatty Environmental Management Representative & Project Manager

Balfour Beatty WTN books are available from the Environmental Management Representative. Only one book will be issued at any one time. These must be completed even where the waste carrier has their own version of the WTN.

Four copies of a WTN will be distributed as follows. This provides evidence that the waste ends up at the designated destination.

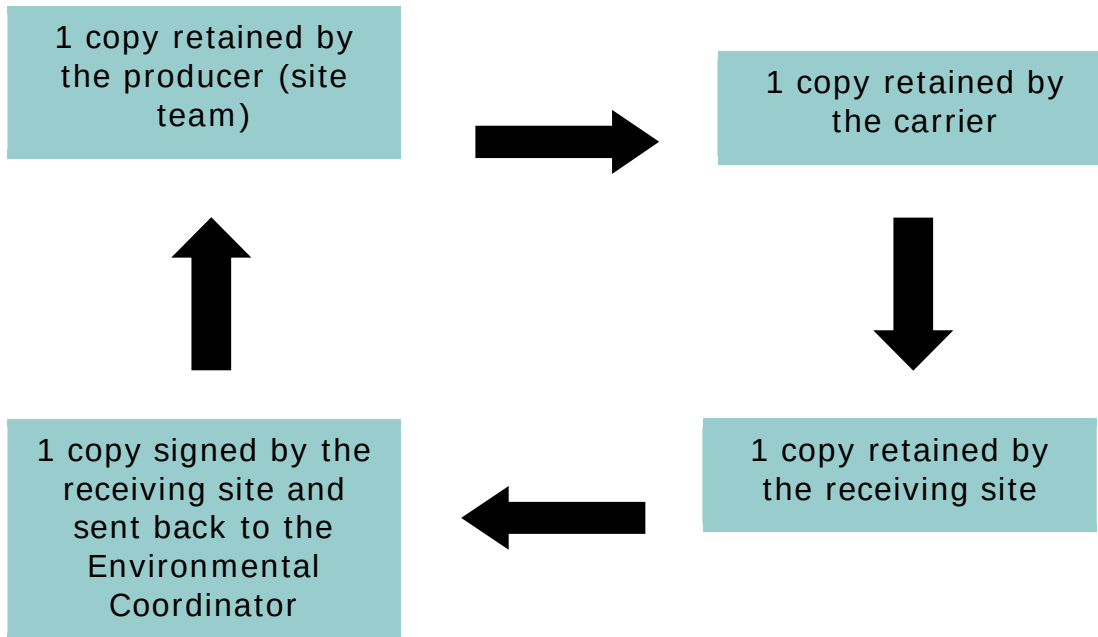


Figure 4-2 Waste Transfer Note Distribution

All completed WTN books to be handed back to the Environmental Co-ordinator who will check the book to ensure the WTNs have been fully and correctly completed and issue a replacement book.

A copy of the Duty of Care WTN must be kept electronically within project register for 2 years as the Environment Agency can ask to view completed Waste Transfer Notes at any time during that period.

Assistance on EWC codes can be found within the WTN books and here:

<http://wastesupport.co.uk/ewc-codes/>

Hazardous Wastes

The same pre-disposal checks apply to hazardous waste as they do for non-hazardous waste with the exception that movements of hazardous waste are subject to a 'Consignment Note' under the Duty of Care requirements.

Due to the specialist nature of the waste, Consignment Notes from contractors will be accepted.

Only the Site Foreman, Environmental Management Representative or a named, authorised person shall complete and sign off Consignment Notes

Four copies of the Consignment Note will be produced (as described in the previous section).

Copies of the Consignment Note must be returned ON THE SAME DAY to the Environmental Management Representative

Consignment Notes should be retained electronically on Project Register for 3 years.

Wastes Control Measures

- Waste contractors will be sourced through Reconomy.
- Early set up of contract with National Community Wood Recycling Project or alternate scheme
- 'Just-in-time' procurement to minimise the chance of damage to materials.
- Arrange take back schemes with suppliers for excess materials and/or packaging e.g. specify use of Euro code pallets.
- Review packaging requirements where possible to avoid, reduce and reuse.
- Engage with suppliers to discuss waste take back options.
- Procurement of sub-contractors on the basis of services and materials package to encourage waste minimisation
- Limit use of materials coatings where possible
- Consider end of use for all materials – can they be recycled easily e.g. into component parts.
- Identify and plan use for potential waste streams e.g. use of wood offcuts to protect pillars during works phase.
- Design of temporary works to minimise material use
- Plan for segregated materials storage areas
- Identify and plan use for potential waste streams e.g. use of wood offcuts to protect pillars during works phase.
- Effective skip management - well signed, easy access, regular call offs
- Waste training for environmental champion and operatives.
- Ensure deliveries are correct before accepting them on site.
- Clear identification of contaminated land segregation area
- Do not mix materials e.g. soils should be segregated from road pavement arising's if necessary, by use of barriers. This will facilitate maximum re-use and minimise disposal.
- Construct temporary works with easy deconstruction and material re-use in mind e.g. use of screws rather than nails to fix timber.
- Regular waste management checks
- Training & regular feedback to site team e.g. posters
- All skips and bins are to be appropriately signed. Signs should indicate waste type and relevant European Waste Code (EWC).
- The hazardous waste skip shall be covered. Operatives are to inform the site foreman when this skip is nearing capacity so a call off can be arranged.
- All works materials should be stored in a controlled manner to prevent damage or spoiling e.g. off the ground.
- Waste oils will be stored in compliance with the Oil Storage Regulations. The containers will be in good condition and be banded to 110% of the biggest container capacity or 25% of the total stored capacity whichever is the greater.
- The following will be segregated on site:

- Metals
- Surplus materials, plant and equipment suitable for reuse.
- Hazardous waste
- General uncontaminated construction and demolition waste.
- Office waste (separate bins for recyclable waste and canteen waste)
- Electrical waste. A separate bin will be required for fluorescent tubes (as required)
- Wood waste
- Waste oils

Operational controls - office

- Segregate recyclable waste e.g. paper and plastics from food waste (bin colours)
- Publish waste returns information.
- The following waste will be segregated in the office:
- Recyclable wastepaper, cans and plastics
- Canteen waste – food
- ‘Household’ batteries (AA, AAA etc.)

