

Havant Thicket Reservoir

Temporary Worker Accommodation

Conditions Discharge Submission

April 2024 | Rev P01



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Part A: Temporary Worker Accommodation
Construction Environment
Management Plan (CEMP) – Condition
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(Doc Ref HTR-RHD-P2-XX-RP-Z-0001)

Havant Thicket Reservoir

Construction Environmental Management Plan

Temporary Workers Accommodation

19/02/24 | Rev P03

Document Reference: HTR-RHD-P2-XX-RP-Z-0001





Revision history

Rev	Date	Updates	Originator	Checker	Reviewer	Future Water approver
01	25/09/23	Draft CEMP for Temporary Workers Accommodation	AH	SB/AB	RW	
02	29/11/23	Reviewed and amended for issue	AH	SB/AB	RW	
03	19/02/24	Reviewed and amended following PW comments	AH	EM		



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1. Introduction and background to the Scheme

Purpose of this document

1. This Construction Environmental Management Plan (CEMP) has been prepared in support of the proposed siting of temporary workers accommodation for construction personnel working within the site of the Havant Thicket Reservoir project (herein referred to as “the Scheme”). An overarching CEMP (doc. ref: HTR-RHD-P2-RE-PL-Z-0018) has been prepared in support of the Main Reservoir Works (MRW) for the Scheme.
2. Future Water (FW) MJJV (a Joint Venture between Jones Brothers Ltd and Mackley Ltd) is proposing to incorporate temporary workers accommodation, in the form of up to 50 residential caravans / portable buildings, to seasonally accommodate the earthworks contractor staff that are working on the construction site. The proposed site of the temporary workers accommodation is located within the planning application boundary for the Scheme, in the administrative area of Havant Borough Council.
3. The purpose of this Temporary Workers Accommodation (TWA) CEMP is to provide a structured approach to the management of environmental issues arising from the temporary workers accommodation and to document appropriate environmental management measures and controls to be implemented to ensure that, where practicable, the temporary workers accommodation does not adversely impact local communities or the surrounding environment.
4. The overall objectives of the TWA CEMP are as follows:
 - Record the environmental risks associated with the temporary workers accommodation and identify how they will be managed during their use;
 - To identify key environmental staff and their responsibilities; and
 - To provide an overview of the environmental mitigation measures to be implemented.
5. The TWA CEMP will be a ‘live’ document and will be maintained by FW whilst the temporary workers accommodation is occupied on site.
6. This TWA CEMP includes the following information:
 - Environmental Management System (EMS) Certificate and the Environmental Policy (refer to Appendix A);
 - General arrangement drawing showing the location of the temporary workers accommodation (refer to Appendix B);
 - Environmental Aspects and Impacts Register (refer to Appendix C);
 - Noise assessment (refer to Appendix D);
 - Code of Conduct (refer to Appendix E).
7. The above appendices can also be ‘live’ documents which will be maintained and updated throughout the life of this TWA CEMP.

Environment Context

The reservoir site

8. The site lies within a shallow valley located between the residential settlements of Leigh Park and Rowlands Castle. It has an area of approximately 160ha, predominantly open with woodland around the boundary, some vegetation and surface water drainage.
9. Along the boundary of the reservoir site, what remains of Round Wood is classified as Ancient Semi-natural Woodland (ASNW). The Corsican Pine Plantation is classified as Plantation on Ancient Woodland Sites (PAWS). A significant part of Havant Thicket woodland to the north is



listed as PAWS. Bells Copse, located to the west, also located within the wider reservoir site is also listed as partly ASNW and partly PAWS. These woodland blocks are also designated as Sites of Importance for Nature Conservation (SINC) and contains habitats for birds, insects, bats and dormice. Some of the habitats contain European Protected Species (EPS). A Public Right of Way (bridleway) extends across from east to west.

10. Thirteen species of bats were recorded within the reservoir site including Bechstein's bat¹. The reservoir site also supports a population of hazel dormouse, a range of priority bird species, reptiles and a small population of great crested newts is likely to be present within ponds in Havant Thicket woodland in the north, outside the reservoir site footprint. Badgers are known to forage within the reservoir site, but there are no active setts. An active outlier badger sett was identified and closed under licence in The Avenue during 2022.
11. Three unnamed small watercourses run from north to south across the reservoir site, these converge into one stream to the west of the Avenue before flowing off site into the Riders Lane Stream. None of the watercourses within the reservoir site are designated main rivers by the Environment Agency.
12. The residential areas of Warren Park and Leigh Park lie to the west and south-west of the reservoir site. The settlements of Rowlands Castle and Stansted are around 200m to the east.
13. The woodland directly to the north at Havant Thicket and to the west of the reservoir site at Bells Copse is owned and managed by Forestry England for timber production, and is also classified as ancient / ancient, replanted woodland.
14. Directly to the west of the reservoir site are open areas of grassland and a further area of ancient woodland known as Cabbagefield Row.
15. Land to the south and south-west of the reservoir site comprises the residential areas of Warren Park and Leigh Park, the nearest of which are present on Swanmore Road.
16. Part of the reservoir site is classed as a designated Country Park, namely Staunton Country Park. The area of Staunton Country Park within the reservoir site is mainly open grasslands. It has three walking trails including: Easy Access, 2.6km, Medium Walking Trail, 2.2km and Long Walking Trail, 5.1km. There are also two cycling trails: Havant Thicket Boundary Trail and Green Mountain Bike Trail.
17. The majority of the reservoir site is located in a low probability flood risk area, Flood Zone 1. One section of the Site (south-west corner), is categorised as being in Flood Zone 2 and 3. Flood Zone 3 is the area of highest risk of flooding, defined as 'Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding.'
18. The historic environment within the reservoir site includes portions of the Grade II* Leigh Park (Staunton Country Park) Registered Park and Garden (RPG) and the Sir George Staunton Conservation Area. In addition, 42 designated heritage assets have been identified within 2km of the reservoir site. These include three Scheduled Monuments, two additional Grade II* Registered Parks and Gardens, one Grade II* listed building, and 36 Grade II listed buildings. The pipeline corridor terminates near the Old Bedhampton Conservation Area.

Temporary workers accommodation

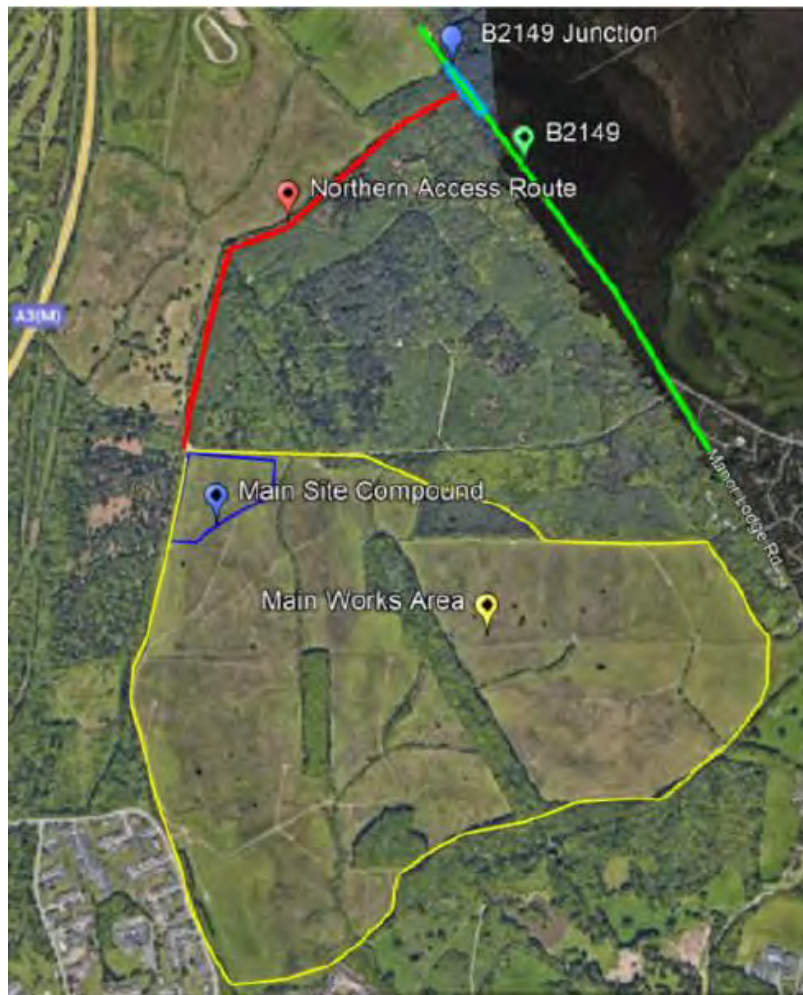
19. Figure 1-1 illustrates the location of the main site compound with respect to the main works area. The main site compound is located in the northwest of the main reservoir worksite to the south of Havant Thicket and to the east of Bells Copse. The nearest properties to the main site

¹ Havant Thicket Reservoir Biodiversity Mitigation and Compensation Strategy (Atkins 2022).

compound are located on Swanmore Road, approximately 700m to the south.

20. Access to the main site compound will be via the Northern Access Route which will be completed in Q4 2023. Access onto site for vehicles will be via a security officer-controlled gate and the site layout will provide for vehicles to pass safely on the way in and out of the compound.
21. Both surfacing and hard standing will be provided within the compound to assist with keeping vehicles clean and to negate the need for wheel washing.

Figure 1-1: Location of main site compound



22. A layout plan showing the siting of the temporary workers accommodation adjoining the main site compound is provided in Appendix B. For screening, the proposed caravans will be located within an area of mesh screening within the main reservoir site, with woodland on the north and to the west of the main site compound. An example of mesh screen netting is provided in Figure 1-2.



Figure 1-2: Example of screen mesh fence

23. The caravans (either a single or double axel towable touring caravan), would be arranged in rows running east to west, spaced 6m apart, with a potential maximum of 50 caravans provided.
24. Temporary accommodation may be provided in the form of bunkabins (single storey portable buildings), and where these are required, this would reduce the total caravans on site i.e. 40 caravans and 10 bunkabins. Refer to Figure 1-3.



Figure 1-3: Example image of bunkabin

25. The caravans and any bunkabins would be stationed on a hardstanding area, with external parking space provided adjoining each caravan. The caravans will not be connected to the mains foul sewer. Instead, foul waste will be connected to a cesspool and taken off site using a licenced waste carrier.
26. The caravans would be brought to site during the establishment of the main works compound during Q1 2024 / Q2 2024 (following completion of the northern access route), so that the



temporary accommodation is available for use by the contractor at the start of the main earthworks construction season.

27. The caravans would typically be in use between the months of March and October during the main earthworks construction and would remain in use until the main earthworks on site has been completed, this currently planned for 2026. Outside of the main earthworks season, some full -time staff and a skeleton crew for surface water management maintenance may use the temporary workers accommodation.
28. The caravans would then be removed from the site and the land reinstated as part of the wider hard and soft landscaping proposals for the reservoir implementation.



2. Approach to environmental management

29. A clear approach and structure for environmental management is required to fulfil the aims of the TWA CEMP and meet environmental commitments which is set-out in this section. This includes outlining roles and responsibilities and the mitigation and good working practices that need to be implemented. The TWA CEMP sets out the process whereby these commitments are documented, agreed and implemented whilst the temporary worker accommodation is being used on site.

Environmental Policy

30. Future Water is committed to deliver its work in line with the commitment of Portsmouth Water to conserve and enhance the natural environment of its land and water areas and to preserve historic buildings and equipment, so far as is consistent with the primary duty of providing a sufficient supply of wholesome water at reasonable cost.
31. The Environmental Policy is provided in Appendix A.

Planning Conditions/ Client Requirements

32. Havant Borough Council² and East Hampshire District Council³, as Local Planning Authorities, granted Planning Permission in October 2021 for the Scheme in accordance with the Town and Country Planning Act 1990 (as amended).
33. The planning decisions for the planning applications (reference APP/20/00990 and 51680/001) outline a number of environmental planning conditions which Future Water is required to discharge.
34. This TWA CEMP supports a new planning application for setting-up temporary workers accommodation for use during the earthworks season each year for the duration of the main earthworks.

Environmental risk assessment

35. Environmental aspects and impacts associated with the temporary workers accommodation are set out in the Environmental Aspects and Impacts Register (refer to Appendix C). Mitigation measures to manage construction risk have been evaluated and additional control measures applied to those activities with greater environmental risks which have been identified in the Aspects and Impacts Register in Appendix C.

Considerate Constructor Scheme

36. Future Water will sign up to the Considerate Constructor Scheme⁴. The Code of Considerate Practice aims to improve the impact of the construction industry on communities, the environment and workforce wellbeing by striving to leave a positive legacy through the implementation of best practice.

² https://planningpublicaccess.havant.gov.uk/onlinAPP_20_00990-DECISION_NOTICE-1539466.pdf

³ https://planningpublicaccess.easthants.gov.uk/51680_001-Decision_Notice-1167843.pdf

⁴ [Considerate Constructors Scheme \(ccscheme.org.uk\)](https://www.considerateconstructorscheme.org.uk/)



 RESPECT THE COMMUNITY Constructors must manage their impact on their neighbours and the public to support a positive experience, by: Ensuring courteous and respectful language and appropriate behaviour in and around the construction activity. Providing a safer environment, preventing unnecessary disturbance, and reducing nuisance for the community from their activities. Proactively maintaining effective engagement with the community to deliver meaningful positive impacts.	 CARE FOR THE ENVIRONMENT Constructors must minimise their impact and enhance the natural environment, by: Prioritising environmental issues to protect the natural environment and minimising negative impacts. Optimising the use of resources, including minimising carbon throughout the value chain. Engaging with the community to improve the local environment in a meaningful way.	 VALUE THEIR WORKFORCE Constructors must create a supportive, inclusive, and healthy workplace, by: Actively encouraging and supporting an inclusive and diverse workplace. Proactively supporting safe working, mental and physical wellbeing at work. Providing workplaces that are, well maintained, clean and secure from physical and biological hazards.
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3. Project team roles and responsibilities

Principal Contractor responsibilities

37. FW has been appointed as the PC and is responsible for appointing the Environmental Manager, the Site Environmental Manager and any supporting environmental specialists prior to starting work on site.
38. FW is responsible for the following before and during the main construction works, as stipulated in the MRW CEMP:
 - Develops the CEMP in line with ISO14001:2015 and ES requirements, and contractual obligations.
 - Defines the environmental roles and responsibilities for their own and their key subcontractors' personnel relating to environmental issues;
 - Develops an environmental training plan covering all personnel;
 - Develops a programme of internal and subcontractor inspections/monitoring;
 - Develops site specific emergency procedures for environmental incidents;
 - Ensures the programme for works allows time to undertake any environmental surveys (i.e. ecology surveys prior the commencement of construction activities);
 - Monitors compliance with legislation and that good practice is followed throughout the duration of the construction;
 - Develops and implements a non-compliance reporting procedure to manage any environmental incidents or non-compliance events for the Scheme; This is detailed in OP 11 Procedure for Notification & Investigation of Accidents & Incidents and the Pollution Control Plan (doc no. HTR-FUW-ZZ-ZZ-PL-0530);
 - Develops the required environmental control plans. These will be updated as required to reflect the mitigation measures proposed to be implemented during the construction phase;
 - Engages with statutory bodies (e.g. discharge planning conditions), or through



design development;

- Conducts construction planning, pre-construction surveys, etc.

Site roles and responsibilities

39. The site-based roles and responsibilities in relation to environmental management are summarised in Table 1 below. Responsible persons and lines of communication are shown in Figure 1-4.
40. The FW project management team is required to appoint suitably qualified personnel and delegate the environmental responsibilities to experienced on site personnel within the key areas of the site. The delegation of responsibilities will be clearly identified within relevant project documents and site files.

Table 1 Key site contacts⁵

Name and role	Organisation	Contact details
Project Director: Ruari Maybank	Portsmouth Water	ruari.maybank@portsmouthwater.co.uk
Project Manager: Jonathan Clark	Portsmouth Water	jonathan.clark@portsmouthwater.co.uk
Project Director: Terry Fuller	Future Water	terry.fuller@mackley.co.uk
Deputy Project Director: Rob Pearson		rob.pearson@mackley.co.uk
Construction Managers: James Hanson Dafydd Elis	Future Water	James.Hanson@mackley.co.uk dafydd@jones-bros.com
Contract Managers: Geraint Lloyd, James Hanson	Future Water	geraintl@jones-bros.com james.hanson@mackley.co.uk
Earthworks Manager: Derek Rapson	Future Water	Derek.Rapson@jones-bros.com
Site Environmental Manager: Terry Bellingham	Future Water	terence.bellingham@jones-bros.com
Environmental Manager: Andrew Hepworth	Future Water (RHDHV)	andrew.hepworth@rhdhv.com
Consents Manager: Iain Johnson	Future Water (RHDHV)	iain.johnson@rhdhv.com
Ecological Clerk of Works: John Condon	Future Water (Ecology Resources)	john@ecologyresources.co.uk

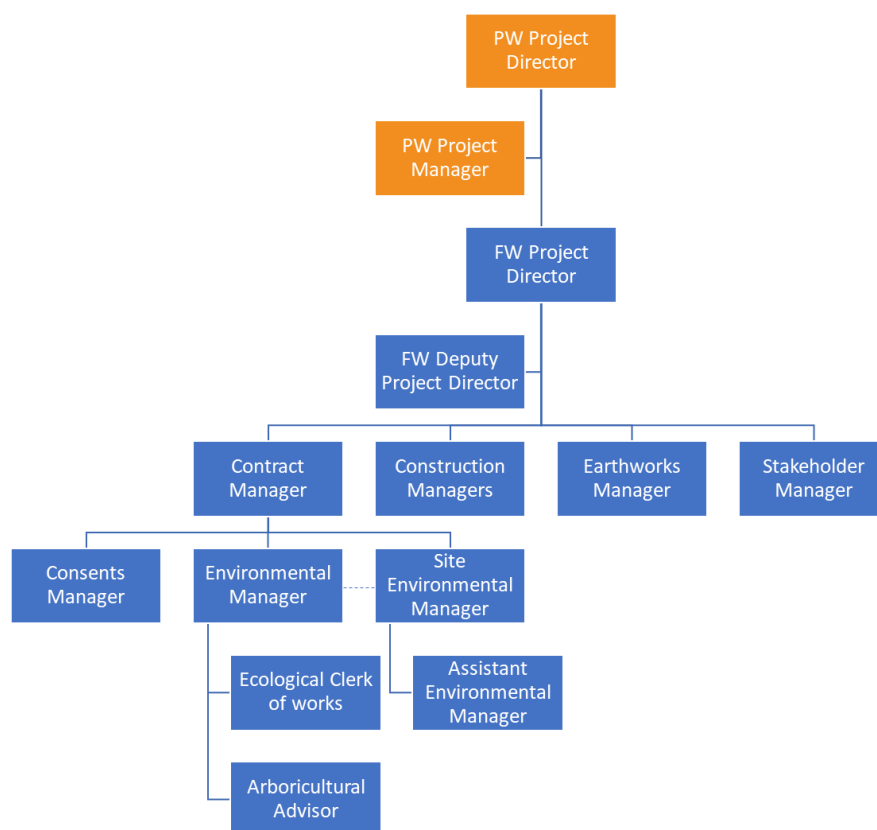
⁵ For the most up to date key contacts please refer to the project organogram HTR-FUW- ZZ-ZZ-RX-Z-001



Name and role	Organisation	Contact details
Arboricultural Advisor: Tom Hurley	Future Water (Advanced Arboriculture Ltd)	th@advancedarb.com
Stakeholder Manager: Angela Spinks	Future Water	angela.spinks@mackley.co.uk

41. An updated organogram is maintained within the FW quality assurance process and will be used to identify the key personnel working on the Scheme (doc no. HTR-FUW- ZZ-ZZ-RX-Z-001).

Figure 1-4: Lines of communication based on environmental roles and responsibilities



Project management organisation

42. Portsmouth Water is responsible for overseeing the overall management of the Scheme.
43. Some of the site supervision roles such as the Engineering Clerk of Works and procurement specialist consultants to supervise, monitor or check the method statements, including sensitive activities, will be delegated where required by Portsmouth Water.



Environmental management responsibilities

44. Portsmouth Water, FW, and its subcontractors, are all responsible for adhering to and complying with all relevant environmental legislation, bylaws and regulations.
45. All site personnel (including the seasonal workers occupying the temporary workers accommodation), will be required to attend the site induction which outlines their duty of care to the environment and will be provided with adequate training, supervision or instruction in the form of tool box talks, site induction modules and specific method statements as necessary.
46. Responsibilities for site environmental management will be delegated to key personnel by the FW Project Director and summarised in Table 2. These personnel will be responsible for the implementation, reporting and monitoring of environmental mitigation during the contract period in liaison with the Site Environmental Manager. Where required, environmental specialists will be appointed by FW to provide advice on specific issues or site activities.
47. The key environmental management roles and responsibilities are presented in Table 2 below.

Table 2 Key personnel with environmental management responsibilities

Organisation and role	Responsibilities
Portsmouth Water Project Manager/Project Director	Overseeing the implementation of the reservoir works in accordance with the planning application conditions (APP/20/00990 and 51680/001) and relevant legislation.
Future Water Project Director/Deputy Project Director	Accountable for the FW deliverables, including the FW Legacy and Benefit commitments. Being the day to day point of contact for Portsmouth Water. Addressing any escalated issues from the FW Project team. Overall responsibility for the FW staff and Site visitors' health, safety and wellbeing on Site. Appointing the key personnel and ensuring the appropriate environmental mitigation measures are implemented through design and construction activities.
Future Water Construction/Contracts/Site Managers	Ensuring the required environmental consents are in place before work starts. Reporting incidents and non-conformances to Portsmouth Water. Liaising with statutory authorities and Portsmouth Water as required and ensuring that records of communication (including verbal communication) are retained. Supervision of FW staff. Ensuring the safety and efficiency of construction activities. Day to day management of site operations. Contributing to the daily and weekly site reports. Implementing environmental mitigation measures through design and construction activities.
Future Water Consents Manager	Ensuring FW provides the works in accordance with the FW Consents Management Plan. Preparation, revision and submission to the Project Manager of the FW Consents Management Plan. Ensuring that the Stakeholder commitments FW is responsible for, including those set out within the REAC, are met.



Organisation and role	Responsibilities
	Preparation, engagement with stakeholders as necessary and submission of any construction Consents the Contractor requires to provide the works. Ensuring that FW discharges and complies with any Consents as necessary to provide the works. Contributes to the Monthly Report.
Future Water Environmental Manager	Acts as the point of contact for all environmental issues and FW environmental specific-deliverables updates. Preparation, revision and submission to the Project Manager of the TWA CEMP. Contributing to Monthly Progress Reporting.
Future Water Site Environmental Manager	Supports the Environmental Manager and the project management team in delivering the environmental component of the works during the construction phase. Ensures work is undertaken in accordance with the TWA CEMP, environmental legislation and all permits, consents and licences. Records the progress of the environmental works. Identifies key environmental concerns on site as the Scheme develops. Monitors and updates the Environmental Manager on the progress of environmental surveys. Provides input to the site induction on environmental practices, conducts toolbox talks, coordinates specialist surveys and oversee monitoring activities, as required. Undertakes day to day monitoring and supervision of construction activities in relation to environmental aspects on site to ensure identified mitigation measures are adhered to and corrective action is taken, as necessary. Undertakes site inspections with the Environmental Manager and/or project management team. Ensures site audits and non-conformance checks are carried out. Assesses and checks survey results and update databases, environmental plans as required. Inputs and reviews site specific method statements to ensure appropriate environmental mitigations are in place for each construction activity. Liaises with site supervisors, site management team and general construction workers. Provides regular updates to the Environmental Manager on site progress, compliance, issues, problems, successes, etc. Accompanies statutory authorities on site visits, as necessary. Identifies cost saving and best practice activities. Reviews actions being taken to manage resources (natural and others) during site activities. These include but are not limited to water usage, electricity usage, and raw material usage in the site offices. Contributes to Monthly Progress Reporting.
Future Water Ecological Clerk of Works	Prepares Precautionary Methods of Working/ Method Statements to protect flora and fauna during the works. Advises on the protection of ecological features and mitigation measures.



Organisation and role	Responsibilities
	Undertakes pre-construction and construction phase species checks. Conducts ecological watching briefs e.g. during grass strimming/vegetation clearance. Undertakes the translocation of flora and fauna. Maintains the daily site diary.
Future Water Environmental Specialists	Future Water will appoint suitably qualified environmental specialists such as: Noise and vibration specialists; Archaeologists; Arboricultural advisors; and other specialists, as required.
Future Water Stakeholder Manager	Maintains and develops the Stakeholder Management Plan. Maintains a comment and enquiries log for the Project. Acts as the key point of contact with interested parties, local communities, etc. Liaises with the project team to respond and implement appropriate measures, as required.

4. Environmental control measures

48. Control measures have been identified following the assessment of environmental risks to ensure that potential adverse effects arising from the siting or use of temporary workers accommodation are avoided, or minimised. The control measures relate to:

- Noise and vibration;
- Biodiversity;
- Traffic management and travel planning;
- Lighting;
- Worker conduct.

Noise and Vibration

49. A noise assessment prepared for the temporary residential caravan site is included in Appendix D.
50. Power for the temporary residential caravans will be via a generator until a mains electricity connection has been established. As night-time noise emissions from the generator used to support the caravan site will not exceed the night-time construction noise level criterion, no specific mitigation for the generator will be required. Appendix D also outlines measures to minimise noise from the generator, which includes using 'sound reduced' models fitted with properly lined and sealed acoustic covers.
51. Appendix E provides a Noise Code of Conduct which outlines the expectations and requirements of the conduct of personnel accommodated in the temporary residential caravans to ensure noise is kept to a minimum.



Biodiversity

52. A Habitats Regulations Assessment Note has been prepared for the temporary workers accommodation. As part of the appropriate assessment undertaken in 2021, the potential impacts of the Scheme on the qualifying features of European designated sites were considered and appropriate mitigation proposed to mitigate potential impacts.
53. The Habitats Regulations Assessment Note has not identified any additional impacts arising from the temporary workers accommodation on the qualifying features of European designated sites. As such, no additional biodiversity mitigation measures will be required.
54. The caravans will not be connected to the mains foul sewer. Instead, foul waste will be connected to a cesspool and taken off site using a licenced waste carrier which will be disposed at a Wastewater Treatment Works by arrangement with the sewerage company.
55. Chapter 9 (Biodiversity) of the 2020 Environmental Statement prepared for the Scheme identified that traffic using the Northern Access Route could increase the potential for badgers to be involved in traffic accidents during the night-time. In order to mitigate for this, a 10 mph speed limit will be imposed on the Northern Access Route.
56. Measures will be implemented to minimise the potential for light spillage from the temporary residential caravans which could impact on biodiversity. The Construction Lighting Strategy (doc no. HTR-FUW-ZZ-ZZ-PL-W-0534) details the mitigation measures to be applied to reduce the potential for construction lighting impacting on biodiversity (refer to Lighting section below).

Traffic Management / Travel Plan

57. A Construction Traffic Management Plan (CTMP) (document no. HTR-FUW-RZ-RE-HS-W-0513) has been prepared by Future Water MJJV which sets out how construction traffic related to the establishment of the temporary residential caravans will be managed.
58. A Construction Worker Travel Plan (CWTP) has been prepared for the temporary residential caravans which contains details of how Future Water plan to mitigate the impact of commuting members of staff on the local highway network (refer to Appendix A of the CTMP). The transport options available include active travel (walking and cycling), public transport (train, bus), car sharing and private car (electric/hybrid). A Travel Plan Coordinator has been appointed by Future Water, who will be responsible for the holistic implementation of the CWTP measures.

Lighting

59. Without mitigation, light emanating from the temporary workers accommodation has the potential to cause nuisance to local residents and impact on biodiversity (e.g. bat species).
60. The Construction Lighting Strategy (doc no. HTR-FUW-ZZ-ZZ-PL-W-0534) details the mitigation measures to be applied to reduce the potential for any impacts of construction lighting on local residents and fauna. Measures which will be implemented to minimise the potential for light spillage from the caravans and any bunkabins include:
 - Using Passive Infrared (PIR) sensors to trigger lights to come on (or dim) in response to movements, either by vehicles or by pedestrians;
 - Using a warm white light source (2700Kelvin or lower) will be adopted to reduce blue light component;
 - Light sources will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;



- Using light fittings that reduce the amount of light emitted above the horizontal to avoid light spillage onto neighbouring areas;
- Using curtains and/ or blinds on the temporary workers accommodation windows during the evening/night-time period; and
- Switching off / timer controls to avoid unnecessary lighting.

Code of Conduct

61. A workforce Code of Conduct will be adopted which will stipulate the expectations and requirements of workers using the temporary workers accommodation.
62. The Code of Conduct will include the following measures:
 - Being considerate of each other:
 - Keep the noise down, especially late at night and early in the morning (also refer to the Noise Code of Conduct in Appendix E for further measures to control noise);
 - Drive carefully within the site compound (max 5mph) and on the Northern Access Route;
 - No littering – use the bins.
 - Being considerate of neighbours:
 - Keep the noise down, especially late at night and early in the morning;
 - Drive considerately of other road users;
 - Watch for pedestrians and cyclists at the B2149 road junction;
 - Switch off lights at night.
 - Being considerate of the environment:
 - Share cars or use minibus to the shops;
 - Strictly no fires;
 - All wastes properly disposed of;
 - Care for wildlife, particularly on the Northern Access Route after dark.
63. A Noise Code of Conduct for workers accommodated at the temporary workers accommodation is provided in Appendix E.

5. Environmental monitoring requirements and procedures to monitor compliance

Environmental monitoring requirements

64. Environmental monitoring will be undertaken to measure the effectiveness of environmental controls and implementation of this TWA CEMP.
65. FW is responsible for undertaking environmental monitoring on site, such as noise monitoring, ecological surveys and water quality monitoring. The Inspections, auditing and monitoring procedure (doc no. HS--0005), which forms part of the Jones Brothers EMS, includes methods for monitoring, recording and implementing the environmental management on site, including provision for formal records of site observations and procedures for responding to and



reporting any noted areas of non-compliance.

66. FW is responsible for keeping records of environmental monitoring and management actions which will be captured using the site inspection form (doc. Ref. EN-a-007). The site inspections are documented on Pansophy⁶ and completed via PIM Mobile⁷. FW has implemented an Emergency Response Plan (doc no. FUW-ZZ-XX-PLW-0002) which details response procedures should an environmental incident occur, including reporting procedures and emergency contact details, including the Environment Agency.

Environmental records

67. Records of compliance with the requirements of the TWA CEMP, derived from audits and other inspections, will be held at the FW site office. Document management will be controlled via Business Collaborator CDE, and internally with the FW Document Management System, Pansophy. These will be available for inspection by representatives of any audit team and the Environment Agency, in their statutory role.
68. FW is using Pansophy as a central document management system for any checklists, reports and monitoring consistent with the process outlined in the Quality Plan (doc no. HTR-FUW-ZZ-XX-QA-W-007).

Site inspection checklist

69. FW have processes and protocols in place for environmental aspects to be checked. On completion of a site inspection, details will be logged using the Environment Site Inspection Report (form EN-a-007a) and corrective actions implemented if required should any non-conformances be identified. Portsmouth Water will review the Action Tracker as part of their checking and audit role.

Procedures to monitor compliance

70. The level of environmental management will be monitored to assess compliance with the environmental legislation, contractual requirements and best practice standards through site inspections and audits.
71. A project record will be maintained for formal records associated with the implementation of the TWA CEMP, which will be managed and controlled within Future Water filing systems.
72. FW is responsible for maintaining environmental records. The TWA CEMP is supported by other Scheme documents such as Health, Safety and Quality procedures.

Environmental audit

73. As part of the Quality, Environmental and Safety management systems it will be necessary for an audit to record environmental compliance. The audit schedule is outlined in the project Quality Plan (doc no. HTR-FUW-ZZ-XX-QA-W-007).

⁶ Pansophy enables project management teams to work and collaborate from anywhere at anytime from a single sourced tool in Realtime.

⁷ PIM Mobile is a software that manages complex product data and digital assets in a central platform. This allows Project management teams to draft, revise, update and share documents in real time from a mobile device.



Control of documents

- 74. All risk assessments, method statements and Control of Substances Hazardous to Health (COSHH) forms will consider environmental impacts, in addition to health and safety items.

6. Introduction, training and briefing procedures for staff

- 75. FW will ensure all residents and visitors to the temporary workers accommodation are briefed on the expected code of conduct. Training will also be implemented to ensure that employees demonstrate an appropriate awareness of local sensitivities, environmental codes of practice and guidance relevant to the site activities in which they are engaged.
- 76. The environmental training records will be kept in the site files and the document control system as outlined in the project Quality Plan (doc no. HTR-FUW-ZZ-XX-QA-W-007).
- 77. FW has implemented an Emergency Response Plan (doc no. FUW-ZZ-XX-PLW-0002) which details response procedures should an environmental incident occur, including reporting procedures and emergency contact details, e.g. the Environment Agency.

7. Communications

- 78. The FW Stakeholder Manager will be the first line of response to resolve issues of concern or complaints relating to any issues associated with the temporary workers accommodation. Any complaints will be logged, together with a record of the responses and action taken to ensure no recurrence of similar incidents.



