



OAKLANDS FARM SOLAR PARK

Applicant: Oaklands Farm Solar Ltd

Environmental Statement

Appendix 4.3 – Outline Construction and Environmental Management Plan
January 2024

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Oaklands Farm Solar Park - Environmental Statement Volume 3

Appendix 4.3: Outline Construction and Environmental Management Plan

Final report

Prepared by LUC

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Oaklands Farm Solar Park

Outline Construction Environmental Management Plan

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1. Outline Construction Environmental Management Plan

1.1 Introduction

- 1.1.1 This outline Construction Environmental Management Plan (CEMP) refers to the construction of the Oaklands Farm Solar Park (the 'Proposed Development') which comprises a proposed solar farm with an associated Battery Energy Storage System (BESS). The Proposed Development would have a generating capacity of over 50 MW and would be situated on 191 hectares (ha) of land at Oaklands Farm to the south-east of Walton-on-Trent and to the west of Rosliston in South Derbyshire. The solar farm itself, comprising photovoltaic (PV) panel arrays, a central electricity substation and BESS together with access, landscaping and other works would be located on 135 ha of agricultural land currently in use for arable production and grazing. A high voltage underground electricity cable would then run through land at Fairfield Farm and Park Farm to the north to connect the solar farm to the national grid via an electricity substation located at the former Drakelow Power Station which sits south of Burton-upon-Trent.
- 1.1.2 As the Proposed Development would be an onshore generating station with a generating capacity of over 50 MW an application for a Development Consent Order (DCO) is being made under the Planning Act 2008 to the Planning Inspectorate, for determination by the Secretary of State for Energy Security and Net Zero.
- 1.1.3 The Proposed Development will be operated by Oakland Farm Solar Limited (hereafter referred to as 'the Applicant') and the over-arching goal is to deliver a utility-scale ground-mounted solar PV and BESS development to meet government Net Zero targets.
- 1.1.4 The Proposed Development is within South Derbyshire District Council local authority area (within Derbyshire County) and is close to the boundaries of East Staffordshire and Lichfield Districts.

1.2 Purpose

- 1.2.1 The aim of this outline CEMP is to provide a clear and consistent approach to the control of construction activities by establishing the main mitigation and control measures that will be utilised to provide robust environmental management throughout the construction period to avoid or minimise the adverse effects of the Proposed Development. A DCO would provide the necessary authorisations and consents for the Proposed Development.



- 1.2.2 The Proposed Development will be located within the 'Order limits' shown on **Figure 1.1** in this report¹.
- 1.2.3 This document does not address operational or decommissioning activities, which would be subject to separate environmental management plans and procedures (see ES Appendix 4.4: Outline Operational Environmental Management Plan and Appendix 4.5: Outline Decommissioning Environmental Management Plan).
- 1.2.4 Likely significant effects have been identified through the Environmental Impact Assessment (EIA) process and are reported in the ES. A range of 'standard' or best practice mitigation and construction management measures were accounted for in the assessments and these will be implemented during construction of the Proposed Development.
- 1.2.5 This Outline CEMP details these construction mitigation measures. It also sets out the monitoring activities designed to ensure that such mitigation measures are carried out, and that they are effective.
- 1.2.6 Where bespoke mitigation measures are proposed within the ES these are also captured within this CEMP to ensure there is one comprehensive record of all necessary construction mitigation measures.
- 1.2.7 This Outline CEMP is designed with the objective of ensuring compliance with the relevant environmental legislation and mitigation measures set out within the ES. This document provides the likely structure of the detailed CEMPs and relevant preliminary information. It indicates what additional information or controls might be included under each sub-section within the detailed CEMPs, which will be produced by the contractor(s) selected to deliver the Proposed Development's construction phase.

1.3 Content

- 1.3.1 The detailed CEMP will be prepared in accordance with this Outline CEMP, as a Requirement of the DCO and would be approved by the relevant local planning authority and consultees in advance of starting the construction works. The key elements of this Outline CEMP include:
 - An overview of the Proposed Development and associated construction programme;
 - Identification of potential environmental effects;
 - Proposed design and other mitigation measures to prevent or reduce potential adverse environmental effects; and,
 - Links to other complementary plans and procedures.

¹ This is Figure 1.1: Site Location in Volume 2 of the Environmental Statement



1.3.2 The appointed contractor(s) will be responsible for working in accordance with the environmental controls documented in the Outline CEMP and for the preparation and implementation of the detailed CEMP. Any additional construction licences, permits or approvals that are required will be listed in the detailed CEMP.

1.4 Document Control

1.4.1 The CEMP is a “live” document and will be subject to periodic review and updating. The document is intended for use by the Applicant and their contractors specifically involved in the construction of the proposed development. When this document is amended, the document control table will be updated (Table 1.1) and it will be issued to all personnel specified on the distribution list below (Table 1.2).

Table 1.1 Document Control

Status	Date Issued	Prepared by	Summary of alterations
Version 1.0	November 2023	ITPEnergised	Outline CEMP

Table 1.2 Distribution List

Organisation	Contact Name	Email	Telephone Number
Applicant – Oakland Farm Solar Limited	TBC	TBC	TBC
Principal Contractor	TBC	TBC	TBC
Ecological Clerk of Works	TBC	TBC	TBC
Archaeological Clerk of Works	TBC	TBC	TBC
South Derbyshire District Council	TBC	TBC	TBC

1.5 Responsibilities

1.5.1 It is the responsibility of all staff involved with the Proposed Development, including the Applicant, Principal Contractor and sub-contractors, to ensure the correct implementation of the CEMP and the environmental mitigation contained within.

1.5.2 During the construction phase of the Proposed Development the key environmental responsibilities are summarised below:

- The Applicant – responsible for ensuring that the Proposed Development is built in accordance with the DCO requirements and that all environmental mitigation measures stated within the Environmental Impact Assessment and this outline CEMP are implemented.



- **Principal Contractor** - The Principal Contractor will be engaged by the Applicant to manage and deliver the construction of Oaklands Farm Solar Park. As such they will be responsible for regularly reviewing and updating the CEMP and ensuring that all staff and sub-contractors abide by and implement the CEMP. The Principal Contractor will be responsible for the implementation of the CEMP and all the relevant environmental mitigation measures outlined in the ES.
- **Ecological Clerk of Works (ECoW)** - reports to the Applicant and is responsible for monitoring the implementation of the environmental mitigation measures on site prior to, during and post-construction. The ECoW will be, or will be supported by, a Suitability Qualified Ecologist (SQE).
- **Archaeological Clerk of Works (ACoW)** - employed to oversee the archaeological programme of works).
- **All construction staff** – responsible for understanding the requirements of the CEMP and the environmental sensitivities of the proposed development. All staff have an obligation to abide by the CEMP and the relevant environmental legislation for the protection of environmental receptors.

1.6 Subcontractor Management

- 1.6.1 The Proposed Development will engage various subcontractors to carry out project construction related activities. These subcontractors are responsible for performing all work in conformance with relevant environmental legislation and other environmental requirements, the requirements of the CEMP, and contractual environmental requirements.
- 1.6.2 Subcontractors are required to develop suitable, adequate and effective method statements that explicitly define the measures to be taken to manage significant environmental risks associated with their scope of works. No works should be permitted to commence until such method statements have been developed and approved by site management. Additionally, subcontractors are required to provide sufficient and competent resources to monitor conformance with their own defined method statements.
- 1.6.3 The Principal Contractor will conduct monthly Site Safety and Environmental Reviews (SSERs) that will assess the environmental performance of subcontractors.

1.7 The Order limits

- 1.7.1 The Order limits are located within the administrative areas of South Derbyshire District Council, in the county of Derbyshire.
- 1.7.2 The Proposed Development comprises the construction and operation of a solar PV electricity generating facility with BESS and connection to the grid.
- 1.7.3 The area of land required for the construction, operation and maintenance, and decommissioning of the Proposed Development (the Order Limits) is shown on



Figure 1.1 of this report. This includes land required for temporary and permanent uses. The Work Plans are also included within this report at Appendix 2.

1.8 The Proposed Development

- 1.8.1 The Order limits are described in Chapter 4: Project Description of the ES and comprises the Solar Farm Site (which includes the BESS and the Substation), the Grid Connection Route and access routes.
- 1.8.2 The Site occupies a total area of approximately 191 ha. The Site lies to the south-east of Walton-on-Trent, and mainly comprises land within Oaklands Farm area (southern part of the Site) and Park Farm area (northern part of the Site) which are currently used for arable cropping and grazing (see Figure 1.3: Areas of the Site in ES Volume 2).
- 1.8.3 Land within and between the two farms (Fairfield Farm area) along with land to the north (Drakelow Power Station area) has been identified as a suitable corridor for locating the cable required to connect the Proposed Development's substation to the point of connection within Drakelow National Grid substation.
- 1.8.4 The land within Oaklands Farm slopes down to the east to a nameless tributary of the River Trent. Fields are bound by hedgerows, and some appear to have been amalgamated to create larger fields. Small copses of trees and ponds are a feature of this landscape, sometimes coinciding with former earthworks (marl pits), as are a small number of hedgerow trees. Two overhead lines (OHLs) cross both farms, running south from Drakelow Power Station.

1.9 Proposed Development description

- 1.9.1.1 The Proposed Development comprises the construction of the following buildings and infrastructure, the impact of which have been considered in this CEMP:
 - Solar PV panels;
 - Transformers;
 - Switchgear;
 - Cabling (high and low voltage);
 - Battery Energy Storage System;
 - Onsite substation with control building, storage, office and welfare facilities;
 - Fencing and security including CCTV;
 - Drainage;
 - Internal access roads and parking;
 - Landscaping and habitat creation areas; and
 - Construction laydown areas.



1.10 Compound Area

- 1.10.1 Temporary site infrastructure is expected to consist of, but not be limited to, single and double height portacabins, material storage, contractor parking and concrete batching plant. Temporary site infrastructure would be located on what would then become permanent infrastructure.
- 1.10.2 The principal construction will contain a number of self-contained cabins to provide offices and welfare facilities.
- 1.10.3 Power for the temporary facilities during the construction phase will be delivered by battery powered equipment where practicable. The type and exact location will be selected by the Principal Contractor and confirmed in a later revision to this document.
- 1.10.4 Water required for construction will be stored in water bowsers. Any water abstractions determined to be needed to support construction activities would be subject to the granting of appropriate licences by the Environment Agency.
- 1.10.5 No discharge of drainage shall be made to the surrounding land, and all foul water will be removed from the site by a licensed haulier.
- 1.10.6 The Principal Contractor will ensure the following:
- The footprint of the compounds is minimised where possible;
 - Adequate, clean welfare facilities will be provided for all staff;
 - All working areas will be kept in a clean and tidy condition;
 - If lighting is required, it will be designed to minimise light pollution;
 - Specific smoking areas will be provided with appropriate containers for smoking waste; and
 - All fencing, gates and/or hoarding will be inspected regularly and repaired and maintained as necessary.
- 1.10.7 As required, the Principal Contractor will fence off active working areas of the construction compounds and wider site to prevent members of the public or stray animals from entering the working areas. Any fencing or hoarding will ensure the free movement of wildlife and watercourses. All fencing and hoarding adjacent to public roads will maintain an adequate visibility at junctions. All temporary hoarding and fencing will be removed following the completion of construction.

1.11 Programme of Works

- 1.11.1 An indicative construction programme is available in Appendix 4.1 Indicative Construction Programme in Volume 3 of the ES. A full detailed programme of works is to be provided in the detailed CEMP and once a contractor has been appointed.



1.12 Works Details

1.12.1 Enabling Works

1.12.2 To prepare the site for the Proposed Development, the following enabling works will be undertaken:

- Construction of site entrances.
- Establishment of construction compounds, which include site offices/welfare area and parking area.
- Upgrading, modification or improvement of highways where required for site construction.
- Preparation of land for construction, including localised site levelling (where required) and vegetation clearance.
- Import of construction materials, plant and equipment to site.
- Establishment of the construction area fence where required for construction works to progress (the installation of the perimeter fence will progress with site construction in each area and therefore will not be complete at the start of site construction).
- Construction of the internal access roads.
- Marking out the location of the operational infrastructure.
- Installation of site drainage.

1.13 Main Construction Activities

1.13.1 The main construction activities would include:

- BESS Construction
 - Installation of electric cabling.
 - Construction of foundations.
 - Import of components to site.
 - Installation of batteries, auxiliary transformer and PCS units.
 - Installation of perimeter fencing, gates and CCTV.
 - Installation of water storage tanks and associated fire-fighting infrastructure
- Proposed Development Substation, compound and welfare facilities
 - Installation of electric cabling.
 - Construction of foundations.
 - Import of components to site.
 - Installation of transformers, harmonic filter, statcoms, control building, welfare building, and storage containers.



- Installation of perimeter fencing, gates and CCTV.
- Installation of water storage tank, deluge system and associated fire-fighting equipment.
- Trenching and installation of electric cabling
 - Cabling will in the majority be installed using open trenching methods except where required to cross watercourses, utility assets, or roads whereby directional drilling under the features may be required.
- Installation of solar panels
 - Import of components to site.
 - Piling and erection of PV module mounting structures, using mobile piling rigs to install metal piles up to 2m in depth (see Plate 6).
 - Mounting of modules to the mounting structure using hand-held power tools.
 - Trenching and installation of electric cabling.
 - Installation of string inverters and transformer units.
 - Installation of perimeter fencing, gates and CCTV.
- Micro-piling is likely to be required for most panel frames foundations due to the local ground conditions. The method of construction and requirement for piling will be confirmed once a Principal Contractor is appointed

1.13.2 Site Demobilisation and Reinstatement

1.13.3 Following completion of the main construction activities on site, demobilisation and reinstatement will be undertaken.

1.13.4 Specific elements of the Works will be removed including temporary construction access tracks and construction compounds and laydowns areas. These areas will be either reinstated to their use before construction began or incorporated into the proposed landscaping and ecological enhancements proposed as part of the Proposed Development.

