





Construction of Flood Defence Structures at Alverstoke and Forton Scope

> Gosport Borough Council October 2020

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INTRODUCTION

The *Scope* is set out in this document as presented in Table 1 below:

Table 1 - Scope Structure

Section	Scope Description
Introduction	
	Specification
S 101	Section $1 - Description of the works$
S 201	Section 1 – General Constraints on How the Contractor provides the works
s201	SECTION 1 – CONTRACTOR'S DESIGN
S 401	Section 1 - Completion
S 501	Section 1 – Programme
S 601	Section 1 – Quality Management
S 701	Section 1 – Tests and Inspections
S 801	Section 1 – Management of the works
S 901	Section 1 – Working with the Client and Others
S 1001	Section 1 – Services and Other Things to be Provided by the <i>Contractor</i>
S 1101	Section 1 – Health and Safety
S 1201	Section 1 – SubContracting
S 1301	Section 1 – Title
S 1401	Section 1 – Acceptance or Procurement Procedure
S 1501	Section 1 – Accounts and Records
S 1601	Section 1 – Parent Company Guarantee
S 1701	Section 1 – Performance Bond
S 1801	Section 1 – Advanced Payment Bond
S 1901	Section 1 – Low Performance Damages
S 2002	Section 2 – materials
S 2003	Section 3 – Excavation, Backfilling and Restoration
S 2004	Section 4 – Concreting and Formwork
S 2005	Section 5 – Construction of Pipelines and Ancillary Works
S 2006	Section 6 – Building Works
S 2007	Section 7 – Testing and Disinfection
S 2008	Section 8 – Roadworks
S 2009	Section 9 – Sewer Renovation
S 2010	Section 10 – Water Mains Renovation
S 2011	Section 11 – Tunnelling and Shaft Sinking Works
S 2012	Section 12 – Brickwork, Blockwork and StoneWork
S 2013	Section 13 – Fencing
S 2014	Section 14 – Traffic signs and Road lighting columns
S 2015	Section 15 – Electrical work for road lighting and traffic signs
S2016	Section 16 - Landscaping Works
S 2100	Drawings

S 0000 SPECIFICATION

S 0000.1 CESWI 7

The Specification is the "*Civil Engineering Specification for the Water Industry, 7th Edition*", published by UK Water Industry Research Ltd in March 2011 (CESWI 7) augmented by stated sections of MCHW and supplementary clauses as raised within Sections S 101 to S 2016

S 0000.2 MCHW

The Manual of Contract Documents for Highway Works (MCHW) and the Appendices are referred to under sections S201.6.1, S 201.17, S 201.18, S 201.26, S 201.30, S 201.31, S 301.1, S 301.25, S 501.25, S 601.25, S 701.25, S 801.27, S 1001.4, S 1100.25, S1501.26, S2002.157, S2003, S2004, S 2005, S 2008, S 2012, S 2013, S 2014, S 2015, S 2016

Clause Number	MCHW Series	CESWI Section
S201.6.1 – Site extents	Series 100 –	-
	Preliminaries	
S201.7.1 – Pre-	Series 100 -	
construction Pumping	Preliminaries	
Station Inspection		
S201.17 – Privately and	Series 100 –	1.17
Publicly Owned Services	Preliminaries	
S201.18 – Traffic	Series 100 –	1.18
Requirements	Preliminaries	
S201.26 – Setting Out	Series 100 –	
	Preliminaries	
S201.30 – Control of	Series 100 –	
Noise and Vibration	Preliminaries	
S201.31 – Site	Series 200 – Site	
Clearance	Clearance	
S301.1 - Works to be	Series 100 -	
Designed by Contractor	Preliminaries	
S301.25 – Working and	Series 100 –	
Fabrication Drawings	Preliminaries	
S501.25 – Programme	Series 100 –	
Requirements	Preliminaries	
S601.25 - Samples	Series 100 –	
	Preliminaries	
S701.25 – Tests and	Series 100 –	
Inspections	Preliminaries	
S801.27 – Progress	Series 100 –	
Photographs	Preliminaries	
S1001.4 – Information	Series 100 –	
Boards	Preliminaries	
S1100.25 – Health &	Series 100 –	
Safety Requirements	Preliminaries	
S1501.26 – Payment	Series 100 –	
Applications	Preliminaries	

S2002.157 – Flood	Series 2600 –	
Equipment	Miscellaneous	
S2003 – Excavation,	Series 600 - Earthworks	Section 3
Backfilling & Restoration		
S2004 – Concreting and	Series 1700 – Structural	Section 4
Formwork	Concrete	
S2005 – Construction of	Series 500 – Drainage &	Section 5
Pipelines & Ancillary	Service Ducts	
Works		
S2008 – Roadworks	Series 700 – Road	Section 8
	Pavements	
S2012 – Brickwork,	Series 2400 – Brickwork,	-
Blockwork and	Blockwork and	
Stonework	Stonework	
S2013.1 – Fencing	Series 300 – Fencing	-
S2013.2 – Fencing	Series 400 – Road	-
	Restraint Systems	
S2014.1 & S2014.2 -	Series 1200 – Traffic	-
Traffic Signs	Signs	
S2014.3 – Road Lighting	Series 1300 – Road	-
Columns & Brackets	Lighting Columns &	
	Brackets	
S2015 – Electrical Work	Series 1400 – Electrical	-
	work for Road Lighting &	
	Traffic Signs	
S2016 – Landscaping	Series 3000 -	
Works	Landscape & Ecology	

S 0000.3 Supplementary Sections

Sections S101 to S1901 augment Section 1 of CESWI 7, sections S2002 to S2011 augment Sections 2 to 11 of CESWI 7, and Sections S2012 onwards add new sections to CESWI 7 or appendices to the Manual of Contract Documents for Highway Works.

S 0000.4 Supplementary Sub-Clauses

For Sections S 101 to S 1901, sub-clauses .1 to .24 are the sub-clauses in Section 1 of CESWI 7 and sub-clauses .25 and above are in addition to CESWI 7. For Sections 0 to S 2011 the sub-clauses match and then continue on from CESWI 7. For Sections S 2012 to S2016 the sub-clauses commence at '1.'

S 0000.5 Supplementary Clauses Prevail

In so far as any supplementary clause conflicts or is inconsistent with CESWI 7 & MHCW, the supplementary clause shall always prevail, followed by MHCW, then CESWI 7.

S 101SECTION 1 – DESCRIPTION OF THE WORKS

S 101.25 Description of the works

- 1. The *works* are to construct flood defence schemes at Alverstoke and Forton.
- 2. The *works* consist of the new construction of flood walls and repairs to existing coastal defences to a 1 in 50 year standard of protection (including a climate change allowance) at the following sites:

Alverstoke

The Alverstoke site, is located at the western end of the Stoke Lake in Gosport. The site covers 145m of coastal frontage between Little Anglesey Road and Clayhall Road.

Forton

The Forton site, is located at the end of Forton Lake in Gosport, and is owned and managed by the St Vincent's College. The scheme covers 240m of coastal frontage.

The works generally comprise:

Alverstoke:

The works to be provided as part of the scheme include:

- a) General site clearance.
- b) Construction of L-shaped reinforced concrete floodwall along the length of the scheme. The wall comprises an in-situ base and a combination of in-situ concrete and precast concrete wall upstands.
- c) Floodgate to be installed across Little Anglesey Road.
- d) Enhancement works to car park area and lagoon access adjacent to Little Anglesey Road.
- e) Construction of linear drainage systems.
- f) Installation of non-return valves to outfall and sealing of manhole covers.
- g) Repair works to the existing seawall.
- h) Reinstatement of the footpath adjacent to the floodwall.
- i) Reinstatement of timber fencing between property gardens.
- j) Removal of plants from residential garden, set aside and reinstate following floodwall construction
- k) Environmental enhancement to southern end of wall on foreshore installation of the brushwood area and planting of saltmarsh plants by hand.
- I) Installation of interpretation board at southern end of main floodwall section.

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m) Landscaping to scheme area

Forton:

The works to be provided as part of the scheme include:

- a) General site clearance.
- b) Construction of L-shaped reinforced concrete floodwall along the length of the scheme to a crest level of +3.70m OD.
- c) Brick cladding works to land side of L-shaped reinforced concrete floodwall.
- d) Stop logs to be installed across the service road next to the St Vincent's Early Years Centre.
- e) Construction of linear and filter drainage systems.
- f) Footpath raising at North end of scheme to tie into existing levels.
- g) Road raising at South end of scheme by sports grounds.
- h) Repair works to the existing wall along Forton Lake, with provision for installation of vertipools.
- i) Height extension to existing walls to provide required protection.
- j) Landscaping of tie in areas to wildflower meadow and installation of bee post as part of environmental enhancements.

S 201 SECTION 1 – GENERAL CONSTRAINTS ON HOW THE CONTRACTOR PROVIDES THE WORKS

S 201.1 Definitions

Insert the following sub-clause(s) in **clause 1.1**.

- 7. "GBC" referred to in the Specification means Gosport Borough Council.
- "St Vincent College" referred to in the Specification means any business operating from the address of St Vincent College, Mill Lane, Gosport, PO12 4QA.
- 9. Where the term "Overseeing Organisation" is used in this Scope and the 'Specification for the Highway Works', it shall mean "*Project Manager* (PM)".
- 10. *Forton Only:* The terms 'carriageway' includes footpaths and roadways within the college grounds and 'public' all persons permitted on the college grounds. This applies throughout the Scope.

S 201.4 British Standards and Other Documents

No further Scope under this heading.

S 201.5 Tidiness of Site

Insert the following sub-clause(s) in Clause1.5.

- 5. The *Contractor* shall keep land adjoining the site and the working areas clear of spoil, spillages and debris arising from providing *the works*.
- 6. No rubbish or material may be burned on the Site and the working areas.
- 7. Cement shall be stored in weatherproof sheds with the floors raised off the ground or in silos of accepted design. It shall be efficiently protected from damage by the weather or other causes during transport to and from the sheds or silos and until used in the *works*. Volumes of cement storage on site shall be kept to a minimum to avoid spoilage of materials during flood events.
- 8. Cement that has been damaged by neglect of these precautions or for other reasons will be rejected by the *Supervisor* and shall be removed from the Site. Each consignment shall be kept separate and used in the same order as delivered.
- 9. All stone / granular material brought to the Site shall be kept free from contact with deleterious matter.

- 10. Aggregates for use in concrete shall be stored on clean well-drained hard standings at permanent mixing positions. There shall be separate compartments for each size of aggregate specified, and the use of the bottom 200mm of the heaps shall be avoided so that it will form a drain for the rest of the pile.
- 11. Materials shall not be stored beneath the canopy of trees, within any tree protection fencing, or in any location likely to cause damage to trees, including on higher ground where leakage may spill onto root zone.
- Any wrappings/bandings shall be retained in place during handling. Mechanical handling equipment shall be used wherever possible. Stones which are soiled, chipped, broken or otherwise damaged shall be rejected.
- 13. Stone shall be stacked on dry level hard standings. Stacking on sulphate bearing clinker and ashes shall not be permitted. Stacks shall be protected from rain, frost, wetting from ground moisture and soiling from passing traffic and from the adjacent ground.
- 14. Ready mixed lime/sand mixes shall be stored on a clean impermeable base and covered to protect from rain, frost and excessive evaporation.
- 15. Ready to use mortar shall be stored in containers and covered when not in use. In cold weather containers shall be insulated in a heated environment to ensure that the mortar temperature does not fall below 4°C.
- 16. The *Contractor* shall supply to the *Project Manager* one copy of the manufacturers' current instructions and explanatory brochures for all proprietary materials or processes, to be used in the contract, prior to their incorporation in the *works*. This is in addition to the Information required for inclusion in the Health and Safety File.
- 17. Material stored in storage areas shall be profiled such that it sheds water away from the stockpile and, where applicable, is fully compacted in accordance with Table 6/4 of Specification for Highways Works to prevent water ingress.
- 18. No materials be stored on residential properties.

S 201.6 Entry onto the Site

Insert the following sub-clause(s) in Clause1.6.

- 6. The working area are shown on drawing numbers:
 - 405363-MMD-AS-XX-DR-C-1002 for Alverstoke

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• 405363-MMD-FT-XX-DR-C-1002 for Forton

The *Contractor* shall confine operations within these limits unless written permission is given by the *Project Manager*.

- Access to the site for delivery vehicles / site vehicles / plant from the main public highways is shown on drawing number 405363-MMD-AS-XX-DR-C-1003 for Alverstoke and 405363-MMD-FT-DR-C-1003 for Forton. No other access routes shall be used without prior written permission by the *Project Manager*.
- 8. The *Contractor* shall be responsible for monitoring and repairing any damage to existing roads, accesses, land, property or other works, caused by their operations.
- 9. The *Contractor* shall form, maintain and subsequently remove any materials, barriers and fencing required for the purpose of accessing the site in a safe manner and is responsible for keeping the access routes safe for other users where permitted/ unavoidable. All such features should be removed on completion of the *works* or as instructed by the *Project Manager*.
- 11. Access routes and site compound areas are shown on the drawings. If the *Contractor* wishes to make use of alternative areas than those proposed, they shall be responsible for informing the Planning Department of Gosport Borough Council and take any action (and pay for any action) that is required.
- 12. Access to the Site shall only be via the following routes:

Alverstoke Site: Via the western end of Little Anglesey Road, turning in the vicinity of site and exiting Little Anglesey Road the same way where possible. If turning is not possible, vehicles are to exit via Park Road with use of a banksman to ensure safe transit to classified road.

Forton Site: Access will be via the gate entry off Mill Lane, which shall be reached via Forton Road on the A32.

- 13. Compound 1 Alverstoke: Little Anglesey Road
 - a) The *Contractor* shall only make use of this compound for the duration of the construction of the *works* at Alverstoke.
 - b) The direct working requirements (materials for immediate use, parking, conveniences) shall be located within the boundaries of the compound as shown on the drawings. The main site offices and longer term storage for materials should occur at Compound 3.
 - c) The *Contractor* may propose alternative arrangements for the site compounds and storage areas. These shall be submitted to the *Project Manager* for approval. For alternative arrangements, it shall be the responsibility of the *Contractor* to negotiate, arrange, pay for and reinstate the areas as required.

- d) The compounds must provide suitable areas for the following:
 - i. Welfare facilities
 - ii. Materials storage
- e) The *Contractor* shall arrange the compound in such a way as to reduce disruption to the neighbouring businesses and residents. Areas designated for regular material deliveries and/or operation of heavy plant should be positioned away from services/utilities as far as is practicable.
- f) The *Contractor* shall submit plans for the layout and logistical arrangements of the compound to the *Project Manager* for acceptance 2 weeks prior to mobilisation.
- 14. Compound 2 Forton: St Vincent College
 - a) The *Contractor* may only make use of this compound for the *works* at Forton, as shown on Drawing 405363-MMD-FT-XX-DR-C-1002.
 - b) Compound space is the area to the north-west of the proposed floodwall, within the parking area.
 - c) The compounds must provide suitable areas for the following:
 - i. Site office and welfare facilities
 - ii. Materials storage
 - d) The *Contractor* shall submit plans for the layout and logistical arrangements of the compound to the *Project Manager* for acceptance 2weeks prior to mobilisation.
 - e) Access shall be maintained for the public to the adjacent buildings within the college.
 - f) The Contractor shall allow pre-arranged access to the Oil tank and Boiler room located in the north-western corner of the 'Arts Building' located adjacent to and requiring transit through the compound.
 - g) The *Contractor* shall liaise with St Vincent College principal and estates officer and ensure that access to sufficient access provision at all times during the *works*.
 - h) Areas designated for regular material deliveries and/or operation of heavy plant should be positioned away from services/utilities as far as is practicable.
 - i) Deliveries of equipment requiring HGV vehicles shall not occur between 12noon and 1pm, due to peak traffic at the Early Years Centre located adjacent to the *works* area.
 - j) Prior to closure of the access road between the Mill Lane entrance and northern buildings the *Contractor* shall complete any associated remedial works required on the northern gated entrance to the college, to be used by the tenants in this location. As shown on Drawing 405363-MMD-FT-XX-DR-C-1003.

- k) A pedestrian route shall be provided between Mill Lane entrance and Northern area of college as shown on Drawing 405363-MMD-FT-XX-DR-C-1002.
- During the winter period debris netting must be placed on the fencing or hoarding erected to the compound to prevent visual disturbance to over wintering birds.
- 15. Compound 3 Alverstoke: Pebble Beach Car Park
 - a) Compound space is at the car park located adjacent to the Stokes Bay Road Entrance. This compound is for the duration of the works at Alverstoke.
 - b) The compound must provide suitable areas for the following:
 - i. Site office and welfare facilities
 - ii. Materials storage
 - iii. Car Parking for Contractor and Client
 - c) The *Contractor* shall submit plans for the layout and logistical arrangements of the compound to the *Project Manager* for acceptance 2 weeks prior to mobilisation.
- 16. No residential caravans for the use of the *Contractor*, their employees or Subcontractors will be allowed on or adjacent to the compounds, sites or any GBC owned land unless agreed otherwise with the *Project Manager*. GBC does not undertake to provide a site for such caravans.
- 17. The *Contractor* must make provision for and allow the *Client's* staff, representatives and guests to visit the Site.
- 18. At any locations where the public are permitted to cross the Site, priority will be given to the public over any site vehicles or delivery vehicles.

S201.6.1 SITE EXTENT AND LIMITATIONS OF USE

MCHW Series 100 – Preliminaries applies for this clause and the following appendix applies to the *works*:

APPENDIX 1/7 SITE EXTENT AND LIMITATIONS OF USE

S201.6.1.1 Site Extent

- The site shall be as defined on the Contract Drawings, specifically drawings 405363-MMD-AS-XX-DR-C-1002 for Alverstoke and 405363-MMD-FT-XX-DR-C-1002 for Forton together with those areas necessary for access of the installation, maintenance and removal of traffic management systems.
- 2. If the *Contractor* wishes to make use of land outside of the site boundary as defined above, they shall request permission from the Client via the *Project Manager*.

S201.6.1.2 Limitation on the use of the site

- 1. No materials, Plant or Equipment shall be stored on the public highway except when they are necessary for adjacent works, do not impede the public, and with prior discussion and agreement of the *Project Manager*.
- 2. The *Contractor* shall not under any circumstances use areas, other than those previously allocated by the *Client*, for parking vehicles or storage of plant and materials. The public highway should not be used for parking or material storage, other than the proposed licensed area at Alverstoke.
- 3. Vehicular access into Stoke Lake is not permitted.
- 4. Within two weeks of completion of the *works*, the *Contractor* shall ensure:
 - a) All temporary works, surplus materials and the like are removed.
 - b) The surrounding areas are graded or shaped to the original contours.
 - c) The area is restored to at least the condition at the start of the *works.*
- 5. The use of the privately owned land (Abbey Homes) is under the following conditions:
 - a) The Contractor must be aware of and follow the mitigation requirements included within the Ecology report (and to be included in the CEMP). This includes the following protocols to be followed prior to any vegetation clearance.
 - i. A bat roost tree assessment for any trees due to be removed, a white-letter hairstreak egg/caterpillar/pupae check on any elm trees due to be removed and a check for nesting birds, hedgehogs / reptiles before vegetation removal as outlined in the Ecology Impact Assessment.
- 6. Use of the privately-owned land (residential) as identified on boundary shown on drawing 405363-MMD-As-XX-DR-C-1002and subject to key dates in Contract Data Part 1 is under the following conditions:
 - a) The Contractor must complete pre-condition survey with prior notification
 - b) With prior agreement with the *Project Manager*, meet with resident/tenant to explain works and access times and methodology least 10 working days before working in these areas.
 - c) Vehicle access for property to be maintained at all times, unless with prior agreement

S 201.7 Survey of Highways, Properties and Land

Delete sub-clause 1 in clause 1.7 and replace with:

1. Prior to the start of construction activity, the *Contractor* shall carry out a survey with the *Supervisor* in attendance which shall include the taking of photographic and video records of the condition of the existing

highways, properties and lands including trees, boundaries, and any other features which may be affected by the *works* to determine their existing condition.

This shall include as a minimum the following:

- Road and kerb conditions on, existing highways, and private land within the Site
- Lighting columns and street furniture
- Compound areas, including surfaces and street furniture

Alverstoke

- Existing seawall including footway surface, facing blockwork and coping stones
- Palisade boundary fence with land identified as 'Stokesmead'
- Condition of land in Stokesmead, including trees
- Stoke House and Lakeside House:
 - Private driveways and boundary walls (including retaining wall at front) and fencing
 - Visual external and internal condition surveys of buildings
 - Garden planting, grass, shrubs, trees.

Forton

- Existing seawall and Southern Water outfall
- Buildings within Site including adjacent to compound areas
- Trees

Surveys to be carried out by a suitably Chartered Engineer or Surveyor prior to works commencing. The results of each survey for Stoke House and Lakeside House to be agreed by the Supervisor and issued to asset owner prior to entry to the boundary area on Drawing 405363-MMD-AS-XX-DR-C-1002.

Insert the following sub-clause(s) in Clause1.7 of CESWI 7.

5. On Completion of the *works* the *Contractor* shall carry out a second survey with the *Supervisor* in attendance which shall include the taking of photographic and video records of the condition of the existing highways, properties and lands to determine their condition and then identify the extent of any damage which may have occurred. They shall then agree whether any recorded damage was caused or not caused as a result of the *Contractor's* operations. Particular attention shall be paid to the access routes to the *Site*. The second survey S201.7 (5) shall carry out the survey as per S 201.7 (1) and shall include the requirements of the pre-works survey.

S 201.7 (5) to include:

- Photographic and video records
- Visual external structural condition surveys of buildings identified in 201.7 by a Chartered Engineer or Surveyor.

