CREST NICHOLSON (SOUTH)

KILNWOOD VALE, PHASE 3 DEFG

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

REPORT REF. 2107121-ACE-XX-00-RP-C-0101

December 2024

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REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
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Distribution

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1. INTRODUCTION

Overview

1.1. Ardent Consulting Engineers (ACE) has been instructed by Crest Nicholson (South) to prepare a Construction Environmental Management Plan (CEMP) to discharge Condition 33 of approved planning application DC/15/2813. The purpose of this CEMP is to set out how construction of development parcels Phases 3 D, E, F and G of the wider Kilnwood Vale development will avoid, minimise or mitigate effects on the environment and surrounding area. The development of Phases 3DEFG comprises the construction of 280 dwellings.

1.2. An overarching CEMP was produced for the whole development by Peter Brett Associates in December 2011, this can be found at **Appendix A**, report reference CEMP001. Information contained in that CEMP as well as measures put forward as part of the Environmental Statement that was completed in June 2010 are still relevant for these development parcels, Phases 3DEFG.

1.3. This report has been prepared to satisfy Condition 33 of Pre-commencement Conditions (ref. no. DC/15/2813) which states that:

"Prior to the commencement of each Phase or part Phase of the development (including Phase 1) a construction environmental management plan (CEMP) for that phase or part phase shall be submitted to the Local Planning Authority for its written approval and thereafter implemented and maintained throughout the construction period in accordance with the approved CEMP. The CEMP shall include:

- *Details of the working hours agreed with the Local Planning Authority for the implementation of the development;*
- *Details of the design and location of the construction access;*
- *Details of proposed wheel washing facilities located adjacent the construction site access;*
- *Details of an area for the storage of materials, parking for construction traffic and an appropriate turning area has been provided within the site clear of the public highway;*

- *A site waste management plan;*
- *Details of temporary utilities;*
- *How the construction will comply with the sustainable use of soils on construction sites;*
- *Details of a communication strategy to include the provision of a dedicated phone line for residents to contact the site manager directly with complaints which should be manned at all times while site works are in progress;*
- *Details of a routing agreement for the site construction traffic and HGV traffic associated with the movement of bulk material to and from the site; • Details of means of suppressing dust during the construction process to include the regime for dust deposition measurement at the site boundaries;*
- *Details of the measures to mitigate the noise and vibration from construction including those measures identified in sections 13.5.1 to 13.5.4 of the Environmental Statement; and,*
- *Details of a surface water drainage scheme for the temporary drainage of the Site. The scheme shall subsequently be implemented in accordance with the approved details.*

The scheme shall include:

- *demonstration that there will be no increase in the volume or rate of surface water runoff leaving the site for the duration of the earthworks and associated stabilisation period;*
- *measures to mitigate any increased risk of sediment entering the watercourses and groundwater;*
- *demonstration that there will be no discharge to ground that has been affected by contamination;*
- *measures for tree and hedgerow protection throughout the development programme;*

- *a detailed method statement for the removal or long-term management/eradication of measures to prevent the spread of Japanese Knotweed during any operations such as mowing, strimming or soil movement. It shall also contain measures to ensure that any soils brought to the site are free of the seeds/root/stem of any invasive plant covered under the Wildlife and Countryside Act 1981; and,*

- *a detailed method statement for the construction of bridges to be submitted within the CEMP prior to the commencement of the relevant phase or-sub-phase."*

1.4. This CEMP focuses on addressing the specific requirements of pre-commencement Planning Condition 33 for Phases 3DEFG. Following this introduction, the CEMP is set out as follows:

- **Section 2.0** provides details of the site;

- **Section 3.0** summarises the roles and responsibilities of different parties at the site;

- **Section 4.0** provides details of the proposed public relations strategy to reduce and mitigate and complaints;

- **Section 5.0** provides details of the hours of work and construction site set-up;

- **Section 6.0** summarises measures to control construction traffic to and from the site;

- **Section 7.0** provides information on the environmental measures to be implemented at the site; and

- **Section 8.0** provides a quick summary of the details contained within the CEMP.

2. SITE DETAILS

Wider Kilnwood Vale Site

2.1. The Kilnwood Vale masterplan site is located to the west of the built-up area of Crawley. The site is approximately 132 hectares and situated The wider site comprises approximately 2,500 dwellings, as well as other uses including retail and employment, a primary school, community space and open space.

2.2. The masterplan site is accessed from the A264 Crawley Road, which is located to the south of the site. The access junction is left-turn in only, with a slip lane provided from the A264. Vehicles can exit the site to the left or right. There is also an access roundabout from the A264 in the south-western corner of the site.

Phases 3DEFG

2.3. Phases 3DEFG of the wider site are located towards the west of the development. Previous phases of the development have been constructed to the south. **Figure 2.1** shows the location of the site (in blue) within the wider masterplan (red line).

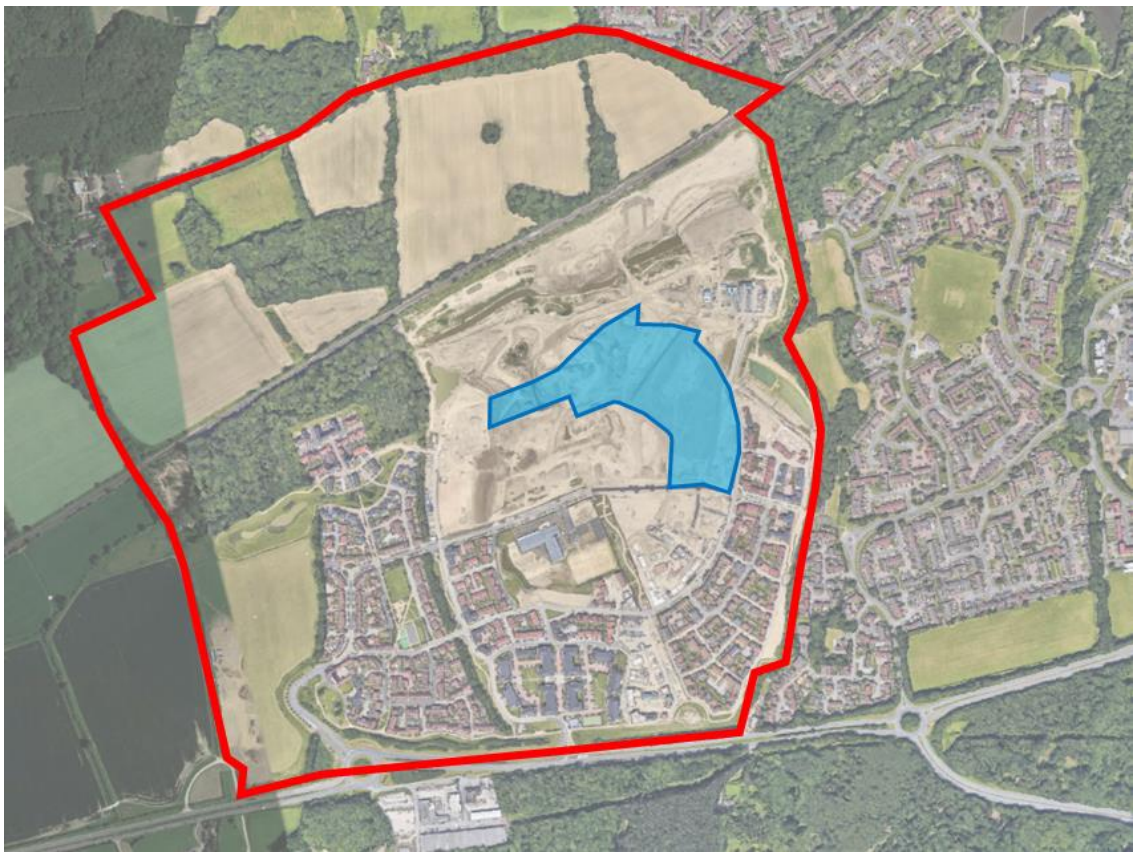


Figure 2.1: Site Location Plan

3. ROLES AND RESPONSIBILITIES

3.1. This section of the report outlines the roles and responsibilities attributed to key parties involved in the construction process.

3.2. Though there have been no changes to the roles and responsibilities for the client, principal contractor, sub-contractors, suppliers and individuals, it is prudent to include updated named contact details for Phases 3DEFG in this updated CEMP. Responsibilities for relevant parties are set out in **Section 4 of the Phase 1 CEMP**.

3.3. The client will:

- undertake overall responsibility for the CEMP and its implementation at all levels;
- will ensure that all contracts, including sub-contracts, in connection with the development Site the CEMP and oblige the parties to the contracts to adhere to the requirements set out in the CEMP including any revisions to the CEMP subsequent to the making of the contract.

3.4. The client for Phases 3DEFG of the development is:

Crest Nicholson South

Crest House

Pycroft Road

Chertsey

Surrey

KT16 9GN

Telephone: 01932 580444

Fax: 0870 336 3991

E-mail: south@crestnicholson.com

3.5. The client will also act as the Construction Environmental Manager and Site Manager.

3.6. The following requirements apply to the Principal Contractor:

- Will have a company Environmental Management Plan conforming with and certified to ISO14001;
- Maintain the CEMP and revise and update it as necessary in accordance with best practice construction management approaches;
- Enforce the requirements of the CEMP;
- Dealing with all queries and complaints from the public and local community, including maintaining a register of public comments, responding to complaints and following up on any mitigation action to be taken;
- Ensure that all staff are appropriately trained on health and safety and environmental matters;
- Review method statements and programme of training;
- Participate in liaison with the Local Planning Authority and other third parties as required;
- Employ dedicated personnel to manage the CEMP; and
- Ensure all its site personnel are inducted on the requirements of the CEMP and are aware of it.

3.7. The Principal Contractor for Phases 3DEFG is Crest Nicholson South.

3.8. The Site office address is:

Kilnwood Vale

Crawley Road

Faygate

West Sussex

RH12 4SE

Telephone: 07814 063 286 (Alistair Kettle)

Email: Alistair.Kettle@crestnicholson.com

Sub-Contractors

3.9. Sub-contracted staff present on site will be required to adhere to the requirements of the CEMP within appointment contracts. This includes working to agreed methods, plans and procedures to minimise the environmental impacts of the construction process.

3.10. Staff will be inducted by a senior site staff member on the requirements of the CEMP and will make sub-contracted staff aware of it prior to commencing any work on site.

Suppliers

3.11. Suppliers of materials to site will be contractually obliged to adhere to the CEMP. This includes methods of work and adherence to set vehicle routes.

3.12. Suppliers who provide services and temporary site staff will be required to induct staff on the requirements of the CEMP prior to the temporary work starting on site.

4. PUBLIC RELATIONS

4.1. It is important to maintain good relationships with site neighbours and avoid or minimise the impact of construction on those nearby. This section details how public relations and communication will be managed at the site to ensure a robust and effective complaints procedure is in place.

4.2. Notice boards will be posted around the site giving details of contacts in case of emergencies or regarding concerns around the development construction works. The Site Manager will be the main point of contact and will respond immediately to emergencies and within a reasonable timescale depending on the nature of the concern. Contact facilities will be available 24/7. Site Manager's contact details can be found at **Paragraph 3.8**.

4.3. Information will be provided to neighbours of the site, who will be most affected by the construction works at Phases 3DEFG. These residents will be notified by the site manager of the date of commencement of works, and be provided with contact information of the site manager for raising any complaints. This will include an out-of-hours number for emergencies.

4.4. It is the responsibility of the site manager to provide an initial response to any complaints raised. This response will be immediate if the complaint is an emergency and as soon as reasonably practical to all other complaints. If the complaint is not resolved to the satisfaction of the complainant, then it will be escalated to an appropriate individual within the Crest Nicholson management team.

5. CONSTRUCTION HOURS AND SITE SET-UP

CEMP Construction Layout Plan

5.1. A construction layout plan for Phases 3DEFG has been produced by Ardent (**ACE Drawing Number 2107121-ACE-XX-00-DR-C-0001**), this details locations of measures to manage environmental impacts of construction.

Site Working Hours

5.2. The following working hours apply to Phases 3DEFG:

- 0800-1800 Monday to Friday
- 0800-1300 Saturday

5.3. No construction works will be undertaken on Sundays and Bank Holidays.

Storage Areas for Material

5.4. Material storage areas are shown on **ACE Drawing Number 2107121-ACE-XX-00-DR-C-0001**. This will be largely within the main site compound located to the north-east of the development area.

5.5. Fuel will be stored centrally and in accordance with the requirements set out in Section 13.4 of the Phase 1 CEMP. Fuel is to be stored within the site storage compound as per the Phase 1 CEMP layout.

Satellite Compounds

5.6. During the construction period, the main site compound will be supplemented by satellite compounds. There are two locations identified for satellite compounds, both of which measure 20 by 20 metres. The locations of the satellite compounds are shown on **ACE Drawing Number 2107121-ACE-XX-00-DR-C-0001**.

5.7. The compounds are required for the storage of some smaller materials and toilet facilities for easy access when parcels more remote from the main compound are being constructed.

5.8. The satellite compounds will not be in operation simultaneously and will only be installed when required for the relevant phase. At any one time there will therefore not be more than the main compound and one satellite compound in operation.

Wheel Washing Facilities

5.9. The location of wheel wash facilities is shown on **ACE Drawing Number 2107121-ACE-XX-00-DR-C-0001**. The main site compound has no wheel washing facilities. Roads on the approach to the main compound will be fully Tarmac and the main compound itself will also be tarmac. The satellite compounds will benefit from a wheel washing facility that will be moved during the project duration depending on the satellite compound in operation.

5.10. The facilities will be in accordance with Environment Agency requirements. Upon leaving the site (as stated in Section 10.7 of the Phase 1 CEMP) every vehicle driver will be required to ensure that their vehicle is clean before leaving the site so that mud and debris are not shed onto the highway. To enforce correct use of the wheel wash facility, the Principal Contractor will undertake random inspections of vehicles.

6. CONSTRUCTION TRAFFIC MANAGEMENT

6.1. Section 12.5.5 of the Environmental Statement refers to measures regarding construction traffic. Section 10 of the CEMP for Phase 1 sets out the overall Construction Traffic Management Plan for the development site. All site personnel, visitors, sub-contractors and suppliers will be expected to abide by this Construction Traffic Management Plan.

6.2. Site access for Phases 3DEFG will be obtained from the main access to the whole site which is accessed from the A264. The routing of construction traffic in and out of the Phases 3DEFG development is denoted on **ACE Drawing Number 2107121-ACE-XX-00-DR-C-0002**. Once vehicles have exited the site to the A264, they can achieve access to the wider strategic highway network, which is appropriate for use by construction traffic and HGV traffic associated with the movement of bulk material to and from the site.

7. ENVIRONMENTAL CONTROLS

Site Waste Management Plan

7.1. The site waste management plan is a separate document and has been previously approved as part of planning consent, reference number DC/10/1612. This plan can be found at **Appendix B**.

Temporary Utilities

7.2. A temporary potable water supply will be obtained from the existing Southern water main in the northern verge of the A264.

7.3. Electricity is being supplied by the mains via an offsite connection.

7.4. Foul sewage from construction site facilities will be discharged to the public sewer via a temporary pumping station and rising main installed as part of Phase 1.

Sustainable Use of Soils

7.5. Details of the sustainable use of soils is covered in the Materials Management Plan (MMP) for the development. A copy of which can be requested from the client. The MMP has been designed to comply with the CL:AIRE Code of Practice.

7.6. The existing survey conducted as part of the Soils and Agricultural Land Classification will be augmented to include the areas of restored landfill in order to develop a Soil Resource Plan (SRP) within the MMP. The SRP will include:

- Areas of soil to be protected from earthworks and construction activities;
- The areas and types of topsoil and subsoil to be stripped; haul routes and location and segregation of temporary storage stockpiles;
- Areas and types of deep made ground to be excavated; haul routes and location and segregation of temporary storage stockpiles, to differentiate these site-won materials from re-usable soils;
- The methodology for stripping, stockpiling, respreading and ameliorating landscape soils; to reflect the soil type found on-site;

- Schedules of volumes for each material, and expected after-use for each soil type within the development; and,
- Any plans for topsoil manufacture from site won topsoils and plans for soil aftercare.

7.7. Excavation of soils will be undertaken in such a manner as to avoid cross contamination between distinct horizons. The different soil horizons will be kept and stored separately for use at a later date.

7.8. During and after excavation, storage, haulage and reuse of excavated material will be planned to minimise material movement around the site.

7.9. Where possible, excavated made ground materials will be immediately reused rather than be placed in stockpiles.

7.10. Temporary storage stockpiles will be appropriately located and designed to minimise loss of soil structure and risks of run-off into watercourses.

7.11. Stockpiles will be isolated from any surface water drains and a minimum of 50m away from watercourses. Stockpiles will include appropriate bunding to minimise any pollution risks where required.

7.12. Where the excavated material is identified to be required elsewhere in restoration works, although re-use is not imminent, specified areas within the working excavations may provide suitable temporary storage locations. However, the handling of the stored material will be kept to a minimum and appropriate drainage, pollution prevention and material stability measures will be designed prior to the temporary deposition of the material to ensure material is maintained in a suitable condition for future use.

Dust Suppression and Management

7.13. Within the Phase CEMP it was stated that the control of dust generated from the development will be generally in accordance with BRE Report 456 – Control of Dust from Construction and Demolition sites. This document is from 2003, so should be referred to in conjunction with the Guidance on the Assessment of Dust From

Demolition and Construction Version 2.2 published by the Institute of Air Quality Management (IAQM) in January 2024.

7.14. Section 11 of the Phase 1 CEMP sets out the measures that will be implemented on site to achieve control of dust. Measures to achieve this are set out below.

7.15. The layout and phasing of the site will be planned as far as possible to provide the opportunity for early tree planting and landscaping along the site boundary, particularly the eastern boundaries, to shield existing and new residential receptors from dust raising activities on the site.

7.16. Specific dust control measures will be applied close to the existing dwellings to the east and within the site, and when ongoing construction occurs close to completed new dwellings.

7.17. Dust generated from construction activities or from uncompleted construction areas, and emissions from vehicles and construction plant will be controlled as follows:

- Site planning
    - Early planting of trees and shrubs will be carried out where possible.
    - Temporary solid barriers or bunds will be erected along sensitive site boundaries or around specific areas of work.
    - A plan will be produced for each construction operation that is likely to generate significant dust or emissions that could cause a nuisance to residents or harm to wildlife or plants showing the location of the receptor affected and the proposed mitigation measures to be applied.
- Haul Routes
    - Haul roads will be of robust construction to minimise rutting.
    - Haul roads will be kept in good repair.
    - Surfaces of main long term haul routes will be sealed.
- Damping Down

- During dry spells of weather, the haul roads will be continuously kept damp by spraying using a tanker and suitable spray attachment.