1.13.5 The ground under the solar panels will be planted with native grassland mix and hedgerows and trees will be planted and reinstated in strategic locations to provide visual screening. An outline Landscape and Ecological Management Plan has been prepared (see Appendix 5.6: Outline Landscape and Ecological Management Plan) to set out the principles for how the land will be managed throughout the operational phase following the completion of construction.

1.13.6 Plant and Equipment

1.13.7 All plant and equipment shall be serviced and have been inspected prior to use and calibrated where applicable. As a minimum this shall consist of, but not be limited to:



- Excavators
- Ready mix concrete wagons
- Concrete pumps
- Mobile piling rigs
- Cranes
- Dumper trucks
- Low loaders
- Generators
- Fuel and water bowsers

1.14 Site Access

1.14.1 The following tracks and access points are required during the construction phase (see ES Figure 4.4: Site Access Points for location of each numbered access point):

- A new 2km Temporary Construction Haul Road will be installed across Park Farm, Fairfield Farm, and Oaklands Farm, to allow HGVs to travel from Walton Road to the construction compounds within the Oaklands Farm area. To leave the Site, HGVs will re-trace the route to exit onto Walton Road.
- Access 1B - Use of an existing (but currently unused) farm access point off Walton Road into Park Farm. This will be an entrance for HGVs and light vehicles and will not be used during operation of the Proposed Development.
- Access 1A - Use of an existing farm access point off Walton Road into Park Farm. This will be an exit only for mostly HGV construction vehicles, with a right turn only on exit. This access will not be used during operation of the Proposed Development.
- Access 2 - A new permanent access will be created north off Walton Road into land adjacent to Drakelow substation. This will be utilised for installation and ongoing maintenance of the 132kV cabling to be laid in National Grid's non-operational land adjacent to the Drakelow substation.
- Access 3 - Existing access into National Grid's Drakelow substation will be used for construction and operations works associated with connection assets within National Grid's operational compound.
- Access 4 - A new access across Rosliston Road to serve the Temporary Construction Haul Road providing access north and south only. During construction, vehicles will not be able to turn into the Site off Rosliston Road. Once construction is complete, the access on the northern side of Rosliston Road will be removed (only to be reinstated in emergency situations or at decommissioning of the Proposed Development). The access on the southern side of Rosliston Road will remain post-construction, but only as a secure gated access for response to emergency health and safety incidents.



- Access 10 - Improvements to an existing farm crossing at Coton Road. HGVs will cross Coton Road heading north and south at this crossroads but will not be able to exit onto Coton Road - all HGVs will exit the Site by travelling north along the Temporary Construction Haul Road and exiting onto Walton Road at the Park Farm Exit Junction. Smaller construction vehicles will be able to enter and exit the Site off Coton Road if required. Abnormal Indivisible Loads (AILs) for deliveries of the large Proposed Development substation transformer units, will be able to access the Site at the Coton Road Crossroads from the east, turning right off Coton Road. The AILs will exit at the same point, turning left and following the same route back along Coton Road.

1.15 Construction and Delivery Hours

1.15.1 To minimise the potential impacts on residents, the core construction working hours will be limited to weekday daytimes and Saturday mornings, as defined in BS5228, the Code of Practice for Noise and Vibration Control on Construction and Open Sites (British Standards Institution, 2014). Working hours will be agreed with the Council prior to construction, but are expected to be:

- 07:00 – 19:00 Monday to Friday;
- 07:00 – 13:00 hours on Saturdays (unless in exceptional circumstances where need arises to protect plant, personnel or the environment); and
- No working on Sundays, Bank or Public Holidays with prior written agreement of the Local Planning Authority.

1.15.2 To maximise productivity within the core working hours, contractors would require a period of up to one hour before and up to one hour after core working hours for start-up and closedown activities. This would include but not be limited to, movement to place of work, maintenance and general preparation works. This would not include operation of plant or machinery likely to cause a disturbance. These periods would not be considered an extension of core working hours.

1.15.3 As such, it is likely that staff would arrive at the Site before 07:00 and leave after 19:00 Monday to Friday and before 07:00 and after 13:00 on a Saturday. As a result, construction traffic traveling to the Site will not impact the traditional local highway network peak periods during the morning and evening periods.

1.15.4 Should any work need to be undertaken outside of the agreed hours, prior approval will be obtained from the Council.

1.15.5 Construction traffic movements will be scheduled to occur outside of the traditional local highway network peak periods. The agreed core working hours will inherently enforce this with additional restrictions being placed on Heavy vehicle movements which will not be permitted on the local highway network at the following times:

- On Sundays or on public holidays with prior written agreement of the Local Planning Authority.;



- Between the hours of 19:00 and 07:00 (Monday to Friday); and
- Between 13:00 on Saturday and 07:00 on Monday. The above restrictions do not apply to the movement of Heavy vehicles on the SRN or in relation to Abnormal Indivisible Loads (AILs), which will be subject to a separate agreement and licencing process.

1.15.6 In addition to the above, it is proposed that the Applicant will not accept Heavy vehicle deliveries to Site or let Heavy vehicles leave the Site between the hours of 08:30 to 09:30 and 15:00 to 16:00 to avoid the start and finish times of local schools and the associated drop off and pick up times. This will be communicated with contractors accordingly.

1.16 Artificial Lighting

1.16.1 During the construction phase of the proposed development, artificial lighting may be required which could be considered a nuisance. Circumstances requiring artificial lighting may include:

- Provision of lighting at the site compound for security and safety of staff during the mornings and evenings in winter months; and
- Provision of temporary lighting along the access roads.

1.16.2 Should artificial lighting be required, the Principal Contractor will comply with the requirements of the Environmental Protection Act (UK Government, 1990). As well as implementing relevant measures set out in the Guidance Notes for the Reduction of Obtrusive Light GN01:2011 (Institute of Lighting Professions, 2011). Measures to reduce the impacts of artificial lighting include:

- Unnecessary lighting will be avoided and, following completion of the task, lighting will be switched off and/or removed. All lighting will be switched off during daylight hours;
- White light will not be used (preferable colours are 3000°k to 2700°k with peak wavelengths greater than 550nm);
- All lighting will be designed to avoid visual intrusion and/or light spillage. Lighting will be positioned and directed to avoid nuisance to residents and wildlife and/or causing distractions to drivers on adjacent roads. Lighting will also avoid spillage onto neighbouring habitats;
- If reasonably practical, lighting will be powered from mains supplies rather than from portable generators;
- Where mobile lighting relies on portable diesel generators for power, the containment of the diesel will be monitored to check for leaks and spills. Spill kits will be made available and staff provided appropriate training;
- Lighting of temporary construction compounds will be restricted to agreed working hours (one-hour period before sunrise and a one-hour period after sunset) and that which is necessary for security;



- Temporary lighting at construction compounds comprising either 4-6 light towers (up to 4 m in height) in each compound or spotlights mounted on container/welfare units, with just the entry points, walkways and front of storage facilities lit (the whole compound will not be lit up) for one-hour periods prior to the start and end of the working day; and,
- Temporary lighting overnight comprising downward facing lighting mounted on top of storage containers where materials or equipment is stored.

1.17 Community Liaison

1.17.1 Prior to construction commencing, the Applicant will actively engage with local residents to discuss the programme of work, address any concerns raised and determine how the Principal Contractor can minimise the impacts of construction on local residents.

1.17.2 The Applicant will be the first point of contact for any queries and/or grievances regarding the construction of the proposed development and will be responsible for:

- Recording all queries and/or issues raised;
- Responding in an appropriate and timely manner,
- Liaising with the planning authority in connection to any complaints; and
- Monitoring any actions that need to be implemented.

1.18 Monitoring

1.18.1 Environmental monitoring will be required during construction works to check compliance with set conditions and applicable environmental legislation.

1.18.2 A daily walkover will be undertaken by the Principal Contractor. This will cover all parts of the site, including site compounds, site access point, monitoring points and any environmental receptors of particular sensitivity.

1.18.3 The Principal Contractor will review all operations to ensure compliance with the CEMP. Should deficiencies or opportunities for improvement be identified, the Principal Contractor will agree the actions required and the timescale for implementation with the staff responsible. The Principal Contractor will be responsible for recording all deficiencies, the action taken to remedy the deficiency and the success of such action. They will report to the Developer and to statutory bodies as required.

1.18.4 Monitoring requirements relating to noise, air quality, water, protected species, habitats, waste and traffic are specified in the respective management plans.



1.19 Operation, Loading and Unloading of Plant and Materials

1.19.1 The operation of plant and machinery on site and the loading and unloading of materials, has the potential to cause nuisance for sensitive receptors. Section 2.2 outlines mitigation measures to be implemented to reduce noise impacts arising from the operation of plant and equipment during the construction of the proposed development.

1.20 Storage of Plant and Materials

1.20.1 Fuel, equipment and construction materials will be stored appropriately so as to minimise the risk of pollution and visual impact. The following measures will be implemented to prevent spillage of hazardous materials:

- Development of a Spill Response Plan and provision and maintenance of spill response equipment;
- Storage of hazardous materials no less than 20 meters away from a watercourse/drainage gullies and outside of the River Mease Special Area of Conservation (SAC) catchment;
- Completion of a Control of Substances Hazardous to Health (COSHH) assessment for hazardous materials;
- Development of a COSHH Register documenting materials stored and handling requirements;
- Segregation of COSHH raw material stores and COSHH waste stores;
- Storage of hazardous material containers on secondary containment systems that will contain 110% of the contents of the largest container or 25% of the total, whichever is greater;
- Protection of hazardous materials in locked containers to minimise the ingress of rainwater and secure them against accidental damage;
- Refuelling and maintenance to be undertaken within the site compound away from all watercourses within or adjacent to the Site and outside the River Mease SAC catchment;
- Fixed plant to be self-bunded, mobile plant to be kept clean and in good working order, and fitted with drip trays, where appropriate;
- Spillage kits and oil absorbent material to be carried by mobile plant and located at vulnerable locations (e.g. crossings of land drains/ditches);
- Train staff in the use of spill kits and the correct disposal of used material;
- Maintain a log of any incidents; and
- All construction plant and machinery will be inspected on a daily basis to check for fuel and oil leaks and, where necessary, drip trays or plant nappies will be used to collect leaks.



1.21 Parking

1.21.1 Parking for construction workers, deliveries and site visitors will be accommodated within the proposed development site and would not impact on the public road network.

1.22 Key Environmental Issues

1.22.1 Potential environmental effects relating to each activity are provided in each Chapter of Volume 1: Environmental Statement.

2. Construction Environmental Management

2.1 Introduction

2.1.1 This section of the Outline CEMP sets out the mitigation and management measures to be included as a minimum in the detailed CEMP. It also identifies where monitoring is proposed to assess the effectiveness of the mitigation measures.

2.2 Noise and Vibration Management

2.2.1 Working hours

2.2.1.1 The following operations may, where necessary, continue or take place on an exceptional basis outside the working hours above - construction techniques which cannot be interrupted safely; or works required to mitigate delays to construction due to extreme weather conditions.

2.2.1.2 If any activity is considered necessary outside of these hours, the contractor should liaise with the Local Authority and nearby affected stakeholders. The contractor may wish to apply for a Section 61 of the Control of Pollution Act to the Local Authority for these specific works.

2.2.1.3 No working is proposed at night, with the possible exception of directional drilling for cable laying below Rosliston Road for a short period. If a contractor determines a need to undertake work at night, the Contractor will discuss the proposed works with the LPA with respect to timings, working methods, allowable noise limits, liaison with residents, noise and vibration monitoring, and s61 applications, prior to the works taking place.



2.2.2 Noise and Vibration action levels

- 2.2.2.1 For reference, baseline noise levels were measured in 2021 and reported in Appendix 11.1 of the ES. The contractor should liaise with the Local Authority as to whether an update baseline noise survey is required before the start of works, where ambient noise levels are considered to have changed significantly.
- 2.2.2.2 Guideline criteria for evaluating the magnitude of construction noise and setting limits are provided in the informative guidance at Annex E of BS5228-1:2009+A1:2014; At section E3 a lower limit of 65 dB LAeq, 12 hour during the daytime is indicated based on the relatively low existing ambient noise in the vicinity.
- 2.2.2.3 Where levels are predicted to exceed 65 dB LAeq, 12 hour the contractor should liaise with the affected residence, to inform them of the proposed working methods, duration, timings and steps being taken to minimise potential disruption or duration of potential disruption. The contractor may wish to apply to the Local Authority for a section 61. This could include provision for noise and/or vibration monitoring as part of an agreement, where appropriate.
- 2.2.2.4 Contractors should aim to ensure that a Peak Particle Velocity is below 1mm/sec, as set out in Table B.1 of and BS5228-2:2009, as the level at which complaints are likely but can be tolerated if prior warning and explanation has been given.
- 2.2.2.5 Whilst not anticipated, if this is not possible to achieve for short periods of exceptional works, a Peak Particle Velocity of 10mm/sec should not be exceeded, and prior warning must be given to occupiers of affected residential properties.

2.2.3 Noise and vibration controls

- 2.2.3.1 The Contractor will have a duty to undertake Best Practical Means (BPM) as defined in s79(9) of the EPA and s72 of the Control of Pollution Act 1974 (CoPA).
- 2.2.3.2 The Contractor will have a duty to follow the recommendations set out in BS 5228:2009. In particular the Contractor will ensure:
- Only plant conforming with relevant national or international standards, directives or recommendations on noise or vibrations emissions will be used.
 - All vehicles fitted with effective exhaust silencers which are in good working order.
 - Avoiding loud audible vehicle reversing sirens and not setting the volume higher than is necessary to be compatible with safety requirements.
 - All construction machines and plant should be switched off or their noise output significantly reduced when not in use, and must not be left idling unnecessarily.
 - All plant shall be maintained in good working order, following the manufacturers recommendations, so as to minimise unnecessary noise (such as squeaks, creaking or rattling).