Subcontractor liaison

All subcontractors will be required to facilitate the implementation of this plan, and this will be defined during tender. Subcontractors will be expected to implement the waste hierarchy, provide evidence that they comply with Duty of Care requirements by providing Waste Transfer Notes, and review their waste arisings throughout the project.

Waste Training

Training is provided through a variety of channels to all site personnel through the site induction, TBTs and posters and briefing notes.

The significant waste management risks identified for this project are as described in the following table and will be communicated in the Site Induction:

Environmental Aspect	Environmental Category	Environmental Impact and Risk	Control Measure to Mitigate Risk and Realise Opportunity for Improvement	Who is Responsible for the Control Measure
Transfer of waste and disposal	Waste	Impact: global warming and climate change / potential use of waste carrier without valid waste carriers licence / potential use of disposal sites without the correct environmental permit, exemption or equivalent / increased costs if local disposal and recycling sites not	Normal / Abnormal: Review disposal options prior to commencement / segregate waste materials as they are generated / identify reclaim and reuse materials where possible / dispose of materials in accordance with duty of care / ensure licensed waste carriers are used / segregate all hazardous and non-hazardous waste for disposal / do not landfill liquid hazardous waste / prioritise recycling. Emergency: None	Construction Team

Environmental Aspect	Environmental Category	Environmental Impact and Risk	Control Measure to Mitigate Risk and Realise Opportunity for Improvement	Who is Responsible for the Control Measure
		utilised Risks: Increased cost to business Opportunities: View waste as a resource and prioritise reuse		
Transport of waste by third party	Waste	Impact: human health impacts / global warming / noise, dust and traffic congestion causing nuisance for local community / potential to use supplier without waste carriers licence / potential for waste carriers licence to be revoked / potential for disposal sites to be utilised which don't have environmental permits or exemptions in place Risks: failure to fulfil compliance obligations, lack of control over disposal sites utilised	<u>Normal / Abnormal:</u> use approved waste carriers where waste carriers' licence and disposal site licences have been approved prior to use / obtain waste transfer note and retain for 2 years <u>Emergency:</u> Approve new waste carriers and sites prior to use	Construction Team

4.13 Energy & Carbon

The process of producing energy has a major impact on air quality and produces harmful greenhouse gases such as carbon dioxide. The UK Government has set specific targets to reduce carbon dioxide emissions and is encouraging energy saving in the construction industry. The purpose of this section is to detail the management strategy that will be implemented in order to minimise energy consumption and carbon emissions from this phase of the works.

Reduction in carbon forms a key commitment as part of UK Construction Strategy, is associated with management of key environmental management issues such as waste and can be seen as a proxy for effective commercial management.

Energy & Carbon Control Measures

In order to achieve targets Balfour Beatty will implement a number of energy saving measures across the programme.

Design and specification.

- Off-site prefabrication to reduce waste and associated HGV miles.
- Local procurement of materials and sub-contractors to reduce vehicle delivery miles.
- Suppliers take back schemes to eliminate waste e.g. hollow cell concrete slabs, thinner wearing course
- Optimise designs to minimise concrete, paving and steel usage and minimise materials arising's with an associated reduction in transport requirements

Vehicle and plant use

- LED lighting
- Use energy-efficient equipment on site where possible and cost-effective.
- Site staff will be required to switch all plant and equipment off when it is not being used, including lighting.
- Traffic marshals will remind delivery and collection vehicles to switch off when idle.
- Supervisors will ensure all equipment is well maintained, therefore improving energy performance. An equipment check schedule and associated records will evidence this.
- Double handling of materials and waste will be avoided where possible, through pre-planning of delivery lay down areas and set up of dedicated storage areas.
- Efficient driver training – arranged through plant manufacturers/ suppliers.
- Implementation of the sustainable transport hierarchy

Office use

- 'A' grade energy efficiency rating for all equipment.
- Turning off PCs and monitors when out of the office.
- Using efficient heating and cooling systems in the office.
- Door closers on all external doors
- Installing thermostatic control to all heating control systems

- Installing lighting

4.14 Traffic and Transport

- 1) Wokingham Borough Council and Balfour Beatty Project Managers will liaise with both Wokingham Borough Council and Bracknell Forest Borough Council concerning the Traffic Management for this project.
- 2) Traffic management will be required for the duration of the work programme. Access to the site will only be via the allocated, signed access points.
- 3) Copies of the current site plans can be found in Appendix F of this document and include Site Access Points, Site Compounds and Parking, Proposed site Roads.
- 4) The site is to be fenced according to the principles defined in section 4.18 of this document. It is anticipated that the site office, parking and stores areas as shown on the plan are to be fenced off from other site areas by either a timber hoarding or post and chain link fencing.
- 5) Safety and low-level flood lighting is to be employed in the immediate area surrounding the site office, parking and stores areas. It is intended that low power LED lighting be utilised. Vehicle mounted lights and tower lights will be utilised for task lighting as and when required. It is intended that low emission; low noise LED tower lights are to be utilised where possible within the scheme.

Site Roads

- 1) Dust on site and on site-roads is to be mitigated according to the principles defined in section 4.5 of this document. A site speed limit of 15mph will be in force on all site roads. Where and when necessary, in order to reduce dust, a tractor and towed bowser will be utilised to wet down the site roads. Earthworks stockpiles are also to be wetted down as far as practicable in dry and windy conditions.
- 2) The layout and construction details of the Site Compound Access Bellmouths, Site Access Haul Roads, Temp Bridge Crossing of the Emm Brooke and the Working Platform for the new Emm Brooke Bridge are included within the Site Plans (Appendix F). The alignment of the site haul roads has been chosen following a review of the haul route against the tree protection plans and minor changes have been made to the haul route to avoid additional tree and hedgerow loss resulting in positive benefits to the scheme. All topsoil (approx. 400mm thick) will be removed, and the haul road and working platforms built up as designs show in Site Plans (Appendix F) and covered in the ES Addendum for discharge of Condition 14 (Dec 2024) & 66439-TN03_P1_Issue, so that end up level with or no more than 300mm higher than the original ground level depending on CBR values of sub soil. Where the haul route sits within Flood Zone 3, 4no 150mm diameter pipes will be installed at 20m intervals across the haul road to allow the water to flow across in the event of flooding events.