- Vehicles and plant
  - All vehicles will use the wheel wash before leaving site.
  - All loads entering and leaving a site will be covered or in enclosed containers as appropriate.
  - Vehicle engines and compressors will be switched off when not in use for long periods. Plant will be located away from the boundaries close to residential areas where practical.
  - The movement of construction traffic around the site will be minimised by strategic planning of the haul routes.
- Site entrances/exits
  - As the main road into the development is required for construction access vehicle, speeds will be limited to 10mph.
- Concrete and mortar batching
  - Wherever possible, if it is necessary to do this on site, these processes will be screened off.
- Excavation and earthworks
  - All dust generating activities will be damped down during dry and windy weather.
  - Vegetation will be maintained over ground until immediately prior to earthworks operations.
  - Wherever practical open earthworks will be temporarily covered when work is not in progress.
  - Earthworks and other exposed areas will be re-vegetate at the earliest opportunity.

- Stockpiles and storage mounds
    - Excavated soil awaiting re-use will be stockpiled for the shortest practical time.
    - Wherever practical, all stockpiles will be enclosed or kept securely sheeted.

7.18. No burning of any material on-site will be permitted – refer also to the Site Waste Management Plan

Noise and Vibration

7.19. Construction methodology and choice of plant will be in line with the guidance set out in the prevailing British Standard for *'Code of practice for noise and vibration control on construction and open sites'*, which at the time of writing is BS 5228-1:2009+A1:2014. The Contractor will actively seek, where possible, to utilise methods of construction which minimise noise levels on-site. The following measures will be applied on-site as a minimum:

- Construction activities will not deviate from the hours set out within this CEMP unless otherwise agreed in advance with the local planning authority;
- Acoustic covers to engines will be applied when they are in use;
- Machinery will be positioned such that the noise impact on surrounding residential properties is minimised;
- Noise will be minimised through off-site fabrication where practicable;
- During periods of noisy construction activity (e.g. piling) temporary acoustic barriers will be placed in close proximity to the works in order to attenuate noise emissions; and
- An approved contractor will instal monitors to record noise, vibration and particulate levels adjacent to sensitive receptors during construction activities, if required.

7.20. Training of staff on the topic of noise and vibration management will be given yo ensure that personnel are aware of both the sources and effects of noise on sensitive

receptors. This will involve information on the Health and Safety at Work Act, covering:

- Proper methods of use and maintenance of tools and equipment;
- How to appropriately position site machinery and equipment in a direction to reduce noise emission to neighbouring properties;
- How to undertake localised shielding of noisy operations, if required;
- How to avoid unnecessary noise when carrying out manual operation and when using mechanical plant, with particular focus on switching off mechanical plant when not in use; and,
- The reasoning for restrictions on hours of operation.

7.21. The Site Manager will take responsibility for the control, management and mitigation of noise on site. This will include the handing of complaints, as set out in **Section 4.0** of this CEMP. The Site Manager will also be responsible for ensuring that all personnel on site are appropriately trained in the implementation of noise mitigation measures.

Water Environment

Temporary Surface Water Drainage During Construction

7.22. Surface water runoff during construction will be conveyed to settlement ponds via a combination of cut off ditches, swales and pumping where gravity flow to the ponds is not achievable. These measures will limit and remove suspended solids and other pollutants contained in the runoff.

7.23. The Principal Contractor will regularly inspect the construction phase surface water management methods to monitor performance both from a quantity and quality perspective. This inspection will take place weekly and after any heavy rainfall events.

Measures for Tree and Hedgerow Protection

7.24. Measures to protect trees and hedgerows on the site are indicated on the approved planning drawings for the whole development. Specific measures to be employed are set out in Appendix A of the Phase 1 CEMP.

Japanese Knotweed

7.25. Japanese Knotweed has been recorded locally on the development site. Details of these areas can be found in Appendix H of the Phase 1 CEMP. This infestation was sprayed by the landowner in Autumn 2011.

7.26. If Japanese Knotweed and other invasive species are found during construction remedial works will be required. Plants will be treated. in situ via excavation, segregation, and removal of all viable rhizome in the soil by a specialist contractor.

7.27. The contractor is required to comply with the following legislation and guidance relating to Japanese Knotweed and all other invasive species as listed in the Schedule 9, Part 2 of the Wildlife and Countryside Act:

- Section 14(2) of the Wildlife & Countryside Act 1981: and
- Knotweed Code of Practice.

7.28. Section 9.15 of the Phase 1 CEMP gives guidance on steps the contractor will be required to take to eradicate Japanese Knotweed

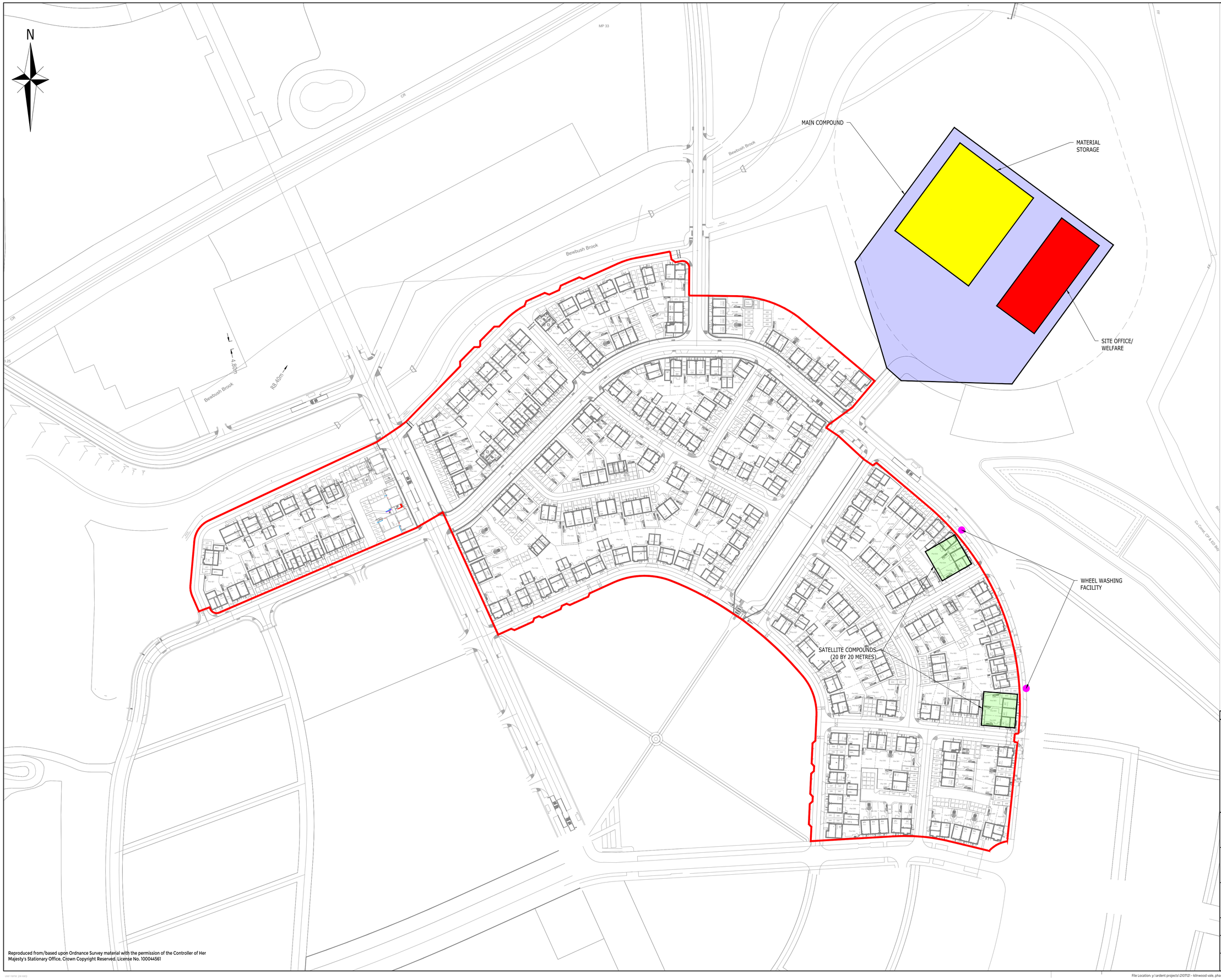
8. SUMMARY AND CONCLUSIONS

8.1. ACE has been instructed to prepare this CEMP, which has been developed to outline the environmental principles to be adopted to ensure that potential environmental impacts and health and safety issues associated with the construction processes are effectively managed, minimised and / or eliminated.

8.2. This CEMP details the roles and responsibilities of staff, sub-contractors and suppliers on site. The CEMP also sets out controls are to be implemented and the complaints process if any issues should arise.

8.3. Ongoing regular monitoring of the CEMP will be required throughout the construction period to ensure potential risks are adequately managed for the whole period of the works.

Drawings



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8. WHEEL WASHING FACILITIES TO BE RELOCATED TO THE SATELLITE COMPOUND THAT IS IN OPERATION. ACCORDINGLY, ONLY ONE WHEEL WASHER IS TO BE IN OPERATION AT ONY ONE TIME.

KEY:

- DEVELOPMENT AREA
- MAIN SITE COMPOUND
- MATERIAL STORAGE
- SITE OFFICE/WELFARE
- SATELLITE COMPOUND (SEE NOTE 7)
- WHEEL WASHING FACILITY (SEE NOTE 8)

0m 10m 50m

Scale: 1:1000 @ A1

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Rev	Description	Drn	Chk	App	Date

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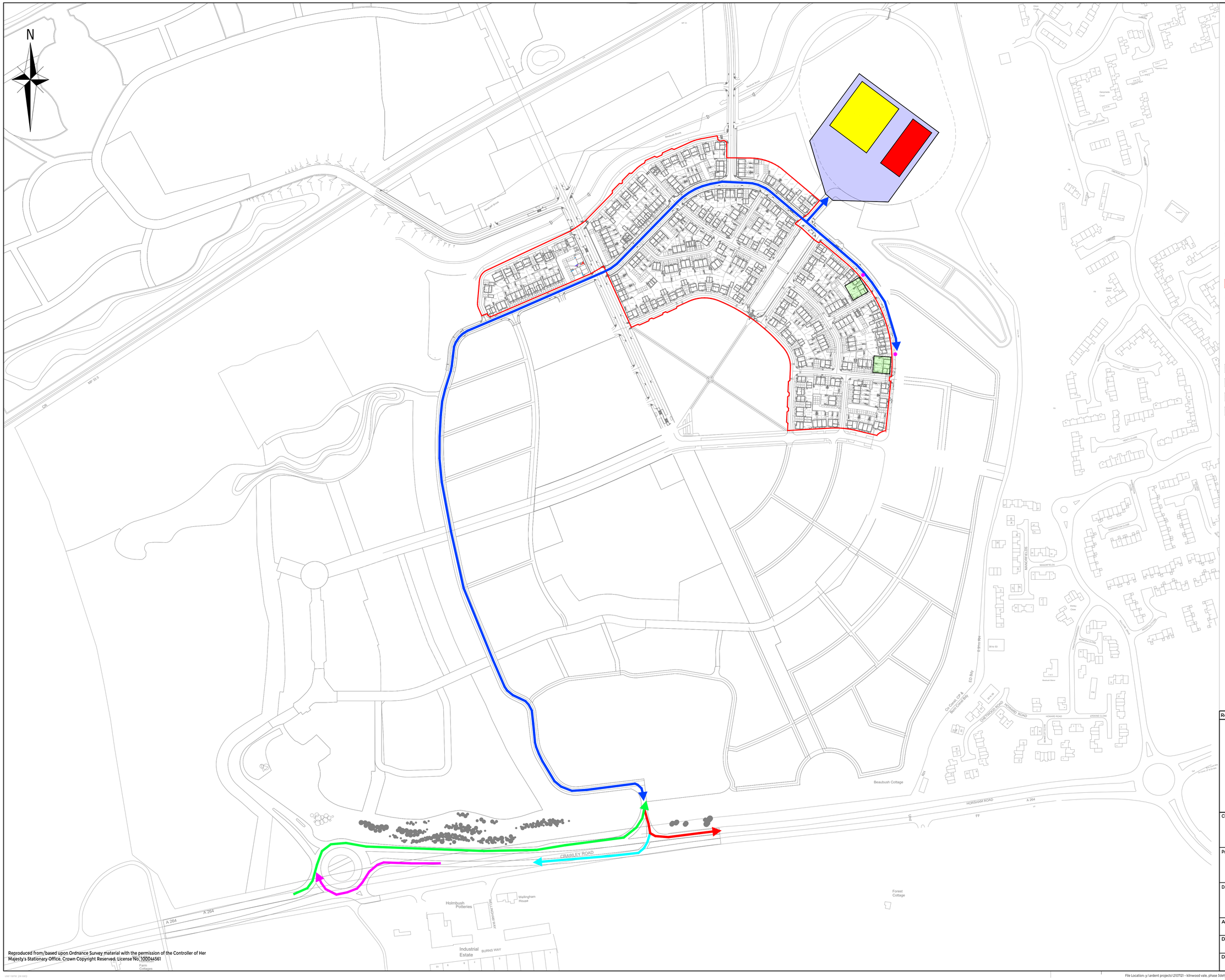
Project Title: KILNWOOD VALE, PHASE 3DEFG

Drawing Title: CONSTRUCTION LAYOUT PLAN

A1 Scale	Date	Designed by
1:1,000	DEC 2024	JE
Drawn by	**Checked by**	**Approved by**
JE	PR	DRAFT

Drawing Number: 2107121-ACE-XX-00-DR-C-0001 Rev: -

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KEY:

- DEVELOPMENT AREA
- INTERNAL VEHICLE ROUTE
- ROUTE IN FROM WEST
- ROUTE IN FROM EAST
- ROUTE OUT TO WEST
- ROUTE OUT TO EAST
- MAIN SITE COMPOUND
- MATERIAL STORAGE
- SITE OFFICE/WELFARE
- SATELLITE COMPOUND (SEE NOTE 7)
- WHEEL WASHING FACILITY (SEE NOTE 8)

0m 10m 50m

Scale: 1:1000 @ A1

DRAFT

Rev	Description	Drn	Chk	App	Date

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Client: CREST NICHOLSON

Project Title: KILNWOOD VALE, PHASE 3DEFG

Drawing Title: CONSTRUCTION VEHICLE ROUTING

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Appendix A

Phase 1 CEMP

Crest Nicholson Developments Ltd

Kilnwood Vale

Construction Environmental Management Plan

Project Ref: 16702/446

Doc Ref: CEMP001

December 2011

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Project Name: **Kilnwood Vale**

Project Ref: **16702/465**

Report Title: **Construction Environmental Management Plan**

Doc Ref: **CEMP001**

Date: December 2011

	Name	Position	Signature	Date
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Reviewed by:	Paul Knight	Associate		
For and on behalf of Peter Brett Associates LLP				

Revision	Date	Description	Prepared	Reviewed	Approved

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1 Introduction

The purpose of this Construction Environmental Management Plan (CEMP) is

(a) to help ensure compliance with all legislation, directives and regulations relating to construction operations by all those involved; and

(b) to ensure that all the mitigation commitments in the Environmental Statement are undertaken.

The CEMP details how these purposes will be carried out.

The CEMP notes

- the requirements of Planning Conditions 33, 49 and 77 with details of how these issues will be dealt with,
- the environmental obligations of the those involved in the construction,
- the responsibilities of the various parties,
- other site construction plans and how they relate to the CEMP,
- training of all personnel working on or visiting the site,
- the response and procedures for emergency incidents,
- monitoring, reporting and recording in connection with the CEMP,
- environmental control measures, relating both to the specific impacts cited in the ES, and to general issues,
- the environmental risks.

A site constraints plan and a site (construction operations) layout plan are to be appended. The latter will be subject to updating from time to time.

This plan sets out the details for the construction environmental management of each part of the development as described in the planning application, including Phase 1 of the residential development and subsequent phases, for which the principles will be developed into respective detailed plans prior to the commencement of each phase for approval by the LPA.

The CEMP will be subject to revision as the development progresses during design and construction. Superseded information will be archived and indexed for later reference if required.

ES 2.3.8, 2.3.9 and 2.3.10, also 12.5.3 and 12.5.8, and also Appendix to Chapter 8, 5.5.1 refer.

2 Environmental obligations

- **Legislation**

  Each specialist consultant will advise on environmental legislation relevant to the construction operations and a list of these will be appended to the CEMP. Refer to Appendix G.

- **The Planning Application Environmental Statement**

  The Environmental Statement supporting the Planning Application for the development included commitments regarding mitigation measures to be taken during the construction phases of the development. These are referred to and incorporated in the CEMP and will be contractual obligations as relevant to the construction operation being undertaken.

  A copy of the Environmental Statement will be kept in the main site office and will also be available online. An electronic copy is also appended to this report on a CD.

- **Relevant planning conditions** – see section 9.

- **Contractual** – all contracts, construction sub-contracts and supplier contracts will require adherence to the CEMP

- **Project brief**

  The CEMP will be complementary to the Client's or the Principal Contractor's !SO14001:2004 EMS.

3 Environmental risks

Generic risks

The Environment Agency has identified general environmental risks associated with construction in its publication PPG6, Pollution Prevention Guidelines, which includes a generic checklist.

All construction operations on the site will be planned taking account of these general risks to the environment.

All of the Environment Agency's pollution prevention guidelines documents are available online at
http://www.environment-agency.gov.uk/business/topics/pollution/39083.aspx

Site specific risks

The Environmental Statement for the proposed development planning application identified particular site specific environmental risks including those present during construction. These are noted in table 17.1 of the Environmental Statement – see Appendix C of this CEMP.

The table indicates in outline particular mitigation measures for each of these.

A full copy of the ES on CD is included in Appendix E.

4 Responsibilities of the various parties in carrying out the CEMP

Client / Developer

- will undertake overall responsibility for the CEMP and its implementation at all levels.
- will ensure that all contracts, including sub-contracts, in connection with the development cite the CEMP and oblige the parties to the contracts to adhere to the requirements set out in the CEMP including any revisions to the CEMP subsequent to the making of the contract.
- will lead by example and be pro-active in promoting the CEMP.