- Noisy plant (for example generators) will be located as far away as practicable from residential properties. Where fixed sources of noise need to be located closer to noise sensitive receptors, quiet plant should be selected and barriers such as soil mounds, acoustic sheds or other noise screening should be used where practical.
- Loading and unloading activities are undertaken in a considerate manner away from residential properties as far as practicable, to reduce impact noise. Minimise drop height of materials.
- Haul routes, access points and traffic management are strictly followed.

2.2.3.3 Where potentially noisy works are proposed near to residential properties, the Contractor will liaise with the nearby residential properties to keep them informed of when noisy works may occur and for how long and provide appropriate contact information.

2.3 Soil Resource

2.3.1 An Outline Soil Management Plan (OSMP) is available in Appendix A to sets out principles and procedures for good practice (embedded mitigation measures) and bespoke mitigation measures in soil handling, storage and reinstatement to be used for the Proposed Development. The outline plan describes the principles that the Principal Contractor will follow to minimise adverse effects on the nature and quality of the soil.

2.4 Outline Dust and Air Quality Management Plan

2.4.1 Outlined below are recommendations for mitigation measures to be implemented during construction to control dust and air quality impacts. These mitigation measures are proportionate to the level of risk assessed using the methodology set out in Institute of Air Quality Management Guidance on the assessment of dust from demolition and construction (Institute of Air Quality Management, 2019).

2.4.2 Proposed mitigation for communications:

- Display the name and contact details of person(s) accountable for environmental issues on the site boundary; and
- Display the head or regional office contact information.

2.4.3 Proposed mitigation for dust management:

- Develop and implement a Dust Management Plan (DMP). This may include measures to control other emissions, approved by the Local Authority.

2.4.4 Proposed mitigation for site management:

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- Make the complaints log available to the local authority when asked; and



- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the logbook.

2.4.5 Proposed mitigation for monitoring:

- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the Local Authority when asked;
- Increase frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions; and
- Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences.

2.4.6 Proposed mitigation for preparing and maintaining the site:

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

2.4.7 Proposed mitigation for site operations:

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems;
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate;
- Minimise drop heights from loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event, using wet cleaning methods.

2.4.8 Proposed mitigation for waste management:

- Prohibit all fires on site, including for the burning of waste materials.

2.4.9 Operating vehicle/machinery and sustainable travel:

- Ensure all vehicles switch off engines when stationary;



- Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable;
- Impose and signpost a maximum speed limit of 15 miles per hour (mph) on surfaced and 10 mph on unsurfaced haul roads and work areas; and
- Issue all suppliers and contractors with delivery routes and access times/restrictions.

2.4.10 Proposed mitigation specific to earthworks:

- Re-vegetate earthworks and exposed areas/soils stockpiles to stabilise surfaces as soon as practicable;
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable; and
- Only remove the cover in small areas during work and not all at once.

2.4.11 Proposed mitigation specific to construction:

- Avoid scabbling (roughening of concrete surfaces) if possible;
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate control measures are in place;
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; and
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.

2.4.12 Proposed mitigation specific to track-out:

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. this may require a sweeper being continuously in use;
- Avoid dry sweeping of large areas;
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport; and
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
- Record all inspections of haul routes and any subsequent action in a site logbook.

2.5 Site Waste Management

2.5.1 Introduction

2.5.1.1 The Site Waste Management Plan (SWMP) for the Proposed Development will be prepared and appended to the detailed CEMP to outline the practices to be put in place to ensure the control of waste on site, in a manner that is not detrimental to



the local and wider environment. This encompasses the minimisation of waste and the removal of waste from site where necessary.

2.5.1.2 The Principal Contractor will consider the objectives of sustainable resource and waste management and seek to use material resources efficiently, reduce waste at source, reduce waste that requires final disposal to landfill and apply the principles of the waste hierarchy.

2.5.1.3 The types, quantities and final destination of waste generated during the construction phase would be identified, measured and recorded through the SWMP.

2.5.1.4 The following benefits will result from the implementation of the Site Waste Management Plan:

- A reduction in waste being sent to landfill;
- a reduction in material purchase, disposal and landfill costs;
- avoidance of nuisance arising from dust and odour;
- a reduction in vehicle movements on site and in the local area; and
- reduction of impact on local communities.

2.5.1.5 It is anticipated that the construction of the Proposed Development will give rise to the following types of waste:

- wood;
- domestic (e.g. glass, paper, cardboard, plastics, food, sewage); and,
- metal (e.g. wire, steel).

2.5.2 Strategy for Waste Reduction

2.5.2.1 The Principal Contractor will employ the following strategy to achieve maximum reuse and reduce landfill waste:

- Sub-contractors will be contractually obliged to cooperate with the Site Waste Management Plan as part of their tender;
- All staff will be encouraged to engage in site inductions and environmental awareness campaigns;
- Waste management will be incorporated into the design process, including planning for high volumes of waste, consideration of suitable manufacturers and appropriate storage measures;
- The Principal Contractor will identify and segregate waste streams;
- The Principal Contractor will reuse and recycle where possible;
- The Principal Contractor will use suitable storage methods for all materials; and



- Unauthorised waste disposal will be treated as an environmental incident and the Pollution Incidence Response will be implemented. Under no circumstances will waste material be burned or buried on the Proposed Development site.

2.5.3 Development Waste Management Specifics

2.5.3.1 The following measures will be implemented to minimise the environmental impacts of construction waste arising from the proposed development.

Elimination:

- The Proposed Development will aim to avoid the creation of waste through the detailed design stages. The control of design will reduce the risk of late stage changes which would require rework and therefore reduce overall waste.

Reduction:

- The Principal Contractor will undertake accurate measurement and ordering of required materials to reduce the volume of waste generated during construction (e.g. ordering standardised sizes to reduce onsite cutting);
- Order materials on a just-in-time basis to reduce onsite storage time;
- The Principal Contractor will ensure the effective and appropriate storage of materials to protect against damage and adverse weather conditions;
- Ensure suppliers have a take-back option for packaging and surplus;
- Maintain good communication with suppliers to reduce the amount of packaging included in deliveries;
- The Principal Contractor will ensure the use of enclosed containers to store waste susceptible to spreading by wind or liable to cause litter; and
- Remove general waste at frequent intervals and keep the site kept clean and tidy.

Waste Storage, handling and segregation:

- Store wastes in areas away from surface or foul drains and watercourses;
- Segregate all construction wastes, at a minimum, into hazardous and non-hazardous waste streams;
- Segregate construction wastes into dry recyclables;
- Cover waste containers if there is a risk that wastes may be blown out or the wastes contained therein are water sensitive (e.g. plasterboard wastes);
- Store waste oils in 110% bunding;
- Use waste signage such as labels that specify waste contents; and
- Secure waste containers. Skips should be lockable if the site is insecure or vulnerable to theft and vandalism.

Re-Use:

- Uncontaminated excavated material arising during construction; and,



- Subsoil in landscaping areas and restoration post construction.

Recycling:

- The Principal Contractor will designate areas or containers for materials which can be recycled such as plastics, timber, steel, general waste, dry recyclables, batteries, etc.

Off-site Disposal of Site Waste Streams:

- Use the GT Non-Hazardous Waste Transfer Note (WTN) for the off-site disposal of all non-hazardous wastes;
- Only use licensed waste carriers to transport wastes from site and obtain documentation to demonstrate registration;
- Obtain full copies of the Waste Management Licences or Exemptions for the disposal locations of site waste streams;
- Periodically follow a waste vehicle to its destination where: the condition of the waste contractor's vehicle is poor, the waste contractor's waste paperwork is weak, a waste contractor uses a lower tier waste haulage company, higher risk waste is being transported e.g. oily wastes, or there is a suspicion wastes are being taken to a non-licensed site; and
- Contact the Site Manager in the event that site wastes are not taken to a licensed waste disposal or recycling facility.

Keep Legislative Records:

- Retain copies of all relevant permits or licences for both carriers and disposal sites;
- Use consignment notes for the off-site disposal of all hazardous wastes;
- Retain all WTNs for at least three years;
- Record contact details for all waste carriers and disposal sites;
- Keep audit reports;
- Maintain recycling receipts for non-hazardous waste; and
- Record a description of all waste removed from site including volume and consignment route number.

Monitoring:

- Track the volumes of waste produced using key performance indicators (KPIs) and compare this against targets which will be set at the beginning of the project.

2.6 Water Quality and Pollution Management

- 2.6.1 Outlined below are recommendations for mitigation measures to be implemented during construction to control water quality impacts. These mitigation measures take due cognisance of the Water Resources Act 1991 (UK Government, 1991) and the Construction Industry Research and Information Association Report C532 (CIRIA, 2006).



2.6.2 Good practice measures set out in the relevant Pollution Prevention Guidance (PPGs) (Environment Agency et al., 2010) or the updated versions, Guidance for Pollution Prevention (GPPs) (Natural Resources Wales et al., 2017), have been followed. The relevant guidance includes:

- GPP 5: Works and maintenance in or near water
- PPG 6: Working at construction and demolition sites
- PPG 7: The safe operation of refuelling facilities
- GPP 13: Vehicle washing and cleaning
- GPP 21: Pollution incident response planning
- GPP 22: Dealing with spills

2.6.3 General mitigation:

- Undertake a pollution risk assessment of the site and the proposed activities;
- Identify all Controlled Waters that may be affected by the works and temporary discharge points to the on-site drainage ditches and the marine environment;
- Implement a pollution control system during earthworks and construction; and
- Monitor construction procedures to ensure management of risk is maintained.

2.6.4 Specific mitigation measures include:

- In accordance with the Environment Agency's scoping requirements, there will be a minimum 8m buffer, where a works stand off will apply, along all on Site watercourses (with the exception of water crossings).
- Turfs within the stand off buffer shall be maintained intact and undisturbed throughout the construction phase, thus forming a vegetated filter strip, providing protection to the watercourses from silt and run-off.
- These vegetated filter strips shall be protected during the works by use of silt fencing, barrier fencing, soil berm or similar to clearly demarcate the stand-off areas and to provide a barrier to movement of plant and migration of silt as required.

2.6.5 The Site is of an undulating topography and as a precautionary the following additional considerations and measures will be implemented to sever pathways between the construction works and any watercourse:

- Phasing of works, particularly of turf and topsoil strip, such that as little bare soil is exposed at any one time.
- Sealing of all soils in storage areas (stockpiles) using an excavator bucket at the end of each shift, to minimise the potential for sediment to be washed off during a rainfall event.
- No stockpiles will be located within the buffer strip.



- Where long-term storage of soil is planned, vegetation on stockpiles shall be allowed to naturally regenerate and/ or be seeded to facilitate a cover of vegetation.
- If required, a combination of ditches, berms and sediment traps can be employed in order to control the direction and to slow the flow of rainwater run-off.
- Diversion of surface water from areas of bare soil into freely draining pond/ lagoon areas to enable it to drain to ground.
- Where water is visibly turbid (silt-laden) or impacted by contaminants, it shall be treated prior to discharge using one or a combination of; a proprietary water treatment system (e.g. silt-buster); hay bale and/ or sediment weirs or mats or similar; temporary grips and/ or; proprietary silt filtration devices (e.g. Naylor's SmartFilter).
- The weather forecast will be monitored daily by the Principal Contractor throughout the project, in order to predict periods of likely heavy rainfall. Where heavy rainfall is predicted works may need to be suspended. Ahead of a period of forecasted heavy rain, the site works will be inspected to identify areas susceptible to sediment run-off and implement additional precautions as necessary. Such precautions may include additional sediment trap weirs, or covering of stockpiles.
- All proposed trackway crossings are to use existing agricultural access points and as such no new crossings above those in the design are proposed. At each trackway crossing point measures shall be put in place prior to the start of works in that area. Examples of such measures shall be designed by the Principal Contractor or sub-contractors and shall include use of silt fencing on either side of the track across the top of the crossing.
- Use of silt control measures within the watercourse, such as bales, booms, sediment mats or other measures to control any spread of silt should it enter the watercourse.
- Use of edge-protection berms to prevent migration of silt sideways from trackway into watercourse.

2.6.6 Proposed mitigation for concrete works:

- If concrete is brought to site, provide dedicated concrete washout skip/basin to prevent any uncontrolled spilling of material in-site or nearby public roads;
- Concrete washout facilities to be regularly maintained and solids to be disposed of safely;
- If on-site concrete batching is needed, ensure necessary containment measures are in place and suitable disposal and cleaning methods;
- Robust emergency response in place for any concrete spillage on site;
- Correct disposal of any waste or surplus concrete in agreed suitable locations both onsite and offsite;



- Where applicable, shuttered pours should be used to prevent on concrete losses to ground;
- Ensure excavations are sufficiently dewatered before concreting begins and that dewatering continues while concrete sets; and
- Cover freshly poured concrete surfaces to prevent any polluted runoff attributed with wet weather.

2.6.7 Implement appropriate fuel and chemical storage measures:

- Follow measures set out in the 'Storage of Plant and Materials' section of the outline CEMP;
- Maintain oil booms and absorbent pads within all work areas;
- Fuel and oil deliveries to take place on an impermeable transfer area with a bunding facility capable of handling a major spill;
- Assign designated refuelling areas where appropriate and site them as far as practicably possible and at least 20m from adjacent field drains and public sewers; and
- Install operational drainage as early as possible with the inclusion of oil separators.

2.6.8 Establish contingency planning and emergency procedures:

- All pollution prevention consumables and plant to be made readily available at all times. Keep spill kits in all vehicles to enable a rapid and effective response to any accidental spillage or discharge; and
- Train all construction staff in the effective use of spill kits and raise awareness of all preventative measures for water pollution.

2.6.9 Surface Water

- Sediment and erosion control – using grass and vegetation as natural filters, works timings i.e. don't strip the site and undertake earthworks in the winter, only strip what is necessary, dust suppression etc.
- Runoff management – divert water away from the construction area(s) before it can pick up sediment/ silt. Settlement should be a secondary measure where needed.
- Stormwater management – attenuation, settlement and 'slowing the flow' as far as possible.
- Monitoring and maintenance procedures – weather forecasting, emergency arrangements.

