

Havant Thicket Reservoir

Construction Traffic Management Plan

Main Reservoir Works Phase

09/09/2022 | v1.2

Document Reference : HTR-MRW-CTMP-v1.2



Version Control Register

Version	Date	Author	Reviewed By	Approved By	Notes
1	28/07/22	Dan Argles	Geraint Lloyd		
1.1	02/09/22	Dan Argles	Geraint Lloyd		
1.2	09/09/22	Dan Argles	Geraint Lloyd		

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1. Introduction & Aims

- a) This Construction Traffic Management Plan (CTMP) has been prepared by Future Water MJJV for the works at Havant Thicket Reservoir only and has been prepared based on the information provided within the approved Framework Construction Traffic Management Plan (FCTMP). A separate CTMP will be prepared for the pipeline works however both plans will be based on the FCTMP to ensure continuity and consistency between documents.
- b) This document is required to discharge Condition 12 of the permissions. The requirements of Condition 12 and where within this document the requirements are addressed are set out in **Table 1** below.

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. The CTMP(s) shall include all commitments set out in the Framework CTMP, dated 31/03/2021, submitted with the planning applications and will include a Construction Traffic Management Strategy and Construction Worker Travel Plan. The CTMP shall include the following:</i>	
Detail	Where Addressed
vehicle routing plans	Appendix 3
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 1 & 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

- c) This plan sets out how construction traffic and site operations will be managed. 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.
- d) The plan will be issued to and agreed with the local planning authority and the relevant governing highway authorities.

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.

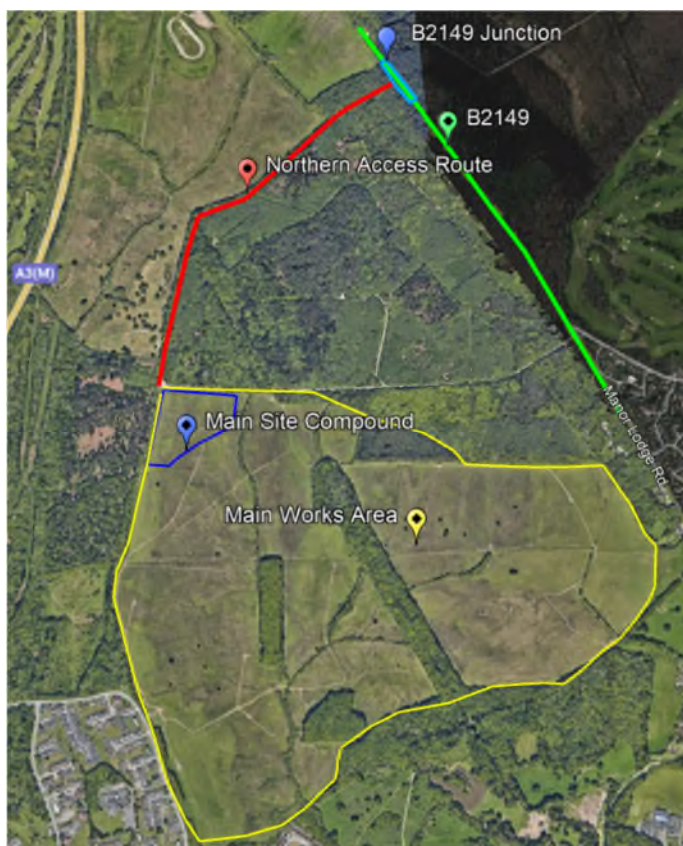


Fig 1. Site location

3. Scope of Construction Activities

The scope of the works to be undertaken during the main reservoir construction phase is as follows:

- Construction of new junction off the B2149 including carriageway re-profiling
- 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 north west corner of the site
- Raising of existing Forestry England track & construction of 2nr new culverts
- Construction of new earth embankments
- Construction of new control structures
- Installation of MEICA and associated fit out
- Construction of new access roads and footpaths
- Hard and soft landscaping

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. See layout drawing in appendix 1.
- 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.
- 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-ATK-AR-RE-DR-D0026 Section S278 B2149 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 not proposed at this stage to use the Southern Access route for main reservoir construction traffic. Should this be deemed necessary in the future, approval will be sought from HCC Highways.

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. 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.

6. Interface with Existing Rights of Way

- a) The NAR will be closed to public use during its construction and following it's opening for its use by construction traffic.
- b) The existing east west bridleway which crosses the site will also be closed following the works required to upgrade the existing Forestry England track are completed. Pedestrians will then be diverted along the FE track.
- c) Where existing footpaths or PRow cross or interface with construction traffic, warning signage and designated points will be formed to allow pedestrians to safely cross construction traffic routes.

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 dealt with 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 will commence in August 2022 with the junction planned to be complete and operational by December 2022. Further details are available within the Construction Method Statement (CMS) – see appendix. All permits and permissions for the B2149 junction works have been granted by HCC Highways and are in place.
- b) Following the completion of the junction, construction can then commence on the NAR. The NAR is planned for completion in February 2023.
- c) With the NAR route complete, this provides access to the works area for the construction of the main project compound which will contain the project offices and storage areas. The compound layout provided is indicative and the plan will be updated once further design work is completed
- d) 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 & goods
Curtain sided lorry	Materials & good
Tankers	Fuel, water, waste disposal
Tippers	Deliver aggregate
Rigid HGV – beaver tail	Deliver equipment
Articulated HGV	Deliver plant

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.
- d) During the peak summer earthwork seasons, we expect to have 180 members of staff on site. Approximately 40 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.
- e) 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.