The Client for this project is:

Crest Nicholson Strategic Projects Ltd
Crest House
Pyrcroft Road
Chertsey
Surrey
KT16 9GN

Telephone: 01932 580 444
Fax: 0870 336 3991
E-mail: south@crestnicholson.com

Principal Contractor

- Will have a current company Environmental Management Plan conforming with and certified to ISO14001.
- Maintain the CEMP and revise and update it as necessary in accordance with best practice construction management approaches e.g. 'Considerate Constructors Scheme'. ES section 2.3.9 refers.
- Enforce the requirements of the CEMP vigorously at all levels.
- Employ dedicated personnel to manage the CEMP.
- Ensure all its site personnel are inducted on the requirements of the CEMP and are aware of it.

The Principal Contractor for this project is:

TBC

The Site office address is:

Holmbush Farm Landfill Site
Crawley Road

Faygate
West Sussex
RH12 4SE

Telephone: TBC
Fax: TBC
E-mail: TBC

Sub-contractors

- Will be obliged contractually to adhere to the requirements of the CEMP.
- Will appoint a key senior person within their site staff to be a point of contact regarding the CEMP matters.
- Ensure all their site personnel are inducted on the requirements of the CEMP and are aware of it prior to commencing any work on site.

Suppliers

- Materials suppliers
  - Will be obliged contractually to adhere to the requirements of the CEMP.
  - Will ensure all their delivery personnel are aware of the relevant requirements of the CEMP e.g. construction traffic routing to and from the site.
  - Provide details to the principal contractor of the provenance of all materials they supply to the development e.g. timber.
- Services suppliers
  - Will be obliged contractually to adhere to the requirements of the CEMP.
  - Ensure all their site personnel are inducted on the requirements of the CEMP and are aware of it prior to commencing any work on site.

Individuals

- Managers
  - All construction site personnel in positions of managerial responsibility will be expected not only to adhere to the principles of the CEMP, but will also be expected to ensure those under their charge do so diligently.
  - They will be expected to be conversant with the CEMP and to keep up with all updates.
- All
  - All construction site personnel will be expected to adhere to the principles of the CEMP

- Every individual will be expected to be alert to potential adverse environmental issues arising on the site and to report such issues promptly.

Key appointments – construction environmental management team

- The client will act as the **Construction Environmental Manager** to oversee the operation of the CEMP and revisions of the plan as necessary from time to time. The Construction Environmental Manager will lead the CEMP team and will monitor the operation of the CEMP, record all environmental incidents and provide written reports to the team.

- The Principal Contractor will provide support staff and facilities to the Construction Environmental Manager.

- The Principal Contractor's principal manager on site will be a member of the team and will also appoint another senior member of his staff to the CEMP team to deputise for him.

- Each main sub-contractor will appoint his principal manager on site to the team and will also appoint a senior member of his staff to the CEMP team.

- Each of the Consultants will appoint a senior person from their project team to the CEMP team.

- In addition the main emergency service bodies - the Environment Agency, the Sussex Fire and Rescue Service, and Sussex Constabulary - will be invited to attend the CEMP team meetings.

The Construction Environmental Manager is:

Crest Nicholson Strategic Projects Ltd
Crest House
Pyrcroft Road
Chertsey
Surrey
KT16 9GN

Telephone: 01932 580 555
Fax: tbc
E-mail: tbc

Procedures

- The CEMP team will meet once a month during the Principal Contractor's monthly meeting and minutes will be taken and added to the working CEMP document on site. Should any parties wish to view the document this can be made available and copies of the working document issued to the Local Authority as required.
- The CEMP team will share responsibility for monitoring, recording and reporting in connection with the CEMP.

- In particular each member of the CEMP team shall be responsible for the operation of the CEMP in their own sphere including the activities of sub-contractors directly under their control.

5 Other site construction plans

5.1 Introduction

This CEMP references a number of other documents. These are separate documents that can be obtained from the Construction Environmental Manager if required. Where reference is made to one of these documents within the text, the user should obtain the relevant document and ensure that it is the latest version.

Where reference is made to National or European guidance and standards, the users should obtain a copy of these to ensure that they are working correctly.

Any confusion or contradiction between this document and any other should be referred to the Construction Environmental Manager in writing and, except in an emergency, no further action taken until a response has been received.

5.2 Site Waste Management Plan

This is a separate document and can be obtained from the Client and has been approved as part of planning consent DC/10/1612

5.3 Construction Traffic Management Plan

Refer to Section 10 of this CEMP.

5.4 Materials Management Plan

ES section 8.5 and 8.8 refers

Details of the sustainable use of soils and excavated materials in the development will be provided in the Materials Management Plan (MMP). The MMP will be designed to comply with the CL:AIRE Code of Practice (CoP) as this is the most appropriate re-use mechanism for surface soils and excavated soil materials at Kilnwood will demonstrate that the material has ceased to be waste.

Further details are provided in Section 9.8 of the this CEMP.

5.5 Site Health and Safety Plan

This is a separate document that can be obtained from the Client.

5.6 Woodland Management Scheme

This is a separate document that can be obtained from the Client.

5.7 Strategic Design Code

This is a separate document that can be obtained from the Client.

6 Training

6.1 Personnel working on the site

- Site induction
  - No construction personnel including office staff will be permitted to work on the site until they have attended a site induction course which includes a briefing on the CEMP.
  - The course will be run by the Principle Contractor.
- Toolbox talks
  - Toolbox talks will be delivered on particular issues as and when required to personnel involved in particular aspects of construction where there are environmental protection issues to be taken into account.

6.2 People visiting the site

A short briefing note on the CEMP will be provided to visitors to the site.

A copy of the CEMP will be available in the main site office reception.

The CEMP will be provided online at www.kilnwoodvale.com

6.3 Special training for dealing with environmental emergency incidents

Key identified site construction personnel will be trained in procedures for dealing with environmental emergency incidents.

7 Emergency incidents

This section sets out how incidents that have potentially adverse environmental impact will be dealt.

The Site Health and Safety Plan covers dealing with other emergency incidents.

Further guidance on what should be done in the event of an incident is provided in Horsham District Councils 'Emergency Situations and Civil Contingency Planning Guide dated January 2009.

7.1 Arrangements with specialist services for emergency measures.

The Environment Agency, the Sussex Fire and Rescue Service, and Sussex Constabulary will be provided with full contact details for the site.

Special emergency site access arrangements will be made with these bodies.

7.2 Stocking of emergency response resources e.g. booms, absorbents, straw bales etc.

A stock of materials including booms, absorbent sheets, straw bales etc for the containment of spillages of hazardous and polluting liquids will be keep in the main compound and also close to large scale operations adjacent to watercourses or drains. There will be sufficient stock available to contain all the potential harmful liquid involved in the event of the full discharge of the largest liquid containing tank on the site.

7.3 Contact details for local emergency services and regulatory bodies.

Police/Fire/Ambulance	999 or 112
Police Non emergencies	0845 60 70 999
Crawley Hospital A&E West Green Drive Crawley West Sussex RH11 7DH	01293 600300
NHS Direct	0845 4647
HSE (fatality or major injury)	0845 300 99 23
HSE – other reportable injuries	www.hse.gov.uk
Horsham District Council	01403 215100
Crawley Borough Council	01293 438000 / 551636
Flooding – Environment Agency	0845 988 1188
Water Leak Line	0800 820 999
Gas – emergencies	0800 111 999

UK Power Networks (Electricity)	0800 763 8866
Terrorist Hotline	0800 789 321

7.4 Contact details with Network Rail and Train Operators

Helpline	0845 711 4141
Network Rail Emergencies	0845 711 4141
British Transport Police	0800 40 50 40
Southern Trains Go Ahead House 26-28 Addiscombe Road Croydon CR9 5GA	08451 27 29 20
South West Trains Friars Bridge Court 41-45 Blackfriars Road London SE1 8NZ	08700 00 5151
South Eastern Customer Services PO Box 63428 London SE1P 5FD	0845 000 2222
First Capital Connect London UK	0845 026 4700

7.5 Other bodies

RSPCA Cruelty Line	08705 555 999
Crimestoppers	0800 555 111
AA Roadwatch	09003 401 100
BBC Southern Counties Radio	01483 306 306
Childline	0800 11 11
Social Care & Health	01903 694442

8 Monitoring, reporting and recording

The CEMP will be kept under continuous review by the Construction Environmental Manager who will ensure that the following tasks are undertaken on a regular basis:

- Monitoring how the plan is being carried out – programme, timetable.
- Reporting and recording progress against programme and timetable.
- Reporting problems, changes, extensions etc.
- Recording problems and solutions, changes and extensions.
- Regular Meetings of the environmental management team - minutes will be taken and included within the working CEMP on site.
- Up-dating / revising the CEMP.

9 Specific requirements to control the construction of the development re: planning conditions 33, 49 and 77

9.1 Site working hours

ES 2.3.6 and 2.3.7 refer.

The **normal working hours** will apply to the residential and related development areas and to the land remediation works. These will be

- 08.00 – 18.00 Monday to Friday; and
- 08.00 – 13.00 Saturdays

No construction works in these areas will take place on Sundays or Bank Holidays.

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

Special cases

The S278 roadworks to the new access roundabout may be permitted outside the normal working hours stated above subject to agreement with the Highway Authority. (The site for these Works is remote from sensitive noise and light receptors i.e. residential dwellings, but is adjacent to a strategic highway.)

Some of the new railway bridge Works will need to be done when the track can be possessed which will be outside the normal working hours. Specific measures to minimise and/or mitigate noise and light nuisance to residents who could be affected will be included in the Contractor's Method Statement for the Works.

9.2 Construction access

Refer to section 10.

9.3 Wheel wash facilities

ES 12.5.3 refers.

See section 10.7 regarding the siting and use of wheel wash facilities.

The wheel wash facilities will be of a type approved by the Environment Agency e.g. a Hippo Evolution or similar, which recycles the water and therefore does not require a trade effluent consent. A temporary facility may be required until a electric and water supply is available.

The facilities will be in accordance with the requirements of the CEMP regarding temporary drainage of the site during construction – see section 13.

9.4 Storage areas for materials

ES 12.5.3 refers.

Areas to be used for the storage of materials will depend on the part of the Works for which the materials are intended and how the operations are to be carried out.

The stockpiling of soils is dealt with in section x.x below regarding the sustainable use of soils in construction.

The storage of fuel is dealt with specifically in section 13

Certain general principles for the storage of materials will apply particularly according to the potential for adverse environmental impacts of a material on soil and water.

Material storage areas are shown on the site construction layout plan – see Appendix A.

9.5 Parking and turning areas for construction traffic

See section 10.6.

9.6 Site waste management plan

The Site Waste Management Plan (SWMP) is a separate document, Report No: 403.0404.00027 dated July 2010 and is an approved document under planning approval DC/10/1612

9.7 Temporary utilities

Water

A temporary potable water supply will be obtained from the existing Southern Water main in the northern verge of the A264 at the site frontage.

Electricity

As soon as the new electricity connection from off-site is provided for the development all the temporary electricity power requirements for the construction will be met from mains electricity.

Prior to that it will be necessary to use generators. These will be sited and used in accordance with the noise and emissions controls in the CEMP – refer to section 11 and section 12 below.

Foul sewage

As soon as the new main pumping station for the development, and the Phase 1 temporary pumping station and rising main have been completed the foul sewage from the construction site welfare facilities will be discharged to the public sewer.

Prior to that one or more cess tanks as necessary will be installed to collect the sewage discharge from the construction site welfare facilities. These will be emptied at frequent intervals, not less than weekly.

Telecommunications

Landlines for telephone and internet connections will be requisitioned from Openreach.

9.8 The sustainable use of soils in the development construction

ES section 8.5 and table 8.4, and section 8.8 refers

Details of the sustainable use of soils in the development will be provided in the Materials Management Plan (MMP). The MMP will be designed to comply with the CL:AIRE Code of Practice (CoP) as this is the most appropriate re-use mechanism for surface soils and excavated soil materials at Kilnwood will demonstrate that the material has ceased to be waste.

The existing survey conducted as part of the Soils and Agricultural Land Classification will be augmented to include the areas of restored landfill in order to develop a Soil Resource Plan (SRP) within the MMP. The SRP will include:

- Areas of soil to be protected from earthworks and construction activities;
- The areas and types of topsoil and subsoil to be stripped; haul routes and location and segregation of temporary storage stockpiles;
- Areas and types of deep made ground to be excavated; haul routes and location and segregation of temporary storage stockpiles, to differentiate these site-won materials from re-usable soils;
- The methodology for stripping, stockpiling, respreading and ameliorating landscape soils; to reflect the soil type found on-site;
- Schedules of volumes for each material, and expected after-use for each soil type within the development; and,
- Any plans for topsoil manufacture from site won topsoils and plans for soil aftercare

Excavation of soils will be undertaken in such a manner as to avoid cross contamination between distinct horizons. The different soil horizons will be kept and stored separately for use at a later date.

During and after excavation, storage, haulage and reuse of excavated material will be planned to minimise material movement around the site.

Where possible, excavated made ground materials will be immediately reused rather than be placed in stockpiles.

Temporary storage stockpiles will be appropriately located and designed to minimise loss of soil structure and risks of run-off into watercourses.

Stockpiles will be isolated from any surface water drains and a minimum of 50m away from watercourses. Stockpiles will include appropriate bunding to minimise any pollution risks where required.

Where the excavated material is identified to be required elsewhere in restoration works, although re-use is not imminent, specified areas within the working excavations may provide suitable temporary storage locations. However, the handling of the stored material will be kept to a minimum and appropriate drainage, pollution prevention and material stability measures will be designed prior to the temporary deposition of the material to ensure material is maintained in a suitable condition for future use.

9.9 Communication strategy

Notice boards will be posted around the site perimeter giving details of contacts in the case of emergencies and to allow local residents to contact the site manager where there are any concerns regarding the development construction works.

The details will also be given to the local authorities and will be available online.

These communications facilities will be available at all times i.e.'24/7'.

In the case of emergencies the response by the site manager to the emergency situation will be immediate.

In other cases the response will be as soon as reasonably practical but normally not more than 24 hours during weekdays.

9.10 Routing arrangements for all traffic associated with the development construction

See sections 10.3 and 10.6 below for details.

9.11 Air quality control including dust suppression and containment

ES section 14 and ES Appendix 14.2 refers

Refer to section 11.

9.12 Noise and vibration control

ES 13.5.1 to 13.5.4 refers.

Refer to section 12.

9.13 Temporary surface water drainage during construction

Refer to section 13.

9.14 Tree and hedgerow protection

Refer section 14 and also the site construction constraints maps in Appendix A.

9.15 Dealing with Japanese Knotweed and other invasive plants

ES section 8.3.53 and ES Appendix to Chapter 8, section 5.4.1 refers.

Infestations of Japanese Knotweed (*Fallopia japonica* var. *japonica)* have been recorded locally close to the secondary access (development area Phase 2) around Bewbush Brook and alongside and within the Arun Valley Railway Line (development phase 3 area). A plan showing the area surveyed as infested by Japanese Knotweed is included as Appendix H.

However in the event that this is not wholly successful, and in the case of infestations of Japanese Knotweed and other invasive plants in other areas of the site, remedial works will focus on treating the plant insitu via excavation, segregation, and removal of all viable rhizome in the soil by a specialist contractor prior to the re-use of treated soil elsewhere on the site.

The contractor is to comply with all relevant legislation, particularly Section 14(2) of the Wildlife and Countryside Act1981 (WCA 1981) guidance and best practice in relation to Japanese Knotweed, as outlined in the Knotweed Code of Practice published by the Environment Agency, and other invasive plants, as listed within Schedule 9, Part 2 of the WCA 1981, as outlined in the Knotweed Code of Practice published by the Environment Agency.

The current landowner reports that they treated the identified infested areas in Autumn 2011 by spraying. However, it is envisaged that this treatment may not be wholly successful or sufficient to eradicate this species and further remedial works are likely to be required.

In order to minimise the risk of accidental transmission of knotweed rhizomes across the site the preferred remedial approach will be to treat, wherever practically possible, the Knotweed in-situ.

The contractor is to:

- Develop a detailed method statement for the removal or eradication of Japanese Knotweed from the Site. This is likely to be a long term plan for the management of the eradication process and in particular include proposed measures to prevent the spread of Japanese Knotweed during the earthworks operations.

- Isolate and fence stands of knotweed, including a suitable stand-off and restrict access to these areas as part of site establishment procedure

- Ensure that they have allocated sufficient time within the earthworks programme to implement a treatment strategy for the Japanese knotweed that can be implemented early and effectively in-situ and can significantly reduce the chance of it growing again.

- Use the best methods, in terms of selection of herbicides, timing of applications and monitor and assess progress and effectiveness of treatment. This will be influenced by factors such as how close the site is to controlled waters and desirable trees and other vegetation.

- Where treated soil requires excavation and placement as part of the remedial earthworks; any excavated treated soil should be re-used in designated localised areas, where Japanese Knotweed control methods could easily be applied if the plant starts to grow again. Treated soil should not be used within 50m of a watercourse.

- Ensure that the method statement includes measures to ensure that any soils brought onto the site are free of seeds, root and stems of any invasive plant covered by the Wildlife and Countryside Act 1981.

9.16 Bridge construction – method statements

For each of the proposed railway bridges a construction method statement will be prepared in advance of the Works. The Works will not proceed until the method statement has been approved by the relevant authorities. The Works will then proceed in accordance with the approved method statement.

As well as the engineering construction, and health and safety issues, the method statement will also include an environmental risk assessment with proposed mitigation measures where avoidance of adverse impacts is not reasonably possible.

9.17 Existing footpaths and temporary routes for pedestrians and cyclists around the site

Existing footpaths are identified on the site constraints plan – see site construction layout plan in Appendix A. Footpath diversions are not required but where construction operations are close to existing footpaths a robust temporary fence e.g. Herras or similar, will be erected along the site boundary with the footpath. The ends of the fencing will be returned around the site of the works so that pedestrians do not inadvertently stray into the construction operations site.

The temporary footway/cycleway along the southern boundary of the site is the subject of a separate planning condition which will include details for fencing off the site.

Other temporary footways and cycleways will similarly be fenced off from adjacent areas of construction operations.