Traffic and Pedestrian Management

- 1) Any works within the highway will occur within approved TM.
- 2) A TTRO will be placed on Easthampstead Rd between the level crossing and south of the tie in with the proposed link road, reducing the speed limit to 30 mph for the duration of the works. An additional TTRO will be placed on Easthampstead Rd from Phase 5 of the construction works

between the level crossing and the tie in with the newly constructed link road closing this section of Easthampstead Rd (access for residents only). This will remain in place for the remaining duration of the works up to the implementation of the TRO concerning the closing of this section of the road. Copies of the Forward Plans for TTROs are included in Appendix L of this CEMP. Copies of the TTROs and associated plans (when obtained by the construction team) will be included in Appendix L in subsequent issues of this CEMP.

- 3) Footpaths and Public Rights of Way through the works will be maintained as safely practicable throughout the works. Any and all Footpath diversions will be maintained to a standard as to minimise the risk of slips, trips and falls on any temporary surface. Any diversions or temporary closures of Public Rights of Way are to be discussed and agreed between the construction team and the WBC Public Rights of Way Officer before they can be implemented. Footpaths and Public Rights of Way through the works are intended to be diverted / temporarily closed / closed as follows:
- From November 2024 as part of the Phase 1 works Footpaths FP9 I & FP 24 I will be temporarily closed and diverted south to Ludgrove School Rd via FP10 II. These footpaths will remain closed until the completion of the works approx. 18 months.
 - From November 2024 as part of the Phase 1 works Footpath FP25 II will be permanently closed between Finchampstead Rd and the Wokingham Equestrian Centre. This footpath will be replaced by the new footpaths constructed as part of the proposed highway works for Western Gateway Phase 1.
 - From March 2025 as part of the Phase 2 works Footpath F10 II will be temporarily diverted approximately 25m west to allow for culvert installation and construction of the proposed highway. It will revert to its original alignment following completion of the highway works in Phase 6 (Spring 2026) approx. 18 months.
 - From Spring 2025 as part of the Phase 3 works Footpath FP5 I between Britton's Farm and Easthampstead Rd will be locally diverted around the works as required. It will reopen on its final design alignment as part of the Phase 5 works (Winter 2025-2026) approx. 18 months.
- 4) New permanent speed limits as approved through planning will be introduced upon completion of the works. These lie outside of Balfour Beatty's scope for the Spine Road and Western Gateway Phase 1 Project.

Construction Accesses

1. To enable the construction of the new highway, 5 temporary bellmouth access tracks will be required to be built to allow construction traffic to access and egress the site and haul roads.
2. All accesses will be assessed for the safe entry and exit of a maximum 4-axle rigid HGV as well as smaller delivery vehicles and concrete wagons.
3. The Bellmouth standard detail on drg CRXSS076-BBR-00-XX-DR-W-0002 within Appendix F, details the construction make up of the Bellmouths. Due to the existing utilities services within the verges and footways, a 300mm reinforced concrete slab will be placed from the carriageway for min width of 6m spanning and protecting any services.
4. 4no of the access points are positioned within the redline boundary and on the alignment of the carriageway footprint and within the tree and vegetation site clearance corridor for the scheme.

The last bellmouth access is required off Heathlands Road into the SANG area and requires some hedgerow clearance. All areas are included within the scope of Ecology Surveys and Tree Impact Plans within Appendix H - Ecology Plans and Reports, Appendix I - Site Clearance Plans & Appendix J - Arboricultural Method Statement.

5. A level survey will be carried out at each access and the bellmouth will shape to discharge surface water runoff into adjacent grips and ditches and not onto highway. Any ditches that run along verge and edge of carriageway will be cleared for 20m either side of entrance and a piped ditch crossing will be constructed as detailed on drg CRXSS076-BBR-00-XX-DR-W-0003 within Appendix F, to allow the construction of the bellmouth access slab.
6. As part of the TTRO application and Roadspace bookings, a 30mph speed limit will be in place on all roads and temporary traffic lights will be installed to allow the safe exit of vehicles onto the highway and plant crossing point at Easthampstead Road
7. Traffic Management will be required to construct each access and TM plans and roadspace bookings will be discussed and agreed with the Streetworks Team.
8. The location of the proposed access points are as follows:
 - a. Finchampstead Road Bellmouth Access: Allows access into properties of 76 & 76A Finchampstead Road. There is extensive tree and vegetation clearance in this area as per Drg WMHP-TG-SRWG1-DR-HI-0201 in Appendix I. The existing drainage ditch along the PROW is to be diverted as part of the main construction works to allow the widening and construction of new embankment. This entrance will be used mainly for light vehicle access and the initial tree and vegetation removal. A few low loader movements will be required for delivering large excavators for the construction of the temporary Emm Brooke River Crossing and allow access for earthworks deliveries from the Easthampstead Road.
 - b. Easthampstead Road East and West Bellmouth Access: Allows access into the fields to the east and west of Easthampstead Road and the construction of the internal haul routes as shown on drg CRXSS076-BBR-00-XX-DR-W-0001 within Appendix F and site plans SWDR Enabling Works – Sheet 1 to 6. A plant crossing will be installed to allow construction plant and deliveries to access site via William Heelas Way and Peacock Lane and along the haul road crossing Easthampstead Road at the Plant crossing to access the western half of site and across the temporary bridge to Tesco earthworks area.
 - c. Easthampstead Road South: This access will sit on the alignment of the new carriageway opposite Heathlands Road within the area of vegetation and tree clearance required to construct new junction of the Croudace Link and Heathlands / Easthampstead Road. This is required for transporting materials to Plot R11 as part of the scheme.
 - d. Heathlands Road: This access is positioned within the redline boundary and a small section of hedgerow, approx. 35m, will need to be removed to allow access into the SANG. As part of the Licence Agreements with Ludgrove School the Scheme is not allowed to transport material across the Ludgrove Road and requires this access to transport acceptable material reused from the SANG excavation within the scheme. A few low loader movements will be required for delivering large excavators and dumper trucks for the excavation of the SANG but primarily will be large number of 8 wheel road tipper wagons moving the material along Heathlands Road and up Easthampstead Road and back into site to the east or west as required. Some material will be moved through the Easthampstead South Entrance and into the R11 Plot.
9. As the works progress, the temporary bellmouth accesses A,B & C will be removed and the new carriageway will be constructed across these areas. When the works in the SANG area at bellmouth D are completed the haul roads and concrete bellmouth will be removed and the ditch and area reinstated. Any hedgerow removed will be replanted as part of the landscaping for the scheme.