Appendices



Appendix A EMS Certificate and Environmental Policy

EMS Certificate

The certificate is issued by bmtrada, proud to be part of element. It certifies that Jones Bros Ruthin Co Ltd (including Jones Bros Ruthin (Civil Engineering) Co Ltd & Cambrian Services Limited) has been audited and found to meet the requirements of standard ISO 14001:2015 Environmental Management System. The scope of certification is the provision of civil engineering and construction services. The certificate is signed by Vicki Howlett, General Manager - Certification UK. It includes logos for bmtrada, UKAS MANAGEMENT SYSTEMS 0012, and IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT. The certificate number is 1816, issued on 15 March 2023, and expires on 2 April 2026. The date of initial certification is 8 March 2011.

bmtrada
Proud to be part of **element**

CERTIFICATE OF REGISTRATION

This is to certify that

**Jones Bros Ruthin Co Ltd (including
Jones Bros Ruthin (Civil Engineering) Co Ltd &
Cambrian Services Limited)**
Ty Glyn
Canol y Dre
Ruthin
Denbighshire
LL15 1QW

has been audited and found to meet the requirements of standard
ISO 14001:2015 Environmental Management System

Scope of certification
The provision of civil engineering and construction services.

Certificate number: 1816
Issue number: 2023-01
Certificate effective date: 15 March 2023
Certificate expiry date: 2 April 2026
Date of initial certification: 8 March 2011

Vicki Howlett
General Manager - Certification UK

Issuing Office: Warringtonfire Testing and Certification Limited t/a BM TRADA Chiltern House, Stocking Lane, High Wycombe, Buckinghamshire, HP14 4SD, UK
Registered Office: Warringtonfire Testing and Certification Limited, 3rd Floor, Davidson Building, 5 Southampton Street, London, WC2E 7JH, UK
Reg No.: 11371436

This certificate remains the property of BM TRADA. This certificate and all copies or reproductions of the certificate shall be returned to BM TRADA or destroyed if requested. Further clarification regarding the scope of this certificate and verification of the certificate is available through BM TRADA or at the above address or at www.bmtrada.com/certified-companies/check-a-certificate

The use of the UKAS accreditation mark indicates accreditation in respect of those activities covered by the accreditation certification number 012. For further information on brenada activities covered by UKAS accreditation please go to: <https://www.ukas.com/search-accredited-organisations>



HEALTH & SAFETY
ENVIRONMENT
QUALITY

Document: JB-POLICY-002

ENVIRONMENTAL POLICY

ENVIRONMENTAL POLICY

It is the responsibility of the Jones Bros Ruthin (Civil Engineering) Co Ltd, employees and contractors to commit to, maintain, and continually improve our environmental management system (EMS) to protect the environment and to prevent pollution. We do this by:

- Demonstrating top management leadership and commitment to our environmental management system reflecting our organisation context
- Ensuring our environmental policy and objectives are aligned with the overall strategic direction of the company
- Operating in a manner which minimises the impact on our surroundings, meets our compliance obligations and delivers best practice whilst ensuring a balance between economic, environmental and social issues
- Understanding the issues that may affect our organisation's environmental performance, the needs and expectations of interested parties and the risks & opportunities they present
- Working closely with other contract parties and our supply chain to develop good environmental practices and solutions, energy efficiency and use of sustainable materials whenever we are involved in the design or promotion of sustainable options
- Integrating our environmental management system with other management systems and using these to review regularly our performance and set increasingly challenging objectives and targets, such that our environmental performance improves continually
- Targeting our investment in technology, plant and equipment such that it helps lower the carbon emissions and environmental impact of our operations
- The use of sustainable resources and re-use, recycling and waste minimisation throughout all areas of our business, and considering a life cycle perspective in order to reduce the demand on the environment's natural resources
- Ensuring that our policy is understood by all staff through training and awareness, and directing all employees and sub-contractors to comply with its requirements and procedures
- Ensuring that the necessary resources are available to meet the requirements of the policy

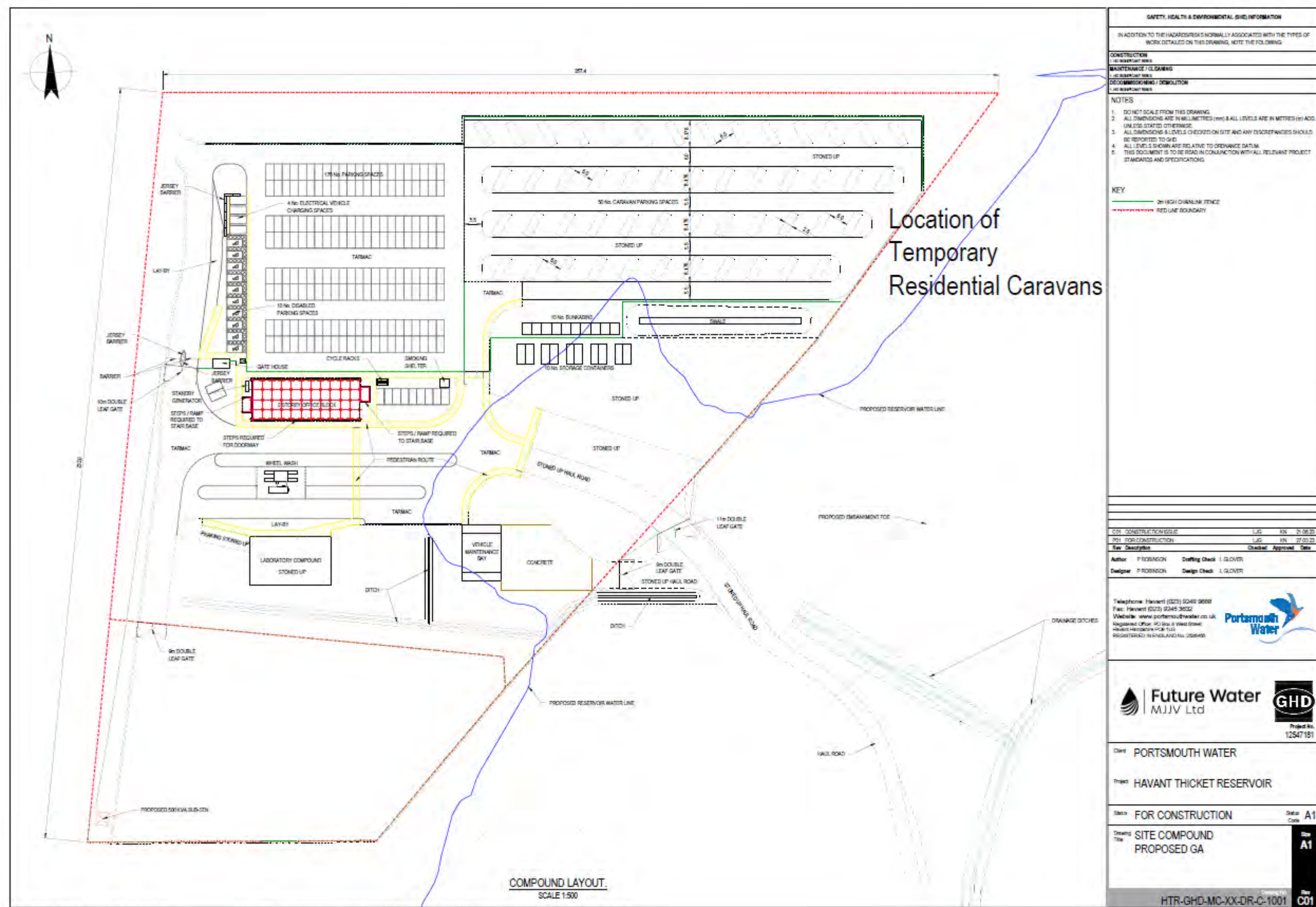
Review

It is the policy of the company to maintain and grow our ISO 14001:2015 accredited Environmental Management System in pursuit of our primary objectives. This policy will be reviewed annually and any changes made communicated to all employees.

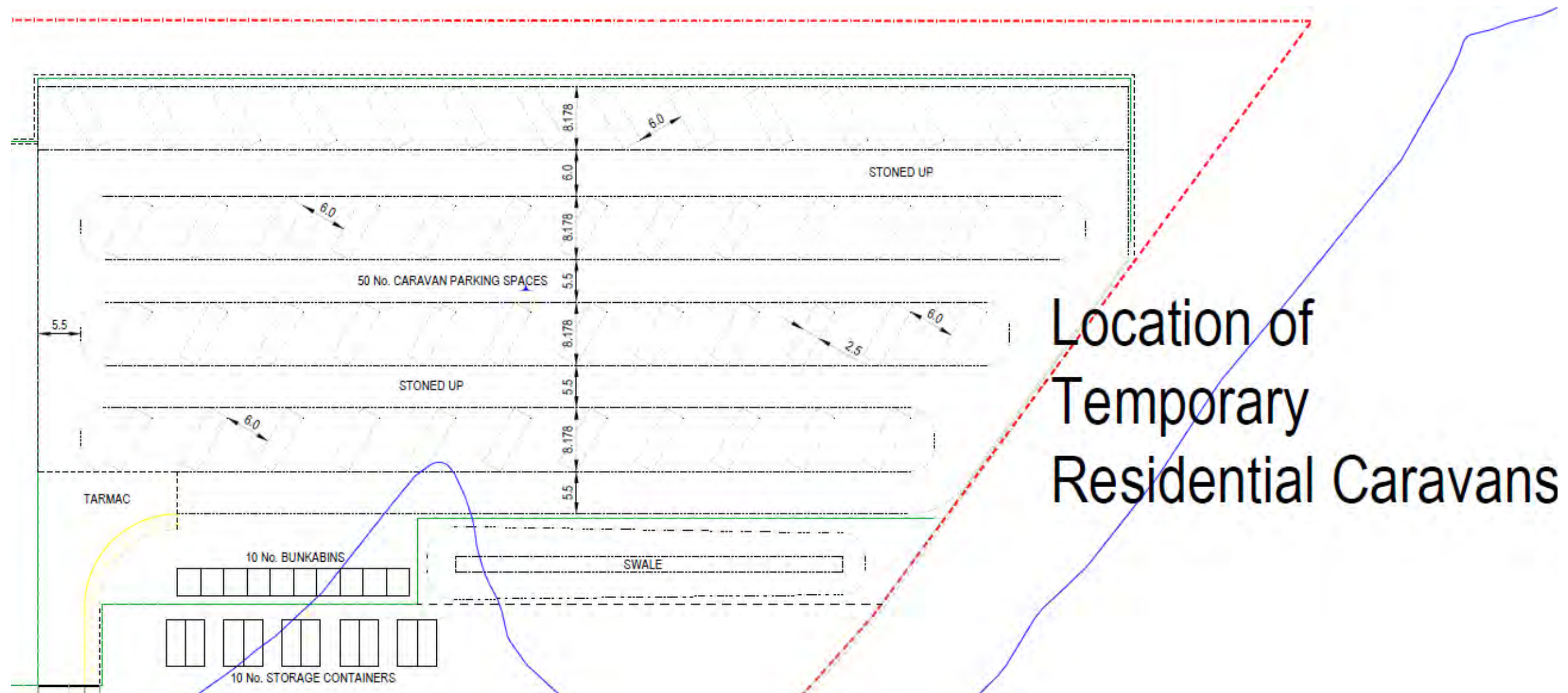
John Dielhof
Managing Director
November 2023



Appendix B Temporary Workers Accommodation - General Arrangement Drawing



Extract from Site Compound General Arrangement Drawing (HTR-GHD-MC-XX-DR-C-1001) showing the location of the temporary workers accommodation.



Appendix C Environmental Aspects and Impacts Register

Future Water has established and maintains a procedure to identify the environmental aspects of their activities. The Register identifies potential environmental impacts arising from the temporary residential caravans and the environmental control measures that will be adopted to eliminate or minimise potential impacts.

The Environmental Aspects and Impacts Register is a live document. As such, the Register will be reviewed and updated where relevant, to manage environmental risks during the use of the temporary residential caravans.

Form No:	EN-f-024	Title:	Environmental Aspects and Impacts Risks Assessment - INTRODUCTION		
Template Issue No:	V1.2	Issue Date:	Jan-23	Approved by:	Ellis Ashton

Tab 2 of 10

Project Name:	Havant Thicket Reservoir	Project Number:	PC2625-RHD-ZZ-XX-RG-EV-0001
Activity:	Temporary Residential Caravans	Author/Responsible Person:	AH
Date:	19/02/2024	Signature:	A G Hepworth

Within the site/project team, the following environmental awareness/competencies are present:		
Name:	Role:	Environmental Qualification
Andrew Hepworth	Environmental Manager	BA (Hons), MEnvSc
John Condron	Ecological Clerk of Works	BSc (Hons), MSc, MCIEEM, MBES
Terry Bellingham	Site Environmental Manager	BSc (Hons), MSc

Revision No.	Review Comments:	Reviewed by:	Date:
1	Updates to text. New section on waste management added.	AH	19/02/2024

INTRODUCTION

The Risks tabs on this spreadsheet capture the Environmental Aspects of all activities, products and services, that we control and influence throughout stages of the Project, from Planning through to Maintenance. They also capture the subsequent Environmental Impacts and consider the process from a Life Cycle perspective.

In considering the Environmental Aspects, we have taken into account:

- a) Planned or new developments, activities & services
- b) Foreseeable abnormal and emergency situations.

Using compliance obligation as the criteria, those Aspects that have a potential Significant Impact are highlighted on the Risks tabs (LAND/WATER/ECOLOGY/ WASTE/NUISANCE/AIR QUALITY/HERITAGE). Significant Impacts are drawn from:

[WW-f-008 - Project Risk Register](#)

WW-f-008 is formed from Pre-Construction Information and the tender enquiry stage (by the Design & Construction Management Team). The Life Cycle (below) shows the categorised stages of our Projects. Into which the Aspects highlighted in the Risks tabs of this document have been documented.

Life Cycle stages of our Projects and permanent locations, which have their own Environmental Aspects & Impacts:

Planning - The planning of project scope, personnel and requirements to achieve the aims of the project, which feeds into the design.

Design - Designing to incorporate disassembly to increase reuse of resources as well as designing out waste. Quantity Surveying to determine required procurement quantities, and ensuring environmental aspects are planned into the design for later project stages.

Procurement & Acquisition of Raw Materials - Considering procurement of locally-sourced sustainable product suppliers and subcontractors with verified status; length of supply chain and associated environmental impact; ordering calculated quantities to minimise supply chain waste; and considering materials, plant and vehicles of a suitable quality to increase lifetime and minimise maintenance intervals.

Construction & Production - Use of plant, vehicles (for transportation and delivery), equipment and materials in a sustainable and safe manner which minimises pollution risk and takes into account end-of-life to create a product or provide a service, reduction in energy consumption during the construction phase through minimising delivery and workforce travel mileage by adhering to the aforementioned procurement strategy, protection and preservation of ecological and cultural assets, as well as minimisation of statutory nuisance impacts to identified receptors.

Operation & Use - Use of the design and procurement stages to construct an operationally efficient project, promoting sustainable running and use of the company's permanent office spaces, as well as considering end of life treatment and disposal of wastes.

Maintenance - Planning and undertaking maintenance to ensure long term environmental aspects are managed to minimise impacts to the environment during construction from plant and vehicles and the site, post-construction.



	A	B	C	D	E	F	G	H	I	J	K	
1	Environmental Aspects and Impacts Risks Assessment - Temporary Residential Caravans in Main Site Compound											
2	Please populate electronically, all blank cells below highlighted in light blue, except column I which will self populate. If necessary, the cells in white can also be amended to be made site specific.											
3	Associated project lifecycle stage	Aspect	Impacts	Conditions	Probability 1	Severity	Control Measures	Probability 2	Residual Risk	Additional Controls	Compliance Obligation	
4					0 - Highly Unlikely	0 - No environmental impact or harm to humans		0 - Highly Unlikely	Colour Key to Risk Rating:			
5					1 - Very Unlikely	1 - Very minor environmental impact or nuisance to humans		1 - Very Unlikely				
6					2 - Unlikely	2 - Temporary local damage / can cause temporary harm to humans		2 - Unlikely	0 = INSIGNIFICANT			
7					3 - Likely	3 - Permanent local impact / potential to cause human harm to major organs		3 - Likely	1 - 3 = LOW			
8					4 - Very Likely	4 - Global impact that is not permanent / potential to cause major permanent disability or health		4 - Very Likely	4 - 10 = MEDIUM			
9					5 - Almost Certain	5 - Global impact that is permanent / potential to kill		5 - Almost Certain	10+ = HIGH			
10	Construction											
11	Biodiversity											
12	Construction	Use of the temporary residential caravans for the main earthworks.	Potential impacts are likely to be associated with: i) Disturbance effects (e.g. via lighting, noise and visual effects) on species (e.g. birds, bats, dormice, reptiles). ii) Potential for road traffic collisions with species (e.g. badger) during the night-time.	Normal	3	2	Measures will be implemented to minimise the potential for light spillage from the temporary residential caravans, which include: - Passive Infrared (PIR) to trigger lights to come on (or dim) in response to movements; - Red spectrum lighting to reduce potential impacts on bat species; - Using a warm white light source (2700Kelvin or lower) to reduce the blue light component; - Using light fittings that reduce the amount of light emitted above the horizontal. - Using curtains and/ or blinds on caravan windows during the evening/night-time period. A workforce Code of Conduct will be adopted which will stipulate the expectations and requirements of workers using the temporary residential caravans (e.g. minimising noise). A low speed limit will be imposed on the Northern Access Route to minimise the potential for road traffic collisions with badgers.	1	2		Key legislation includes, but is not limited to: Wildlife & Countryside Act 1981 (as amended) Conservation of Habitats & Species Regulations 2017 (as amended)	
13	Noise and vibration											
14	Construction	Use of the temporary residential caravans for the main earthworks.	Noise impacts could result in nuisance to local residents and/ or biodiversity, potentially arising from: i) Temporary generators at the satellite compound (which will initially supply the temporary residential caravans, prior to mains supply being connected); and ii) the behaviour of workforce employees.	Normal	2	2	Temporary Workers Accommodation (TWA) CEMP (HTR-RHD-P2-XX-RP-Z-0001). Noise and Vibration Management Plan (doc no. HTR-RHD-P2-RE-PL-W-0017). A workforce Code of Conduct will be adopted which will stipulate the expectations and requirements of workers using the temporary residential caravans. Generators will be 'sound reduced' models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use.	1	2		Key legislation includes, but is not limited to: Control of Pollution Act 1974; Environment Protection Act 1990.	

	A	B	C	D	E	F	G	H	I	J	K
1	Environmental Aspects and Impacts Risks Assessment - Temporary Residential Caravans in Main Site Compound										
2	Please populate electronically, all blank cells below highlighted in light blue, except column I which will self populate. If necessary, the cells in white can also be amended to be made site specific.										
3	Associated project lifecycle stage	Aspect	Impacts	Conditions	Probability 1	Severity	Control Measures	Probability 2	Residual Risk	Additional Controls	Compliance Obligation
4					0 - Highly Unlikely	0 - No environmental impact or harm to humans		0 - Highly Unlikely	Colour Key to Risk Rating:		
5					1 - Very Unlikely	1 - Very minor environmental impact or nuisance to humans		1 - Very Unlikely			
6					2 - Unlikely	2 - Temporary local damage / can cause temporary harm to humans		2 - Unlikely	2 - MEDIUM		
7					3 - Likely	3 - Permanent local impact / potential to cause human harm to major organs		3 - Likely	3 - HIGH		
8					4 - Very Likely	4 - Global impact that is not permanent / potential to cause major permanent disability-ill health		4 - Very Likely	4 - 10 - MEDIUM		
9					5 - Almost Certain	5 - Global impact that is permanent / potential to kill		5 - Almost Certain	5 - 10 - HIGH		
10	Construction										
15	Traffic and Transport										
16	Construction	Traffic movements generated by users of the temporary residential caravans	Traffic movements could potentially result in: i) nuisance to local residents located on the B2149; and ii) impact on biodiversity e.g. via traffic collisions. (*Note: As the Northern Access Route is remote from residential areas, traffic movements on the B2149 will not be noticeably different to those already occurring).	Normal	2	2	Implementation of the TWA Construction Traffic Management Plan (CTMP) (HTR-FUW-RZ-RE-HS-W-0513), incorporating measures to address vehicle movements associated with the temporary residential caravans e.g. by: - Providing a mini-bus for fixed day shopping trips each week; - Setting site rules for times of vehicle movements; - Providing free issue bicycles for use by resident site operatives. Implement the Construction Worker Travel Plan (CWTP), contained within the CTMP. A Travel Plan Coordinator will be responsible for the implementing and promoting the CWTP. A low speed limit will be imposed on the Northern Access Route to mitigate the potential for road traffic collisions with badgers.	1	2		
17	Waste Management										
18	Construction	Use of the temporary residential caravans for the main earthworks.	Potential generation of litter/ty tipping, resulting in pollution both within the temporary workers accommodation site and potentially to areas surrounding the site.	Normal	2	2	Workforce Code of Conduct. Tool-box talks on pollution control, litter / fly-tipping prevention. Recycling collection points or bins will be positioned in canteens and mess facilities, with poster guides suited to local recycling patterns.	1	2		Key legislation includes, but is not limited to: EU Directive 2008/98/EC on waste; Environmental Permitting (England and Wales) Regulations 2016; Hazardous Waste (England and Wales) Regulations 2005 (as amended by the Hazardous Waste (England and Wales) Amendment Regulations 2009 and 2016)
19	Please add Comments below and include details of Further Controls if the Risk Rating or Significant Score is MEDIUM or HIGH										
20											
21											
22											
23											
24											
25											



Appendix D Noise Assessment

The noise generated by the preparation of the main compound was assessed as part of the Enabling Works CEMP. To consider any noise due to the preparation of the area proposed for the temporary workers accommodation, the 'worst case' was assessed, i.e. grading one part of the land at the same time as stone is placed and compacted in another part. This combination would not arise for more than a few days. The 'in combination' sound power level at source was assessed to be 114dB. Adjusting for the distance of 920m, the noise level at Swanmore Road receptors would be 47dB(A) or lower. This is substantially lower than the daytime noise threshold for the works. Noise arising from site preparation for the temporary workers accommodation can therefore be discounted.

The temporary workers accommodation will be supported by a generator until a mains electricity connection has been established in February 2024.

A 3-d noise model of plant noise emissions has been used to calculate noise levels at the most potentially affected residential receptors, based on a source sound power level of 86 dB(A). Further modelling details are provided in the Main Reservoir Works Noise & Vibration Impact Assessment (HTR-RHD-P2-RE-EN-Z-0009).

Noise emissions from the generator would most robustly be assessed against night-time noise criteria, in accordance with BS 5228-1:2009+A1:2014 and the relevant planning conditions. These provide a night-time construction noise level criterion of 45 dB LAeq.

The maximum noise level at a residential receptor is calculated to be 17.6 dB(A) at 18 Farriers Way, Waterlooville. Therefore, the noise emissions from the generator can be seen to be comfortably in compliance with the required 45 dB(A) criterion.

Additionally, noise due to the generator has been addressed in the Main Reservoir Works Noise & Vibration Management Plan (NVMP) (HTR-RHD-P2-RE-PL-W-0017). Table 6 of the NVMP ('out of hours running of plant') contains an item regarding the generator. Noting the distance of 750m from residential property, it specifies mitigation as follows:

Hybrid system – maximise use of battery power at night.

Locate generator within compound so cabins provide screening.

In Section 4 of the Main Reservoir Works NVMP, under Noise and Vibration mitigation measures, the following item is listed under 'best practical means':

All compressors and generators being 'sound reduced' models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use.



Appendix E Noise Code of Conduct

Introduction

This Code outlines expectations and requirements regarding conduct for all personnel accommodated in the temporary workers accommodation adjoining the main site compound at the Havant Thicket Reservoir site, anticipated to be those involved in its construction. This Code applies equally to personnel employed by Future Water and those employed by contractors and subcontractors.

In addition to the requirements herein, workers should also, and at all times, be in compliance with any other appropriate behavioural codes.

Code of conduct

The following items should be noted:

Residents should not make unreasonable noise and no instrument, radio, television, or audio equipment of any kind to be used, so as to cause an annoyance to other residents at the site, or to others (neighbours) off site.

Individuals must always be considerate both towards fellow resident personnel and to members of the public resident nearby. All residents are entitled to live peacefully in their accommodation. Excessive or unacceptable noise at any time which disturbs other residents within the site will not be tolerated.

Personnel must respect the right of other residents and any neighbour's privacy and the right to quiet enjoyment, and not indulge in any anti-social behaviour at any time and particularly must not:

- Shout excessively or make or cause loud or disruptive noises.
- Use electronic equipment (including stereo systems) in such a way as to cause nuisance.
- Cause nuisance or annoyance or hindrance to other residents, staff or neighbours.

Personnel should also be aware that these regulations are particularly applicable between 2300 and 0700 hours, when it is expected that no noise or music should be audible from the boundary of the accommodation site or at other residential units (caravans). For the avoidance of doubt, regulations regarding noise are applicable not just within the accommodation, but also within the overall site.

Personnel using communal areas should show consideration to other residents. If you feel your own peace and quiet is being affected speak to the offending party in a reasonable manner. If you cannot resolve the matter speak to the Future Water Site Environmental Manager.

Future Water retains the right to remove any item which causes excessive noise.



Appendix F Inspections, Auditing and Monitoring Procedure



HEALTH & SAFETY ENVIRONMENT QUALITY



Procedure No. HS-p-005	Form Title: Inspections, Auditing and Monitoring
-------------------------------	---

1 Introduction

- 1.1 The Health and Safety at Work Act requires that the employer carries out monitoring of the workplace and a review of policy and procedures at suitable intervals.
- 1.2 [PFC001 - Business Planning, Review & Continuous Improvement](#) refers to all procedures, guidance, documents, forms etc in relation to continuous improvement across the business. This will be utilised for all changes and improvements to Jones Bros management systems.
- 1.3 [PFC006 - Non-Conformances & Corrective Actions](#) refers on page 2 to Health, Safety and Environment Non-Conformances & Corrective Actions Process. This shows the complete process for identifying and managing Health, Safety or Environmental Non-conformances.

2 Audit

- 2.1 It is the policy of Jones Bros to carry out regular audits of the health, safety, environmental & energy (HSEE) management system, including administration, policy, procedures, and workplace practices.
- 2.2 It shall be the responsibility of all managers to ensure all cooperation is provided in order to complete an accurate picture of the HSEE of the company.
- 2.3 The company's HSEE management system is certified to ISO 9001/14001/45001/50001 standards and we will audit the company to these requirements.
- 2.4 Internal audits will take place as per annual schedule [Master Internal Audit Schedule](#) maintained in Pansophy pool 14.01.01 and in accordance with the relevant ISO standards and procedures. This will be performed by Quality team.
- 2.5 The internal auditor will complete audit reports and discuss the results with the department / site manager. The audit reports are saved to Pansophy pool 14.01.02. A non-conformance report will be raised for any non-compliances and a correction action plan agreed along with a resolution date with the department / site manager. All Non Conformances are recorded and maintained on the [Quality Non Conformance Register](#) located in Pansophy pool 14.03.
- 2.6 In addition to the above, the company will receive external audits at Ty Glyn and on a selection of sites by the UKAS accredited certification body.
- 2.7 It is also a requirement of the company insurance that we be audited bi-annually by a third party provided by the insurance providers.

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HEALTH & SAFETY
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Procedure No. HS-p-005	Form Title: Inspections, Auditing and Monitoring
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3 Inspections

- 3.1 The company employ the services of a competent third party, BSG (The Building Safety Group), to carry out formal Health, Safety and Welfare site inspections. These inspections are carried out monthly on each live registered site.

the report is left on site and a copy forwarded to the HSE team, where it is inspected for further action and to enable trend analysis to take place.

When required, BSG raise a [HS-f-050 - BSG Inspection Action Plan](#) which includes all actions to be addressed, and sends a copy to site & HSE Team. This form is located in Pansophy within the [templates pool 18.06](#). The HSE Team then adds the actions to [HS-f-089 HSE Action Tracking Database](#).

- 3.2 A member of the HSE team will carry both formal and informal HSEE inspections on all sites/locations where and when necessary, the frequency of the visits will depend on:

- 3.2.1 The level of risks on the contract
- 3.2.2 The duration and amount of people working on the contract
- 3.2.3 The results of previous visits
- 3.2.4 The results of formal site inspection and audit reports

- 3.3. A copy of the site inspection checklists **HS-a-021 & EN-a-007** forms are available as custom forms for use by the HSE Team and are located on the PIM Mobile App. An overall percentage score and rating will be given to the inspection and recorded on the form. When completed, the forms will be published to Pansophy pool 07.02.05 for each project. This pool is accessible to all site staff.

The overall percentage score is inputted onto a database and communicated to the board of directors monthly. An action tracking database [HS-f-089 - HSE Action Tracking Database](#) is available and is located in Pansophy within the knowledge area pool 03.08. This will be developed by the HSE team for any non-conformances, in addition to a report summary highlighting an overall percentage score based on the outcome of this inspection. The Contracts Manager and Site Manager will be emailed with this information for review and action.

Senior Managers, including Directors, will carry out senior workplace HSE tours on a monthly basis using custom form **HS-a-025 - Senior Managers Tour (Board Members)**, or **HS-a-026 - Senior Managers Tour (Site Management)**, available on the PIM Mobile App. The result of the Senior Managers inspection will be discussed with Site Management and published to Pansophy pool 07.07.07 for each project inspected. The pool is accessible to all site staff.

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HEALTH & SAFETY
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Procedure No. **HS-p-005**

Form Title: **Inspections, Auditing and Monitoring**

4 Workplace Inspections

- 4.1 [PFC030 - Workplace Inspections](#) refers to section 3 of this document, as well as including links to procedures, guidance, documents and checklists; the Process Flow Chart also references Custom Forms available on the PIM Mobile App, to be used for site/location inspections.
- 4.2 Site/location management are responsible for carrying out daily/weekly inspections, the results of which should be recorded on custom forms on the PIM Mobile App (see section 7). When completed and submitted these forms will publish to Pansophy pool 07.02.05. This pool is accessible to all site staff.
- 4.3 This recorded inspection does not relieve the site/location management of their legal responsibilities for managing HSEE (Health, Safety, Security and Environment) on site at other times and is in addition to any/all statutory inspections required.
- 4.4 The inspection form, written report and action plan once completed is to be filed as part of the [HS-f-105 - Jones Bros Project Plan Workbook](#) or [HS-f-105a - Landfill Jones Bros Project Plan Workbook](#).
- 4.5 This information is to be made available for inspection.

5 Follow up Actions and Reports

- 5.1 Following a HSEE inspection that resulted in recommendations being made with regard to any non-compliances with company procedures or legislation, the HSE team will email a follow up communication to site with the report and identified actions. The actions are then added to [HS-f-089 - HSE Action Tracking Database](#) by the HSE Team for monitoring.
- 5.2 All sites/locations will review, action, and close all raised actions. Evidence of closure will be forwarded by site to the HSE team for monitoring and updating the [HS-f-089 - HSE Action Tracking Database](#) using [HS-a-066 - Action Close Out Form](#) on the PIM Mobile App.
- 5.3 On the next visit to site, the HSE team member will check that all actions have been completed.

6 Enforcing Agency Inspections

We may receive chargeable un/planned visits and inspections from Enforcing Agency Officers or Inspectors who represent:

- Health and Safety Executive (HSE)
- Natural Resources Wales, Environment Agency, or Scottish Environmental Protection Agency



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Procedure No. **HS-p-005**

Form Title: **Inspections, Auditing and Monitoring**

- Wildlife Regulators (such as Natural England, Countryside Council for Wales, and the Scottish Natural Heritage)
 - Environmental Health Officers or Local Authority Environmental Health Department
 - Office of Rail and Road
 - Police or local Fire Enforcing Agency
 - Canal and River Trust
 - Driver and Vehicle Standards Agency; or
 - Another Enforcement Body
- 6.1 Jones Bros requirements for managing Enforcing Agency inspections must be applied at all Jones Bros workplaces/sites
- 6.2 An officer can visit any Jones Bros workplace/site to check if we comply with the law. The visit can be pre-arranged, unannounced, or as a result of a serious incident
- 6.3 The 'Officer' is entitled to visit any of our workplaces/sites, have access to our operations, inspect any records or documents that we legally need to keep, take measurements, samples, photographs, or items, and make recordings (which can be used as evidence in an investigation)
- 6.4 When an 'Officer' arrives at a JB workplace/site, the following general principles are to be followed (local/site implications may also apply):
- If site has security personnel controlling access to site, ensure they are briefed on this procedure
 - Treat them with courtesy and respect
 - Request identification from the officer and verify if required
 - Request they sign in as a visitor
 - Inform site manager/lead straight away
 - Request they remain in signing in/reception area until site manager/lead arrives
 - Provide visitor induction to officer
 - Site manager/lead to accompany officer at all times
 - If HSE team member on site, include them with this inspection
 - Cooperate with the officer at all times
 - Show only what is asked for and make a note of what you have shown
 - Keep half of any formal sample taken for our own independent analysis
 - Take exact copies of any documents that the officer asks to take away
 - Don't give a statement without agreement from our legal team/contract director
 - Get approval from your contracts director/HSE team before later sending any response or item to an officer
 - When inspection is completed, complete **HS-a-020 Incident Notification Form** on the PIM Mobile App for this inspection including all findings and observations from the officer's inspection. See [PFC025 - Incident Prevention and Notification Reporting Process](#) for more information.
 - If an improvement or prohibition notice is issued by the officer, you must inform the Contracts Director and HSE team immediately.

Version No. 1.8

Issue Date: August 2023

Approved by: Ellis Ashton

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**HEALTH & SAFETY
ENVIRONMENT
QUALITY**



Procedure No. HS-p-005	Form Title: Inspections, Auditing and Monitoring
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- 6.5 If in doubt or if in need of any assistance for a planned or unplanned enforcing officer's inspection, contact the HSE team.