- 6. Any damage to existing highways, properties and land including trees, boundaries, compounds and any other features caused due to the *works* will be reinstated to at least the condition at the start of the *works*.
- S 201.7.1 Pre-Construction Pumping Station inspection

MCHW Series 100 – Preliminaries applies for this clause and supersedes CESWI 7, the following appendix applies to the *works*:

APPENDIX 1/15 ACCOMODATION WORKS

- Alverstoke Only: Prior to any demolition works to the pumping station outfall chamber the Contractor shall carry out a pre-condition survey of the chamber walls and pumping gear. This shall be carried out with the Supervisor in attendance. The Contractor shall confirm the dimensions of the outfall chamber included on the contract drawings and inform the Project Manager and Supervisor of any discrepancies. A representative of Southern Water Services should be in attendance during any surveys of the pumping station that are undertaken.
- 2. Alverstoke Only:

The *Contractor* shall undertake a pre-condition survey of the pumping station walls prior to any works in its vicinity as raised in clause S201.7, so that at a baseline condition can be ascertained. The *Supervisor* shall be in attendance during the survey.

S 201.9 Temporary Fencing and Gates

Insert the following sub-clause(s) in Clause1.9 in CESWI 7.

5. The *Contractor* will provide, fix and maintain 2m high Heras type fencing with fixings at top and bottom of each panel to the perimeter of all boundaries of the site including the compounds. The fencing shall be designed so that it can withstand wind loading. The only exception will be the water side of the working areas, in which case the *Contractor* will provide sufficient demarcation, signage and access controls to prevent accidental unauthorised access to the site. All site fencing shall be inspected daily and defects made good as soon as is practicable and within 1 day of identification.

S 201.10 Interference with Land Interests

Insert the following sub-clause(s) in Clause1.10 in CESWI7.

4. No person shall reside on the Site.

S 201.11 Interference with any Access to Property, Apparatus or Service

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Insert the following sub-clause(s) in Clause1.11 in CESWI7.

5. The *Contractor* shall ensure that access is maintained to Stoke House, Lakeside House and The Rectory on Little Anglesey Road.

S 201.12 Procedure for Complaints and Claims

No further Scope under this heading

S 201.13 Protection against Damage

Insert the following sub-clause(s) in Clause1.13 in CESWI7.

- 4. The *Contractor* shall submit to the *Project Manager* full details of all measures they shall be implementing to protect adjacent structures and shall obtain their approval in writing before starting work in these areas.
- 5. The structures and finished surfaces forming part of the permanent works shall only be used to carry construction traffic when measures approved by the *Project Manager* have been taken to protect them from damage. Notwithstanding this the *Contractor* will be responsible for any damage caused to the permanent works during construction. In particular, care should be taken to protect the new concrete in the condition it is first constructed.
- 6. The existing structures generally provide flood protection to Alverstoke and Forton during extreme storms events including tidal surges. The *Contractor* shall ensure through management of the *works* that Alverstoke and Forton are not placed at an increased risk of flooding from the sea during the *works*. Tidal levels and extreme water levels are presented in Clause S 201.27.

S 201.17 Apparatus of Statutory Undertakers, Highways or Roads Authority and *Others*

Insert the following text in **sub-clause 3 of Clause 1.17** in CESWI7.

The drawing shall be provided to the *Client* prior to Completion.

Insert the following sub-clause(s) in Clause1.17 in CESWI7.

- 5. The *Contractor* shall take all necessary measures to avoid damage to, and further exposure of, the services and associated structures.
- 6. The *Project Manager* and the Statutory Undertaker, Highway Authority or owner concerned as appropriate, shall be notified should any leakages or damage to existing services, highways or roads be discovered, and every facility shall be afforded for the repair or replacement of the apparatus affected.
- 7. If any privately-owned service for water, electricity, drainage etc., passes through the site and is affected by the *works*, the *Contractor* shall locate it and provide an alternative service to the satisfaction of the *Project Manager* before cutting the existing service.

- 8. Should any unidentified service be found to exist, the *Contractor* shall at once give written notification to the *Project Manager* and shall be responsible for making all arrangements for diversion, support and protection as otherwise required by this clause.
- 9. The *Contractor* has sole responsibility for identifying services within the site affecting the *works*, or affected by the *works*, and liaising with Utility companies to resolve any conflicts and agree any necessary working methods to provide the *works*.
- 10. The *Contractor* shall undertake his own services search of the Site and any area affected by the *works* and satisfy themselves as to the position and orientation of any services before any works are undertaken.
- 11.Information from statutory undertakers is provided in the *Site Information*. However, no warranty is given for this information and the *Contractor* is not relieved of any of their obligations under the contract.
- 13.Contact details for statutory undertakers with apparatus known to be within the *Site* are as shown in the *Designer's* Pre-Construction Information pack.
- 14. The *Contractor* shall contact the relevant statutory undertakers prior to the commencement of the *works* to agree working methods, specifications and any supervision required.
- 15. The Contractor is responsible for any lead-in times required by Utility companies for liaison, supervision, checks and approvals, equipment, diversion works or any other interface in the works with Utility companies' apparatus.

S201.17.1 Accommodation Works

MCHW Series 100 – Preliminaries applies for this clause and supersedes CESWI 7 and the following appendix applies to the *works*:

APPENDIX 1/15 ACCOMODATION WORKS

1. Details of accommodation works are given in Tables 2 and 3.

Plot No	Owner/ Occupier	Description of Accommodation Works	Quantity	Item No
Little Anglesey Road	Hampshire County Council	Construction of floodgate supports across Little Anglesey Road. Removal and reinstatement of lampposts along Little Anglesey Road	1 No	-
Stoke House	Stoke House owner	Construction of floodwall along Stoke House/Lakeside house boundary. Removal of existing timber fence and replacement with new timber fence. Removal of plants for storage and re-planting	1 No.	-
Lakeside House	Lakeside House owner (owner) / Lakeside House Tennant (occupier)	Construction of a floodwall along Stoke House/Lakeside house boundary. Removal of existing timber fence and replacement with new timber fence. Removal of plants for storage and re-planting following works.	1 No.	-
Stokesmead open space	Land Owner	Removal and reinstatement of palisade fence to west of Stoke Lake. To be confirmed by <i>Contractor</i> .	1 no.	-
Pumping Station, PO12 2JA	Southern Water	Removal of existing pumping station outfall chamber ceiling slab and replacing with in-	1no.	-

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Table 2: Accommodation works at Alverstoke

situ concrete floodwall
base. Dowels will be
drilled and fixed into
chamber walls to
connect to in-situ base
slab.

Table 3: Accommodation works at Forton					
Plot No	Owner/Occupier	Description of Accommodation Works	Quantity	Item No	
St Vincent College	St Vincent College	All works within St Vincent College boundary	1 No.	N/A	

 The Contractor shall undertake an investigation of the 'unidentified chamber' located in the SWS pumping station area shown on drawings 405363-MMD-AS-XX-DR-C-1022 & 1040 to confirm connections present in this chamber which it proposed to have a sealed chamber access cover to prevent a flood route.

This work should be undertaken at the start of the *works* in association with the accommodation works, above. The *Contractor* shall provide a proposed method for investigation using a suitably sealed camera for the conditions of the chamber for approval by the *Project Manager*.

3. The *Contractor* shall work with SWS for the method statement and risk assessment for the works at the Alverstoke Pumping Station slab to minimise the risks present in this item of work.

S201.17.2 PRIVATELY AND PUBLICLY OWNED SERVICES

MHCW Series 100 – Preliminaries applies for this clause and supersedes clause 1.17 of CESWI 7 and the following appendix applies to the *works*:

APPENDIX 1/16 PRIVATELY AND PUBLICLY OWNED SERVICES

- This Appendix contains details of services and supplies affected by the works, details of preliminary arrangements that have been made with the Statutory Undertakers and Others for the alterations of services and supplies affected by the works and details of any orders already placed – refer to Tables 4 & 5.
- 2. Alverstoke Only:

The locations of services affected by the *works* is shown on drawing 405363-MMD-AS-XX-DR-C-1010

3. The *Contractor* shall make arrangements with the Statutory Undertakers and *Others* concerned, for the co-ordination of their works with all works that need to be carried out by them or the *Contractor* concurrently with the *works*.

- 4. Private services to individual properties have not generally been listed or shown on the drawings. The *Contractor* shall make arrangements with the Statutory Undertakers and *Others* concerned for the phasing of all necessary disconnections and diversions of private services affected by the *works*.
- 5. Disconnected services or apparatus can be removed by the *Contractor* only with the permission of the authority concerned.
- 6. A composite plan showing all existing privately and publicly owned services and diversions that are required is included.
- 7. Original copies of Statutory Undertakers plans will be issued to the *Contractor* together with schemes documentation.

Table 4: List of p the <i>works</i> - Alve	rivately stoke	and public	cly owned	d servio	ces a	and s	uppl	ies aff	fected by	
-	-			~	.1.	-			N 1	-

Owners	Description	Group*	Drawing No.	Notice Required to Commence	Time for Completion
Southern WATER (SW)	N/A	-	-	-	-
Portsmouth Water	N/A	-	-	-	-
Scottish and Southern Electricity (SSE)	Cable at north end of scheme to be split ducted and sealed. Detail 01. Duct to pass under floodgate slab. Duct shall be red and 100mm in diameter. Cables within the footprint of the floodwall base shall be slewn out of footprint to enable floodwall construction works. The <i>Contractor</i> shall inform and gain permission from SSE prior to this work.	E	405363- MMD-AS-XX- DR-C-1010 405363- MMD-AS-XX- DR-C-1100 405363- MMD-AS-XX- DR-C-1330		
Virgin media	Affected cable in Little Anglesey Road near to floodgate area. Depth and location to be confirmed by Contractor. Cable to be split ducted and sealed. Duct to pass through wall upstand and to 100mm diameter and black.	E	405363- MMD-AS-XX- DR-C-1010 405363- MMD-AS-XX- DR-C-1100 405363- MMD-AS-XX- DR-C-1330	-	-

Scotia Gas networks	N/A	-		-
Hampshire County Council	Lampposts to be relocated to facilitate floodwall construction. <i>Contractor</i> to inform Hampshire County Council of required works so that HCC can arrange disconnection of lampposts prior lamppost removal, and so that they can arrange reconnection of electricity supply following lamppost reinstatement.	В	405363- MMD-AS-XX- DR-C-1021	
British Telecom (BT)	Depth and location of BT cable along Little Anglesey Road to be confirmed by <i>Contractor</i> . Cable to be split ducted and sealed. Duct do pass under floodgate slab. Duct to be 100mm in diameter and black.	E	405363- MMD-AS-XX- DR-C-1010 405363- MMD-AS-XX- DR-C-1100 405363- MMD-AS-XX- DR-C-1330	
Groups(*): A =	Work expected to be com	pleted befo	ore the commencement of	
B = C = D = E =	the works. Work required after common require prior work by Work required after common require prior work by the Work expected to be in prive works. Work to be wholly undertained	nencement the Contra nencement Contractor rogress at aken by the	of the <i>works</i> , which does actor. of the <i>works</i> , which does the commencement of the <i>Contractor</i> .	
Table 5: List of p the <i>works</i> - Fort	privately and publicly owne	ed services	and supplies affected by	
Statutory	Description Gr	oup*	Drawing No. Notice	Time for

Undertakers	Description	Group	Drawing No.	Required to Commence	Completion
OPENREAC H – (BT)	Construction of two new jointing chambers either side of stop log sill, and diversion of cable beneath stop log sill.	TBC			

Southern WATER (SW	N/A – does not interact directly. Pipe of the northern outfall is below foundation of proposed flood wall.	N/A	-	-	-
Scottish and Southern Electricity (SSE)	N/A	N/A	-	-	-
Virgin Media	N/A – scheme does not cross any assets.	N/A	-	-	-
Portsmouth Water	N/A – scheme does not cross any assets.	N/A	-	-	-

Groups (*):

A = Work expected to be completed before the commencement of the *works*.

B = Work required after commencement of the *works*, which does not require prior work by the *Contractor*.

- C = Work required after commencement of the *works*, which does require prior work by the *Contractor*.
- D = Work expected to be in progress at the commencement of the *works*.
- E = Work to be wholly undertaken by the *Contractor*.

S 201.18 Traffic Requirements

MCHW Series 100 – Preliminaries applies for this clause and supersedes clause 1.18 of CESWI and the following appendix applies to the *works*:

APPENDIX 1/17 TRAFFIC SAFETY AND MANAGEMENT

S201.18.1 General Requirements

- 1. The *Contractor* shall be responsible for the provision and maintenance of traffic management for the duration of the *works*, including application for necessary permits and concessions unless otherwise agreed with the *Client*.
- 2. All traffic management on public highways, to be reviewed by the *Client* prior to submission to the highway authority (Hampshire County Council) for approval.
- 3. The *Client* will apply for the following applications with Hampshire Highways using information from the *Contractor* who shall plan the *works* to take account of timings and constraints imposed by such permissions:
- a) Footpath closures;
- b) Footpath diversions;
- c) Highway closures;
- d) Highway diversions;
- 4. Phasing of the *works* to be confirmed by the *Contractor*.
- 5. *Forton only:* All Traffic Management within St Vincent's College, to be submitted to the landowner via the *Client*, for approval.

S201.18.2 Pedestrian Safety and Management

- 1. No pedestrian facilities shall be removed until either a temporary footway, has been provided or other suitable alternative arrangements put in place to the satisfaction of the *Supervisor*.
- 2. Pedestrian barriers shall be either; reduced, or zero trip hazard barriers, to the satisfaction of the *Supervisor*.
- 3. Temporary service trenches running across the footway shall be suitably plated and ramped to the satisfaction of the *Supervisor*.

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- 4. All excavations adjacent to the footway shall be adequately guarded, to the satisfaction of the *Supervisor*.
- 5. Alverstoke Only:

There is increased volume of public users to the lake area in periods of warm weather. The *Contractor* shall take account of these additional seasonal risks of public access to *works* area, which may include from the water.

6. Forton Only:

The *Contractor* shall develop site access and traffic management systems with St Vincent's College that address the hazards associated with the student and staff movements, timings of activities and events.

S201.18.3 Control of Dust and Mud on the Road

- 1. The *Contractor* shall ensure that all roads, accesses, and rights of way, leading to, from or crossing the site remain free from mud, slurry or other hazardous substance that is deposited through *works* operations and maintained in a condition suitable for public use. Any such substance deposited on any such road shall be removed immediately.
- 2. Wheel washing facilities will be available on site within the main compound to minimise the distribution of dust and debris on local roads. A twice weekly road sweeper will keep the roads clean of debris and mud. An increased frequency of road cleaning during periods of wet weather, or if twice weekly cleaning proves ineffective will also be employed
- 3. All carriageways are to be swept by mechanical road sweeper (with internal washer tank) immediately prior to any lane being reopened to traffic, and immediately prior to the entire Traffic Management System being removed.
- 4. The *Contractor* shall ensure that all necessary steps are taken to avoid creating a dust nuisance. If, in the opinion of the *Supervisor*, the *Contractor* is not dealing adequately with the control of dust the *Supervisor* may instruct the *Contractor* to carry out such additional measures as deemed necessary at the *Contractor*'s own expense.
- 5. The *Contractor* shall ensure that all vehicles making deliveries to the site shall be enclosed or sheeted to prevent dust or other deleterious matter being deposited on the highway or blown from the vehicles. On the return journey, any vehicles from which dust could still arise shall also be sheeted.
- 6. The *Contractor* and *Supervisor* shall ensure that no water is disposed of from any source in a manner which allows it to flow, or be pumped in a pipe or otherwise, across the surface of any Public Highway.
- 7. Measures shall be taken to ensure that temporary discharges into new or existing drainage systems or watercourses whether intentional or accidental, shall be adequately trapped to remove oil, silt and other pollutants.

S201.18.4 Temporary Traffic Regulation Orders (TTRO)

- 1. Alverstoke Only:
- TTROs will be applied for by the *Client*, based on information supplied by the *Contractor*. Any amendments are the responsibility of the *Contractor*.

S201.18.5 Temporary Highways for Traffic

MCHW Series 100 - Preliminaries applies for this clause

APPENDIX 1/18 TEMPORARY HIGHWAYS FOR TRAFFIC

1. Temporary Highways shall not be used.

S201.18.6 Routing of Vehicles

MCHW Series 100 – Preliminaries applies for this clause APPENDX 1/19 ROUTING OF VEHICLES

1. No permanent *works* or temporary structures are anticipated to be required by construction traffic.

S201.18.7 Permitted Access to and from the Site

Alverstoke:

- 1. *Contractor*'s site delivery vehicles and HGVs shall use the roads indicated on drawing 405363-MMD-AS-XX-DR-C-1003 to access the site.
- 2. Contractor's delivery vehicles and HGVs shall avoid using Little Anglesey Road to the east of the site as far as is reasonably practicable. Where turning is not possible, vehicles to be escorted back to classified road.
- 3. Access to the Stoke House and Lake House for the construction of the flood defence will be limited to the time periods identified by the *Contractor* on the Programme and approved by the *Project Manager* for the construction this section of flood defence. Construction footprint is to minimised to reduce disturbance to these properties. Prior notice of at least one calendar month for the proposed access dates is required to inform the residents of the planned construction periods.

Forton:

- 4. Access to the site shall be from the landward side via entrances to St Vincent College off of Mill Lane. Deliveries of materials or plant by water shall be prohibited.
- 5. The *Contractor* should note that the current traffic management for Mill Lane/ Forton Road prohibits a right turn from Mill Lane onto Forton Road. The *Contractor* shall include any temporary changes for the works period in their Traffic Management Plan and obtain the required consents from the Highway Authority (Hampshire Highways).

S201.18.8 Movement of Plant and Machinery

- 1. Labour, Plant and Equipment shall be kept within the confines of the Site and shall not use areas of carriageway within the working areas that are open to the general public, except in the following circumstances:
 - (i) Labour and Plant required for traffic management purposes.

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11.No item of Plant or machinery shall be operated on carriageway lanes open to the general public in such a manner that it would disrupt the normal flow of traffic. Mechanical road sweepers undertaking cleansing works to the road are exempt from this restriction.

- 12.Track operated vehicles and Plant will only be permitted to work or run on the sections of carriageway which are to be reconstructed or overlaid, unless the surface over which movement is to take place is protected to the satisfaction of the *Supervisor*.
- 13. The *Contractor* shall ensure that sleepers or other protection is provided to protect all drains or ducts wherever Plant or vehicles are to cross such drains or ducts. Drains or ducts that are damaged or disturbed shall be replaced immediately.

S 201.19 Emergency Arrangements

Insert the following sub-clause(s) in Clause1.19 in CESWI7.

- 3. The Contractor shall be responsible for Site security.
- 4. The *Contractor* shall be responsible for the safe storage and insurance against damage and theft of all materials and equipment.
- 5. The *Contractor* shall compile and distribute an emergency telephone number contact list. It should include at least 2 numbers at which responsible representatives of the *Contractor* can be contacted at all times outside normal working hours in order to enable emergency action to be implemented in the of trespass, safety issues, storms, high water levels, event of storms, tidal surges etc.
- 6. The Contractor shall maintain arrangements whereby they can call out within 3 hours People, Equipment and Materials outside normal working hours to carry out any work needed for an emergency associated with the works. The Contractor shall provide the Project Manager at all times with the names and telephone numbers of at least two senior members of the Contractor's site team who are responsible for organising emergency work. Employees shall be made aware of any relevant arrangements, including those of the Client, which are in existence for dealing with emergencies
- 7. Emergency vehicle access shall be maintained at all times.
- 8. The *Contractor* shall provide and give reasonable access to members of the emergency services, Environment Agency or/and the *Client* who may inspect the Site.

S 201.21 Environment and Sustainability

- 1. Design and construction of the *works* shall be carried out in accordance with the Construction and Environmental Management Plan.
- 2. All Site operations shall be managed to minimise waste of construction materials and maximise the recycling of waste.

- 3. The *Contractor* shall make their Site staff and subcontractors fully aware of any specific environmental practices relevant to the Site, including the process for reporting environmental incidents specified in the Contract.
- 4. The *Contractor*'s methods should action:
 - a) Avoidance of pollution of any waters, (lagoon, surface or underground).
 - b) Avoidance of pollution of any land.
 - c) Avoidance of nuisance of sounds, vibrations and dust.
 - d) Preservation of flora and fauna.

Construction and Environmental Management Plan [CEMP]

5. The Contractor must comply with all conditions of the planning permissions and any other licences required. A CEMP will be required to discharge planning conditions and any other licences required and shall comply with the requirements of this specification. The CEMP is a live document and can be updated during the works. The Client will produce the CEMP in conjunction with the Contractor. Should the Contractor require that the CEMP is updated or amended, they are responsible for preparing the required information to allow the Client to update the CEMP for submission to the Local Planning Authority and other relevant bodies for approval.

The CEMP will be written by the *Client* working with the *Contractor* for an agreed plan to allow works to be compliant with the conditions issued by licensing bodies.

6. The *Contractor* must continue to operate in accordance with the latest approved CEMP until any revisions are approved by the Local Planning Authority, taking due regard of statutory consultation and decision periods.

The CEMP will include (but will not be limited to) the following specific requirements which form part of the Scope:

- a) Equipment which leaks any fuel, lubricant or hydraulic fluid shall not be used to complete the *works*, and should either be repaired or removed from site within 3hrs of being identified by the *Supervisor* or the *Contractor*.
- b) Biodegradable hydraulic fluid shall be used.
- c) Equipment shall be maintained to ensure efficiency and to minimise emissions
- d) Equipment shall be cleaned before delivery to the site.
- e) Fuel and oil storage shall be away from watercourses and sensitive habitats (lowland meadow, saline lagoon and saltmarsh), fully bunded to 110% of the maximum storage capacity and maintained in a secure and clean manner. Delivery and vent pipes shall terminate within the bund.
- Refuelling or servicing of equipment shall be carried out in designated locations away from watercourses, sensitive habitats (lowland meadow, saline lagoon and saltmarsh) or surface drains
- g) Refuelling shall be supervised and shall be carried out by pumping through a trigger type delivery nozzle.