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)
- 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) Should changes be required to be made to the plan, these will be discussed with Portsmouth Water & HCC Highways.
- d) Highway conditions on the B2149 around the new junction will be monitored during the construction period to detect any defects requiring attention.
- e) Any accidents or incidents involving vehicles entering or leaving the site will be recorded and investigated. Any emerging trends will be raised with the designers & the LHA.

12. Arrangements on Site

- a) Car parking will be provided on site for approximately 220 vehicles. This provides for site staff & visitors for both the reservoir and pipeline projects. See indicative site layout in appendix 3. The number of staff using the compound from the pipeline

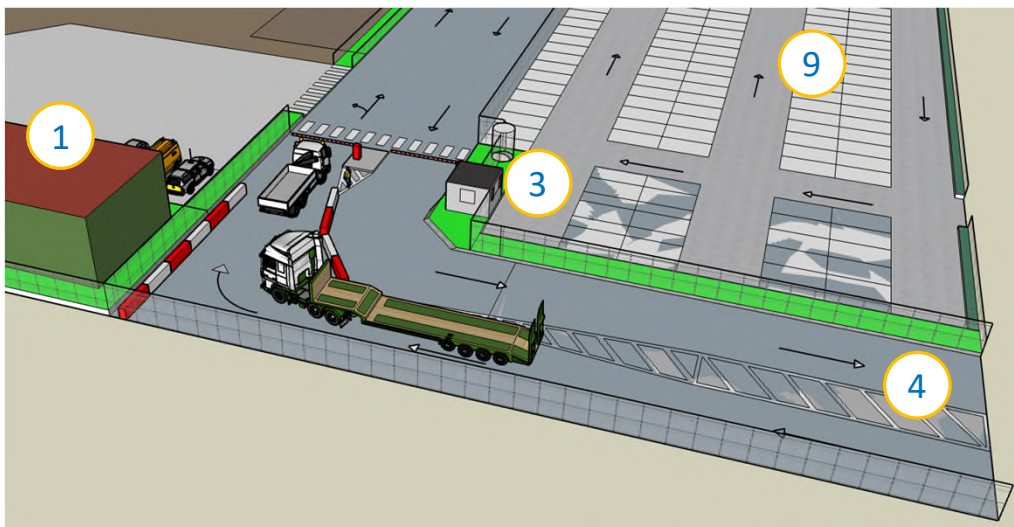
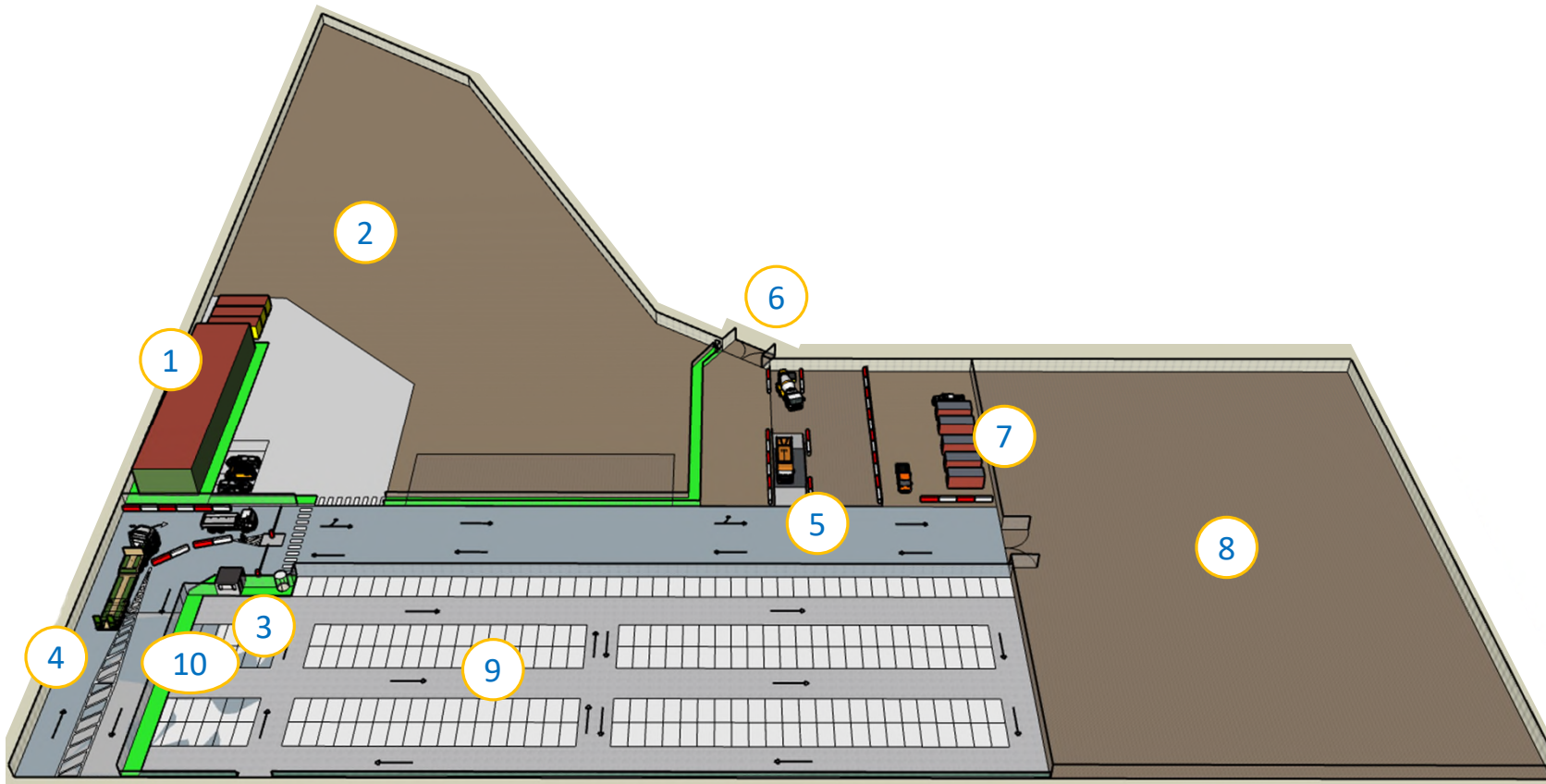
project is expected to be lower than originally assessed at planning, so whilst the reservoir numbers may have increased this is offset by less staff from the pipeline team.