10 Construction Traffic Management Plan

10.1 Introduction

This plan sets out the details for construction traffic management during development on Phase 1, the construction of the new roundabout and the earthworks operations on phase 2 and 3 as indicated on drawings ECP1 - Existing Contour plan and PCP1 - Proposed Contour Plan.

Temporary haul roads will be run through the earthworks operations areas to allow for the transportation of material as indicated on the earthworks strategy plans. These principles will be developed into respective detailed plans prior to the commencement of each phase for approval by the LPA.

10.2 Site access

ES 12.5.5 refers.

Access to the site for all motor vehicles, except for construction of the new railway bridges, will be solely from the A264, either via the existing site access (including the reconstruction of that access as the secondary access to the site) or the new main development access roundabout at the south-western corner of the site.

During phase 1 all motor vehicle access will be via the existing left-in, left-out site access.

Absolutely no motor vehicles will be permitted to access the site from the Bewbush residential district or from Kilnwood Lane except where necessary for emergency service vehicles (ambulance, fire and police) responding to an emergency, and where necessary during the construction of the first bridge over the railway.

In the latter case specific construction traffic management measures will be agreed with the highway authority in advance of the bridge construction operation and proceed only in accordance with the approved specific traffic management plan.

Subsequent to the construction of the first bridge over the railway, the bridge will provide access to the northern part of the site.

Site personnel who live in the locality will be encouraged to walk or cycle to and from the site using the permanent footway/cycleway to be constructed adjacent to the A264 to link the development Phase 1 to Bewbush.

10.3 Site access routes

The **off-site construction traffic permitted routes map** – figure 10.1 – indicates the permitted routes for all classes of vehicles to and from the site.

Between the site access and the junction nodes indicated on the map no vehicles involved in deliveries, collections or other services in connection with the construction operations shall use any other route except where required for direct access to a premises for the purpose of materials or plant delivery, dispatch or collection, or waste transfer.

Such access routes shall be the most practical route for the class of vehicle entailing the least impact on any residential areas.

Where such direct access is required within the defined permitted routes the access route shall be notified by the relevant supplier or sub-contractor to the Principal Contractor for prior approval.

The approved access route will then be recorded in the appendix to this plan.

All sub-contractors and suppliers will be issued with copies of the off-site construction traffic permitted routes map for issuing to their drivers together with instructions for notifying the Principal Contractor of any requirement for an access route off the permitted routes.

At all entry points to the off-site permitted routes and along those routes, subject to the permission of the highway authority, **direction signs to the site** will be posted in accordance with any requirements of the highway authority.

Subject to the permission of the highway authority and where deemed necessary by the local authority, ***'no access to Kilnwood Vale development'*** **signs** will be posted at the junctions of sensitive roads into residential areas in the immediate vicinity of the site.

Site personnel transport including crew vehicles will also be restricted to the permitted routes except where it is necessary to pick up and set down passengers.

10.4 Access arrangements for vehicles entering the site

Vehicle waiting and queuing on the public highway at or near the site access gate will not be permitted (see also 'Parking off site'). Deliveries will be programmed to ensure that vehicles do not wait or queue on the public highway.

10.5 Entering the site

The entry into the site will be laid out to allow vehicles to leave the public highway smoothly without the need for excessive deceleration or stopping, and so that vehicles leaving the site do not obstruct entry.

Sufficient queuing distance will be provided from the point of entry up to the checking in point to avoid vehicle queues tailing back onto the highway.

In the case that queuing appears to be getting critical the checking in point will be moved temporarily further into the site.

The queuing distance will be constantly monitored and the checking in point adjusted as necessary.

Once within the site the vehicle will proceed at no more than 10 mph.

10.6 Traffic movement on site

Within the site a main access road will be provided for access to the main compound.

The road will either be one-way with a loop through to the exit or of adequate width to allow two-way flow.

At the main compound provision will be made for a **full 360 degree turnaround for vehicles** either as a turnaround area or as a loop road.

The main access road and any subsidiary haul roads may be along temporary routes or may be part of the development road network.

However in the latter case development roads that have been opened to public traffic for access to occupied properties will not be used for construction site access except for the development Phase 1 main access road (which is denoted as a Primary Street in the Design and Access statement).

A **site movement map** will be produced to indicate the locations of the site access entry and exit, the temporary main access and any subsidiary haul roads, checking in and out points, parking areas, pedestrian and cycle access points and routes, and the wheelwash location. The map will be appended to this plan.

As these various facilities may need to be moved from time to time to accommodate the development requirements, the site movement map will be updated.

Where delivery, collection, or service vehicles require access to specific points in the site e.g. concrete mixer trucks, and provision for turnaround in a forward direction is impractical then a **banksman** will be required to assist the driver in reversing the vehicle to turn around or to back up to the works. The route to the location of the works will be clearly defined.

On site, including access and haul roads, and off-road, **construction traffic speed will be restricted to 10mph.** Reminder signs will be posted along access and haul roads.

This will also apply on the development Phase 1 main access road where that has to be used for construction site access. It will also apply to other roads that have been opened to public traffic but unavoidably have to be used for access to Works sites.

The main site construction access road will be of robust construction to minimise issues with mud and dust.

During dry weather periods the access and haul roads will be sprayed with water to suppress dust.

10.7 Leaving the site

A **wheelwash** facility of a type approved by the Environment Agency (see figure 2) will be established at each approach to the exit point to the highway.

Every vehicle driver will be required to ensure that their vehicle is clean before leaving the site so that mud and other debris are not shed onto the highway.

This will include inspection of the underside and sides, as well as the wheels and wheel arches.

The vehicle will be required to stand after using the wheel wash facility in order to dry off sufficiently before proceeding onto the highway.

The Principal Contractor will carry out random inspection of vehicles that have passed the wheel wash location en route to the exit.

On all vehicles **transporting waste material from the site**, the load will be either completely enclosed or covered by adequate tarpaulin covers in the case of open bed vehicles to prevent dust blowing or debris shedding off the vehicle.

The exit point from the site will be laid out so that the driver has a good view of the highway approaching the exit in accordance with the stopping sight distance required for the main road. This will be determined in consultation with the highway authority.

10.8 Parking off site

No motor vehicles involved in construction operations, including deliveries, collections, and services, or site personnel's or visitors' motor vehicles will be permitted to park on the roads or parking areas within the Bewbush residential district or along Kilnwood Lane or in any roads or car parks in Faygate.

No delivery, collection, or service vehicles en route to the site will be permitted to lay up along the permitted routes, including laybys, at any time, except in direct connection with the S278 works and then only in the locations agreed with the highway authority.

10.9 Parking on site

Personnel, private and delivery/collection/service vehicles

A hardstanding parking area will be established off the access road and adjacent to the main compound for site personnel's and visitors' private vehicles with a safe, well signed, stable and clean footway directly to the compound. Access to other parts of the site will be via the compound. No access to other parts of the site will be permitted from the car park.

A short stay parking area will be provided close to the welfare facilities for delivery/collection/service vehicles.

A covered row of cycle stands will be provided in the parking area.

Construction vehicles

Out of hours and at other times when not in use construction vehicles will be parked separately from other vehicles. The location at which a construction vehicle will be parked out of hours will be close to where it is to be operated but generally not closer than 50 metres to any residential dwelling. The vehicle will be parked on level ground.

Further details relating to the parking and movement of construction vehicles on site are covered in the **Site Health and Safety Plan.**

10.10 Enforcement

All site personnel, visitors, sub-contractors and suppliers will be expected to abide by this construction traffic management plan.

Where the drivers will be regularly coming to the site they will be issued with copies of this plan either as paper copies or in electronic form.

The plan will also be posted at the entrance to the site and to the compound, at the site offices reception notice board, and on the notice board at the welfare facilities. It will be included in the site induction.

The checker will record the registration number of all delivery, collection and service vehicles and the time of the vehicle entering and leaving the site.

This information may be used if an incident with the vehicle occurs off-site to ascertain whether the vehicle trip was in connection with the development construction and if the off-site requirements of the plan have been transgressed.

Where a driver has been found to have transgressed the requirements of the plan either on or off site then he/she will be issued with warning by the principal contractor which will be recorded. If the driver commits a subsequent transgression then he/she will be banned from the site.

Note: 'Supplier' means a supplier of materials, including fuel, or plant or provision of services, e.g. gully emptier, and includes waste carriers.

10.11 Site rules for drivers

1 Access to the site will be at the designated main access gate only.

2 En route to or on leaving the site remain on the permitted routes shown on the permitted routes map unless specifically authorised for direct access to a local premises.

3 Do not park on local streets off the permitted routes.

4 Do not lay up along the permitted routes, including laybys.

5 On site the speed limit is 10mph.

6 On entering the site stop at the check-in point and report to the checker.

7 No reversing without assistance from a competent banksman.

8 Remain in the vehicle unless undertaking operations or using the welfare facilities.

9 While outside the vehicle the appropriate PPE must be worn.

10 Wash-out only where permitted.

11 Loaded open bed haul vehicles leaving the site must be sheeted over prior to entering the wheelwash facility.

12 All vehicles except cars must pass through the wheelwash facility.

13 Drivers of all vehicles must ensure that their vehicles are clean before leaving the site.

14 On leaving the site stop at the check-out point and report to the checker.

15 Check you have all relevant documentation before leaving the site.

11 Air quality control

ES chapter 14 and ES Appendix to Chapter 14 refers – see specifically ES 14.5.1-6 inclusive, and ES Appendix to Chapter 14, section 5.1.

The control of dust generated from the development will be generally in accordance with BRE Report 456 – Control of Dust from Construction and Demolition sites.

Measures to achieve this are set out below.

The layout and phasing of the site will be planned as far as possible to provide the opportunity for early tree planting and landscaping along the site boundary, particularly the eastern boundaries, to shield existing and new residential receptors from dust raising activities on the site.

Specific dust control measures will be applied close to the existing dwellings to the east and within the site, and when ongoing construction occurs close to completed new dwellings.

Dust generated from construction activities or from uncompleted construction areas, and emissions from vehicles and construction plant will be controlled as follows:

Site planning

- Early planting of trees and shrubs will be carried out where possible.
- Temporary solid barriers or bunds will be erected along sensitive site boundaries or around specific areas of work.
- A plan will be produced for each construction operation that is likely to generate significant dust or emissions that could cause a nuisance to residents or harm to wildlife or plants showing the location of the receptor affected and the proposed mitigation measures to be applied.

Haul Routes

- Haul roads will be of robust construction to minimise rutting.
- Haul roads will be kept in good repair.
- Surfaces of main long term haul routes will be sealed.

Damping Down

- During dry spells of weather the haul roads will be continuously kept damp by spraying using a tanker and suitable spray attachment.
- Note that this operation will be in accordance with the requirements for temporary drainage – see section 13.

Vehicles and plant

- Vehicles and plant - all vehicles will use the wheel wash before leaving site.

- All loads entering and leaving a site will be covered or in enclosed containers as appropriate – see section 10.

- Vehicle engines and compressors will be switched off when not in use for long periods.

- Plant will be located away from the boundaries close to residential areas where practical.

- The movement of construction traffic around the site will be minimised by strategic planning of the haul routes.

Site entrances/exits

- Where the main road into the development has to be used for construction access vehicle speeds will be limited to 10mph.

Concrete and mortar batching

- Wherever possible, if it is necessary to do this on site, these processes will be screened off.

Excavation and earthworks

- All dust generating activities will be damped down during dry and windy weather.

- Vegetation will be maintained over ground until immediately prior to earthworks operations.

- Wherever practical open earthworks will be temporarily covered when work is not in progress.

- Earthworks and other exposed areas will be re-vegetate at the earliest opportunity.

Stockpiles and storage mounds

- Excavated soil awaiting re-use will be stockpiled for the shortest practical time.

- Wherever practical, all stockpiles will be enclosed or kept securely sheeted.

No burning of any material on-site will be permitted – refer also to the Site Waste Management Plan.

12 Noise and vibration

ES chapter 13 refers –specifically section 13.5.1 – 4.

Introduction

An assessment of the noise and vibration impacts resulting from the development has been undertaken and this is set out in Chapter 13 of the Environmental Statement.

Code of Practice

The control of construction noise and vibration will be undertaken in accordance with:

- BS 5228:2009-1 – Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1 Noise
- BS 5228:2009-2 – Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2 Vibration

Noise

The following general advice is based on the guidance provided in BS 5228 which will be applied to minimise the noise breakout from the construction activities affecting noise sensitive receptors. Although this information is provided in this document, this does not remove the need to refer to the BS in full:

- Ensuring the use of quiet working methods, the most suitable plant and reasonable hours of working for noisy operations, where reasonably practicable;
- Locating noisy plant and equipment as far away from houses as reasonably possible, and where practical, carry out loading and unloading in these areas;
- Screening plant to reduce noise which cannot be reduced by increasing the distance between the source and the receiver (i.e. by installing noisy plant and equipment behind large site buildings);
- Shutting down any machines that work intermittently or throttling them back to a minimum;
- Orientating plant that is known to emit noise strongly in one direction so that the noise is directed away from houses, where possible;
- Closing acoustic covers to engines when they are in use or idling; and
- Lowering materials slowly, whenever practicable, and not dropping them.

Vibration

The main source of vibration typically associated with the construction process is piling. Piling may be required for larger buildings within this development, and therefore measures to reduce vibration levels will applied where reasonably practicable. These include the following:

- Use of alternative methods (i.e. auger piling);
- Provision of cut off trenches. A cut-off trench can be regarded as analogous to a noise screen, in that it interrupts the direct transmission path of vibrations between source and receiver. For maximum effect the trench should be as close to the source or to the receiver as possible.
- Reduction of input per blow cycle. Under the appropriate circumstances it might be more acceptable to reduce the energy per blow, thus limiting the Peak Particle Velocity (PPV) but sustaining a longer period of pile driving. The effect of this approach will need to take account of the degree and duration of disturbance to nearby occupants; and
- Reduction of resistance to penetration. When piles are to be driven and there is a risk of excessive vibrations, the problem can sometimes be reduced by pre-boring. This process removes some of the soil which would otherwise have to be displaced in the early stages of pile driving.

Assessment of construction noise and vibration

It should also be noted that BS 5228:2009 Annex E (informative) states that noise predictions should be undertaken to determine eligibility for noise insulation or temporary re-housing. However, the informative also states that these assessments should be undertaken when a contractor has been appointed and detailed method statements on the construction programme and plant to be used are available. Therefore, a quantitative assessment should be undertaken at the appropriate stage in the programme.

13 Protecting the water environment

13.1 Surface water temporary drainage during construction

Materials used or generated on construction sites or in construction activities have the potential to pollute the receiving water environment if suitable mitigation and management procedures are not in place. Common pollutants arising within surface water runoff from construction sites, such as the Kilnwood Vale project, include suspended solids, oils, chemicals and cement.

A range of surface water management measures will be incorporated during construction of the development to ensure that the receiving water environment will be protected from contaminated runoff and excessive peak flows. These will be designed in accordance with relevant Pollution Prevention Guidelines (PPG) which are published by the Environmental Alliance (joint collaboration between the Environment Agency, Scottish Environment Protection Agency and the Environment and Health Service). The construction phase surface water management scheme shall also be designed in accordance with the best practice recommendations prescribed in CIRIA Technical Guidance C648 – *Control of Water Pollution from Linear Construction Projects,* CIRIA Manual C532 – *Control of Water Pollution from Construction Sites, and CIRIA C697 – SuDS Manual.*

13.1.1 Surface Water Management

The construction phasing and operational areas of the site will be carefully planned to reduce the risk of water pollution.

Construction works which disturb the original ground surface are envisaged and during these processes (i.e. topsoil stripping) the risk of mobilisation of silt laden runoff is greatest. Silt laden runoff from the site, if not managed, could have a detrimental impact on water quality within the receiving Hopper's Brook, the unnamed drain along the eastern edge of Phase 1, Bewbush Brook and downstream catchment including the Ifield Mill Pond to the north east of the site.

To ensure no detriment to water quality in the receiving catchment suspended solids and other pollutants in surface water runoff generated from the construction site will be managed at the site by incorporating a construction phase erosion and sediment control plan. This plan will utilise a range of methods to limit and remove suspended soils and other pollutants from runoff. Such measures include the use of settlement ponds, filter strips, swales and cutoff ditches.

Surface water runoff from the active construction areas of the site will be conveyed to the settlement ponds via a combination of cut-off ditches, swales and pumping where gravity flow to the ponds is not achievable. Pre-treatment of flows prior to arrival at the ponds will be undertaken where practical through use of grassed / vegetated buffer strips and the presence of simple check dams (formed using straw bales, small clay based impoundments, timber 'stop log' obstructions or similar) within the conveyance ditches to encourage pre-settlement of suspended solids.

The final development includes Sustainable Urban Drainage System (SuDS) measures in the form of treatment and attenuation ponds and it is recommended that these be used during the construction process as one of the primary surface water treatment mechanisms. Bulk earthwork operations associated with the formation of the SuDS ponds should be undertaken at an early stage of the construction works. For accepting construction phase runoff there is no need for these ponds to be formed to their exact final profile or be subject to detailed landscaping. A simple outlet flow arrangement will be incorporated to allow these ponds to ensure that the rate of surface water discharging to the local watercourses is limited to no greater than greenflield runoff rates generated from the contributing

catchment. During the construction phase, outlet flow arrangements are proposed to elevated at least 300mm (greater where ponds are fenced and RoSPA criteria are satisfied) above the excavated bed of the SuDS ponds in order to create a 'sump' to actively promote the deposition of silt and debris. Regular dredging of silt accumulations from the ponds will be required to maintain performance during the construction phase. Vehicular access around the perimeter of the SuDs ponds should be allowed to facilitate maintenance operations.

Regular inspection of the surface water management measures will be undertaken to identify any areas which need remediation works or are not performing as well as envisaged. This inspection process will also include monitoring of surface water quality discharged from the site and monitoring of water quality in the Bewush Brook downstream of the site. Such inspection and monitoring should be undertaken at least weekly and as soon as practically possible after any extreme rainfall events with any necessary remediation works actioned immediately thereafter.

13.1.2 Watercourse Buffer Zones

Construction works near the watercourses will be limited, however, in all cases a buffer zone of at least 5m between the working area and watercourse corridor (measured from top of bank) should be left in situ which will act as a filter strip. This area of natural vegetation will provide treatment of local runoff from the working area which flows towards the watercourse. The filter strip treats the local runoff, which is unlikely to contain significant pollutant loads, through vegetative filtering and promotes settlement of particulate pollutants and infiltration.