7 PIM Mobile HSE Forms

(001) HSE Site Induction IPC and Incident Reporting

HS-a-020 - Incident Notification Form
HS-a-022 - Site Induction
HS-a-022a - Site Visitors Induction Form
HS-a-051 - Incident Prevention Card
HS-a-066 - Inspection Action Close Out

(001A) HSE Daily Mandatory Inspections

EN-a-001 - Environment - Inspection: Daily Check (Mandatory)
EN-a-002 - Environment - Daily Generator Check and Fuel Recording (Mandatory)
HS-a-018 - Work Stopped for Day: Check (Mandatory)
HS-a-043 - Excavation Daily Inspection (Mandatory when excavations are on site)

(001B) HSE Weekly Mandatory Inspections

HS-a-002 - Safe Place of Work: Weekly Check (Mandatory)

(001C) HSEQ As Required (available when required on site)

EN-a-003 - Environment - Daily - Watercourse Monitoring Record (Site Specific)
EN-a-004 - Environment - Daily Air Quality Monitoring Record (Site Specific)
EN-a-009 - Environment - Site Clearance Permit (Project Specific)
HS-a-008 - Noise Weekly Checklist (Project Specific)
HS-a-009 - Lifting Appliances Check (when required)
HS-a-015 - Scaffolds: Weekly Check (when required)
HS-a-019 - Roof Work: Weekly Check (when required)
HS-a-023 - Ladder Inspection Record (when required)
HS-a-029 - Hand-Arm and Whole-Body Vibration Assessment and Monitoring (when required)
HS-a-033 - Temporary Works Foundation Check (when required)
HS-a-034 - Falsework Structure Check (when required)
HS-a-035 - Falsework Timber (when required)
HS-a-036 - Work Equipment Inspection Report (When required)
HS-a-045 - Fall Arrest Equipment Pre-use Checks (when required)
HS-a-048 - HSE Noise Monitoring Record (when required)
HS-a-050 - HS-Point of Works Risk Assessment (when required)
HS-a-056 - HSE Briefing Register (when required)
HS-a-062 - Mobile Scaffold - Daily Inspection (when required)
HS-a-074 - Qualitative Face Fit Test Record
HS-a-075 - D&A Swob Test Record
HS-a-077 - Fire Evacuation Drill Response Form
HS-a-078 - Setting Up Site Safety Checklist
QC-a-001 - Quality Control - Instrument Check (when required)
QC-a-002 - Quality Control - Machine Control Check (when required)
QC-a-003 - Quality Non-Conformity Report

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**HEALTH & SAFETY
ENVIRONMENT
QUALITY**



Procedure No. **HS-p-005**

Form Title: **Inspections, Auditing and Monitoring**

(001D) HSE Quarry & Geotechnical Specific

CO-a-002 - Commercial - Ready Mix Quotation
EN-a-011 - Environment - Crusher Air Quality Record Daily
EN-a-013 - Environment - Batching Plant Environmental Log (Cambrian only)
HS-a-024 - Daily Quarry Excavations & Face Inspection
HS-a-044 - Quarry Protective Cage Check
HS-a-052a - Daily Quarry Solid Tips Inspection Report
HS-a-052b - Daily Stockpile, Yard and Haul Roads Inspection Report
HS-a-054 - Daily Lagoons (Liquid Tips) Inspection Report
HS-a-055 - Boundary protection Weekly Check List
HS-a-070 - Quarry Daily Checks Weekly Submission Record
HS-a-071 - Monthly Concrete Plant Maintenance Record
HS-a-072 - Daily Pre-Shift Wash Plant Inspection Report

(001F) HSE Team and Senior Manager Inspections

EN-a-007 - Environment - Site Inspection Report
EN-a-008 - Environment - ECOW Log (Quarterly)
HS-a-021 - Site Inspection Report (HSE Team)
HS-a-025 - Senior Managers Tour (Board Members)
HS-a-026 - Senior Managers Tour (Site Management)
HS-a-067 - HSE Contractors Site Inspection

(001G) Plant Department, Ty Glyn and Training Team Inspections

HS-a-011 - Ty Glyn First Aid: Monthly Check (Mandatory)
HS-a-012 - Ty Glyn Welfare and Fire Weekly Check (Mandatory)
HS-a-047 - Workshop HSE Inspection: Monthly Check (Mandatory)
HS-a-057 - HS - Asbestos Inspections (Plant Department Only)

(001H) PPE Replacement

HS-a-049 - PPE/WorkWear Order Site Receipt
HS-a-058G - HS - PPE Workwear Requisition - Replenishment (JB)
HS-a-058H - HS - PPE Workwear Requisition - Replenishment (Cambrian)
HS-a-073 - Prescription Safety Glasses E-Voucher Request Form

(001I) PPE First Issue (N.B. access to this category is restricted)

HS-a-058A - HS - PPE Workwear Requisition - 1st issue - JB (Operatives)
HS-a-058B - HS - PPE Workwear Requisition - 1st issue - JB (Supervisor)
HS-a-058C - HS - PPE Workwear Requisition - 1st issue - JB (Plant fitters)
HS-a-058D - HS - PPE Workwear Requisition - 1st issue - JB (Office)
HS-a-058E - HS - PPE Workwear Requisition - 1st issue - Cambrian (non-Supervisor)
HS-a-058F - HS - PPE Workwear Requisition - 1st issue - Cambrian (Supervisor)



Part B: Temporary Worker Accommodation
Construction Traffic Management Plan
(CTMP) – Condition 12

(Doc Ref HTR-FUW-RZ-RE-HS-W-0513)

Havant Thicket Reservoir

Construction Traffic Management Plan

Temporary Worker Accommodation

15/02/24 | Rev P02

Document Reference : HTR-FUW-RZ-RE-HS-W-0513



Version Control Register

Version	Date	Author	Reviewed by	Approved by	Notes
P01	23/12/23	Rhys Williams			
P02	15/02/24	Terry Bellingham	Rhys Williams	Ryan George	

Revisions Made

Section	Details
Appendix A	CWTP included in CTMP as an appendix. All sections updated to reflect this change.
All	Multiple Sections updated from DS-112 Comment Sheet (HTR-POR-ZZ-ZZ-CS-K-0003)

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1. Introduction & Aims

- a) This Construction Traffic Management Plan (CTMP) has been prepared by Future Water MJJV to outline the construction traffic protocols followed by the project during the establishment, operation and decommissioning of the temporary worker accommodation area. For vehicle movements associated with the wider site, refer to Document: HTR-FUW-RZ-RE-HS-W-0506. (CTMP for Main Reservoir Works Phases 2 & All Remaining Phases).

Condition 12 – Construction Traffic Management Plan (CTMP)	
<i>A) No development shall take place until a Construction Traffic Management Plan (CTMP) has been submitted to, and approved in writing by, the Local Planning Authority (in consultation with Hampshire County Council as local highways authority).</i> <i>B) No phase of the development approved under Condition 4 shall commence until a phase specific CTMP for that parcel has been approved in writing by the local planning authority.</i>	
Detail	Where Addressed
vehicle routing plans	Section 2 (fig.1)
proposed programme and duration	Section 8
number of construction personnel including travel arrangements and mitigation where necessary	Section 9
alterations to the highway, including temporary and / or permanent, to enable construction	Sections 3, 4 & 8
details of the number of construction and delivery vehicles using the public highway (no abnormal loads are anticipated at this stage)	Section 9
traffic management details	Sections 4 & 5
compounds and laydown area details	Appendix A.2
highway condition surveys	Section 11
methods for managing the site to prevent mud onto the highway	Section 12.i & j
details of on-site contractor parking.	Section 12.a, b & c

- b) This plan sets out how construction traffic related to the establishment of the temporary worker accommodation will be managed and how traffic shall be managed and routed once the temporary accommodation site is established. It sets out the parameters in which we will work including hours of operation, traffic routing, safe vehicular access and egress and how the impact of the construction traffic will be mitigated. The plan is a “live” document and will be subject to regular review.

- c) The plan will be issued to and agreed with the local planning authority and the relevant governing highway authorities. This TWA\CTMP will solely deal with associated worker vehicle movements. All other vehicle movements will be detailed in the CTMP for Main Reservoir Works Phases 2 & All Remaining Phases, as previously referenced. There is an element of integration between the Main Reservoir CTMP and this one; however, both cover differing elements of equal importance which vary under each use case. These differing elements are; operational hours, access restrictions, additional mitigation measures to name a few. While this CTMP shall be read with having knowledge and awareness of the overarching (main) CTMP, the Temporary Worker Accommodation CTMP shall also be considered in its' own merit and without prejudice of the larger project and its impact. This interface is elaborated throughout this CTMP.
- d) This CTMP applies throughout the operational life of the temporary worker accommodation site. This is to include, establishment, construction, operation, deconstruction and final decommissioning.

2. Site Details

- a) The site is located to the north of Havant in Hampshire
- b) To the north, the site is bounded by a mixture of private land and forestry land owned by Forestry England
- c) To the east, the site is bounded by forestry land and the B2149
- d) To the south, the site is bounded by a mixture of amenity land (Staunton Country Park) and residential properties forming part of the Leigh Park estate.
- e) To the west, the site is bounded by further residential properties on Swanmore Road, and amenity land made up of heath and wooded land.

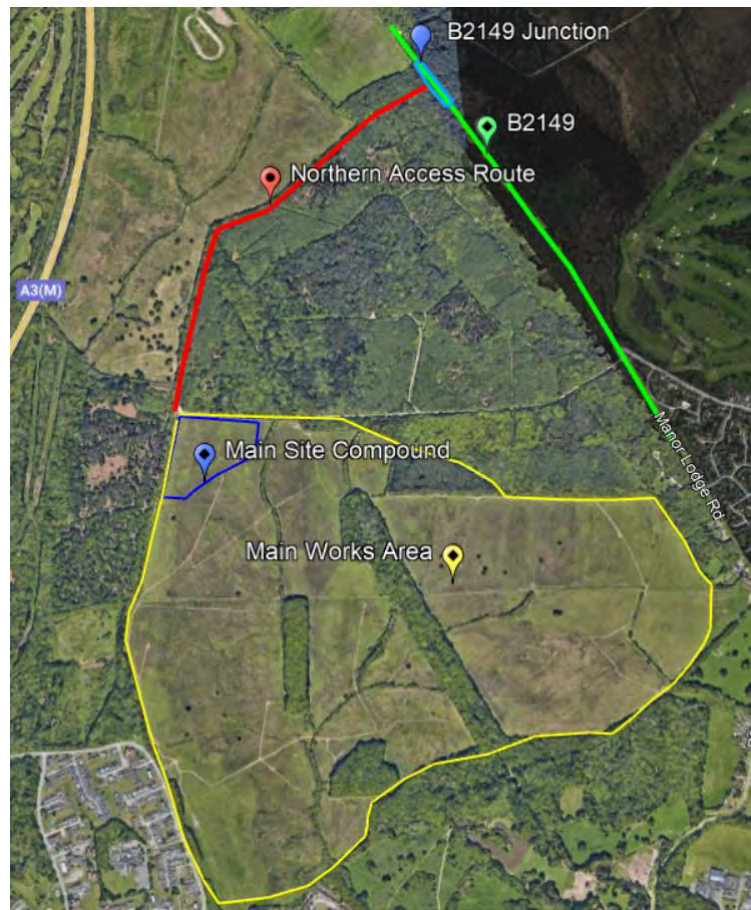


Fig 1. Site location

3. Scope of Construction Activities

The scope of the works to be undertaken in line with the temporary workers accommodation construction are as follows:

- Construction of new access road into the site from the new B2149 junction henceforth referred to as the Northern Access Route (NAR).
- Establishment of site compound in northwest corner of the site – completion mid-March.
- Construction of new access roads and footpaths, this will enable works to commence on temporary workers accommodation area.
- Aggregate to temporary workers accommodation area placed to formation level.
- Excavation of drainage and service trenches, ducting placement and backfill to trenches. This will provide both power and water supply to the temporary workers accommodation.
- Erection of perimeter fencing to accommodation area extents
- Build-up of hardstand surface using type 1 subbase material. Finished surface to be rolled / compacted.
- Accommodation plots to be marked out by site engineers.
- Hard and soft landscaping completed prior to mobilisations of accommodation.
- Mobilise Accommodation.

4. Proposed Works Area Access Point

- a) During the course of the main reservoir construction phase, construction traffic will access and egress the site using the NAR but avoiding the B2149 via Rowlands Castle. See layout drawing in appendix 1. Refer to HTR-FUW-RZ-RE-HS-W-0506-CTMP.
- b) A manned control point will be established at the B2149 end of the NAR. This control point will ensure that only authorised vehicles enter the site. Wheel washing facilities will also be provided at this point for use if required. A sweeper will be available to clean the B2149 if required.
- c) Advanced warning signage will be erected on the approach to the junction from both directions warning drivers of the site entrance and turning vehicles. Signage will be installed as per the approved drawing HTR-FUW-RZ-RE-HS-W-0506-CTMP Appendix 4, Traffic Signs and Road Markings with the exception that the current scheduled “brown” recreational interest signs will be replaced by white text on red background signs advising of the work entrance for the duration of the works. The scheduled signage will be installed once the facility is operational and open to the public.
- d) It is acknowledged that the Southern Access route is not permitted to be used for main reservoir construction traffic.

5. Management of Vehicle Movements

- a) All vehicle drivers delivering to site will have been provided with delivery instructions prior to arrival on the measures to be employed to provide a safe and un-disruptive arrival. All construction traffic will access the site via junction 2 of A3(M). Delivery instructions will be issued to all suppliers and contractors at the time of placing an order. Instructions will be issued as part of the purchase or sub-contract order. These instructions will then be passed to drivers prior to arrival.
- b) The delivery instructions will include information relating to timings, routing to the site access point and health and safety considerations.
- c) All deliveries will be required to be booked in, prior to arrival to ensure that facilities for access, unloading and loading are not overwhelmed.
- d) An online portal will be provided to allow the effective management of delivery slots and to provide visibility to the site team of all up and coming planned deliveries.
- e) A dedicated logistics manager will control the vehicle movements on and off site through their team of security officers and vehicle marshals.
- f) Movement and management of vehicles related directly to temporary worker accommodation is anticipated to be minimal; once accommodation has been established at the commencement of the project, movements will be minimal therein. Daily movements for temporary access for residing workers (typically via cars) is covered in Section 9 of this document.

6. Interface with Existing Rights of Way & Highways

- a) The NAR will be closed to public use during its construction and following its opening for its use by construction traffic.
- b) With the existing east - west bridleway also closed, pedestrians have now been diverted along the FE track. Where this footpath crosses or has an interface with construction traffic, warning signage and designated points will be formed to allow pedestrians to safely cross construction traffic routes. Signage and measures have been agreed with HCC Countryside.
- c) The interface between NAR & PRow is currently manned during normal site operational hours 07:00-17:00 and public is protected from entering the site through the use of padlocked swinging vehicle gates. The crossing is signed in both directions warning vehicular traffic of the pedestrian risk, but also warning the PRow users towards the risk of construction traffic. During out of hours operation, there is a full time security guard on site who shall manage the access in and out of the site & carpark for the workers using the temporary accommodation. As part of site operations, this interface will be risk assessed by the onsite health & safety team. A layout of this crossing can be seen in appendix A.3. The crossing is a fully asphalted roadway with dropped kerbs servicing the PRow; the access should require minimal maintenance, not limited but including to a regular road sweep (this will be dependant on the time of year and volume of traffic).

7. Stakeholder Management and Communications

- a) Portsmouth Water & Future Water's stakeholder and communications managers will work together to ensure advance notice of our works is published to all stakeholders associated with the scheme.
- b) A dedicated telephone number (see below) has been provided to enable stakeholders or members of the public to make contact with the project team during the works to raise any issues or concerns. Any issues are logged and closed out as soon as practicably possible. The images below are taken from the business cards provided to the workforce on site to enable them to provide a contact point for any members of the public who approach them during the working day.



- c) The site management team will deal with any urgent issues on a day-to-day basis and will be the point of contact on site. The security officers at the access points will be the first members of the project team any member of the public would come too and will be able to make contact with the site management team who can then look into the issues.
- d) Portsmouth Waters stakeholder and communications manager will continue to meet and liaise with the various public stakeholder forums throughout the duration of the works. All feedback from these groups can then be addressed as required.
- e) Portsmouth Waters stakeholder and communications manager will continue to liaise with other adjacent local development teams. This includes the Land East of Horndean project team whose works are due to start on 2023 to the north of the reservoir site.

8. Programme and Sequence of Works

- a) Works to the B2149 junction commenced in August 2022, with completion shortly after December 2022.

-
- b) The NAR construction commenced March 2023. A site walkover was held on January 19th 2024 where all snagging / defects were agreed. Defect period to continue until project completion.
 - c) New offices establishment, including car park and facilities to be completed mid-March. This will enable works on the temporary worker accommodation to commence.
 - d) Section 3 indicate construction activities associated with the temporary workers accommodation.
 - e) Construction works on the main reservoir site are expected to commence in 2023 with a 3–4-year programme of earthworks & civil works expected followed by a 3-year commissioning programme. During the commissioning period the site hard and soft landscaping will also be completed.

9. Vehicle Types and Numbers

- a) Vehicle movements on and off site will be made up of (but not limited to) the following vehicle types:

Vehicle Type	Usage
Small van / car	Commuting
Box vans – 3-7.5t	Materials & consumables
Curtain sided lorry	Materials & Consumables
Tankers	Fuel, water, waste disposal
Tippers	Deliver aggregate for caravan laydown area
Rigid HGV – beaver tail	Deliver equipment and small plant
Articulated HGV	Deliver larger plant, excavators / dumpers

Fig 2. Vehicle types

- b) The number of vehicles accessing the site will vary dependant on the work being undertaken at the time. During the summer “earthwork seasons” vehicle numbers will increase with numbers falling during the winter periods.
- c) HGV movements will be restricted to 32 per hour (16 arrivals & 16 departures) with no more than 200 in one day (100 arrivals & 100 departures). Approval will be sought for any increases required for specific ad-hoc activities. Estimated 2 HGV movements per hour for the temporary worker accommodation area.

<i>Vehicle Movements with Temporary Residences on Site</i>
6 vehicle movements per caravan per week made up of: • 1 on site at beginning of week • 1 off site for shopping • 1 back on site from shopping • 1 off site trip • 1 back on site • 1 off site at end of working week
6 movements per week x 50 caravans = 300

<i>Vehicle Movements Without Temporary Residences on Site</i>
6 vehicle movements per person per week made up of: • 6 on site

• 6 off sites
12 movements per week x 50 = 600

Further mitigations are listed in the table below pertaining to the use of the temporary worker accommodation:

Issue	Mitigation
Regular vehicle movements - shopping	Provide mini bus for fixed day shopping trips each week after the working shift
Ad-hoc vehicle movements - snacking	Provide vending machine in site canteen to prevent need to leave site short term
Ad-hoc vehicle movements – getting lunch	Arrange for hot food van to visit site on daily basis – morning & / or lunch break
Ad-hoc vehicle movements	Provide free-issue bicycles for use by resident site operatives
Out of hours vehicle movements	Set site rules for times of vehicle movements with the exception of emergencies, introduction of curfews, disciplinary action enforced against those who breach site rules. It is in the temporary residents' interest to observe the site rules as the pitch is provided at no charge and if the site rules are broken, they would be removed from site.
Out of hours vehicle movements	Security officers on site out of hours, would monitor and manage vehicle movements
Out of hours vehicle movements & behaviours	On site guardians allocated to monitor and manage caravan residents

- d) The Construction Worker Travel Plan contains further details of how we plan to mitigate the impact of commuting members of staff on the local highway network. These will include entering car sharers into raffle type draws with prizes of Amazon or similar type vouchers given away as prizes, provision of bicycles on site and minibuses to be provided for trips off site for those utilising the on-site caravan facilities.

10. Vehicle Movement Timings

- a) The majority of vehicle movements will occur before and after peak hours as site working hours are 07:00-18:00hrs. (07:00-07:30 pre-start briefings). Any other site traffic will be kept to a minimum in non-daylight hours.
- b) All delivery vehicles will be instructed to approach the site access point from the north via junction 2 of the A3(M). This routing will avoid interfacing with peak traffic flows in the built-up areas of Havant.
- c) HGV deliveries will avoid peak times 08:00-09:00 & 17:00-18:00.

11. Communication & Monitoring of The Plan

- a) The contents of the traffic management plan will be briefed to all personnel on site as part of the site induction and will be refreshed over the period of the works in the pre-start daily activity briefings.
- b) Vehicle numbers and frequencies will be monitored to ensure that volume, frequency and timing of arrivals coincide with the stated numbers & times.
- c) Highway conditions on the B2149 around the new junction will be monitored during the construction period to detect any defects requiring attention.
- d) Any accidents or incidents involving vehicles entering or leaving the site will be recorded and investigated according to our Health and Safety incident process.
- e) The Construction Traffic Management plan will be overseen and monitored by both the Logistics Manager and the Travel Plan Coordinator. The Logistics Manager is a full-time permanent role on site and the Travel Plan Coordinator will also serve as the Future Water Public Liaison Officer which is also a full-time role.

12. Arrangements on Site

- a) Car parking will be provided on site for approximately 176 vehicles within the site car park. This provides for site staff & visitors for both the reservoir and pipeline projects. Overflow parking for 20 vehicles will be provided within the compound if required. See indicative site layout in appendix 3. The number of staff using the compound from the pipeline project is expected to be lower than originally assessed at planning, so whilst the reservoir numbers may have increased this is offset by less staff from the pipeline team.
- b) During the peak summer earthwork seasons, we expect to have 180 members of staff on site. Approximately 50 of those members of staff will reside on site in temporary accommodation during this period thus reducing the amount of daily vehicle movements for commuting purposes.

-
- c) Temporary residential accommodation (caravans) will not be needed during phase 1. An updated CEMP will be issued as part of the phase 2 application with details of the proposal along with controls and mitigation measures.
 - d) Additional overflow parking will be provided if required adjacent to the project office facilities.
 - e) Electric vehicle charging points will be provided within the car parking area.
 - f) Parking spaces will also be provided adjacent to the access control point for disabled / priority parking.
 - g) Access onto to site for vehicles will be via a security officer-controlled gate and the site layout will provide for vehicles to pass safely on the way and out of the compound.
 - h) Segregated pedestrian walkways & access points will provide safe routes for pedestrians to access the site.
 - i) Areas will also be provided for secure parking of motorcycles and storage of bicycles.
 - j) Hard surfacing will be provided within the compound to assist with keeping vehicles clean and to negate the need for wheel washing.
 - k) Where vehicles have to leave the hard-surfaced roads and areas within the site compound and use the on-site haul roads, wheel washing facilities will be provided to ensure that mud and debris is not transferred onto the public highways.

13. Risk Assessment

Risk	Hazard	Control Measures Additional to Those Within Framework CTMP
Interface with public vehicles	Delivery vehicles arriving on site, vehicles manouvering, damage, injury	New junction to be constructed to provide safe access to the site, provide warning signage on approach to site entrance, drivers to receive instructions relating to site entrance ahead of arrival, drivers of oversized vehicles to call Logistics Manager ahead of arrival, schedule and plan deliveries (where possible) to avoid times of peak traffic flows.
Delivery vehicles	Disruption to local traffic flows	Schedule & plan deliveries to avoid morning and evening commuter periods, delivery drivers to call site supervisor ahead of arriving to ensure that access routes are free, all vehicles to be pre-booked into site using on-line booking portal, place orders in bulk to consolidate deliveries and to prevent regular small parcel drops.
Use of existing carriageways	Damage	Undertake prestart photographic survey.
Use of existing carriageways	Mud and debris on road	Compound to be provide with hard surfacing & wheel washing facilities where needed, road sweeper to maintain cleanliness of public highways as a last resort.
Interface with pedestrians	Injury	Provide warning signage, ensure clear lines of site are maintained, provide segregated pedestrian walkways within the compound and works areas, provide signed and designated crossing points for pedestrians.
Additional traffic using local network	Delays, congestion, environmental impact	Prepare project travel plan and appoint travel coordinator to promote sustainable transport usage and to monitor project trends, employ staff from the local area who are able to walk, cycle and utilize public transport where possible, encourage car sharing and use of remote meetings.
Manouvering vehicles in compound	Injury and damage	Provide one-way system within compound for vehicles, provide segregated pedestrian walkways, provide designated unloading areas.

Appendix A – Construction Worker Travel Plan

Introduction

This report details the Havant Thicket Reservoir Construction Worker Travel Plan (CWTP) for Future Water staff and operatives, sub-contractor specialists, and visitors to site for the Main Reservoir Works (MRW). The purpose is to encourage more sustainable transport use, which benefits society and the environment.

This has been produced with the support of senior management who endorse the measures in the plan.

This CWTP describes the existing situation, transport options and measures to encourage uptake of more sustainable transport. Plus targets and plans to monitor, manage and action this CWTP.

The possible transportation options are summarised below:

Transport Options

	Transport options	Comments
Most Sustainable to Least Sustainable	No travel: work remotely from home	This report aims to provide practical measures to encourage uptake of active travel, public transport and car sharing where this is a viable option.
	Active travel: walking/cycling (including electric bikes).	
	Public Transport	
	Car-sharing	
	Private vehicle (electric/hybrid)	We recognise in some situations; private car is the most suitable transport option.
	Private vehicle – car, van, motorbike, (fossil fuels)	

Aim

The aim of this CWTP is to encourage uptake of more sustainable transport as this benefits society and the environment.

Existing Circumstances

Site Location and Layout

The site is located to the north of Havant in Hampshire, and adjacent to the A3 (west) and the B2149 (east).

There are two ways to access the site: see Site Access Plan in **Fig.1**.

The northern access route (NAR) via the B2149 is for vehicle traffic only. The B2149 junction will be improved to provide the NAR, which is a dedicated access for vehicles (to ensure vehicles can avoid the residential area).

The western bridleway via Swanmore Road can be used by pedestrians and cyclists to enter the site (no vehicle access during MRWs).



FIG 1. SITE ACCESS PLAN

Car parking will be provided on site within the main compound for 176 vehicles. This provides for site staff & visitors for both the reservoir and pipeline projects. See indicative site layout in **Section A.2**.

The number of staff using the compound from the pipeline project is expected to be lower than originally assessed at planning, so whilst the reservoir numbers may have increased this is offset by less staff from the pipeline team.

The site compound will also include cycle parking, electric charging points, storage areas, space for temporary worker accommodation and a welfare area with showers, lockers and a changing area (see Indicative Site Layout in **Section A.2**).

Working Patterns

This CWTP is for the MRWs only. MRWs are expected to take 3 to 4 years.

During the summer “earthwork seasons” (when it is drier, and the days are longer) more people will be working on-site. During peak construction: 180 people are expected to be working at the site, which could amount to 360 vehicle movements a day, if all worker’s commute by private car with no car sharing (plus any visitors to site). So, this CWTP is important to limit congestion and other travel and environmental impacts during these months.

During the winter, far fewer workers and traffic numbers are expected: 70 workers, and potentially 140 traffic movements per day if all worker’s commute by private car with no car sharing.

During peak construction, of the 180 workers per day:

- 67% (120) are local
- 33% (60) are living away from their normal homes.
- 50 of those living away, originate from north Wales & the northwest
- 10 of those living away, originate from Sussex/Kent
- 50 of the workers living away can stay in temporary on-site workers accommodation (if approved, space has been allocated for this number of units).
- 10 of those living away it is anticipated will stay local B&B accommodation.

Operatives work the same shift patterns due to practical reasons (daylight) and planning restrictions on working hours:

Monday to Friday: from 0700 to 1800 (0700 to 0730 morning briefing – no construction before 0730)

Saturday: from 0730 to 1300

Sundays and bank holidays: no working.

Most staff will be working the hours as above, but some support office staff will be working shorter days:

from 0830 to 1700

To mitigate any additional journeys throughout the day for breaks / lunches, Future Water will organise a food van to visit the site, timed with staff breaks. This will encourage staff to purchase food without the need to leave the site in their vehicle and create additional vehicle movements.

Transport Options

Based on a survey in 2018, the average employee spends £1,738 per year travelling to work (see **Appendix A.1**). That's £7.25 per day, based on working 5 days a week, 48 weeks of the year.

According to research conducted by the TUC (see **Appendix A.1**) the average commuting time is 59 minutes.

These parameters have been used as a guide when considering viable modes of transport.

No Travel: work remotely from home

All Future Water office-based staff have digital equipment to facilitate remote working, and this will be encouraged, where practicable. Due to the nature of their work, it is not possible for operatives to work remotely, as their physical presence on-site is required to do their job.

Active Travel: walking and cycling

A person walking can cover 3 or 4 miles in the average commuting time (59 minutes) (ref:1). Local workers from Havant, Rowlands Castle, Bedhampton, Cowplain, Horndean, Catherington or Waterlooville could consider walking to work.

Around 6 miles is considered a manageable cycle commute (see **Appendix A.1**). Local workers from Havant, Rowlands Castle, Bedhampton, Cowplain, Horndean, Catherington, Waterlooville and north Portsmouth could consider cycling to work.

The NAR is not suitable for access via active travel, as it is for vehicle use only. In any case, it is unlikely this route would be selected for active travel because it would only be convenient for workers walking/cycling from Horndean, Catherington or Waterlooville. However, persons living these areas would have to cross the A3 and there are limited crossing points, discouraging walking/cycling from these areas. Also, the NAR is accessed from B2149, which is narrow, with no cycle lane provision, and there is no pedestrian footpath on the approach to the NAR.

The western bridleway could be a safer route for active travel, as there is a footpath alongside the Swanmore Road leading to the bridleway, plus the surrounding streets are residential (possibly making it safer). The routes from Havant, Rowlands Castle, Bedhampton, could avoid major roads and it is feasible that people could walk or cycle from these areas; and/or cycle from the north Portsmouth area.

Active travel is healthy and cheap; however, there are some disincentives that make it impractical and/or dissuade people from using active travel:

- Long distances for travel
- Need to carry equipment or passengers
- Weather (too hot, wet, windy or cold)
- Safety concerns (e.g. cycling on roads with busy commuter traffic, travelling during early morning/late afternoon when it is more likely to be dark, less busy)
- Mobility or other health issues

Public transport: train

The nearest train station is Havant 4 miles away, via the NAR (vehicle access only); or 2 miles away via the western bridleway (access for pedestrians and cycles). Even 2 miles (estimated 40 mins walk) is probably too far to walk after a train journey, but it is a short

distance to cycle (estimated 10 mins). As set out in the measures, to make train travel more viable it is proposed to run a pick-up/drop-off to Havant station.

Havant is well connected with by train to the south coast and London; however, the London train routes have been excluded as the morning train won't get people to site early enough and the cost is prohibitive (especially when you consider average London salaries are much higher than Portsmouth):

Trains to/from Havant

Destination	Journey time	Ticket cost (per day)	
		Anytime RTN ticket	Monthly ticket
Portsmouth and Southsea	13 mins	5.90	4.83
Portsmouth Harbour	20 mins	5.90	4.83
Littlehampton	40 mins	12.30	7.86
Southampton Central	40 mins	17.30	12.38
Brighton	1 hr 15 mins	23.20	12.38
London Waterloo	1 hr 30 mins	44.20	24.92
London Victoria	1 hr 50 mins	44.20	24.92

Looking at train times to get to Havant between 06:25 and 06:40 and leaving Havant between 18:40 and 18:54 the following stations are viable to commute to/from site via train to Havant:

- Emsworth [EMS]
- Southbourne [SOB]
- Chichester [CCH]
- Barnham [BAA]
- Angmering [ANG]
- Worthing [WRH]
- Lancing [LAC]
- Shoreham-by-Sea [SSE]
- Southwick [SWK]
- Portslade [PLD]
- Hove [HOV]
- Barnham
- Ford [FOD]
- Littlehampton
- Cosham [CSA]
- Fareham [FRM]
- Swanwick [SNW]

Public transport: bus

The main buses that serve the site are:

- 20 [Havant - West Leigh - Leigh Park - Cosham – Portsmouth]. Buses start early enough (get off at Leigh Park bus stop and enter via western bridleway).
- 23 [Leigh Park - Havant - Cosham – Portsmouth – Southsea]. Buses start early enough (get off at Leigh Park bus stop and enter via western bridleway).
- 27 [Rowlands Castle - Havant - Emsworth]; However, the buses don't start early enough, so this route could not be relied upon to get to work on time.

The number 23 is perhaps the most convenient as it drops off at the bus stop adjacent to the western bridleway.

Within Havant, unlimited bus travel for 1 month on local buses is £42, £12 per week or £4 per day. For the South Hants area, it is £70 for 1 month, £20 per week or £7 per day.

Car sharing

There is a clear financial incentive to do this, to save commuting costs (petrol/diesel, car wear and tear). But there are some disincentives that make it impractical and/or dissuade people from car share including:

- there is not a suitable “match” for car sharing (two people need to be going the same way, at the same time).
- security concerns (you may not want your colleagues to know where you live or accept/give lifts).
- need for personal space before and after a long day.
- concerns over sharing a confined space (covid risk).
- passengers are a distraction for the driver.
- not wanting to increase journey time picking up/dropping off or waiting around for somebody if they are not ready.

Private car (electric/hybrid)

The company car policy incentivises the use of hybrid and electric vehicles (better rates of car allowance); and encourages selection of more efficient cars as it is not possible to get a car allowance for cars with excessive engine size or emissions. Company cars are also required to have at least 4 seats, facilitating car sharing.

Measures



FIG 3. TRAVEL PLAN PYRAMID (REF: HAMPSHIRE COUNTY COUNCIL'S 'A GUIDE TO DEVELOPMENT RELATED TRAVEL PLANS' (2009))

Hampshire County Council's 'A Guide to Development Related Travel Plans' (2009) categorises measures by a hierarchy in the "Travel Plan Pyramid". Location and Parking restraint (etc) are "hard" measures, which force more sustainable choices to be made. The location for Havant Thicket Reservoir is fixed: so, the "soft" measures to incentivise behaviour such as marketing, awareness and promotion, and a coordinator, have been selected.

To facilitate the development of the CWTP, a Travel Plan Coordinator (TPC): Lizzie Samms has been appointed by Future Water and will be responsible for the holistic implementation of the CWTP measures.