- h) A supply of oil absorbent materials shall be readily available on site at all times (e.g., in cab of plant/ equipment).
- i) A spill kit (including booms for potential leaks directly into the marine environment) should be kept on Site at all times during operation. Any fuel, oil or chemical spill or leakages must be reported to the Environment Agency, Marine Management Organisation, the *Supervisor* and the *Project Manager* immediately.
- j) Any spillage shall be immediately contained, removed from Site and disposed to a licensed tip, the *Project Manager* being promptly notified.
- k) It is recommended that all plant is specified to be fuelled with biodiesel.
- Precautions should be taken to minimise any risk of the Southern water pumping station discharging during a spillage as flow rate would impact emergency protocols
- m) Concrete shuttering shall be designed to prevent escape of cementitious material, especially where it could contaminate water.
- n) Timber used for temporary and permanent works shall be from a temperate, sustainable source.
- o) Timber preservative treatment (if required) shall be carried out away from watercourses and sensitive habitats (lowland meadow, saline lagoon and saltmarsh) in a manner to avoid any spillage or loss.
 - p) The *Contractors* shall provide a supply of water and means of dispensing it, to dampen dust.
 - q) The sweeping of any dust or dusty material should not occur without effectively treating it with water in order to minimise its emission from the site. Access roads in the vicinity of the site shall be kept clear of debris, through the use of a road-sweeper if necessary.
 - r) All skips used for the storage of waste shall be kept covered so far as is reasonably practicable.
 - s) Care is to be taken with the handling of excavated arisings so that they are contained and not unnecessarily released into the environment.
 - t) Any suitable bird nesting habitat e.g. trees and shrubs, that needs removing will be undertaken outside of the breeding bird period i.e. vegetation clearance is permitted during September to February inclusive. If this is not possible, and vegetation clearance is required during the breeding bird season (March to August inclusive), all potential nesting habitat that needs to be removed will be carefully examined by a suitably qualified ecologist. If nests are found, the work in that area will stop, with a 5-metre buffer placed around the nest. Clearance would only be undertaken once the nest becomes unoccupied of its own accord. Any documentation for Assent must be accepted by the *Project Manager* prior to submission to Natural England.
 - u) Alverstoke Only:

When working within the root protection area of the two TPO trees on the Alverstoke site, all efforts will be made to protect the tree under the guidance of the Gosport Borough Council arboriculturist. 10 working days' notice should be given to the *Project Manager* for the arboriculturist. The arboriculturist will need approve method statements associated with works to the TPO trees. The *Contractor* will follow the following procedure when working in the root protection area of the TPO trees protection area;

- Remove the minimal number of overhanging branches in order to gain access.
- If this removal of branches undermines the 'balance 'of the tree a decision from the Tree Protection Officer or a qualified arboriculturist will need to be obtained to see if the removal of the tree would then be appropriate.
- Will dig using hand tools only
- If a root is encountered all effort will be made to keep it in within the design parameters and under the advice of the Gosport Tree Protection officer or qualified arboriculturalist.
- If the root cannot be kept it will have to be removed, we would need to seek advice from Tree Protection Officer/ or qualified arboriculturist on the best method of carrying this out.
- If 25% or more of the roots are affected then the tree is unlikely to survive, and the tree will have to be removed in conjunction with advice from Tree Protection Officer/ or qualified arboriculturalist
- v) All plant is to be equipped with suitable spill kits and operatives trained in use
- w) Repointing works will only take place at low tide. No machinery or equipment is permitted on the foreshore.
- x) Works (excluding soft landscaping) within Forton area shall be undertaken between 1st April until 30th September inclusive.
- y) Deliveries and on site traffic shall be controlled through a Traffic Management Plan (provided by the *Contractor*, submitted alongside the CEMP)
- z) A 5mph speed limit shall be enforced on site
- aa)Exit and entrances shall be signed to warn road users and pedestrians
- bb) Footpath closures shall be signed to warn the public of the construction works
- cc)The *Contractor* shall submit a Site Waste Management Plan (SWMP) to the *Project Manager* for acceptance prior to works commencing. The *Contractor* should adhere to the accepted SWMP;
- dd)Waste shall be stored in the compounds only in designated areas that are isolated from any surface water drains and open water.
- ee)Waste shall be segregated for ease of off-site recycling
- ff) All waste transfers accompanied by completed Waste Transfer Notes gg)Concrete washout shall be in suitably lined skips in the main site compound should be located in north western section of the Alverstoke compound or 10m away from the nearest watercourse/ surface water drain and sensitive habitats (lowland meadow, saline lagoon and saltmarsh)
- 7. All new timber shall be provided from a managed renewable resource and certified as such by an independent inspection agency accredited by the Forest Stewardship Council.
- 8. In executing the *works* the *Contractor* shall take all necessary precautions to secure the efficient protection of the foreshore and all rivers, streams, waterways, drains, and the like against pollution which may be likely to contaminate water supplies or cause injury to fish or
plant life and shall comply with the requirements of the Environment Agency. Information is available in the Environment Agency's "Pollution Prevention Guidance" notes. Pollution can result in unlimited fines and a custodial sentence. For the individual responsible and the higher levels of management who are responsible.

- 9. The *Contractor* shall not be permitted to make discharges of any kind into watercourses or sewers without the prior written consent of the appropriate authority and shall comply with all their requirements in respect of discharges.
- 10. The *Contractor* shall employ a dust suppression system where appropriate.
- 11. Non-road mobile machinery (NRMM) and plant shall be well maintained. If any emissions of dark smoke occur, then the relevant machinery should stop immediately and any problem rectified. In addition, the following controls should apply to non-road mobile machinery:

a)all NRMM should use fuel equivalent to ultra-low sulphur diesel (fuel meeting the specification within EN590:2004);

- b)all NRMM should comply with either the current or previous EU Directive Staged Emission Standards (97/68/EC, 2002/88/EC, 2004/26/EC). As new emission standards are introduced the acceptable standards should be updated to the previous and most current standard;
- c)all NRMM should be fitted with Diesel Particulate Filters (DPF) conforming to defined and demonstrated filtration efficiency (load/duty cycle permitting);

d)the ongoing conformity of plant retrofitted with DPF, to a defined performance standard, should be ensured through a programme of on-site checks; and

- e)implementation of energy conservation measures including instructions to throttle down or switch off idle construction equipment; switch off the engines of trucks while they are waiting to access the Site and while they are being loaded or unloaded, ensure equipment is properly maintained to ensure efficient energy consumption.
- 12. The *Contractor* shall be responsible for producing a construction phase Site Waste Management Plan (SWMP) detailing how all materials generated at the site will be dealt with prior to the *works* commencing on site, and updated as required during the *works*.

13. A contaminated land method statement and materials management plan will be produced for approval by Gosport Borough Council prior to the commencement of construction works. These will include details of:

 Where soils will be stored, tested and transferred, and the approach to be used when soils excavated do not meet re-use criteria;

- A strategy for dealing with any unexpected contamination encountered during construction; and
- Construction best practice techniques to reduce the risk of transferring any contaminants.

Any materials to be re-used within the works will be managed in accordance with the approved materials management plan and contaminated land method statement, as well as the site waste management plan. Any materials to be imported for the works will be tested to ensure they are clean and suitable for the proposed use prior to importation and placement within the works.

Should de-watering of excavations be required during construction, the groundwater quality will be assessed to understand discharge options and discussions held with the Environment Agency, GBC Contaminated Land team and Southern Water to understand their requirements. Any contaminated groundwater will be discharged of appropriately off site. A licence will be obtained for any dewatering activities where abstraction lasts for more than 6 months or daily abstraction exceeds 100m³.

<u>Reason</u>: To minimise adverse effects on habitats and species within the lagoon and ensure the conservation status of the Portsmouth Harbour SPA and Ramsar site

14. The *Contractor* shall adhere to DEFRA guidance (Construction Code of Practice for the Sustainable Use of Soils on Construction Sites) to ensure that damage to soil is minimised.

S 201.25 Licences and Consents

- 1. The *Client* is responsible for obtaining the following licences / consents:
 - a) Environmental Permit for permanent works from the Environment Agency (Flood Risk Activity Permit [FRAP]);
 - b) Planning Permission from the Local Planning Authority, including works related to the Tree Preservation Order on Alverstoke Site.
 - c) Land Drainage Act notices for the works
 - d) Marine Licence (Marine Management Organisation)
 - e) Temporary Traffic Regulation Order (TTRO)
 - f) Hampshire Highway Consents for working on the public highway

Copies of these, will be made available to the *Contractor* once obtained all conditions must be adhered to by the *Contractor*.

- 2. All other licences, consents and authorisations required to undertake the *works* are the responsibility of the *Contractor* to acquire and pay for. The *Contractor* shall comply with any conditions attaching to these additional licences, consents and authorisations.
- 3. In particular the Contractor shall obtain, if required:
- a) Environmental Permit for temporary works;
- b) Permit to discharge water

- 4. Licence Conditions.
 - a) The *Contractor* must ensure that all wastes are stored in designated hardstanding areas that are isolated from surface water and open water drains.
 - b) The *Contractor* must notify the MMO Marine Pollution Response Team of any oil, fuel or chemical spill within the marine environment. Contact details are:
 - i. Within Office hours 0300 200 2024
 - ii. Outside Office hours 07770 977 825
 - iii. At all times if other numbers out of order 0845 051 8486
 - c) The *Contractor* must ensure that any coatings or treatments used during the *works* are suitable for use in the marine environment and are used in accordance with best environmental practice.
 - d) No waste concrete slurry or washout from concrete or cement works is to be discharged into the marine environment. Concrete and cement mixing and washing areas should be contained and sited at least 10m from any watercourse or surface water drain.
 - e) Any further licensed conditions, to be confirmed at the pre-contract meeting.

S 201.26 Setting-out of the works

MCHW Series 100 – Preliminaries applies for this clause and supersedes CESWI 7 and the following appendix applies to the *works*:

APPENDIX 1/12 SETTING OUT AND EXISTING GROUND LEVELS

- 1. In general:
 - a) The *Contractor* shall check the provision of any reference points shown on the contract drawings or included within the Site Information, and confirm their positions and levels with the *Supervisor* before use for setting out the *works*. The *Contractor* shall inform the *Project Manager* when all setting out reference points have been agreed, checked and confirmed.
 - b) The Contractor shall, in accordance with the Contract Drawings, ensure that the site is set out, marked and maintained until no longer required, including all reference lines, templates, benchmarks and markers, permanent or temporary, necessary for the setting out and checking of the *works*.
 - c) Where setting out markers are likely to be disturbed during the *works*, the *Contractor* shall move such markers to an adjacent point.
 - d) Benchmarks shall be established for each section or phase of the *works*.

- e) If any of the benchmarks becomes displaced during the course of the *works*, the *Contractor* shall re-establish them immediately at their expense.
- f) Existing ground levels are to be found within the topographic drawings provided within the Site Information.
- g) Setting out points for the scheme are provided within the drawings.
- 2. Markings for Setting Out Purposes:
 - a) The following colour coding shall be used for marking the surface of carriageways and footways to indicate the locations of underground services and for setting out purposes:

Table 6: Markings for setting out purposes

Authority	Paint Colour	Letter Code
Water (Southern Water)	Blue	W
Electricity (Scottish and	Red	E
Southern Electricity)		
Telecom (Openreach BT)	Silver Grey	Т
Cable Television (Virgin Media)	Green	
Gas (Scotia Gas)	Yellow	G

3. Recording of Existing Details

a) The *Contractor* shall ensure that items to be removed and subsequently replaced are surveyed and their locations recorded by reference to temporary benchmarks.

4. Existing Structures

Alverstoke Only:

- a) The coping stones (top stones) of the existing masonry wall along Stoke Lake shall be lifted and the landside edge of the existing wall shall be surveyed by the *Contractor* at an early stage of the *works*, prior to the development of bar schedules and fabrication drawings of the Precast Concrete Units (refer to S301.1) and subsequent issue to the *Project Manager* for acceptance, allowing approval by the Principal Designer so that any potential clashes between the existing masonry wall and the proposed floodwall can be determined. The *Project Manager* and *Supervisor* shall be informed of the survey's outcome.
- b) A survey shall be carried out of the pumping station chamber outfall as per requirements of Section S201.7).
- 5. At interfaces between different wall geometries in adjacent panels, the *Contractor* shall as far as is practicable achieve a smooth transition over the length of a full bay rather than obvious steps/discontinuities from one panel to the next.

S 201.28 Publicity and Release of Information

1. The written permission of the *Project Manager* must be obtained before any information concerning the *works* is published. The *Contractor*

shall be responsible in this matter for the actions of their own employees, subcontractors and suppliers.

S 201.29 Lighting of Fires

1. Fires shall not be lit on the Site for any purpose.

S 201.30 Control of Noise and Vibration

MCHW Series 100 – Preliminaries applies for this clause and supersedes CESWI 7 and the following appendix applies to the works:

APPENDIX 1/9 CONTROL OF NOISE AND VIBRATION

S201.30.1 General

- 1. The Local Authority having responsibility for the area is Gosport Borough Council.
- 2. It is for the *Contractor* to decide whether to seek the Local Authority's formal consent to his proposed methods of work and to the steps they propose in order to minimise noise.
- 3. The *Contractor* shall adhere to the requirements detailed within Construction and Environmental Management Plan (CEMP), in addition to the requirements in this Appendix.

S201.30.2 Working Hours

- 1. For all works; normal working hours are between 0700hrs and 1900hrs. noisy works (as raised in item 3 of Clause 201.30.3) are permitted after 0800hrs.
- 2. Different activities to those noted at the above times specified will not be permitted except during an emergency or as agreed with the *Project Manager*. Different activities also include pre-work activities where noise or nuisance is created, e.g. starting pumps, operating machinery, reversing vehicles (where fitted with warning siren) etc.
- 3. No work shall be carried out at the weekends or any Bank Holiday without prior written consent of the *Project Manager*. Such consent would only be given in exceptional circumstances.
- 4. The *Contractor* shall notify the *Supervisor* prior to all residential properties within 200m of the site boundary at least seven days in advance of any proposed evening, weekend or night working.
- 5. The *Contractor* shall notify the *Supervisor* and all residential properties within 200m of the site boundary at least seven days in advance of any proposed evening, weekend or night working.

S201.30.3 Noise

1. Without in any way limiting the liabilities and obligations imposed upon the *Contractor*, the *Contractor* shall always undertake the *works* in such

a manner as to minimise the levels of site generated noise as far as is practicable

- 2. The best practicable means, as described in Section 79(9) of the Environmental Protection Act 1990, to reduce noise to a minimum shall always be employed.
- 3. During normal working hours, noise levels outside the nearest window of the occupied room closest to the site boundary should not exceed 65dB (LAeq(12hr)).
- 4. Procedures for noise control and the assessment of site noise shall include the following:
 - (i) Control of noise at source by suitable selection of Plant, use of enclosures etc;
 - (ii) Careful siting/orientation of Plant;
 - (iii)Minimising reversing (and therefore the sounding of audible reversing alarms) at all times;
 - (iv)Vehicles and Plant shall be shut down or throttled down to a minimum in the intervening periods between works.
 - (v) Ensuring that all staff and operatives are briefed on the requirement to minimise nuisance from site activities.
- 5. The *Contractor* shall ensure information signs are placed around the *works* area providing contact details for any complaints to be sent to and promptly dealt with.
- 6. Piling shall not be permitted by the *Contractor*. It is not foreseen that any form of piling would be required during the *works*.

S201.30.4 Vibration

- 1. The use of non-vibratory rollers shall be considered when working adjacent to residential properties.
- 2. Piling shall not be permitted by the *Contractor*. It is not foreseen that any form of piling would be required during the *works*.
- 3. The *Contractor* shall limit transient vibration levels arising from site activities to the values contained in Table 8 from BS 5228:2009 Code of practice for noise and vibration control on construction and open sites Part 2: Vibration.

Table 8: Transient Vibration Guidelines for Cosmetic Damage

Type of Building	Peak Component particle velocity in frequency range of predominant pulse			
	4 Hz	15 Hz and above		
Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s at 4 H z and above	50 mm/s at 4 H z and above		
Un-reinforced or light framed structures Residential or light commercial buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above		

Notes:

- 1) Values referred to are at the base of the building.
- For un-reinforced or light framed structures at frequencies below 4 Hz, a maximum displacement of 0.6mm (zero to peak) should not be exceeded.
- 4. The values in Table 3 relate to the maximum peak particle velocity measured in any of the three orthogonal components. The values should be reduced by 50% when the vibration is continuous, and if the building exhibits existing significant defects of a structural nature (such as a result of settlement).
- 5. The measurement and evaluation of vibration shall be in accordance with the guidance given in BS 4866 for 'control' monitoring, and should utilise equipment capable of measuring the peak particle velocity time history over a frequency range 1Hz to 300Hz.
- 6. Monitoring shall be undertaken continuously, starting 1 week prior to commencement of construction and continuing throughout the construction period. The location of vibration monitoring shall be agreed with the *Supervisor* and reviewed as construction activities progress.
- 7. Monitoring is to be conducted by a specialist consultant as nominated by the *Client* who will provide the results of the vibration monitoring to the *Supervisor* once per week.
- 8. If vibration levels exceed the limits stated above The *Contractor* shall identify the cause and propose remedial actions to comply with the vibration limits stated in this clause where practicable, in the event this shall be agreed as a matter of urgency.

S201.30.5 General Environmental Requirements

- 1. Burning material on site shall not be permitted.
- 2. Machinery with obvious defects, e.g. Plant which emits an unreasonable amount of noise or exhaust smoke, shall be withdrawn from service without delay.
- 3. The *Contractor* shall comply with the requirements of the Construction Environmental Management Plan and generally ensure that all reasonable measures are taken to minimise the risk of disturbance of wildlife.
- 4. The *Contractor* shall ensure that all reasonable measures are taken to minimise the risk of disturbance.
- 5. The *Contractor* shall ensure that all reasonable measures are adopted, which may include the provision and use of adequate water spraying Equipment, etc. to minimise dust nuisance.
- 6. The *Contractor* shall employ methods to prevent materials, and any wash-down which may contain contaminants (cement) from working areas from entering the lake or other waterways.
- 7. The *Contractor* shall use suitable dust suppression kits when carrying out works which generate dust.

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8. Alverstoke only:

No vehicles or mobile mechanised equipment shall access Stoke Lake foreshore area, or other waterways. No temporary works to be

constructed on the foreshore. Personnel and handheld equipment are allowed on the foreshore for works in tidal area only - including maintenance on the existing wall, drainage outfalls and environmental enhancements.

9. Forton only:

No vehicles or mechanised equipment shall have access to Forton Lake, foreshore area or other waterways. Personnel and handheld equipment is allowed on the foreshore for works in tidal area only.

10. The *Contractor* shall take special care by the provision of suitable bunding and appropriate spill kits to contain any spillages of diesel fuel or oil stored on site. Refuelling of vehicles and tools shall only take place in designated areas which shall be located away from the Lake area.

S 201.31 Site Clearance and Protection of Vegetation

- All areas of the site specified or marked on the Drawings for clearance or from which material is to be excavated or upon which filling is to be deposited shall be cleared to the extent required by the *Project Manager* of all buildings, walls, gates, fences and other structures and obstructions and of all bushes, hedges, trees, stumps, roots and other vegetation except for trees marked for preservation.
- 2. Materials identified for reuse shall be carefully dismantled and suitably stored by the *Contractor* until they are incorporated into the *works* or removed from the Site by the *Client*.
- 3. Materials not for re-use shall be disposed of by the *Contractor* off the *Site*.
- 4. The *Project Manager* may order areas of the top surface, including topsoil if any, to be stripped to specified depths as a separate operation prior to any further excavation which may be required.
- 5. The *Contractor* shall be responsible for all vegetation removal. The *Contractor* shall seek advice from a qualified ecologist to ensure vegetation clearance is undertaken responsibly, as outlined in clause S201.21
- 6. The following list summarises the site clearance requirements. If the *Contractor* is unsure as to what action to take with the items listed or other items identified on site then they shall seek clarification from the *Project Manager*. For further detail see clause S201.31.2

Items to be disposed off-site:

Alverstoke:

- Manhole cover by pumping station street lighting column
- 1No. tree located by rear of Broderick Hall at lake corner
- Brick pillar and section of ironwork fence by rear of Broderick Hall at Lake Corner

Forton:

- 1No. tree located near southern corner of existing harbour wall
- Boundary fences to rear of building to be demolished by *Others,* prior to commencement of works on site.
- Timber bollards in car park for building to be demolished by *Others*, prior to commencement of works on site.