No raising of land, or stockpiling of material, will be carried out within the buffer zone in order to ensure nil detriment to local floodplain and flood flow conveyance.

13.1.3 Maintenance of Land Drainage and Overland Flow Pathways

To ensure no increase in flood risk upstream and downstream of the site any earthwork operation and stockpile areas will be carefully planned to ensure that existing land drainage arrangements and overland flow pathways are not disrupted.

As the works progress small ditches, which provide land drainage of adjacent areas within the site will be removed. This will enable construction of the site and will help reduce the risk of polluted runoff from the site reaching the Hopper's Brook by removing this direct conveyance pathway.

13.1.4 Brook Diversions

Local temporary and permanent diversions of the Hopper's Brook and Bewbush Brook (and construction of Pond S2 just south of Pondtail Shaw) will be undertaken in accordance with best practice to minimise the risk of water pollution. New channels will be formed offline from the existing channel with flows only being diverted once formation of the new channel is complete and vegetation has begun to establish.

Whilst off-line, the new Bewbush Brook channel and Pond S2 may be utilised as a temporary surface water management facility during the construction phase to control and manage silt-laden surface water runoff from the site.

13.1.5 General Works Affecting Watercourses

Any works on, under, over, or within 5 metres (measured from top of bank) of a watercourse will require Flood Defence Consent from the Environment Agency prior to commencement.

No temporary infilling of any watercourses (e.g. with stone / soil) or land drainage will be allowed. Temporary crossings (e.g. for one-off plant access) should be clear

spanning (e.g. steel road plates or timber beams) and should be removed immediately after crossing.

13.1.6 Summary

In summary, the contractor is to develop a detailed erosion and sediment control plan which will outline the construction phase surface water management plan including settlement ponds and discharge limits, conveyance ditches and other methods implemented to minimise the risk of water pollution. The will also provide method statements relating the diversion of watercourses and any other works in the vicinity of watercourse corridors which may increase the risk of pollution. The erosion and sediment control plan and relevant construction method statements should be issued to interested stakeholders in advance of the commencement of construction works to ensure that all interested parties have opportunity to comment on the surface water management and mitigation measures being proposed.

13.2 Pollution prevention

During works close to water bodies, plant and materials will only be allow within the vicinity if they are in operation.

No plant will be permitted to be parked near to or next streams and brooks.

Any works to divert watercourses will need to be approved in advance by the Environment Agency and method statements completed to reduce the risk of any pollution.

13.3 Piling

Under planning condition 30 of approval DC/10/1612, piling or foundation designs using penetrative methods are not permitted other than with the express written consent of the LPA.

Kilnwood Vale is underlain by a non-productive aquifer. Piling will be required for some of the structures and in these cases a piling risk assessment should be submitted to the LPA in accordance with current Environment Agency document Piling into Contaminated Sites that provides summary guidance on pollution prevention.

13.4 Fuel storage

Fuel storage will be centralised. Potential fuel storage locations are indicated on the site construction layout map – see Appendix B.

Fuel will be stored in tanks or drums in accordance with the Environment Agency Pollution Prevention Guidelines, PPG6.

All refuelling will be carried out at least 50 metres from watercourses. Where this buffer distance cannot be achieved a minimum distance will be agreed with the site agent. A map will be provided by the Client identifying those areas where refuelling will not be permitted.

Irrespective of the buffer distance and location of refuelling, interceptor drip trays (or similar – open metal drip trays are not acceptable) will be available in accordance with standard best practice across the construction industry. Spill kits will be

available within each plant vehicle on site and at sensitive locations (watercourse crossings, fuel storage areas etc).

Interceptor drip trays (or plant nappies) to be positioned under any stationary mobile plant to prevent oil contamination of the ground surface or water.

Areas of waste oil/fuel/chemical storage and permanent refuelling will be located 50m away from watercourses or drainage paths. Where this is not possible, a minimum distance will be agreed with the ECoW. Such storage areas will be appropriately sited to prevent the downward percolation of contaminants to natural soils and groundwater.

Fuel, oils and chemicals will be stored on an impervious base within a bund able to contain at least 110% of the volume stored. Rainwater will not be allowed to accumulate within the bund and in any way compromise the required 110% volume capacity.

Ground surfaces

All fuel tanks will be set on concrete bases – see figure xx for construction detail

Storage tanks

All fuel tanks will integrally bunded i.e. with a secondary containment system – see EA PPG6 section 5 figure 1 for example.

Bunds

All fuel storage areas will be bunded around.

Emergency pollution containment equipment and supplies

Refer to section 7.2 above.

14 Tree and hedgerow protection

The measure to be taken to protect trees and hedgerows on the site are indicated on the approved planning drawings and on the tree protection plans provided at Appendix A.

Copies of the tree protection plans will be issued to all contractors and sub-contractors and will form part of their contractual obligations.

In addition the measures described in the Environmental Statement sections 8.5 and 8.8 and in the Environmental Statement Appendix 8.4 section 5 regarding the remediation earthworks will be adopted.

14.1 Retained Tree Protection

All trees that are to be retained are to be protected in accordance with British Standard guidelines contained in BS5837:2005 *Trees in Relation to Construction – Recommendations*.

Root Protection Areas (RPA) are to be established around individual trees and groups of trees which will exclude construction activities through the installation of protective fencing and/or ground protection around the full perimeter of any RPA.

The RPAs are to be calculated in accordance with BS5837:2005 (calculated using the diameter of the trunk at 1.5m above ground level and multiplying by 12 unless a specified differently by a suitably qualified arborculturist).

Protective fencing will consist of 2.5m high weldmesh panels wired to uprights and horizontals off well-braced scaffolding framework, or equivalent, in accordance with BS5837:2005. All fencing will be impact resistant and securely fixed to prevent the easy removal of all or individual fence sections by site contractors.

High visibility weather proof notices will be securely attached to the fencing , and placed at 6m intervals on long lengths of fencing, stating:

> "*Keep Out – Tree Protection Zone – No Construction or Storage of Materials Allowed*"

The installation of fencing and/or ground protection will be undertaken before the commencement of construction activities under the supervised by a suitably qualified arboriculturalist and will remain in place throughout the construction works. No fencing will be removed without the authorisation of a suitably qualified arboriculturalist.

15 Wildlife protection

The measure to be taken to protect wildlife on the site during the preparation of the site for construction and during construction activities have been made to 'design in' mitigation wherever possible to avoid adverse effects on individual and groups of species as well as comply with statutory legislation for the protection of wildlife, as described in the Environmental Statement Appendix 10.8 Protected Species Mitigation and Tree Protection Strategy for Phase 1 Development and Landfill Remediation.

The mitigation measures proposed in the Environmental Statement will be translated into contractual obligations where they are required during the construction phase.

In addition the measures described in the Environmental Statement sections 8.5 and 8.8 and in the Environmental Statement Appendix 8.4 section 5 regarding the remediation earthworks will be adopted.

All contractors will be fully briefed in respect to there legal responsibilities to protected species and what actions are required when individual or groups of protected species are found on site during construction activities.

15.1 Badgers

Badgers are afforded protection under the Protection of Badgers Act 1992 which makes it an offence to kill, injure, take or possess a badger; damage, destroy or obstruct access to any structure or place that a badger uses for shelter or protection (including setts); or to disturb a badger whilst it is occupying a structure or place which it uses for shelter or protection. The Act does not indicate what constitutes disturbance, however typically licences are required by Natural England for:

- all work within 10m of the nearest sett must be licensed;
- all machinery work should be licensed within 10 and 20m however, hand digging can be undertaken unless sett tunnels are breached;
- only the largest machinery is required to be licensed between 20 and 30m; and
- distances greater than 30m, all possible uses of explosives need to be licensed.

In the autumn, winter or spring in advance of any site preparation works and other earthworks, the development site will be surveyed by a suitably qualified ecologist for the presence of badger setts. If any evidence of an active sett is found and where the carrying out of construction activities would contravene the Protection of Badgers Act 1992 appropriate mitigation measures will be implemented on the advice of an ecologist and where necessary under an appropriate licence.

15.2 Bats

All species of bat are fully protected under the Conservation of Natural Habitats and Species 2010 (Habitat Regulations) and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). In brief, this legislation makes it an offence to:

- deliberately kill, injure or take a bat;
- deliberately disturb a bat or bats in such a way as to be likely to impair their ability to survive, breed, or rear or nurture their young; to hibernate or migrate; or to affect significantly the local distribution or abundance of that species
- damage or destroy the breeding or resting place of a bat;

- intentionally or recklessly obstruct access to a place that bats use for shelter or protection; and
- intentionally or recklessly disturb a bat whilst it is occupying a place which it uses for shelter or protection.

Actions which may otherwise cause an offence to occur may be licensed under the provisions of Regulation 53 of the Habitats Regulations. A licence must not be issued unless there is no satisfactory alternative and unless the action authorised by the licence would not be detrimental to maintain the population of the species concerned at a favourable conservation status in its natural range. Regulation 53 contains the purposes: "*preserving public health or public safety, or for reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment*"

Mitigation will be provided to ensure protection to individual and groups of bats that may be using trees for roosting purposes, although no confirmed roosts have been found to date, and limit night-time disturbance of bat activity within the site.

Tree Removal Strategy

Given that bats are highly mobile animals that use a number of roost sites within and between years, any Category 2a or 2b, as identified through the bat assessment based on the Bat Conservation Trust's Bat Survey: Good Practice Guidelines dated 2007 within Appendix 10.3 and subsequent surveys, that is required to be removed as part of the development will be re-inspected immediately prior to the commencement of tree works. This would involve a re-inspection from the ground and where considered necessary a climbing inspection with all suitable bat roosting features searched for evidence of use by bats.

If bats are discovered in any tree, no felling operations would be undertaken until a European Protected Species (EPS) licence application had been submitted and approved by Natural England.

Reasonable Avoidance Measures that will be employed during felling of **all** Category 2a and 2b trees, only after an inspection/survey has by a suitably qualified bat worker has confirmed any tree unlikely to be used for roosting purposes, will include the following:

- cracks and splits to be wedged to prevent closure prior to felling;
- loose bark to be carefully peeled back to reveal the wood beneath and confirm no bats are present;
- cavities must not be sawn through:
- sections that contain potential roost features must be "soft-felled" and roped carefully down to the ground; and
- cavity containing sections should be allowed to remain undisturbed on site for 24 hours following felling to allow any undiscovered bats (or other animals) to escape.

If any individual or groups of bats are found, or evidence of bats is discovered at any time during the tree felling operations, **all work on that particular tree shall cease immediately** and the advice of a licensed batworker and/or Natural England shall be sought. Where bats, or evidence of bats, is found an EPS licence may be required before works can resume.

Where any tree management operations are required to be undertaken on any retained tree with high or moderate bat roosting potential the procedures detailed above will apply.

Construction Lighting

In order to minimise impacts associated with construction lighting on bats the following procedures will be implemented during construction activities:

- lighting will not be installed close to any trees which support features of high or moderate bat roosting potential without the fitting of baffles or where it could not be directed away from such features; and

- artificial night time lighting would be avoided, wherever practically possible, along retained hedgerows and woodland edges with the potential to be used by bats for commuting and foraging purposes. Where lighting would be required in these areas (i.e. for security reasons) it would comprise of low level lighting directed downwards to ensure minimal illumination of such features.

15.3 Birds

Under the Wildlife & Countryside Act 1981 (as amended), the nests, eggs and young of wild bird species are protected from deliberate damage or disturbance during the bird breeding season (March to end of July inclusive).

Mitigation measures will be implemented to ensure the protection to nesting birds during the breeding season.

Protection of Nesting Birds

All suitable nesting habitat within the construction site will be removed, where possible, from these areas outside the bird nesting season (i.e. removal permitted from mid- August through to February inclusive) including ground nesting habitats.

If necessary, any clearance or removal of features offering potential nesting sites (i.e. trees, hedgerows or artificial habitats) during the bird breeding season will only be permitted immediately following a check for nesting birds by a suitably qualified ecologist. Any nests found to be in current use would be left and until such time as any young have fledged.

Where there is a risk of ground nesting birds, that will not be deterred through vegetation stripping alone, and where works are undertaken during the breeding season provision will be made to deter birds from nesting within these specific areas (i.e. use of bunting). At the same time as deterring birds from establishing breeding territories within construction areas other parts of the site will be managed to provide suitable habitat for ground-nesting species.

If any nest with eggs or young are found within the bird breeding season an appropriate sized exclusion zone around all such nest sites would be established by a suitably qualified ecologist and no works within this zone will be allowed until such time as the young have fledged.

15.4 Reptiles

All terrestrial native reptiles are protected under the Wildlife and Countryside Act 1981 (as amended), making it an offence to intentionally, deliberately or recklessly kill or injure any British reptile. The more common species comprising grass snake (*Natrix natrix*), adder (*Vipera berus*), slow worm (*Anguis fragilis*), and common lizard (*Zootoca vivipara*) are protected under Section 9 (Parts 1 and 5) against intentional killing and injury, and sale.

It is not possible to obtain a licence to legally kill or injure the commoner species of reptiles for the purposes of development. Where such reptiles are present, it is

necessary to take all reasonable precautions to avoid committing such an offence before commencing works within areas of suitable reptile habitat.

Minimising the Risk of Reptiles Being Killed or Injured

A comprehensive capture and removal strategy will be employed in areas of the site likely to contain reptiles in order to minimise the risk of reptiles being killed or injured before the commencement of any construction activities under the supervision of a suitably qualified ecologist. Any captured animals will be moved to an on-site receptor site that will be clearly delineated and safe from development.

All areas cleared of reptiles will be stripped of vegetation or '*roughed up*' at the earliest opportunity and maintained such a state until such time construction activities commence.

Any vegetation stripping along the line of the Hopper's and Bewbush Brooks must leave a 5m buffer zone from the right bank-top in the case of Hopper's Brook and from both bank tops of the Bewbush Brook to prevent the risk of siltation of these watercourses.

Any vegetation stripping must not damage any features, i.e. hedgerows, to be retained as part of the development and we recommend a minimum 1m buffer zone is maintained in front of any such feature.

Any erected reptile exclusion fencing will be maintain at all times where present until approval given for its removal by a suitably qualified ecologist.

At no time should the areas that contain stands of Japanese Knotweed be stripped of vegetation and the contractor should be made aware of the location of all stands and a suitable buffer zone established around these sites until such time as the Japanese Knotweed has been successfully treated.

At no time should any works be undertaken within the reptile receptor site located in the field to the southwest corner of Pondtail Shaw.

If at any time during construction activities, individual or groups of reptiles are found, all works at the site of and within the vicinity where founds shall cease immediately and the advice of a suitably qualified ecologist shall be sought. Appropriate mitigation measures to ensure the protection of any reptiles from being harmed will be implemented where necessary.

15.5 Other Protected Species

During construction activities if any other protected species, other than those detailed above, is found within the site all works at the site of and within the vicinity where found shall cease immediately and the advice of a suitably qualified ecologist shall be sought.

Where other protected species are found to be present appropriate mitigation measures will be implemented to ensure the protection of individual and groups of animals and where necessary under any appropriate wildlife licence.

16 Lighting for construction and construction traffic

Lighting for construction operations and for construction traffic routes on site

- will be the minimum required for safety;
- will have regard for the impact on wildlife as noted in section 15 above;
- will be planned so that is not visually intrusive near to dwellings;
- will not cause a safety hazard to road users;
- will avoid light ‘spillage’ including to the sky.

Appendix A Site constraints maps

Topographical Survey

Refer to drawings:

Existing Site Survey Overview	0404.00027.16.SS.001
Existing Site Survey (Sheet 1 of 8)	0404.00027.16.SS.002
Existing Site Survey (Sheet 2 of 8)	0404.00027.16.SS.003
Existing Site Survey (Sheet 3 of 8)	0404.00027.16.SS.004
Existing Site Survey (Sheet 4 of 8)	0404.00027.16.SS.005
Existing Site Survey (Sheet 5 of 8)	0404.00027.16.SS.006
Existing Site Survey (Sheet 6 of 8)	0404.00027.16.SS.007
Existing Site Survey (Sheet 7 of 8)	0404.00027.16.SS.008
Existing Site Survey (Sheet 8 of 8)	0404.00027.16.SS.009

Trees and hedgerows protection zones

Refer to drawings: to be advised by SLR

Other ecological zones to be protected

Reference should be made to Appendix 10.1 of the Environmental Statement for details of the existing ecological constraints and habitats. The following drawings should be referred to:

Statutory Designated Nature and Conservation Sites	001
Non-statutory Designated Nature and Conservation Sites	002
Habitat Plan	003

Watercourses

Details of the existing site hydrology are indicated on Figure 15/1-001 contained in the Flood Risk Assessment prepared and submitted in support of the planning permission.

Other sensitive receptors such as local housing

Railway lines

Other constraints

Appendix B Site construction layout map

- site compound(s)
- principal and sub-contractors offices
- fuel stores
- welfare facilities
- cess tank(s)
- construction main activities – subject to updating
- soil stockpile areas
- on-site traffic routes
- access points
- routes around the site perimeter for pedestrians and cyclists
- wheel wash facilities
- parking areas

Appendix C

Environmental Statement

Table 17.1 Environmental Risk Assessments

including proposed mitigation measures.

Appendix D

Environmental Statement Appendix 10.8

Protected Species Mitigation and Tree Protection Strategy for Phase 1 Development and Landfill Remediation

Appendix E

Environmental Statement Appendix on CD

This will be included in the site issue.

Appendix F

Register of CEMP Team

This will be completed when the construction environmental management team has been formed in accordance with section 4.