CWTP Measures

Mode	Incentive	Approx Cost	Implementation Date	Owner
Active Travel	Cycle to work scheme and leaflets about this scheme to be available on site and posters on the travel noticeboard (in the rest area).	£50.00	Q4 2023	TPC
	Secure cycle parking	£2,000	Q1 2024	Project Delivery Team
	Showers on-site	In project costs	Q1 2024	Project Delivery Team
	Lockers for storing clothes	In project costs	Q1 2024	Project Delivery Team
	On site security	In project costs	Q1 2024	Security Manager
Public Transport: Train	For workforce: Minibus pick-up at station 06:45 ready to start for 07:00; and then drop-off at train station 18:20 ready for outgoing trains from 18:40.	In project costs		TPC
	For visitors: Introduce "collection from station" "collection from Portsmouth Water Offices/OPI" service for visitors. Information on this and sustainable transport modes to be provided to visitors.	In project costs	Q2 2024 if demand requires	TPC
	Provision of clear public transport information, available on travel noticeboard in the rest area.	£50.00	Q2 2024	TPC
	Scheme where workforce can submit their train tickets into a raffle to be drawn monthly with prizes of £25 Amazon & High Street shopping vouchers.	£1,200	Q4 2023	TPC

Mode	Incentive	Approx Cost	Implementation Date	Owner
Public Transport: Bus	Scheme where workforce can submit their train tickets into a raffle to be drawn monthly with prizes of £25 Amazon & High Street shopping vouchers.	£1,200	Q1 2024	TPC
	Collaboration with local public transport providers to improve services, negotiate discounts and trial initiatives.	FOC	Q2 2024	TPC
	Provision of clear public transport information, available on travel noticeboard in the rest area.	£50.00	Q4 2023	TPC
	Works buses / shuttle buses (if cluster of employees from specific area).	In project costs	Q2 2024 if demand requires	TPC
	For visitors: Introduce "collection from station" "collection from Portsmouth Water Offices/OPI" service for visitors. Information on this and sustainable transport modes to be provided to visitors.	In project costs	Q2 2024	TPC
Car sharing	Travel notice board where people can post a notice expressing an interest in car sharing, provide priority parking for car sharing	FOC		TPC
	Scheme where car sharers (both driver and the sharer) are entered into a monthly draw for with prizes such as Amazon or High Street shopping vouchers. The value of the vouchers would be in the region of £25	£1,200	Q4 2023	TPC
Private vehicle (electric/hybrid)	Provision of 4nr charging points for electric vehicles.	£9,037.41	Q1 2024	Project Delivery Team
Private vehicle (Fossil fuels)	Provide secure parking facilities for those who travel by motorcycle/moped.	In project costs	Q1 2024	Security Manager

Targets

SMART (specific, measurable, achievable, relevant and time-bound) targets will be developed once the travel baseline at the site is fully understood. A suitable rationale will be provided for each target with reference to the specific site location, nature of the Scheme and local transport infrastructure.

It is anticipated targets will be set as per the following structure as summarised in the table as below:

- X% of staff commutes (less than 6 miles) to be via active travel (walking or cycling).
- Less than X% of staff commutes to be via private car (with no car sharing).

CWTP Targets

Mode	Distance	X% staff commutes				
		Baseline	CWTP year 1	CWTP year 2	CWTP year 3	CWTP year 4
Active Travel	<6 miles	B0	B0+1%	B1+1%	B2+0.5%	B3+0.5%
	6-15 miles	B0	B0+1%	B1+1%	B2+0.5%	B3+0.5%
Public Transport: Train	<6 miles	B0	B0+1.5%	B1+1.5%	B2+1%	B3+1%
	6-15 miles	B0	B0+1.5%	B1+1.5%	B2+1%	B3+1%
	15-30 miles	B0	B0+1.5%	B1+1.5%	B2+1%	B3+1%
	30-50 miles	B0	B0+1.5%	B1+1.5%	B2+1%	B3+1%
	>50 miles	B0	B0+1.5%	B1+1.5%	B2+1%	B3+1%
Public Transport: Bus	<6 miles	B0	B0+1.5%	B1+1.5%	B2+1%	B3+1%
	6-15 miles	B0	B0+1.5%	B1+1.5%	B2+1%	B3+1%
	15-30 miles	B0	B0+1.5%	B1+1.5%	B2+1%	B3+1%
Car sharing	<6 miles	B0	B0+2%	B1+1%	B2+1%	B3+1%
	6-15 miles	B0	B0+2%	B1+1%	B2+1%	B3+1%
	15-30 miles	B0	B0+2%	B1+1%	B2+1%	B3+1%
	30-50 miles	B0	B0+2%	B1+1%	B2+1%	B3+1%
	>50 miles	B0	B0+1%	B1+1%	B2+0.5%	B3+0.5%
		Less than X% staff commutes				
		Baseline	CWTP year 1	CWTP year 2	CWTP year 3	CWTP year 4
Private car (electric/hybrid)	<6 miles	B0	B0-1.5%	B1-1.5%	B2-1%	B3-1%
	6-15 miles	B0	B0-1.5%	B1-1.5%	B2-1%	B3-1%

	15-30 miles	B0	B0-1.5%	B1-1.5%	B2-1%	B3-1%
	30-50 miles	B0	B0-1%	B1-1%	B2-0.5%	B3-0.5%
	>50 miles	B0	B0-1%	B1-1%	B2-0.5%	B3-0.5%
Private car (Fossil fuels)	<6 miles	B0	B0-1.5%	B1-1.5%	B2-1%	B3-1%
	6-15 miles	B0	B0-1.5%	B1-1.5%	B2-1%	B3-1%
	15-30 miles	B0	B0-1.5%	B1-1.5%	B2-1%	B3-1%
	30-50 miles	B0	B0-1%	B1-1%	B2-0.5%	B3-0.5%
	>50 miles	B0	B0-1%	B1-1%	B2-0.5%	B3-0.5%

Targets are split by distance travelled as most sustainable modes of transport (active travel) are limited to short distances. Specifically, 6 miles has been selected as it is considered a manageable cycle commute (see **Appendix A.1**).

To ensure any targets are realistic: it is important to take a baseline survey to learn the starting situation.

Management, Monitoring and Action Plan

Management

The TPC will be responsible for implementing and promoting the CWTP. This TPC will be responsible for engaging with Hampshire County Council on construction activities, through the development of the Construction Traffic Management Plan (CTMP).

Monitoring and Action Plan

Timing	Monitoring and Action
Prior to works starting/recruitment stage (as soon as possible to avoid missed opportunities)	- Survey asking distance to travel to work and intended mode of transport. - Survey of attitudes towards proposed incentives. - Meet with local transport services to see if any improvements can be made to services to improve uptake.
At commencement	- Travel noticeboard in the rest area: Provide information about selected incentives for sustainable transport (informed by original survey). - Travel noticeboard in the rest area: Provide information/timetables for public transportation. - Establish minibus service to collect/drop-off to the station. - Provide initial briefing/information session about transport options available and incentives.
During season 1	- Provide regular (monthly) refresher briefings about transport options available and incentives. - Regularly (monthly) update the travel noticeboard (if timetables etc. have been updated). - Aim to collect (via monthly survey during morning briefing) the following information to track modes of transport: distance travelled, mode of transport, car sharing y/n. - Collect data on uptake of incentives. - Survey of attitudes towards the incentives and if improvements could be made. - Analyse trends in transport use. - Review meeting with coordinator, site management, council, bus companies as appropriate.
End season 1	- Report trends in transport use. - Report uptake of incentives. - Consider incentives to take forward for next year, and plan for next year.

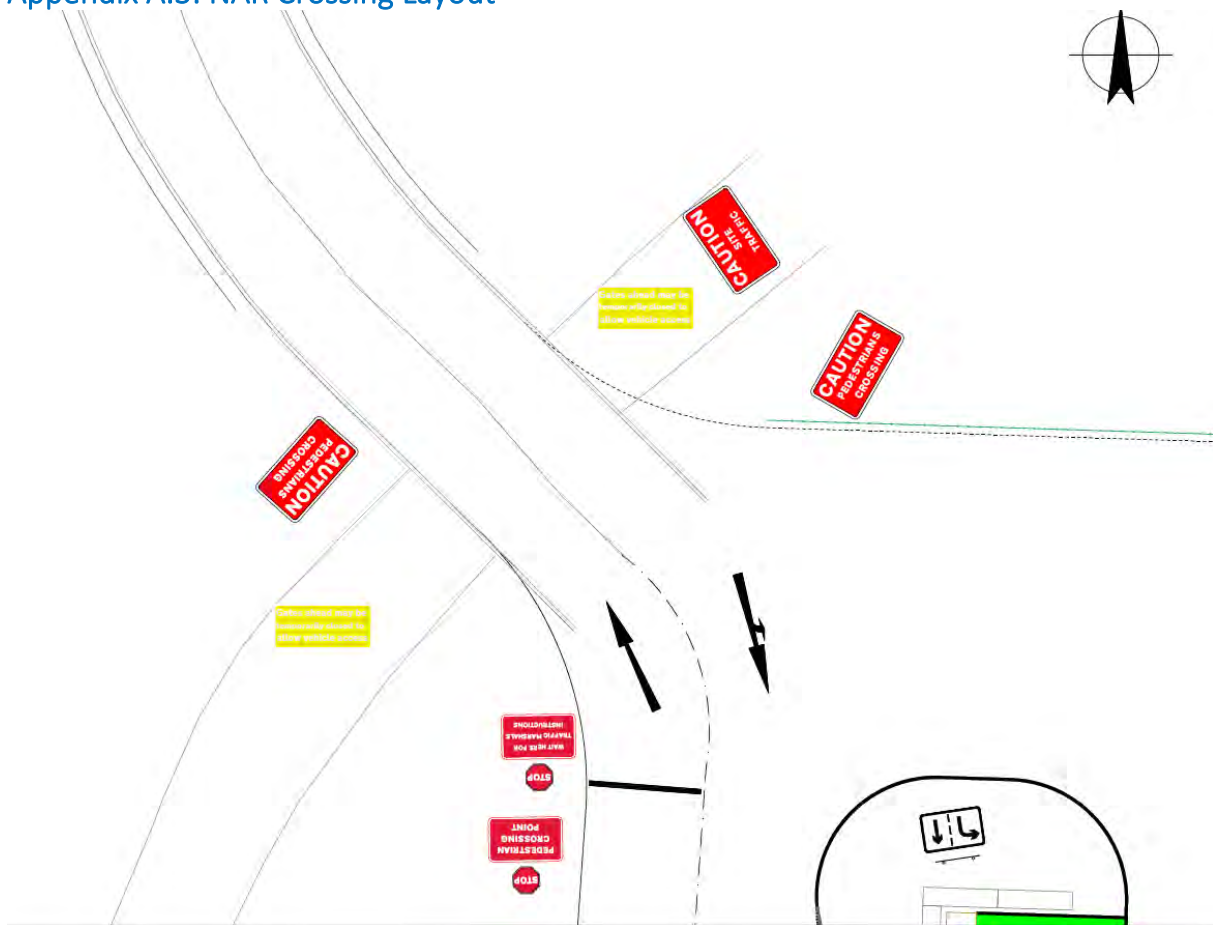
Enforcement

We will inform everyone as best as we can using noticeboards and regular briefings and the coordinator will manage, action and monitor progress (as above).

Appendix A.1: References

- [1] Croner, 2021, What is Reasonable Travelling Distance?
<https://croner.co.uk/resources/employment-law/reasonable-travelling-distance-employment-law/>
- [2] The Discerning Cyclist, 2022, How Far is Too Far to Cycle to Work?
<https://discerningcyclist.com/how-far-cycle-to-work-distance/>

Appendix A.3: NAR Crossing Layout





Part C: Temporary Worker Accommodation Construction Lighting Strategy - Condition 20

(Doc Ref HTR-FUW-RZ-RE-HS-W-0513)

Havant Thicket Reservoir

Construction Lighting Strategy

01 March 2024 | Rev P02

Document Reference: HTR-FUW-ZZ-ZZ-PL-W-0534



Document Control

Version	Date	Author	Reviewed By	Approved By	Notes
P01	05/12/23	JH	GL	RW	Initial Issue
P02	01/03/24	AH	JH		Update from DS-112 comments

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1. Introduction and Scope

1.1 Introduction

- 1.1.1 This Construction Lighting Strategy (CLS) supports the planning application submitted to Havant Borough Council (HBC) and East Hampshire District Council (EHDC) on behalf of Portsmouth Water. The application pertains to Reserved Matters and the fulfilment of Planning Conditions concerning the construction of the Main Reservoir Works, including the Main Embankment, Wetlands Embankment, Wetland Structures and Culvert, in association with the Hybrid Planning Permission (reference to APP/20/00990 and 51680/001). This permission relates to the construction of a reservoir and its associated infrastructure, known as the Approved Scheme, situated on land at Havant Thicket. This location is adjacent to Sir George Staunton Country Park and Middle Park Way in Havant.

Table 1.1

Location	Havant Thicket Reservoir, Havant Thicket, Havant.PO9 4ET NAR
Expected Start and Finish Dates	Estimated completion date May 2029
Brief Explanation of Works	Future Water MJJV has been appointed to undertake: Construction of new reservoir at Havant Thicket; installation of a new Northern and Southern Access Track, complete with control house and visitor centre; construction of new drawdown and fill pipeline; modifications at Bedhampton pumping station; new pipeline route to Farlington WTW; and treatment modifications to existing works at Farlington WTW, Various culverts and drainage. Construction of the site compound at the end of the Northern Construction of Access Track and Satellite Compound Access route, highlighted in blue below as 'Main Compound'
Neighbouring Occupiers	North – Forestry Commission land East – Forestry Commission land & B2149 South – Staunton Country Park & residential East – Residential & public right of way

- 1.1.2 The Main Reservoir Site, comprising the main reservoir embankment, wetlands embankment, Wetland Structures, cut-offs and Culvert, is located to the north of the town of Havant, in Hampshire. The Main Reservoir Works lie within the two local planning authorities of Havant Borough Council (HBC) and East Hampshire District Council (EHDC).

1.2 Purpose of this document

- 1.2.1 This Construction Lighting Strategy (CLS) sets out mitigation measures to be applied to the construction activities being undertaken as part of the Havant Thicket Reservoir works, to reduce the potential for significant impacts from light emissions. This document has been produced to mitigate the impacts of construction lighting to residents and fauna to fulfil planning condition 20 which states:
- 1.2.2 “No phase of the development approved under Condition 4 shall commence until a Lighting Strategy for that phase or parcel has been approved by the local planning authority. The Strategy must include: - Proposed specifications for external lighting of service areas, parking, buildings, signs, open space and access junctions.

- 1.2.3 The purpose of this CLS is to ensure that the construction activities for the Havant Thicket Reservoir comply with relevant European and UK legislation, LPA conditions, environmental commitments as set out in the Environmental Statement (ES), and environmental and construction best practice.
- 1.2.4 This CLS will outline measures to prevent obtrusive light to residents and distraction of motorists, and measures to minimise light pollution that could affect wildlife.
- 1.2.5 The measures contained herein will form part of the contractual agreement between Portsmouth Water and its Principal Contractor (Future Water) and the implementation and compliance will be monitored by the Construction Management Team. These measures will only be revised with the agreement of East Hampshire County Council (EHCC) and Havant Borough Council (HBC).

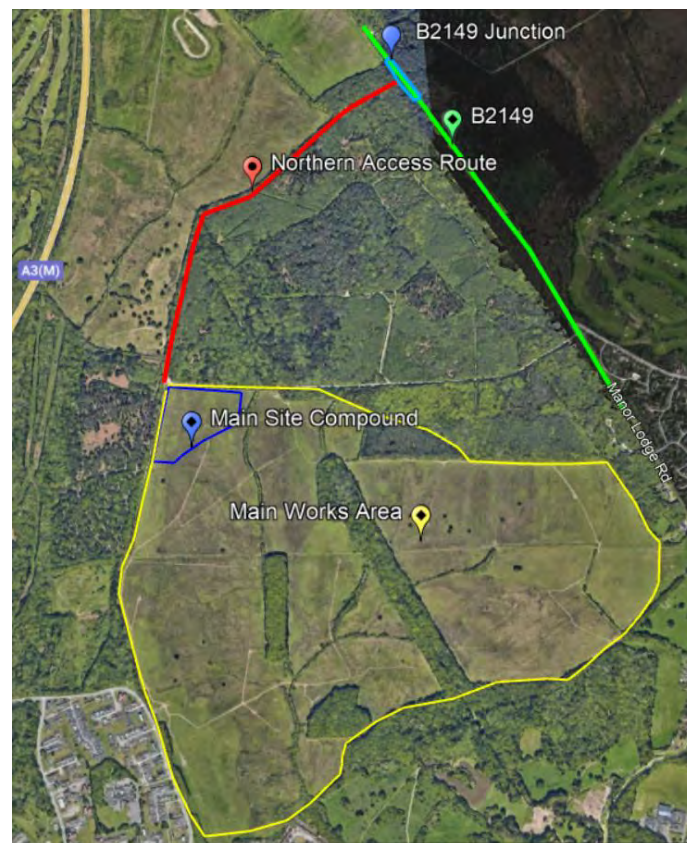


Figure 1: Site Plan

2. Construction Details

2.1 Construction Works Overview – HTR

2.1.1 The construction works related to the Havant Thicket Reservoir Project are to be carried out within the 160ha Main Reservoir Works (MRW) site boundary. The works require several phases of construction within the site to construct the Reservoir that are broken down as follows:

- Enabling Works – Drainage, archaeological investigation, ground remediation, Northern Access, Site Compound and temporary workers accommodation
- Access track and satellite compound construction
- Wetlands Retaining Structure (Earthworks)
- Wetlands flow control structures
- Main Embankment Earthworks
- Main Embankment Culvert
- Control House
- Valve Tower (Inc Secondary Means of Access)
- Installation of MEICA (Mechanical, Electrical, Instrumentation, Control & Automation) and associated fit out
- Southern Access Road
- Spillway
- Soft and Hard Landscaping
- Raising of existing Forestry England track & construction of 2nr new culverts

2.1.2 Further breakdown of construction methodology can be found in the Construction Method Statement (HTR-FUW-RZ-RE-MS-W-0505).

2.2 Establishment of Site Compounds

2.2.1 The Main Site compound will be created by excavating soil, overseen by ecologists and archaeologists. Cut and fill requirements will be met, and below-ground ducts and drainage installed. Tarmac surfaces will cover car parks and access roads. Foundations for project accommodation will be established, surrounded by a 2m high chain-link fence with controlled access. A satellite compound for the workforce will be built. Double-stacked units will arrive on lorries, craned into place. Utilities connected, offices fitted, and deliveries coordinated to avoid traffic congestion. Line marking completes the site compound establishment.

2.3 Construction of temporary drainage system, access track & haul roads

2.3.1 Before commencement of the main site works, grass in designated areas will be cut supervised by an ecologist and project ECOW (Ecological Clerk of Works). Excavators and bulldozers will strip topsoil and subsoil according to an agreed scheme with the County Archaeologist. Material will be moved to stockpiles by ADTs. Temporary drainage, culverts, and lagoons will be shaped following approved designs. Haul roads will be constructed with crushed stone and geogrids or site-won materials. Watercourses will be diverted, including installation of settlement ponds for water treatment. Culvert crossings for construction traffic will be installed.

2.4 Construction of Wetlands Earth Embankments & Control Structures

2.4.1 Material for the Wetlands Embankment will be sourced from on-site borrow pits. Excavators and bulldozers strip topsoil and subsoil, following an agreed scheme with the County Archaeologist. Clay is excavated, loaded into ADTs, transported to deposition

points, and then compacted in layers using bulldozers and rollers, guided by GPS. Testing ensures adherence to specifications, and control structures for water levels are built within the embankment. After completion, topsoil is placed on slopes, and an access track is constructed.

- 2.4.2 Control structures will be built within the embankment to maintain the required water levels in the area when the reservoir is operational. Where possible these will be constructed from pre-cast concrete elements to reduce the amount of assembly and construction on site. Elements will be delivered to the compound and taken to the workforce by excavator & installed.

2.5 Construction of Reservoir Earth Embankment

- 2.5.1 The primary embankment construction involves excavating clay from on-site borrow pits, transporting it via haul roads, and compacting it using bulldozers and rollers. GPS-guided equipment ensures precise placement. Clays undergo testing to meet specifications, with a geotechnical engineer overseeing the process. Ground improvement precedes embankment work, and drainage materials are imported, placed, and compacted. Throughout the earthworks season (March to September), GPS aids in trimming embankment zones. Topsoil is added for protection between seasons. The multi-season project expects completion in 3-4 years, with ongoing winter water management on-site while civil works persist. No earthworks occur in winter, but teams manage water, ensuring environmental preservation.

2.6 Construction of Reservoir Culvert

- 2.6.1 The scheme involves constructing new reinforced concrete control structures, with the embankment culvert and valve tower being the most significant. For their construction, a 20m-wide working platform will be created along the culvert's centreline. The platform's footprint will be excavated, lined with stone mattress and blinding, ensuring a level working base. Excavated material will be retained for testing and reuse. Reinforced concrete structures will follow standard procedures, with lattice-boomed crawler cranes, excavators, and concrete pumps assisting. Below-ground structures will use proprietary excavation support systems, subject to Temporary Works approval and design.

2.7 Valve Tower Construction

- 2.7.1 After culvert construction, the valve tower will be built following industry standards – fixing reinforcement, erecting formwork, placing concrete, curing, and removing formwork. Lattice-boomed crawler cranes, excavators, and concrete pumps will assist. Concrete, delivered by road-going drum mixer lorries via the NAR (Northern Access Road), and on-site haul roads, will be discharged and washed out into a system filtering and reusing cement-laden water. Proprietary excavation support systems ensure safe working conditions for below-ground structures and pipework installation, with subsequent backfilling and support removal undertaken using tracked excavators and crawler cranes.

2.8 Southern Access Road

- 2.8.1 The Southern Access Road (SAR) will be tarmacked, requiring a 278 agreement and traffic management at the Swanmore Road interface. Lane control with 2-way lights on the

Eastbound carriageway near the bell-mouth is proposed, pending approval. The SAR's footprint will be stripped, prepared, and receive subbase, edgings, or kerbs. A drainage ditch and culvert will manage surface water, subject to OWC and Local Flood Authority approval. Construction progresses systematically, utilising small excavators, dumpers, and imported materials. Once completed, white lining and signage will follow the approved design.

2.9 Control House Construction

- 2.9.1 Before construction, the control house and courtyard footprint will be excavated, and a granular sub-base platform created. The control house, atop mass concrete strip foundations and a culvert outlet chamber, will follow standard procedures for reinforced concrete construction. The courtyard, surrounded by RC retaining walls, will serve as material laydown during construction. Lattice-boomed crawler cranes, excavators, and concrete pumps will assist in lifting materials. Concrete delivery will be via road-going drum mixer lorries, using on-site wash-out systems for environmental sustainability. Excavated material will be stored on-site for landscaping, and proprietary support systems ensure safe working conditions.

2.10 Reservoir Pipeline – Outlet

- 2.10.1 The Reservoir Pipeline comprises dual fill and extraction pipes, terminating at Bedhampton and the reservoir. Constructed in two parts, the Bedhampton-to-reservoir section is handled separately by Ward & Burke, while the Main Reservoir section is completed by Future Water. This section carries the buried inlet pipe from a reception pit, traversing the embankment and entering the reservoir. Open-cut excavation using tracked excavators creates a trench, and after shoring installation, the prefabricated pipe sections are laid and backfilled. The pipe will be tested and commissioned in stages for handover prior to use.

2.11 Spillway Construction

- 2.11.1 After completing the main embankment, the spillway is cast in situ with reinforced concrete. Trimmed to formation level, the footprint minimizes arisings, using blinding for a stable working area. Constructed in sections, standard procedures include fixing reinforcement, erecting formwork, placing concrete, curing, and removing formwork.

2.12 Hard and Soft Landscaping

- 2.12.1 Soft landscaping will follow a phased timetable aligned with construction progress; utilising materials delivered via the NAR. Soft landscaping will be the final phase in the finishing and aesthetic works on the main embankment, wetlands and remediated areas. Hard landscaping, including fencing, walling, and the Avenue staircase, will commence after earth embankment works. Materials, delivered via the NAR, will be distributed using access tracks, with small telehandlers and dumpers conveying materials for installation by hand or small excavators.

2.13 Access/Egress

- 2.13.1 All access for the main works will be via the Northern Access Route (NAR) as noted in section 2. A Traffic Management Plan (HTR-FUW-RZ-RE-HS-W-506) will be produced and issued for approval to the LPA. This will be issued to discharge condition 12. This will detail the access routes, procedures and timings for deliveries and staff traffic to site to minimise impact. Please refer to the Construction Traffic Management Plan for more details.

3. Lighting During Construction

3.1.1 The majority of construction activities will occur during daylight hours without artificial lighting, except when necessary for safety. Limited 24-hour operations may require temporary lighting, crucial in winter with shorter daylight hours. Nightly use of temporary external lighting may occur during continuous tasks (e.g., concrete pouring), for site security, abnormal load deliveries, and potential emergency works. This lighting may impact nearby residents, ecological receptors, visual amenity, and distract passing motorists, prompting considerations for mitigating disturbances.

3.1.2 Without careful design and mitigation, lighting from these sources has the potential to have the following impacts:

- Intrusive lighting impacting nearby residents causing disturbance and annoyance, particularly with regard to sleep patterns
- Impact on ecological sensitive receptors from light spill
- Impact on visual amenity due to the illumination of the night sky
- Lighting on surrounding roads distracting passing motorists

3.2 Types and Positioning Requirements

3.2.1 Adequate lighting is essential for safe work, facility use, and movement, minimizing eye strain. Derived from the Health and Safety Executive (HSE) document Health and Safety Guidance 38 (HSG38) 'Lighting at Work' (1997), Table 1 outlines the recommended minimum lighting levels based on work activity and location. It provides suggestions for average illuminance across the work area and the minimum measured illuminance at any specific position within it.

Table 1 Recommendations for Minimum Lighting Levels (adapted from HSE document HSG38 (Lighting at Work)).

Table 3.1

Activity	Typical locations/ types of work	Average illuminance measured (lux) 1x	Minimum illuminance measured (lux) 1x
Movement of people, machines and vehicles	Accesses, haul roads and vehicle compound/parking areas.	20	5
Background work including movement of people, machines and vehicles in Hazardous areas; rough Work not requiring perception of detail	Construction site Clearance, excavation and soil work.	50	20
Task based lighting and work requiring limited perception of detail	Where specific work tasks are required to focus on a particular point or feature.	100	50

3.3 Hours of Lighting

3.3.1 The need for artificial lighting will be dependent on seasonality and will be switched on 30 minutes before sunset (which will change through the winter) to the end of the shift. It will also be switched on at the start of the shift to up to 30 minutes after sunrise. Again, this is dependent on seasonality and will change through the winter months and with daylight savings adjustments. Temporary construction lighting will be also provided during working hours only at times where natural light is not sufficient to carry out specific works to ensure safe working conditions.

3.3.2 Working hours will comply with Planning Condition 11, which states:

Construction Working Hours

11 “no nighttime working shall take place, unless otherwise in accordance with a scheme submitted to and approved in writing by the Local Planning Authority. Night-time works to be carried out strictly in accordance with the approved scheme.”

There may be a requirement for artificial lighting on emergency works, which in any case will need to comply with the minimum requirements for safe work operations, the guidance and standards (Section 6) and mitigation measures avoiding or minimising the impacts on sensitive visual and ecological receptors.

At the main site compound, site security will be 24 hours with limited lighting specific to compound offices and parking area and will be required when the compound is in operation.

3.4 Construction Lighting Strategy Implementation

3.4.1 Prior to the commencement of construction, an Environmental Clerk of Works (ECOW) will be appointed by Future Water to advise and monitor the implementation of the CLS. Contact details for the ECOW are provided in the Construction Environmental Management Plan (HTR-RHD-P2-RE-PL-Z-0018)

3.5 Guidelines and Standards

This CLS has been developed in accordance with the following guidance and standards:

- Institution of Lighting Professionals (ILP), 2020, Guidance Note for the Reduction of Obtrusive Light, (ILP, 2020);
- British Standard BS EN 12464-2:2014 Light and lighting. Lighting of workplaces. Outdoor workplaces;
- British Standard BS 5489-1:2020 Code of practice for the design of road lighting. lighting of roads and public amenity areas;
- Health and Safety and Executive (HSE), Health and Safety Guidance 38 (HSG38) ‘Lighting at Work’ (HSE, 1997);
- Guidance Note GN08/23 Bats and Artificial Lighting at Night (ILP, 2023), published by the Institution of Lighting Professionals (ILP).

4. Potentially Sensitive Receptors

4.1.1 Potentially sensitive receptors that could be affected by temporary external artificial lighting during construction works include visual and ecological receptors.

4.2 Visual receptors

- 4.2.1 Sensitive visual receptors for light from the reservoir construction works include occupiers of residential properties and people working or enjoying the adjacent countryside. A review to identify potentially sensitive receptors that could be affected by external artificial lighting considered all buildings within 250m of the site. The closest visual receptors are remote from the main and satellite compounds, and so short-term lighting of specific site works would be the main activity to be considered. These receptors are:

VISUAL RECEPTORS	NEAREST COMPOUND	NEAREST WORKS
Swanmore Road	Main (750m)	Embankment (70m)
Harbridge Court	Satellite (800m)	Embankment (80m)
Durrants Road	Satellite (980m)	Embankment (120m)
Well Meadow	Satellite (800m)	Embankment (200m)
Winterslow Drive	Satellite (600m)	Control Building (100m)

- 4.2.2 At the identified distances, light intrusion/nuisance and spill light are not considered to be significant, particularly for Swanmore Road and Harbridge Court where street lighting stands between the properties and the site. Light control measures to protect visual receptors will therefore relate to limitation of light from bright luminaries in the field of view and also sky glow. A map of the receptors is shown in Appendix B.
- 4.2.3 Public Rights of Way are located adjacent to the site shown in Figure 2. At times when construction work is proceeding with artificial lighting the users of rights of way are likely to be carrying a torch and construction lighting would not be a nuisance.

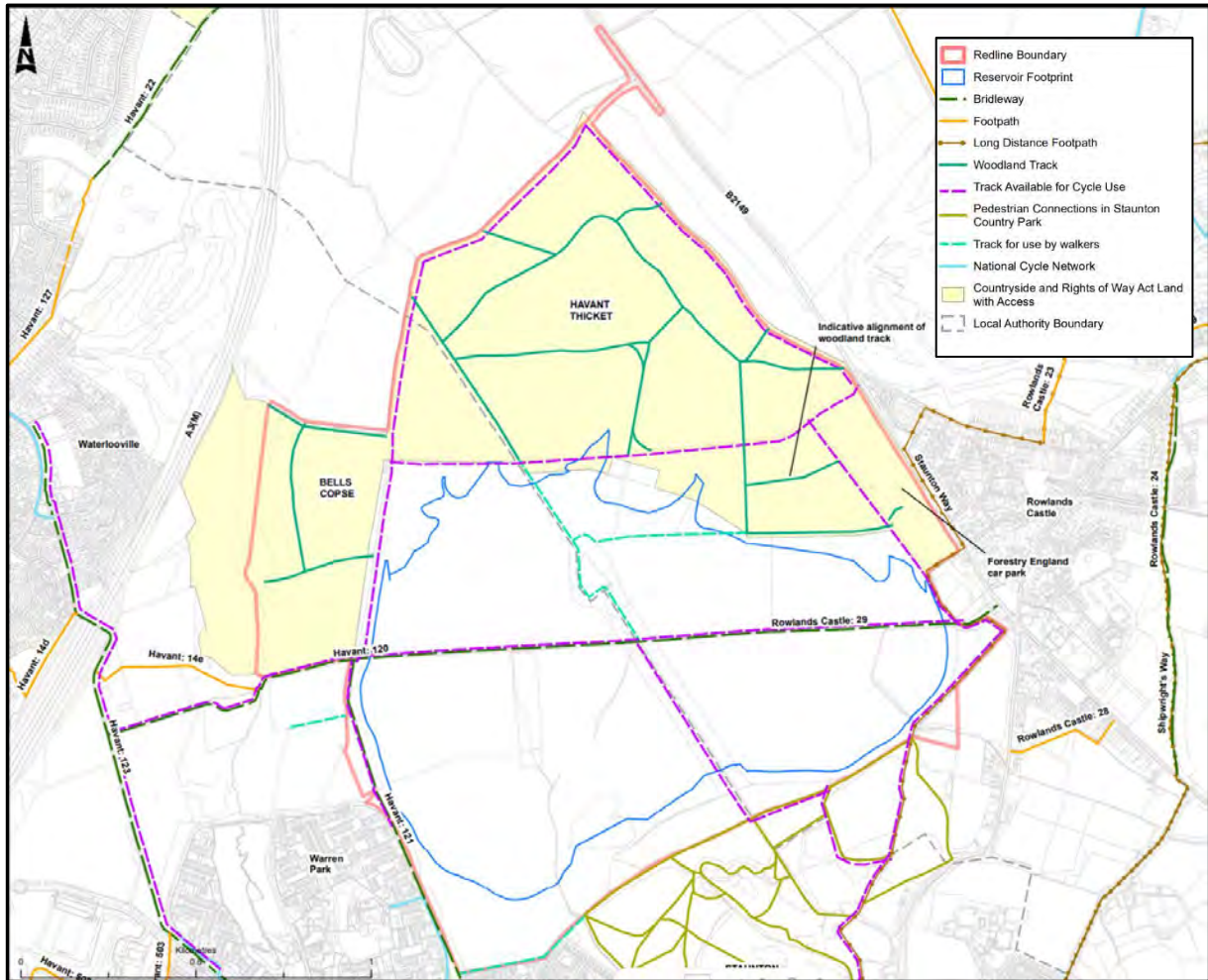


Figure 2: Site Access

A map of designations and ecological constraints can be found in Appendix A.