Items to be retained for replacement / re-use in the works:

Alverstoke:

- Street lighting column on Little Anglesey Road
- Private Garden Vegetation in construction area
- Bin on footpath
- Steel pallisade fence along Stokemead boundary
- Plaque Stone on lake footpath to be reinstated in same location
- Street lighting column on lake footpath, near pumping station
- Concrete bollards by pumping station
- Street lighting column on path along side of Broderick Hall
- Pallasade fence along side of Broderick Hall
- Sign post at Clayhall Road end of footpath

Forton:

- Signboard located at northern end of site, by training centre
- Bench located at southern harbour wall
- Security gate at road crossing (stop log location)
- Security gate at southern extent of site
- 7. All loose and felled vegetation existing within the footprint of the permanent works or arising from the clearance specified above shall be cleared and removed from the Site. *Alverstoke Only:* Where the material is suitable for use in the brushwood bundles, it should be set aside for re-use.
- 8. Unless otherwise indicated on the drawings all trees within the Site are to be retained. The *Contractor* shall make every effort to avoid damage to these trees during the *works* and shall follow all relevant guidance on this matter including BS5837:2005 Trees in Relation to Construction. Where tree roots are exposed during excavation (within area of TPO root protection area, only hand digging will be allowed) they shall be inspected by the GBC Arboriculturalist for guidance on the action to be taken to the tree to minimise disturbance from the *works*, as specified in clause S201.21
- MCHW Series 200 Site Clearance applies for this clause and supersedes CESWI 7 and the following appendix applies to the *works*:

APPENDIX 2/6 SITE CLEARANCE ENVIRONMENTAL REQUIREMENTS

- i. The treatment of existing trees bushes and hedges, whether retained cut back or removed is shown on the drawings.
- ii. All work on trees shall comply with planning conditions and the requirements of Tree Preservation Orders (TPO).
- iii. Where a Tree Preservation Order is in place, the *Contractor* shall liaise with Gosport Borough Council arboriculturalist, as specified in clause in S201.21.
- iv. Where root protection areas are shown on the contract drawings, the *Contractor* shall confirm the full extent of the roots, ensuring the roots are not damaged as far as is practical. If the roots are found to be located within the construction footprint the *Project Manager* shall be informed so that a way to proceed can be agreed with the Gosport Borough Council Arboriculturist.
- v. The *Contractor* shall refer to the Construction Environmental Management Plan for constraints on clearance (e.g. Nesting Birds), as specified in clause S201.21.
- 10. Bushes, undergrowth or small trees, the trunks of which are less than 300mm in girth at 1m above ground level, tree stumps less than 100mm diameter and hedges to be deposed shall be uprooted and disposed of by wood chipper. *Alverstoke Only:* if suitable, material should set aside for brushwood within the saltmarsh creation area.
- 11. Trees identified for removal shall be uprooted or cut down as near to ground level as possible. All felled timber shall be removed from the Site. All stumps shall be grubbed up or ground out and deposited off the site. Holes left by stumps or roots shall within one week be filled with suitable material.

Alverstoke Only: if suitable, material should set aside for brushwood within the saltmarsh creation area.

- 12. The *Contractor* shall take every precaution to avoid damage to vegetation which is not to be removed.
- 13. Further removal of vegetation shall only be allowed with the *Project Manager's* permission.
- 14. Any further works required by the *Contractor*, including pruning and felling (with the exception of barriers and ground protection within the working area), shall be in accordance with BS 3998 'Recommendations for Tree Work 1989'. BS 5837 and National Joint Utilities Group Volume 4. The *Contractor* shall submit details of the extent of pruning needed and to which trees to the *Project Manager* for approval. Any such works are to be minimised as far as is practicable.
- 15. Where any haulage route, compound or working area outside the permanent works encroaches within 3m of a tree to be retained, the root protection zone (RPA, as defined in BS5837:2012 Trees in relation to Design, Demolition and Construction Recommendations Section 4, Sect 5 and Table D1.) is to be protected by no dig paving construction

using porous surfacing and sub-base materials retained by cell based systems shall be used for roads and paths. *Contractors* undertaking pre-construction tree works are not to encroach on the RPA of trees to be retained with equipment, plant or materials unless given permission by the *Project Manager*. The *Contractor* should refer to the Arboricultural Impact Assessment for the size of RPA for the trees present on site, in the Site Information.

- 16. No material is to be stored within the RPA unless given permission by the *Project Manager*.
- 17. Any proposed reduction in RPA must be balanced by approved branch thinning and subject to confirmation by the *Supervisor*. Where it is necessary to cut branches from trees which are to be preserved, the guidelines in BS3998:2010 Tree Work recommendations are to be followed.
- 18. Where the design requires hard surfaces to be constructed within the RPA of any trees a no dig method of construction shall be adopted.
- 19. If during any earthworks roots from a tree to be retained are encountered they shall be cut with a saw to reduce damage to the tree. Exposed roots shall be covered up within 24 hours of exposure. Where this is not practicable wet hessian may be used as temporary cover.
- **S201.31.1** List of Building etc. or Other Structures to be demolished or partially demolished

MCHW Series 200 – Site Clearance applies for this clause and supersedes clause 3.15 of CESWI 7 and the following appendix applies to the *works*:

APPENDIX 2/1 LISTS OF BUILDINGS ETC, OR OTHER STRUCTURES TO BE DEMOLISHED OR PARTIALLY DEMOLISHED

Buildings or other structures to be demolished or partially demolished as listed in Table 9.

Address	Description	Drawing No.	Ref No.	Requirements
PO12 2JA	Pumping station chamber walls	405363-MMD-AS- XX-DR-C-1022 & 405363-MMD-AS- XX-DR-C-1103	-	Works to the chamber walls and slab – Southern Water

Table 9: Buildings/structures to be demolished or partially demolished

S 201.31.1.1 Demolition of Early Years Centre at St Vincent College

- 1. The Early Years Centre is located adjacent to the alignment of the flood wall at Forton.
- 2. There is an option to include the demolition and reinstatement of the area in asphalt surface suitable for vehicles in these works.

- 3. Should the option in item 2 be included in the works the Demolition should be to BS 6187.
- 4. There should be at least 30mm of asphalt surface course on the reinstatement.
- 5. All services should be capped off in a safe manner.

S201.31.2 Retention of Material for reuse after Site Clearance

MCHW Series 200 – Site Clearance applies for this clause and supersedes clause 3.1 of CESWI 7 and the following appendix applies to the *works*:

APPENDIX 2/3 RETENTION OF MATERIAL FOR REUSE AFTER SITE CLEARANCE

- 1. Refer to Section S 201.26 (Appendix 1/12) regarding the marking out locations of items that shall be reinstalled in their existing location following construction.
- 2. Table 10 lists the materials to be retained from site clearance at Alverstoke
- 3. The locations of materials to be retained from site clearance at Alverstoke are indicated on drawing 405363-MMD-AS-XX-DR-C-1006.
- 4. Table 11 lists the materials to be retained from site clearance at Forton

Description	Location	Delivered to:	Requirements
Palisade Fencing	Alongside footpath by Stoke Lake	<i>Contractor's</i> stores/compound	If the palisade fencing is required to be taken down to facilitate the floodwall works, the fencing shall be stored in a safe area by the <i>Contractor</i> and shall be free from damage. <i>Contractor</i> to reinstate.
Lampposts	Little Anglesey Road	<i>Contractor</i> 's stores/compound	To be reinstated following floodwall construction
Concrete Bollards	Between footpath and pumping station.	<i>Contractor</i> 's stores/compound	To be reinstated following floodwall construction
Sign Post	At intersection between footpath and Clayhall Road	<i>Contractor</i> 's stores/compound	To be reinstated following floodwall construction
Bin	By car park	Contractor's stores/compound	To be reinstated following floodwall construction

Table 10: Retention of Material arising from site clearance

	rable i i i recention el material anemg nem elle elearance						
Description	Location	Delivered to:	Requirements				
Blue security gate	St Vincent College	St Vincent College	To be securely stored by the <i>Contractor</i> .				
Sports Courts fencing	St Vincent College	St Vincent College	To be securely stored by the <i>Contractor</i> .				

Table 11: Retention of Material arising from site clearance

S201.31.3 FILLING OF TRENCHES OR PIPES

MCHW Series 200 – Site Clearance applies for this clause and supersedes relevant clauses of CESWI 7 and the following appendix applies to the *works*:

APPENDIX 2/2 FILLING OF TRENCHES OR PIPES

- 1. Unless otherwise specified on the drawings, filling of trenches and pipes shall be in accordance with sub-Clause 201.4 of the Highways Specification.
- 2. *Alverstoke Only:* All services, pipes and drains within 1m of formation shall be retained unless otherwise specified.

S201.31.4 EXPLOSIVES AND BLASTING

MCHW Series 200 – Site Clearance applies for this clause and supersedes clause 3.14 of CESWI and the following appendix applies to the *works*:

APPENDIX 2/4 EXPLOSIVES AND BLASTING

1. Explosives or blasting methods shall not be used by the Contractor.

S201.31.5 HAZARDOUS MATERIALS

MCHW Series 200 – Site Clearance applies for this clause and supersedes clause 1.20 of CESWI and the following appendix applies to the *works*:

APPENDIX 2/5 HAZARDOUS MATERIALS

1. Contamination testing results are provided in the Site Information. Should any hazardous materials be encountered the *Project Manager* shall be informed immediately.

S 201.32 Temporary Working and Access Areas Not to be Re-shaped as Part of the *works*

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1. The *Contractor* is reminded of their obligations to include for the preparation for, the use of, and the reinstatement and maintenance of all site areas to at least their original condition. This shall apply to

areas where original ground contours are not to be reshaped as part of the *works*.

- 2. On commencement of the *works* in any section the *Contractor* shall firstly remove topsoil, where present, from such areas that they propose to use. The topsoil shall be stored and re-used in accordance with the Specification. Reinstatement shall be in accordance with the Specification.
- 3. The *Contractor* shall adhere to DEFRA guidance (Construction Code of Practice for the Sustainable Use of Soils on Construction Sites) to ensure that damage to soil is minimised.
- 4. Suitable temporary haulage roads shall be constructed or other measures taken as necessary to minimise damaging topsoil structure during occupation.
- 5. Areas which exist as unpaved land shall be reinstated to at least their original condition.
- 6. Temporary footpaths are to be 1.5m wide and suitable for pedestrian and disabled access in all weather, with the *Contractor* specifying the material detail. They shall be cleared and repaired as necessary to maintain access at all times. Areas which exist as footpaths or pathways shall be reinstated to at least their original condition.

S 201.33 Parking

- 1. The *Contractor* shall accommodate all site staff parking within the *boundaries of the site office compound* as far as is reasonably practicable.
- 2. The *Contractor* shall provide space within the *boundaries* of the site office compound for a minimum of 3 no. *Client* vehicles.

S 201.35 Use (or non-use) of Explosives

1. The use of explosives is not permitted.

S 201.36 Restrictions on the use of hazardous materials

Refer to S 201.31.5 Hazardous Substances.

S 201.37 Storage of Fuel and Chemicals

Refer to S 201.31.5 Hazardous Substances.

S 201.38 Pollution, Ecological or Environmental Impacts

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Refer to S 201.21 Environment and Sustainability.

S 201.39 Archaeological Requirements

- 1. The *Contractor* is to ensure that all works are undertaken in accordance with the recommendations set out within the Archaeological Mitigation Strategy [AMS]. Principally the *Contractor* must ensure that:
 - a) The *Contractor* shall liaise with the appointed archaeologist to ensure that no works subject to the archaeological watching brief are undertaken either in full or in part without the archaeologist being present.
 - b) If instructed by the Supervisor, the Contractor will stop work and allow the archaeologist to take samples, photographs, make sketches or measurements or carry out any other work to record or preserve any archaeology discovered during the works.
 - c) The *Contractor* is to assist the archaeologist, if required, in the execution of their work.
 - d) Should the *Contractor* uncover archaeological remains during the *works* the *Supervisor* and the archaeologist are to be informed and work in that location will stop until the *Contractor* is further instructed by the *Supervisor*.
 - e) The *Client* will provide the *Contractor* with the details of the appointed archaeologist and the *Contractor* is to work with the archaeologist to develop any method statements for works where archaeological support is required.

S 201.40 Interface between the works and Existing Things

Refer to S 201.13 Protection against Damage.

S 201.41 Occupied Premises and Users

No further Scope under this heading.

S 201.42 Client Specific Policies and Procedures

No further Scope under this heading.

S 201.43 Constraints Imposed to Meet Requirements of Others

- 1. *Alverstoke Only:* The *Contractor* shall fulfil the requirements for the *works* associated with the work undertaken on the private properties for the construction of the northern section of flood defence. This includes the site boundary and key dates for the work in this area.
- 2. *Forton Only:* The *Contractor* will fulfil the requirements raised for the *works* associated with the work undertaken on the college property. This includes:
 - i) Maintaining access for public into college and via northern access entrance for northern tenants.
 - ii) Maintaining pre-agreed access for oil deliveries and boiler room to rear of arts building.
 - iii) Maintaining access for MS society shed adjacent to the compound area.

S 201.44 Confidentiality

No further Scope under this heading.

S 201.45 Security and Protection of the Site

1. Refer to S 201.19 Emergency Arrangements and S 201.9 Temporary Site Fencing and Gates.

S 201.46 Security and Identification of People

1. *Forton only:* The *Contractor* will need to comply with the safeguarding requirements of St Vincent's College when working on this site. The site is located outside the secure area of the campus.

S 201.47 Protection of existing structures and services

Refer to S 201.13 Protection against Damage.

S 201.48 Protection of the works

Refer to S 201.13 Protection against Damage.

S 201.49 Cleanliness of roads

Refer to S 201.18 Traffic Requirements.

S 201.50Traffic management

Refer to S 201.6 Entry onto the Site and S 201.18 Traffic Requirements.

S 201.51 Condition survey

Refer to S 201.7 Survey of Highways, Properties and Land.

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S 201.52 Consideration of Others

No further Scope under this heading.

S 201.53 Industrial Relations

No further Scope under this heading.

S 201.54 Control of Site Personnel

No further Scope under this heading.

S 201.55 Site cleanliness

Refer to S 201.5 Tidiness of Site.

S 201.56 Waste Materials

No further Scope under this heading.

S 201.57 Deleterious and hazardous materials

No further Scope under this heading.

S 201.58 Delivery and collection times

- 1. Deliveries to the Site, including the collection of plant, equipment and materials from the site are permitted during normal working hours Monday to Friday.
- 2. The *Contractor* must make adequate provision to prevent site delivery vehicles impacting on the public highway. Vehicles entering the site to have priority over vehicles leaving the site.

S 201.59 Reuse of Bulk Materials

1. During the *works* it is anticipated that it may be suitable to reuse excavated materials elsewhere within the Site. Any soils re-used must be tested by the *Contractor* against the following criteria at a frequency of at least 1test per 50m³ of material or if heterogeneous material is encountered 1test per 50m³ of each distinct type of material before any materials can be accepted for reuse by the *Supervisor*.

Table 12. Testing Analysis

Laboratory Analysis	Testing Parameters
Moisture Content	N/A
Density (linear measure of)	N/A
Contam. Suite	Topsoil Contamination Suite: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Zinc, Speciated PAH, Aliphatic / Aromatic Speciated TPH, pH, FOC, SOM

2. Both soils for reuse and imported soils shall be subjected to testing to the Contamination suite of analysis. One in three samples subject to testing must be scheduled for leachate testing (ENV2 Leachate Suite) to analyse the amount of potential contaminants which could leach from the soils. These values would then be compared to the EQS (Saltwater).

Table 7. Leachate Analysis

ENV2 Leachate	Preparation of a leachate from a soil sample and testing for a
Suite	suite of contaminants including: Arsenic, Cadmium, Chromium,
	Copper, Lead, Mercury, Nickel, Selenium, Zinc, Speciated PAH,
	Aliphatic / Aromatic Speciated TPH and pH.

3. All samples will be recovered, preserved, stored and analysed in accordance with the requirements of BS10175:2011+A1 2013 and analysed by a laboratory where chemical laboratory testing is undertaken must be UKAS and MCERTS

accredited. The locations of all samples will be logged using GPS equipment and plotted on a survey plan.

- 4. Assessment Criteria
 - a) Any soil analysis results will be compared to the following criteria (in order of preference) for land use, Public Open Spaces (Parks):
 - i. Defra Category 4 Screening Levels;
 - ii. LQM/CIEH Suitable for Use Levels;
 - iii. AGS/EIC Generic Assessment Criteria.
 - b) Should the samples show elevated results compared to the aforementioned criteria, then the samples will be submitted for leachate analysis and results compared to:
 - i. EQS (Saltwater).
 - c) Should results show as elevated, then they will be assessed for suitability using the Environment Agency's "Hydrogeological Risk Assessment for Land Contamination" guidance.
 - d) All samples will be marked on the site plan, and any samples that exceed the threshold levels of any substance will be clearly marked and cross referenced to the laboratory results.
 - e) The combined results and site plan will be used to determine which areas of topsoil, subsoil and made ground are suitable for reuse without any remediation or management; which areas of topsoil, subsoil and made ground are suitable for reuse with some remediation or management; and which areas are considered too contaminated for reuse and are to be disposed off-site.
 - f) The destination of all excavated arisings proposed for reuse, and any management or remediation techniques employed will be agreed with GBC Contaminated Land Team.
 - g) Any arisings to be removed off-site for disposal, will be disposed of in accordance with waste management legislation including the Landfill Regulations 2002 (as amended) and the Hazardous Waste Regulations 2005.
 - h) During construction works and any demolition, the material will be inspected to ensure that it is suitable and stockpiled appropriately ready for re-use. The combined existing chemical results and site plan will be used to determine which areas of soils are suitable for reuse without any remediation or management. Any materials that have olfactory evidence of contamination and not considered suitable for re-use (i.e. above acceptable threshold limits) should be disposed off-site at suitable licenced facility. Where material is not considered appropriate for reuse, the material will be segregated, stockpiled separately, WAC tested, ready for disposal off site.

- It is proposed that all foreshore arisings will be backfilled over the new structure. As the material is not to be relocated, it is proposed that no testing is undertaken on the foreshore material unless visual or olfactory evidence suggests the material may be contaminated.
- j) All landward material excavated and set aside for reuse is to be stockpiled and all stockpiles are to be marked on a site plan, recording their location, footprint and height. Stockpiles are to be appropriately covered and maintained throughout the *works* until the material is reused. Upon reuse, the final destination of all stockpiles is to be noted by the *Contractor* and recorded on a re-use plan which is to be provided to the *Client* upon Completion of the *works*.
 - 5. It is anticipated that:

Materials are re-used within the scheme where possible to reduce the volume of material deposed off site.

- 6. The *Contractor* shall undertake soil testing of topsoil and made ground proposed for re-use within the site in accordance with the following subclauses.
 - i. The *Contractor* shall submit a method statement and sampling plan to the *Project Manager* describing how the *Contractor* will implement soil testing a minimum of 2 weeks prior to the commencement of testing.
 - ii. Results of the soils tests shall be passed to the *Project Manager* as soon as is practicable.
- 7. The *Project Manager* will confirm within two weeks of receipt of the test results whether the material is:
 - Suitable for reuse on site.
 - Has to be treated prior to reuse on site.
 - Has to be disposed off site.
- 8. No topsoil shall be excavated / re-used within the site until the *Project Manager* has confirmed the above.
- 9. If the soil is unsuitable for use on site then:
 - The *Project Manager* may amend the drawings / specification to mitigate this, and / or:
 - The *Contractor* may have to import / locate suitable material for use as fill to the site, and / or.
 - The Contractor may have to dispose of material off site.

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10. All other materials won from excavations that are not for reuse on site shall be disposed of off-site in accordance with waste management

legislation including the Landfill Regulations 2002 (as amended) and the Hazardous Waste Regulations 2005.

S 201.60 Stability of Existing Walls and Structures

- 1. The *Contractor* shall not rely on, without checking their capacity and condition, any existing structures as a structural support for any temporary works.
- 2. The *Contractor* shall be responsible for ensuring the stability of the existing walls and associated structures (i.e. that they do not destabilise further) during the *works*.
- 3. The length of existing walls that are temporarily exposed and/or made less stable and/or reduced in crest level shall be minimised.

S 201.61 Temporary foot/cycle path diversion

1.*Alverstoke Only:* The *Contractor* is required to provide/maintain a suitable pedestrian diversion route from the north to the south at Alverstoke using Jackie Spencer Bridge as the Right of Way over Stoke Lake.

S301 SECTION 1 – CONTRACTOR'S DESIGN

S 301.1 Works to be Designed by Contractor

MCHW Series 100 – Preliminaries applies for this clause, superseding the relevant clauses in CESWI7, and the following appendix applies to the *works*:

APPENDIX 1/10 PERMANENT WORKS TO BE DESIGNED BY THE CONTRACTOR

- 1. The *Contractor* is to undertake the following elements of permanent and temporary works design for the respective schemes:
- 2. Alverstoke:

The works to be designed by the Contractor are as follows:

- Precast concrete units are to be detailed and manufactured by the *Contractor*, in accordance with the designs given on the drawings. The *Contractor* is responsible for choosing unit lengths, provided they comply with Clause S 2004.3.6 and the planning permission conditions, giving consideration to their methodology for undertaking the *works* and may adjust joint positions where necessary. Reduced number of joints is preferable for aesthetic purposes.
- Reinforcement scheduling Reinforcement for all reinforced concrete in-situ and precast elements shall be scheduled by the *Contractor* utilising the reinforcement drawings provided within the Contract Drawings. The *Contractor* shall be aware of the use of formliners (refer to clause S2004.2.1.1) and the effect this has on nominal cover to reinforcement (refer to clause S 2004.1) when scheduling reinforcement.
- Timber fencing The *Contractor* shall be responsible for the design and fabrication of all fencing including fixings and supports, in accordance with the requirements on the drawings and clause S 1301.1
- Floodgate (Little Anglesey Road) The *Contractor* shall design, detail and fabricate the flood gate to suit the clear opening and supports shown on the drawings. These elements shall adhere to clause S 2002.157.1 of this Specification.
- GRP (Glass Fibre Reinforced Plastics) Formwork The Contractor shall design, detail and fabricate GRP Formwork. GRP Formwork shall adhere to clause S 2004.3.8.3 of this Specification. Note: GRP Formwork design is part of the Contractor's temporary works, however as the Formwork will remain in place and be part of the permanent works, the design shall still be submitted to the Project Manager for acceptance.
- Outfall non-return valves The Contractor shall be responsible for the selection of standard products or the design and fabrication of non-return valves, in accordance with the requirements on the contract drawings and clause S 2002.140.
- 3. Forton:

The works to be designed by the Contractor are as follows:

- Precast concrete coping units are to be detailed and manufactured by the *Contractor*, in accordance with the designs given on the Contract Drawings. The *Contractor* is responsible for choosing unit lengths, provided clause S2004.6 of this specification is adhered to, considering the methodology for undertaking the *works*.
- Reinforcement scheduling Reinforcement for all reinforced concrete elements shall be scheduled by the *Contractor* utilising the reinforcement drawings provided within the Contract Drawings.
- Timber fencing The *Contractor* shall be responsible for the design and fabrication of all fencing including fixings and supports, in accordance with the requirements on the drawings and clause S 1301.1Stop Logs (St Vincent's College service road) – The *Contractor* shall design, detail and fabricate the Stop log system to suit the clear opening and supports shown on the Contract Drawings. This element shall adhere to clause S 2002.157.2 of this Specification.
- Outfall non-return valves The *Contractor* shall be responsible for the selection of standard products or the design and fabrication of non-return valves, in accordance with the requirements on the contract drawings and clause S 2004.140.