2.7 Climate Change

2.7.1 The Proposed Development has the potential to generate impacts on climate change due to:

- Greenhouse Gas (GHG) emissions from construction traffic and equipment;



- Use of natural resources in construction materials; and
- Increased flood risk on-site due to climate change needing to be considered in the design.

2.7.2 Appropriate standard and good practice control measures will include:

- Designing, constructing and implementing the Proposed Development in such a way as to minimise the creation of waste and maximise the use of alternative materials with lower embodied carbon, such as locally sourced products and materials with a higher recycled content where feasible;
- Reusing suitable infrastructure and resources already available in the Site where possible to minimise the use of natural resources and unnecessary materials (e.g. reusing excavated soil for fill requirements);
- develop a Travel Plan to reduce the volume of construction staff and employee trips to include the potential to implement staff minibuses and car sharing options.
- Switching off vehicles and plant when not in use and ensuring construction vehicles conform to current EU emissions standards.
- Conducting regular planned maintenance of the Proposed Development to optimise efficiency.

2.8 Ecology Management

- 2.8.1 Any development within the Site should ensure that valuable habitat areas are protected or reinstated and, where appropriate, enhanced to ensure opportunities for net gain in biodiversity.
- 2.8.2 Best practice guidelines (CIEEM, 2018) should be followed throughout the construction of the proposed development to protect existing wildlife within the site. This includes obtaining appropriate species licences prior to the commencement of works, and implementing mitigation strategies to ensure compliance with relevant wildlife legislation.
- 2.8.3 A separate Landscape and Ecology Management Plan (LEMP) has been prepared to set out how the Developer will specifically protect and enhance ecological interests through the construction and operation of the proposed development (Appendix 5.6 of ES).
- 2.8.4 Construction activities will take place with adherence to detailed mitigation measures as described in Appendix 17.1 Schedule of Mitigation in Volume 3 of the ES.
- 2.8.5 Pre-construction protected species surveys will be undertaken prior to any works commencing on site and the final CEMP and LEMP updated in line with the findings. This would include surveys for invasive non-native species. Measures to protect habitats and species could include:



- Marking out sensitive habitats and restricting construction works within 30m of, for example, an active badger sett. Where work is required within such a buffer it should be carried out under a Natural England Protected Species licence.
 - Tool box talks for site workers to raise awareness of ecological issues on site.
 - Safe storage of materials and substances, measures to prevent mammals from entering construction activities within the Site and becoming trapped in excavations or materials, and control measures including construction traffic speed controls.
 - Any invasive species within or adjacent to the Site will be demarcated prior to works and will be subject to chemical/manual treatment prior to and during works, with long-term eradication prescriptions to be detailed and implemented through the LEMP.
 - Trees identified as having low bat roost suitability will be felled using soft felling techniques. This will involve the section felling of trees and then gently lowering each section in a controlled manner to ground. The sections will be left for at least 24 hours with the features in an upright position to enable bats to vacate. This would be completed at a sensitive time of year in spring/autumn to avoid the breeding season.
 - Suitable bird nesting habitat, including hedgerows and trees that will be removed as part of the Proposed Development will be undertaken outside of the bird nesting season between March and August (inclusive). Where this is not feasible, the removal of these habitats will be completed under a watching brief by an ECOW.
 - Where clearance of suitable habitat is programmed during the bird breeding season, prior to works, a suitably qualified person must undertake a survey to determine whether birds are nesting in the area. If a nest is discovered, clearance or other construction works would need to be delayed within an exclusion zone. Works may only recommence once it is confirmed that chicks have fledged and that no other nests are in use within the exclusion zone.
- 2.8.6 Existing trees and hedgerows will be protected in accordance with best practice (BS 5837:2012. Trees in Relation to design, demolition and constructions - Recommendations) during the construction period. Requirements within the Arboricultural Impact Assessment (Appendix 6.14 of Volume 3 of the ES) will be adhered to.

2.9 Archaeological Management

- 2.9.1 Any works to be undertaken will be covered by a Written Scheme of Investigation (WSI) which will detail the scope of works and how they are to be executed and monitored. The WSI will be agreed with the appropriate body and, at the time of writing, this is assumed to be the Derbyshire County Council (DCC) Archaeologist acting as archaeological advisor to Soth Derbyshire District Council.



- 2.9.2 No construction activities may commence until the implementation of the works outlined in this WSI, or without the agreement of DCC.
- 2.9.3 If an unexpected archaeological find is discovered during the course of construction activities, work will stop immediately and must be reported to the technical specialist and DCC's Archaeological officer. Works must stop until the appropriate mitigation has been undertaken and statutory consent for works to recommence from DCC has been given.
- 2.9.4 Prior to construction, a programme of temporary protective fencing, or barriers, should be employed along the site boundary adjacent to the Grade II Listed Grove Farmhouse (NHLE 1096453), in order to prevent accidental damages resulting from the movement of plant and the installation of solar panels. These protective measures may be removed following the completion of construction

2.10 Public Right of Way (PRoW)

- 2.10.1 Crossing points at PRoW will be manned by a site operative to ensure site vehicles do not come into conflict with users of the PRoW. Gates will be erected to prevent members of the public accessing the Site, and to allow vehicles to cross the PRoW safely. Out of working hours, the PRoW would remain open and accessible.

3. Environmental Management Plans

- 3.1.1 A number of complementary environmental plans and procedures have been included within the DCO application and set out proposed mitigation for the construction phase, and in some cases the operational phase. These documents include:
- Construction Traffic Management Plan (CTMP) (see Appendix 10.1 in Volume 3 of the ES).
 - Outline Landscape and Ecology Management Plan (LEMP) (see Appendix 5.6 in Volume 3 of the ES);
 - Outline Soils Resource Management Plan (SRMP) [**Appendix 1** of this OCEMP]; and,
 - Outline Battery Safety Management Plan (see Appendix 4.6 in Volume 3 of the ES).



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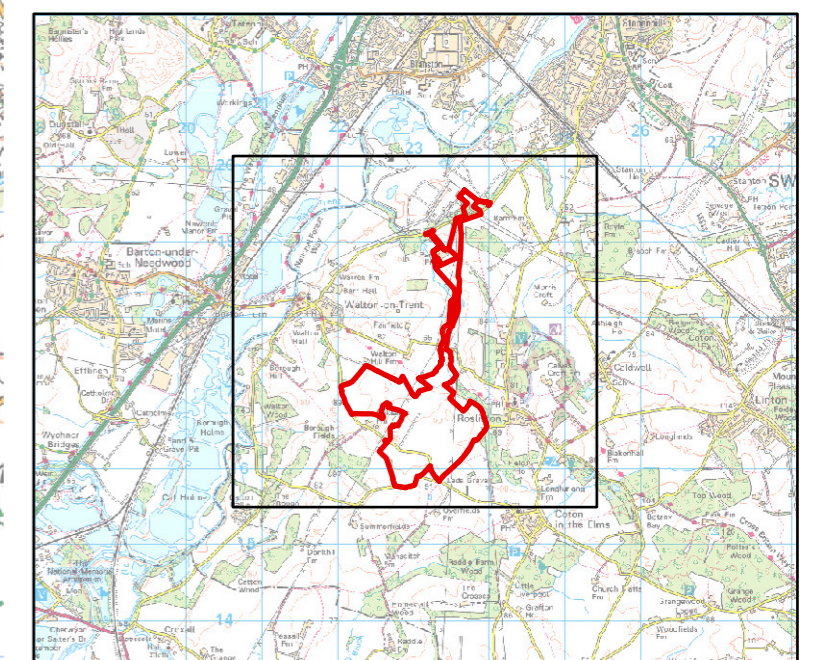
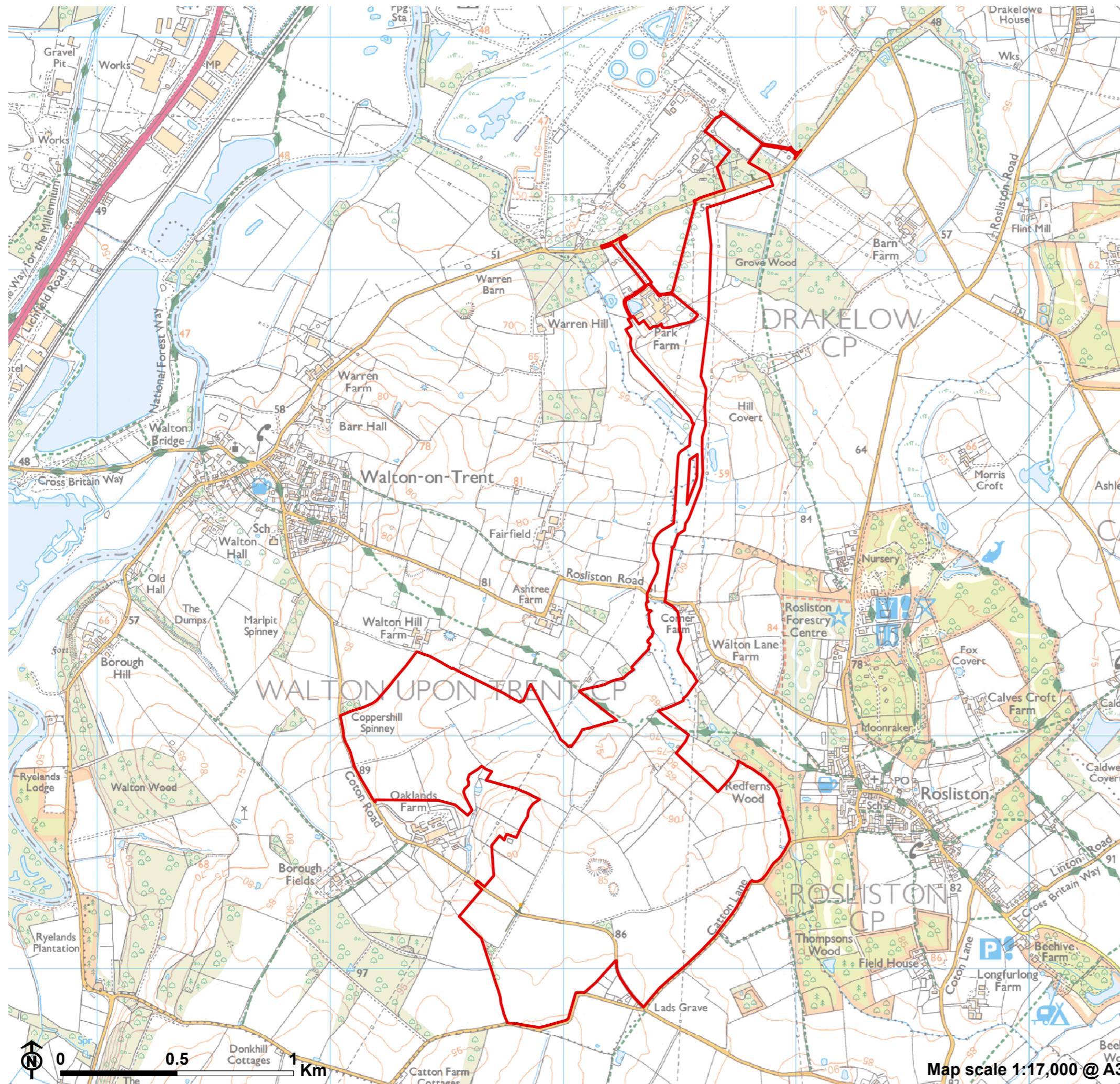
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Oaklands Farm Solar Park
for Oaklands Farm Solar Ltd



Figure 1.1: Site Location Plan

 Order Limits / Site Boundary





Appendix 1 Outline Soil Management plan

1. Introduction

- 1.1.1 The Outline Soil Management Plan (OSMP) sets out principles and procedures for good practice (embedded mitigation measures) and bespoke mitigation measures in soil handling, storage and reinstatement to be used for the Proposed Development. This outline plan describes the principles that the Principal Contractor will follow to minimise adverse effects on the nature and quality of the soil.
- 1.1.2 To secure effective delivery of the OSMP, the Contractor must implement it through site-specific soil management method statements (or similar) for the construction phase. The works must also be monitored to audit compliance with the OSMP (and location-specific construction method statements); and to allow ongoing advice on soil handling to be provided. The OSMP is based upon guidance such as the Department for Environment, Food and Rural Affairs (Defra's) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Ref: 1-1); the Ministry of Agriculture, Fisheries and Food's (MAFF's) Good Practice Guide for Handling Soils (Ref: 1-2), and the Institute of Quarrying (2021) Good Practice Guide for Handling Soils in Mineral Workings
- 1.1.3 The OSMP assumes that all mitigation measures pertaining to protected species and other environmental issues are in place, such that the soil stripping, storage and reinstatement operations can proceed.
- 1.1.4 The OSMP is considered to be a 'live document' to be updated as further information becomes available. The OSMP will be revised prior to commencement of construction operations to consider the site-specific soils data collated by the appointed specialist agricultural land drainage consultant as part of the agricultural drainage design works.

1.2 Roles and Responsibilities

- 1.2.1 The effective implementation of the OSMP requires that roles and responsibilities are clearly defined and understood. Specific job titles, roles and responsibilities will be defined by the Contractor in the location specific construction management plans; however, the roles and responsibilities are expected to be similar to those described below, as described in the Construction Environmental Management Plan (CEMP).

1.2.2 Construction Manager

- 1.2.3 Responsible to the Project Manager for:



- Determining and sourcing the plant and equipment to be used;
- Ensuring that working areas, services and stockpiles are clearly marked;
- Ensuring that records are maintained; and
- Ensuring that staff receive appropriate training regarding soil handling issues such as stop conditions and soil testing requirements.