Transport around Site

- 1) Where it is safe and practicable to do so works are to be arranged so that personnel can access their specific work areas on site by walking. Otherwise, personnel can be taken to their work areas by the site minibus or pick-up. Tools, equipment, and materials are to be delivered by the site pick-up as required.

Deliveries

- 1) All heavy deliveries to site will be via either:
 - 1) the A329(M), London Rd, William Heelas Way, and the new Eastern Gateway Roundabout.
 - 2) the A329(M), Berkshire Way, Peacock Lane, Waterloo Rd, and the new Eastern Gateway Roundabout.
 - 3) Some early deliveries are required from Finchampstead Road via the A329(M), London Rd, Peach St, Broad St, Station Rd, Wellington Rd and Finchampstead Rd, avoiding travelling along Denmark Street and through main town centre, until the temp river crossing is installed across the Emm Brooke and deliveries can continue from William Heelas Way.
- 2) Appendix L provides the bulk delivery schedule relating to the scheme (subject to programme development and site progress). This indicates that the peak level of construction traffic travelling to / from the site will occur in May to Aug 2025, anticipated as an average 5 vehicles per hour, across a ten-hour working day. The impact of the operation at the junction of William Heelas Way and Waterloo Rd (Proposed Route 1 described above) or at the junction of Peacock Lane, Old Wokingham Road and Waterloo Road (Proposed Route 2 described above) following the addition of construction traffic is reflective of the low level of traffic during the construction period, and therefore no interim junction improvements are considered necessary to accommodate the works.
- 3) It is considered that the capacity of the above junctions (Proposed Routes 1 and 2 – see figure on pg 50) will continue to be sufficient to accommodate the 5 vehicles per hour that would be expected during the peak construction period as has been practically demonstrated via the successful construction of the Eastern Gateway Project.
- 4) Deliveries may only be made during site operating hours. Delivery vehicles will not be permitted to stand in the public highway in the vicinity of the site compounds outside of site operating hours. The main site gates will remain open during operating hours within an internal boom gate controlling access to site. The boom gate is to be situated far enough from the public highway such that all deliveries can pull off the public highway before gaining access to site.
- 5) Except for programmed bulk deliveries (e.g. Piling, Structural Concrete, Bridge Beams, Embankment Fill, and Road Pavement Works) large HGV deliveries (articulated lorries or rigid lorries with a gross vehicle mass greater than 18 tonnes) will wherever possible be made outside peak hours 08.00-09.00 and 17.00-18.00.

Construction works are to be managed such that peak deliveries for different construction elements do not coincide.

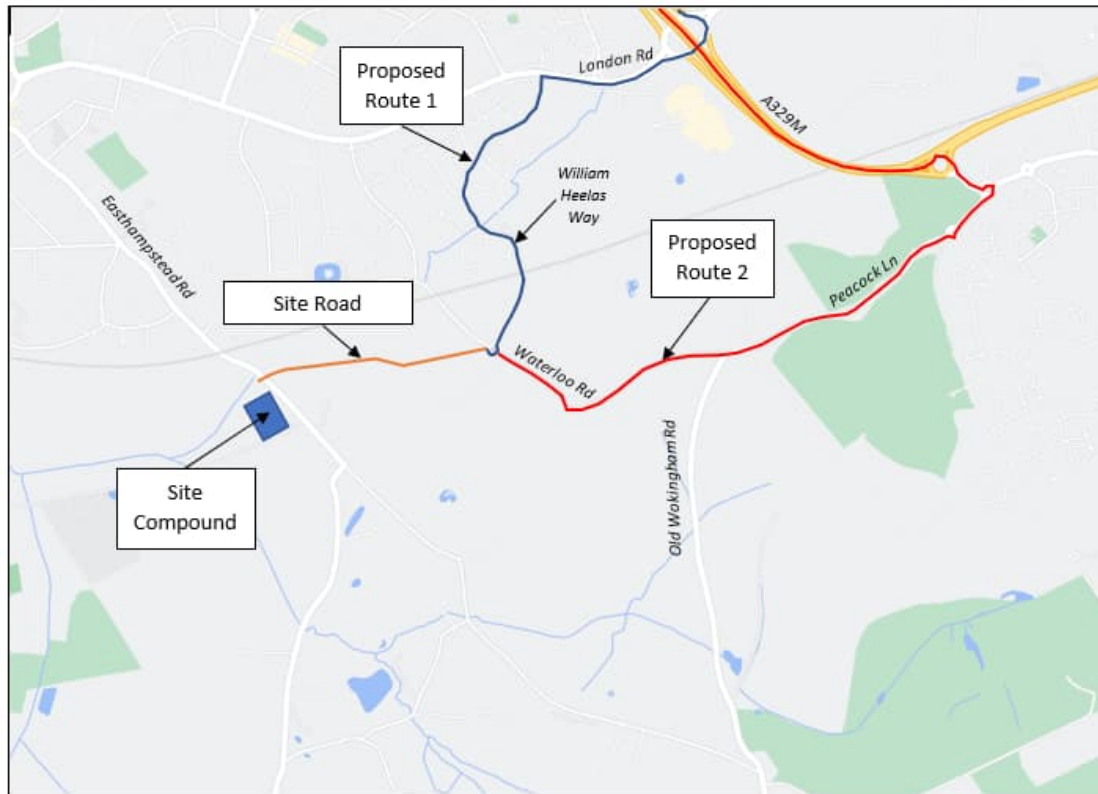
- 6) All deliveries through Montague Park (William Heelas Way - Proposed Route 1) are to avoid the Floreat Montague School peak hours of 08.00-09.00 and 15.00-16.00.
- 7) Traffic marshals will be employed to prevent any excess traffic build up on the public highway. Wherever possible, deliveries should be managed and not wait on the highway. Space will be maintained within the site boundary to ensure that all deliveries can be marshalled off the road prior to unloading.
- 8) Materials are to be scheduled for delivery to site such that they arrive on site in a timely fashion as required by site activities.
- 9) The majority of loading/unloading and storage of plant and materials will take place in the confines of the proposed site compounds.