The following items apply for both schemes:

- 4. The *Contractor*'s design shall comply with this material and workmanship specification.
- 5. Where the *Contractor* submits an alternative design or detail to that shown on the drawings which is accepted the *Contractor* is responsible for the design of those elements. Any alternative design should be compliant with planning and any other licence conditions prior to construction.
- 6. The Contractor shall submit details of proposed designs and fabrication drawings for acceptance not less than six weeks before they intend to procure them or prior to seeking relevant consents (e.g. planning permission, detailed design sign off). The Project Manager will confirm acceptance no less than 14 days prior to the proposed date of procurement. The Contractor's design submission shall comprise all relevant information, including design calculations and construction or prefabrication drawings as appropriate, to demonstrate compliance with the Specification and Contract Drawings.

APPENDIX 1/11 TEMPORARY WORKS DESIGN

- 7. All temporary works shall be designed by the Contractor.
- 8. The *Contractor* shall consider the temporary loads applied to existing structures when undertaking temporary works designs, and ensure that existing structures are not damaged or destabilised as a result of temporary loading.

S301.25 Working and Fabrication Drawings

MCHW Series 100 – Preliminaries applies for this clause, superseding the relevant clauses in CESWI 7, and the following appendix applies to the *works*:

APPENDIX 1/4 WORKING AND FABRICATION DRAWINGS

 The Contractor shall submit three copies of detailed working and fabrications drawings to the Project Manager for acceptance, for Contractor's design items specified in Section S 301.1. Note that the copies may be submitted as emails and Portable Document Format (PDF) files of drawings, and do not have to be hard copies.

S 301.26 Design Responsibility

No further Scope under this heading.

S 301.27 Design Submission Procedures

1. No further Scope under this heading

S 301.28 Design Approvals from Others

No further Scope under this heading.

S 301.29 *Client*'s Requirements

No further Scope under this heading.

S 301.30 Design Coordination

1. As part of the mobilisation process prior to commencement of the *works* on site the *Contractor* shall arrange a Design and Concrete Workshop to share the proposed methods for construction with the *Client* and Principal Designer to confirm design queries prior to undertaking the *works*.

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S 301.31 Requirements of Others

No further Scope under this heading.

S 301.32 Copyright / Licence

No further Scope under this heading.

S 301.33 Access to Information Following Completion

No further Scope under this heading.

Construction of Flood defence Structures at Alverstoke and Forton Scope

S 401 SECTION 1 – COMPLETION

S 401.25 Sectional Completion Definition

1. Alverstoke: Construction

Sectional Completion of Alverstoke scheme will require the following works to be constructed and commissioned:

- a) All works including concrete works, floodgate installation, associated maintenance works to existing structures, environmental enhancement area construction and reinstatement between CH0 and CH145 (Drawing 405363-MMD-AS-XX-DR-C-1005), to be complete, including installation of furniture and other non-structural landscaping installations and the removal of all materials, soils and waste. The area shall be open for public use;
- b) Soft landscaping (soft landscaping is defined as planting and seeding);
- c) All as built drawings and other information required for the Health and Safety File provided, as specified in clause S1101.25.3.
- 2. Forton: Construction
- Sectional Completion of Forton will require the following works to be complete:
 - a) All works including concrete works, floodgate installation, associated maintenance works to existing structures, environmental enhancement area construction and reinstatement between CH0 and CH239 (Drawing 405363-MMD-FT-XX-DR-C-1005), to be complete, including installation of furniture and other non-structural landscaping installations and the removal of all materials, soils and waste. The area shall be open for public use;
 - b) Soft landscaping (soft landscaping is defined as planting and seeding);
- c) All as built drawings and other information required for the Health and Safety File provided, as specified in clause S1101.25.3.

S 401.26 Final Clean

1. On completion of the *works*, or as otherwise instructed by the *Project Manager*, the *Contractor* shall return the working areas, accesses, roads and any other affected areas to a condition not inferior to that at the commencement of the *works*. The Contractor shall minimise the effect on the site, working areas, and surrounding highways and properties and shall remove all Plant, Equipment, and materials from the highway as soon as the Works have been completed.

S 401.27 Security

No further Scope under this heading.

S 401.28 Correcting Defects

- 1. Before Completion the *Contractor* shall discuss their plans for the correction of defects in advance with the *Supervisor*.
- 2. After Completion the *Contractor* shall discuss and agree their plans for accessing the Site for the correction of defects with the *Project Manager*.

S 401.29 Pre-Completion Arrangements

1. The *Contractor* shall arrange and undertake a pre-completion joint walkover of the *works* with the *Project Manager* and *Supervisor* to identify any outstanding defects.

S 401.30 Take Over

No further Scope under this heading.

S 501 SECTION 1 – PROGRAMME

S 501.25 Programme Requirements

MCHW Series 100 – Preliminaries applies for this clause, superseding the relevant clauses in CESWI 7, and the following appendix applies to the *works*:

APPENDIX 1/13 PROGRAMME OF WORKS

S501.25.1 Schedule of Constraints:

- 1. The *Contractor* should consider the following list of constraints when determining the Programme of Works:
 - (i) Hold liaison meetings with the *Client* and third parties where works are occurring, prior to start of *works*
 - (ii) Hold pre-construction Traffic Management meetings
 - (iii) Reference to be made to working hours and permitted noise specified in Appendix 1/9 (S 201.30)
 - (iv) Bank holiday periods are non-working periods. During these periods no *works* will be permitted, unless accepted by the *Project Manager*
 - (v) Works to privately and publicly owned services and supplies
 - (vi) Restrictions arising from the use of substances hazardous to health and Appendix 1/23 (S 1101.25)
 - (vii) Trials and demonstrations in advance of main construction
 - (viii) Compliance with technical approval procedures in relation to structures designed by the *Contractor*, including awaiting approvals, resubmissions and modifications
 - (ix) Restrictions relating to use of site indicated in Appendix 1/7 (S 201.6.1)
 - (x) Conform to the Traffic Safety and Management requirements set out in Appendix 1/17 (S 201.18)
 - (xi) Comply with the Special Requirements in the vicinity of Statutory Undertakers plant
 - (xii) Comply with any environmental conditions in Appendix 1/9 (S 201.30)
 - (xiii) Surveys of existing structures as indicated in Appendix 1/12 (S 201.26)
 - (xiv) Different activities to those noted above at the times specified will not be permitted except during an emergency or as agreed with the *Project Manager*. Different activities also include prework activities where noise or nuisance is created, e.g. starting pumps, operating machinery, reversing vehicles (where fitted with warning siren) etc.
 - (xv) Works to privately and publicly owned services and supplies to minimise disruption to those affected. Comply with the Special Requirements in the vicinity of Statutory Undertakers plant.

- (xvi) Allow for required trials and demonstrations in advance of main construction
- (xvii) Forton Only:

No works adjacent to the foreshore shall take place during the overwintering period of 1st October to 31st March inclusive.

S 501.26 Programme Arrangement

- 1. The programme shall be submitted and compliant with clause 31.2 of the NEC4 Engineering and Construction Contract. The programme shall be submitted in both Microsoft Project and PDF format. The programme must be broken down into key tasks and show both the detailed and summary of tasks. The programme must clearly show the timings of all testing and any design or construction approvals needed by the *Project Manager*.
- 2. The programme shall include a short summary of the key changes since last programme, including date changes to 'key' tasks, and also state any assumptions on which the programme is based.

S 501.27 Method Statement

- 1. The *Contractor* shall submit Method Statements and Risk Assessments for each activity on the activity schedule, whether directly controlled or subcontracted, to the *Project Manager* for their information at the same time as the programme submission unless agreed otherwise with the *Project Manager*.
- 2. The *Contractor* shall submit a Schedule of Method Statements and Risk Assessments with their programme. The schedule shall list each of the Method Statements together with the date of its submission or where applicable the planned submission date.
- 3. Where the *Project Manager* has agreed that Method Statements and Risk Assessments can be submitted at a later date in the programme the *Contractor* shall submit them to the *Project Manager* at least two weeks before the commencement date of that activity.
- 4. Method Statements and Risk Assessments shall describe how the *Contractor* plans to undertake the activities including any planned temporary works and shall include a risk assessment of the activities. They shall also include the principal equipment, people, plant and materials that the *Contractor* plans to use.
- 5. Method Statements and Risk Assessments shall identify hold points and contain:

- a) Work instructions;
- b) Quality control procedures;
- c) Compliance testing/ inspection arrangements;
- d) Work acceptance procedures

S 501.28 Work of the Client and Others

No further Scope under this heading

S 501.29 Revised Programme

- 1. The *Contractor* shall include a description of changes that have been made to the programme with each submission of a revised programme.
- 2. Prior to submission of each revised programme, the *Contractor* shall discuss changes to the programme with the *Project Manager*.

S 601 SECTION 1 – QUALITY MANAGEMENT

S 601.25 Samples

MCHW Series 100 – Preliminaries applies for this clause, superseding the relevant clauses in CESWI 7, and the following appendix applies to the *works*:

APPENDIX 1/6 SUPPLY AND DELIVERY OF SAMPLES TO THE OVERSEEING ORGANISATION

- 1. Any required samples, shall be delivered to site for inspection/review by the *Project Manager*. The *Project Manager* shall have at least two weeks to review.
- 2. Unless otherwise specified the *Project Manager* shall at least two weeks to review trial panels including but not limited to concrete finishes and brickwork (Forton Only for brickwork).

S 601.26 Quality Plan

- 1. The *Contractor* is required to produce a Quality Plan prior to the commencement of the *works*.
- 2. The Contractor's Quality Plan shall include:
 - a) Definition of the product or service to be provided.
 - b) The organisation of the *Contractor* describing the line of command and stating the name of the *Contractor's* manager responsible for the contracted Work and the name of the *Contractor's* on-site management representative. Contact addresses, telephone numbers etc. shall be provided.
 - c) Identification of the relevant parts of the *Contractor's* quality system relevant to the product or service being provided (copies to be provided to the *Project Manager* on request).
 - d) The control of personnel selection (at works and on site), including special requirements for skilled personnel e.g. certification of welders, training of operatives, experience requirements etc.
 - e) Contractor's Construction Quality Control

and specific procedures for the following:

- a) *Receipt and examination of certificates of conformity and test results for purchased products.
- b) *Product identification and traceability.
- c) *Handling, storage, packaging and delivery to Site and storage and handling on Site.
- d) Quality records

Items marked *: where available and appropriate, copies of the *Contractor's* quality system/general procedures may be acceptable.

- 3. The Contractor's Quality Management System will make provision for traceability of components, materials and products from source to final installation in the permanent works. For each component, material or product the manufacturer's and/or supplier's cast, batch or other identifying number or reference shall be recorded together with any test certificates or associated documentation and the final location of each component, material or product within the permanent works shall also be recorded.
- 4. Where work or materials required under the contract are covered by a Quality Assurance Scheme only work or materials provided through such a Scheme shall be used.
- 5. Any material or article used in compliance with British, European, American or other internationally recognised standard for which there is an associated Safety Mark Scheme, or used in compliance with any other requirement of this Specification, (including other Standards), for which there is an Accepted Quality Assurance Scheme, shall bear the Certification Mark of the Scheme.
- 6. Where the supply of materials or articles that require an Agreement Board Certificate, or type approval, are required or allowed by the contract, only materials or articles so certified, type approved or registered shall be used in the Contract.
- 7. Nothing in this Clause shall relieve the *Contractor* from his obligations under the contract.

S 601.27 Quality Management System

- 1. The *Contractor* shall operate a Quality Management System (QMS) in accordance with requirements of BS EN ISO 9001:2015.
- 2. The quality policy statement and quality plan shall conform with the requirements of the *Contractor's* QMS.
- 3. The Contractor shall carry out the works in accordance with their QMS.

S 601.28 Contractor's Construction Quality Control

- 1. The *Contractor's* Construction Quality Control section of the Quality Plan shall include:
 - a) Statement of the Contractor's organisation for quality control.
 - b) The quality plan shall identify procedures (which may be a part of the *Contractor's* general procedures) that cover the topics listed below. Copies of these procedures shall be made available to the *Project Manager* on request.
 - c) Arrangements for 'receiving' and 'in-process' testing.
 - d) Control of test laboratories.
 - e) Control of test, measuring and inspection equipment.
 - f) Document control.
 - g) Procedures for monitoring and recording the inspection, test and approval status of the constructed/installed work.

- h) Procedures for tests and inspections for the purpose of the *Contractor* certifying that prior to covering up, each part of the *works* is complete and conforms to the Contract.
- i) Procedure for the review of work submitted for review but not accepted as conforming to the Contract.
- j) Procedure for the collation of quality records as identified in BS EN ISO 9002, and provision of copies when requested by the *Project Manager*.

S 601.29 Building Information Modelling (BIM)

1. The "as-built" drawings should be to BIM Level 2 standard as used in the original design drawings and documentation.

S 701 SECTION 1 – TESTS AND INSPECTIONS

S 701.25 Tests and Inspections

MCHW Series 100 Preliminaries applies for this clause, superseding clauses in CESWI 7 and the following appendix applies to the *works*:

APPENDIX 1/5: TESTING TO BE CARRIED OUT BY THE CONTRACTOR

- 1. This appendix lists out the tests that the *Contractor* shall carry out for the *works*.
- 2. In addition to this appendix, the *Contractor* shall be required to carry out other tests detailed in other appendices of this Specification, which are not listed in this appendix.

S701.25.1 Series 600 Earthworks Testing

1. Testing requirements for earthworks are shown in table 1/5 as follows: *Alverstoke:*

Clause	Acceptable		Test	Frequency of	Test	Comments
	materi	al		testing	Certificate	
	Class	General				
		Description				
	1	General granular fill	Grading	Twice per week	Required	Testing required as per criteria set out in
			1 I: f a maa ita .	Tudes as		Table 6/1-
			Uniformity	I wice per		
	0			2 per 1000m3		
	6	Selected	Grading	1 per class		
		granular		per day		
		material	Uniformity	1 per 250m ³		
			coefficient	minimum, or		
				one per day maximum		
			Plastic Limit	1 per class		
			(PL), Liquid	per day		
			limit (LL) and			
			Plasticity			
			Index (PI)			
			Particle	1 per source		
			density			
			LA	1 per class		
			Coefficient	per day		
			Slake	1 per class		
			durability	per day		

Clause	Acceptable		Test	Frequency of	Test	Comments
	materia	al		testing	Certificate	
	Class	General				
		Description				
			omc/mc, mc or MCV	1 per 500m3 minimum, or one per day maximum		
601, 631 to 637, 640	6F1, 6F4 and 6F5	Selected granular material	Size designation and overall grading category Maximum fines and oversize categories Volume stability of	Depending on source. 1 per week at source Depending on source. 1 per week at source 6 monthly. Minimum 1.	Required	
			blast furnace slag Volume stability of steel (BOF and EAF) slag	6 monthly. Minimum 1.		
			Other aggregate requirements	Annex C of BS EN 13242		
			Laboratory dry density and optimum water content Water	Depending on source. 1 per week at source Depending on		
			content	source. 1 per week at source		
	6N / 6P	N / Selected P granular material (imported onto site)	Grading	One per 250m3 minimum or one per day maximum	Required	
			Uniformity coefficient mc	As per grading One per week at source		
			Particle density	One per week at source		

Clause	Clause Acceptable material		Test	Frequency of testing	Test Certificate	Comments
	Class	General		looling	Continuate	
		Description				
			Effective	One per week		
			angle of	at source		
			friction and			
			effective			
			cohesion			
			Permeability	One per week		
				at source		
601,			10% fines	One per week		
631 to			value	at source		
637,			Field dry	Minimum of 2		
640			density	tests to be		
				carried out		
				eveniy		
				spaced along		
	Casta	vtiloo	Tanaila laad	1000wall.		
	Geole	xuies	Tensile load	r per 400m2		
				tost results		
				submitted by		
				the		
				manufacturer		
				demonstrating		
				compliance		
			Elongation	•		
			Tensile			
			strength of			
			seams and			
			joints			
			Static			
			puncture			
			Characteristic			
			opening size			
			Water			
			permeability			
			Durability			

Forton:

Clause	Acceptable material		Test	Frequency of testing	Test Certificate	Comments
	Class	General Description				
	5	Topsoil	Grading	Daily	Required	
	6N	Selected granular material (imported onto site)	Grading Uniformity coefficient mc	One per 250m3 minimum or one per day maximum As per grading One per	Required	
				week at source		
			Particle density	One per week at source		
			Effective angle of friction and effective cohesion	One per week at source		
			Permeability	One per week at source		
601, 631 to 637,			10% fines value	One per week at source		
640			Field dry density	One per week at deposition		
609, 621	Geote	xtiles	Tensile load Permeability Pore size	1 per 400m ²	Required	
612	Comp	action of fill			Required	

Clause	Accep	table	Test	Frequency of	Test	Comments
	materi	al		testing	Certificate	
	Class	General		0		
		Description				
		Method	Field dry density		Required	Tests used
		compaction	, ,		•	for
		•				material
						verification
						may be
						used to
						satisfy this
						requirement
						provided
						they are
						taken at the
						doposition
						after
						compaction
						Additional
						testing
						may be
						specified by
						the DSR if
						the
						material is
		F	0.1	4	Data ta t	inconsistent.
		End	Optimum mc	1 per working	Required	
		compaction	(2.3Ky rammer/vibrating	laver per		
		compaction	hammer	material		
			method)	class (min)		
			Field dry densitv	1 per 250m ³		As a
			· , · ····	(general fill)		minimum,
				1 per 150m ³		each layer
				(improvement		shall be
				fill)		tested in
						three
						locations
						during
						mass
						nauling. For
						of less
						than
						1000m ³ . 1
						per layer
						minimum is
						required.
Clause	Acceptable material		Test	Frequency of testing	Test Certificate	Comments
--------	------------------------	-------------	----------------	-------------------------	---------------------	--------------
	Class	General				
		Description				
			Field moisture	1 per 250m ³		As a
			content	1 per 150m ³		minimum,
				(improvement		each layer
				fill)		shall be
						tested in
						three
						locations
						during
						mass
						hauling. For
						small works
						of less
						than
						1000m³, 1
						per layer
						minimum is
						required.

NOTES:

- 1) Tests comparable to those specified in this Appendix will be necessary for any equivalent work, goods or materials proposed by the *Contractor*.
- 2) The frequency of testing given is indicative of the frequency that may be appropriate. Where materials are known to be marginal or if initial test results show them to be such, the frequency of the testing should be increased as agreed with the *Project Manager*. Conversely where material properties are consistently in excess of the specified minimum requirements or well below specified maximum limits, then the frequency of testing should be reduced as agreed with the *Project Manager*.
- Unless otherwise shown in this Appendix or information is supplied complying with Note 10 below, UKAS test report or certificate is required.
- 4) Where Table 1/5 calls for a material test, but there is no requirement for it in Table 6/1 the test is not required to be carried out.
- 5) Unless otherwise shown in this Appendix tests for work, goods or materials as scheduled under any one Clause are required for all such work, goods or materials in the *works*.
- 6) Unless otherwise shown in this Appendix test certificates for work, goods or materials as scheduled under any one Clause are required for all such work, goods or materials in the *works*.
- 7) If small quantities, less than those quoted, are involved, testing frequency shall be a minimum of 1 per location of the *works*.
- 8) The *Contractor* shall seek approval from the *Project Manager* for the testing house that they propose to use.
- 9) The *Contractor* may provide, with the approval of the *Project Manager*, alternative test reports or certificates for materials supplied under Quality Management Schemes and Product Certification Schemes that comply with ISO 9000.

- 10) All tests to be carried out in accordance with the requirements of the latest revised European or British Standard if applicable.
- 11) The Contractor shall allow in their rates for the disposal of waste materials for any testing which may be required by the Waste Regulation Authority or receiving licensed waste disposal facility to characterise the materials for disposal. The Contractor shall also allow for any delay to his work which may result from such testing. Tests shall be carried out by an independent laboratory which has UKAS and MCerts accreditation for the stipulated tests unless accepted in writing by the Project Manager. Details of the proposed laboratory shall be provided to the Project Manager for approval.
- 12) The *Contractor* shall supply to the *Project Manager* a copy of the test results within 24 hours of the completion of each test.
- 13) Where reference is made in the schedule to material requiring source approval, then such evidence to enable source to be accepted must be supplied in writing to the *Project Manager* at least seven days before it is intended to incorporate such materials works into the *works*.
- 14) Where a test relates to work, goods or materials which are not required for the *works* it shall be deemed not to apply.
- 15) In-situ CBR testing may be carried out with plate load tests, dynamic cone penetration or falling weight deflectometer subject to site trials and DSR approval. Calibration testing is required prior to use during construction.

Forton Only:

- 16) Frequency: Testing will typically comprise laboratory analysis at a rate of 1 sample per 250m³.
- 17) Visual and olfactory inspection of the excavated material should be carried out and in the event of evidence of contamination is detected, the material shall be dealt with in accordance with Appendix 6/2.