- b) During the peak summer earthwork seasons, we expect to have 180 members of staff on site. Approximately 40 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) Additional overflow parking will be provided if required adjacent to the project office facilities.
- d) Electric vehicle charging points will be provided within the car parking area.
- e) Parking spaces will also be provided adjacent to the access control point for disabled / priority parking.
- f) 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.
- g) Segregated pedestrian walkways & access points will provide safe routes for pedestrians to access the site.
- h) Areas will also be provided for secure parking of motorcycles and storage of bicycles.
- i) Hard surfacing will be provided within the compound to assist with keeping vehicles clean and to negate the need for wheel washing.
- j) 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

Appendices



KEY:

- 1 Project accommodation – offices, welfare facilities
- 2 Hard standing for storage
- 3 Security control point
- 4 Tarmac surfaced vehicle access point
- 5 Wheel wash
- 6 Access point to works area
- 7 Storage containers, waste disposal & concrete wash out
- 8 Pipeline contractor compound
- 9 Tarmac surfaced car park
- 10 Cycle parking

No.	Revision	App	Date
Drawing Revisions			



Future Water MJJV Ltd
Baskette House, Herfield Road, Small Dole, West Sussex. BN9 9XQ.
A Mackley Jones Joint Venture

Client



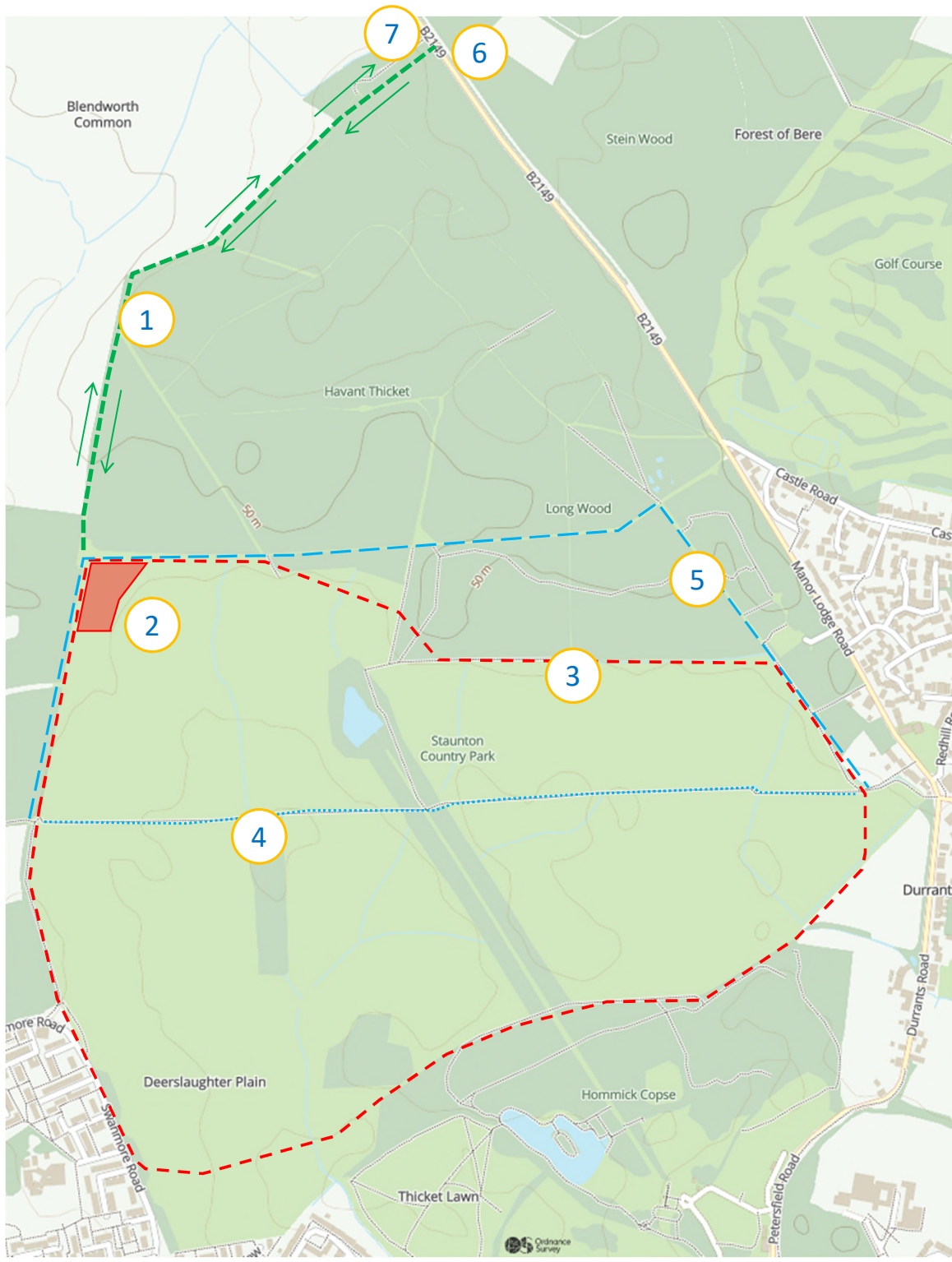
Project

Havant Thicket Reservoir

Title

Main Reservoir Works Compound
Indicative Arrangement

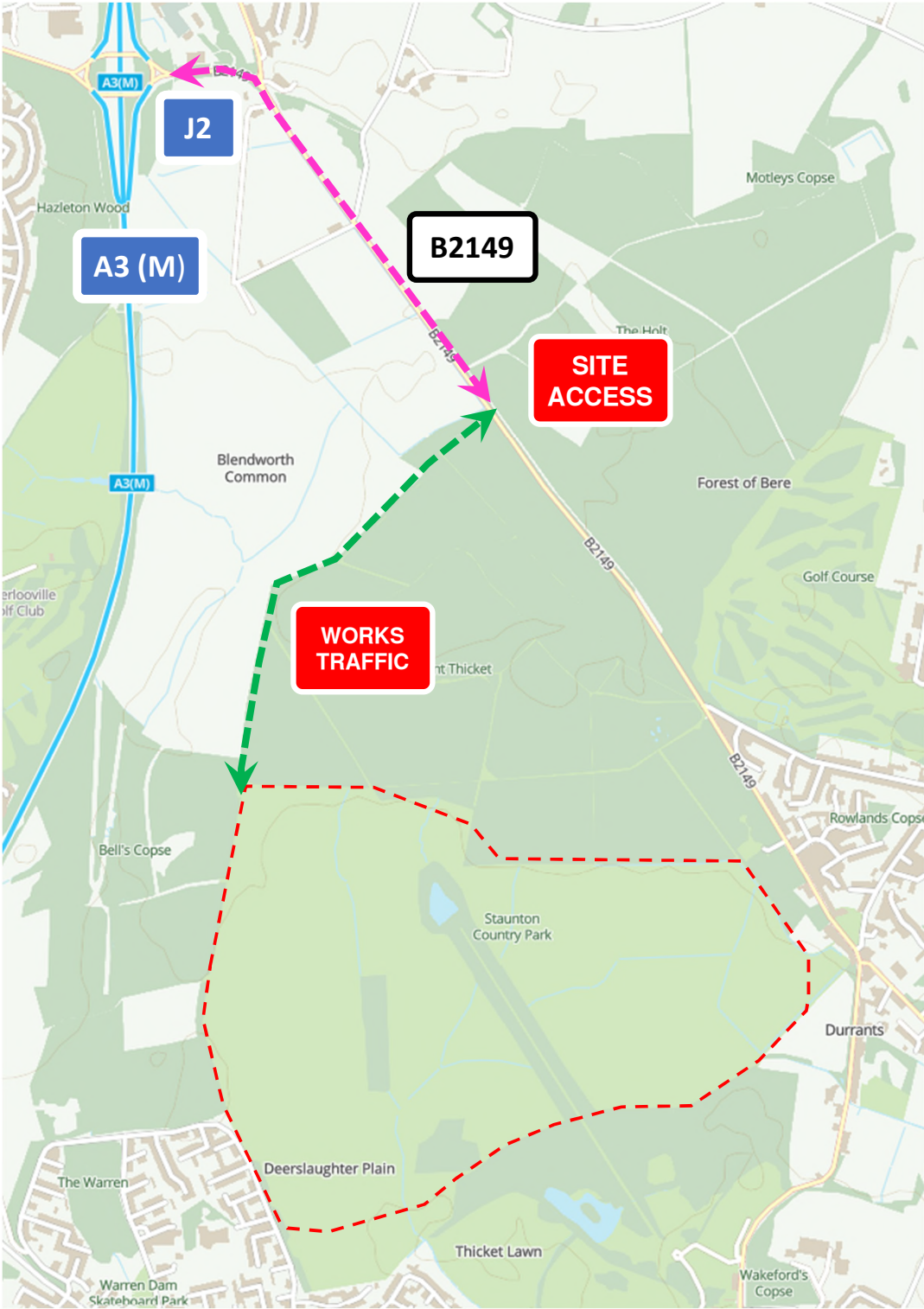
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Drawing status	Revision		
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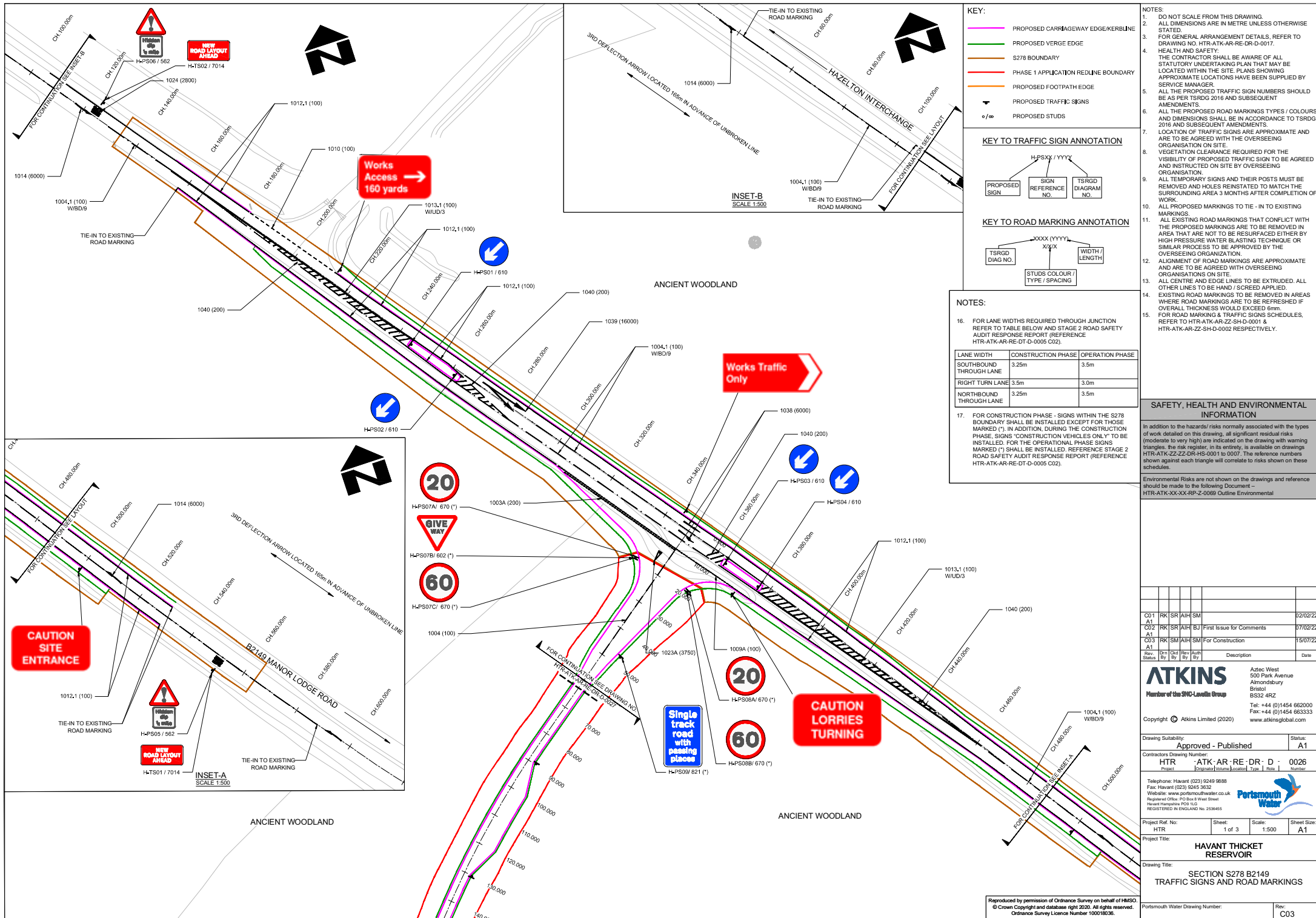
KEY:

- 1 Northern access route (NAR)
- 2 Site compound
- 3 Main works area boundary
- 4 Existing bridleway to be closed
- 5 Diverted route of bridleway
- 6 B2149 junction / main access point
- 7 Security control point

No.		Revision		App	Date
Drawing Revisions					
 Future Water MJJV Ltd Future Water MJJV Ltd Barkside House, Henfield Road, Small Dole, West Sussex. BN9 9XQ. A Mackley Jones Joint Venture					
Client					
					
Project					
Havant Thicket Reservoir					
Title					
Main Reservoir Works Traffic Management Plan Site Access					
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Drawing status				Revision	
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No.	Revision	App	Date
Drawing Revisions			
 Future Water MJJV Ltd Barkstee House, Henfield Road, Small Dole, West Sussex. BN9 9XQ A Mackley Jones Joint Venture			
Client			
			
Project			
Havant Thicket Reservoir			
Title			
Main Reservoir Works Delivery Vehicle Routing			
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Checked by	Date checked	Approved by	Date approved
Drawing status		Revision	
Drawing No.		5311-DR-XXXXX	



Havant Thicket Reservoir

Construction Method Statement (CMS)

Main Reservoir Works Phase 1

02/09/2022 | v1.1

Document Reference : HTR-MRW-CMS-v1.1



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1	28/07/22	Dan Argles	Geraint Lloyd		
1.1	02/09/22	Dan Argles	Geraint Lloyd		

Contents

1. Introduction and Aims
2. Site Details
3. Scope of Construction Activities
4. Programme and Sequence of Works
5. Methodology

1. Introduction

- a) This Construction Method Statement has been prepared by Future Water MJJV for the phase 1 works at Havant Thicket Reservoir.
- b) This document is required to discharge Condition 6 of the permissions. The requirements of Condition 6 and where within this document the requirements are addressed are set out in **Table 1** below.