Workforce Travel Plans

1. Construction workforce Green travel plans will be prepared by the lead contractors, through engagement with the relevant subcontractors and highways authority, with the aim of encouraging the use of sustainable modes of transport to reduce the impact of workforce travel on local residents and businesses.
2. Objectives to support these aims will include:
 - a. effective management of construction worker traffic to minimise damage to the environment, impact on the surrounding road network, danger to road users and disturbance to neighbouring properties; and
 - b. the introduction of measures to reduce single-occupancy car journeys by staff working on construction sites through the encouragement of car sharing, minibuses, use of available public transport and cycling and walking to work where reasonably practicable
3. An average of up to 60 construction workers are forecast to be on site during peak times during the construction period. The main offices will have 60 spaces and a temporary car parking area for 30 spaces (including spaces for minibuses) off Easthampstead Road, will be provided on the site within a contractor's compound. Parking will therefore be contained within the site and no unnecessary parking will occur on the local highway network. The location of where staff will travel from is unknown at this stage as it will depend on the appointed contractor. However, a number of the non-local workforce will stay at local accommodation and general operatives will be transported to the site by minibuses to minimise the impact on the local highway network. The number of car trips to the site will be minimised to those senior staff such as project managers, supervisors and the Health and Safety Managers
4. Appendix L provides the construction staff vehicles relating to the scheme (subject to programme development and site progress). This indicates that the peak level of construction staff travelling to / from the site will occur in May to Aug 2025, anticipated as an average 4.3 construction staff vehicles per hour, across a ten-hour working day. The impact of the operation at the junction of William Heelas Way and Waterloo Rd (Proposed Route 1 described above) or at the junction of Peacock Lane, Old Wokingham Road and Waterloo Road (Proposed Route 2 described above) following the addition of construction traffic is reflective of the low level of traffic during the construction period, and therefore no interim junction improvements are considered necessary to accommodate the works.

5. It is considered that the capacity of the above junctions (Proposed Routes 1 and 2) will continue to be sufficient to accommodate the 4.3 construction staff vehicles per hour that would be expected during the peak construction period as has been practically demonstrated via the successful construction of the Eastern Gateway Project.

Prescribed HGV / Delivery Routes – Preferred Construction Traffic Routes



Wheel Cleaning and Monitoring of Surrounding Roads

- 1) A jet wash / mechanical wheel wash is to be deployed adjacent to any site exits. All Lorry and vehicle wheels are to be inspected for and will be cleaned of mud before being allowed to exit the site. Should any mud be deposited on the highway by project plant or vehicles, then a sweeper lorry will be deployed to clean the road surface.
- 2) Surrounding Roads are to be regularly monitored so that any detritus originating from the construction can be removed with the street sweeper. Before works commence, a joint condition (dilapidation) surveys will be completed by the site construction team and WBC Highways Maintenance representative such that they can be monitored for any damage that may have arisen from deliveries and construction traffic.

Please note that the site plan and traffic management plan will be updated regularly as the project progresses. Up to date site plans will be generated and issued by the construction team with subsequent resubmissions of the CEMP submitted to WBC for approval.

Green Travel Plan

Balfour Beatty is committed to reducing the environmental impact and the carbon footprint associated with the Spine Road and Western Gateway Phase 1 Project. A Green Travel Plan is a dynamic process, evolving and changing over time to reflect Balfour Beatty as a business, Balfour Beatty's employees and Balfour Beatty's premises. It provides an opportunity for Balfour Beatty to promote sustainable transport and will cover the following elements:

- Commuter journeys
- Business travel
- Visitor travel
- Deliveries and subcontractors travel
- Fleet vehicles
- Working practices.

Objectives

The purpose of this Green Travel Plan (GTP) is to:

- Ensure compliance with all applicable National and Local Travel Policy Guidelines and promote the use of sustainable transport;
- Ensure Conformance with the Company Environmental Policy Statement – including all associated Balfour Beatty standards and procedures;
- Achieve Company Objectives & Targets (Construction Phase Plan Appendix Q);
- Improve opportunities for and encourage travel by sustainable modes and to reduce unnecessary travel; and
- Raise awareness of the Travel Plan for staff and visitors.

In addition to the reduction of the company's carbon footprint, Balfour Beatty would expect to gain additional benefits:

- A reduction in risk to employees through the reduction of journeys
- A reduction in car parking provisions that may decrease the cost of parking against the project
- Cost reductions for employees and the organisation through the reduction of car journeys
- Quality of life improvements for staff related to reduced congestion and stress and improved health and motivation
- Demonstration to our clients and local communities our commitment to reduce the impact of travel on air quality, congestion and the reduction in the use of natural resources

Management Commitment

Travel is a major contributor to the Balfour Beatty carbon footprint. As an organisation Balfour Beatty is committed to reducing our overall carbon footprint as far as possible. This is reflected in our corporate sustainability policy.

