

Havant Thicket Reservoir

Construction Method Statement (CMS)

Main Reservoir Works Phase 1

02/09/2022 | v1.1

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Version Control Register

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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.

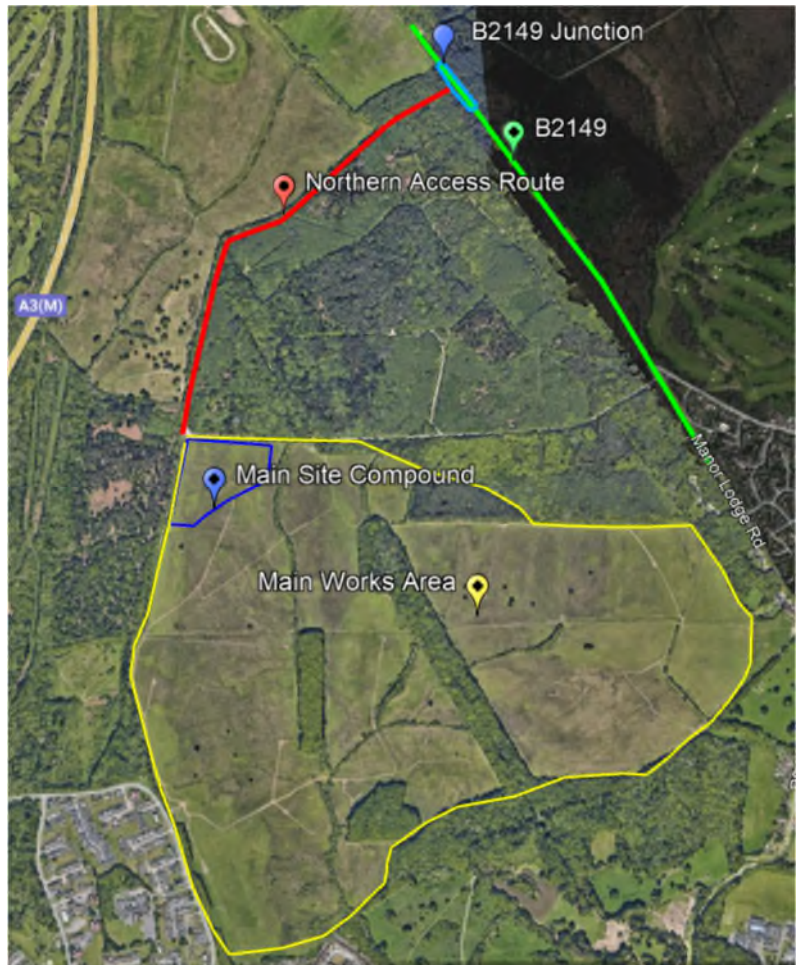


Fig 1. Site location

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	