Condition 6 – Construction Method Statement (CMS)	
Detail	Where Addressed
<i>No phase of the development approved under Condition 4 shall commence until a Construction Method Statement (CMS) for that phase has been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the approved detail.</i>	Sections 3,4 & 5
Reason: To ensure that the construction process is carried out in a manner which will minimise disturbance, pollution & nuisance to neighbouring properties	

- c) This document will remain a live document being updated for each phase of reserved matters applications.
- d) The objective of the scheme is to provide a new resource to supply drinking water in the water-stressed Southeast of England, while maximising the community and environmental benefits of a new Raw Water reservoir. Similarly, one of the strategic drivers for the scheme is to ensure a positive contribution to local and internationally important habitats by supporting Government's objective to reduce the damaging abstraction of water from rivers.
- e) The reservoir, when constructed, will be filled with surplus water drawn from the springs at the Portsmouth Water pumping station at Bedhampton works when flows are at their highest in winter via a new combined inlet/outline pipeline, and will provide water supplies to Portsmouth Water customers in the summer months as required.
- f) This document is to be read in conjunction with the following phase specific documents:
 - Detailed Phasing Plan
 - Construction Noise & Vibration Management Plan
 - Construction Noise Assessment
 - Construction Traffic Management Plan
 - Construction Environmental Management Plan
 - Archaeological Management Plan

2. Site Details

- a) The site is located to the north of Havant in Hampshire
- b) To the north, the site is bounded by 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.

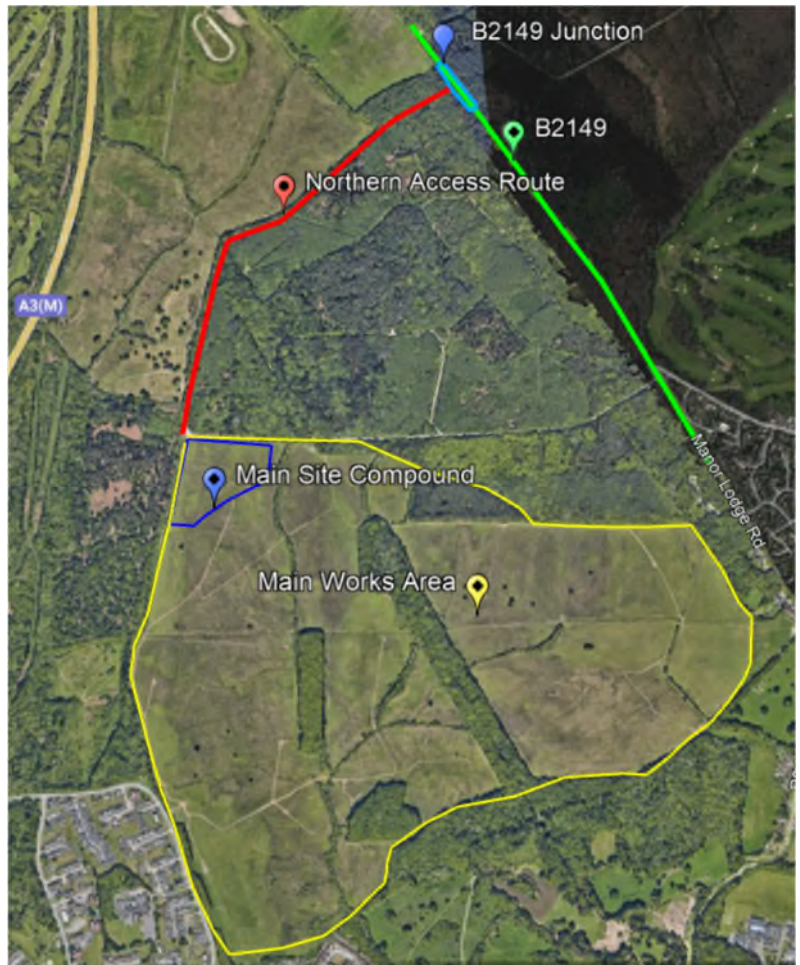


Fig 1. Site location

3. Scope of Construction Activities

The scope of the works to be undertaken during the main reservoir construction phase is as follows:

- Construction of new junction off the B2149 including carriageway re-profiling
- 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 north west corner of the site
- Raising of existing Forestry England track & construction of 2nr new culverts
- Construction of new earth embankments
- Construction of new control structures
- Installation of MEICA and associated fit out
- Construction of new access roads and footpaths
- Hard and soft landscaping

4. Programme and Sequence of Works

- a) Works to the B2149 junction will commence in August 2022 with the junction planned to be complete and operational by December 2022.
- b) Following the completion of the junction, construction can then commence on the NAR. The NAR is planned for completion in February 2023.
- c) With the NAR route complete, this provides access to the works area for the construction of the main project compound which will contain the project offices and storage areas.
- d) 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.