Appendix G

Environmental Legislation and other national guidance

Agenda 21 of the World Summit on Sustainable Development 1992 (Earth Summit)
Air Quality (England) (Amendment) Regulations 2002 (SI 2002/3043)
Air Quality (England) Regulations 2000 (SI 2000/928)
Air Quality Expert Group Report: Particulate matter in the United Kingdom
Air Quality Strategy for England, Scotland, Wales and Northern Ireland: Volume 1
Ancients Monuments and Archaeological Areas Act 1979
Building (Amendment No.2) Regulations 2009 (SI 2009/2397)
Building (Amendment) Regulations 2008 (SI 2008/671)
Building Act 1984
Building and Approved Inspectors (Amendment No.2) Regulations 2009 (SI 2009/2465)
Building Regulations 2000 (SI 2000/2531)
Clean Air Act 1993
Clean Neighbourhoods and Environment Act 2005
Climate Change Act 2008
Climate Change and Sustainable Energy Act 2006
Climate Change and Sustainable Energy Act 2006 (Sources of Energy and Technologies) Order 2008 (SI 2008/1767)
Climate Change Levy (General) Regulations 2001 (SI 2001/838)
Conservation (Natural Habitats, &c.) (Amendment) (England and Wales) Regulations 2008 (SI 2008/2172)
Contaminated Land (England) (Amendment) Regulations 2001 (SI 2001/663)
Contaminated Land (England) Regulations 2006 (SI 2006/1380)
Contaminated Land (Wales) Regulations 2006 (SI 2006/2989 W278)
Control of Pollution Act 1974 (As amended)
Correction Slip: Energy Performance of Buildings (Certificates and Inspections) (England and Wales) (Amendment No 2) Regulations 2007 (SI 2007/3302)
Correction Slip: The Home Information Pack (Amendment) Regulations 2008 (SI 2008/572)
Countryside and Rights of Way Act 2000
Countryside and Rights of Way Act 2000 (Commencement No. 13) Order 2007 (SI 2007/2335)
DCLG Guidance (PPG 13): Planning Policy Guidance note 13 Transport (January 2011)

DCLG Guidance: A Practical Guide to the Strategic Environmental Assessment Directive
DCLG Guidance: Code for Sustainable Homes Setting the standard in sustainability for new homes
DCLG Guidance: Code for Sustainable Homes Technical guide (October 2008)
DCLG Guidance: Planning for sustainable waste management Companion guide to planning policy statement 10
DCLG Guidance: Planning Policy Statement 25 Development and flood risk (PPS 25) [Practice guide] (Updated December 2009)
DCLG Guidance: Sustainable Communities Act 2007 - A Guide
DCLG MPS 2: Minerals Policy Statement 2 Controlling and mitigating the environmental effects of mineral extraction in England
DCLG PPG 14: Planning Policy Guidance 14 Development on unstable land
DCLG PPG 15: Planning Policy Guidance 15 Planning and the historic environment
DCLG PPG 16: Planning Policy Guidance 16 Archaeology and planning
DCLG PPG 17: Planning Policy Guidance 17 Planning for open space, sport and recreation
DCLG PPG 18: Planning Policy Guidance 18 Enforcing planning control
DCLG PPG 19: Planning Policy Guidance 19 Outdoor advertisement control
DCLG PPG 2: Planning Policy Guidance 2 Green belts
DCLG PPG 20: Planning Policy Guidance 20 Coastal planning
DCLG PPG 24: Planning Policy Guidance 24 Planning and noise
DCLG PPG 4: Planning Policy Guidance 4 Industrial and commercial development and small firms
DCLG PPG 5: Planning Policy Guidance 5 Simplified planning zones
DCLG PPG 8: Planning Policy Guidance 8 Telecommunications
DCLG PPS 1: Planning Policy Statement 1 Delivering sustainable development
DCLG PPS 11: Planning Policy Statement 11 Regional spatial strategies
DCLG PPS 22: Planning Policy Statement 22 Renewable energy
DCLG PPS 23: Planning Policy Statement 23 Planning and pollution control
DCLG PPS 25: Planning Policy Statement 25 Development and flood risk (Updated March 2010)
DCLG PPS 3: Planning Policy Statement 3 Housing (3rd edition, June 2010)
DCLG PPS 6: Planning Policy Statement 6 Planning for town centres
DCLG PPS 7: Planning Policy Statement 7 Sustainable development in rural areas
DCLG PPS: Planning Policy Statement 25 supplement Development and coastal change (March 2010)
DCLG Statement (PPS 10): Planning Policy Statement 10 Planning for sustainable waste management (Revised March 2011)

DECC Guidance: Guidance on carbon neutrality
EA Guidance: 'Do's and Don'ts guide to Strategic Environmental Assessment (SEA) and Sustainability Appraisal (SA) of Local Development Documents (LDD
EA Guidance: Flood advice guides
EA Guidance: Guidance on requirements for contaminated land reports
EA Guidance: Strategic environmental assessment and climate change Guidance for practitioners (Revised June 2007)
EEA Corporate Document (2/2009): EEA annual report 2008 and environmental statement 2009
Electricity Works (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2007 (SI 2007/1977)
Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000 (SI 2000/1927)
Energy Act 2008
Energy Performance of Buildings (Certificates and Inspections) (England and Wales) (Amendment No 2) Regulations 2007 (SI 2007/3302)
Energy Performance of Buildings (Certificates and Inspections) (England and Wales) (Amendment No. 2) Regulations 2008 (SI 2008/2363)
Energy Performance of Buildings (Certificates and Inspections) (England and Wales) (Amendment) Regulations 2008 (SI 2008/647)
Energy Performance of Buildings (Certificates and Inspections) (England and Wales) Regulations 2007 (SI 2007/991)
Environment Act 1995 (c.25) (as amended)
Environmental Impact Assessment (Land Drainage Improvement Works) (Amendment) Regulations 2005 (SI 2005/1399)
Environmental Impact Assessment (Land Drainage Improvement Works) (Amendment) Regulations 2006 (SI 2006/618)
Environmental Impact Assessment (Land Drainage Improvement Works) Regulations 1999 (SI 1999/1783) (As amended)
Environmental Impact Assessment and Natural Habitats (Extraction of Minerals by Marine Dredging) (England and Northern Ireland) Regulations 2007 (SI 200
Environmental Noise (Identification of Noise Sources) (England) (Amendment) Regulations 2007 (SI 2007/2458)
Environmental Noise (Identification of Noise Sources) (England) Regulations 2007 (SI 2007/415)
Environmental Permitting (England and Wales) Regulations 2007 (SI 2007/3538)
Environmental Protection Act 1990 (as amended)
EU Directive 1999/30/EC: Relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air
EU Directive 2006/113/EC: On the quality required of shellfish waters
EU Directive 2006/7/EC: Concerning the management of bathing water quality and repealing Directive 76/160/EEC
EU Directive 76/160/EEC: Concerning the quality of bathing water
EU Directive 76/160/EEC: Concerning the quality of bathing water
EU Directive 76/464/EEC: On pollution caused by certain dangerous substances discharged into the aquatic environment of the Community
EU Directive 79/923/EEC: On the quality required of shellfish waters

EU Directive 84/360/EEC: On the combating of air pollution from industrial plants
EU Directive 91/271/EEC: Concerning urban waste water treatment
EU Directive 98/15/EC: Amending Council Directive 91/271/EEC with respect to certain requirements established in Annex I thereof
EU Regulation 303/2008/EC: Establishing, pursuant to Regulation (EC) No 842/2006 of the European Parliament and of the Council, minimum requirements a
equipment containing certain fluorinated greenhouse gases
EU Regulation 842/2006/EC: On certain fluorinated greenhouse gases
Explanatory Memorandum: The Landfill Tax (Material from Contaminated Land) (Phasing out of Exemption) Order 2008 (SI 2008/2669)
Explanatory Memorandum:Home Information Pack (Amendment) Regulations 2008 (SI 2008/572)
Explanatory Note: Climate Change Act 2008
Explanatory notes to Sustainable Energy Act 2003
Flood and Water Management Act 2010
Fluorinated Greenhouse Gases Regulations 2009 (SI 2009/261)
Gas Transporter Pipe-line Works (Environmental Impact Assessment) (Amendment) Regulations 2007 (SI 2007/1996)
Gas Transporter Pipe-line Works (Environmental Impact Assessment) Regulations 1999 (SI 1999/1672)
Hazardous Waste (England and Wales) Regulations 2005 (SI 2005/894)
Health and Safety (Display Screen Equipment) Regulations 1992 (SI 1992/2792)
Health and Safety at Work etc Act 1974
Hedgerow Regulations 1997 (SI 1997/1160)
Highways (Environmental Impact Assessment) Regulations 2007 (SI 2007/1062)
Highways Act 1980
Home Information Pack (Amendment) Regulations 2007 (SI 2007/3301)
Home Information Pack (Amendment) Regulations 2008 (SI 2008/572)
Home Information Pack (Amendment)(No. 2) Regulations 2008 (SI 2008/1266)
Home Information Pack Regulations 2006 (SI 2006/1503)
Home Information Pack Regulations 2007(SI 2007/992)
Housing Act 2004 (Commencement No 10) (England and Wales) Order 2007 (SI 2007/3308)
Housing Act 2004 (Commencement No. 9) (England and Wales) Order 2007 (SI 2007/2471)
Housing and Regeneration Act 2008
Housing and Regeneration Act 2008 (Commencement No. 1 and Transitional Provision) Order 2008 (SI 2008/2358)

Land Compensation Act 1973
Landfill (England and Wales) (Amendment) Regulations 2004 (SI 2004/1375)
Landfill (England and Wales) Regulations 2002 (SI 2002/1559)
List of Wastes (England) Regulations 2005 (SI 2005/895) (As amended)
Litter Act 1983
Management of Health and Safety at Work Regulations 1992 (SI 1992/2051)
Marine and Coastal Access Act 2009
National Parks and Access to the Countryside Act 1949
Natural Environment and Rural Communities Act 2006
Natural Environment and Rural Communities Act 2006 (Commencement No. 1) (England) Order 2007 (SI 2007/2540)
Noise and Statutory Nuisance Act 1993
Noise Insulation Regulations 1975 (SI 1975/1763)
Ozone Depleting Substances (Qualifications) Regulations 2006 (SI 2006/1510)
Ozone-Depleting Substances (Qualifications) Regulations 2009 (SI 2009/216)
Pipe-line Works (Environmental Impact Assessment) Regulations 2000 (SI 2000/1928)
Planning (Hazardous Substances) Act 1990
Planning (Listed Buildings and Conservation Areas) (England) (Amendment) Regulations 2003 (SI 2003/2048) (SI 2003/2048)
Planning (Listed Buildings and Conservation Areas) Act 1990
Planning Act 2008
Planning Advice Note PAN 61: Planning and sustainable urban drainage systems
Planning and Compensation Act 1991
Planning and Compulsory Purchase Act 2004
Planning and Energy Act 2008
Planning Policy Guidance Note 12: Development plans
Planning Policy Statement 12: Local development frameworks
Pollution Prevention and Control Act 1999
Public Health Act 1936
Public Health Act 1961
Reservoirs Act 1975

Road Traffic Regulation Act 1984
SDC Report: Healthy futures # 5 Sustainable transport and active travel
Site Waste Management Plans Regulations 2008 (SI 2008/314)
Strategic Environmental Assessment and Biodiversity: Guidance for Practitioners
Sustainable and Secure Buildings Act 2004
Sustainable Communities Act 2007 c.23
Sustainable Communities Regulations 2008 (SI 2008/2694)
Sustainable Energy (CHP Provisions) Order 2003 (SI 2003/2987)
Sustainable Energy Act 2003
Sustainable Energy Act 2003 (Commencement No. 1) Order 2003 (SI 2003/2986)
The Conservation (Natural Habitats, &c.) (Amendment) (No. 2) Regulations 2009 (SI 2009/2438)
The Conservation (Natural Habitats, &c.) (Amendment) England and Wales) Regulations 2009 (SI 2009/6)
The Conservation (Natural Habitats, &c.) Regulations 1994 (SI 1994/2716) (as amended)
The Energy Performance of Buildings (Certificates and Inspections) (England and Wales) (Amendment) Regulations 2009 (SI 2009/1900)
The Environmental Damage (Prevention and Remediation) Regulations 2009 (SI 2009/153)
The Flood Risk Regulations 2009 (SI 2009/3042)
The Greater London Authority Act 2007 (Commencement No.5) Order 2008 (SI 2008/2037)
The Hazardous Waste (England and Wales) (Amendment) Regulations 2009 (SI 2009/507)
The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (SI 2009/2264)
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2009/2263)
The Infrastructure Planning (National Policy Statement Consultation) Regulations 2009 (SI 2009/1302)
The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2011 (SI 2011/735)
The Planning (Hazardous Substances) (Amendment) (England) Regulations 2009 (SI 2009/1901)
The Planning Act 2008 (Commencement No.4 and Saving) Order 2010 (SI 2010/101)
The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 (SSI 2011/139)
The Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (SI 2011/1824)
The Waste Management Licensing Regulations 1994 (SI 1994/1056)
Town and Country Planning (Application of Subordinate Legislation to the Crown) Order 2006 (SI 2006/1282)
Town and Country Planning (Environmental Impact Assessment) (Amendment) (England) Regulations 2008 (SI 2008/2093)

Town and Country Planning (Environmental Impact Assessment) (Amendment) Regulations 2006 (SI 2006/3295)
Town and Country Planning (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2000 (SI 2000/2867)
Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI 1999/293) (As amended)
Town and Country Planning (Environmental Impact Assessment) (Mineral Permissions and Amendment) (England) Regulations 2008 (SI 2008/1556)
Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2001 (SI 2001/2718)
Town and Country Planning (General Permitted Development) (Amendment) (No. 2) (England) Order 2008 (SI 2008/2362)
Town and Country Planning Act 1990
Transport Act 2000
WAG MIMPPS 02/2009: Ministerial Interim Minerals Planning Policy Statement 02/2009 On Health Impact Assessment for opencast coal sites
Waste Electrical and Electronic Equipment (Waste Management Licensing) (England and Wales) (Amendment) Regulations 2007 (SI 2007/1085)
Waste Electrical and Electronic Equipment (Waste Management Licensing) (England and Wales) Regulations 2006 (SI 2006/3315) (As amended)
Waste Management (England and Wales) Regulations 2006 (SI 2006/937)
Water Act 2003
Water Industry Act 1991 (As amended)
Water Resources (Abstraction and Impounding) (Amendment) Regulations 2008 (SI 2008/165)
Water Resources (Abstraction and Impounding) Regulations 2006 (SI 2006/641)
Water Resources (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2006 (SI 2006/3124)
Water Resources (Environmental Impact Assessment) (England and Wales) Regulations 2003 (SI 2003/164)
Water Resources Act 1991 (c.57)
Watercourses in the community: A guide to sustainable watercourse management in the urban environment
Wildlife and Countryside Act 1981 (c.69)
Workplace (Health, Safety and Welfare) Regulations 1992 (SI 1992/3004)
WRAP Guidance: Construction procurement Guidance Procurement requirements for reducing waste to landfill
WRAP Guidance: Site waste management plan briefing sheet Designer, architect and specifier
WRAP Guidance: Site waste management plan briefing sheet Environmental management personnel

Appendix H

Plan of areas surveyed as infested by Japanese Knotweed

Appendix B

Site Waste Management Plan

Kilnwood Vale Development

Site Waste Management Plan

Crest Nicholson

July 2010
SLR Ref: 403.0404.00027

solutions for today's environment

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1 INTRODUCTION

1.1 Kilnwood Vale Site Details

This report sets out the initial Site Waste Management Plan (SWMP) for the development proposal of land known as Kilnwood Vale. The site comprises approximately 131 hectares and is situated to the western edge of Crawley to the north of the A264, west of Bewbush and east of Faygate. The eastern parts of the site adjacent to the town have an urban fringe character, which is influenced by the ground disturbance associated with the former inert landfill and the visibility of the buildings within the existing neighbourhood of Bewbush.

The site includes land to the north and south of the Arun Valley Mainline Railway and incorporates undeveloped agricultural land as well as the area of former inert landfill and an active construction waste recycling facility. The site is generally well enclosed by development, hedgerows, trees and woodland. The site is bounded to the south by the A264 and to the east by Spruce Hill Brook and the existing neighbourhood of Bewbush. Kilnwood Lane, which bounds the site to the north, follows a ridge line that separates the West of Bewbush site from the land to the north. The western boundary of the site is defined by mature trees north of the railway line, the wooded area of Pondtail Shaw and a mature hedge to the south of the railway line along the Holmbush Farm access. The site itself does not include any nature conservation designations, but beyond the A264 lies the High Weald Area of Outstanding Natural Beauty (AONB).

The development construction timetable starts in 2011 with a 120 month (10 year) construction period over 5 phases. The planning submission will comprise full planning permission for the development of 291 dwellings with associated access and landscaping and outline planning permission for residential development of up to 2,650 dwellings (incorporating the full detailed 291 units above). The submission also includes earthworks, remediation, infrastructure, vehicular and pedestrian/cycle access, road-over-rail bridges and a potential railway station and associated infrastructure (subject to Government (DfT) approval), car parking, landscaping and other associated uses (potentially including a community centre, 2 – 3 form primary school, nursery, community building with library facility, public house, A1 retail up to 2,500m^2 including a petrol filling station, employment floorspace of up to 8,000m^2 and healthcare centre) and formal and informal open space. The exact phasing of the commercial and municipal developments are not yet finalised and therefore the waste management plan will use the outline planning schedule to estimate when the waste is likely to be generated during the construction phases.

The SWMP is a live document and at the relevant time will be passed to the principal contractor (Phase 1) for updating prior to commencement of construction on site. Thereafter the document will be updated quarterly and with the progression of each phase.

This SWMP reflects the approach to be taken within the application red-line area.

1.2 Site Waste Management Plans

Site Waste Management Plans (SWMPs) form part of the Government's Waste Strategy in England and the Strategy for Sustainable Construction; the primary aims are to reduce the amount of waste produced by the construction sector and in particular to minimise the waste sent to landfill and to maximise the reuse and recycling of waste.

Defra estimates[1] that of the 400 million tonnes of material used each year in England and Wales within the construction industry, 109 million tonnes of waste is created and that, on average, 13% of all materials delivered to site go straight into skips without ever being used.

The SWMP Regulations were implemented in April 2008 and require that anyone who intends to carry out a construction project with an estimated cost greater than £300,000 excluding VAT must produce an SWMP conforming to the Regulations before construction work begins. The Regulations (2008) contain different requirements for projects valued at £500,000 or less and those valued at over £500,000.

The purpose of the SWMP is to improve resource efficiency on the construction site by reducing the overall amount of waste produced and recovering as much as possible of the remainder. It details the amount and type of waste that is predicted to be generated on a construction site and how it will be reused, recycled or disposed of. This is achieved by assessing the material requirements of the site prior to the start of construction, with the aim of eliminating surplus materials being ordered and anticipating those materials suitable for reuse or recycling where appropriate.

The SWMP provides a structured approach for waste management and disposal at all stages of a construction project. The plan will be regularly updated during the construction process to record how the waste is managed and to detail the disposal of any materials unsuitable for reuse or recycling.