S701.25.2 Series 1700 - Concrete

1. Testing requirements for concrete are as follows: *Alverstoke:*

Clause Acc	ceptable Test	Frequency of	of Test	Comments
ma	terial	testing	Certificate	

1707	Hardened concrete – Identity Testing	Cube Strength (N)	Reinforced Concrete: three cubes from every 24m3 or 4 batches whichever represents the lesser volume. With a minimum frequency of daily testing where volumes do not meet the above.	Required	
	Fresh Concrete – Identity Testing	Consistence (slump or flow) (N) Temperature	Each Batch for all elements Each batch for all elements	Required	
1710	Precast concrete not confirming to any Product Standard or to BS EN 13369	Cube Strength (Manufacturer's tests)	Wall Units: Every five units but no less than one per week.	Required	

Forton:

Clause	Acceptable material	Test	Frequency of testing	Test Certificate	Comments
1707	Hardened concrete – Identity Testing	Cube Strength (N)	Reinforced Concrete: three cubes from every 24m3 or 4 batches whichever represents the lesser volume. With a minimum frequency of daily testing where volumes do not meet the above.	Required	

Fresh Concrete – Identity	Consistence (slump or flow) (N)	Each Batch for all elements	Required	
Testing	Temperature	Each batch for all elements		

2. Prior to the use of concrete in the permanent works, the *Contractor* shall carry out initial concrete testing, as specified in Section S2004.1.7, to demonstrate compliance of proposed mix designs.

S 702.25 Management of Tests and Inspections

No further Scope under this heading.

S 702.26 Covering Up Completed Work

1. The *Contractor* shall not permit any works to be covered until they have been inspected by the *Supervisor* and they must give sufficient notice when the work is ready for inspection as to allow the *Supervisor* to make arrangements for inspection. Should the work be covered contrary to this stipulation, the *Contractor* shall uncover the same.

S 702.27 Supervisor's Procedures for Inspections and Watching Tests

1. The *Contractor* will work with the *Supervisor* to jointly inspect sections of work and identify potential defects early as the work progresses. One of the *Contractor*'s engineers shall inspect the *works* (e.g. pre-pour inspection) and correct any issues prior to requesting the *Supervisor* to undertake the joint inspection.

S 702.28 Quality Assurance Checks

- 1. The *Contractor* is to provide the *Client* with a full slump test kit, including all the required apparatus to carry out a full slump test and allow the *Supervisor* access to the *works* in order to carry out such tests.
- 2. All *Contractor* survey data is to be backed up to ensure no loss of information occurs.
- 3. Within 24 hours of stripping shutters from the concrete pour, the *Contractor* is to carry out cover-meter survey to confirm specified concrete cover has been achieved.

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4. Where products used have certification in association with quality assurance this should be issued to the *Client* to show compliance, with relevant documents included in the Health and Safety File.

S 801 SECTION 1 – MANAGEMENT OF THE WORKS

S 801.25 Project Team – Others

No further Scope under this heading.

S 801.26 Communications

- 1. A communication has effect when it is received through the project's contract management software, CEMAR. If required, the *Client* can provide training for the *Contractor's* staff on this contract.
- 2. The *Contractor* is to confirm names and contact details including telephone number and address for electronic communications for persons to be set up on CEMAR. This will include *key persons* identified in Contract Data Part Two.
- 3. A start-up meeting shall be held prior to commencement of the *works* at a location chosen by the *Client* and attended by the *Contractor*, *Client*, *Project Manager* and *Supervisor*. The content of the meeting is to be agreed between the *Client* and *Contractor* as part of the precontract meeting.
- 4. Monthly progress meetings shall be held on *Site* and attended by the *Contractor* (and main sub-contractors), *Client, Project Manager* and *Supervisor*. The progress meetings shall be chaired by the *Project Manager*. The progress meeting is to include a review of the programme.
- 5. The *Contractor* is to provide monthly progress reports to the *Project Manager* at least 3 days prior to each progress meeting or as otherwise agreed with the *Project Manager*. The progress report is to include a summary of the programme.
- 6. A weekly full and detailed joint site walkover should be undertaken throughout the duration of the *works* attended by the *Contractor's* site manager and the *Supervisor*, to discuss progress, issues and forward programme.
- 7. The *Supervisor* should be invited to attend daily briefings from *Contractor.*
- 8. The *Contractor* will undertake the day to day communication enquires for the *works*, as outlined below:

Before site *works* commence, the *Contractor* will agree with the *Project Manager* and *Supervisor* a communication plan setting out protocols and timings for communication with residents and stakeholders affected by the work.

As a minimum, the *Contractor* will provide a dedicated point of contact (with good clear verbal and written communication skills who can engage successfully with a variety of members of the public with different backgrounds) who can update and advise residents well in advance of the 'day to day' activities on site via telephone call, letter, physical visits, and as site operations progress. Updates to cover programme, sequencing of *works*, the plant and labour expected, the

site hours and details operations expected (including noise and dust) H&S, where accessed and road closures affect property access and all matters relevant.

The level of interface will vary during the *works*, but expected to be an initial update, and an average of weekly updates. During flood gate works, road closures, construction in property the updates need to be daily in a similar manner to the weekly updates, subject to agreement with the *Supervisor*.

The *Contractor* shall answer queries – phone calls, emails, where directly related to the construction works. The *Contractor* shall update the *Supervisor* with a summary of all enquires received and responses given as part of weekly updates. All other matters will be referred to the *Project Manager*.

S 801.27 Progress Photographs

MCHW Series 100 – Preliminaries applies for this clause, superseding clauses in CESWI 7 and the following appendix applies to the *works*:

APPENDIX 1/22 PROGRESS PHOTOGRAPHS

1. The *Contractor* shall provide progress photographs of relevant elements of the *works* within monthly progress reports. As well as general photographs of the *works* the *Contractor* should provide photos to depict the quality of workmanship as well examples of good practice Health and Safety implemented on the site.

S 901 SECTION 1 – WORKING WITH THE *CLIENT* AND *OTHERS*

S 901.25 Sharing the Working Areas

- 1. The *Contractor* should refer to clause S201.17.1 for the list of accommodation works to be undertaken in working areas owned by *Others.*
- 2. The works should be undertaken in a manner to cause least disruption to the occupants on the sites concerned, in accordance with the Scope. Suitable notice of the works should be given, as outlined in the Scope, to allow the *Client* to inform the parties of the proposed works prior to commencement on site.

S 901.26 Co-operation

- 1. It is the *Client's* aspiration to form an Integrated Delivery Team with both parties working collaboratively together to deliver the project through co-ownership of agreed objectives.
- 2. The *Client's* supervision team, led by the *Supervisor* will be available during all working hours to provide technical knowledge and prompt decision making in support of the *Contractor's* team.
- 3. The *Contractor's* site manager is expected to work closely and collaboratively with the *Supervisor* on a day to day basis to ensure efficient and quality delivery of the *works*. The *Contractor* is required to contribute to the resolution of issues and actively work with the *Project Manager* and *Supervisor* to propose solutions and respond promptly.
- 4. The *Contractor* shall ensure that consideration is given to the requirement of an Integrated Delivery Team approach when selecting their project staff and shall actively seek to maximise the benefit that can be gained from this delivery model.

S 901.27 Co-ordination

No further Scope under this heading.

S 901.28 Authorities and Utilities Providers

- 1. The *Contractor* shall work with Authorities and Utilities Providers as required to undertake the *works*.
- 2. The *Contractor* should refer to clause S201.17.1 & S201.17.2 for works required on Utilities apparatus.

S 1001 SECTION 1 – SERVICES AND OTHER THINGS TO BE PROVIDED BY THE CONTRACTOR

S 1001.3 Accommodation for the Contract

- 1. Until the completion of the *works*, accommodation and parking facilities, as described in the Contract, shall be equipped and maintained. Accommodation shall be erected, furnished, equipped, fully serviced and ready for use within 7 days of the work commencing on Site.
- 2. All Site accommodation, services and parking shall be removed upon completion of the *works* or at such other date as directed under the terms of the Contract.
- 3 The locations for the site compounds are shown on the drawings. All site accommodation, services, conveniences, parking and material storage etc. shall be located within the site compounds.
- 4. The *Contractor* may propose alternative arrangements for the site compound and storage areas. However, these shall be submitted to the *Project Manager* for acceptance. For alternative arrangements, it shall be the responsibility of the *Contractor* to negotiate, arrange, pay for and reinstate the areas.
- 5. The *Contractor* shall provide the following for the *Clients* sole use for the whole duration of the *works*:
 - 1 x 30ft combined office units complete with:
 - a) Three desks with office chairs,
 - b) Two whiteboards,
 - c) Two pin boards,
 - d) 1 full height bookcase with shelving space to fill with A4 files,
 - e) 2 x 6ft lockable cupboards,
 - f) Power, heating and lighting,
 - g) Coat rack/hooks for six staff members.
 - h) Recycling bins/facilities for local waste such as paper, glass, cardboard and plastic.
 - i) Kitchen facilities complete with:
 - i. Fridge,
 - ii. Tea and coffee making facilities,
 - iii. Microwave,
 - iv. Drinking water,
 - v. Washing up facilities.
 - vi. Hand washing facilities
- 7. The *Contractor* shall provide the following shared facilities for use by both the *Client* and the *Contractor*.
 - a) Unlimited broadband internet access (minimum speed 20Mb).

- b) Toilet and wash facilities. Separate entrances for female and male toilets which should not require access through other toilets.
- c) Drying room
- d) Use of a laser printer (Capable of printing and scanning in colour at both A4 and A3)
- 8. The *Contractor* shall follow best practice for welfare and working processes to minimise the risk of spread of infection, particularly the Covid19 Coronavirus.

S 1001.4 Billposting and Advertising

1. Billposting or advertising of any kind shall not be undertaken, unless otherwise stated in the Contract.

MCHW Series 100 – Preliminaries applies for this clause, supersedes clauses in CESWI 7 and the following appendix applies to the *works*:

APPENDIX 1/21 INFORMATION BOARDS

- The *Contractor* shall supply, erect and maintain 3 No. Public Information Signboards of dimensions 900mm x 1800mm (2No. for Alverstoke and 1No. for Forton), details of which and location shall be confirmed by the *Project Manager*. The information should be reviewed each week to ensure correct and relevant information is shown and updated as required.
- 2. The information boards must include the *Contractor*'s name, an emergency contact number and emergency call out numbers. The *Client* details should be included for information.
- 3. The information boards should include relevant Scheme design drawings, health & safety information and upcoming works on site.
- 4. Information boards shall be erected before any works commence on site.

Banners

5. The *Contractor* may place advertising banners and company branding on the site but only with the prior written permission of the *Supervisor* for each individual item of branding or advertisement.

S 1001.23 Asset Records

Insert the following sub-clause(s) in clause 1.23 in CESWI7.

- 1. As-built records of all works constructed, and existing services encountered during the construction of the *works*, shall be submitted in accordance with the Contract
- 2. Prior to Completion of the *works* the *Contractor* shall prepare As-Built Documents including drawings, survey drawings and any other relevant drawings and documents incorporating all changes made during the performance of the Contract so that they form a true and accurate record of what has actually been supplied or provided. All drawings shall be in AutoCAD 2015 (or earlier) format.

- 3. To accompany the As-Built Documents the *Contractor* shall provide a Schedule of As-Built Documents. This Schedule shall list all drawings and documents produced on the Project, recorded in project drawing number sequence and shall state the latest revision number and, where applicable, shall indicate that each drawing has been certified "As-Built". Where a drawing is not submitted as a record drawing the reason (e.g.: deleted, superseded, etc.) must be stated. The Schedule shall be submitted to the *Project Manager* for review and comment prior to submission of the As-Built Documents.
- 4. The approved Schedule and approved As-Built Documents shall be completed and provided to the *Project Manager* prior to the issue of the Completion Certificate. The *Contractor* shall submit draft As-Built Documents to the *Project Manager* for their review 4 weeks prior to the date of planned Completion shown on the latest accepted programme, following which the *Project Manager* will give their comments, if any, to the *Contractor*. The *Contractor* shall modify the As-Built Documents in the light of the *Project Manager's* comments and shall re-submit to the *Project Manager* who shall respond within two weeks.
- 5. When the *Project Manager* has reviewed the submissions and resubmissions and has no further comments, the *Contractor* shall provide one paper copy and a copy in electronic format, on portable data storage device (e.g. USB) as agreed with the *Project Manager*, of all As-Built Documents.

S 1001.25 Temporary Utilities

- 1. The *Contractor* shall obtain all necessary approvals, comply with the relevant utility authority's requirement and provide and pay for all temporary services they may require, or the *Project Manager* and *Supervisor* may require within the Site, including collection of waste.
- 2. Upon completion of the *works* the *Contractor* shall remove all temporary services and reinstate the area to its original condition.

S 1001.26 Services Provided by the Client

No further Scope under this heading.

S 1001.27 PPE Provision

- 1. The *Contractor* should make available to the *Client* and their visitors any item of PPE up to a combined total value of £1,000 over the life of the contract.
- 2. The *Contractor* is to ensure all site staff working on the site for greater than five working days are provided with the *Contractor's* company or project branded PPE at all times. PPE with third party branding shall not be permitted.
- 3. All PPE is to be in good condition and free from rips, tears, holes, and excessive discolouration or staining.

S 1001.28 Site Inductions

1. The *Contractor* shall undertake all site inductions at all times and at short notice. This includes all *Client* staff and visitors. The *Client* will not undertake any site inductions on behalf of the *Contractor* at any time.

S 1001.29 Public and Stakeholder Engagement

- The Contractor will make available suitable member(s) of the project team to attend up to 1no. public exhibitions or public meetings during the *works*. They will be required to engage with members of the public regarding all aspects of the *works*.
- 2. The *Client* may hold informal and formal meetings with residents, landowners and other interested parties during the *works*. The *Contractor* shall attend the meetings with the *Client*, *Project Manager* and *Supervisor*, which will generally be held on site or locally.

S 1001.30 Respectable Staff

- 1. Good public and stakeholder communication, and a focus on limiting disruption to local residents and businesses must remain a key ethos throughout delivery of the project to which all parties must demonstrate a commitment.
- 2. All *Contractor* staff on site must be respectful and polite to members of the public at all times. Any queries or complaints must be recorded and reported to the *Supervisor*.
- 3. All *Contractor* staff must behave responsibly and with consideration for *Others* at all times on site.
- 4. All *Contractor* staff must be respectful to the *Client* and visitors at all times.

S 1001.31 Insurance

- The security of the construction site is the responsibility of the *Contractor*, as is the provision of site huts where *Client* Owned Equipment will be stored. The *Contractor* is to provide insurance cover for *Client* owned equipment kept on site to the following values:
 - a) IT equipment £7000.00
 - b) Survey Equipment £15,000.00
 - c) Other £5000.00. Other includes, but is not limited to, books, PPE, keys, mobile phones, iPads and cameras. A list of equipment that will be stored in the Client site hut will be provided upon request

S 1001.32 Traffic marshalling at sensitive areas

1. The *Contractor* shall provide traffic marshals wherever the haulage route, crossing points and site activities interface with the public highway and footpaths.

S 1001.33 Added Value Items

- 1. The *Contractor* shall monitor the existing wall's stability using targets and a total station and monitor movement against protocols as agreed in advance with the Principal Designer and *Supervisor*.
- 2. The *Contractor* shall review all designs with Mott MacDonald (Principal Designer) to identify buildability issues or areas of insufficient detail for construction. Any design issues to be reported to the *Project Manager*.

S 1101 SECTION 1 – HEALTH AND SAFETY

S 1101.25 Health and Safety Requirements

- 1. The *Project Manager* and *Supervisor* shall be entitled to inspect all registers, reports and certificates which the *Contractor* is required by Law to keep and issue in respect of Safety matters and accidents.
- 2. The *Contractor* shall inform the *Project Manager* and *Supervisor* of any accidents, injury or incident at the earliest opportunity. This is to include "near misses".
- 3. The *Contractor* shall adhere to the government guidance for workplaces with regards to the Coronavirus Act 2020 and The Health Protection (Coronavirus, Restrictions) (England) Regulations 2020.

MCHW Series 100 – Preliminaries applies for this clause and the following appendix applies to the *works*:

APPENDIX 1/23 RISKS TO HEALTH AND SAFETY

S1101.25.1 General

- 1. Safety:
 - a) The *Contractor* shall include in their method statements the methods adopted to ensure safe working in the tidal conditions affecting each part of the *works*.
 - b) The *Contractor* shall establish a system to ensure that the *works* remain in a safe condition during storm surges and flooding due to heavy rain. There is potential for overtopping of the existing sea walls and storm flow in the outfalls persisting after the rain has cleared.
 - c) Excavations adjacent to existing structures shall be covered by a specific method statement that includes the measures to protect the existing structure and any temporary works required to support the existing structure during the work. When developing the method statement the *Contractor* should be aware of the potential of high groundwater levels being encountered within excavations.
 - d) Measures are required to inform the site operatives of the risks due to UXO on the site.
 - e) The *Contractor* shall implement a system of near miss reporting that includes all sub-contractors in the working areas, the *Supervisor* and *Client*.
- 2. Safeguarding:
 - a) *Forton Only:* The majority of the main works area is outside the secure area for safeguarding requirements. The *Contractor*'s personnel may not undertake work in the college's secure zone unless accompanied by a member of the college staff unless otherwise agreed by the college. The secure area is marked by the blue fencing present on site.

S1101.25.2 Substances Hazardous to Health

- 1. The List of substances contained in Advice Note SA8 "Use of Substances Hazardous to Health in Highway Construction" is not exhaustive and the *Contractor* shall obtain similar information for other substances hazardous to health which are not included in Advice Note SA8.
- 2. Substances Hazardous to Health:
 - a) In addition to complying with the Control of Substances Hazardous to Health (COSHH), Control of Asbestos at Work (CAW) and Control of Lead at Work (CLAW) Regulations, the *Contractor* shall take into consideration the guidance to prevent, control or monitor exposure of members of the public to particular substances hazardous to health used or generated in or about the *works*:
 - b) Manual of Contract Documents for Highway Works: Volume 6 (Departmental Standards and Advice Notes on Contract Documentation and Site Supervision): Section 2, Part 1: SAB "Use of Substances Hazardous to Health in Highway Construction", (which also contains data sheets on materials hazardous to health).
 - c) Should the *Contractor* encounter materials thought to contain asbestos, they shall cease work around those materials, protect the area and immediately inform the *Project Manager*. The *Contractor* shall send the material to a UKAS accredited laboratory for analysis to determine whether the material is asbestos, including type and quantification where positively identified. If positively identified, the *Contractor* shall employ an appropriately licensed *Contractor* to advise on appropriate mitigation requirements.

S1101.25.3 Health and Safety File

- 1. The principal designer is responsible for collating the Health and Safety File.
- 2. The *Contractor* shall provide the *Project Manager* with all information relevant to the collation of the Health and Safety File, including (but not limited to):
 - a) Information relating to the maintenance and operation of the flood gate and stop-logs.
 - ii) COSHH information regarding substances used in the construction of aspects of the design that will require removal or replacement as part of maintenance (e.g. sealants, fillers etc)
 - iii) As-built drawings, in AutoCAD format and PDF.

S1101.25.4 Site Security

- 1. The *Contractor* shall adequately safeguard the site, the *works*, products, materials, plant and any existing buildings affected by the *works* from damage and theft.
- 2. Take all reasonable precautions to prevent unauthorised access to the site, the *works* and adjoining properties.

- 3. The *Contractor* shall be responsible for maintaining security when their own workforce are not present on site.
- 4. Maintain all new and existing site hoardings and boundaries.
- 5. The *Contractor* shall comply with the latest version of the Joint Code of Practice "Fire prevention on Construction Sites" published by the Fire Protection Association (The "Joint Fire Code").

S 1101.26 Method Statements

Refer to Clause 0.S 501.27.

S 1101.27 Legal Requirements

No further Scope under this heading.

S 1101.28 Inspections

No further Scope under this heading.

S 1101.29 Construction (Design and Management) Regulations (CDM)

 The Contractor shall prepare the Construction Phase Plan in accordance with the requirements set out in the Regulation 12 of CDM 2015 and L153 'Managing Health and Safety in Construction Guidance on Regulations', which shall be submitted to the Principal Designer as early as possible but no later than 2 weeks prior to the planned start of the construction phase / mobilisation to site, for review by the Principal Designer to advise the *Client* of its compliance with Regulation 12. Submission shall ensure that it encompasses all relevant sections required by L153 Appendix 3.

No works shall commence until the Construction Phase Plan is deemed compliant by the Principal Designer on behalf of the *Client* and an instruction is given by the *Project Manager* for commencement.

The *Contractor* must plan, manage and coordinate work during the construction phase taking account of the information contained in the Pre-Construction Information (PCI) provided by the Principal Designer on behalf of the *Client*, and any other information provided by *Contractors* and designers.

2. Information required for the Health and Safety File shall conform to the standard template required by the *Client*.

The Principal Designer will identify the information to be supplied by the Principal *Contractor* for the Health and Safety File and it is anticipated that the following information will be required:

- a) a brief description of the work carried out;
- b) any hazards that have not been eliminated through the design and construction processes, and how they have been addressed (eg

surveys or other information concerning asbestos or contaminated land);

- c) key structural principles (e.g. bracing) and safe working loads for structures;
- d) hazardous materials used (e.g. lead paints and special coatings);
- e) information regarding the removal or dismantling of installed plant and equipment (e.g. any special arrangements for lifting such equipment);
- health and safety information about equipment provided for cleaning or maintaining the structure;
- g) the nature, location and markings of significant services, including underground cables; gas supply equipment; fire-fighting services etc;
- h) information and as-built drawings of the building/structure, its plant and equipment (eg the means of safe access to and from service chambers and any flap valves).
- 3. The *Contractor* shall provide the Principal Designer with two paper copy and 1 copy on a portable storage device of all information which is required to be placed on the Health and Safety File. (One paper copy will be passed to the *Project Manager*).