5. Methodology

Pre-Commencement	
Activity	Construction of New Junction Off B2149
Description	
New junction to be constructed off the B2149 using two-way traffic lights for the 1 st phase, followed by a full road closure. The new carriageway will be excavated, drainage & kerbs laid, new sub-base laid & gullies installed. Once complete, the B2149 will be closed to allow new cross carriageway drainage to be laid, islands to be constructed & the existing carriageway re-profiled and re-surfaced.	
Welfare Provision	Self-contained welfare units
Plant & Equipment Employed	
Tracked excavators – varying in size from 3 to 13t c/w hydraulic breaker attachment	
6t cabbed swivel dumpers	
Road going tippers, grab lorries & concrete delivery vehicles (volumetric & drum)	
Smooth drum sit on roller	
Road planer	
Road paver	

Phase 1	
Activity	Construction of Northern Access Route (NAR)
Description	
New running surface to be constructed for construction traffic and then for use by visiting traffic when the reservoir is operational. The running surface is to be constructed from both sections of tarmac surfacing & stone surfacing. No dig methods are to be used in places to protect the roots to adjacent trees. Works will commence at the northern end and will proceed southwards using small plant and completing the running surface as works progress. The NAR will be closed off in sections as works proceed using heras fencing. Public access will be prohibited during construction and when the NAR becomes operational. A compound will be formed at the B2149 end of the NAR where plant, materials and welfare facilities will be delivered, stored and located. Following the approved construction details, sub-base will be initially laid and compacted using a small sit on roller. The number of passes required will be in accordance with the Specification for Highway Works MCHW table 6/1. Edgings will be placed in accordance with the approved details. Geotextile will then be laid and secured. Cellweb will then be overlain, secured and filled in accordance with the manufacturer's instructions. Another geotextile separating layer will then be placed before topping with type 3. Throughout the process the phase specific Inspection & Test plan will be followed to ensure that all works comply with the specification.	
Welfare Provision	Self-contained welfare units
Working Hours	0730-1700hrs
Plant & Equipment Employed	
Tracked excavators – varying in size from 3 to 8t	
6t cabbed swivel dumpers	
Road going tippers, grab lorries & concrete delivery vehicles (volumetric & drum)	
Smooth drum sit on roller	

Activity	Establishment of Site Compound
Description	
Compound to be constructed by stripping topsoil & excavating sub-soil. During these processes, ecologists & archaeologists will supervise the works. New below ground ducts for services & drainage will be laid followed by sub-base material. Tarmac surfacing will then be laid in for the car park, access roads and unloading areas. Foundations will be formed for the project accommodation and utility connections prepared. The compound will be surrounded a 2m high chain-link fence and access will be controlled by a security officer and a facial recognition-controlled turnstile. The accommodation units will be bought to site by articulated lorries and craned into place using a 50t crane. Utilities will then be connected, and the offices fitted out. Finally, line marking will be laid within the car park and trafficked areas.	
Welfare Provision	Anti-vandal units with generator & septic tanks
Plant & Equipment Employed	
Tracked excavators – varying in size from 3 to 30t	
6 & 9t cabbed swivel dumpers	
Road going tippers, grab lorries & concrete delivery vehicles (volumetric & drum)	
Smooth drum sit on roller	
Articulated lorries	
50t mobile crane	
Road paver	

Phase 2	
Activity	Raising of FE CAT A Track & Installation of New Culverts
Description	
The FE track will be required to be closed for the duration of the works. Access will be provided by the NAR. Subject to approval of the design, environmental mitigation works will be required to be undertaken first which may include the felling of trees and clearance of vegetation. Excavations will be formed along the line of the existing watercourses and new pre-cast concrete culverts installed. New headwalls will then be formed before backfilling commences. The track level will be raised in accordance with the design.	
Welfare Provision	Anti-vandal units with generator & septic tanks
Plant & Equipment Employed	
Tracked excavators – varying in size from 13 to 30t (dependant on culvert unit sizes)	

9t cabbed swivel dumpers
Road going tippers, grab lorries & concrete delivery vehicles (volumetric & drum)
Smooth drum sit on roller
Articulated lorries

Phase 4 & 5	
Activity	Construction of Earth Embankments
Description	
Haul roads around the work site will be constructed using recycled crushed concrete material. The material will be delivered tipper using the NAR. Alongside the haul road, the existing watercourses running across the site will be diverted around the works and settlement lagoons formed as part of the temporary de-watering measures. Once these works are complete, a clay cut off will formed below ground to limited seepage of groundwater. The clay for the embankments around the site, will be won from borrow pits within the site boundary, limiting the need for imported materials. Some imported materials will still be required for the embankments and these will be needed to formed drainage layers within the structure. Clay will be excavated from the borrow pits using excavators and loaded into articulated dump trucks. The clay will then be taken to the deposition point via the haul roads and tipped. Once tipped, a dozer will push the clay out in layers before the clay is compacted using a roller. The excavators and dozers will be fitted with GPS guidance systems to ensure that the clay is placed to the correct thicknesses in the correct locations. The GPS is also used for trimming up the shoulders of the embankment to the correct gradients. This process is repeated throughout the earthworks season and until the maximum amount of clay has been placed for the period worked. It is expected to take 3-4 earthworks seasons to complete all the embankments. An earthwork season is defined as March-October. Throughout the placement, in-situ and off-site testing will be undertaken to ensure that the specification for the works is adhered to.	
Welfare Provision	Main project accommodation and satellite compounds
Plant & Equipment Employed	
Tracked excavators – varying in size from 21t to 50t	
40t articulated dump trucks	
24t D65 dozers	
18t smooth & padfoot rollers	
Tractors and bowers	
Wirtgen soil mixer	
Pumps, settlement tanks and generators	