1.2.4 Site Foreman

1.2.5 Responsible to the Construction Manager for:

- Implementing the site-specific construction soil management method statements to manage soil handling and storage on site to ensure the sustainable use of the soil resource;
- Ensuring daily records of weather conditions, stoppages and soil plasticity (moisture) testing are made and kept;
- Ensuring that works are carried out safely, under correct conditions and in compliance with wider environmental requirements; and
- Ensuring that the protection of services is maintained during the soil handling works.

1.2.6 Safety Advisor

1.2.7 The safety adviser is responsible to the Project Manager for:

- Ensuring the plant operators have the relevant training and certification.

1.3 Soil Resource

1.3.1 The erodibility of a soil (susceptibility to damage and loss) influences the level of mitigation required to protect it and the measures to be put in place through the OSMP and site-specific construction method statements.

1.3.2 Soils with low risk of erosion

1.3.3 Good practice (embedded mitigation) measures following those recommended in Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Ref: 1-1); MAFF's Good Practice Guide for Handling Soils (Ref: 1-2), will provide appropriate protection to these soils as they are generally more resistant to damage and loss.

1.3.4 Soils with moderate risk of erosion

1.3.5 Good practice (embedded mitigation) measures will mostly provide appropriate protection to these soils, however damage is likely to occur if worked in less than ideal conditions, for example when the soils are wet. Therefore, on a location by location basis, depending upon factors such as physical soil properties and local topography, bespoke mitigation measures may be required. The soils should be



given appropriate consideration because of their importance for agricultural production.

1.3.6 Soils with high risk of erosion

1.3.7 Development on those soils should be avoided if possible, however where this is not possible, they require special consideration and careful planning of construction methods, i.e. bespoke mitigation measures, in order to preserve their structure and function.

1.4 Good Practice Mitigation

1.4.1 General principles of soil handling

1.4.2 The main threats to soil resources at construction sites are trafficking of vehicles/plant and incorrect handling, which can cause damage to soil structure through compaction and smearing (both effects are sometimes referred to as deformation). These effects compromise the ability of the soil to perform its functions, such as providing adequate amounts of water, air and nutrients to plant roots. The risk of compaction and smearing increases with soil wetness. To minimise the risk of damage to soil structure, the following main rules must be observed during all soil handling tasks:

- No trafficking/driving of vehicles/plant or materials storage to occur outside designated areas.
- No trafficking/driving of vehicles/plant on reinstated soil (topsoil or subsoil).
- Only direct movement of soil from donor to receptor areas (no triple handling and/or ad hoc storage).
- No soil handling to be carried out when the soil moisture content is above the lower plastic limit.
- Soils should only be moved under the driest practicable conditions and this must take account of prevailing weather conditions. (see rainfall “stop” criteria in paragraph 3.5.2).
- No mixing of topsoil with subsoil, or of soil with other materials.
- Soil only to be stored in designated soil storage areas.
- Plant and machinery only work when ground or soil surface conditions enable their maximum operating efficiency.
- All plant and machinery must always be maintained in a safe and efficient working condition.
- Daily records of operations undertaken, and site and soil conditions should be maintained (see section 5 for the summary of monitoring and record keeping schedule).
- Low ground pressure (LGP models) and tracked vehicles should be used where possible. This will greatly minimise the extent and/or intensity of the soil loosening



required after restoration. Consequently, it will reduce the costs and potential delays due to the need for additional soil cultivation.

1.4.3 The location-specific methods statements (or similar) must be defined based on the results of detailed site-specific soil survey.

1.4.4 The survey results should be used to specify in detail:

- The 'before' statement of physical characteristic of the soil to be disturbed;
- where bespoke mitigation measures are required, and what these bespoke measure entail;
- the depth and properties of topsoil; and
- the depth of subsoil and presence of any distinct soil horizons.

1.5 Stop conditions

1.5.1 Adverse weather

1.5.2 In certain weather conditions, the handling of topsoil and subsoil must be effectively managed to prevent damage. Topsoil and subsoil handling must cease applying the following criteria:

- in drizzle and/or intermittent light rain, handling can continue for up to four hours unless the soils are already in a plastic state (see paragraph 1.5.6);
- if there is heavy rain (e.g. heavy showers, slow moving depressions), handling must stop immediately;
- soil shall not be handled or trafficked over/driven on immediately after a heavy rainfall (or snow/hail) in a waterlogged condition, or when there are standing pools of water on the soil surface.
- If the works are interrupted by a rainfall event, soil stripping should be suspended; and where the soil profile has already been disturbed, the works should be completed to the base level in that location.

1.5.3 Additionally, soil should not be handled or trafficked over/driven on when the ground is frozen or covered by snow.

1.5.4 The above criteria should be clearly understood by all personnel.

1.5.5 Soil conditions

1.5.6 Irrespective of the weather, soils should not be handled when in a plastic state (when moisture content exceeds their lower plastic limit); and as a general rule should be dry when handled.

1.5.7 If the soil is excavated and placed in stockpiles when wet (above the plastic limit), they are easily compacted by the machinery handling them, or by the weight of the soil above it in the stockpile. As well as this damage to soil structure, when soils within a stockpile are compacted, the core of the stockpile remains anaerobic throughout the storage period. This damage results in the soil being very difficult



to handle and re-spread at the time of reinstatement (i.e. it will not be in a friable state and will not break down into a suitable tilth). In this case, in order to achieve the required standard of restoration, a period of drying and appropriate additional cultivation is required (to repair soil structure and re-aerate the soil) to ensure the soil is acceptable for planting. The costs of these unplanned operations, and consequent delays to the programme of works, could be substantially, if not several times, greater than the costs of ensuring that the soil stripping and stockpiling operations are carried out in optimum conditions and making allowances for delays due to bad weather.

- 1.5.8 For arable land, the period where the soil conditions will generally be the driest typically occur in the summer following the spring crop harvest, when the plant evapotranspiration will have dried the soil.
- 1.5.9 Once the placement of soils into each stockpile has been completed, rainfall and soil moisture conditions are of lesser importance, providing they do not lead to significant environmental impacts, such as erosion and discharges of sediment laden water from the stockpiles to drainage ditches and other watercourses.

1.6 Preparation

- 1.6.1 Mark and signpost the undisturbed areas where no construction activities or vehicle trafficking over/driving on is to take place per detailed works plans and construction method statements (to be prepared post-consent by the Contractor). Any trees, hedgerows or valuable habitats which are to be retained should be marked out with barrier tape; and subsequently protected and managed.
- 1.6.2 As per the requirements of detailed works plans and construction method statements (to be prepared post-consent by the Contractor), any underground services crossing the area of soil stripping area are to be surveyed and their depth and position clearly marked to ensure they are not impacted by the stripping works. After stripping, to ensure the integrity of the service infrastructure is maintained, the service location may require fencing off; or if the area over the service is to be trafficked additional protection or mitigation may be required.
- 1.6.3 Mark soil storage areas for different types of topsoil, subsoil and mineral substrate. In some locations, the excavated soil profile may contain more than one distinct subsoil horizon (layer). Where this occurs, due to the different properties of the different horizons, they must be excavated and stored separately.
- 1.6.4 At designated crossings (specified in the location-specific construction method statements) a 2 m width of topsoil will be left unstripped at either side of the ditch/watercourse to act as a filter for water run-off.
- 1.6.5 To reduce the likelihood of anaerobic conditions developing within the topsoil stockpile prior to the soil strip commencing the topsoil surface should either be bare, under stubble, or have only short surface vegetation. To achieve short surface



vegetation (for example in areas of permanent pasture or under a hay crop), if not already done so prior to the land being handed over to the Project, the area should be mown or strimmed. Cuttings must not be added to or mixed with the stripped soil, as the presence of excessive amounts of plant material in the stockpile will be detrimental to its quality due to its putrefaction (rotting) in anaerobic conditions. Alternatively, the vegetation may be killed off by application of a suitable, Environment Agency approved, non-residual herbicide applied not less than two weeks prior to commencement of soil stripping operations at the location. Herbicide may only be used with the consent of the landowner and subject to the conditions/restrictions within the contract.

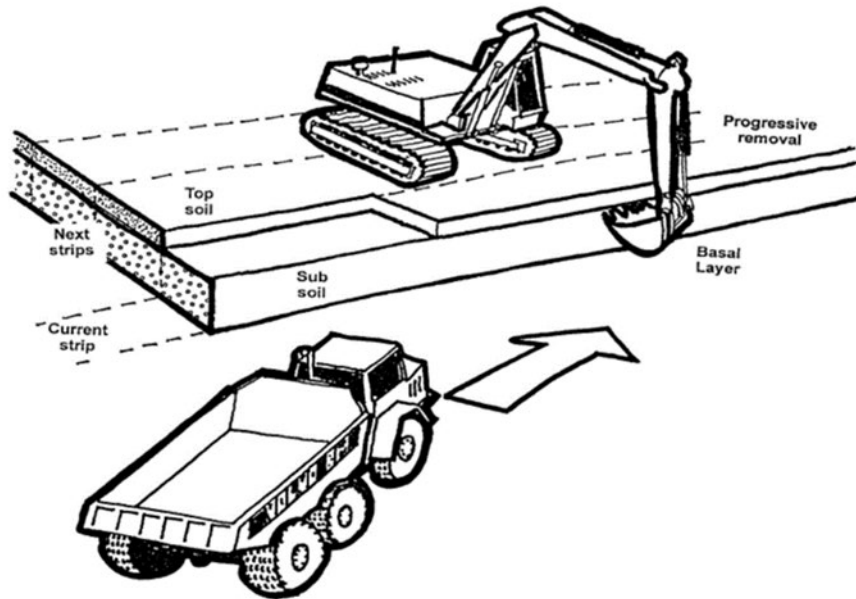
- 1.6.6 The site staff must be competent to perform the tasks as they have the potential to cause an environmental impact. The training and awareness is to be ensured according to the procedures and tools described in the Construction Environmental Management Plan (CEMP). Carry out toolbox talks with all personnel involved in the groundworks communicating the principles of good practice in soil management and its goals.

1.7 Soil stripping

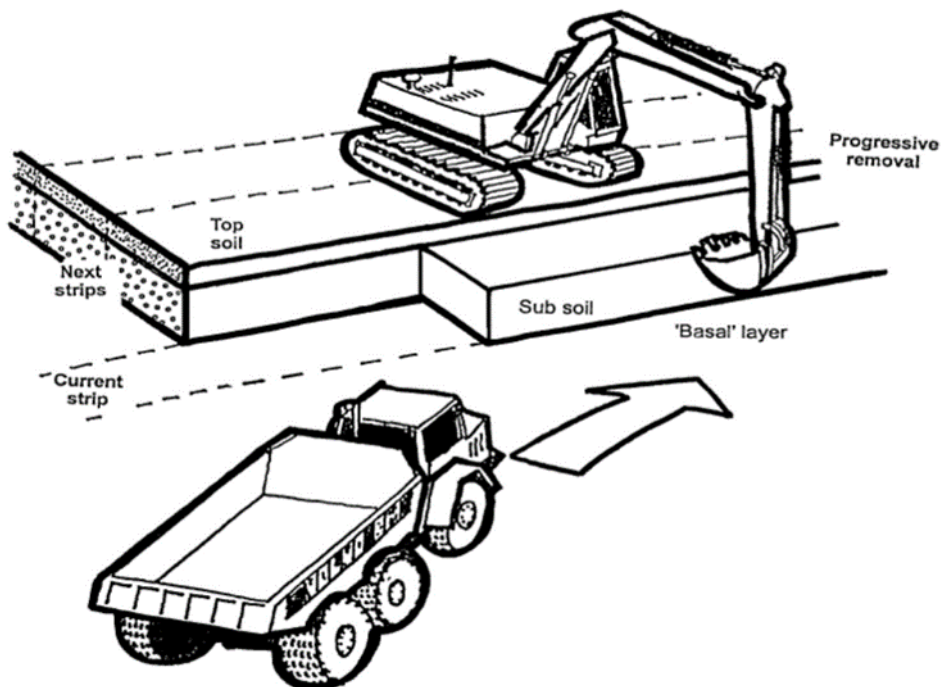
- 1.7.1 Topsoil can be stored on either topsoil (of the same type) or on subsoil. Subsoil can ONLY be stored on subsoil and therefore the topsoil must be stripped from subsoil storage areas in advance of subsoil stripping.
- 1.7.2 The stripping method should follow one of the suggested methods as described in the MAFF's Good Practice Guide to Handling Soils (Ref: 1-2). When preparing the trenches for installing the proposed cables and during the preparation of the working areas, the excavated sub soil will be stored on the opposite margin of the working area to the top soil,
- 1.7.3 Where soils are to be stored away from the excavation area, two excavators and one transport vehicle will be required for soil stripping operations. One excavator will be required to undertake the soil stripping and the other to form the soil stockpiles. The excavator undertaking the soil stripping should be fitted with a toothed bucket, except in the areas of known archaeological significance or high archaeological potential (see above), where a toothless bucket should be employed to prevent damage to the underlying archaeology. The method, if correctly carried out, should avoid severe compaction as soil trafficking is minimised. The concept of this method is shown in Plate 1 and Plate 2. It is not foreseen on this project that it will be necessary to store topsoil or subsoil away from the immediate area where it has been excavated.
- 1.7.4 The size of the earthmoving plant to be used should be tailored to the size of the area to be stripped and the space available within the working area. The use of a long reach excavator, which will minimise the need for movement across the soil



surface, and the use of tracked vehicles or vehicles with a low ground bearing pressure is recommended to further reduce soil compaction.