S 1201 SECTION 1 – SUBCONTRACTING

S 1201.25 Restrictions / Requirements for Subcontractors

No further Scope under this heading.

S 1201.26 Acceptance Procedures

No further Scope under this heading.

S 1301 SECTION 1 – TITLE

S 1301.25 Marking

No further Scope under this heading

S 1401 SECTION 1 – ACCEPTANCE OR PROCUREMENT PROCEDURE

S 1401.25 Acceptance or Procurement Procedure

No further Scope under this heading.

S 1501 SECTION 1 – ACCOUNTS AND RECORDS

S 1501.25 Additional Records

No further Scope under this heading.

S 1501.26 PAYMENT APPLICATIONS

MCHW Series 100 – Preliminaries applies for this clause and the following appendix applies to the *works*:

APPENDIX 1/14 PAYMENT APPLICATIONS

1. Payment Applications shall be made in accordance with Contract Data Part one.

S 1601 SECTION 1 – PARENT COMPANY GUARANTEE

S 1601.25 Form of Parent Company Guarantee

No further Scope under this heading.

S 1701 SECTION 1 – PERFORMANCE BOND

S 1701.25 Form of Performance Bond

No further Scope under this heading.

S 1801 SECTION 1 – ADVANCED PAYMENT BOND

S 1801.1 Definitions

1. This Specification is written on the assumption that the Party entering into a Contract that includes this Specification will be bound by the Specification terms and be responsible for following its provisions.

S 1801.25 Form of Advanced Payment Bond

No further Scope under this heading.

S 1901 SECTION 1 – LOW PERFORMANCE DAMAGES

S 1901.25 Low Performance Damages

No further Scope under this heading.

S 2002 SECTION 2 – MATERIALS

S 2002.3 Admixtures for Concrete or Grout

1. Using MCHW Series 1700 – Structural Concrete. See Section S 2004.1.6

S 2002.4 Aggregates for Concrete

1. Using MCHW Series 1700 – Structural Concrete. See Section S 2004.3.3

S 2002.5 Aggregates for Mortar

1. Using MCHW Series 2400 – Brickwork, Blockwork. See Section S 2012.3

S 2002.7 Cement

1. Using MCHW Series 1700 – Structural Concrete. See Section S 2004.3.2

S 2002.17 Concrete – General

1. Using MCHW Series 1700 – Structural Concrete. See Section S 2004.1.

S 2002.21 Concrete Containing PFA or GGBS

 Requirements for Designed concretes containing cements or combinations incorporating PFA (type IIB-V) or GGBS (type III) are given in Clause S 2004.1.

S 2002.22 Cover Blocks and Spacers for Reinforcement

Add to sub-clause 2.30 of CESWI7.

 Unless otherwise specified by the *Project Manager* cover blocks and spacers shall comply with the recommendations in the report No. CS101 "Spacers for Reinforced Concrete" issued by the Concrete Society.

S 2002.33 Dowel Bars

- 1. Dowel bars for use in joints shall be smooth stainless steel designation number 1.4401, strength grade 500 to BS 6744:2016, with ribs equivalent to deformed Type 2 BS4449.
- 2. Dowel bars for use in expansion joints shall be straight, free from burrs or other irregularities and shall have their sliding ends sawn. The sliding half of each dowel shall be provided with a close-fitting PVC sleeve with compressible filler as shown on the Contract Drawings.

S 2002.50 General Filling Materials

See Sections S 2003.1 and S 2003.6 for the specification on this item.

S 2002.51 Granular Sub-Base Material

See Section S 2008.1 for specification on this item.

S 2002.56 Grass Seed

1. The Grass Seed mixes for the works are specified in clause S2016.5.

S 2002.61 Imported Soils and Topsoil

1. Imported topsoil shall conform to Section S 2003.1 of the Scope

S 2002.63 Joint Filler Board

1. See Section S2004.3.6 for the specification on this item.

S 2002.64 Joint Sealing Compounds and Sealants

1. See Section 2004.3.6 for the specification on this item.

S 2002.68 Manhole Covers and Frames

Add the following sub-clause to Clause 2.74 of CESWI7.

- 1 Existing manhole covers and frames shall be raised where necessary to new ground levels as shown on the drawings.
- 2. Replacement manhole covers and frames shall be recessed covers and be infilled to match surrounding surfacing. The loading class with regards to BS EN 124:2015 are Group 2 for footway areas and Group 3 for roadway areas.
- 3. Replacement manhole covers and frames for British Telecom services shall be in accordance with the Openreach Technical Specification LN320.
- 4. If the details are not included in the Scope then the *Contractor* shall agree the detail of the raising with the respective asset owner or standard SHW HCD (F Series).

S 2002.75 Mortar

See Section S2012.3 for the specification on this item.

S 2002.93 Steel Reinforcement

1. Steel reinforcement shall comply with the relevant provisions of the appropriate Standard, as set out below:

Туре	Standard	
Carbon steel bars	BS EN 10080 and BS 4449	
Steel wires	BS EN 10080 and BS 4482	
Steel fabric	BS EN 10080 and BS 4483	
Stainless steel	BS 6744	
Epoxy coated steel	BS EN ISO 14654	
Bed joint reinforcement for	BS EN 845-3	
masonry		

- 2. Steel fabric reinforcement shall be welded at the intersections and shall be delivered in flat sheets, except where pre-bent reinforcement is specified.
- 3. Steel reinforcement shall be obtained from suppliers holding a valid Certificate of Approval for the manufacture and/or fabrication of steel reinforcement issued by the UK Certification Authority for Reinforcing Steels or equivalent authority. The CARES, or equivalent, Certificate of Approval Number shall be stated on all appropriate purchase documentation.
- 4. All steel reinforcement to be Grade 500B to BS 4449:2005. All reinforcement to be cut and bent to BS8666:2005.
- 5. No welding of reinforcement may be carried out without the approval of the *Project Manager*.

S 2002.127Water

Add to Clause 2.134 of CESWI7.

1. The requirements of **sub-clause 1** also apply to water for all concreting or concrete related operations including washing of forms, wetting of concrete, cleaning of reinforcement, sand blasting and curing of concrete.

S 2002.135SSE Ducting

1. Ducting for existing services shall be 150mm diameter black ducting to be approved by SSE. Ducting can be obtained from Jewson, who are SSE's appointed supplier, or equivalent approved.

S 2002.140 Non-return Valves

- 1. The *Contractor* shall make good existing outfall pipes at the point of discharge and valve fitting to ensure a secure fit.
- 2. Non-return valves are to have a design life of 50 years.
- 3. Non-return valves are to be sized according to the diameter of outfalls. The *Contractor* shall design all fixings and ensure that they are suitable for the environment in which they are located and sufficiently durable for the required design life.

S 2002.141 Planting Specification

1. See Specification Clause S 2016.

S 2002.153Landscaping works

 Please note that items defined as landscaping items are generally covered within S 2016 Section 16. The landscaping specification (items covered within S 2016 Section 16) takes precedent over any other contradictory clauses.

S 2002.154ACO Drain

1. See Section 5 for details of the specification under clauses S 2005.

S 2002.157 Flood Equipment

1. Full specialist drawings must be produced by Manufacturer and agreed with *Supervisor*. Following receipt of comments and a final fabrication design that has been agreed by the *Supervisor*, the manufacturer can start fabrication.

MCHW Series 2600 – Miscellaneous applies for the following clauses for the *works*:

S2002.157.1Floodgate - Little Anglesey Road

- The Contractor shall design, supply and install a floodgate to achieve the design flood level of +3.70m OD, at the specified locations. The threshold of the gate is to be approximately +2.80m OD. The gate span is approximately 8m between the concrete pillars shown on the drawings. Levels and dimensions shall be confirmed by the Contractor.
- 2. The floodgate shall have a design life of 50 Years, any parts or aesthetic enhancements that require servicing during the design life shall be clearly stated.
- 3. The floodgate shall be a two-leaf mitre gate, with no central pillar or fixtures. A lift hinge should be provided to avoid damage to the EPDM seals during deployment.
- 4. The floodgate shall be constructed from type 316 stainless steel in compliance with BS EN 1090 and shall attach to the reinforced concrete pillars provided in the design. The current pillar design has considered each gate leaf to have a dead load not in excess of 6.5kN.
- 5. The floodgate shall use replaceable EPDM seals, a set of replacement seals shall be provided as part of the gate supply.
- 6. The floodgate shall be clad in a light-coloured timber on the landward faces (when in the deployed position), a sample shall be provided to the *Project Manager* for acceptance. Timber size should be approximately 38mm thickness with 150mm width to cover the face of the floodgate, sizes to be adjusted to suit. Timber cladding is non-structural but should have a minimum strength of C18 or D20. Timber

shall be from FSC certified sources. The timber cladding shall be a replaceable element without damaging the main flood gate.

- 7. Timber cladding shall be treated with a preservative that can be used in accordance with BS 8417 for use class 5 for a desired service life of 50 years. The retention and penetration requirements shall be in accordance with the relevant provisions of BS 8417. To demonstrate the preservative has been applied correctly Clauses 311.2 (v) and 311.2 (iv) of the Highways Specification shall be followed.
- 8. The timber cladding shall incorporate a hinged area on both gate leaves to hide/display the road signage "Road Closed" on the landward face when it is deployed. Hinges shall be fixed vertically. The hinged section in the closed position and open position shall include a lockable mechanism for securing.
- 9. The lakeside of the gates (when in the deployed position) shall incorporate a high visibility stripes (DOT-C2 or equivalent) top and bottom and "Road Closed" signs on both gate leaves.
- 10. The floodgate shall be designed to withstand the following loads:
 - 100kN vehicle impact load applied uniformly over a length of 1.5m at the top of floodgate.
 - 30kN point load at the middle of the leaf, or at the midspan of the gate to represent a debris impact shall be considered in combination with the floodwater load to the top of the gate in the closed position.
- 11. The floodgates shall be fitted as per manufacturer's requirements. The *Contractor* shall ensure that the floodgate sills are integrated into the foundation design.
- 12.Floodgate installation tolerances shall be in accordance with the floodgate manufacturer's requirements.
- 13. The design of the floodgate shall be such that it can be mounted and removed as separate elements to enable future replacement.
- Mounting fixtures entering the concrete shall be stainless steel Grade
 Stainless steel fixtures shall be isolated from contact with any ordinary steel, including reinforcement within the concrete pillar.
- 15.The floodgate shall be protected such that corrosion does not impede its structural or operational performance throughout the required design life. Where a paint system is used the colour shall be RAL 9017 (Traffic Black).
- 16.The floodgate shall be safe for the public in all conditions.
- 17. The floodgate shall be operable by a single person.
- 18.The floodgate shall be provided with a mechanism to secure each gate leaf in the open position (as indicated on the drawings) to a post or fixture to be provided as part of the gate design. The mechanism shall include the provision of a suitably secure lock (e.g. padlock).
- 19.An operational manual shall be provided detailing the method of operation, and maintenance activities and schedule.
- 20.Prior to manufacture of the floodgate all drawings and specifications shall be submitted to the *Project Manager* for acceptance with a minimum of four weeks for review.

21.Post-installation the *Contractor* shall, in liaison with the *Project Manager*, arrange for the undertaking of a trial deployment of the flood gate, including providing training to operational staff on gate deployment.

S2002.157.2Stop Log System - St Vincent College Service Road

- The Contractor shall design, supply and install stop logs to achieve the design flood level of +3.70m OD, at the specified locations. The threshold of the stop logs is to be approximately +3.4mOD. The open span is approximately 6.19m between the concrete pillars shown on the Contract Drawings. Levels and dimensions shall be confirmed by the *Contractor.*
- 2. The stop logs shall have a design life of 50 Years, any parts or aesthetic enhancements that require servicing during the design life shall be clearly stated.
- 3. The stop logs shall include a removable centre post at the open span mid-point.
- 4. The stop logs shall be primarily constructed from aluminium in compliance with BS EN 1090 and shall attach to the reinforced concrete pillars provided in the design.
- 5. Where the stop logs shall use replaceable EPDM seals, a set of replacement seals shall be provided as part of the supply.
- 6. The top stop log shall incorporate a high visibility stripes (DOT-C2 or equivalent) along the top of the stop log.
- 7. The *Contractor* shall provide 2 No. collapsible "Road Closed" signs that can be deployed either side of the stop logs.
- 8. The stop logs shall be designed to withstand the following loads:
 - 30kN point load at the midspan of the stop logs to represent a debris impact during a flood event shall be considered in combination with the floodwater load to the top of the stop logs in the closed position.
- 9. The stop logs shall be fitted as per manufacturer's requirements. The *Contractor* shall ensure that all required sills are integrated into the foundation design.
- 10.Stop logs installation tolerances shall be in accordance with the stop log system supplier's requirements.
- 11. The design of the stop log system shall be such that any railings can be mounted and removed as separate elements to enable future replacement.
- Mounting fixtures entering the concrete shall be stainless steel Grade
 Stainless steel fixtures shall be isolated from contact with any ordinary steel, including reinforcement within the concrete pillar.
- 13. The stop log system shall be protected such that corrosion does not impede its structural or operational performance throughout the required design life. Where a paint system is used the colour shall be RAL 9017 (Traffic Black) or as advised by the *Project Manager*.
- 14. The stop logs shall be safe for the public in all conditions.

- 15. The stop logs shall be operable by a single person.
- 16.A metal box enclosure, placed on a concrete pad foundation shall be provided. The box enclosure shall be located adjacent to the opening, but not impeding pedestrians or traffic and shall be sufficiently sized to store all removable parts of the stop log system when not deployed, including road signs. The enclosure shall protect the stop logs from damage and environmental conditions to prevent deterioration of the seals, and theft or vandalism. The enclosure shall include the provision of a suitably secure lock (e.g. padlock). The colour of the enclosure shall be RAL 6005 (Moss Green).
- 17.An operational manual shall be provided detailing the method of operation, and maintenance activities and schedule.
- 18. Prior to manufacture of the stop logs all drawings and specifications shall be submitted to the *Project Manager* for acceptance with a minimum of 4 weeks for review.
- 19.Post-installation the *Contractor* shall, in liaison with the *Project Manager*, arrange for the undertaking of a trial deployment of the stop logs, including providing training to operational staff on stop logs deployment.
- 20.Temporary "Road Closed" sign, 600mm by 450mm, designed to diagram 7010.1 of Traffic Signs Regulations and General Directions 2016, secured on a metal stanchion frame shall be procured. The frame shall be small enough such that it will fit within the stop log secured box.

S 2002.159 Interpretation Board

See Clause S2016.13

S 2002.160 Limestone Boulders

Alverstoke Only

- 2. The source of limestone shall be accepted by the *Project Manager* prior to procurement.
- 3. The layout of limestone boulders is shown on drawing 405363-MMD-AS-XX-DR-L-1600. The boulders shall be laid such that they are not liable to move or roll.

S 2002.161 Anchor Stone

Alverstoke Only

- 1. The anchor stone shall be accepted by the *Project Manager* prior to procurement.
- 2. The anchor stone shall be positioned in the corner of the flood wall with the existing lake retaining wall in the northern corner of the lagoon to block public access the edge of the existing seawall as shown on drawing 405363-MMD-AS-XX-DR-L-1600.

S 2002.162 Vertipools

Forton Only

1. Boulder Vertipool model type supplied by Artecology or similar as accepted by the *Project Manager* and shall be fixed to the existing seawall at the locations and levels indicated on drawing 405363-MMD-FT-XX-DR-C-1201.

S 2002.163 Bee Posts

See clause S2016.12.1.

S 2003 SECTION 3 – EXCAVATION, BACKFILLING AND RESTORATION

MCHW Series 600 Earthworks applies for this clause and the following appendices applies to the *works*:

S 2003.1 APPENDIX 6/1: REQUIREMENTS FOR ACCEPTABILITY AND TESTING ETC. OF EARTHWORKS MATERIALS

- **S 2003.1.1** Permitted Classes and Material Properties for Acceptability
 - 1. Permitted Classes of earthwork materials for use in the *works* are listed, together with material properties required for acceptability in Table 6/1 of the Specification for Highway Works Volume 1.

S 2003.1.2 Acceptability and Testing

- 1. The *Contractor* shall be responsible for the classification and testing of earthworks materials.
- 2. The classification and confirmation of acceptability of the earthworks materials shall be carried out by the *Contractor* at the point of excavation for site won materials, and at the point of deposition for imported materials. If, in the opinion of the *Supervisor*, the material has altered its classification or become unacceptable for whatever reason, they may require the *Contractor* to repeat the classification and acceptability tests given in Table 6/1 of the Specification for Highway Works Volume 1 and this Appendix.
- 3. Materials compliance testing shall be carried out by the *Contractor* in accordance with Appendix 1/5 (Refer to Section S701.25 of this document). The classification and confirmation of acceptability of imported earthwork's materials will be required to ensure the material meets the specification.
- Class 6N material, selected well graded granular material, fill to structures, shall be tested for internal angle of friction in accordance with Table 6/1. The internal angle of friction shall not be less than j'=35°.
- 5. The permeability tests referred to in Clause 640 of the Highways Specification shall be the constant head or constant hydraulic gradient permeability test as described in BS 1377: Part 6 for radial permeability.
- 6. The classification and confirmation of acceptability of imported earthworks materials will require source approval. The *Contractor* shall obtain the required test certificates from the supplier in accordance with Table 6/1 of the Specification for Highway Works Volume 1.
- 7. For the source of fill to be considered for approval the source may be visited by the *Supervisor* at least seven days prior to the material being brought to the site. The purpose of the visit will be to compare the source with the following information that shall be provided by the *Contractor* prior to the visit:

- Location of fill source and method of extraction of fill
- Classification of fill
- Data to show material meets specification criteria for acceptable fill
- Amount of fill to be extracted
- Evidence indicating consistency of source
- 8. Where materials are imported, then earthworks material testing in accordance with Table 6/1 of the Specification for Highway Works Volume 1, shall be carried out to determine appropriate acceptability criteria, prior to commencement of fill operations with these materials.
- 9. Alverstoke Only:

Surfacing Type A material, to be used on the foreshore access slope (refer to drawing 405363-MMD-AS-XX-DR-C-1021), shall be imported natural aggregates, source code P to BS EN 13242, conforming to Class 6F4 (Selected granular material – fine grading – capping), or site dug material complying with Class 6F1. In addition to the properties and tests specified in Table 6/1 of the SHW, the material shall:

- comprise less than 5% fines.
- 10.Contamination testing: For all materials that may be imported to site or re-used on the site there will be a requirement for contamination testing to ensure that risks are not posed to either human health and/or groundwater. Testing shall be as follows:
 - Laboratory: UKAS/ MCERTS accredited laboratory.
 - Tests: Refer to Table 6/1 of the Specification for Highway Works Volume 1.
 - Frequency: Testing will typically comprise laboratory analysis at a rate of 1 sample per 250m³.
- 11.Alverstoke Only:

Visual and olfactory inspection of the excavated material should be carried out and in the event of evidence of contamination is detected, the material shall be dealt with in accordance with Appendix 6/2.

S 2003.2 Requirements for dealing with Class U1B and Class U2 unacceptable materials

APPENDIX 6/2: REQUIREMENTS FOR DEALING WITH CLASS U1B AND CLASS U2 UNACCEPTABLE MATERIALS **S 2003.2.1** General – *Alverstoke Only*

- 1. In the event that Class U2 material are excavated during construction of the *works* then the following clauses apply:
 - (i) Temporarily store in a separate securely fenced off area within a temporary screen fence provided and maintained by the *Contractor*. It is the *Contractor's* responsibility that material shall be stored in the area until chemical analyses are carried out to determine its classification.
 - (ii) Give notice to the Project Manager and the Supervisor.
 - (iii)Provide a method statement for safe excavation, removal, and disposal of the U2 material.
- 2. Any suspected U2 material should be treated as hazardous until proven otherwise.

S 2003.2.2 General – Forton Only

- 1. Due to the Asbestos found in the ground investigation works, the *Contractor* shall have in place a method statement for the safe excavation, removal and disposal of asbestos, and shall adhere to the requirements regarding hazardous materials in Section S 1100.25.2.
- 2. If any U2 materials or suspected U2 materials are excavated during construction of the *works* then the following clauses apply:
 - Temporarily store in a separate securely fenced off area within a temporary screen fence provided and maintained by the *Contractor*. Material shall be stored in the area until chemical analyses are carried out to determine its classification.
 - Give notice to the Project Manager and the Supervisor.
 - Provide a method statement for safe excavation, removal, and disposal of the material.
 - Any U2 material should be treated as hazardous until proven otherwise.

S 2003.2.3 Requirements of the Environmental Legislation

1. The standards that apply to the disposal of contaminated materials will be those applicable at the time of disposal. The *Contractor* shall obtain all necessary consents from local and national authorities as legislation and regulation requires.

S 2003.3 Requirements for Excavation, Deposition, Compaction (other than Dynamic Compaction)

APPENDIX 6/3: REQUIREMENTS FOR EXCAVATION, DEPOSITION, COMPACTION (OTHER THAN DYNAMIC COMPACTION)

1. Prior to any excavation, the *Contractor* shall note the current tidal levels. The tidal levels are listed in Table 15.