[1] Consultation on the site waste management plans for the construction industry (2007)

1.2.1 Stages of the SWMP

Crest Nicholson has commissioned SLR Consulting Ltd (SLR) to produce a draft SWMP, in accordance with Policy requirements, which outlines the approach to managing waste arisings during the construction phase of the Kilnwood Vale development. This report addresses these requirements in the following stages:

- **Waste Legislation** - to identify legislation relevant to construction site waste management (including compliance with BRE Environmental Assessment Method: BREEAM) as outlined in Section 2;

- **Quantification of Waste Arisings** - to identify quantities of waste that will be produced during the construction phase(s) of the project as outlined in Section 3;

- **Waste Management Options** - to ensure that waste is managed in the most appropriate manner to maximise the amount of waste that is re-used, recycled and recovered (waste hierarchy) and to identify methods of reducing waste through waste minimisation and sustainable procurement options as outlined in Section 4;

- **Monitoring** - to establish a monitoring schedule for the SWMP which ensures ongoing compliance and regular updating of the SWMP to take account of any relevant changes, issues or amendments to waste management practices as outlined in Section 5.

2 WASTE LEGISLATION

2.1 Introduction

Set out in this Section are details of Policy and Legislation relevant to the management of waste from the construction phase of the Development. 'Waste' is defined as "any substance or object which a holder discards or intends to discard". In reality waste is not a single substance; a development such as Kilnwood Vale will give rise to a whole range of different waste types whose method of collection and disposal will vary according to the nature and source of the waste. The Development is anticipated to give rise to the following broad categories of waste:

Construction Waste	
Construction and Demolition waste	C&D waste is that which is generated from construction and demolition activities, including the reclamation of contaminated land. It comprises material such as soil, rubble, concrete and bricks and also hazardous materials such as asbestos and contaminated soils (which is unlikely for this site as much of the development will be on undeveloped agricultural land).
Hazardous Wastes	Hazardous waste has historically been considered material that poses the greatest risk to human health or the environment, including materials such as asbestos, oils, solvents and chemical wastes. Hazardous wastes may be generated during demolition and construction activities but may also be generated in small quantities by building occupants. The most likely source of hazardous waste from householders will include batteries, household chemicals and fluorescent lights. From September 2008 all councils have been required to employ schemes for recycling batteries to comply with the EU Battery Directive. Household batteries can be taken to Longshot Lane Civic Amenity Site.
Commercial and Industrial Waste	C&I waste is that which is produced by commercial premises including shops, warehouses, offices, entertainment and catering businesses (commercial waste), plus factories and industrial plants (industrial wastes). C&I waste generally includes a proportion of special or hazardous wastes and some inert or semi-inert material.
Green Waste	Wastes that are organic in nature and are generated from horticultural and gardening activities and include grass clippings, tree prunings and fallen leaves but do not include food waste.

2.2 Relevant Legislation

2.2.1 Environmental Protection Act 1991

The large amount of waste produced during construction, demolition, refurbishment and material supply is categorised as "Controlled" waste. Under the Environmental Protection (Duty of Care) Regulations 1991, commonly known as the Duty of Care, anyone who produces, imports, keeps, stores, transports, treats, recycles or disposes of controlled waste must take all reasonable steps to fulfil the duties outlined below:

- Describe the waste fully and accurately[2];
- Store waste safely on site;
- Select an appropriate treatment or disposal method;
- Ensure that the waste falls within the terms of the waste contractor's waste management licence;
- Pack waste securely;
- Check the waste carriers' registration documents;
- Make reasonable checks on the waste carriers or managers;
- Report offences to the Environment Agency;
- Complete and sign a Waste Transfer Note when waste passes to another party.

A waste carrier's licence is needed when a person moves waste from one location to another. Breach of the duty of care is a criminal offence and can result in a fine and/or imprisonment.

2.2.2 The Hazardous Waste (England and Wales) Regulations 2005

Hazardous wastes are wastes that are considered to be harmful to human health or to the environment, either immediately or over an extended period of time. The Hazardous Waste Regulations 2005 set out the requirements for safe management and disposal of hazardous wastes. In particular the Regulations provide the following:

- Define what hazardous waste is;
- Require producers of hazardous waste to notify their premises (with some exceptions);
- Ensure safe management of hazardous wastes;
- Provide cradle-to-grave documentation for the movement of hazardous waste;
- Require people who receive hazardous waste to keep thorough records of it and to provide quarterly returns.

The list of wastes, including those classified as being hazardous in nature, is set out in the European Waste Catalogue (transposed into UK law via the Landfill Regulations (England and Wales) 2002, which has now been superseded by the Environmental Permitting Regulations (England and Wales) 2010 and the Environmental Permitting (England and Wales) (Amendment) Regulations 2010). Chapter 17 of the EWC covers wastes from construction and demolition activities. The list is replicated below in Table 2-1; wastes that may be classified as hazardous, depending on the level of dangerous substances[3], are highlighted in tan.

[2] A record of all waste disposed of or transferred using a system of signed Waste Transfer Notes
[3] A dangerous substance is defined as a substance which exhibits one or more risks to human health or the environment such as explosive, flammable, toxic or carcinogenic

Table 2-1: European Waste Catalogue of Construction and Demolition Wastes

17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 01	*concrete, bricks, tiles and ceramics*
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 06*	mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substances
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	*wood, glass and plastic*
17 02 01	wood
17 02 02	glass
17 02 03	plastic
17 02 04*	glass, plastic and wood containing or contaminated with dangerous substances
17 03	*bituminous mixtures, coal tar and tarred products*
17 03 01*	bituminous mixtures containing coal tar
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 03 03*	coal tar and tarred products
17 04	*metals (including their alloys)*
17 04 01	copper, bronze, brass
17 04 02	aluminium
17 04 03	lead
17 04 04	zinc
17 04 05	iron and steel
17 04 06	tin
17 04 07	mixed metals
17 04 09*	metal waste contaminated with dangerous substances
17 04 10*	cables containing oil, coal tar and other dangerous substances
17 04 11	cables other than those mentioned in 17 04 10
17 05	*soil (including excavated soil from contaminated sites), stones and dredging spoil*
17 05 03*	soil and stones containing dangerous substances
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 05*	dredging spoil containing dangerous substances
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 07*	track ballast containing dangerous substances
17 05 08	track ballast other than those mentioned in 17 05 07
17 06	*insulation materials and asbestos-containing construction materials*
17 06 01*	insulation materials containing asbestos
17 06 03*	other insulation materials consisting of or containing dangerous substances
17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 06 05*	construction materials containing asbestos
17 08	*gypsum-based construction material*
17 08 01*	gypsum-based construction materials contaminated with dangerous substances
17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01
17 09	*other construction and demolition wastes*
17 09 01*	construction and demolition wastes containing mercury
17 09 02*	construction and demolition wastes containing PCB (for example PCB-containing sealants, PCB-containing resin-based floorings, PCB-containing sealed glazing units, PCB-containing capacitors)
17 09 03*	other construction and demolition wastes (including mixed wastes) containing dangerous substances
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03

Where hazardous wastes are generated on site they must be managed and disposed of separately from other wastes.

During construction of the site it is not anticipated that hazardous waste will be generated in large quantities; however where hazardous waste does occur it will be the responsibility of the waste coordinator to ensure that it is managed and disposed of in an appropriate manner.

2.2.3 Regulatory Position on Landfill Pretreatment[4]

Since October 2007 it has been a legal requirement that all non-hazardous and inert waste should be treated before it can go to landfill; the requirement also applies to hazardous waste landfills.

As a consequence waste producers must adopt waste management practices that ensure that they either pre-treat the waste themselves or make sure that subsequently someone else does.

2.2.4 Regulatory Position on High Sulphate Bearing Wastes[5]

The landfilling of gypsum and other high sulphate bearing wastes with biodegradable waste has been prohibited in England and Wales since July 2005. Until recently, the Environment Agency had a working guideline whereby construction and demolition waste containing less than 10% plasterboard was deemed acceptable for landfill disposal. However this condition has now been revoked and it is now not acceptable to dispose of wastes containing gypsum in landfill. Consequently producers of construction and demolition waste are required to

- separate gypsum-based material from other wastes so that it can then be either recycled / reused or disposed of properly at a landfill.
- not deliberately mix gypsum waste with other construction and demolition waste.
- comply with the Duty of Care and pass waste only to an authorised carrier

Separated gypsum wastes are readily recyclable into new gypsum products or for use in agriculture.

[4] Environment Agency, Regulatory Position Statement, Treating non-hazardous waste for landfill
[5] Environment Agency, Position Statement, Landfilling of gypsum waste including plasterboard

3 QUANTIFICATON OF WASTE ARISINGS

3.1 Site Dimensions and Details

As discussed in Section 1, the proposed development comprises 2,650 residential properties, building classification C3 (dwelling houses) developed in 5 phases. The remainder of the development is a mix of commercial developments and public sector / municipal buildings including the following;

- New road junction (A264)
- 3 railway crossings
- 1 railway station
- Car parking – 200 spaces at railway station
- Formal and informal open spaces
- 2-3 Form Primary schools
- 1 Nursery
- Bus/Fastway links
- Pedestrian, equestrian and cycle links
- Up to 2,500m^2 net of A1 retail floorspace to include supermarket and potentially a petrol filling station as well as ancillary retail units
- Local Community Centre of up to 700 m^2
- Community building with library facility of up to 150 m^2
- Public House
- A Primary Healthcare centre of up to 700 m^2
- Up to 8,000 m^2 of employment floorspace

At this stage of the planning process the exact footprints for each of the households have not been finalised and so the following assumptions (shown below in Table 3-1) have been made for each type of residence based upon the anticipated housing type split and industry standard footprints[6].

Table 3-1: Estimated Footprints for Kilnwood Vale Residences

Dwelling type	% Total	Number Households	Area (m2) per household	Totals
1 bed flat	12%	288	42	12,075
2 bed flat	12%	288	70	20,125
2 bed house	17%	425	74	31,450
3 bed house	33%	825	111	91,575
4/5 bed house	27%	675	169.5	114,413
Sub-Total	**100%**	**2,500**		**269,638**

For the non residential development infrastructure Table 3-2 below details the relevant or assumed footprints[7].

[6] Housing Market Research conducted by Nationwide Building Society
[7] Where footprints have not been made available reasonable assumptions based on previous projects and industry standards have been made.

Table 3-2: Estimated Footprints for Non Residential Developments

Non Residential Developments	Number	Area (m2)	Totals
New A264 junction	1	10,000	10,000
Railway crossing	3		0
Railway station	1	750	750
Car parking	200	6	1,200
Primary school	3	500	1,500
Community Building with Library Facility	1	150	150
Community centre	1	700	700
A1 retail floorspace	1	2,500	2,500
Public House	1	200	200
Primary healthcare centre	1	700	700
Employment floorspace	1	8,000	8,000
Totals			**25,700**

The total footprint of the development is approximately 132 hectares (1,320,000m²) with a total building/specified development area of approximately 285,000m². The remaining portion of the development will be comprised of roads, hard landscaping, formal open spaces and soft landscaping. At this stage an equal split has been apportioned to each. A breakdown of the landuse, including total area of hard and soft landscaping and road, is shown below in Table 3-3.

The residential dwellings will be designed and constructed with reference to the *Code for Sustainable Homes* guidance which is the nationally recognised standard for the sustainable design and construction of new homes. The houses have been designed to achieve an 'excellent' rating based upon the defined set of environmental credits awarded against a broad range of environmental impacts. The commercial and community developments will be designed to meet BREEAM (or equivalent) certification. Construction materials with a high thermal mass will be encouraged and unwanted air infiltration will be minimised based on guidance in document GPG224 produced by the Energy Savings Trust *Improving Air Tightness in Buildings*.

Table 3-3
Proposed Construction Footprints

Proposed Building Footprints	m2
A1 (retail)	2,500
A4 (drinking establishments)	200
B1 (business)	8,000
C3 (dwelling houses)	269,638
D1 (non-residential institutions)	3,050
Road junction	10,000
Car parking	1,200
Hard landscaping	512,331
Soft landscaping	512,331
	1,319,250

3.2 Waste Types and Quantities

3.2.1 Assumptions

To aid management of construction waste it is first necessary to identify the types and quantities of waste that will be produced during the construction phase of the site. However, with only minimal baseline data available for construction waste, the targets and action plans are informed estimates and will therefore need to be reviewed and amended throughout the life of the project.

As the requirement for SWMPs has become more common, so has the understanding of the volumes and types of waste produced during construction phases. Defra[8] and BRE[9] have developed a number of benchmark indicators to help determine the approximate tonnages of waste produced during various construction projects including housing, offices, schools and hospitals.

The benchmarks include, Key Performance Indicators (KPI) which measure the volume (m^3) of waste produced per £100,000 project value and Environmental Performance Indicators (EPI) which measure volume (m^3) of waste produced per $100m^2$. For the purpose of this SWMP, the EPI has been used to calculate the predicted amount of construction waste for the development.

Although still in its infancy, the SMARTWASTE[10] tool developed by the BRE provides KPIs and EPIs for the construction waste industry across a number of developments, including housing, offices, hospitals and schools, as outlined below in Table 3-4.

Table 3-4
Environmental Performance Indicators for the Construction Waste Industry

Project Type	Average m3/100m2	Average m3/£100K
Residential	19.6	19.7
Public Buildings	21.5	15.1
Leisure	27.6	37.4
Industrial Buildings	11.2	21.4
Healthcare	25.1	13.6
Education	34.7	25.3
Commercial Other	26.6	17.5
Commercial Offices	22.3	19.2
Commercial Retail	19.3	17.9
Civil Engineering	28.1	30.8

The BRE has also produced figures for the estimated annual construction waste tonnages by waste stream and these are shown, along with percentage split and Environment Agency conversion factors for determining volumes of waste in Table 3-5.

[8] Department for Environment, Food and Rural Affairs
[9] UK Building Research Establishment
[10] http://www.smartwaste.co.uk/

Table 3-5
Average UK Construction Waste by Material Waste Stream

Material Type	% Split	Conversion Factor
Hard material	32%	1.24
Timber	24%	0.34
Plastics	15%	0.22
Cast formless	9%	0.4
Gypsum material	6%	0.33
Metals	6%	0.42
Paper / card	4%	0.21
Bio-organic	3%	0.51
Soil	1%	1.25
Chemicals / paint	0.30%	0.57

3.2.2 Waste tonnages

Using the EPI benchmarks, the BRE tonnage data and the site plan details it is possible to provide approximate waste tonnages from the construction of the buildings, roads and the associated hard landscaping works for the Kilnwood Vale Development. It has been assumed that the soft landscaping will not require any off-site waste management.

Table 3-6 provides the predicted total waste volumes for the construction of the buildings, roads and landscaping. The predicted waste volumes for all five phases of the development is approximately 202,700m^3[11]. However a large proportion of this waste can be segregated and re-used and/or recycled and this is discussed in Section 4.

Table 3-7 shows the material breakdown and tonnage data for the development, which is largely comprised of hard material from excavation, timber, building materials and plastics (from packaging).

Table 3-6: Construction Waste and Materials for Kilnwood Vale Development (Predicted)

Proposed Building Footprints	Area m2	Waste arisings m3
A1 (retail)	2,500	483
A4 (drinking establishments)	200	53
B1 (business)	8,000	1,784
B8 (storage or distribution)	0	0
C3 (dwelling houses)	269,638	52,849
D1 (non-residential institutions)	3,050	656
Car parking	1,200	337
Road junction	10,000	2,810
Hard landscaping	512,331	143,965
Soft landscaping	512,331	0
Total	1,316,550	202,937

[11] Assumes no waste produced during soft landscaping phase

Table 3-7: Construction Waste Tonnages and Materials for Kilnwood Vale Development (Predicted)

Material	Split %	Waste (m3)	Conversion factor	Waste (tonnes)
Hard material	32%	64,331	1.24	79,770
Timber	24%	48,705	0.34	16,560
Plastics	15%	30,441	0.22	6,697
Cast formless	9%	18,264	0.4	7,306
Gypsum material	6%	12,176	0.33	4,018
Metals	6%	12,176	0.42	5,114
Paper / card	4%	8,117	0.21	1,705
Bio-organic	3%	6,088	0.51	3,105
Soil	1%	2,029	1.25	2,537
Chemicals / paint	0.30%	609	0.57	347
Total	**100%**	**202,937**		**127,158**

Of the estimated 130,000 tonnes of waste generated over the life of the construction project, over half of this waste is anticipated to be hard material which will be readily recyclable as aggregate either on- or off-site.

3.3 Phased Approach

Planning for the management of construction waste arisings will need to reflect the phased approach of the development. At the time of submission, the phasing of the residential build has been released and can be used to inform the likely waste arisings from construction. Construction schedules for the remaining planned infrastructure are only indicative at this time and therefore assumptions based on the latest land use plan[12] have been made to estimate the quantity of waste arisings per stage.

Table 3-8: Estimated Waste Arisings (m3) Across the Phased Development

Phases	Programme	Phasing of Dwellings for EIA	Residential % split	A1	A4	B1	C3	D1	Station car parking	Road junction	Hard landscaping
Phase 1	2012 - 2015	300	11%	0	0	0	5,983	0	0	2,810	16,298
Phase 2	2014 – 2017	500	19%	241	0	892	9,972	328	0	0	27,163
Phase 3	2017 – 2020	750	28%	241	53	892	14,957	328	0	0	40,745
Phase 4	2020 - 2021	550	21%	0	0	0	10,969	0	337	0	29,880
Phase 5	2021 – 2023	550	21%	0	0	0	10,969	0	0	0	29,880
Total		**2,650**	**100%**	**483**	**53**	**1,784**	**52,849**	**656**	**337**	**2,810**	**143,965**

Key for building classifications
A1 (retail)
A4 (drinking establishments)
B1 (business)
C3 (dwelling houses)
D1 (non-residential institutions)

[12] Kilnwood Vale Land Use Plan produced by Barton Willmore (December 2009)

The total anticipated waste volumes across each of the 5 phases are presented below in Table 3-9. Section 4 of the SWMP will address the proposed strategy for minimising and recycling the construction waste.