Every premises where Balfour Beatty employees travel to and from should complete a Green Travel Plan and commit to objectives and targets to reduce the carbon footprint associated with travel. Progress is effectively managed and reported through the section 4 of this GTP.

Transport options

Pedestrian Access

The Spine Road and Western Gateway Phase 1 Project bridges an existing commercial development (Tesco) and a rural 'green fields' environment. There are paved pedestrian access to the proposed main site compound from the north along William Heelas Way. There is no paved pedestrian access to the proposed satellite compound. There are public footpaths (rights of way) near the site, but these are not paved. All pedestrian access into site will be via a segregated pedestrian access route.

Cycling

There are no designated cycle routes to any part of the site or to the proposed site compounds. Cycle access to site will be by via the public highway only. Cycle parking will be provided and lockers/showers/changing facilities will be made available for employees using active modes of travel.

Bus links

A bus stop for the No. 4 and X4 services is located on London Road outside the Three Frogs Public House. It is approximately 1200m walk from this bus stop to the main site compound. Easthampstead Road is serviced by the No. 124 bus route north of the railway line. A bus stop is located on Rances Lane near its junction with Waterloo Rd. It is approximately 600m walk from this bus stop to the main site compound.

Rail links

There are no train stations within walking distance of the Spine Road and Western Gateway Phase 1 site. Access to the site compound from either Wokingham Train Station or Bracknell Train Station may be made via the bus services listed above. The site minibus will be made available to pick up passengers from either station as required.

Journey Sharing/Car Sharing

Balfour Beatty personnel are to be encouraged to share car journeys wherever practicable. Mini-bus sharing schemes will be encouraged for personnel and subcontractors travelling to site from lodgings within close proximity of each other. Car sharing will be encouraged.

Motorcycles

There will be parking provided at the main compound for the following number of motorcycles / scooters.
2no. Car Space (8no. motorcycles).

Driving

There will be parking provided at the site compounds for the following number of cars.
60no. Car Spaces, 6 no. disabled space, 6no. EV recharging points at the main compound.
30no. Car Spaces at the satellite compound.

Employee Survey

Evolving the plan will involve the collection of data. A travel survey (found in Appendix K) will form the basis of updates to the GTP and will identify the travel behaviour and patterns of the individuals involved. The survey will provide measurable results, which will enable the creation of targets. Targets can be completed once two rounds of surveys have been completed.

Roles and Responsibilities

The key roles and responsibilities for the Green Travel Plan

Responsible Person	Duty
Project Manager	• Responsible for Contractual requirements with regard to Green Travel • Ensuring sufficient resources are available to implement this plan effectively • Assist the Environmental Coordinator with implementation of the plan.
Environmental Coordinator	• Assist the Project Manager with implementation of the plan
Traffic / Logistics Manager	• Ensure that the 'greenest' mode of delivery/collection is used
Site Manager	• Ensure that the plan is communicated to all new starters through induction
All Staff	• Responsible for complying with this plan

Monitoring and Review

Every six months the GTP champion will carry out a survey on the site to determine whether any changes have taken place, review against the baseline and make recommendations for the site to improve travel options which reduce environmental impact. An example of the questionnaire to be used as part of the survey is included in Appendix J of this document.

4.15 Visual Amenity

Balfour Beatty intends to install fencing and hoarding where appropriate to secure the various project sites and to maintain public safety. Balfour Beatty will instigate a programme of maintenance and regular inspection to ensure that all site fencing remains secure and in good condition.

Balfour Beatty will consider and adopt suitable mitigation measures, where appropriate, to reduce track-out of material and to keep the site entrance and neighbouring roads as clean and tidy as possible, road sweeping plant and equipment will be utilised to maintain clean road surfaces during the works.

4.16 Pest Control

Unless controlled, vermin can impact on neighbouring properties and land. During the construction stage measures will be implemented to control vermin:

- Ensure a clean and tidy site at all times
- Correct and satisfactory stopping up and sealing of all disused drains and sewers where applicable
- Prevention of accumulation of refuse and putrescent materials
- Ensuring appropriate storage and disposal of any food waste.

4.17 Site Lighting

Lighting of the site compounds and storage areas is to be kept to the minimum required to ensure health and safety and security. Any lights are to be positioned and orientated so as to not spill light onto neighbouring habitats or residences. Interior lighting for site compound buildings is to be controlled such that it switches off automatically when not in use.

During winter months (November to March) temporary construction site lighting will be required during working hours. In addition, low level security lighting may be required.

During construction work, the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT) recommend minimizing artificial lighting near bat roosts and foraging areas, and using lower correlated colour temperature (CCT) lighting (e.g., 3000K) to reduce impact.

Temporary construction site lighting will be designed to minimise general spillage of light, which may otherwise affect residential receptors and ecological receptors (primarily bats). The following shall be implemented:

- Maintain dark corridors along retained areas of retained woodland and hedgerows along Survey Area boundaries, to ensure continued connectivity within and across the Survey Area for bats.
- Use the minimum light levels necessary for the relevant task / function, this may equate to reducing light intensity and/or using the minimum number of light sources or minimum column height.
- Use hoods, louvres or other luminaire design features to avoid light spill onto retained and newly created areas of vegetation likely to be used by foraging and commuting bats. In particular, light spill from the construction or operational phase lighting onto and all other trees with bat roosting potential should be avoided to minimise the risk of disturbance.

- Use narrow spectrum light sources where possible to lower the range of species affected by lighting, specifically avoiding shorter wavelength blue light, using instead warm/neutral colour temperature 2,700 (ideally) kelvin lighting (BCT, 2023).
- Use light sources that emit minimal ultra-violet light to avoid attracting night-flying invertebrate species which in turn may attract bats to the light.