Phase 6 & 7	
Activity	Construction of Control Structures
Description	
There are several new reinforced concrete control structures to be constructed as part of the scheme with the embankment culvert and valve tower being the most significant. Following initial ground preparation works being completed, the reinforced concrete structures will be created by following industry standard procedures – fix reinforcement, erect formwork, place concrete, allow to cure and remove formwork. Lattice boomed crawler cranes will be employed to lift materials, formwork & place concrete through the process with attendant excavator and concrete pumps assisting where required. Concrete will be delivered to the work face by road going drum mixer lorry, accessing the site via the NAR and then the on-site haul roads. Concrete will be discharged and then the vehicle washed out into a concrete wash-out system which captures the cement laden water and filters it for re-use. The cement slurry left behind is safely captured and is disposed of once hardened. Where below ground structures and pipework is required to be installed, proprietary excavation support systems will be employed to provide safe working conditions for the workforce. Once the pipework or structure is completed, the excavations are backfilled, and the support removed. As above these works are undertaken using tracked excavators and crawler cranes.	
Welfare Provision	Main project accommodation and satellite compounds
Plant & Equipment Employed	
Tracked excavators – varying in size from 8t to 21t	
9t cabbed swivel dumpers	
80t & 120t lattice boomed crawler cranes	
Various lifting equipment – chains, slings, skips, lifting beams	
Boom concrete pump	
Jet wash bowzers and concrete wash out units	
Proprietary and timber formwork systems	
Access scaffold and powered access (MEWPS)	
Temporary excavation support systems – boxes, sheets and frames	
Edge protection systems	

Phase 6 & 7	
Activity	Installation of MEICA and Associated Fit Out of Culvert
Description	
The draw off, filling pipework and associated systems will be located within the embankment culvert and tower. Materials and equipment will be delivered to the workface from the compound using the on-site haul roads and will be stored in designated compounds before being distributed for installation. The pipework will be installed using small lifting gantries following completion of the structure along with cable containment systems for the various controls, lighting and power required. The valve tower will also require access stairs and platforms to be installed. These will also be installed using lifting gantries and powered access equipment. Once pipework and containment are completed, 2nd fix activities can commence including wiring, installation of control panels and finally testing before energisation and filling. The control structures will also require varying types of security fencing, gates, doors and barriers to be installed. Where practicable these will be installed as soon as they are available to provide additional levels of safety and security. Dry commissioning of the reservoir will only be commenced once all criteria within the project commissioning plan have been satisfied and signed off.	
Welfare Provision	Main project accommodation and satellite compounds
Plant & Equipment Employed	
Hiab equipped lorries	
Telehandler	
Spider cranes & lifting gantries	
Powered material handlers	
Powered access equipment (MEWPS)	
Temporary lighting and generators	
Access scaffold and temporary access stairs	

Phase 9	
Activity	Construction of New Access Roads and Footpaths
Description	
The access road, tracks and footpaths will all be constructed following a similar methodology but each with slightly differing materials and sizes. Firstly, the ground will be stripped to formation level and prepared. Subbase will be placed and compacted before edgings or kerbs laid. Any drainage requirements will then be installed before the sub-base is topped up and final surface dressings placed. All work will be undertaken, working progressively along the route of the track or the path, completing the works up until the point where final surface dressings are laid so as not to become damaged or contaminated. Small excavators and dumpers will be used to complete the works with materials being imported onto site via the NAR and distributed to the work face.	
Welfare Provision	Main project accommodation and satellite compounds
Plant & Equipment Employed	
Tracked excavators – varying in size from 3 to 13t	
6t cabbed swivel dumpers	
1t forward tipping dumpers	
Road going tippers and concrete delivery vehicles (volumetric & drum)	
Smooth drum sit on roller	
Plate compactor	
Hand tools	

Phase 8 & 9	
Activity	Hard & Soft Landscaping
Description	
Hard landscaping consisting of fencing, walling and the Avenue staircase will be constructed following on from the earth embankment works and alongside the access tracks and footpaths. Materials will be delivered to site using the NAR and distributed using the access tracks. Small telehandlers and dumpers will be used to convey materials to the work face being installed either by hand or by using small excavators. Soft landscaping will be phased differently to the hard landscaping due to the specific planting timetable which will be dictated by the progress of the works up until that point. As above materials will be delivered using the NAR and then distributed to the workforce. Due to the nature of the contract, full and final details of the landscaping are not yet developed but will be in due course.	
Welfare Provision	Main project accommodation and satellite compounds
Plant & Equipment Employed	
Tracked excavators – varying in size from 3 to 13t	
6t cabbed swivel dumpers	
1t forward tipping dumpers	
Telehandler – including roto type	
Road going tippers and concrete delivery vehicles (volumetric & drum)	
Smooth drum sit on roller	
Plate compactor	
Hand tools	