*Plate 1: Stripping with excavators and dump trucks: removal of topsoil from a strip.
Reproduced from MAFF, 2000 (Ref: 1-2)*



*Plate 2: Stripping with excavators and dump trucks: removal of subsoil from a strip.
Reproduced from MAFF, 2000 (Ref: 1-2)*



- 1.7.5 Prior to commencement of soil stripping, the width of each strip must be determined. Strip width is determined by the length of the excavator boom less the stand-off to operate; typically, 3 to 4 m.
- 1.7.6 The strip width should make full use of the reach of the excavator. This will maximise the time the excavator can remain at a fixed location, before moving further along the strip; minimising the number of locations subject to the weight of standing plant.
- 1.7.7 The depth of the topsoil strip is to be determined on a 'location by location' basis. During the strip, the excavator should stand on the surface of the topsoil, digging the topsoil to the required depth and forming the stockpile or loading it into the transport vehicle (dump truck). Following topsoil removal, the subsoil can be excavated (if required). Topsoil should be recovered to the full width of the strip without contamination with the subsoil. The boundary between the topsoil and subsoil is usually very clearly visible through a change in colour (the topsoil being much darker due to greater organic matter content). However, this may not always be the case, as often the topsoil gradually transitions into subsoil, and their colours are similar. Therefore, the depth of the topsoil to be stripped must be determined by measuring the depth from the surface (excluding any vegetation) using the soil survey data as described above.
- 1.7.8 The key points to minimise soil compaction and maximise its readiness for reuse are:
 - The operations of the vehicles (excavators and dumper trucks, if relevant) on the topsoil should be minimised.
 - Plant and machinery are to only work when ground conditions enable their maximum efficiency.
 - Soils should only be handled when dry
 - Stop conditions as set out in section 3.5 must be observed.
 - Protect the subsoil from ponding of water by diverting water inflow away from it.
 - Do not work when there is standing water on the topsoil or subsoil surface.

1.8 Creation of soil stockpiles

- 1.8.1 Correct storage/stockpiling will maintain soil quality and minimise damage to soil structure and soil biota. This ensures that the soil will readily recover once re-spread, promoting timely and effective restoration. Stockpiled soil must not be vulnerable to compaction or erosion; must not cause pollution to surrounding watercourses; and must not increase flood risk to the surrounding area.
- 1.8.2 Potential soil erosion and water pollution can be minimised through a number of good practice measures, including, but not limited to; the avoidance of trafficking



over/driving on the soil stockpiles, the seeding of stockpiles; and the use of intermittent spaces in the stockpiles.

- 1.8.3 Soil should not be stacked closer than 5 m from a watercourse or ditch. Gaps shall be left where necessary to allow for surface water drainage and avoid the catchment (ponding) of water behind stockpiles.
- 1.8.4 Ecologically important soils, for example woodland or hedgerow soils, must be stripped and stored separately to ensure the seedbank is retained and not mixed with neighbouring agricultural soils. These stockpiles must be appropriately marked out and clearly signed to ensure that they are easily identifiable at restoration, as specified in the location-specific construction method statements.
- 1.8.5 Generally, topsoil stockpiles should not exceed 3 m in height and subsoil stockpiles should not exceed 5 m in height. However, if the soil to be stockpiled is dry (below the plastic limit) formation of higher stockpiles may be permissible, if required, as the soil is likely to remain dry in the core of the stockpile for the entire storage period. However, the appropriateness of higher stockpiles will need to be established on a location by location basis.
- 1.8.6 Stockpiles are to be formed by 'loose-tipping' followed by 'shaping' to form a level surface on top of the pile and uniform gradients down the sides. During 'forming', the top and sides should be smoothed so that they can shed water, ensuring that the entry of the water to the stockpile is limited and that the stored soil remains dry; and helping prevent erosion and ponding. This is achieved by dragging the bottom of the excavator bucket along the stockpile surface.
- 1.8.7 The natural angle of repose of a soil, and hence the maximum gradient (slope) of the stockpile sides, depends upon its texture and moisture content. The maximum achievable slope angle is 40° however, shallower angles are often more appropriate.
- 1.8.8 The topsoil and subsoil stockpiles along cable trenches are to be formed using one back-acting/360° excavator as they will be too close to the excavation to require transport in a separate vehicle.

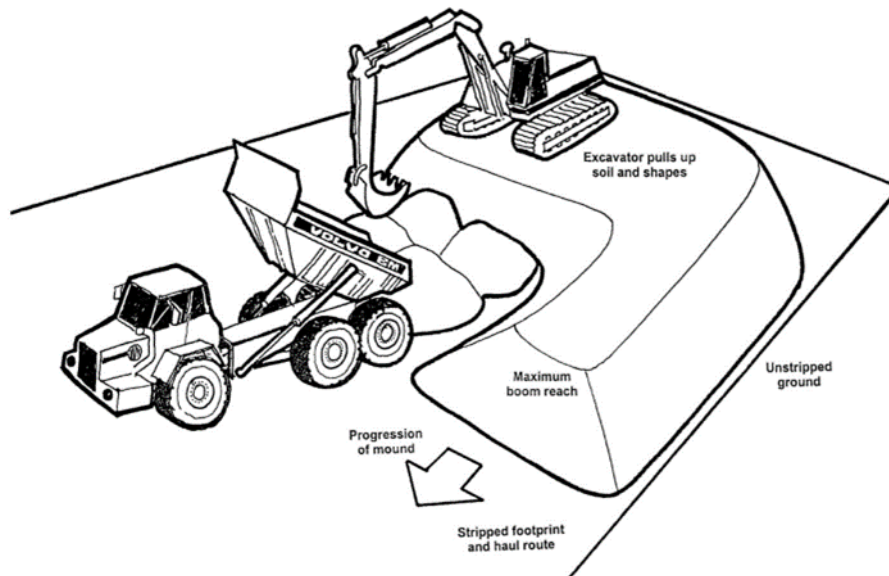


Plate 3: Soil storage mound construction with excavators and dump trucks. Reproduced from MAFF, 2000 (Ref: 1-2)

- 1.8.9 If transport is required, follow the method described in the MAFF Guide, Sheet 2: Building Soil Storage Mounds with Excavators and Dump Trucks illustrated in Plate 3 (Ref: 1-2). A dump truck should transfer soil material between the stripping and storage areas. The dump truck should enter the storage area, reverse and back-tip the soil load starting at the furthest end of the stockpile (see Plate 3). Repeat the process of tipping the soil against the forming stockpile and without the wheels traversing onto previously tipped material. For this operation, a second back-acting/360o excavator will be required with the boom reach allowing it to form a stock pile of up to 4 m while standing on it.
- 1.8.10 Use of a front-loading machine to form the stockpile is possible if this is a Contractor's preference. If this alternative is chosen; the tipped soil must not be travelled or pushed with a bulldozer blade. It must be lifted by the front-loading machine and tipped into place to form a desired stockpile height. The top and side surfaces of the stockpile must be formed in order to shed the rainwater.

1.9 Stockpile Maintenance

- 1.9.1 In cases where is expected that the soil will be stored for a period of more than six months, the stockpiles should be seeded with appropriate low maintenance grass/clover mixture (for example EG22c Emorsgate Seed, or similar: to be agreed with landowner and subject to the conditions/restrictions within the contract; to protect the soil against erosion, minimise soil nutrient loss, and maintain soil biological activity. Appropriate seeding will also help prevent colonisation of the stockpile by nuisance weeds that could spread seed onto adjacent land.



- 1.9.2 In the period where vegetative cover on the stockpiles is establishing, where required during dry weather, the stockpiles will be sprayed with water to prevent wind erosion (generation of dust) and to ensure that the seeds establish.
- 1.9.3 The stockpile vegetation cover is to be managed (by spraying, mowing or stripping as appropriate and as defined in location-specific construction method statements, or similar), to prevent the spread of seeds from the stockpile onto adjacent land.
- 1.9.4 The condition of the stockpiles is to be regularly monitored. If rainwater gathers on the stockpile surface or in areas directly adjacent to them, drainage pathways to soakaway area away from the stockpile should be provided.

1.9.5 **Stockpile Records**

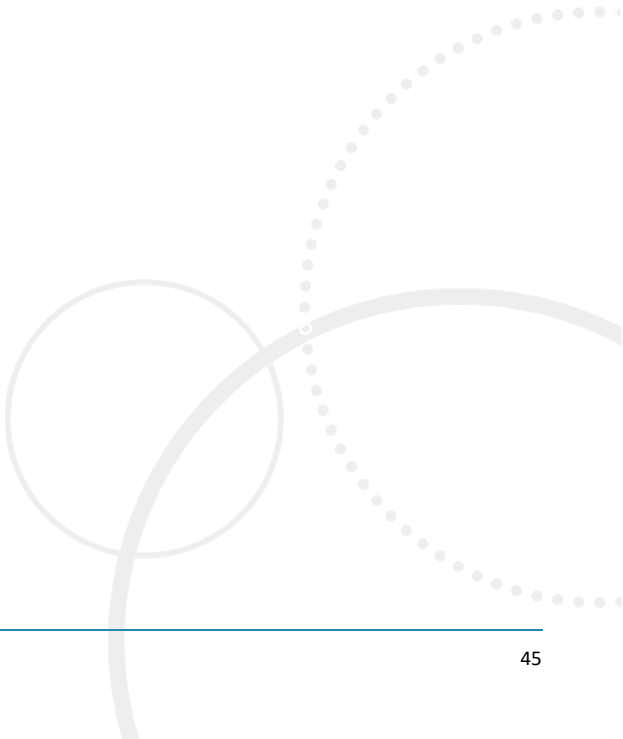
- 1.9.6 The locations and footprints of each stockpile should be accurately recorded on a plan of appropriate scale. Marker post should be provided in locations which have been surveyed and recorded.
- 1.9.7 The approximate volume of each stockpile should be recorded, along with details of the type of soil stored.

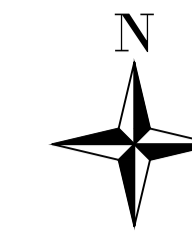
1.9.8 **Drainage**

- 1.9.9 Prior to soil stripping, where required, pre-construction drainage will be installed per specification provided by a specialist drainage contractor. This drainage is designed to prevent water entering the working area.
- 1.9.10 Gaps shall be left between soil stockpiles where necessary to allow for surface water drainage and avoid the catchment (ponding) of water behind stockpiles. In certain areas (as defined in location-specific construction method statements or similar) 'grips' may be dug across the working area at predetermined locations to prevent erosion and prevent ponding against stockpiles. Appropriate measures such as stones silt traps and silt fencing will be employed as required.



Appendix 2 Work Plans



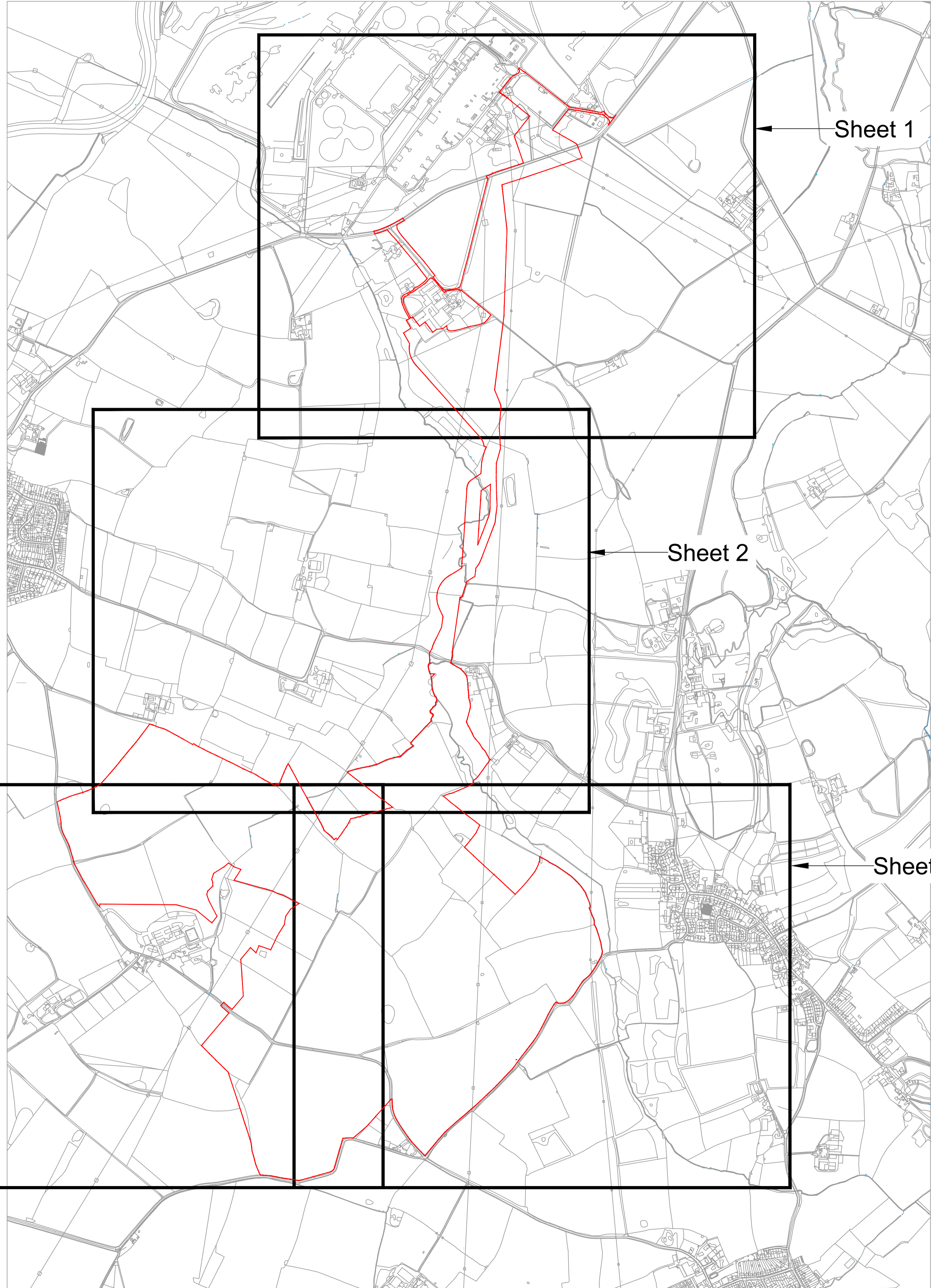


NOTE:

1. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION FOR HIGHWAY WORKS AND THE TURBINE MANUFACTURERS STANDARDS AND ALL RELEVANT DRAWINGS WITHIN THE PROJECT DESIGN PACKAGE.
2. ALL WORKS TO BE EXECUTED IN ACCORDANCE WITH THE DMRB, THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, DESIGN MANUAL FOR ROADS AND BRIDGES, AND TRAFFIC SIGNS MANUAL.
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7. ALL WORKS ARE TO BE CARRIED OUT IN COMPLIANCE WITH THE REQUIREMENT OF THE STATUTORY AUTHORITIES AND CONSTRUCTION DESIGN MANAGEMENT REGULATIONS.