The brightness of the lighting should also be kept as low as possible, whilst also maintaining health and safety requirements.

All site lighting requirements will be included within all task specific method statements, risk assessments and briefings prior to works commencing.

4.18 Site Fencing

Existing perimeter fencing to the site is to be utilised where possible, considering the type and condition of existing fencing; its suitability, and the proximity of the fences to the works.

Where existing fencing is not suitable, temporary fencing is to be installed. All temporary fencing is to be installed in a method approved by the Balfour Beatty Temporary Works Co-ordinator. Types of fencing intended for use on the project site are described below.

Timber Hoarding – Where applicable site compounds incorporating welfare facilities, site offices and stores, staff and contractor parking are to be securely fenced with timber hoarding.

Temporary Panel Mesh Fencing around River Emm Brooke - The proposed tree protection fencing and perimeter fencing along the river corridor is the standard anti-climb temporary Heras Fencing with support brace and block feet. The open mesh of the fencing will allow any flood water to openly flow under and through. Fencing will be checked daily to ensure no build up of debris. The gap underneath the fencing will allow small mammal to pass through the fencing.

Temporary Panel Mesh Fencing (Heras) - Heras fencing is to be used to secure the remaining site boundary where other fencing is not practicable. Heras fencing is to be doubly clipped and securely braced. Heras feet and braces are to be weighted down with sandbags or similar to ensure stability in high winds. Where there is sufficient room additional panels are to be installed so as to form triangular braced panel sections. As far as possible all bracing should be sufficiently spaced so as to maximise the stability of the fencing. Heras fencing will also be used within the site where appropriate to fence off excavations, storage areas, tree protection areas etc.

Pedestrian Barrier (galvanised steel and plastic) - Pedestrian barrier is to be used to segregate pedestrians from vehicle and plant routes. Pedestrian barrier is to be doubly clipped and securely braced with concrete Kelly blocks or similar to ensure stability in high winds. Where there is sufficient room additional panels are to be installed so as to form triangular braced sections. As far as possible all bracing should be sufficiently spaced so as to maximise the stability of the fencing. Pedestrian barrier will also be used within the site where appropriate to fence off excavations, storage areas, tree protection areas etc.

Red & White Water Filled Barrier and Pre-cast Concrete Vehicle Collision Barriers (VCBs) – Red and White barriers and VCBs are to be used in high traffic areas on site or where close proximity to plant / vehicles dictates. These barriers are only to be used on the public highway in an approved traffic management scheme. Additional proprietary approved panels may be attached to these barriers where required.

5 Pollution Incident Response

This section covers pollution incident response and reporting.

5.1 Preparing for Incidents

The following information will be included in the site induction, a toolbox talk, and be displayed in prominent places in order to assist in preparing for and responding to environmental incidents:

- Emergency instructions in the event of a leak or spillage on site, including contact details
- A plan showing the environmental features of the site
 - Existing foul and surface water drains locations, routes and directions of flow
 - Discharge points for surface and trade effluent or any on-site domestic or trade effluent treatment facilities
 - Emergency access routes
 - Location of hydrants and/or fire points
 - Location of spill kits
 - Location of bunded storage areas
 - Locations of waste and materials stores
 - Location of neighbours
 - Information on groundwater sensitivity

An up-to-date COSHH register shall be held by all contractors on site, to include the location and capacities.

The contents and capacity of the spill kits will depend on the detailed inventory of products that will be stored and handled on the site.

- Pollution response procedure diagram
- Sand bags
- Oil-absorbent granules
- Booms
- String
- Gloves
- Absorbent mats
- Shovel
- Polythene sheeting and bags

The spill kits will be clearly marked, sign-posted and held close to the area where materials are stored and handled.

5.2 Incident Response

In most cases the actions required to respond to an incident will seem obvious and common sense will prevail. However the basic response procedure detailed in the following chart should be implemented immediately.