4.3 Ecological Receptors

- 4.3.1 Light spill and intrusive lighting from night-time works could potentially disturb ecologically sensitive receptors which includes nocturnal species. A range of nocturnal protected species have previously been identified on site including glow worms, dormice, badgers, owls and nightjars. The habitats that support these species (woodland, hedgerows, scrub and grassland) are the habitats which support bats. By ensuring optimal mitigation for light impacts on bats and their habitats on site, suitable mitigation is also provided for all other nocturnal species associated with the site.

Bats

- 4.3.2 Thirteen bat species have been recorded within the Havant Thicket Reservoir (HTR) site including Bechstein's bat *Myotis bechsteinii* (one of the UK's rarest species), with a maternity roost recorded on the southeastern Site boundary.
- 4.3.3 A bat mitigation licence to carry out works for the Project has been obtained from Natural England (Licence number 2020-50625-EPS-AD2-4). Future Water are obliged to ensure compliance with the conditions of all protected species licences obtained at all times. Ecological considerations during the development of the Lighting Strategy are presented in Appendix E. Bat roost areas and buffer zones are shown in Appendix F.

5. Objectives

5.1.1 The objectives and performance outcomes for this CLS are detailed below in Table 5-1.

Table 5.1

Objectives	Performance Outcomes
•To ensure temporary lighting installations are positioned so as to avoid light spill directly towards roads, residences and other potential viewing locations or ecological receptors. •To ensure the potential impacts from light emissions on haul roads for mobile equipment are reduced so far as practicable. •To utilise existing vegetation screens to minimise the impact of any light spill in the direction of roads, residences and other viewing locations or ecological receptors. •To use directional lighting to reduce light spill and minimise light emissions from night-time construction works to retain dark night skies. •To ensure procedures are in place to record and effectively respond to any complaint in respect to lighting. •To record and report the effectiveness of lighting emission controls. •To utilise appropriate mitigation measures to reduce glare.	•Minimum levels of lighting are used which provide sufficient lighting to ensure that safety is not compromised. •External lighting complies with relevant UK legislation, environmental commitments as set out in the 2020 ES and environmental and construction best practice. •The safety of external traffic on nearby roads is not affected by light sources on site. •Impacts from light emissions from the works on nearby sensitive visual receptors is avoided or minimised where avoidance is not possible. •Impacts from light emissions from the works on ecological receptors are avoided or minimised, where avoidance is not possible. •Complaints are responded to quickly and effectively. •The effectiveness of lighting emission controls is reported.

6. Mitigation

6.1.1 The HTR Project necessitates illuminated construction areas, particularly the Main Compound and a satellite construction compound. The Main Compound, active year-round, includes temporary workers accommodation, planned for use until the main earthworks' completion in 2026. Prescribing an appropriate lighting strategy is crucial for Health & Safety and impact mitigation to sensitive receptors. Dense tree cover does not mitigate light's negative impact on bats, necessitating bespoke lighting specifications for the entire HTR site. These include:

- LED luminaires will be used where possible;
- Metal halide, fluorescent sources will not be used;
- Column heights will be carefully considered to minimise light spill;
- Narrow spectrum light sources will be used to lower the range of species affected by lighting;
- Light sources that emit minimal ultra-violet light will be selected;
- Lights will peak in wavelength higher than 550nm;
- White and blue wavelengths of the light spectrum will be avoided to reduce insect attraction and where white light sources are required in order to manage the blue short wavelength content, they will be of a warm / neutral colour temperature, ideally <2700Kelvin;
- Only luminaires with an upward light ratio of 0% and with good optical control will be used;
- External security lighting will be set on motion-sensors with short (1 minute) timers.

6.2 Mitigation Specific to Ecology

- All lighting selected to avoid UV elements when manufactured.

- Metal halide, compact fluorescent sources will not be used.
- LED lighting units will be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white light source (2700Kelvin or lower) will be adopted to reduce blue light component.
- Light sources will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Internal lighting will be recessed (as opposed to using a pendant fitting) where possible, in proximity to windows to reduce glare and light spill.
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) should delineate path edges.
- Column heights adjusted to minimise light spill and glare visibility.
- Only lighting with a negligible or zero Upward Light Ratio, and with good optical control, will be used.
- Lighting will always be mounted horizontally, with no light output above 90° and/or no upward tilt.
- Where appropriate, external security lighting will be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most purposes a 1-minute timer shall be deployed on lighting; however, in some situations a 2-minute timer may be required for safety. The area being lit shall be risk assessed depending on several factors, such as, length of time under light, terrain, obstacles, and any other hazards that may require a longer illumination.
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

6.2.1 The location, orientation and height of newly built structures relative to each other can have a considerable impact on light spill. Buildings and hard landscaping will be sited and designed so as to block light spill from reaching important bat habitats and features. Bats will benefit from minimising light spill away from Havant Thicket Woodland and its' associated edge (buffer) habitats. Mitigation measures to further minimise light spill include:

- A reduction of the number of windows that directly face key and buffer habitats will be implemented to permanently limit light spill.
- Using curtains and/ or blinds on the temporary workers accommodation windows during the evening/night-time period.
- Column mounted luminaires will be located so that the rear shields are adjacent to habitats, or narrow optics selected that direct light into the task area where needed.
- Light spill will be screened through landscaping and the installation of fences. Windbreak mesh / dust-type netting to the inside of the compound boundary fence will help to further reduce light spill.
- On-site lighting controlled by dimming or switching either diurnally, seasonally, or according to human activity (light on demand) will be utilised.
- Lighting will be set to a low output state by default, to turn up to a predetermined output in response to a trigger and be combined with a timeclock or photocell to further add an element of seasonal or diurnal control. For example, passive infrared, AI enabled cameras, on demand controls, or pressure sensors may be used to trigger lights to come on or dim in response to movements, either by vehicles or pedestrians. Inbuilt timeclocks or photocells can ensure that this response only occurs during a set window of hours after sunset and before sunrise, or during certain months.

- Alternative lighting designed for subtle waymarking, rather than illumination will also be considered, for example very low wattage, solar-powered, ground-level luminaires. This lighting has an added benefit that there is no requirement for cabling. However, it should be noted that these systems depend on regular maintenance for them to be successful, as well as a clear view of the sky for solar-powered options.
- 6.2.2 The construction works at Havant Thicket Reservoir have been carefully designed to minimise impacts on the environment. The reuse of site won material for construction will minimise the need for additional construction works and associated artificial lighting.
- 6.2.3 Permanent lighting will comprise appropriate luminaires directed away from vegetation, particularly the boundary hedgerows and treelines to avoid any light spill onto retained vegetation. Lighting will follow good practice current at the time of detailed design. The new lighting will be task-related, associated with the visitor centre and associated car park and with no lighting on the access roads. The lux level will be as low as possible to meet their purpose safely and effectively. The lighting for each phase or parcel shall be carried out in accordance with the approved Lighting Strategy and shall be retained and maintained as such thereafter.
- 6.2.4 In mitigating for bats, all nocturnal species have been considered.

7. MONITORING AND REPORTING

7.1 Monitoring

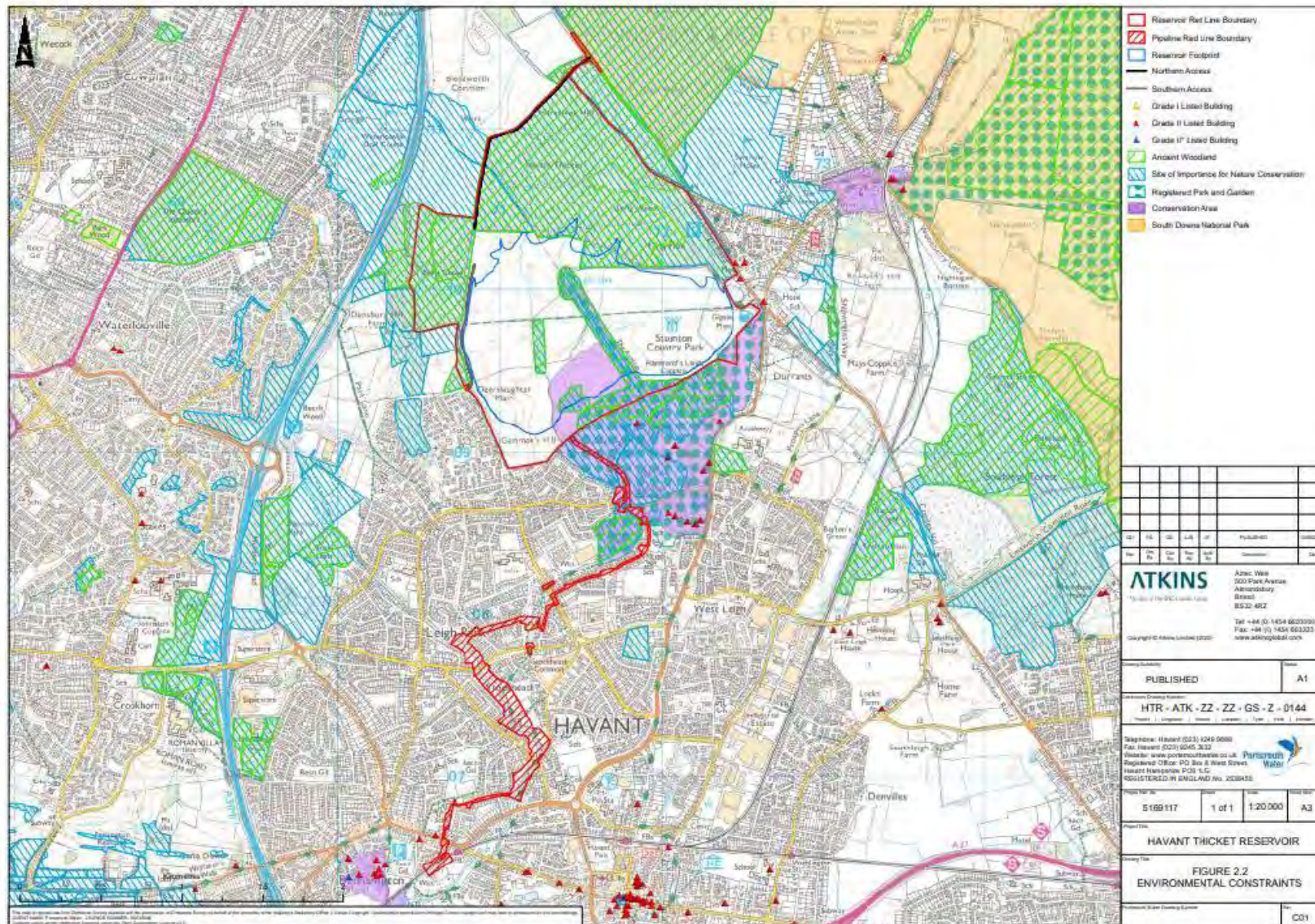
- 7.1.1 Regular inspections of lighting mitigation measures will be undertaken by the Principal Contractor's construction management team, the ECoW and ecological specialists where required, to ensure effective implementation and report any non-compliances. If non-conformity with any control and mitigation measures is identified, it will be recorded, and appropriate remedial action will be implemented.
- 7.1.2 The inspection shall be completed on a 12-weekly basis and shall be completed after sunset (when lights become effective), the purpose of the inspection is to ensure all mitigation measures are in place and functioning as designed. The inspection shall also be used to inspect for damage or tampering with mitigation measures and to ensure no supplementary lighting has been installed. In accordance with Section 7.1.1 any changes shall be raised in a non-conformance & action taken. The inspection shall be undertaken by a member of the site management team and recorded in an inspection report. The frequency of inspections may be adjusted by the ECoW as required and recorded in the Future Water monthly site inspection report. The inspections shall be completed around the time of daylight savings clock change, and at the mid-point between i.e., 12-weeks after clocks change.
- 7.1.3 Any complaint regarding lighting of the construction works will be directed to the Site Environmental Manager who will in turn notify Portsmouth Water. The Site Environmental Manager will investigate the complaint and provide a response to the complainant and Portsmouth Water within 7 days. Investigation will include checking that luminaires remain directional and suitable for the application. If the complaint is justified a solution will be found to prevent reoccurrence, such as use of hoardings or other barriers to contain light spill. This may include investigation of alternatives, such as the use of lower wattage lighting, or re-direction of lighting or re-positioning shielding.

-
- 7.1.4 Should any Schedule 1 or other bird species be found to be nesting within the vicinity of the proposed construction works, an exclusion zone will be implemented specific to that species in accordance with the Ecological Management Plan (HTR-RHD-ZZ-ZZ-PL-Z-0001).

7.2 Reporting

- 7.2.1 The effectiveness of lighting controls will be reported in the Site Inspection and Audit Reports. Inspections will be undertaken by the ecological specialists, where required and will be reported to the Site Environmental Manager.

Appendix A - Environmental Constraints Drawing



Appendix B- Receptors



Appendix D – Lighting Layout – Temporary Workers Accommodation



Future Water
MJJV Ltd

MACKLEY

JONES BROS
CIVIL ENGINEERING UK

**CROUCH
WATERFALL**

HAVANT THICKET RESERVOIR
SITE TEMPORARY ELECTRICAL WORKS
ELECTRICAL BUILDING SERVICE SPECIFICATION



Future Water
MJJV Ltd

Havant Thicket Reservoir



M
MACKLEY

JONES BROS
CIVIL ENGINEERING UK

CLIENT:

Future Water MJJV

- Mackley Engineering, Jones Bros Civil Engineering UK

Havant Thicket Reservoir – Site Temporary Electrical Works	
Electrical Building Services Design Specification	MAR 2024

PREPARED BY: DAVID MURPHY

CHECKED BY: KEVIN DODD

APPROVED BY: DAVID MURPHY

DOCUMENT REFERENCE: 23374G_CW_HTR Temp Elec_01

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Havant Thicket Reservoir – Site Temporary Electrical Works

Electrical Building Services Design Specification

MAR 2024

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Crouch Waterfall and Partners Limited has prepared this report in accordance with the instructions of the above-named Client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

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1 PROJECT SUMMARY

This document outlines the temporary site electrical & lighting installations for the Main Project Offices and Satellite Compound required during the construction phase of the new Havant Thicket Reservoir, Hampshire.

Havant Thicket Reservoir

- Temporary Power and External Lighting design for main site and satellite compounds (MDU, Electrical Cubicles, External Lighting to Car Park, Walkways, external compounds, etc.)
- Power supplies for Site Offices, Accommodation (caravans and Bunkabins) drainage pumps, Vehicle Maintenance Workshop Wheel Wash, and EV Chargers (5no.)
- External Lighting to Car Park and Walkways, all 2700oK (“bat friendly”).
- Associated Civils design and Containment systems (i.e. cable ducts, column foundations, cubicle slabs), for power, external lighting and CCTV system.

A new 800 kVA Scottish and Southern Electricity (SSE) networks has been arranged by Future Water for use for this site, with an agreed supply capacity of 554 kVA, with Future Water applying for an increase supply capacity of 680kVA (approx. 1000A TPN) for use for the site’s temporary power supplies.

A10 PROJECT PARTICULARS

Installation of temporary site electrical & lighting installations for the Main Project Offices and Satellite Compound during the construction phase of the new Havant Thicket Reservoir, Hampshire.

Havant Thicket Reservoir

Main Contractor: Future Water MJJV Ltd

Electrical Engineers: Crouch Waterfall (CW) and Partners Limited

Client: Portsmouth Water

A12 THE SITE/ EXISTING BUILDINGS

The existing construction site modular offices and containers are to be provided with new site temporary electrical supplies as defined in this specification and drawings.

A13 DESCRIPTION OF THE WORK

The site consists of Future Water's Main Site Compound and a Satellite Compound, both requiring temporary site electrics and lighting for the duration of the construction of the new reservoir.

This includes:

Main Compound:

- Main Site Offices (2 stories).
- Site Security Cabin
- Main Car Park – Lighting and EV chargers
- Grinder Pumps
- Accommodation – Caravan park and Bunkabins
- Containers supplies
- Vehicle Maintenance Workshop
- Socotec Laboratory
- Supply for Ward & Burke compound.

Satellite Compound:

- Site Accommodation (welfare and offices)
- Drainage Pumps
- General use supplies

A33 QUALITY STANDARDS/ CONTROL

All systems will be installed in accordance with Statutory Requirements, DNO (SSE) requirements, IET Wiring Regulations, and in compliance with Building Regulations.

IET Wiring Regulations BS 7671:2018+A2:2022 (Corrigendum May 2023)

BS EN 61439-4:2013 Low-voltage switchgear and controlgear assemblies. Particular requirements for assemblies for construction sites (ACS)

BS EN 61643-11 Surge protective devices connected to low-voltage power systems - requirements and tests

External Lighting Design

BS EN 12464-2:2014 - Lighting of outdoor work places

ILP Guidance Note 08/18 – Bats and artificial lighting in the UK.

A34 SECURITY/ SAFETY/ PROTECTION

The Main Contractor will provide their own CCTV cameras and Security measures, from a new Site Security Cabin which will be location next to the Main Site Compound Offices.

Provide containment only for the CCTV system, as shown on the drawings, providing split ducts around the perimeter of the site, fixed to the perimeter fencing.

Refer to the Main Contractor Safety and Protection policies and procedures, which are to be followed during the duration of these works.

A52 NOMINATED SUPPLIERS

Main Items of plant will be supplied and provided by (or similar and approved):

Temporary Electrical Distribution Cubicles Blakley Electrics Ltd <https://www.blakley.co.uk/>

Lighting, Luminaires and Controls: ASD Lighting Plc. <https://asdlighting.com/>

A53 WORK BY STATUTORY AUTHORITIES

Electricity

A new 800kVA Scottish & Southern Electricity (SSE) Networks transformer will be provided for these works, arranged by the Main Contractor.

Allow to connect to and use this supply for electrical power requirements for this project.

Electrical Utilities Metering

Connect to the Main Site LV Electrical Cubicle and liaise with the Main Contractor for provision of the Energy Shippers Electrical Meter, either in a separate enclosure or integrated into the main LV electrical cubicle.

Telecoms

The Main Contractor will arrange their own Telecoms (telephone, data, broadband) for the site, with their own Telecoms provider.

C20 ALTERATIONS AND DEMOLITIONS

There are no demolitions envisaged. There are some minor alterations to be made to enable these works, allow to fully engage with the Main Contractor for all Civils element required for this project.

ELECTRICAL SUPPLY/ POWER/ LIGHTING SYSTEMS

V12 LV SUPPLY/ PUBLIC UTILITY SUPPLY

Electricity

A new 800kVA Scottish & Southern Electricity (SSE) Networks transformer will be provided for these works, arranged by the Main Contractor.

Allow to connect to and use this supply for electrical power requirements for this project.

Electrical Utilities Metering

Connect to the Main Site LV Electrical Cubicle and liaise with the Main Contractor for provision of the Energy Shippers Electrical MID Approved Meter, either in a separate enclosure or integrated into the Main LV electrical cubicle.

V20 LV DISTRIBUTION

Provide a new Main LV Electrical Distribution Cubicle, complete with metering (kWh) as shown on the electrical schematic.

1000 Main LV Distribution Cubicle

Provide an external Mains LV distribution cubicle in accordance with BS EN 61439-4 manufactured for outdoor environments.

1250A TPN 16-Way IP44 Rated, free-standing, padlocked doors, weatherproof gland plates for incoming and outgoing cables. 900mm ground clearance recommended (i.e. complete with extension stand).

Bus Bars short circuit rating of 50kA (ASTA certified).

Provide Main LV cubicle complete with:

250A TPN MCCB - Electronic Surge protection Device (SPD) – Type 1 to Main LV cubicle/panel

200A TPN MCCB – For Future Power Factor Correction (PFC) equipment.

Utilities Electricity Shippers MID Meter CTs (Meter may be in a separate enclosure)

kWh (non-MID) meter on the main incomer.

Outgoing Distribution

Provide the following outgoing ways:

1	Site Electrical Power Supply		
	SSE Substation - 800kVA	1250A TPN 4P MCCB	Incomer Protection Device
	ESP (Surge Protection)	250A TPN MCCB	Furse Surge Protection Device (Type 1,2 & 3 protection).
2	Main Site Compound Electrical Supplies	1250A TPN 16-Way Panel	Outgoing Supply
2.01	PFC (Power Factor Correction)	200A TPN MCCB	For Future PFC circuit
2.02	Site Project Office	250A 4P MCCB Variable Type A RCD protection	DB SPO Re-use existing 630A TPN Cubicle
2.03	EV Charging (3 no. 7.4kW, 1 x 22kW)	100A TPN 4-Way Cubicle Variable Type A RCD protection	DB EV 3x 32A SPN, 1x 32A TPN
2.04	Bunkabins & Containers	160A TPN 6-Way Cubicle Variable Type A RCD protection	DB BC 12x 32A SPN
2.05	Vehicle Maintenance Workshop	100A TPN 6-Way Cubicle Variable Type A RCD protection	DB VMW 100A TPN 6-Way Board
2.06	Caravan Site Lighting & Power	250A TPN 6-Way Cubicle Variable Type A RCD protection	DB C 10x 63A SPN Caravan Hook-ups and lighting
2.07	Ward & Burke Compound	100A TPN Supply/isolator only	
2.08	Satellite Compound	250A TPN Supply to Satellite Compound Variable Type A RCD protection	
2.09	Pan Assembly	160A 4P MCCB Variable Type A RCD protection	Feeding an integral 12 Way TP pan assembly within segregated compartment.
	Pan Assembly equipment with MCBs for		
2.10	Grinder Pumps Circuits	63A TP MCB Type C	DB P 2 no. Grundfos (grinder) pumps

2.11	Socotec Laboratory	63A TP MCB Type C	DB SL Socotec Laboratory 63A TPN 4-Way Cubicle
2.12	Security Gate House	32A SP MCB Type C	DB SGH 32A SPN Supply to Internal Security DB (40A SPN 6-Way)
2.13	Car Park Lighting	32A SP MCB Type C	DB CPL
2.14	Spare	frame only	rated up to 250A
2.15	Spare	frame only	rated up to 250A
2.16	Spare	frame only	rated up to 250A

Distribution kWh metering

Provide manually read non-MID check kWh meters to all outgoing distribution ways.

Test Sockets

Within the Main LV Distribution Cubicle incoming compartment, provide 5no. panel mounded test Sockets connected to the supply side of the incoming MCCB.

In each outgoing compartment, provide 2no. test sockets connected to the load side of each MCN/RCD. Provide a common earth socket.

All test sockets protected by BS88 fuses.

Note: The Surge protection and PFC circuits are not required to have RCD protection or associated test sockets.

2000 Satellite Compound LV Distribution Cubicle

Provide an external Satellite Compound LV distribution cubicle in accordance to BS EN 61439-4 manufactured for outdoor environments.

IP54 Rated, free-standing, padlocked doors, weatherproof gland plates for incoming and outgoing cables. 900mm ground clearance recommended (i.e. complete with extension stand).

Provide Satellite LV cubicle complete with:

Outgoing Distribution

Provide the following outgoing ways:

3	Satellite Compound Electrical Supplies	400A (250A) TPN 8-Way Cubicle	
	DB SC	400A (250A) TPN 4P MCCB	Incomer Protection Device

3.01	Pan Assembly	250A 4P MCCB Variable Type A RCD protection	Feeding an integral 8 Way TP pan assembly
	Pan Assembly equipment with MCBs for		
3.02	Satellite Compound Accommodation	63A TP MCB Type C	DB SCA 63A TPN Supply to Satellite Accommodation DB
3.03	Satellite Compound Pump No.1	63A TP MCB Type D	63A TPN supply (32kW pump)
3.04	Satellite Compound Pump No.2	63A TP MCB Type D	63A TPN supply (32kW pump)
3.05	Satellite Compound - Auxiliary	63A TP MCB Type C	DB SCA1 63A TPN 4-Way Cubicle, for 2 x 32A SPN supplies
3.06	Spare	frame only	rated up to 250A
3.06	Spare	frame only	rated up to 250A

Distribution kWh metering

Provide manually read non-MID check kWh meters to all outgoing distribution ways.

Test Sockets

Within the Satellite LV Distribution Cubicle incoming compartment, provide 5no. panel mounded test Sockets connected to the supply side of the incoming MCCB.

In each outgoing compartment, provide 2no. test sockets connected to the load side of each MCN/RCD. Provide a common earth socket.

All test sockets protected by BS88 fuses.

3000 Site Electrical Cubicles.

To distribute electrical power at various locations around the site, provide the following external electrical cubicles and distribution boards.

All external electrical cubicles to be Temporary Site Power Mains Distribution Assembly (MDA) Panels or similar, complete with integral 4P incoming switches and rated at IP54.

To be complete with stands to allow for ease of cable entry and exit into these cubicles.

3001 Site Project Office Cubicle – DB SPO

Reuse and re-supply the existing 630A TPN 8 Way cubicle present, which currently supplies 3x 100A TPN (Existing) supplies to the Site Project Office.

3002 EV Charging Cubicle – DB EV

Provide a new 100A TPN 4-Way Cubicle, to provide electrical supplies to the Electric Vehicle chargers.

Provide 4 no. electrical charger points:

3x 32A SPN and 1x 32A TPN

The Main contract has two single phase Easee One (7.4kW) EV chargers for free issue and use on this site. Refer to section V34 for details on EV charging requirements.

3003 Caravan Site Lighting & Power Cubicle – DB C

Provide a new 250A TPN 6-Way Cubicle, with 10 x 63A SPN outgoing ways to supply the 10 no. Caravan Hook-up units.

Provide a 63A SPN supply for a future Shower/WC block for the caravan site.

3004 Bunkabins & Containers Cubicle – DB BC

Provide a new 160A TPN 6-Way Cubicle, a Mains Distribution Assembly (MDA) with 12x 32A SPN IEC 309 IP67 socket outlets for the 10no. Bunkabins and 2 no. Container supplies.

3005 Vehicle Maintenance Workshop – DB VMW

Provide a 100A TPN 6-Way Cubicle for power supplies for the Vehicle Maintenance Workshop.

3006 Drainage Grinder Pumps – DB P

Provide a new 63A TP 2-way boards, for the two 2 x 10A TPN MCB Type D Grundfos grinder pump supplies, via 2 x 16A TPN IEC 309 IP67 sockets.

3007 Socotec Laboratory

Provide a new 63A TPN supply for the Socotec Laboratory, to supply the internal Socotec Laboratory 63A TPN 4-Way Cubicle/distribution board.

3008 Security Gate House,

Provide a new 32A SPN supply for the Security Gate House, to supply the 32A SPN Internal Security DB (40A SPN 6-Way)

3009 Main Car Park

Provide a new Car Park 32A SPN 6-Way Cubicle to supply the car park lighting. Complete with simple solar compensating time clock (i.e. Sangamo) mechanism with a manual override facility.

Satellite Compound

3010 Provide a 250A TPN 8 Way cubicle, to supply the Satellite Compound electrical supplies.

A 250A 4P MCCB supplying an integral 8 Way TP pan assembly with 4 x 63A TPN IEC 309 socket outlet:

- 63A TPN IEC 309 socket – for Satellite Accommodation/Office
- 63A TPN IEC 309 socket – for 32kW Pumps No. 1
- 63A TPN IEC 309 socket – for 32kW Pumps No. 2
- 63A TPN IEC 309 socket – for Satellite Compound Auxiliary Cubicle.

3011 Provide a Satellite Compound – Auxiliary Electrical Cubical – a 63A TPN 4-Way Cubicle, a Mains Distribution Assembly (MDA) with 2x 32A SPN IEC 309 socket outlets.

V22 GENERAL LV POWER

1000 Caravan Hook-ups

Provide 10no. 4 x 16A socket and RCBO caravan hook-up units as shown on the drawings.

In addition to the 4 x 16A RCBOs, provide a 6A RCBO for supply to the light fitting located above this hook-up unit.

2000 Bunkabins & Containers Sockets

Provide a 160A TPN 6-Way Cubicle, a Mains Distribution Assembly (MDA) with 12x 32A SPN IEC 309 socket outlets for the 10no. Bunkabins and 2 no. Container supplies.

3000 Drainage Grinder Pumps Sockets

Provide a new 63A TP 2-way board, for the two 2 x 10A TPN MCB Type D Grundfos grinder pump supplies, via 2 x 16A TPN IEC 309 sockets.

4000 Satellite Compound

4010 Provide a 250A TPN 8 Way cubicle, to supply the Satellite Compound electrical supplies. A 250A 4P MCCB supplying an integral 8 Way TP pan assembly with 4 x 63A TPN IEC 309 IP67 socket outlet:

- 63A TPN IEC 309 socket – for Satellite Accommodation/Office
- 63A TPN IEC 309 socket – for 32kW Pumps No. 1
- 63A TPN IEC 309 socket – for 32kW Pumps No. 2
- 63A TPN IEC 309 socket – for Satellite Compound Auxiliary Cubicle.

4020 Provide a Satellite Compound – Auxiliary Electrical Cubical – a 63A TPN 4-Way Cubicle, a Mains Distribution Assembly (MDA) with 2x 32A SPN IEC 309 socket outlets.

V34 - ELECTRICAL VEHICLE CHARGING EQUIPMENT

Install 4 no. Electrical Vehicle (EV) charger point, in the designated car parking bays in the main car park.

Provide:

- 3no. Single Phase Easee One (7.4kW) chargers
- 1no. Three Phase Easee Charge (22kW) charger.

Note – the contractor has 2no. single phase Easee One chargers for free-issue for install at this site. The Electrical contractor to supplement this with one new single phase EV charger and a new three phase EV charger.

V41 EXTERNAL LIGHTING

Provide new external site lighting, to the following areas. Note that all lighting is to be compliant to the ecological (i.e. bat friendly) requirements for this site:

BS EN 12464-2:2014 - Lighting of outdoor work places

ILP Guidance Note 08/18 – Bats and artificial lighting in the UK.

- 2700oK (or generally less than 3000oK)
- 100% downlight content.

1010 Main Site Car park

External Lighting to provide 10 lux (average) with a uniformity of 0.25

Provide new ASD luminaires:

Type A – ASD Diamond Highway Elite – M2 optic 2700oK

3 LED 45W mounted at 7.0m high (1m cube plus 6m column)

Car park lighting is to be controlled by a simple solar compensating time clock (i.e. Sangamo) mechanism with a manual override facility.

1020 Walkways Main Site Car park

External Lighting to provide 5 lux (average) with a uniformity of 0.25

Provide new ASD luminaires:

Type B – ASD Diamond Highway Elite – M2 optic 2700oK

3 LED 26W mounted at 7.0m high (1m cube plus 6m column)

Generally, supply these walkway luminaries from the building and electrical cubicle power supplies. Walkway lighting is to be controlled either by a simple solar compensating time clock (i.e. Sangamo) mechanism with a manual override facility, or manually controlled from within buildings.

1030 Caravan Site

External Lighting to provide 5 lux (average) in immediate area of caravan hook-ups.

Provide new ASD luminaires:

Type B1 – ASD Micro Diamond Elite – M2 optic 2700oK

3LED 26W mounted at 2.5m high (column mount)

Fix and integrate these luminaires into a common lighting pole/column as part of the caravan hook up power modules.

Caravan Park lighting is to be controlled by a simple external PIR, to automatically control lights on presence detection. Motion Sensors to have short duration (1 - 2 minutes) timers.

1040 General Site Building Walkways

External Lighting to provide 5 lux (average) along walkways and in front of site buildings.

Provide new ASD luminaires, generally attached to the existing site buildings and cabins on site:

Type C - ASD Micro Diamond Elite – M2 optic 2700oK

3LED 26W mounted at 2.5m high (building mounted arm/bracket)

Generally, supply these luminaries from the building's electrical power supplies. Lights will be manually controlled from within buildings.

1050 Lighting Control

In line with the required Construction Lighting Strategy Document (HTR-FUW-ZZ-ZZ-PL-W-0534, rev P01 05/12/23):

- LED Luminaires used throughout
- No metal halide or fluorescent light sources used
- 100% downlight (Zero uplight from luminaires)
- 2700oK light colour temperature ("warm-white")
- Luminaires mounted horizontally, no upward tilt.

External security lighting to be set on Motion Sensors with short duration (1 minute) timers.

Solar compensating time clock (i.e. Sangamo) mechanism to be used, to provide seasonal control of the lighting during set hours after sunset and before sunrise.

W10 TELECOMMUNICATIONS

The Main Contractor will provide all Telecommunication lines and equipment to suit their own operational requirements.

W42 CLOSED CIRCUIT TELEVISION

The Main Contractor will employ a specialist to install and provide the CCTV system.

The Main Contractor will provide their own CCTV cameras and Security measures from a new Site Security Cabin which will be location next to the Main Site Compound Offices.

These works consist of containment only for the CCTV system, as shown on the drawings, providing split ducts around the perimeter of the site fixed to perimeter fencing.

W43 GENERAL SECURITY

No modification or additions to any electronic security system is intended as part of these works.

W51 EARTHING AND BONDING

Earthing and bonding to all electrical systems will be carried out to BS 7971 IET Wiring Regulations.

W52 LIGHTNING PROTECTION

No specific Lightning Protection System or requirements have been requested by the Client. Ensure all site temporary electrics are bonded to earth in compliance with the IET wiring regulations.

W53 ELECTROMAGNETIC COMPATABILITY AND SCREENING (EMC)

All installed plant and equipment will be supplied and installed compliant to BS EN IEC 61000.

W60 CENTRAL CONTROL/ BUILDING MANAGEMENT

No Central control or Building Management System (BMS) has been requested by the Client.

No automatic Energy Metering System (EMS) has been requested by the Client.

Appendix 1 – Site Temporary Electric Cubicles - Mains Distribution Assembly (MDA)

As Blakley products, or similar and approved. www.blakley.co.uk

- Blakley quotation for MDA for:
 - o B7 General Assembly for the Main Site Compound panel
 - o B4 General Assembly for the Satellite Compound panel.