KEY:

 Order Limits



Sheet 4

Sheet 1

Sheet 2

Sheet 3

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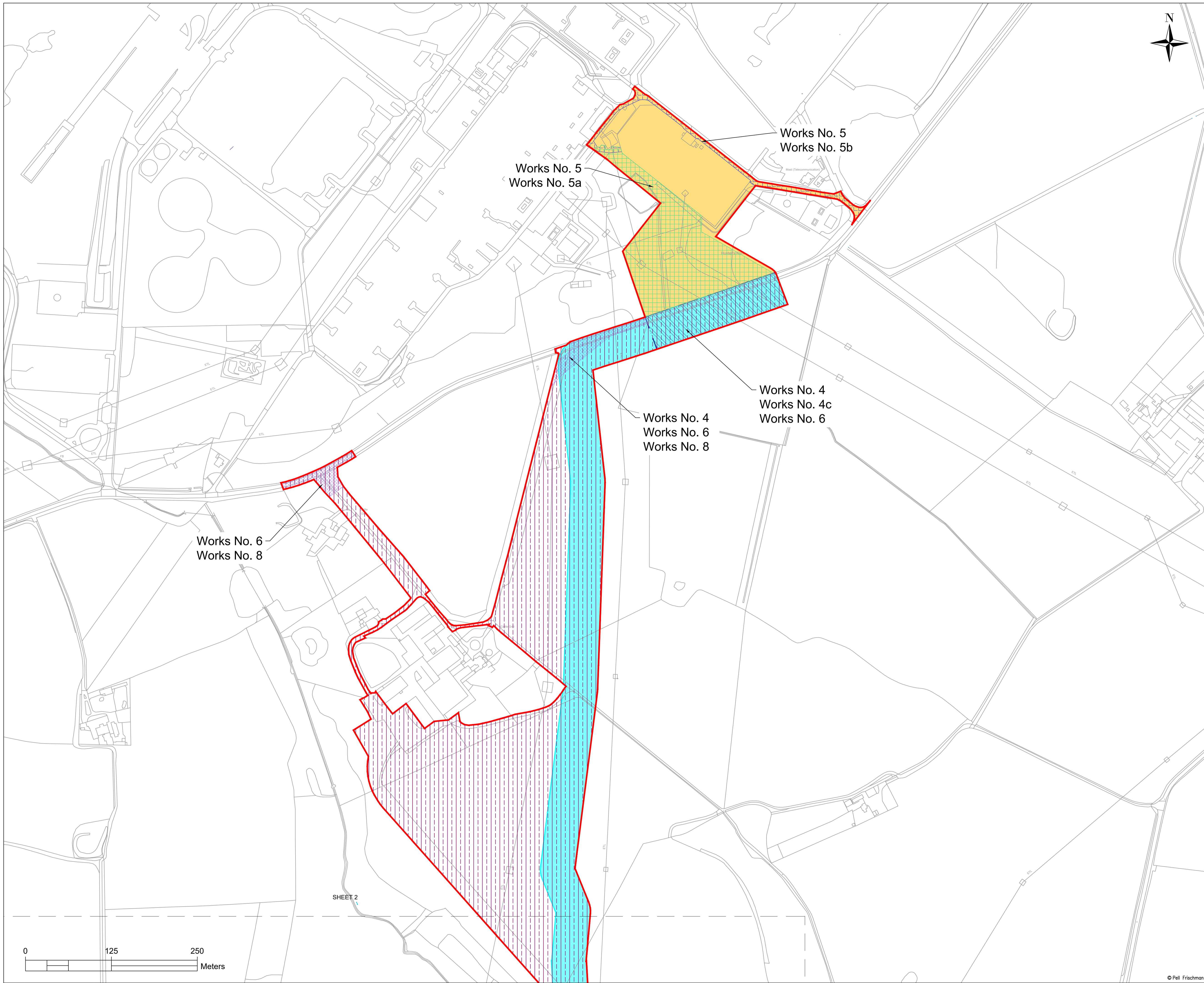
Client
Oaklands Farm Solar Ltd

Project
Oaklands Farm Solar Park

Drawing Title
**Works Plan
Sheet Overview**

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Checked	SCM	12.01.2024	Drawing Status	DRAFT

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- KEY:
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 - Work No. 3
 - Work No. 4
 - Work No. 4a
 - Work No. 4b
 - Work No. 4c
 - Work No. 4d
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 - Work No. 7
 - Work No. 8
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 - Work No. 10

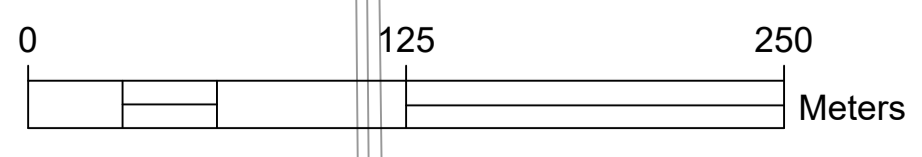
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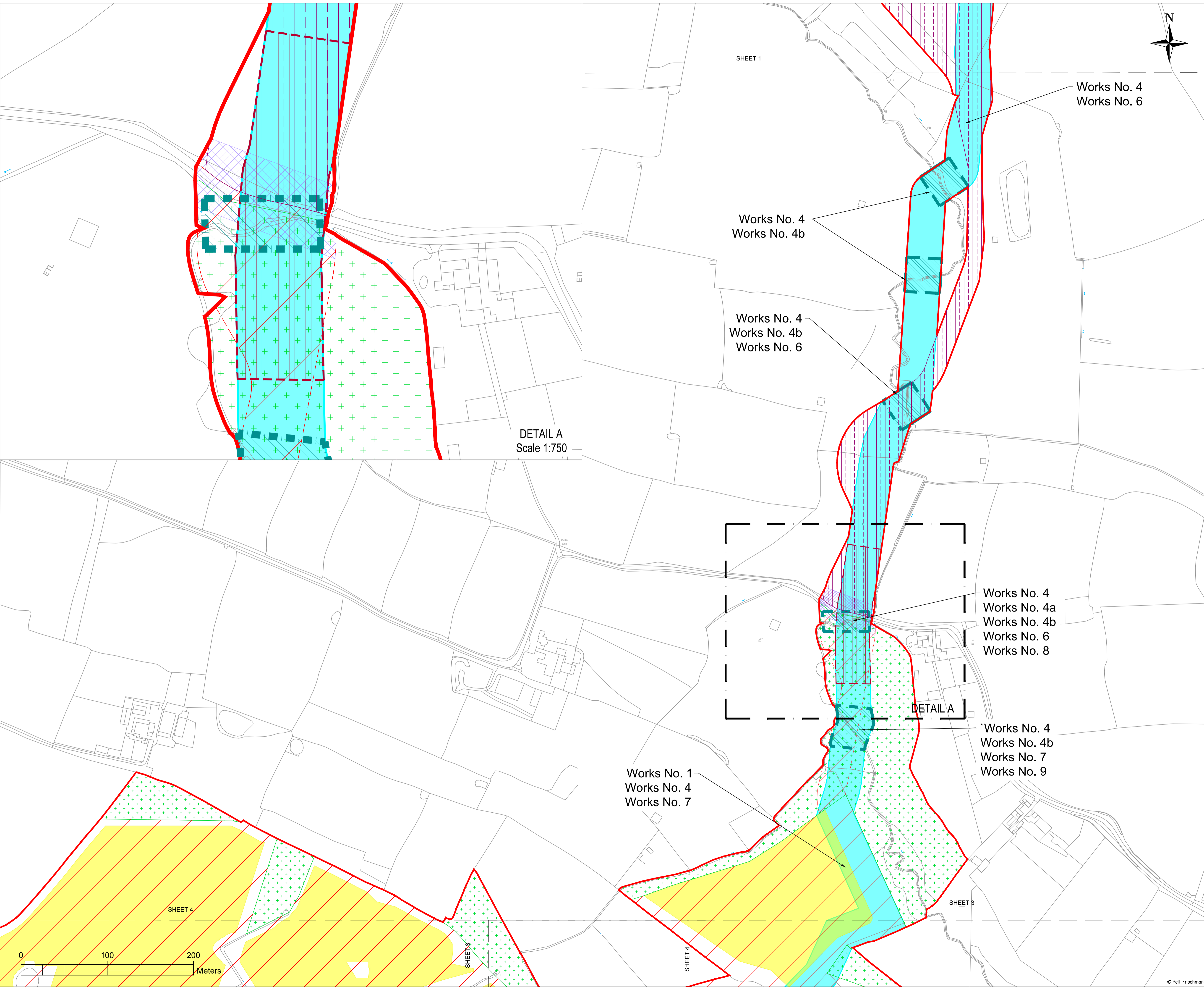
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Drawing Title
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SHEET 2



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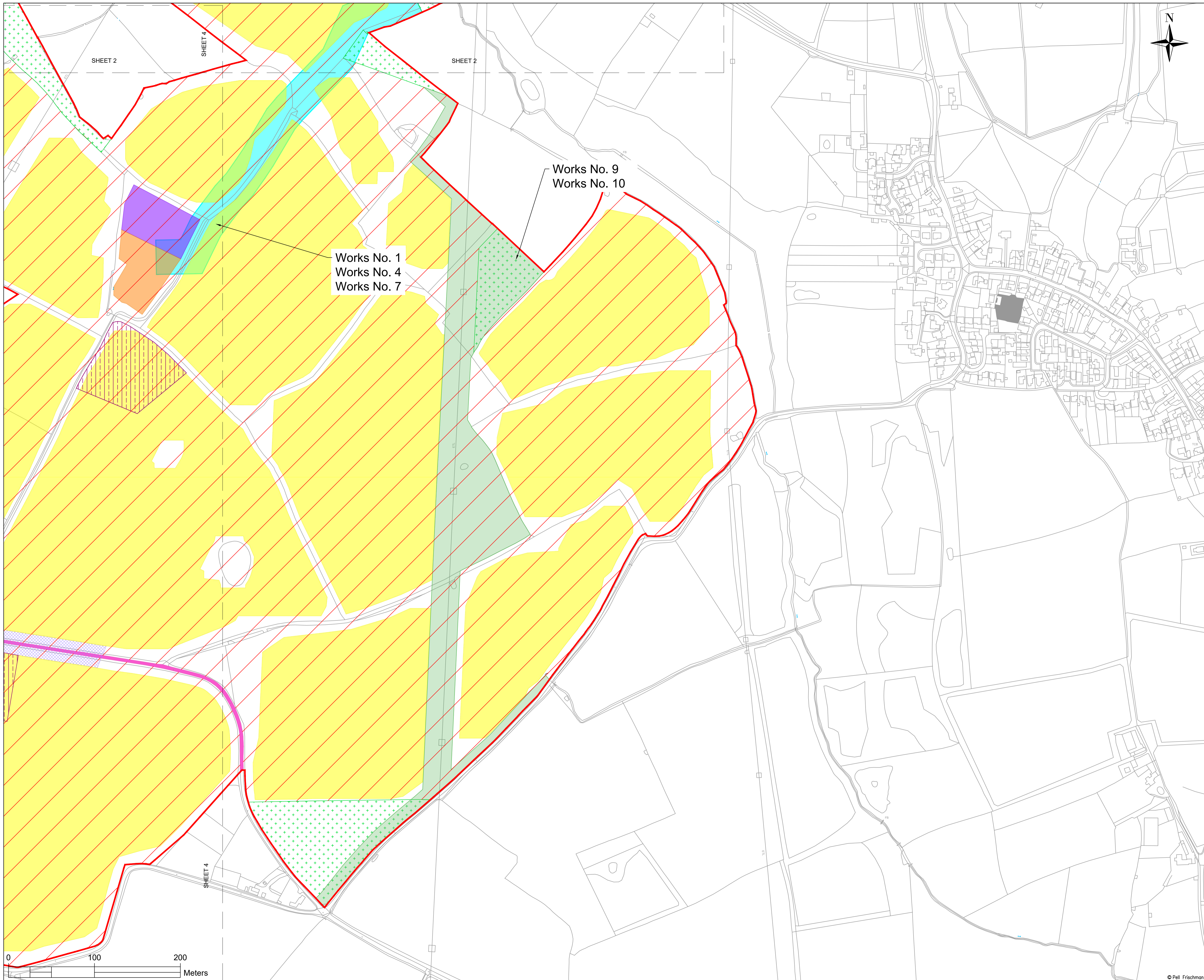
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Project
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Drawing Title
**Works Plan
 Sheet 2**

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- NOTE:
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 2. ALL WORKS TO BE EXECUTED IN ACCORDANCE WITH THE DMRB, THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS, DESIGN MANUAL FOR ROADS AND BRIDGES, AND TRAFFIC SIGNS MANUAL.
 3. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE. ALL LEVELS ARE IN METRES AND RELATE TO ORDNANCE DATUM.
 4. DO NOT SCALE FROM ANY DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES IN DIMENSIONS ARE TO BE REFERRED TO THE DESIGNER BEFORE WORK IS PUT TO HAND.
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- KEY:
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 - Work No. 1
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 - Work No. 3
 - Work No. 4
 - Work No. 4a
 - Work No. 4b
 - Work No. 4c
 - Work No. 4d
 - Work No. 5
 - Work No. 5a
 - Work No. 5b
 - Work No. 6
 - Work No. 7
 - Work No. 8
 - Work No. 9
 - Work No. 10