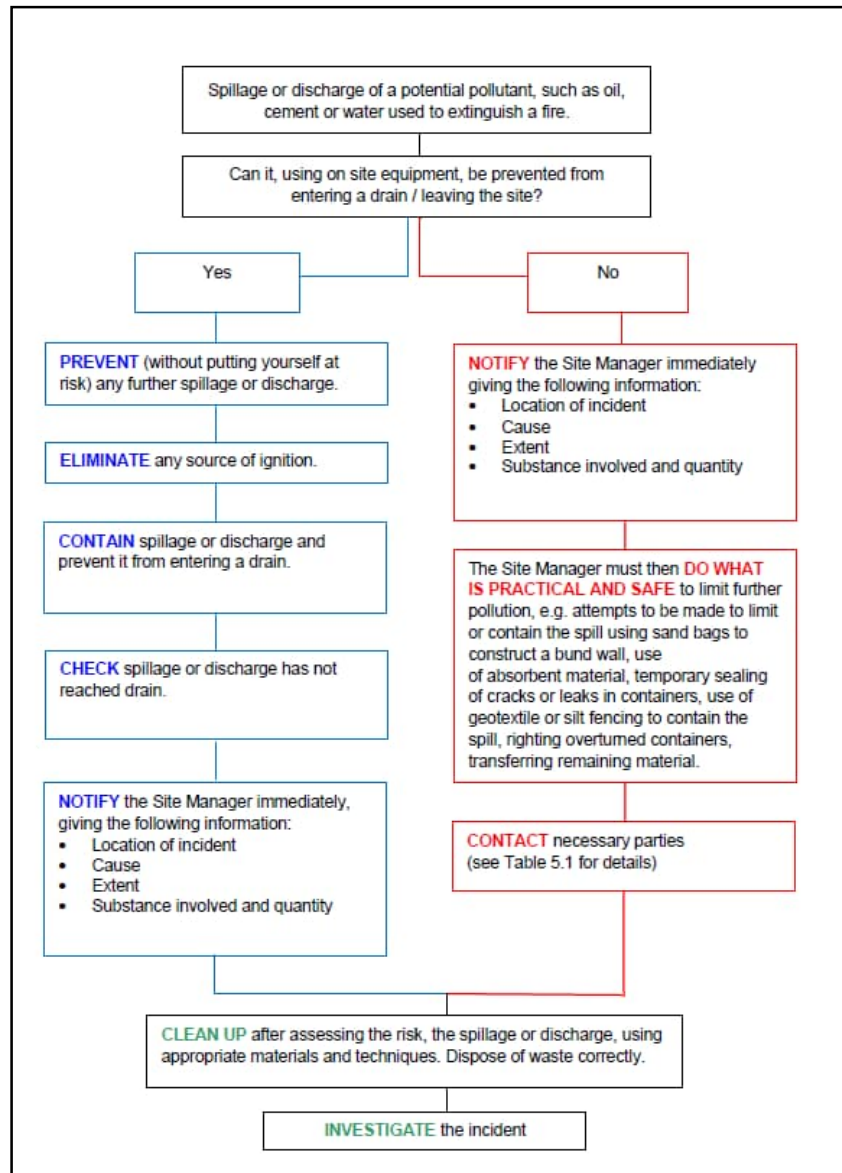


Figure 5-1 Spill Response Procedure & Incident Reporting Procedure

5.3 Incident Reporting

In the event of an environmental incident an employee shall immediately report the incident to their Supervisor and the Balfour Beatty Project Manager.

Then:

- If a spill has reached a surface water drain or watercourse, or soaked away in open ground, the Balfour Beatty Project Manager will contact the Environment Agency immediately on the 24hr helpline; and
- If a spill has entered a foul drain, and then South East Water or Thames water should be notified as soon as possible through the Balfour Beatty Project Manager.

If incidents do not fall into any precise category, or if there is any doubt, the Environment Agency should always be contacted through the Balfour Beatty Project Manager.

Emergency Contact Details

Contact	Name	Daytime telephone number	Out of hours telephone number
Portfolio Director	Matt Parkes	07892 709413	07892 709413
Project Manager	Vinay Roopun	07973 935531	07973 935531
Construction Manager	Craig Morris	07899 996034	07899 996034
General Out of Hours	Balfour Beatty Out of Hours		0800 121 4444
First Aider(s) or Appointed Person Either list here or display names on site	Craig Morris	07899 996034	07899 996034
Health & Safety Manager	TBC		
Health & Safety Advisor	TBC		
Environment & Sustainability Manager	TBC		
Client Representative	Ian Haller (WBC)		
Local HSE office	Priestley House Priestley Road Basingstoke RG24 9NW	01256 404000	01256 404000
Environment Agency	Red Kite House Howbery Park Crowmarsh Gifford Wallingford OX10 8BD	0370 8506506 (8 am to 6pm)	0800 807060 (Incident hot line 24 hrs)
	Pollution	0800 807060 (Incident hot line 24 hrs)	0800 807060 (Incident hot line 24 hrs)
Local Authority	Wokingham Borough Council Shute End Wokingham RG40 1BN	0118 974 6000	0800 212 111
Fire Brigade Royal Berkshire Fire and Rescue service	Fire Station Easthampstead Road, Wokingham, Berkshire RG40 2EH	01189 452 888	999
Ambulance	Reading Ambulance Station North St, Reading RG1 7DA	01869 365000	999
Police Thames Valley Police	Wokingham police Station The Courtyard, Denmark St, Wokingham RG40 2AZ		101 / 999
Accident & Emergency Hospital	Royal Berkshire Hospital 21 Craven Rd Reading RG1 5LE	0118 322 5111	999

Utilities contacts	Gas SGN & GTC	0800 111999 (24hrs)	0800 111999 (24hrs)
	Electricity Scottish & Southern Energy	08457 708090 or 0800 111999 (24hrs)	08457 708090 or 0800 111999 (24hrs)
	Water South East Water Thames Water	03330 003330 (SE) 08007 146 614 (T)	03330 003330 (SE) 08007 146 614 (T)
	Flood Line	03459 881188	03459 881188
Environmental Response	TBC		
Sub-contractor contacts	TBC		

Please refer to the following supporting document:

Balfour Beatty – Construction Phase Plan

5.4 Near Misses

All environmental accidents, incidents, near misses, property damage must be reported as soon as possible in accordance with the Incident Investigation and Reporting procedure (HSES-PR-0005).

All information will be captured and entered onto the Company incident database iSMS. Investigations will be undertaken by project management; however the Company HSES Advisors and Senior Line Management will assist if required and will always participate in investigating and reporting on all serious incidents. The investigation will determine the root causes and lessons learned will be identified and acted upon, with learnings shared as appropriate.

Subcontractors are responsible for investigating and reporting accidents/incidents under their control, however the Company will assist where required.

All persons onsite will be informed of the processes for accident/incident reporting through attendance at Induction, Pre-Start Meetings and/or by issue of the Subcontractors Health, Safety, Environment and Quality Conditions.

5.5 Investigating

The Site Manager will investigate all environmental incidents to determine the cause of the incident; ensure environmental harm is remedied wherever reasonably practicable; and to introduce improved preventative measures wherever reasonably practicable. The size of the investigation will be proportional to the environmental incident in question, and should be a practical tool to improve operations on site for the better. The incident report shall be submitted to the client.

Appendix A – Site Safety Tour (including Environmental Inspection)

Appendix B. Sensitive Receptors (Built Environment)

Appendix C. Sensitive Receptors (Ecological and Hydrological)

Appendix D. Balfour Beatty Environmental Policy

Appendix E. SRWG1 CL31 Programme and Construction Phase Plans

Appendix F: Site Plans

Appendix G: Archaeology Plan

Appendix H: Ecology Plans and Reports

Appendix I: Not Used

Appendix J: Arboricultural Method Statement

Appendix K: Green Travel Plan Survey

Appendix L: Bulk Delivery Schedule and Traffic Management Plans

Appendix M: Construction Methodology for Spine Road and Western Gateway 1 FRAP