Table 3-9: Total Anticipated Waste Arisings (m3) for Each Phase of the Development

Phases	Programme	Anticipated Waste Arisings m3
Phase 1	2012 - 2015	25,091
Phase 2	2014 – 2017	38,596
Phase 3	2017 – 2020	57,216
Phase 4	2020 - 2021	41,185
Phase 5	2021 – 2023	40,848
Total		**202,937**

4 WASTE MANAGEMENT OPTIONS AND IMPLEMENTATION PLAN

This section of the SWMP presents a planned approach to managing waste minimisation and the recycling of construction waste for Phase 1 of the development. A separate section will be included for each subsequent phase later in the development process when the building schedule is confirmed. The total waste arisings and material split for Phase 1 of the Development are presented below in Table 4-1.

Table 4-1: Anticipated Waste Arisings for Phase 1 of the Kilnwood Vale Development

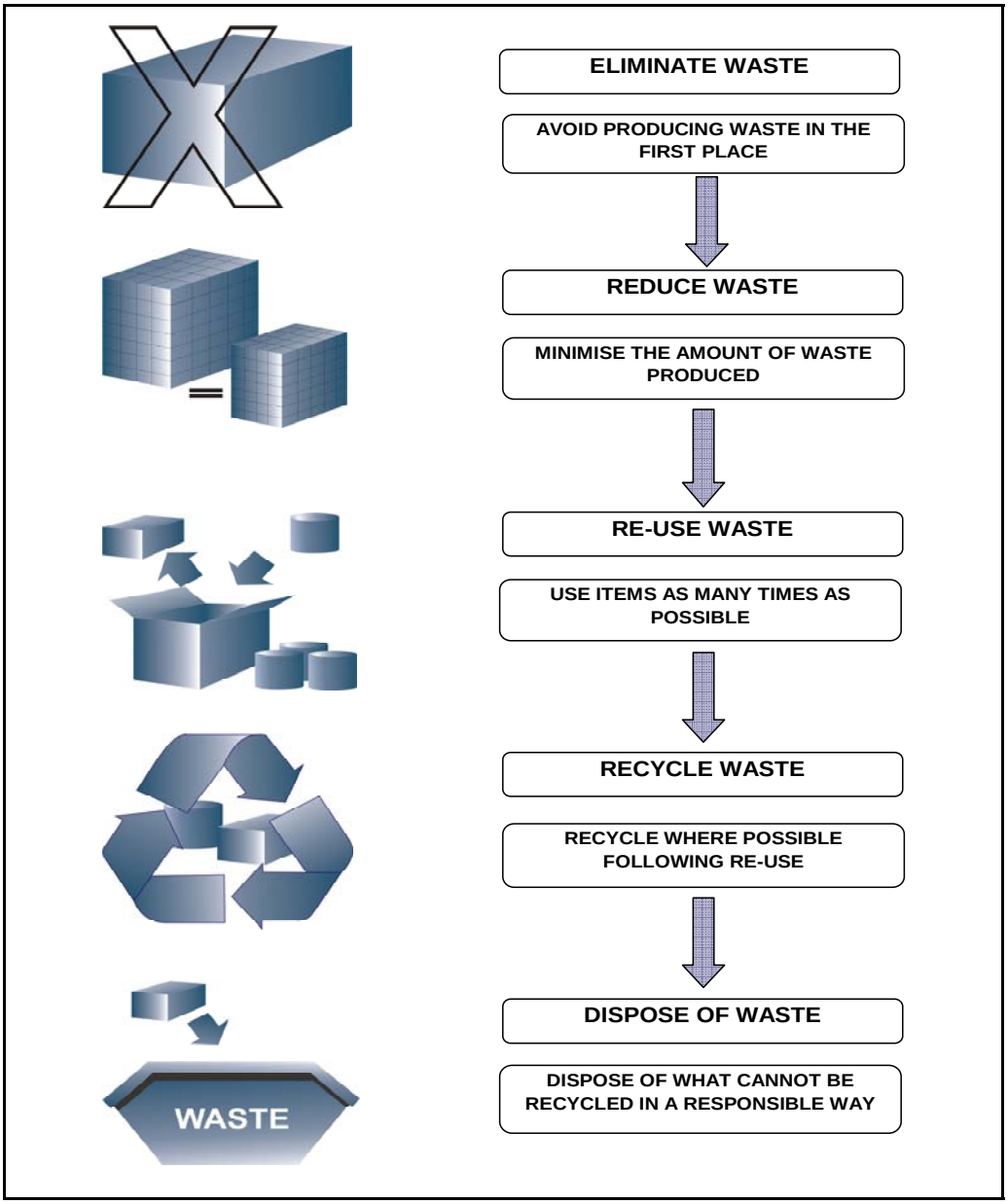
Material	Split %	Waste (m3)	Conversion factor	Waste (tonnes)
Hard material	32%	7,954	1.24	9,863
Timber	24%	6,022	0.34	2,047
Plastics	15%	3,764	0.22	828
Cast formless	9%	2,258	0.4	903
Gypsum material	6%	1,505	0.33	497
Metals	6%	1,505	0.42	632
Paper / card	4%	1,004	0.21	211
Bio-organic	3%	753	0.51	384
Soil	1%	251	1.25	314
Chemicals / paint	0.30%	75	0.57	43
Total	**100%**	**25,091**		**15,722**

It is estimated that the first phase of the development is likely to produce in the region of 15,700 tonnes of waste. Much of this waste will include hard materials suitable for recycling as aggregate.

4.1 Waste Hierarchy

It is necessary to have a structured methodology for minimising the quantity of construction waste disposed of to landfill. The methodology, outlined herein, is not prescriptive; it sets out the guiding principles that will be adopted and is sufficiently flexible to accommodate site-specific issues that may not have been previously predicted.

Figure 4-1
Waste Management Hierarchy



The waste management hierarchy, outlined above in Figure 4-1, sets out the order in which options for waste management should be considered in order to minimise environmental impact. This section will deal with how the hierarchy can be applied to this development.

4.1.1 Waste Minimisation

Waste minimisation is at the pinnacle of the waste hierarchy and is essentially concerned with avoiding the production of waste in the first place. Whilst complete avoidance of waste is impossible, adopting certain waste minimisation practices will ensure that the overall quantity of materials not beneficially used on site is kept to a minimum.

The following strategies will be adopted to help to minimise waste on site:

- Improved precautions in the handling of materials on site can have a major impact on the reduction of waste. Wherever possible materials will be kept in locked and covered storage, until time of use, to avoid damage from vandalism, theft, vehicle movements, weather etc;
- On-time delivery of materials when they are required;
- Maintaining a record of materials delivered to the site and dispatched – recording the number of skips used so that the amount of material consumed, sent to landfill or recycling can be determined;
- Packaging will be designed to protect raw materials and wherever feasible will not be removed until the last moment. Suppliers of materials will be asked to collect packaging for reuse;
- Avoidance of over-ordering materials according to the stage of construction;
- Responsibility for overseeing waste minimisation activities will be assigned to specific site personnel (e.g. site manager), who will monitor the progress and smooth running of waste minimisation activities.

It is estimated[13] that, on average, reductions of up to 10% in waste quantities can be achieved through waste minimisation and re-use. This has significant carbon benefits through avoidance of surplus raw materials used. The procurement of recycled or recovered materials reprocessed locally can also further enhance carbon savings.

4.1.2 Re-Use

Where avoidance of excess materials on site is not feasible all available materials will be recorded and considered for possible re-use on-site before recycling. Materials such as timber, bricks, tiles, paving blocks and top soil will be stored separately on-site within the existing footprint and will all be considered for re-use elsewhere in this development. The purpose of storing re-usable materials in separate skips is to reduce the potential for contamination and to encourage the re-use of materials by offering clean material streams.

Options for re-use include:

- Use of reclaimed materials (where appropriate);
- On-site reprocessing of materials;
- Re-use of packaging materials in limited circumstances.

The use of a Site Waste Management Plan data sheet[14] as illustrated in Section 5 will allow site managers to keep a record of all available materials on site, which will reduce the need to over order and increase opportunities for re-use.

Surplus materials will be considered for on-site storage and may be used in subsequent construction projects by the developer. Such opportunities will be limited to inert materials such as soil, rubble and, to a lesser extent, timber.

4.1.3 Recycling of Waste

The management of all off-site waste and recycling will be undertaken by suitably qualified contractors who specialise in the reprocessing and recovery of construction and demolition waste. For example, Biffa Waste Services or Viridor Waste Management, both national waste and resource management companies, will be employed. Where possible, Crest

[13] BRE Sustainable Construction (2000)
[14] See also Appendix A for print version

Nicholson will manage the recovery and reprocessing of construction and demolition waste produced on-site using their own equipment or that of their on-site subcontractors. In addition Biffa and Viridor offer a comprehensive recycling service for both businesses and households, with specialist disposal facilities for inert, non-hazardous and hazardous wastes.

One option for recycling is to allocate separate skips for the different waste streams on-site[15]. They would be easily accessible and placed near the point of waste generation (but away from traffic routes). Skips would be designated by type of waste or recyclable material. Section 4.2 details the breakdown for recyclable materials which constitutes over 70% of the total waste. As soil is to be recycled on-site there will be no provision for skips for this waste stream.

Defra estimates that the average re-use/recycling rate for materials suitable for reprocessing into aggregate (rubble) is over 50%[16] and recycling rates of up to 90% are often achievable. The rates for re-use and recycling of non-aggregate wastes in the construction industry are substantially lower at less than 10% for most materials. Defra and BRE also suggest that in line with best practice procedures, recycling rates upwards of 80% can be achieved for non-hazardous waste.

An alternative on-site management solution is to co-collect the waste and separate the recyclables at one of the waste management contractor's many recycling sites close to Crawley. The recycling rate for this option is estimated to be approximately 80% although higher performance can be anticipated as new outlets for recyclables become available. The appointed waste management contractor will be able to provide full details of materials and tonnages recycled off-site.

Crest Nicholson will also include minimum recycling and reuse targets within the requirements of the contract. Audits will be undertaken of waste contractors to ensure that waste from the site is being managed in an appropriate manner.

4.1.4 Disposal

Disposal of waste is at the bottom of the waste hierarchy (see Figure 4-2) because this is the least sustainable method of waste management and one of the overarching aims of this SWMP is to reduce the disposal of waste.

Where it is not possible to re-use or recycle materials, this fraction of waste will be taken to an appropriate residual treatment facility or landfill site. The same procedure will also apply to hazardous wastes on site.

4.2 Kilnwood Vale Development Waste Targets

4.2.1 Waste Minimisation Target

A 5% waste minimisation target is proposed for this construction project. As there is no existing building to be demolished, the potential to utilise existing materials is diminished and so the Defra target of 10% is unlikely to be achieved.

[15] These can be provided by Crest Nicholson or their subcontractors.
[16] Waste Strategy 2007 Annex C3: Construction, demolition and excavation waste

The minimisation target has been applied to all construction wastes, building and hard landscaping and equates to a total saving of more than 450 tonnes. Table 4-2 illustrates the waste minimisation targets by material waste stream. It may not be possible to reduce each waste stream by 5% but an overall tonnage reduction target of 5% is to be set.

4.2.2 Waste Recycling Targets

Table 4-2 shows the proposed recycling target for the construction phase of this project: 80% for hard materials such as rubble, soil, metals and concrete, 50% for timber products and plastic products and 30% for most other materials. These targets are in line with the Defra guidance notes produced as part of the Waste Strategy 2007 and should result in an overall waste reduction and recycling rate of over 70%, although it is anticipated that with the use of a Materials Recycling Facility (MRF) this figure could approach 90%.

Throughout the course of the construction these targets will be reviewed and updated as necessary using the SWMP datasheet (see Section 5).

Table 4-2
Waste Minimisation Targets

Material	Waste (m3)	Waste (t)	Minimisation / Re-use Target 5%
Hard material	7,954	9,863	493
Timber	6,022	2,047	102
Plastics	3,764	828	41
Cast formless	2,258	903	45
Gypsum material	1,505	497	25
Metals	1,505	632	32
Paper / card	1,004	211	11
Bio-organic	753	384	19
Soil	251	314	16
Chemicals / paint	75	43	0
Total	**25,091**	**15,722**	**784**

Table 4-3
Total Waste Minimisation and Recycling Targets

Material	Waste (m3)	Waste (t)	Minimisation / Re-use Target 5%	Recycling Target (t)	Recycling (m3)	Recycling Target %	Total Saving (t)	Total Waste Min/Recycling %
Hard material	7,954	9,863	493	7,496	6,045	80%	7,989	51%
Timber	6,022	2,047	102	973	2,860	50%	1,075	7%
Plastics	3,764	828	41	393	1,788	50%	435	3%
Cast formless	2,258	903	45	257	644	30%	303	2%
Gypsum material	1,505	497	25	142	429	30%	166	1%
Metals	1,505	632	32	481	1,144	80%	512	3%
Paper / card	1,004	211	11	160	763	80%	171	1%
Bio-organic	753	384	19	182	358	50%	202	1%
Soil	251	314	16	238	191	80%	254	2%
Chemicals / paint	75	43	0	34	60	80%	34	0%
Total	**25,091**	**15,722**	**784**	**10,356**	**14,281**		**11,140**	**71%**

4.2.3 Waste Management On Site

The management of separate waste streams on site requires consideration of additional storage space for waste and recycling, usually in the form of skips. Table 4-4 provides indicative waste storage requirements based on the estimated waste volumes and collection frequency. These storage requirements will need to be considered prior to commencement of construction. The on-site contractor will also need to consider suitable access to all waste and recycling receptacles throughout the construction phase.

Table 4-4
Estimated On Site Storage for Waste and Recycling

Material	Total Skip requirements (14cy/10.6m3)[1]	Skip on site (14cy/10.6m3)[1]	Collection frequency
general waste	1,275	5	daily
rubble	914	4	daily
metals	135	3	weekly
timber and products	115	2	weekly
packaging (plastic and card)	65	3	fortnightly
plasterboard & plaster	17	1	monthly
Total	**2,521**	**18**	

Based on 80% efficiency

5 ONGOING MONITORING

5.1 Waste Management Responsibility

Responsibility for waste management will fall to the waste management coordinator who will be appointed prior to commencement of site works. The responsibilities of the coordinator will include, but not be limited to:

- Ensuring that all staff and contractors are aware of site requirements for the management of waste. All contractors will be required to attend a short introductory session on waste management principles;
- Monitoring of material and waste tonnages;
- Liaison with waste contractors regarding removal of waste from site;
- Dealing with any hazardous wastes that may be generated;
- Liaison with all project managers to ensure that materials are managed in the most sustainable manner possible.

In addition, all Crest Nicholson developments operate under the Considerate Constructors Scheme - a voluntary scheme which considers all those involved and impacted by the construction process. Sites that are registered with the Scheme are monitored against an eight-point Site Code of Considerate Practice, designed to encourage performance beyond statutory requirements[17].

5.2 SWMP Data Sheet

In order to monitor minimisation and recycling targets and to update information on waste arisings from the construction phase, the waste coordinator will complete the SWMP Data Sheet[18] (as shown in Figure 5-1). As the initial waste forecasts are based upon UK average benchmarks it will be important to record all waste composition and quantities throughout the construction phase and to reassess minimisation and recycling targets as required.

[17] See www.ccscheme.org.uk for further details
[18] See Appendix A for printable version

Figure 5-1
Site Waste Management Plan Data Sheet

Project name							
Project Address/Location							
Main Contractor							
Person responsible for waste management on site							
(name and job title)							
Person and company completing this form, if different							
Types of waste arising (add more rows if necessary)							
Material	**Quantity (in m³)**						
	Re-used on site	**Re-used off site**	**Recycled for use on-site**	**Recycled for use off-site**	**Sent to recycling facility**	**Sent to WML exempt site**	**Disposal to landfill**
Inert							
Active							
Hazardous							
Totals (in m³)							
Performance score as %							
SWMP Target %							

6 SUMMARY OF WASTE MANAGEMENT APPROACH

The following approach summarises data from elsewhere in this document and will be adopted for managing waste:

- A waste management coordinator will be appointed to oversee all waste management practices on site;
- A range of practices will be adopted to minimise the production of waste in the first place (waste minimisation);
- Wastes that are generated will be reused, wherever possible, which may entail storing materials on-site for subsequent development projects;
- A local contractor will be appointed to manage all waste from site with an inherent responsibility to recycle as much as practicable;
- The quantity and types of waste destined to landfill will be minimised through a combination of minimisation, reuse and recycling;
- Dedicated skips and a waste management area will be provided for the management of all wastes. Skips to allow segregation of materials will be provided;
- All contractors and staff will be required to complete a short introductory session to understand requirements for managing waste whilst they are working on site;
- A monitoring programme will be adopted to track and record all waste movements;

The above approach provides a framework for managing waste but has been designed to be sufficiently flexible to accommodate site-specific issues that may not have been anticipated. In adopting the principles set out in the Site Waste Management Plan, Crest Nicholson can ensure that the requirements set out in SWMP Regulations will be fully met.

7 ONGOING WASTE MANAGEMENT FOR THE OPERATIONAL DEVELOPMENT

Following completion of the initial phase, the lessons learned from exercising a waste minimisation and recycling plan will be transposed to a suitable plan to manage ongoing household waste produced from within the Development.

The continuous monitoring will also contribute to a further developed SWMP for the future phases of the development (subject to further planning approval).

Household waste includes the following waste components, for which management arrangements will need to be established;

- recyclable materials including paper, glass, cans and plastics;
- green garden waste;
- residual waste (refuse);
- bulky waste (lumber) including furniture, electrical equipment and large cardboard
- grounds maintenance waste including grass cuttings and hedge/tree prunings;
- clinical/medical waste;
- construction and demolition waste from home improvements;
- other household wastes not mentioned above.

Each residential plot will be provided with sufficient space to store waste and recyclables in the manner required by the Waste Collection Authority, including provision for separate storage of recyclables, refuse and organic wastes. Further details of ongoing waste management practices can be found in the Waste Implementation Plan.

8 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Crest Nicholson; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR Consulting Limited.

SLR Consulting Limited disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

APPENDIX A: SITE WASTE MANAGEMENT PLAN DATA SHEET

Project name
Project Address/Location
Main Contractor
Person responsible for waste management on site
(name and job title)
Person and company completing this form, if different
Types of waste arising (add more rows if necessary)

Material	**Quantity (in m³)**						
	Re-used on site	**Re-used off site**	**Recycled for use on-site**	**Recycled for use off-site**	**Sent to recycling facility**	**Sent to WML exempt site**	**Disposal to landfill**
Inert							
Active							
Hazardous							
Totals (in m³)							
Performance score as %							
SWMP Target %							