Appendix 2 - Easee Electric Vehicle Chargers

3no. Single Phase Easee One (7.4kW) chargers

1no. Three Phase Easee Charge (22kW) charger

Easee Charge

Easee Charge maximises the available electrical capacity within the building using dynamic load and phase balancing. The ultimate solution for delivering EV-Charging at scale for workplace, apartment blocks, car parks and fleet.



Specifications

Measurement
in mm



Technical

General

Dimension (mm): H: 256 x W: 193 x D: 106
Wall mounting (mm): cc H: 160 x W: 125
Operating temperature: - 30°C to + 40°C
Weight: 1.5 kg

Charging

Charging power: 1.4 - 22 kW
6A 1 phase - 32A 3 phase (automatically
adjusted in relation to available capacity)
Up to 7.36kW at 32A 1 phase
Up to 22kW at 32A 3 phase (TN grid)
Number of phases: 1 and 3 (fully dynamic)
Charging connector: Type 2, Female (IEC
62196-2)
Voltage: 230V / 400V AC (+ -10%)
Load balancing of up to 101 pcs. charging
robots per fuse
Load and phase balancing works offline
Automatic locking of charging connector
Built-in energy meter

Connectivity

Built-in eSIM (2G / 4G / GPRS / Cat-M1)
WiFi 2.4 GHz b / g / n connection
Control charging with the Easee app
RFID / NFC reader
OCPP 1.6 via our API

Sensors and indicators

Light strip showing the status of the charger
Touch button for manual adjustment
Brightness control sensor
Temperature sensors in all main contacts

Colours



Safety

Protection

Built-in Type-B ground fault protection
(30mA AC / 6mA DC)
Enclosure degree: IP54 (electronics module)
Impact resistance: IK10
Fire class: UL94
UV resistant
Insulation class: II
Over voltage category III (4,5kV AC and 6kV
impulse insulation tolerance)

Theft Protection

Electronics can be deactivated and tracked
in case of theft.
The electronics can be permanently locked
using a padlock (not visible).
The charging cable can be locked
permanently in the charging station.

Complies with the following standards

2014/30/EU (EMC)
2014/35/EU (LVD)
2011/65/EU (RoHS)
EN 50412-2-1: (2005)
EN 55014-1: (2017)
EN 55014-2: (2015)
EN 55024: (2016)
EN 61851-1: (2019)
EN 61851-22: (2002)
EN 61000-3-2: (2013)
EN 61000-3-3: (2013)
EN 61000-3-11: (2000)
EN 61000-3-12: (2011)
EN 61000-6-2: (2016)
EN 61000-4-13: (2002) +A1:09+A2:16
EN 62196-1: (2014)
EN 62196-2: (2017)
EN 62321-1: (2014)
EN IEC 63000: (2019)
EN 300 328 v.2.1.1
EN 301 489-1 v.2.1.1
EN 301 489-17 v.2.1.1
IEC 61439-1: (2011)
IEC 61439-7: (2018)
IEC 62233: (2005)
Radio Equipment Directive 2014/ 53/EU
ROHS directive 2011 /65/EU
CE Konform

Installation

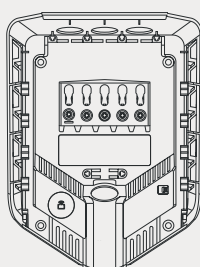
Power grids and fuses

Installation network: TN, IT and TT
(detected automatically)
Installation circuit breaker: Max 63A overload
protection. The short-circuit current at the
charging point (IkMax) must not exceed 10kA.
If required by the installation, class A earth
fault protection can be used for the circuit.

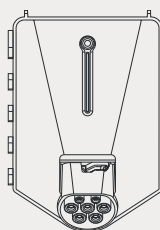
Integrated circuit in backplate

Cable cross-section:	1.5-10 mm ²
Cable diameter:	8-22 mm
Terminal Tightening:	5 Nm
Cable Strip Length:	12 mm

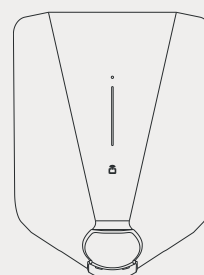
The product contains



Backplate



Chargeberry



Cover

Why choose Easee One?

Forward-looking home charging



Benefits

- Integrated open PEN conductor protection, i.e., no need for earth rod
- Reduced cost and time to install
- Fully dynamic charging power 1.4–7.4 kW
- Load balancing of up to 3 units per fuse by integrated wireless communication
- Automatic queuing system
- Offline proof load balancing
- Integrated eSIM in each box, lifetime free subscription
- Possibility of WiFi connection
- Permanent locking of the Type 2 cable
- Integrated earth fault protection (RCD)
- Integrated RFID reader (NFC / ISO 14443 and MIFARE Classic®)
- Energy measurement (+/- 2 %), for reading charge consumption
- The box is 69 % smaller than other solutions and weighs only 1.5 kg
- 3 year warranty
- Universal, fits all types of electric cars and mains
- Full control with the Easee app or local WiFi interface, and open API
- Tethered or untethered, at the click of a button
- Compliant with The Electric Vehicles (Smart Charge Points) Regulations 2021

Why choose Easee One?

3_x

Optimized charging effect

You can have up to 3 Charging Robots on one fuse. All connected cars can be charged at the same time, and the available power is distributed automatically and dynamically between the vehicles. The total load will thus never exceed the set limit for the fuse.

eSIM

Internet access

All our Charging Robots are connected to the internet through mobile network*. If you buy now you get free mobile internet access throughout the lifetime of the product. In order to get software updates and increased redundancy, we recommend installing a local WiFi network, if there is no cellular coverage. The local WiFi network must be connected to the Internet.

*Assuming cellular coverage is available.

69%

Small

The Charging Robot is 69 % smaller and lighter than other electric chargers, with similar functionality. It weighs only 1.5 kg! This means that we save the environment at least 4 kg of copper and plastic per produced charger.

24_{/7}

Always updated

The Charging Robot is updated with new features continuously. This way, you know that you have purchased a safe and future-proof product.

5_x

A colourful choice

Available in Black as standard, we have 4 other front covers available to purchase: White, Anthracite, Red and Blue

3_{yr}

Warranty

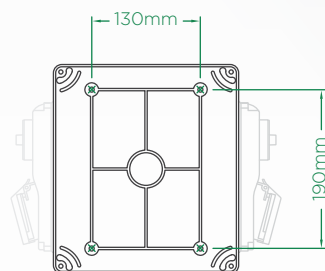
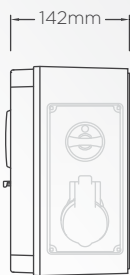
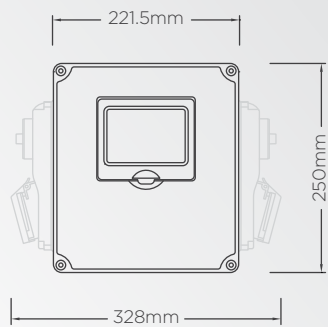
We want you as a customer to have confidence that you have bought lasting quality. A product from Easee comes with a 3 year* warranty.

*Some countries may have extended warranty.

Specifications

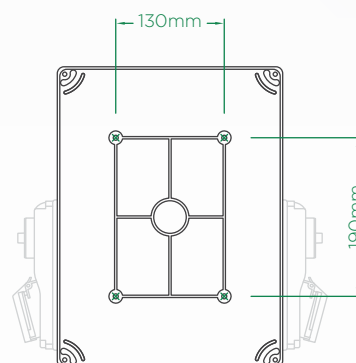
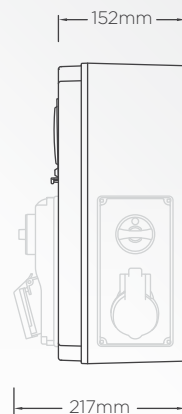
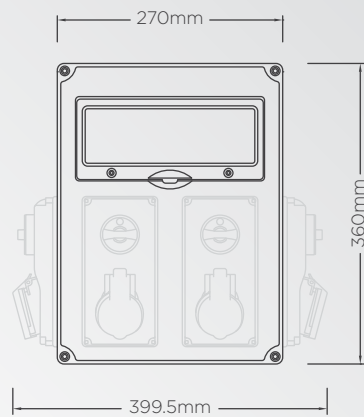
Unit Dimensions:

Small Enclosure:



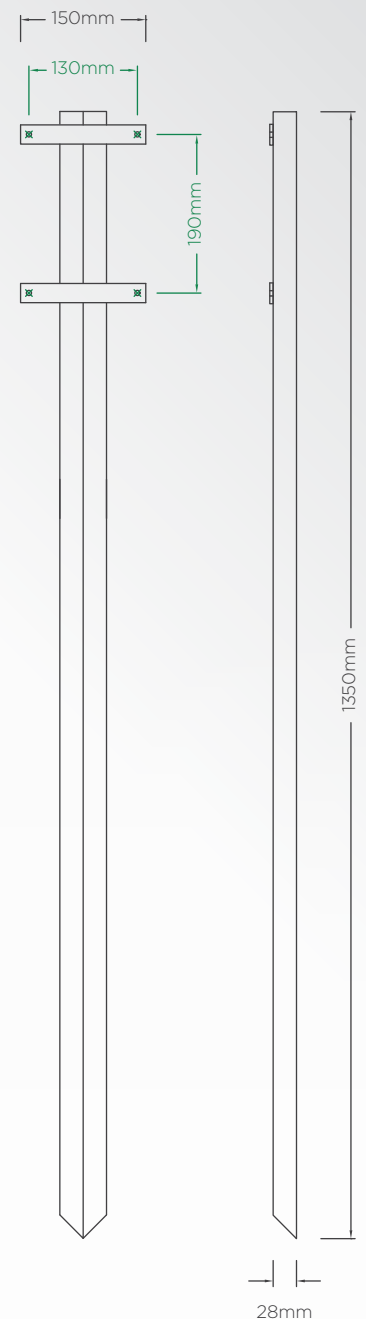
Fixing Points

Large Enclosure:



Fixing Points

Optional Mounting Post:





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The latest version of this publication can be downloaded at <https://www.rolecserv.com/downloads-caravan-hook-ups>

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LSHUD-V01-R0 Hook-Up Connection Units Data Sheet



ROLEC

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e: enquiries@rolecserv.co.uk
www.rolecserv.com



Appendix 4 – ASD Lighting

Highway Diamond Elite Range.

Note: 2700oK colour temperature luminaires required.

Highway Diamond™ Elite Range



Datasheet

- ◇ UK Manufactured
- ◇ High Specification
- ◇ High Efficacy
- ◇ 10 Day Average Delivery
- ◇ IP66 / IK10
- ◇ UKCA / CE
- ◇ ENEC
- ◇ TM66 Data Available

The Highway Diamond Elite range by ASD Lighting offers a complete family of luminaires with an unsurpassed flexibility of lumen outputs, optical distributions and specification features.

It is suitable for use in a multitude of locations, from rural villages through to modern 24 hour smart cities, main roads, motorways and infrastructure projects.

Five body sizes with modern sympathetic styling to ensure architects, planners and designers can follow an integrated design with a homogenous family of luminaires.

ASD Lighting PLC
Mangham Road, Barbot Hall Industrial
Estate, Rotherham, S61 4RJ, UK

T: 01709 374898
E : info@asdlighting.com
W: asdstreetlighting.com



Highway Diamond™ Elite Range



Technical Data	Standard Features	Additional Detail
LED	✓	Designed solely for an LED light source
Driver	✓	DALI 2, Programmable, CMS Compatible, NFC, DALI 4i on Request
Driver Current	Various	200 - 1000 mA
Dimming	✓	Multiple Step / Part Night
Constant Light Output or Constant Flux	✓	
Photometric Lens Options	✓	Inc. Narrow / Medium / Wide / Extra Wide / Pedestrian Crossing
Luminaire Materials (Excluding HWD ECO)	LM6 Marine Grade Die-Cast Aluminium	Housing / Spigot / Fixing Clip
Luminaire Materials (ECO)	LM6 Marine Grade Die-Cast Aluminium & Acrylonitrile Styrene Acrylate	Housing / Spigot (LM6 Marine Grade Die-Cast Aluminium) Control Gear Cover (ASA)
RAL Colours	Black / Light Grey	RAL 9005 / 9006 (Other Colours Available on Request)
Correlated Colour Temperature	Various	Warm White / Neutral White / Cool White
Colour Rendering	> 80 > 72	Warm White Neutral White / Cool White
Ingress Protection Rating	IP66	Gear & LED Compartments
Impact Protection Rating	IK10	Optical Cover
Optical Cover	✓ Flat Cover	UV Stable Polycarbonate
Entry to Gear Compartment	Tool Free Excluding HWD3 ECO & HWD3+ ECO+	Tool Free Fixing Clip Simple Tool Required
Driver Replacement	✓	Tool Free (HWD Mini, HWD6 Midi, HWD8 Maxi) Simple Tools (HWD2 Micro, HWD3 ECO & HWD3+ ECO+)
Inbuilt Anti-Tamper Facility	✓	
Protection Class	Class 1	
Warranty Period	Standard 5 Years	Extended Warranties Available
Certification	✓	Inc. UKCA / CE / ENEC
Design Life	100,000 hr	> L90, < F10
Mains Voltage	220-240 V / 50-60 Hz	
Operating Temperature Range	-40 to +55°C	Based on Ambient External Temperature
Surge Protection	Inbuilt Driver	10 kV (1 pulse) / 8 kV
Vibration Tested	✓	Certificates - EN 60068-2-6 & EN 60068-2-64
Manufacturing Location	UK	Rotherham, South Yorkshire



Footpath



Residential



Cycle Routes



Car Parks



Traffic Routes



Pedestrian



Rail



Infrastructure



Motorway

Micro

Highway Diamond™ Elite



The Micro Highway Diamond is the smallest luminaire in the family. It is a high specification, high efficacy, UK manufactured luminaire delivering up to 5,000 lumens. Detailed below are some of the options and further features the Micro Highway Diamond has to offer.

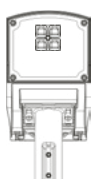
All features previously listed in the Highway Diamond Elite Range (page 2) apply to this product.

Technical Data	Features	Additional Detail
LED Configuration	4 / 8 / 12 / 16	
System Power Watts	4 – 40 W	
Delivered Lumens	300 - 5000 lm	
Weight (Excluding Spigot)	3.1kg	
Weight (Including Spigot)	3.5kg	
Windage	< 0.02m ²	
Mounting & Tilt Options	Post top Post top tilt Side entry Side entry tilt Side entry Side entry tilt	Ø 60 mm – Ø 76 mm 0° / 5° / 10° / 15° / 20° Ø 60 mm – Ø 76 mm -5° / 0° / 5° / 10° / 15° Ø 28 mm – Ø 42 mm -10° / -5° / 0° / 5° / 10°

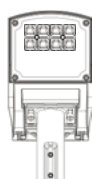
Options			Extras
Luminaire Colour	Any RAL colour available. Including but not limited to: RAL9003 RAL5015 RAL6003 RAL6005 RAL6013 BS48000A01	White Sky Blue Olive Green Moss Green Reed Green Oyster Grey	1 2
Switching	3 & 7 Pin NEMA Sockets Mini Cell Zhaga Book 18 Socket (Top only)		2
Pre-Wired	✓	Lengths and cable specification as requested	2
Surge Protection	✓	Additional surge protection available on request	1 2

1 Specify at time of order, may affect lead time.

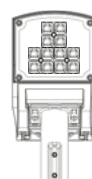
2 Specify at time of order, may incur an additional charge.



4 LED



8 LED



12 LED



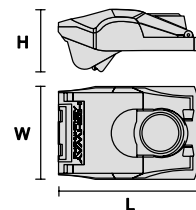
16 LED



Micro Highway Diamond™ Elite



Code	
HWD2/ HWD2P/ HWD2S/ HWD2X/ HWD2XP/	60 - 76mm Spigot (Set as side entry) 60 - 76mm (Set as post top pre-wired only) 28 - 42mm Spigot (Set as side entry) 60mm Spigot (Set as side entry) 60mm (Set as post top pre-wired only)
Colour Finish	
B J	Black (RAL 9005) Light Grey (RAL 9006) Others available on request
Correlated Colour Temperature	
22K 27K 3K 4K	2200 Kelvin 2700 Kelvin 3000 Kelvin 4000 Kelvin Others available on request
LED Quantity	
04 08 12 16	4 LED 8 LED 12 LED 16 LED
Drive Current (200 - 850mA)	
20 30 35 40 50 60 70 80 85	200mA 300mA 350mA 400mA 500mA 600mA 700mA 800mA 850mA
Constant Flux / Light Output	
- L	Constant Flux Constant Light Output
Switching if requested	
NS 7NS C ZT	NEMA Socket 7 Pin NEMA Socket Mini Cell Zhaga Book 18 & DALI 4i Driver Other switching systems available on request.
Optics	
-S4 As above Insert optic code required	S4 Optic S0 / S1 / S2 / S3 / S5 / S6 / S7 / S8 / M1 / M2 / M3 / M4 / M5 / M6 / M7 / M8 / F0 / F1 / F2 / F3 / F4 / A1 / A2 / A3 / A4 / A5 / N1 / N2 / N3 / N4 / ZL / ZR
Pre-Wired if requested	
-W7 -2W7 -AW7 -2AW7	7 metre Pre-wired 3 core flex (1.5mm) 7 metre Pre-wired 3 core flex (2.5mm) 7 metre Pre-wired Arctic flex (1.5mm) 7 metre Pre-wired Arctic flex (2.5mm) Other cable types & lengths on request



Size

Length	255mm
Width	165mm
Height	111mm

Code Example

HWD2P/B22K0850L7NS-S1-W7

Micro Highway Diamond Elite™ 60-76mm Spigot Set as Post Top, Black Finish, 2200K, 8 LED, 500mA, Constant Light Output, 7-Pin NEMA Socket, S1 Optic, 7m Pre-wired 1.5mm flex.

ECO & ECO+

Highway Diamond™ Elite



The Highway Diamond ECO is the latest addition to the family. It is a high specification, high efficacy, UK manufactured luminaire delivering up to 10,000 lumens. Detailed below are some of the options and further features the Highway Diamond has to offer.

All features previously listed in the Highway Diamond Elite Range (page 2) apply to this product.

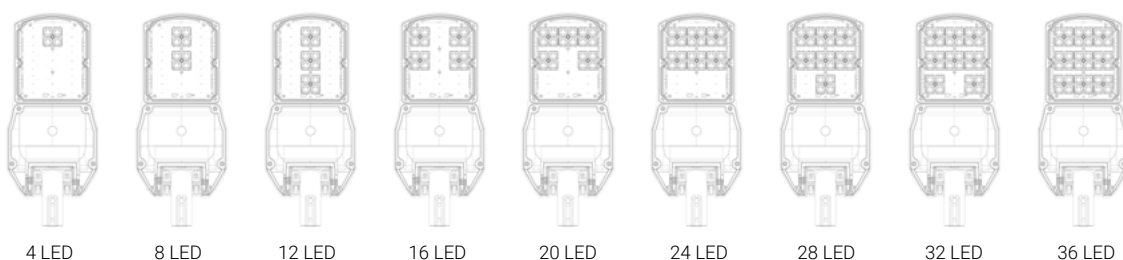
Technical Data	Features	Additional Detail
LED Configuration	4 / 8 / 12 / 16 / 20 / 24 / 28 / 32 / 36	
System Power Watts	4 – 70 W	
Delivered Lumens	300 - 10,000 lm	
Weight (Excluding Spigot)	4.27kg 4.47kg	4 – 16 LED 20 – 36 LED
Weight (Including Spigot)	4.57kg 4.97kg	4 – 16 LED 20 – 36 LED
Windage	< 0.04m ²	
Mounting & Tilt Options	Post top Post top tilt Side entry Side entry tilt Side entry Side entry tilt	Ø 60 mm – Ø 76 mm -15° / -10° / -5° / 0° / 5° / 10° / 15° / 20° Ø 60 mm – Ø 76 mm -20° / -15° / -10° / -5° / 0° / 5° / 10° / 15° Ø 28 mm – Ø 42 mm -30° / -25° / -20° / -15° / -10° / -5° / 0° / 5° / 10°

Options		Extras
Switching	3 & 7 Pin NEMA Sockets Mini Cell Zhaga Book 18 Socket/s (Top & Underside)	1 2
Pre-Wired	✓	Lengths and cable specification as requested 2
Surge Protection	✓	Additional surge protection available on request 1 2

Optional Features		
PIR	✓	1 2

1 Specify at time of order, may affect lead time.

2 Specify at time of order, may incur an additional charge.

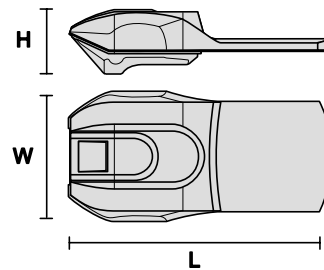


ECO & ECO+

Highway Diamond™ Elite



Code	
HWD3/ or HWD3+/ HWD3P/ or HWD3+P/ HWD3S/ or HWD3+S/ HWD3X/ or HWD3+X/ HWD3XP/ or HWD3+XP/	60 - 76mm spigot (Set as side entry) 60 - 76mm (Set as post top pre-wired only) 28 - 42mm spigot (Set as side entry) 60mm Spigot (Set as side entry) 60mm (Set as post top pre-wired only)
Colour Finish	
B J	Black (RAL 9005) Light Grey (RAL 9006) Others available on request
Correlated Colour Temperature	
22K 27K 3K 4K	2200 Kelvin 2700 Kelvin 3000 Kelvin 4000 Kelvin Others available on request
LED Quantity	
04 08 12 16 20 24 28 32 36	4 LED 8 LED 12 LED 16 LED 20 LED 24 LED 28 LED 32 LED 36 LED
Drive Current (200 - 1000mA)	
20 30 35 40 50 60 70 80 90 100	200mA 300mA 350mA 400mA 500mA 600mA 700mA 800mA 900mA 1000mA
Constant Flux / Light Output	
- L	Constant Flux Constant Light Output
Switching if requested	
NS 7NS C ZT / ZB	NEMA Socket 7 Pin NEMA Socket Mini Cell Zhaga Book 18 & DALI 4I Driver Other switching systems available on request.
Optics	
-S4 As above Insert optic code required	S4 Optic S0 / S1 / S2 / S3 / S5 / S6 / S7 / S8 / M1 / M2 / M3 / M4 / M5 / M6 / M7 / M8 / F0 / F1 / F2 / F3 / F4 / A1 / A2 / A3 / A4 / A5 / N1 / N2 / N3 / N4 / ZL / ZR
-W7 -2W7 -AW7 -2AW7	7 metre Pre-wired 3 core flex (1.5mm) 7 metre Pre-wired 3 core flex (2.5mm) 7 metre Pre-wired Arctic flex (1.5mm) 7 metre Pre-wired Arctic flex (2.5mm) Other cable types & lengths on request



Size

Length	481mm
Width	239mm
Height	120mm

Code Example

HWD3/B4K3670L7NS-S1-W7

Highway Diamond ECO 60-76mm Spigot Set as Side Entry, Black RAL9005, 4000K, 36 LED, 700mA, CLO, 7 Pin NEMA Socket, S1 Optic, 7m Pre-wired 1.5mm flex.

Mini Highway Diamond™ Elite



The Highway Diamond is the original luminaire in the family. It is a high specification, high efficacy, UK manufactured luminaire delivering up to 14,500 lumens. Detailed below are some of the options and further features the Highway Diamond has to offer.

All features previously listed in the Highway Diamond Elite Range (page 2) apply to this product.

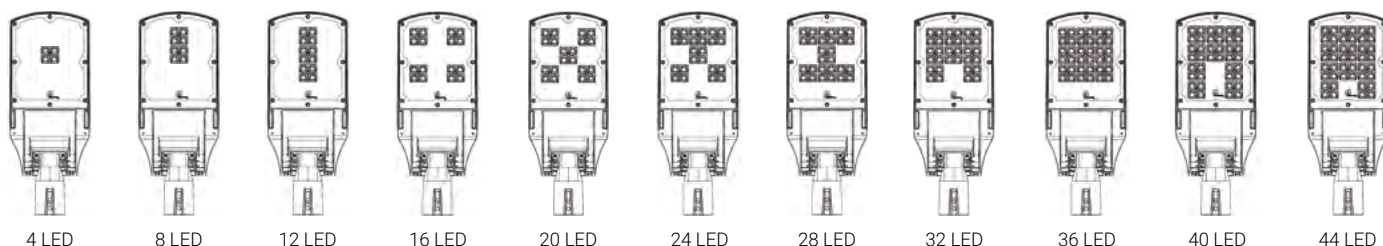
Technical Data	Features	Additional Detail
LED Configuration	4 / 8 / 12 / 16 / 20 / 24 / 28 / 32 / 36 / 40 / 44	
System Power Watts	4 – 121 W	
Delivered Lumens	300 - 14500 lm	
Weight (Excluding Spigot)	4.27kg 4.47kg	4 – 16 LED 20 – 44 LED
Weight (Including Spigot)	4.57kg 4.97kg	4 – 16 LED 20 – 44 LED
Windage	< 0.04m ²	
Mounting & Tilt Options	Post top Post top tilt Side entry Side entry tilt Side entry Side entry tilt	Ø 60 mm – Ø 76 mm 0° / 5° / 10° / 15° / 20° Ø 60 mm – Ø 76 mm -5° / 0° / 5° / 10° / 15° Ø 28 mm – Ø 42 mm -10° / -5° / 0° / 5° / 10°

Options			Extras
Luminaire Colour	Any RAL colour available. Including but not limited to: RAL9003 RAL5015 RAL6003 RAL6005 RAL6013 BS48000A01	White Sky Blue Olive Green Moss Green Reed Green Oyster Grey	1 2
Switching	3 & 7 Pin NEMA Sockets Mini Cell Zhaga Book 18 Socket/s (Top / Underside)		2
Pre-Wired	✓	Lengths and cable specification as requested	2
Surge Protection	✓	Additional surge protection available on request	1 2

Optional Features			
Auto Disconnect	✓	Switches unit off upon opening	2
PIR	✓		1 2

1 Specify at time of order, may affect lead time.

2 Specify at time of order, may incur an additional charge.

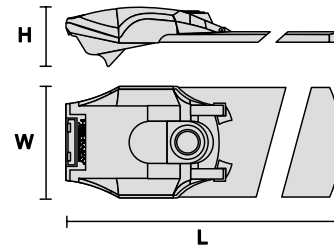


Mini

Highway Diamond™ Elite



Code	
HWD/	60 - 76mm Spigot (Set as side entry)
HWDP/	60 - 76mm (Set as post top pre-wired only)
HWDS/	28 - 42mm Spigot (Set as side entry)
HWDX/	60mm Spigot (Set as side entry)
HWDXP/	60mm (Set as post top pre-wired only)
Colour Finish	
B	Black (RAL 9005)
J	Light Grey (RAL 9006)
Others available on request	
Correlated Colour Temperature	
22K	2200 Kelvin
27K	2700 Kelvin
3K	3000 Kelvin
4K	4000 Kelvin
Others available on request	
LED Quantity	
04	4 LED
08	8 LED
12	12 LED
16	16 LED
20	20 LED
24	24 LED
28	28 LED
32	32 LED
36	36 LED
40	40 LED
44	44 LED
Drive Current (200 - 1000mA)	
20	200mA
30	300mA
35	350mA
40	400mA
50	500mA
60	600mA
70	700mA
80	800mA
90	900mA
100	1000mA
Constant Flux / Light Output	
-	Constant Flux
L	Constant Light Output
Switching if requested	
NS	NEMA Socket
7NS	7 Pin NEMA Socket
C	Mini Cell
ZT / ZB	Zhaga Book 18 & DALI 4I Driver
Other switching systems available on request.	
Optics	
-S4	S4 Optic
As above Insert optic code required	
S0 / S1 / S2 / S3 / S5 / S6 / S7 / S8 / M1 / M2 / M3 / M4 / M5 / M6 / M7 / M8 / F0 / F1 / F2 / F3 / F4 / A1 / A2 / A3 / A4 / A5 / N1 / N2 / N3 / N4 / ZL / ZR	
Pre-Wired if requested	
-W7	7 metre Pre-wired 3 core flex (1.5mm)
-2W7	7 metre Pre-wired 3 core flex (2.5mm)
-AW7	7 metre Pre-wired Arctic flex (1.5mm)
-2AW7	7 metre Pre-wired Arctic flex (2.5mm)
Other cable types & lengths on request	



Size

Length	476mm
Width	233mm
Height	116mm

Code Example

HWD/B4K0835C-S1-W7

Highway Diamond Elite™ 60-76mm Spigot
Set as Side Entry, Black Finish, 4000K, 8 LED,
350mA, Mini Cell, S1 Optic, 7m Pre-wired 1.5mm
flex.

Midi

Highway Diamond™ Elite



The Midi Highway Diamond, part of the Highway Diamond Elite range with enhanced high specification features. It is a high efficacy, UK manufactured luminaire delivering up to 25,000 lumens. Detailed below are some of the options and further features the Midi Highway Diamond has to offer.

All features previously listed in the Highway Diamond Elite Range (page 2) apply to this product.

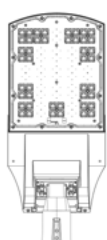
Technical Data	Features	Additional Detail
LED Configuration	44 / 52 / 60 / 68 / 76 / 84 / 92 / 100	
System power watts	48 – 211 W	
Delivered lumens	4,832 - 24,341 lm	
Weight (Excluding Spigot)	< 11.5kg	44 – 100 LED (Weight varies dependent on driver configuration)
Weight (Including Spigot)	< 12.5kg	44 – 100 LED (Weight varies dependent on driver configuration)
Windage	< 0.11m ²	
Mounting & Tilt Options	Post top Post top tilt Side entry Side entry tilt	Ø 60 mm – Ø 76 mm -5° / 0° / 5° / 10° / 15° Ø 60 mm – Ø 76 mm -10° / -5° / 0° / 5° / 10° / 15° Insert reducers available for smaller diameters
Auto Disconnect	✓	Switches unit off upon opening

Options		Extras
Luminaire Colour	Any RAL colour available. Including but not limited to: RAL9003 RAL5015 RAL6003 RAL6005 RAL6013 BS480000A01	White Sky Blue Olive Green Moss Green Reed Green Oyster Grey
Switching	3 & 7 Pin NEMA Sockets Mini Cell Zhaga Book 18 Socket/s (Top/underside)	
Pre-Wired	✓	Lengths and cable specification as requested
Surge Protection	✓	Additional surge protection available on request

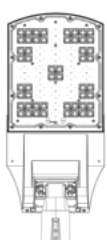
Optional Features		
PIR	✓	

1 Specify at time of order, may affect lead time.

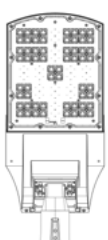
2 Specify at time of order, may incur an additional charge.



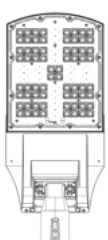
44 LED



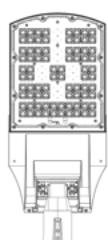
52 LED



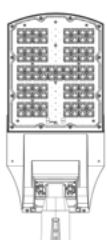
60 LED



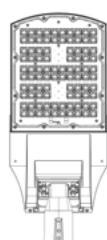
68 LED



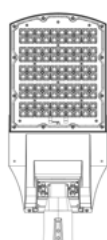
76 LED



84 LED



92 LED



100 LED



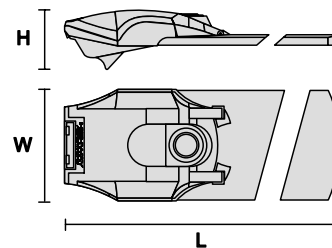
HIGHWAY
DIAMOND
ELITE

Midi

Highway Diamond™ Elite



Code	
HWD6/ HWD6P/ HWD6R/ HWD6X/ HWD6XP/	60 - 76mm Spigot (Set as side entry) 60 - 76mm (Set as post top pre-wired only) 28 - 42mm (Reducer included) 60mm Spigot (Set as side entry) 60mm (Set as post top pre-wired only)
Colour Finish	
B J	Black (RAL 9005) Light Grey (RAL 9006) Others available on request
Correlated Colour Temperature	
22K 27K 3K 4K	2200 Kelvin 2700 Kelvin 3000 Kelvin 4000 Kelvin Others available on request
LED Quantity	
44 52 60 68 76 84 92 100	44 LED 52 LED 60 LED 68 LED 76 LED 84 LED 92 LED 100 LED
Drive Current (200 - 1000mA)	
20 30 35 40 50 60 70 80 90 100	200mA 300mA 350mA 400mA 500mA 600mA 700mA 800mA 900mA 1000mA
Constant Flux / Light Output	
- L	Constant Flux Constant Light Output
Switching if requested	
NS 7NS C ZT / ZB	NEMA Socket 7 Pin NEMA Socket Mini Cell Zhaga Book 18 & DALI 4i Driver Other switching systems available on request.
Optics	
-S4 As above Insert optic code required	S4 Optic S0 / S1 / S2 / S3 / S5 / S6 / S7 / S8 / M1 / M2 / M3 / M4 / M5 / M6 / M7 / M8 / F0 / F1 / F2 / F3 / F4 / A1 / A2 / A3 / A4 / A5 / N1 / N2 / N3 / N4 / ZL / ZR
Pre-Wired if requested	
-W7 -2W7 -AW7 -2AW7	7 metre Pre-wired 3 core flex (1.5mm) 7 metre Pre-wired 3 core flex (2.5mm) 7 metre Pre-wired Arctic flex (1.5mm) 7 metre Pre-wired Arctic flex (2.5mm) Other cable types & lengths on request



Size

Length	672mm
Width	329mm
Height	173mm

Code Example

HWD6/B4K6850-M1-W11

Midi Highway Diamond Elite™ 60-76mm Spigot
Set as Side Entry, Black Finish, 4000K, 68 LED,
500mA, M1 Optic, 11m Pre-wired 1.5mm flex.