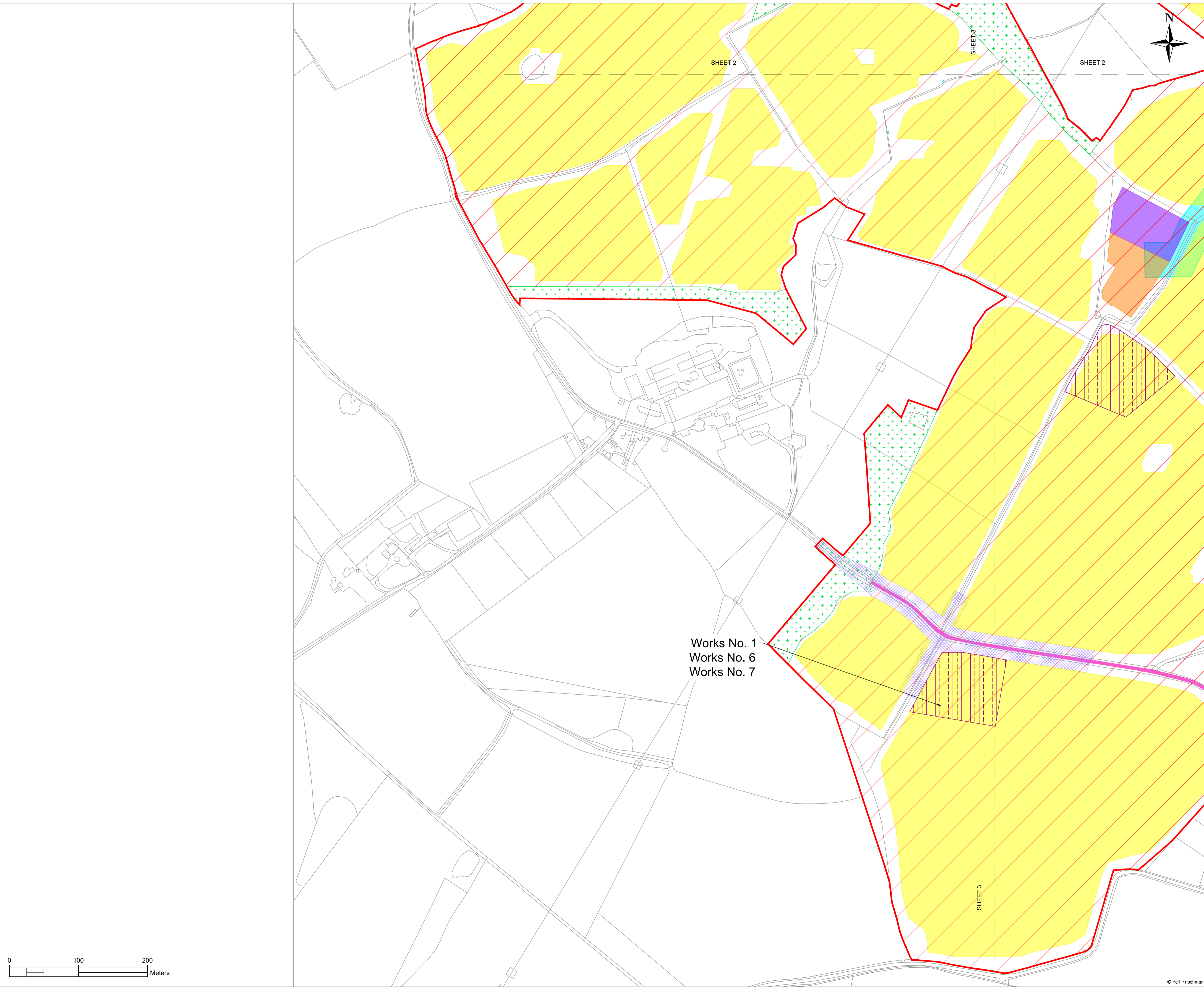
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Client
Oaklands Farm Solar Ltd

Project
Oaklands Farm Solar Park

Drawing Title
**Works Plan
 Sheet 3**

	Name	Date	Scale	1:2500 @ A1
Designed	JS	12.01.2024	File	240111 Oaklands Works Plans
Checked	SCM	12.01.2024	Drawing Status	DRAFT
Drawing No.	SK03			Revision



- NOTE:
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 - Work No. 9
 - Work No. 10

Works No. 1
Works No. 6
Works No. 7

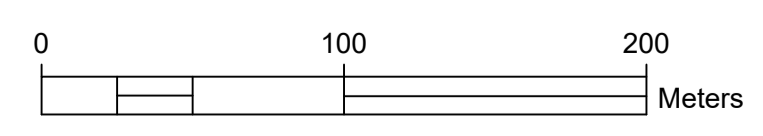
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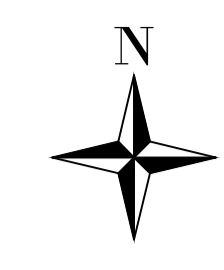
Client
Oaklands Farm Solar Ltd

Project
Oaklands Farm Solar Park

Drawing Title
**Works Plan
Sheet 4**

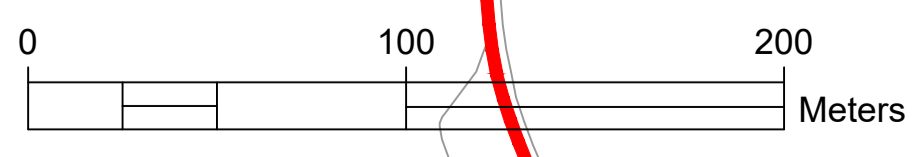
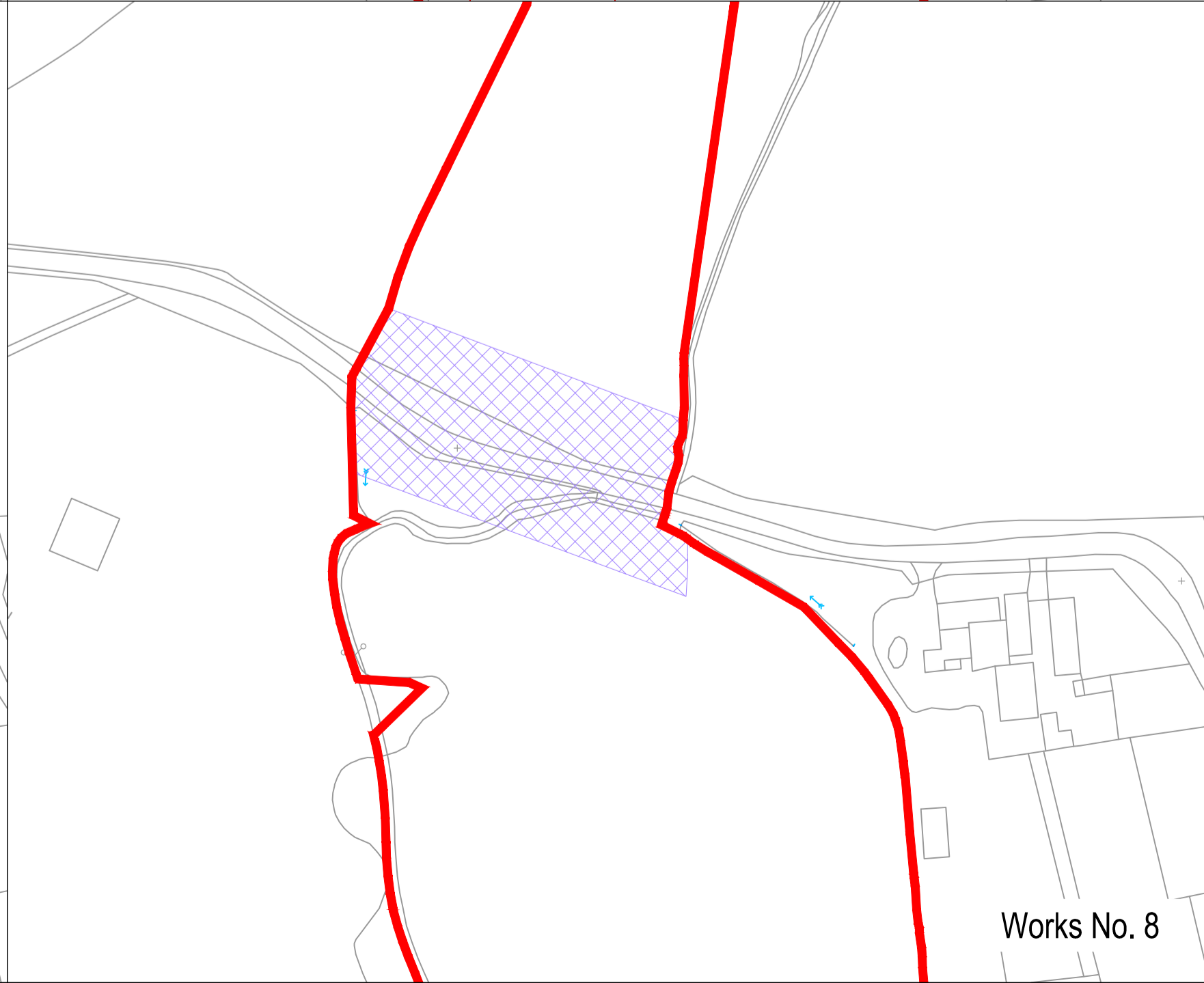
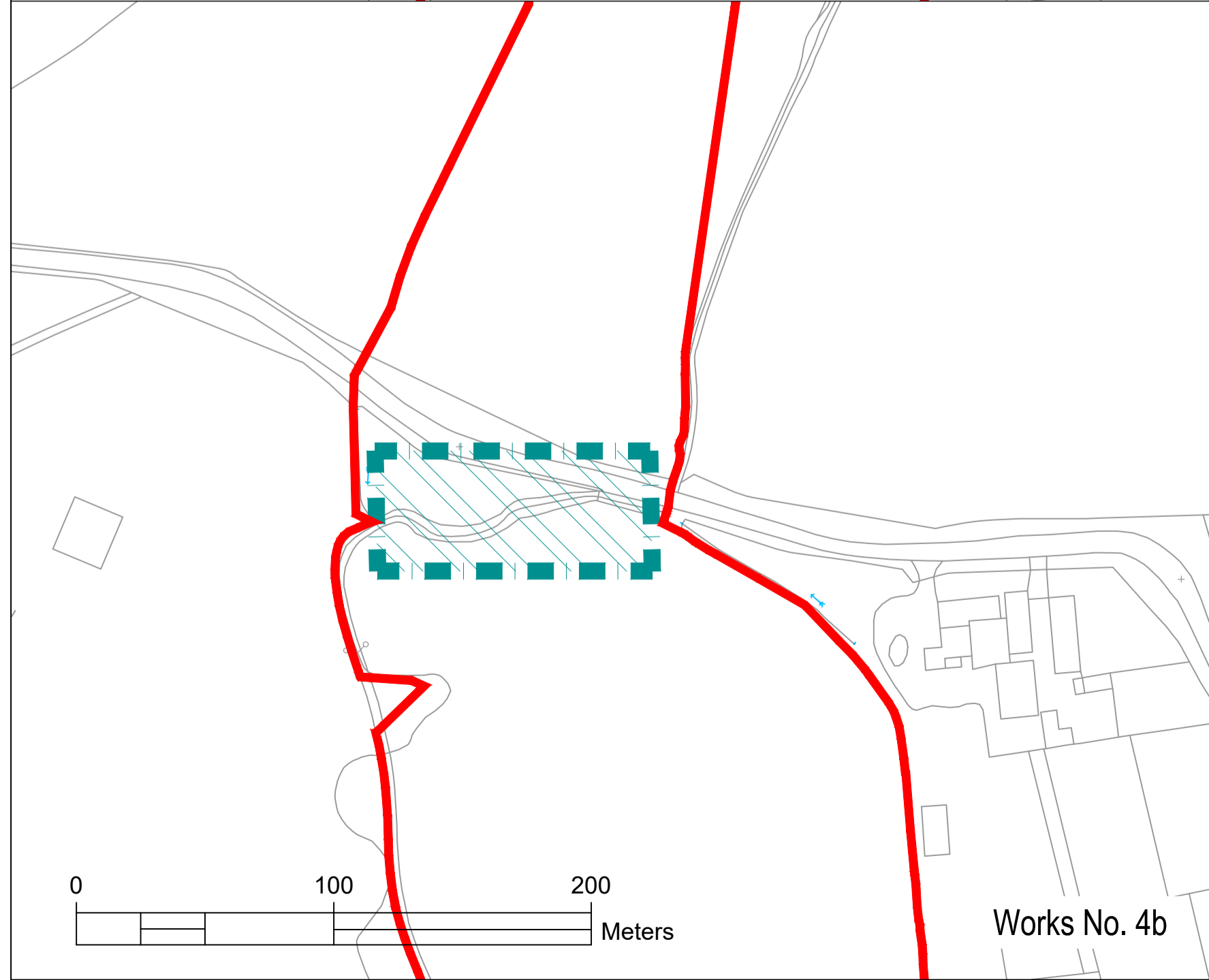
	Name	Date	Scale	1:2500 @ A1
Designed	JS	12.01.2024	File	240111 Oaklands Works Plans
Checked	SCM	12.01.2024	Drawing Status	DRAFT
Drawing No.	SK04			Revision





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Client
Oaklands Farm Solar Ltd

Project
Oaklands Farm Solar Park

Drawing Title
Works Plan Detail A

	Name	Date	Scale
Designed	JS	12.01.2024	1:1250 @ A1
Checked	SCM	12.01.2024	File 240111 Oaklands Works Plans
Drawing No.	DETAIL A	Drawing Status	DRAFT

Drawing No. **DETAIL A** Revision

OS Mapping
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