Maxi

Highway Diamond™ Elite



The Maxi Highway Diamond is the latest member of the Highway Diamond Elite family, with the same enhanced high specification features of the Maxi Highway Diamond. It is a high efficacy, UK manufactured luminaire delivering up to 40,000 lumens. Detailed below are some of the options and further features the Maxi Highway Diamond has to offer.

All features previously listed in the Highway Diamond Elite Range (page 2) apply to this product.

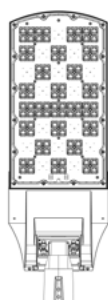
Technical Data	Features	Additional Detail
LED Configuration	100 / 112 / 124 / 136 / 148 / 160	
System Power Watts	106 – 338 W	
Delivered Lumens	11,515 - 39,608 lm	
Weight (Excluding Spigot)	<14.5kg	100 – 160 LED (Weight varies dependent on driver configuration)
Weight (Including Spigot)	<15.5kg	100 – 160 LED (Weight varies dependent on driver configuration)
Windage	< 0.12m ²	
Mounting & Tilt Options	Post top Post top tilt Side entry Side entry tilt	Ø 60 mm – Ø 76 mm -5° / 0° / 5° / 10° / 15° Ø 60 mm – Ø 76 mm -10° / -5° / 0° / 5° / 10° / 15° Insert reducers available for smaller diameters
Auto Disconnect	✓	Switches unit off upon opening

Options	Extras
Luminaire Colour Any RAL colour available. Including but not limited to: RAL9003 RAL5015 RAL6003 RAL6005 RAL6013 BS480000A01	White Sky Blue Olive Green Moss Green Reed Green Oyster Grey 1 2
Switching 3 & 7 Pin NEMA Sockets Mini Cell Zhaga Book 18 Socket/s (Top / Underside)	2
Pre-Wired	✓ Lengths and cable specification as requested 2
Surge Protection	✓ Additional surge protection available on request 1 2

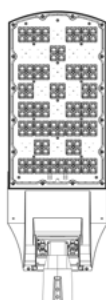
Optional Features
PIR ✓ 1 2

1 Specify at time of order, may affect lead time.

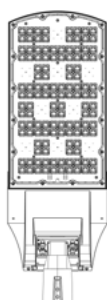
2 Specify at time of order, may incur an additional charge.



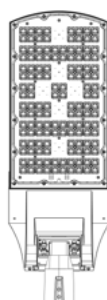
100 LED



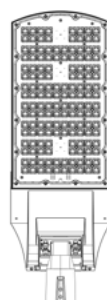
112 LED



124 LED



136 LED



148 LED



160 LED



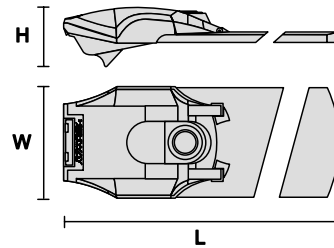
HIGHWAY
DIAMOND
ELITE

Maxi

Highway Diamond™ Elite



Code	
HWD8/ HWD8P/ HWD8R/ HWD8X/ HWD8XP/	60 - 76mm Spigot (Set as side entry) 60 - 76mm (Set as post top pre-wired only) 28 - 42mm Spigot (Reducer included) 60mm Spigot (Set as side entry) 60mm (Set as post top pre-wired only)
Colour Finish	
B J	Black (RAL 9005) Light Grey (RAL 9006) Others available on request
Correlated Colour Temperature	
22K 27K 3K 4K	2200 Kelvin 2700 Kelvin 3000 Kelvin 4000 Kelvin Others available on request
LED Quantity	
100 112 124 136 148 160	100 LED 112 LED 124 LED 136 LED 148 LED 160 LED
Drive Current (200 - 1000mA)	
20 30 35 40 50 60 70 80 90 100	200mA 300mA 350mA 400mA 500mA 600mA 700mA 800mA 900mA 1000mA
Constant Flux / Light Output	
- L	Constant Flux Constant Light Output
Switching if requested	
NS 7NS C ZT / ZB	NEMA Socket 7 Pin NEMA Socket Mini Cell Zhaga Book 18 & DALI 4I Driver Other switching systems available on request.
Optics	
-S4 As above Insert optic code required	S4 Optic S0 / S1 / S2 / S3 / S5 / S6 / S7 / S8 / M1 / M2 / M3 / M4 / M5 / M6 / M7 / M8 / F0 / F1 / F2 / F3 / F4 / A1 / A2 / A3 / A4 / A5 / N1 / N2 / N3 / N4 / ZL / ZR
Pre-Wired if requested	
-W11 -2W11 -AW11 -2AW11	11 metre Pre-wired 3 core flex (1.5mm) 11 metre Pre-wired 3 core flex (2.5mm) 11 metre Pre-wired Arctic flex (1.5mm) 11 metre Pre-wired Arctic flex (2.5mm) Other cable types & lengths on request



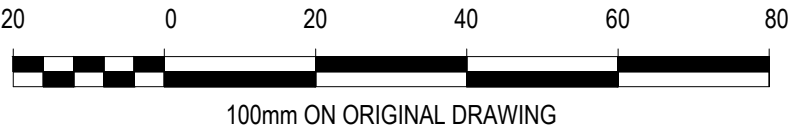
Size

Length	858mm
Width	329mm
Height	173mm

Code Example

HWD8/B4K16050-M1-W15

Maxi Highway Diamond Elite™ 60-76mm Spigot Set as Side Entry, Black Finish, 4000K, 160 LED, 500mA, M1 Optic, 15m Pre-wired 1.5mm flex.



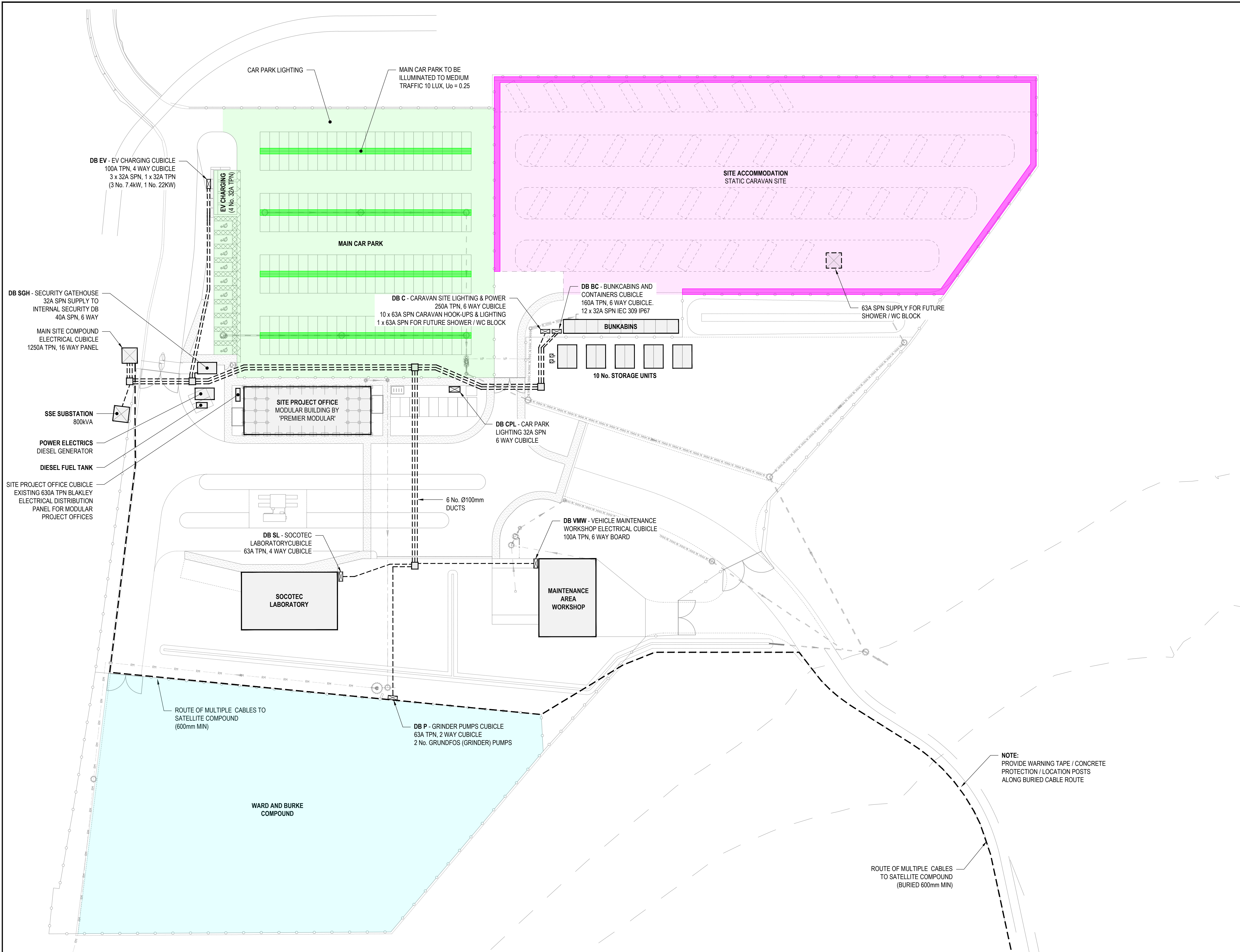
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO ANY WORKS BEING PUT IN HAND.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE EXISTING STRUCTURE AT ALL TIMES DURING THE WORKS.
5. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DRAWINGS AND RELEVANT STRUCTURAL SPECIFICATIONS.
6. ANY DISCREPANCIES BETWEEN THE INFORMATION GIVEN SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AS SOON AS POSSIBLE.
7. ALL MATERIALS USED IN THE WORKS SHALL BE TO BRITISH STANDARDS OR OTHER APPLICABLE SPECIFICATIONS.
8. ALL WORK IS TO BE CARRIED OUT TO B.S. CODES OF PRACTICE AND IN ACCORDANCE WITH GOOD WORKMANSHIP PRACTICE.
9. ALL PROPRIETARY MATERIALS USED IN THE WORKS SHALL BE USED IN COMPLETE ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
10. ALL BURIED, SURFACE AND OVERHEAD SERVICE INFORMATION CONTAINED WITHIN THIS DRAWING IS SHOWN INDICATIVELY. THE SERVICES SHOWN MAY NOT REPRESENT THE ENTIRETY OF ALL SERVICES THAT MAY BE ENCOUNTERED. ALL SOURCE INFORMATION SHOULD BE REFERRED TO PRIOR TO UNDERTAKING WORKS ON SITE. CROUCH WATERFALL ACCEPT NO RESPONSIBILITY FOR OMISSIONS OR ERRORS IN THE POSITIONING OF THE SERVICES PRESENT ON SITE. REFER TO ALL RELATED ENGINEERING DRAWINGS, FORMS AND SPECIFICATIONS FOR FURTHER INFORMATION. REFER TO THE RESIDUAL/DESIGNERS RISK ASSESSMENT FOR ACTIONS TO MINIMISE AND MITIGATE RISK ASSOCIATED WITH KNOWN AND UNKNOWN SERVICES ON SITE

NOTES:

THE CONTRACTOR TO PROVIDE SITE EXTERNAL LIGHTING TO THE FOLLOWING AREAS.

- BAT FRIENDLY LIGHTING
- USE LED LUMINAIRES
- LOW UV CONTENT
- WARM / WHITE <3000K
- 100% DOWNWARD LIGHT (ZERO UPLIGHT)



T01	TENDER ISSUE	PR	CW	DRM	05/03/24
P01	PRELIMINARY ISSUE	PR	CW	DRM	20/02/24
REV	AMENDMENT	DRN	CHK	APP	DATE

TENDER

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CF24 0ED

Tel 07971 032018 & 07530 065952
cardiff@crouchwaterfall.co.uk

CROUCH
WATERFALL

CLIENT

MACKLEY

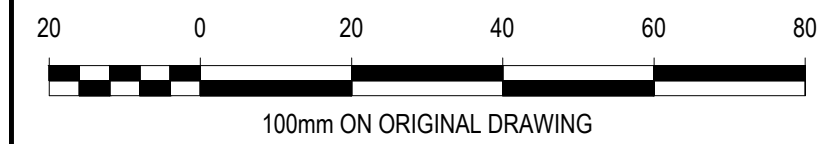
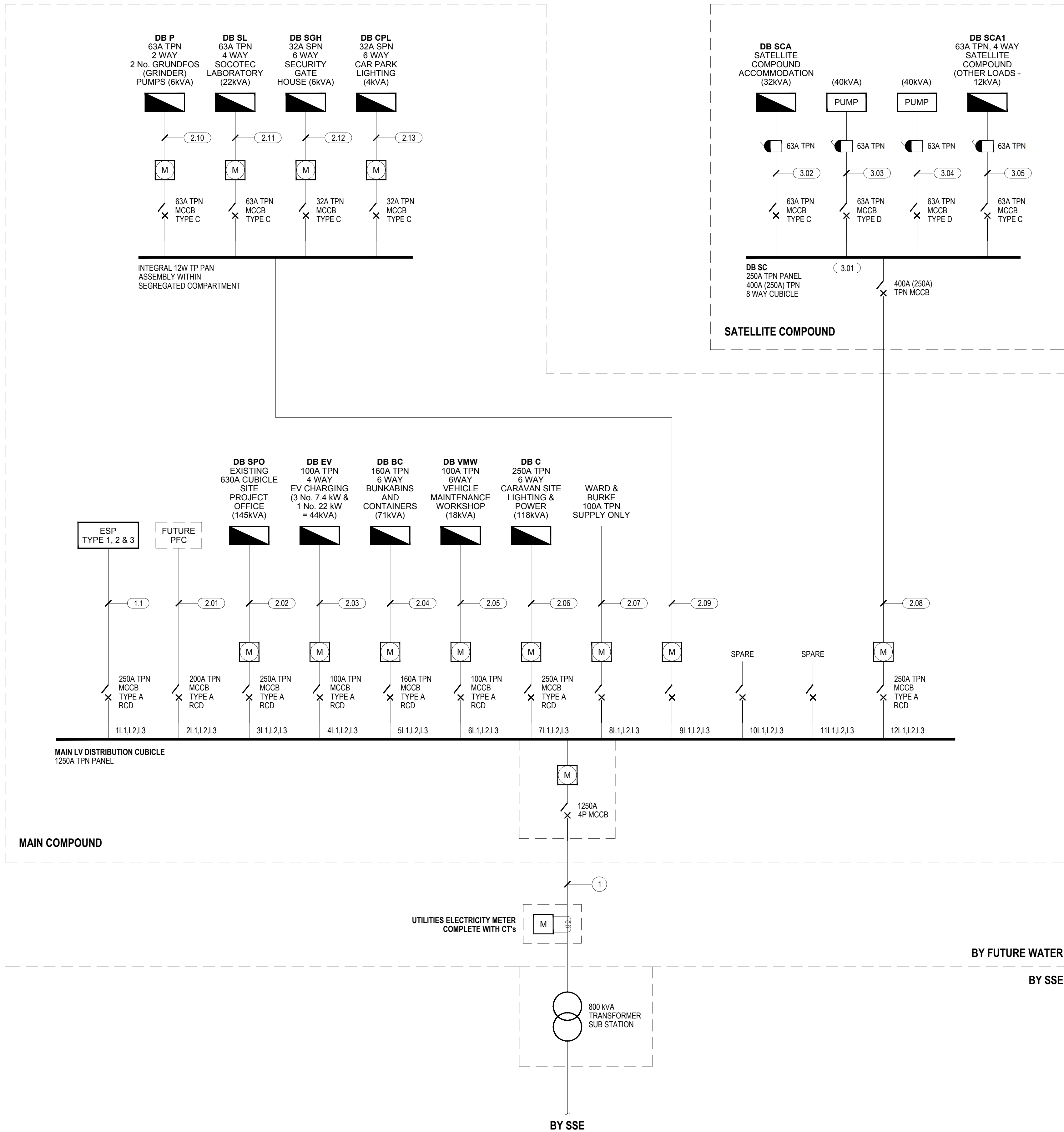
PROJECT TITLE

HAVANT THICKET RESERVOIR

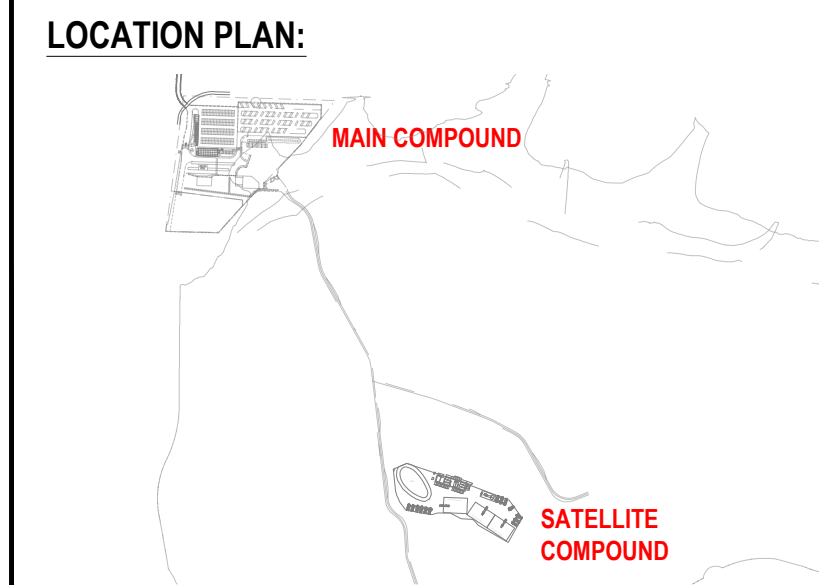
DRAWING TITLE

SITE PLAN
M&E SERVICES LAYOUT

DRN	CHK	APP	DATE	SCALE
PR	CW	DRM	JAN '24	1:500 @ A1
JOB No.	DRG. No.	REV		
23374C	E-001	T01		



- 100mm ON ORIGINAL DRAWING
- NOTES
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
 - ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.
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 - ALL WORK IS TO BE CARRIED OUT TO B.S. CODES OF PRACTICE AND IN ACCORDANCE WITH GOOD WORKMANSHIP PRACTICE.
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TENDER

T01	TENDER ISSUE	PR	CWi	DRM	05/03/24
P01	PRELIMINARY ISSUE	PR	CWi	DRM	20/02/24
REV	AMENDMENT	DRN	CHK	APP	DATE

Unit 15 Apex Court
Woodlands
Bradley Stoke
Bristol
BS32 4JT

Tel 01454 270 707
bristol@crouchwaterfall.co.uk

CROUCH WATERFALL

CLIENT

MACKLEY

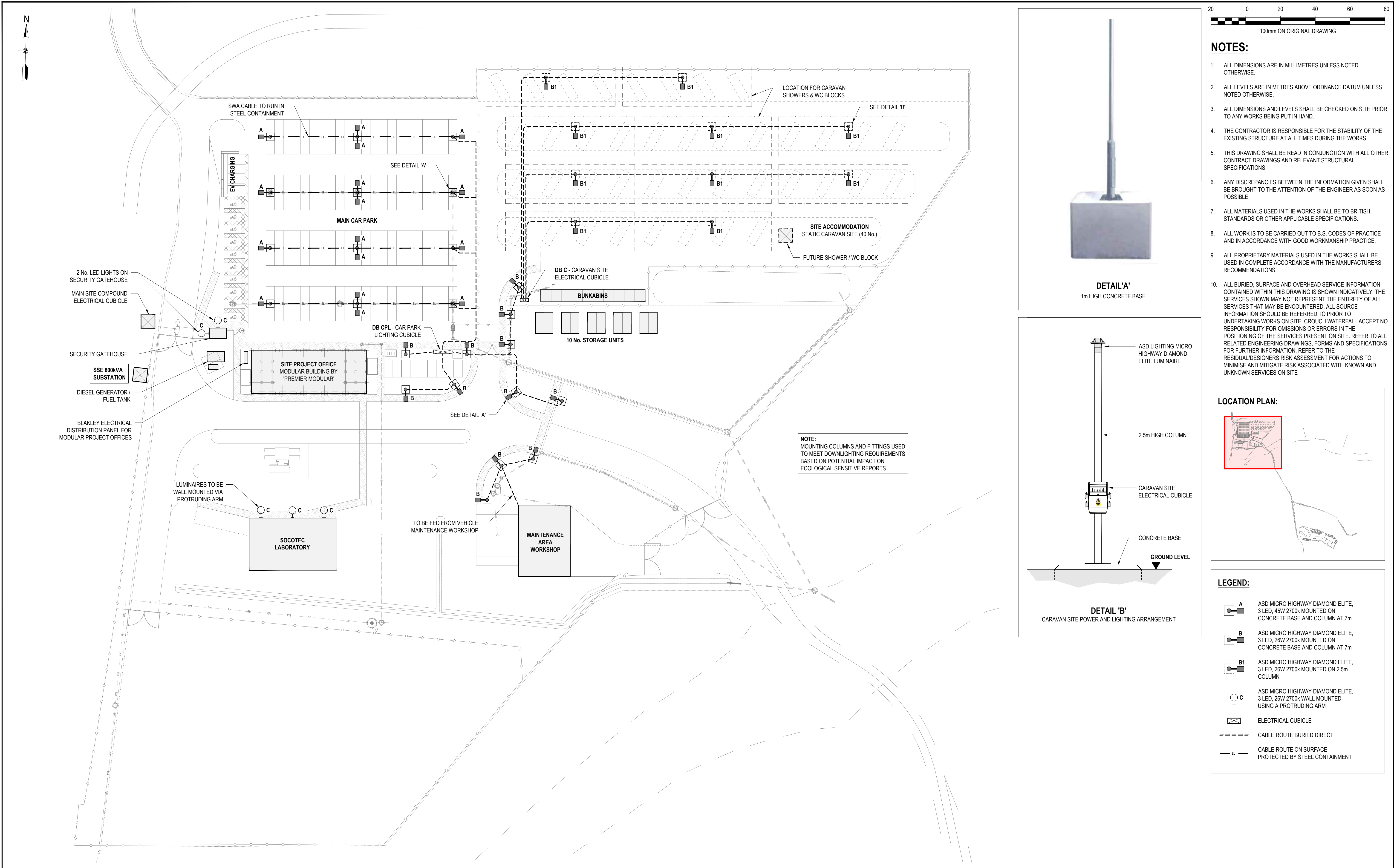
PROJECT TITLE

HAVANT THICKET RESERVOIR

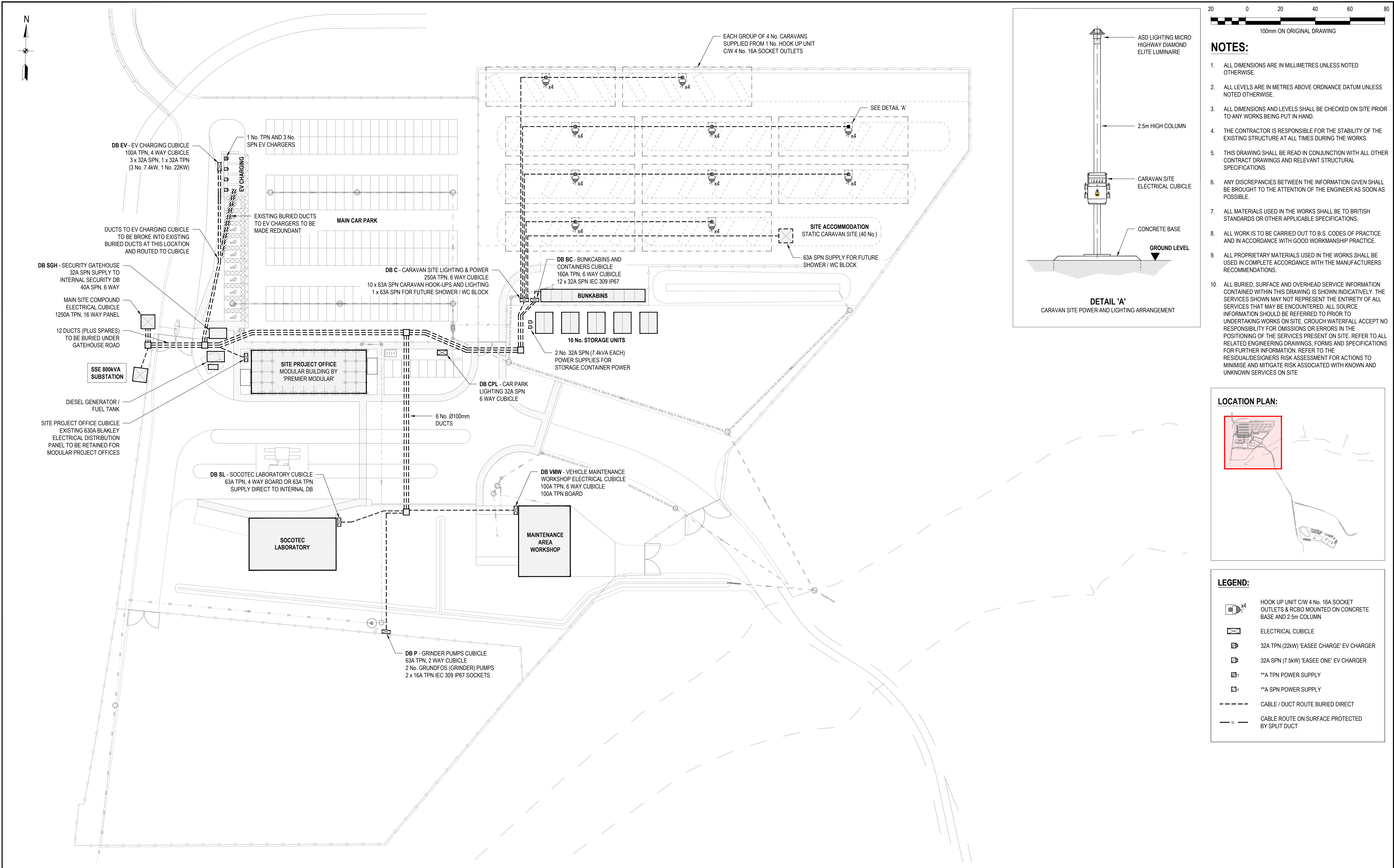
DRAWING TITLE

ELECTRICAL DISTRIBUTION SCHEMATIC

DRAWN	CHK	APP	DATE	SCALE
PR	CWi	DRM	FEB '24	NTS @ A1
JOB NUMBER	DRAWINGS NUMBER	REVISION		
23374G	E-002	T01		



						TENDER		Office 404 Trafalgar House 5 Fitzalan Place Cardiff CF24 0ED Tel 07971 032018 & 07530 065952 cardiff@crouchwaterfall.co.uk		CROUCH WATERFALL		CLIENT MACKLEY		PROJECT TITLE HAVANT THICKET RESERVOIR		DRAWING TITLE MAIN COMPOUND PROPOSED LIGHTING LAYOUT <table><tr><td>DRN</td><td>CHK</td><td>APP</td><td>DATE</td><td>SCALE</td></tr><tr><td>PR</td><td>CWi</td><td>DRM</td><td>FEB '24</td><td>1:500 @ A1</td></tr><tr><td colspan="2">JOB No. 23374C</td><td colspan="2">DRG. No. E-003</td><td>REV T01</td></tr></table>				DRN	CHK	APP	DATE	SCALE	PR	CWi	DRM	FEB '24	1:500 @ A1	JOB No. 23374C		DRG. No. E-003		REV T01
DRN	CHK	APP	DATE	SCALE																														
PR	CWi	DRM	FEB '24	1:500 @ A1																														
JOB No. 23374C		DRG. No. E-003		REV T01																														
T01	TENDER ISSUE	MB	CWi	DRM	05/03/24																													
P01	PRELIMINARY ISSUE	PR	CWi	DRM	20/02/24																													
REV	AMENDMENT	DRN	CHK	APP	DATE																													



200

0

20

40

60

80

100mm ON ORIGINAL DRAWING

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

2. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.

3. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO ANY WORKS BEING PUT IN HAND.

4. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE EXISTING STRUCTURE AT ALL TIMES DURING THE WORKS.

5. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DRAWINGS AND RELEVANT STRUCTURAL SPECIFICATIONS.

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8. ALL WORK IS TO BE CARRIED OUT TO B.S. CODES OF PRACTICE AND IN ACCORDANCE WITH GOOD WORKMANSHIP PRACTICE.

9. ALL PROPRIETARY MATERIALS USED IN THE WORKS SHALL BE USED IN COMPLETE ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

10. ALL BURIED, SURFACE AND OVERHEAD SERVICE INFORMATION CONTAINED WITHIN THIS DRAWING IS SHOWN INDICATIVELY. THE SERVICES SHOWN MAY NOT REPRESENT THE ENTIRETY OF ALL SERVICES THAT MAY BE ENCOUNTERED. ALL SOURCE INFORMATION SHOULD BE REFERRED TO PRIOR TO UNDERTAKING WORKS ON SITE. CROUCH WATERFALL ACCEPT NO RESPONSIBILITY FOR OMISSIONS OR ERRORS IN THE POSITIONING OF THE SERVICES PRESENT ON SITE. REFER TO ALL RELATED ENGINEERING DRAWINGS, FORMS AND SPECIFICATIONS FOR FURTHER INFORMATION. REFER TO THE RESIDUAL/DESIGNERS RISK ASSESSMENT FOR ACTIONS TO MINIMISE AND MITIGATE RISK ASSOCIATED WITH KNOWN AND UNKNOWN SERVICES ON SITE

LOCATION PLAN:

LEGEND:

x4

HOOK UP UNIT C/W 4 No. 16A SOCKET OUTLETS & RCBO MOUNTED ON CONCRETE BASE AND 2.5m COLUMN

ELECTRICAL CUBICLE

32A TPN (22kW) 'EASEE CHARGE' EV CHARGER

32A SPN (7.5kW) 'EASEE ONE' EV CHARGER

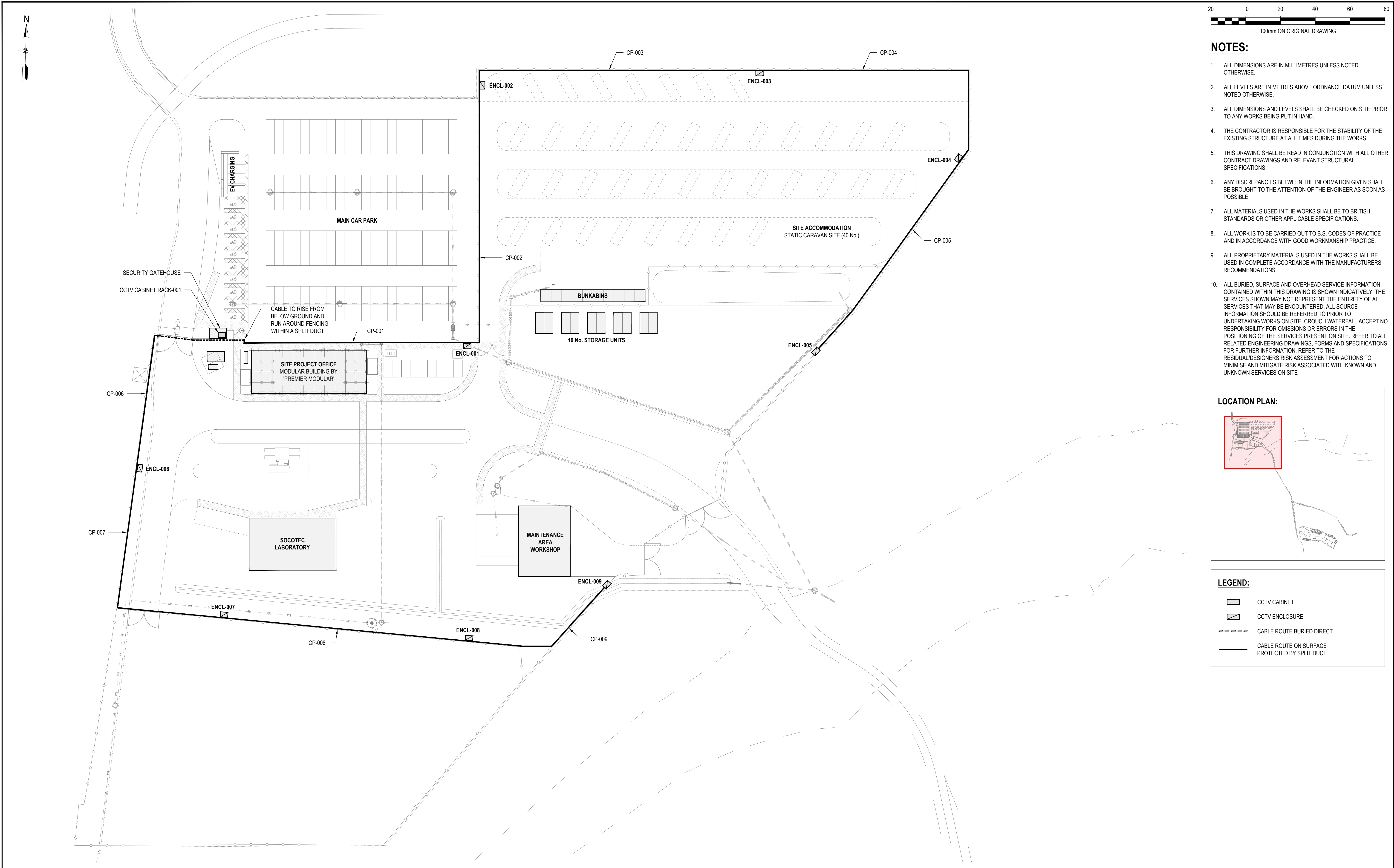
**A TPN POWER SUPPLY

**A SPN POWER SUPPLY

CABLE / DUCT ROUTE BURIED DIRECT

CABLE ROUTE ON SURFACE PROTECTED BY SPLIT DUCT

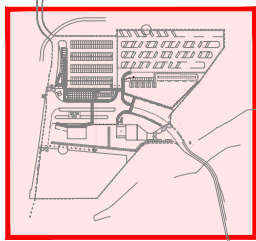
						TENDER		Office 404 Trafalgar House 5 Fitzalan Place Cardiff CF24 0ED	CROUCH WATERFALL	MACKLEY	CLIENT	PROJECT TITLE	HAVANT THICKET RESERVOIR	DRAWING TITLE					MAIN COMPOUND PROPOSED POWER LAYOUT									
T01	TENDER ISSUE	PR	CW	DRM	05/03/24			Tel 07971 032018 & 07530 065952 cardiff@crouchwaterfall.co.uk						DRN	CHK	APP	DATE	SCALE										
P01	PRELIMINARY ISSUE	PR	CW	DRM	20/02/24									PR	CW	DRM	FEB '24	1:500 @ A1										
REV	AMENDMENT	DRN	CHK	APP	DATE									JOB No.		DRG. No.		REV										
														23374C		E-004		T01										



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE PRIOR TO ANY WORKS BEING PUT IN HAND.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE EXISTING STRUCTURE AT ALL TIMES DURING THE WORKS.
5. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DRAWINGS AND RELEVANT STRUCTURAL SPECIFICATIONS.
6. ANY DISCREPANCIES BETWEEN THE INFORMATION GIVEN SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AS SOON AS POSSIBLE.
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LOCATION PLAN:



LEGEND:

- CCTV CABINET
- CCTV ENCLOSURE
- CABLE ROUTE BURIED DIRECT
- CABLE ROUTE ON SURFACE PROTECTED BY SPLIT DUCT

					TENDER			Office 404 Trafalgar House 5 Fitzalan Place Cardiff CF24 0ED Tel 07971 032018 & 07530 065952 cardiff@crouchwaterfall.co.uk	CROUCH WATERFALL	CLIENT MACKLEY	PROJECT TITLE HAVANT THICKET RESERVOIR	DRAWING TITLE MAIN COMPOUND PROPOSED CCTV LAYOUT				
T01	TENDER ISSUE	PR	CW	DRM	01/03/24							DRN	CHK	APP	DATE	SCALE
P01	PRELIMINARY ISSUE	PR	CW	DRM	20/02/24							PR	CW	DRM	JAN '24	1:500 @ A1
REV	AMENDMENT	DRN	CHK	APP	DATE							JOB No.	DRG. No.		REV	
												23374C	E-005			T01

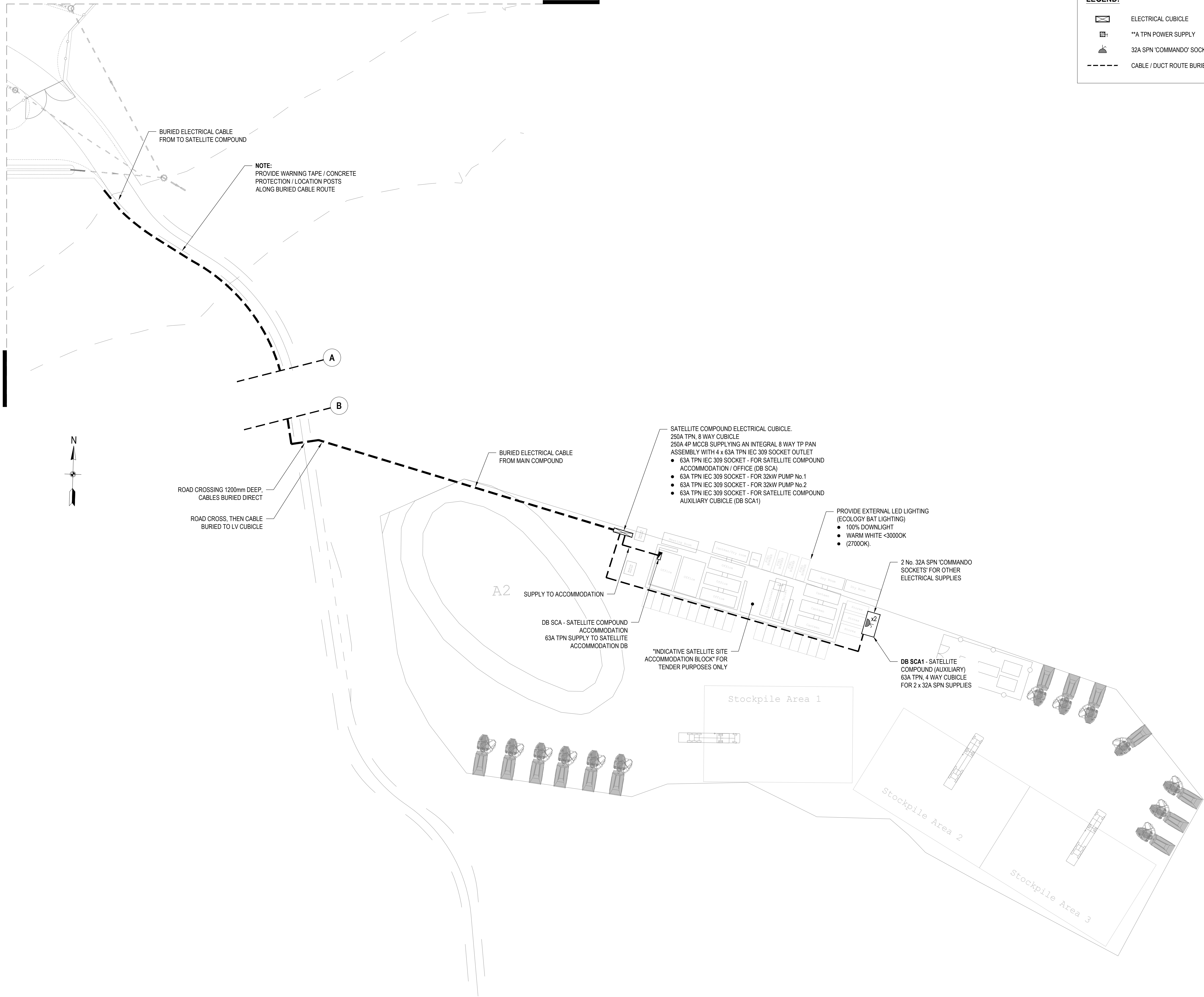
FOR CONTINUATION REFER TO DRWG. No's 23374G-E-003, 004 & 005

BURIED ELECTRICAL CABLE
FROM TO SATELLITE COMPOUND

NOTE:
PROVIDE WARNING TAPE / CONCRETE
PROTECTION / LOCATION POSTS
ALONG BURIED CABLE ROUTE

A

B



	ELECTRICAL CUBICLE
	**A TPN POWER SUPPLY
	32A SPN 'COMMANDO' SOCKET
	CABLE / DUCT ROUTE BURIED DIRECT



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2. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.
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T01	TENDER ISSUE	MB	CWi	DRM	05/03/24
P01	PRELIMINARY ISSUE	PR	CWi	DRM	20/02/24
REV	AMENDMENT	DRN	CHK	APP	DATE

Tel 07971 032018 & 07530 065952
cardiff@crouchwaterfall.co.uk

CROUCH WATERFALL

MACKLEY

HAVANT THICKET RESERVOIR

SATELLITE COMPOUND ELECTRICAL SERVICES LAYOUT

DRAWN	CHK	APP	DATE	SCALE
PR	CWi	DRM	FEB '24	1:500 @ A1
JOB NUMBER		DRAWING NUMBER		REVISION
23374G		E-006		T01

Appendix E – Ecology Technical Note

Havant Thicket Reservoir – Ecological considerations during the development of the Lighting Strategy (planning condition 26)

Overview of effects of artificial lighting on bats

This document draws significantly from Guidance Note GN08/23 Bats and Artificial Lighting at Night¹ (ILP, 2023), published by the Institution of Lighting Professionals (ILP).

Bats have highly sophisticated echolocation systems over 50 million years that allow them to ‘see’ their environment in complete darkness. Artificial lighting can increase the chances of predation, for example by owls. At roosting sites, illumination can cause disturbance, and this may result in the bats delaying their emergence resulting in less foraging time, deserting the roost, or even becoming entombed within it. Lighting would therefore be considered an obstruction under the legislation protecting bats and their roosts.

Severing a key flightpath some distance from the roost could cause desertion in its own right, and this loss of a roosting site could constitute an offence under the legislation. Artificial lighting can affect the feeding behaviour of bats. Many night-flying species of insect that bats hunt are attracted to light, especially non-LED light sources that emit an ultraviolet component or have a high blue spectral content (this can include LEDs).

For those more manoeuvrable slower flying species, more typically associated with cluttered dark environments such as woodlands, the key dark habitats where they can avoid predation have been drastically reduced. These ‘clutter space’ species are considered to be more ‘light averse’. Only the faster-flying species, traditionally considered to be ‘light opportunistic’ are now found throughout our towns and cities.

Many clutter space species, including long-eared, Brandt’s, whiskered, Daubenton’s, Natterer’s, Bechstein’s, barbastelle, greater and lesser horseshoe, avoid commuting and foraging routes illuminated with a variety of different street luminaires. Consequently, these species are put at a competitive disadvantage and are less able to forage successfully and efficiently, impacting fitness and breeding success.

Myotis species (Brandt’s, whiskered, Daubenton’s, Natterer’s and Bechstein’s) are known to avoid lit areas below 1 lux, and up to 25m from the light source and, in particular, avoid blue, white, orange and green spectrum light, but not ‘red-light’ sources, i.e. long wavelength light above 600nm with an RA value of 60.

Bats at Havant Thicket Reservoir

Thirteen bat species have been recorded within the Havant Thicket Reservoir (HTR) site including Bechstein’s bat *Myotis bechsteinii* (one of the UK’s rarest species), with a maternity roost recorded on the southeastern Site boundary.

A bat mitigation licence to carry out works for the Project has been obtained from Natural England (Licence number 2020-50625-EPS-AD2-4). Future Water are obliged to ensure to comply with the conditions of all protected species licences obtained at all times.

Other protected species at Havant Thicket Reservoir

A range of nocturnal protected species have previously been identified on site including glow worms, dormice, badgers, owls and nightjars. The habitats that support these species (woodland, hedgerows, scrub and grassland) are the habitats which support bats. By ensuring optimal mitigation for light impacts on bats and their habitats on site, suitable mitigation is also provided for all other nocturnal species associated with the site.

Relevant Project Documents

Several Scheme documents highlight the importance of potential negative impacts to protected species with regard to lighting. In accordance with the Project's *Ecological Management Plan - Main Reservoir Works* (HTR-RHD-ZZ-ZZ-PL-Z-0001), the following applies during the construction phase:

- Control of construction lighting to reduce impacts on roosting bats. Mitigation will be provided for lighting during construction and operation. FW will prepare a Lighting Strategy for the main site compound. Any temporary lighting required during construction will be designed to minimise light spill. Lighting will follow current good practice. Construction lighting will be task related. The lux level will be as low as possible to meet their purpose safely and effectively.
- To avoid indirect effects on bats arising during the Works, all temporary lighting will be cognisant of the BCT Guidance Note 8/23, *Bats and Artificial Lighting at Night* (BCT, 2023).

The Project's *Construction Environment Management Plan - Enabling Works Phase* (PC2625-RHD-ZZ-XX-RP-Z-0001-HTR-EW-CEMP) prescribes that:

- Where construction lighting may be required during works, control using directional lighting will be employed to reduce impact on sensitive receptors such as bats.

The Records of Environmental Actions and Commitments (REAC) in the OEMP, included in the Environmental Statement for the Scheme, and included in *Appendix D of the Construction Environmental Management Plan for the Main Reservoir Works* (HTR-RHD-P2-RE-PL-Z-0018), includes a commitment to ensure the protection of bats from indirect harm:

- Mitigation will be provided for lighting during construction and operation
- Any temporary lighting required during construction will be designed to minimise light spill.

Proposed lighting at the main compound and temporary workers accommodation

The HTR Project requires certain construction phase areas to be lit for imperative Health & Safety reasons. This includes the 'Main Compound' that is currently being constructed in the northwestern section of the site, incorporating temporary workers accommodation, close to Havant Thicket Woodland. The satellite construction compound, which will be located approximately in the centre of the main reservoir worksite, will also require lighting.

The main compound will be used throughout the year for the duration of the construction phase, and the reservoir visitor centre is proposed to be located in this area. The temporary workers accommodation would be in use all year round, with peak use occurring between the months of March and October inclusive during the main earthworks construction season and would remain in use until

the main earthworks on site has been completed, currently planned for 2026. Outside of the main earthworks season, fewer staff would use the temporary workers accommodation.

In prescribing the appropriate lighting strategy for the construction phase compound and the temporary workers accommodation, it is important to note that dense tree cover alone does not mitigate the negative impacts of light on bats, particularly on *Myotis* species. Therefore, appropriate lighting specifications for entire HTR site, including the main compound and temporary workers accommodation, will need to include the following:

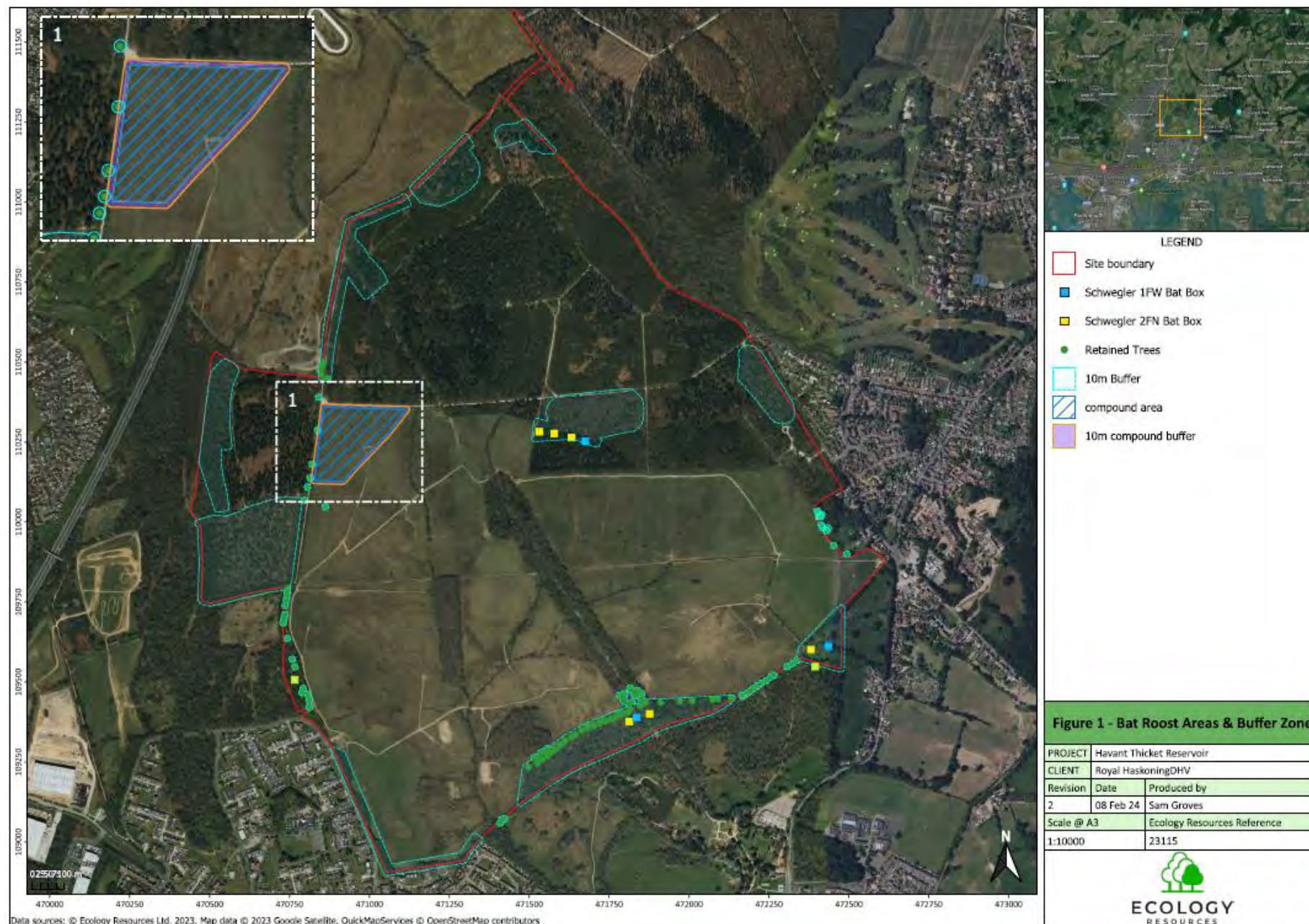
- All lighting should lack UV elements when manufactured.
- Metal halide, compact fluorescent sources should not be used.
- LED lighting should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component.
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Internal lighting should be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill.
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) should delineate path edges.
- Column heights should minimise light spill and glare visibility.
- Only lighting with a negligible or zero Upward Light Ratio, and with good optical control, should be used.
- Lighting should always be mounted horizontally, with no light output above 90° and/or no upward tilt.
- Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most purposes, a 1- or 2-minute timer is appropriate.
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand should be considered.
- The use of bollard or low-level downward-directional lighting is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition.
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

The location, orientation and height of newly built structures relative to each other can have a considerable impact on light spill. Buildings and hard landscaping should be sited and designed so as to block light spill from reaching important bat habitats and features. Bats will benefit from minimising light spill away from Havant Thicket Woodland and its' associated edge (buffer) habitats. Mitigation measures to further minimise light spill include:

A ten-metre buffer zone, 'dark corridor' will be implemented between the accommodation units and any surrounding Woodline.

- A reduction of the number of windows that directly face key and buffer habitats will be the most effective way to permanently limit light spill.
- Using curtains and/ or blinds on the temporary workers accommodation windows during the evening/night-time period.
- Column mounted luminaires should be located so that the rear shields are adjacent to habitats, or narrow optics selected that direct light into the task area where needed.
- Light spill can be successfully screened through landscaping and the installation of fences. To ensure that fencing makes a long-term contribution, it is recommended that it is supported on concrete or metal posts. Windbreak mesh / dust-type netting to the inside of the compound boundary fence will help to further reduce light spill.
- On-site lighting controlled by dimming or switching either diurnally, seasonally, or according to human activity (light on demand) will be of clear benefit to bats.
- A Central Management System (CMS), specified by a lighting engineer, to dim or turn off individual or groups of luminaires when not in use or during less busy times should be considered. Dimming can be precisely controlled.
- Lighting should be set to a low output state by default, to turn up to a predetermined output in response to a trigger and be combined with a timeclock or photocell to further add an element of seasonal or diurnal control. For example, passive infrared, AI enabled cameras, on demand controls, or pressure sensors may be used to trigger lights to come on or dim in response to movements, either by vehicles or pedestrians. Inbuilt timeclocks or photocells can ensure that this response only occurs during a set window of hours after sunset and before sunrise, or during certain months.
- Alternative lighting designed for subtle waymarking, rather than illumination should also be considered, for example very low wattage, solar-powered, ground-level luminaires. This lighting has an added benefit that there is no requirement for cabling. However, it should be noted that these systems depend on regular maintenance for them to be successful, as well as a clear view of the sky for solar-powered options.

Appendix F – Bat Roost Areas and Buffer Zones



Part D: Temporary Worker Accommodation Habitats Regulation Assessment Information

(Doc Ref HTR-RHD-P2-RE-TN-Z-001)

Havant Thicket Reservoir

Habitats Regulations Assessment Note

Temporary Workers Accommodation

19/02/24 Rev P02

Document Reference: **HTR-RHD-P2-RE-TN-Z-0001**



Note / Memo**HaskoningDHV UK Ltd.
Water & Maritime**

To: Future Water
From: BM
Date: 19 February 2024
Copy:
Our reference: PC2625-RHD-XX-XX-ME-X-0001
FW reference: HTR-RHD-P2-RE-TN-Z-0001 Rev P02
Checked by: AH

Subject: Havant Thicket Reservoir Habitats Regulations Assessment Note for Temporary Workers Accommodation

1. Introduction

Royal HaskoningDHV has been commissioned on behalf of Future Water to provide environmental support throughout the post consent phases of the Havant Thicket Reservoir Scheme (herein referred to as ‘the Scheme’), as well as supporting and compiling information for applications to discharge planning conditions relating to the proposed temporary workers accommodation within the Scheme main works area. The Scheme will involve the construction of a new reservoir, to aid water supply issues in the south of England and to protect the nearby chalk streams of the River Test and the River Itchen. Alongside the main reservoir, access routes and pipelines will also be constructed. The Scheme construction works are due to be completed by 2029. To reach the point of consent, the Scheme went through the Environmental Impact Assessment (EIA) process to determine potential impacts on sensitive environmental receptors. This process involved screening, scoping, preparation of an Environmental Statement (ES), consultation and planning application submission. In parallel with the EIA, a Habitats Regulations Assessment (HRA) screening and appropriate assessment were undertaken.

As part of the appropriate assessment in relation to the Scheme undertaken in 2021, the potential impacts of the Scheme on qualifying features of European designated sites were considered and appropriate mitigation was proposed to negate these potential impacts. This note details how the findings of the previous HRA screening and appropriate assessment stages for the Scheme (2021) apply to the proposed temporary workers accommodation, which now form part of the Scheme. This note was written in line with the *Habitats Regulations Assessments: Protecting a European Site Guidance* (DEFRA, 2021).

2. Proposed temporary workers accommodation

The proposed temporary workers accommodation area will consist of approximately 50 residential caravans / bunkabins (single storey portable buildings), providing seasonal temporary on-site accommodation for earthworks contractor staff working on the construction site.

The temporary workers accommodation will be sited adjoining the main site compound, as shown in **Figure 1**, within the Scheme planning application boundary in the administrative area of Havant Borough Council.

The temporary workers accommodation will remain in use until completion of the main earthworks, currently scheduled in 2026. These will then be removed from the site and the land reinstated as part of the wider hard and soft landscaping proposals for the reservoir implementation.

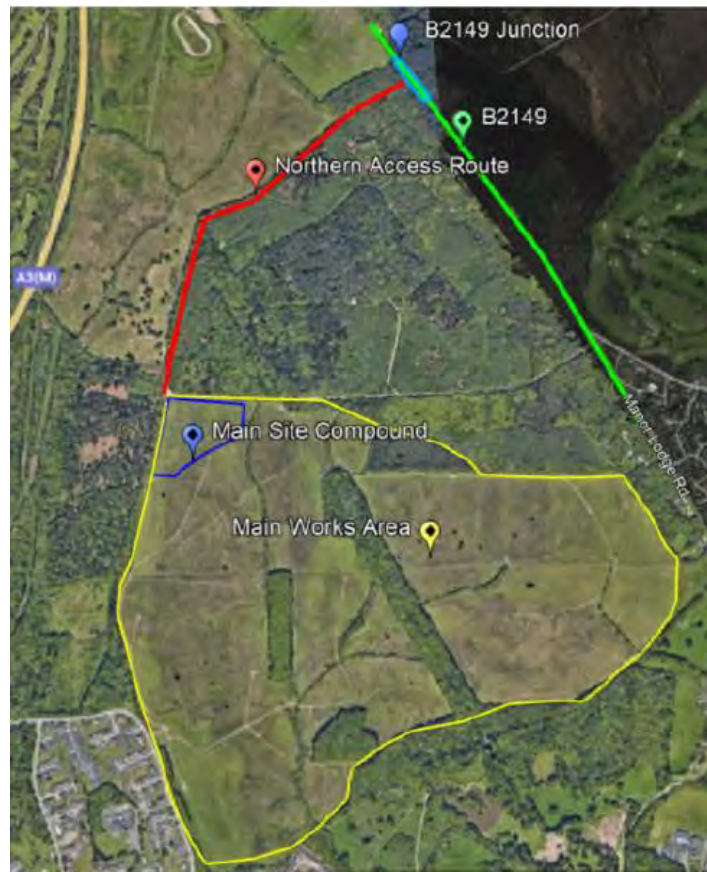


Figure 1 Location of the main construction compound and proposed temporary workers accommodation site (blue polygon), within the Scheme main works area (yellow polygon).

3. The Scheme HRA Assessment

3.1 Site Screening

The following designated sites were considered during the HRA screening assessment:

- **Chichester & Langstone Harbours Special Protected Area (SPA)** - designated for the site's waterbird assemblage: Northern pintail *Anas acuta*, Northern shoveler *A. clypeata*, Eurasian teal *A. crecca*, Eurasian wigeon *A. penelope*, ruddy turnstone *Arenaria interpres*, dark-bellied brent goose *Branta bernicla bernicla*, sanderling *Calidris alba*, dunlin *C. alpina alpina*, ringed plover *Charadrius hiaticula*, bar-tailed godwit *Limosa lapponica*, red-breasted merganser *Mergus serrator*, Eurasian curlew *Numenius arquata*, grey plover *Pluvialis squatarola*, little tern *Sterna albifrons*, common tern *S. hirundo*, sandwich tern *S. sandvicensis*, shelduck *Tadorna tadorna*, and redshank *Tringa totanus*;
- **Chichester & Langstone Harbours Ramsar site** – qualifies under Ramsar criteria 1, 5 and 6.
 - Criterion 1: Two large estuarine basins linked by the channel which divides Hayling Island from the main Hampshire coastline. The site includes intertidal mudflats, saltmarsh, sand and shingle spits and sand dunes;
 - Criterion 5: Supports assemblages of international importance of 76,480 waterfowl (5-year peak mean 1998/99-2002/03);
 - Criterion 6: Species occurring at level of international importance. Ringed plover, black-tailed godwit and redshank with peak counts in spring/ autumn, and dark-bellied brent goose, shelduck, grey plover and dunlin with peak counts in winter.

- **Solent & Dorset Coasts SPA** - designated for the presence of little tern, common tern and sandwich tern;
- **Solent Maritime Special Area of Conservation (SAC)** – designated primarily for the presence of 1130 estuary, 1320 spartina swards (*Spartinion maritimae*), and 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritinae*) Annex I habitats. Annex II species present as a qualifying feature but not a primary reason for site selection include 1016 Desmoulin’s whorl snail *Vertigo moulinsiana*. Other Annex I habitats present as a qualifying feature but not a primary reason for site selection include:
 - 1110 sandbanks which are slightly covered by sea water all the time,
 - 1140 mudflats and sandflats not covered by seawater at low tide,
 - 1150 coastal lagoons,
 - 1210 annual vegetation of drift lines,
 - 1220 perennial vegetation of stony banks,
 - 1310 *Salicornia* and other annuals colonising mud and sand, and
 - 2120 shifting dunes along the shoreline with *Ammophila arenaria*.
- **Singleton & Cocking Tunnels SAC** – designated for presence of 1308 Barbastelle *Barbastella barbastellus* and 1323 Bechstein’s bat *Myotis bechsteinii* Annex II species as a qualifying feature, but not a primary reason for site selection. The Scheme is situated 15 km southwest of the Singleton & Cocking Tunnels SAC.

3.2 Summary of HRA Screening and Appropriate Assessment

The key findings of the screening and appropriate assessment stages of the HRA for the Scheme which are also relevant to the temporary workers accommodation are summarised below in

Table 3.1. All findings relate to the European designated sites highlighted in **Section 3.1**. In-combination effects identified in the screening stage of the HRA assessment are outlined in **Section 3.2.1**.

Table 3.1 Summary of HRA screening and appropriate assessment findings for the Scheme which relate to the temporary workers accommodation.

Potential impacts	Description	Proposed mitigation, compensation and enhancement	Are there additional impacts from the temporary workers accommodation?
Water quality	Potential impacts from modifications to hydrologically linked watercourses feeding into Langstone Harbour, potentially affecting Chichester & Langstone Harbours SPA/Ramsar, Solent & Dorset Coast SPA and Solent Maritime SAC. Potential for mobilisation of sediments or pollutants, which could result in eutrophication and increased turbidity, which could affect the status and distribution of the qualifying habitats and species. There is existing evidence of high levels of nitrogen and phosphorus in Solent water and evidence of eutrophication. Eutrophication is identified as a significant threat to the Solent European marine sites, resulting in dense algal mats smothering sensitive marine vegetation and decreasing dissolved oxygen. This goes against the conservation objectives of the Solent marine sites.	Mitigation measures for water quality impacts during construction: • All foul waste arising from the temporary workers accommodation will be connected to a cesspool and taken off site using a licensed waste carrier; • A Water Quality Management Plan (WQMP) has been prepared for the Main Reservoir Works; • Environment Agency consents will be obtained for the discharge of water from the Main Reservoir Works, controlling the discharge of silt within surface or accumulated water; • Use of standard construction methods to control silt during construction e.g. CIRIA guidelines; • A Construction Environment Management Plan (CEMP) has been produced for the temporary workers accommodation.	No

Potential impacts	Description	Proposed mitigation, compensation and enhancement	Are there additional impacts from the temporary workers accommodation?
Noise and vibration	Potential impacts from a temporary generator used to power the temporary workers accommodation until a mains electricity connection has been established.	Night-time noise emissions from the generator used to support the caravan site will not exceed the night-time construction noise level criterion, therefore no specific mitigation for the generator will be required. As part of the Main Reservoir Works, a range of mitigation measures to control noise impacts include: - A Noise and Vibration Management Plan (NVMP) (doc no. HTR-RHD-P2-RE-PL-W-0017) which sets out the systems and controls that will be adopted to manage noise and vibration during construction of the Main Reservoir Works. The NVMP includes the measures to be adopted to prevent adverse impacts from noise and vibration as required by the REAC. - Noise monitoring, which will be undertaken at selected representative noise sensitive receptors. To ensure the noise prevention mitigation measures are effective, regular site inspections will be carried out.	No
Air quality	The generation of dust.	No dust is anticipated to arise from the temporary workers accommodation, as the accommodation will be sited on a hardstanding area. As part of the Main Reservoir Works, a range of mitigation measures to control dust impacts include: A Construction Dust Management Plan (DMP) (doc no. HTR-FUW-ZZ-ZZ-PL-W-0517) which sets	No

Potential impacts	Description	Proposed mitigation, compensation and enhancement	Are there additional impacts from the temporary workers accommodation?
		out the controls that will be adopted to manage the impacts of dust during construction of the Main Reservoir Works, together with a monitoring programme.	
Lighting	The scheme is situated 15 km southwest of the Singleton & Cocking Tunnels SAC, which is designated for the protection of both roosting Western barbastelle and Bechstein's bat. In 2016, the Bat Conservation Trust determined the core sustenance zone (the area surrounding the roost within which development work can be assumed to impact the commuting and foraging habitat of bats using the roost) for Bechstein's bat as 0.82 km.	Measures to control potential impacts from lighting are set out in the Construction Lighting Strategy (doc no. HTR-FUW-ZZ-ZZ-PL-W-0534). Lighting will be designed in line with the recommendations of Guidance Note GN08/23 Bats and Artificial Lighting at Night (ILP, 2023), published by the Institution of Lighting Professionals. A ten-metre buffer zone 'dark corridor' will be implemented between the accommodation units and nearby Bells Copse / Havant Thicket Woodland.	No

3.2.1 In-combination Effects

The HRA screening assessment concluded that the Scheme would lead to likely significant effects on European site integrity in-combination with other plans and projects. These impacts however are offset by the proposed measures outlined in

Table 3.1.

The in-combination assessment screened all plans and projects within 2 km of the application site for potential impacts on the Solent marine sites and within 3 km for potential impacts on the Singleton & Cocking Tunnels SAC. The assessment identified one plan and four projects that could result in in-combination impacts on the Singleton & Cocking Tunnels SAC.

The delivery of the Scheme's overall mitigation package, including mitigation relating to Singleton & Cocking Tunnels SAC, has been detailed through the submission of an Implementation Plan (Atkins, 2021). This provides details of:

- Memorandum of Understanding signed between Portsmouth Water, Forestry England and Hampshire County Council;
- Outline Biodiversity and Compensation Strategy submitted with current application to form basis for future submissions;
- The Landscape and Ecology Management Plan (LEMP) submitted for each phase of works and to be agreed by the LPA and other key consultees;
- Ecological Mitigation and Management Plan for all pipeline works, submitted as part of detailed design and subject to agreement from key consultees;
- Full details of Capital Grants Scheme to be provided alongside detailed submissions and agreed by key consultees; and
- All agreed measures to be subject to Section 106 agreement – ensuring that measures are enforceable and that monitoring systems (to agreed indicators) are included.

The temporary workers accommodation does not present any in-combination effects with other plans and projects.

4. Implications for the Proposed Temporary Workers Accommodation

As the proposed temporary workers accommodation will be located wholly within the Scheme planning boundary, no additional impacts above those already identified in the appropriate assessment undertaken in 2021 will be produced, including those potentially affecting European designated sites. The potential impacts on European sites arising from the main Scheme are suitably offset, therefore any impacts from the proposed temporary workers accommodation are also offset by the proposed mitigation, compensation and enhancement measures. Therefore, a new HRA assessment for the proposed temporary workers accommodation is not required.

5. References

Atkins (2021) Implementation Plan for Off Site Biodiversity Mitigation and Compensation. Document reference: HTR-ATK-XX-XX-RP-T-0003.

Atkins (2020) Stage 1 Screening Report to Inform Stage 1 Screening and Stage 2 Appropriate Assessment. Document reference: HTR-ATK-XX-XX-RP-Z-0035.

Planning application references: Havant Borough Council- APP/20/00990 and APP/20/00991 – East Hampshire District Council 51680/001 (2021) Habitat Regulations Assessment (HRA) Screening Matrix and Appropriate Assessment Statement.

DEFRA (2021) Habitats Regulations Assessments: Protecting a European Site. Available at:
<https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site>.