2. Table 15: Tidal Levels		
Level	Chart Datum (CD)	Ordnance Datum (OD)
Highest Astronomical Tide (HAT)	5.13 m	2.40 m
Mean High Water Spring (MHWS)	4.72 m	1.99 m
Mean Hight Water Neap (MHWN)	3.87 m	1.14 m
Mean Sea Level (MSL)	2.90 m	0.17 m
Mean Low Water Neap (MLWN)	1.90 m	-0.83 m
Mean Low Water Spring (MLWS)	0.73 m	-2.00 m
Lowest Astronomical Tide (LAT)	0.14 m	-2.59 m
Source:NTSLF (2019)		

S 2003.3.1 Excavation

- 1. The excavation level for the construction of the floodwall shall be the bottom level of the floodwall base.
- 2. Care should be taken when creating spoil heaps to avoid damage to adjacent slopes. Surcharge loading of raised ground must be considered along with any potential restriction the placement would place on the *works*. Care should also be taken whilst clearing spoil heaps to avoid damage to the surrounding area.
- 3. Wherever possible material excavated shall be re-used on site.
- 4. When excavating to the formation level of any structure, the *Contractor* shall not undertake the excavation of the final 300mm of material until immediately before commencing the construction work.
- 5. Work should be suspended during periods of heavy rainfall (i.e. >10 mm in 24 hours) based on the nearest agreed weather station. If the material forming the bottom of an excavation becomes unsuitable due to exposure to weather conditions, flooding, groundwater, and construction traffic or for any other reason, then the *Contractor* shall excavate such unsuitable material back to a sound surface and fill back to the specified level or surface with suitable material as directed by the *Project Manager*.

S 2003.3.2 Blasting

1. Refer to clause S201.31.4.

S 2003.3.3 Compaction

- 1. Refer to Clause 612 of the Highways Specification for compaction requirements.
- 2. Field dry density tests shall be carried out on fill materials at a frequency specified in Section S 701.25.1.
- 3. Alverstoke Only:

Where shingle/ sand material (corresponding to Class 6F4 material, source P), is used, it shall be laid and compacted such that it does not spread over designated habitat spots. The *Contractor* to shall put forward a method to the *Project Manager* for acceptance.

S 2003.3.4 Disposal of Material

- 1. Material (defined as Controlled Waste under the Environmental Protection Act 1990) for disposal off site shall be taken to facilities holding a Waste Management Licence issued by a Waste Regulation Authority.
- 2. Transportation of Controlled Waste is to be undertaken in accordance with the Control of Pollution (Amendment) Act 1989.
- 3. In the case of unacceptable material, Class U2, the *Contractor* shall also comply with the requirements for disposal described in Section S 2002.2 Appendix 6/2).

S 2003.4 APPENDIX 6/4: REQUIREMENTS FOR CLASS 3 MATERIAL

1. No Class 3 material to be used.

S 2003.5 APPENDIX 6/5: GEOTEXTILES USED TO SEPARATE EARTHWORKS MATERIALS

- 1. Geotextile shall be laid at locations shown on the Contract Drawings.
- 2. Placing and laying of geotextiles shall be in accordance with Clause 609 of the Highways Specification.
- 3. Minimum laps between geotextile membranes shall be 300mm.

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4. Geotextile to have the properties included in Table 16. Tests demonstrating that the geotextile has those properties shall be taken at the frequency stated in Section S 701.25.1.

Table 16: Geotextile Properties					
Test Standard	Value and Unit				
BS EN ISO	8 kN/m				
10319					
BS EN ISO	-				
10319					
BS EN ISO	1.5 kN				
12236					
BS EN 918	-				
BS EN ISO	75mm				
12956					
BS EN ISO	75 l/m2/s				
11058					
BS EN ISO	50 years				
13251	-				
N/A	Non-woven				
	polypropylene				
	Test Standard BS EN ISO 10319 BS EN ISO 10319 BS EN ISO 10319 BS EN ISO 12236 BS EN ISO 12236 BS EN ISO 12956 BS EN ISO 11058 BS EN ISO 13251 N/A				

S 2003.6 Fill to structures and fill above structural foundations

Table 40. Contextile Dramartian

APPENDIX 6/6: FILL TO STRUCTURES AND FILL ABOVE STRUCTURAL FOUNDATIONS

1. Location of fill to structures and fill above structural foundations is shown on the drawings.

S 2003.7 Topsoiling

APPENDIX 6/8: TOPSOILING

- 1. Topsoil shall be deposited and spread to thickness indicated in the Contract Drawings.
- 2. Topsoil shall be kept free from all contamination including subsoil, stone, hardcore, rubbish or material from demolition work, other soil or material containing aggressive weeds, sharps, plastics and non-soil forming materials and notifiable animal or plant diseases, oil, fuel, cement or other substances harmful to plant growth.
- 3. Topsoil shall only be stripped and handled when soil moisture conditions are sufficiently close to natural levels that damage to the soil structure will not be caused.
- 4. All topsoil shall be rotovated with agricultural rotovator.

- 5. Unless noted otherwise soil down to the formation level, which in the opinion of the *Supervisor* is capable of supporting healthy vegetation, shall be regarded as topsoil. Where a formation level or depth of topsoil is not indicated for the permanent *works* and for any temporary works, the depth shall be 200mm unless agreed otherwise with the *Supervisor*.
- 6. Before stripping, any grass growth longer than 150mm shall be cut, to a length of approximately 50mm, and removed no more than one week before stripping, to reduce the risk of anaerobic zones developing in the topsoil heaps.
- 7. No section of turf greater than 100mm x 100mm is to be left in the top soil once it has been excavated and stored. Turf is to be mixed into the stored topsoil.
- 8. Topsoil shall be stockpiled separately from other stockpiled fills and kept free from weeds.
- 9. Surplus topsoil shall preferably be disposed of by locally increasing topsoil reinstatement depths. The location and extent of increased topsoil depths shall be agreed with the *Supervisor*.
- 10. Topsoil shall only be re-used if it complies with the specification for reuse of soils.
- **S 2003.8** Swallow Holes and other naturally occurring cavities and disused mine workings

APPENDIX 6/11: SWALLOW HOLES AND OTHER NATURALLY OCCURRING CAVITIES AND DISUSED MINE WORKINGS

1. Swallow holes and other naturally occurring cavities are not envisaged to be encountered within the site area. Should such cavities be encountered then the *Project Manager* shall be informed immediately.

S 2003.10 Dealing with Water

Add the following to Clause 606:

- 5. Water described in this clause shall include water from any source.
- 6. The *Contractor* shall consider the following in the development of the working method (including temporary works):
 - a) Keep the *works* clear of water during construction work (also considering high flow events);
 - b) The removal of water entering earthworks;
 - c) Form and maintain all Lowering the water level in excavations, and maintaining it at a sufficiently low level to enable construction of the *works* to proceed.
 - d) earthworks with appropriate drainage falls.
 - e) Provide and maintain any necessary temporary watercourses.

- f) Provide and maintain means of trapping silts and of preventing its discharge into the drainage system or other watercourse
- 7. Earthworks operations shall be carried out in a manner which will not block or impede the natural flow of water in streams or through existing drains, pipes and culverts. No material shall be stockpiled or existing ground disturbed, such that it may slide or fall into a watercourse or in front of a drain, pipe or culvert inlet.
- 9. Any temporary diversions of watercourses shall be agreed with the *Project Manager* in advance of work commencing.
- 10. The *Contractor* shall plan his works to minimise the risk of erosion to temporary excavated work faces caused by water flows in high tide periods.

S 2003.11 Temporary Drains

1. Temporary drains which the *Contractor* may wish to install below the final surface of any excavation may be incorporated only with the prior acceptance of the *Supervisor*.

S 2003.12 Backfilling

1. Fill shall be compacted in layers not exceeding 250mm to 95% of the maximum dry density at optimum moisture content.

S 2003.14 Reinstatement of Unpaved Land

- 1. All site compounds, working areas and temporary access routes are to be restored by the *Contractor* to at least the standard of the conditions which exist before working commences.
- 2. Subsoil contaminated with fuel or other materials shall be dug out and disposed of offsite to a licensed tip.
- 3. The levels of the ground to be seeded shall be such as to tie in with adjacent 'soft' areas after settlement.
- 4. Areas grass seeded shall be raked and watered immediately following seeding to encourage germination.
- 5. The *Contractor* shall ensure that the reinstated areas are watered frequently during dry spells and that full healthy growth has been achieved by the defects date.
- 6. Surfaces to be sown with grass seed shall be in accordance with S 2002.56.

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7. All planting and seeding shall take place in the first available planting season.

- 8. The *Contractor* shall notify the *Project Manager* of any suspicious objects, old foundations, slabs and the like; obtain approval and break out where and to the extent stated whilst preparing the Site.
- 9. At least two weeks prior to planting or seeding the *Contractor* shall spray off all planting beds and seeding areas with a proprietary residual herbicide to remove all weeds. The *Contractor* shall allow a suitable recommended period for the herbicide to take effect before clearing arisings and commencement of planting/seeding.

Alverstoke Only: Areas under private ownership may have this item omitted in agreement with the owners.

10. The *Contractor* shall ensure that soil should be left in a moist, friable state for planting & seeding. Soil shall not be waterlogged. Leave soil surface regular and even.

S 2003.15 Demolition

1. All metalwork, gates, fence panels etc. from property boundary demolition remain the assets of the property owner and should be set aside for reuse, if they so wish, or disposed of by the *Contractor* if unwanted by the property owner.

S 2003.16 General Earthwork Requirements

- Earthworks Final Surfaces shall be completed to a stable condition as soon as practicable after excavation or after the deposition and compaction of fill material has been completed. Subsequent work or surface protection shall be carried out as soon as practicable after the surface has been completed.
- 2. Final Surfaces and Filled Surfaces shall be completed to smooth levels and alignments without abrupt irregularities unless otherwise stated in the Contract.
- 3. Earthworks Final Surfaces and Formations shall not be damaged by the *Contractor* providing the *works*.

S 2003.17 Separation of Materials

- 1. Where excavation reveals a combination of acceptable and unacceptable materials in discrete volumes, the *Contractor* shall alert the *Supervisor* to the circumstances. Pending the *Supervisor*'s instructions, the *Contractor* shall carry out the excavation in such a manner that the acceptable material is excavated separately for use in the *works*, and is not contaminated by the unacceptable material.
- 2. The *Contractor* may employ mechanical beneficiation equipment (e.g. vibratory screens) to remove deleterious components from the site-won materials in order to increase the volumes of available acceptable fills. However, no such equipment may be mobilised to or offsite without the approval of the *Project Manager*.
S 2003.18 Reinstatement of Boundaries

- 1. Where indicated on the Drawings, fences, banks or walls affected by the *works* shall be reconstructed using similar materials to the original.
- 2. Where practicable, the original materials shall be carefully dismantled and set aside for re-use in the reinstatement.

S 2003.19 Reinstatement of Private Paved Areas, Tracks and Grass roads

1. On completion of work in private paved areas, tracks and grass roads the *Contractor* shall restore the land to a condition at least equal to the original condition.

S 2003.20 Stockpiles

- 1. Where stockpiles are formed they shall be so managed as to minimise damage to or deterioration of the stored material and the adjacent areas of the Site, and shall comply with the following sub-clauses.
- 2. Stockpiles will not be permitted within 10m of any watercourse or structure, including permanent roads, bridges or buildings and shall not be positioned as to affect the root zone of any trees.
- 3. Topsoil shall be stripped from stockpile areas before the placing of any material and shall be stockpiled elsewhere for subsequent reinstatement.
- 4. Topsoil stockpiles shall be located on an area of the Site that has been stripped of all vegetation and is not prone to water-logging. Topsoil shall be deposited in long thin, loose tip bunds not exceeding 2m in height and 5m in width at the base.
- 5. Topsoil shall not be tracked over during stockpiling in order to guard against compaction-related deterioration and topsoil stockpiles shall be cordoned off following completion to prevent subsequent accidental tracking by Equipment.
- 6. Stockpiled topsoil shall not be worked in wet weather or soon after wet weather or when soil moisture levels may result in damage to the soil structure.
- 7. If topsoil is to be stored the outer face and top of the stockpile shall be smoothed using a flat edged bucket of a hydraulic excavator or other suitable Equipment and the top surfaced angled so as to encourage efficient rainwater shedding.
- 8. Topsoil stockpiles shall not be contaminated by contact with cement, lime, fuel, stone, hardcore, rubbish, and material from demolition work of any other material harmful to plant growth. Topsoil shall not be

buried by subsequent operations or compacted in any way, as this would irreversibly damage its structure. Stockpiles of different grades of topsoil should be kept separate.

- 9. Compaction of stockpiled materials, other than topsoil, shall be spread and compacted in layers of not greater than 250mm compacted thickness by construction traffic. Compaction shall be by a single pass of tracked excavator.
- 10. Measures shall be taken to avoid contamination of one stockpiled material with another or with extraneous materials, and any material contaminated by the *Contractor's* operations shall be disposed of off-site. Where diesel, petrol, oil or any other hazardous or unacceptable materials have contaminated material, this material shall be disposed of off-site.
- 11. Provision shall be made to ensure the local surface water drainage is not impeded.
- 12. Weed growth occurring on stockpiles shall be eliminated by the use of a herbicide accepted by the *Project Manager* at suitable intervals.

S 2003.21 Disposal of Surplus Materials

- 1. No excavated material shall be removed from the Site except with the consent of or on the direction of the *Project Manager*.
- 2. Surplus excavated materials shall be tested and categorised before they are disposed of off-site. The material shall then be disposed of off-site to a suitably licensed disposal site (and full records provided for materials containing asbestos). The *Project Manager*'s approval shall be required before any material is disposed of and such approval will only be given on receipt of suitable testing and reporting.
- 3. Prior to disposal, material shall be stored in appropriate bunded areas such that separate categories of material are stored separately.

S 2003.22 Disposal of Contaminated Ground

- Disposal contaminated material from the excavations shall be to a site authorised in writing by the approved Waste Disposal Licensing Authority / Local Authority that holds a valid environmental permit (or suitable registered exemption) issued by the Environment Agency.
- 2. Hazardous waste is defined under the 2005 Hazardous Waste Regulations (as amended).
- 3. If hazardous waste material is encountered on Site the *Contractor* must immediately notify the *Project Manager* and a hazardous waste consignment note must be prepared for each load before any material is removed. The *Contractor* shall comply with the 2005 Hazardous Waste Regulations at all stages.

- 4. Controlled waste is defined in the Environmental Protection Act 1990, Section 75, as being any kind of household, commercial or industrial waste. It includes any waste from a house, shop, office, factory or any other trade or business premises. It includes unwanted surplus substances, building or demolition waste and anything which is disposed of as broken, worn out, contaminated or spoiled in some other way.' The interpretation of terms "household, commercial or industrial waste" used in this definition is provided in The Controlled Waste (England and Wales) Regulations 2012
- 5. All waste and surplus materials regarded as controlled waste collected during the course of the *works* shall be disposed of off-site in accordance with the requirements of the relevant legislation, including the waste hierarchy. The *Contractor* shall be responsible for making their own arrangements as to the tipping sites to be used, any charges to be paid and for ensuring that each site has the necessary permits or permissions that may be required for the purpose by a Statutory Body in accordance with the waste duty of care. Where required by the *Project Manager*, the *Contractor* shall provide all information to show that all such waste materials are being disposed of in accordance with the Contract.
- 6. The *Contractor* shall ensure that any person that removes waste during the *works*, including the *Contractor* or any sub-*Contractor* employed by them, if they remove waste; or any waste management *Contractor* that removes waste is registered in accordance with the requirements of The Waste (England and Wales) Regulations 2011 as a carrier of waste with the Environment Agency and that the registration is valid for the entirety of the period that waste is being removed from the *works*.

S 2003.23 Unacceptable Material

- 1. Material which is unacceptable only by virtue of being frozen, may, subject to the *Project Manager*'s agreement, remain on the Site for subsequent re-use as acceptable material.
- 2. Fill material which has been used, or is required for use, in the permanent works and which has deteriorated such that the material no longer complies with the Specification, shall be processed or replaced by the *Contractor* as agreed with the *Project Manager*.
- 3. If the material becomes unsuitable due to exposure to weather conditions such as excessive drying, flooding, groundwater, construction traffic or any other reason, then the *Contractor* shall treat the material, excavate such unsuitable material back to a sound surface and fill back to the specified level or surface with suitable material as directed by the *Project Manager*.

S 2003.24 Additional Landscaping

1. Landscaping details beyond that which are included in this Scope are to be agreed with the *Project Manager* following consultation with the landowners.

S 2003.25 Earthworks Construction Tolerances

- 1. Construction tolerances shall be as follows, unless otherwise stated in the specification.
- The tolerance for levels of filling to the final surface, measured at Completion, shall be the levels shown on the Drawings –10mm to +15mm. Longitudinal tolerances shall be minimised and the finished level shall have no abrupt irregularities which are, to an extent, observable by eye.
- 3. For other surfaces and any interface between fill zones, measured perpendicular to the specified surface, levels shall be within ±25mm of the specified surface.
- 4. Where there is a specified layer equal to or less than 500mm thick notwithstanding the above, the layer thickness indicated on the drawings shall be achieved within -0mm to +50mm.
- 5. Tolerances for access tracks are covered in clause WI 2008.14.

S 2003.26 Formation Proof Rolling

- The formation shall be inspected by the *Contractor* to identify the subsoils present and if any part of the formation is unsuitable. The *Contractor* shall inform the *Supervisor* if unsuitable subsoils are present and the *Supervisor* may then direct the *Contractor* to excavate and remove such unsuitable material. Any such further excavation shall be filled to the required level with suitable material, as directed by the *Supervisor*. It is anticipated there will be areas of formation which may 'normally' be classified as unsuitable but which will not be removed for technical reasons.
- 2. Prior to proof rolling the *Supervisor* will inspect the formation to ensure, where present, sufficient organic material and root matter has been removed. Instruction may be given to make good any defects such as soft spots, issues, voids or fissuring and the like which may have a detrimental effect on the performance of the *works*.
- 3. The formation shall be prepared and treated in accordance with Specification for Highways Works Clause 616 with a provision for an estimated 20% of double rolling for areas where the *Supervisor* does not wish to have further unsuitable material removed for technical reasons.
- 4. A record of the remedial works undertaken and the subsequent proof rolling will be provided to the *Supervisor* prior to commencement of filling. These records will form part of the as built records.
- 5. Formations which will not be immediately covered by the permanent Works shall be protected by methods agreed by the *Supervisor*.

S 2003.27 Settlement

- 1. The levels shown on the drawings are the required finished levels at Completion.
- 2. The *Contractor* shall make due allowance for any settlement that may occur during construction, and shall adjust the construction profile and levels accordingly to ensure that the finished levels and profiles are achieved.
- 3. The *Contractor* shall include full details of their technical submission in respect of construction stage settlement together with their earthworks technical submission (refer to clause S 2003.16).

S 2004 SECTION 4 – CONCRETING AND FORMWORK

This section uses MHCW Series 1700 – Structural Concrete and the following appendices apply to the *works*, superseding the relevant clauses of CESWI7.

S 2004.1 Schedule for the Specification of Designed Concrete

APPENDIX 17/1 SCHEDULE FOR THE SPECIFICATION OF DESIGNED CONCRETE

Works mix reference	Mix 1	Mix 2	Mix 3
Concrete Sections/Structur es	Precast concrete unit upstands	In-situ floodwall base, in- situ floodwall upstands, Mass concrete sections	Blinding
Mix Property	-	-	
Design Life	50 years	50 years	50 years
Mix Design	Designed	Designed	Design ed
Compressive Strength Class	C32/40	C32/40	C8/10
Exposure Class	XC3/4, XF3, XS1	XC2, XF3, XS1	
DC Class (as per Table A.10 of BS 8500-1)	-	DC-2	

Alverstoke Only:

Works mix	Mix 1	Mix 2	Mix 3
Min Cement Content (kg/m3)	360	360	325
Max Free Water / Cement Ratio	0.40	0.40	0.5
Maximum Nominal Aggregate Size (mm)	20	20	20
Chloride Class	Cl. 0,30	Cl. 0,30	1.0
Cement and Combination Types [5,6]	IIIA (46%- 65% ggbs) IIIB (66%- 80% ggbfs) IIB-V+SR (25%-35% PFA)	IIIA (46%- 65% ggbs) IIIB (66%- 80% ggbfs) IIB-V+SR (25%-35% PFA)	Any in table A.6, BS 8500 - 1
Additional measures	Controlled permeabili ty formwork [2]	Controlled permeabili ty formwork	N/A
Nominal Cover to Reinforcement1	-	-	-
Consistence Class3	-	-	-
Max Cement Content (kg/m3)4	-	-	-
Required	N/A	N/A	N/A
Air Entrainment Required (YES/NO)	NO	NO	NO
Sampling and Testing (Cross ref to App 1/5 or 1/6)	-	-	-
Aggregate - Properties (Refer to section 14.3 of this document)	-		
Notes: (a) Where formlin nominal cover be 35mm. The be 80mm. No utilised shall b	ers are utilised (re to the deepest inc e nominal cover to minal cover elsew e 50mm.	fer to Section S 200 lentations of the for the shallowest inde here where formline	04.2.1.1), the mliner shall entations shall ers are not

- (b) Controlled permeability formwork for in-situ and precast concrete works is only required for formed surfaces.
- (c) Contractor shall determine this
- (d) Contractor may use more cement provided the maximum permitted concrete temperature is not exceeded and the Contractor has demonstrated this through accepted calculations or trials.
- (e) IIB-V defined as 21%-35% PFA in BS8500. IIB-V defined as 21%-24% PFA and IIB-V+SR defined as 25%-35% PFA in BS6349-1-4.
- (f) IIIA defined as 36%-65% GGBS in BS8500.

Forton Only:

Concrete mix designs to be used in the works, are detailed in Table 35.

Table18: Schedule for t	able18: Schedule for the specification of Designed Concrete		
Works mix	Mix 1	Mix 2	Mix 3
Concrete Sections/Structur es	In-situ floodwall base, in- situ floodwall upstands, concrete paving slabs, mass concrete sections, seawall repairs	Coping Stone	Blinding
 Mix Property			
Design Life	50 years	50 years	50 years
Mix Design	Designed	Designed	Design ed
Compressive Strength Class	C32/40	C32/40	C8/10
Exposure Class	XC3/4, XF3, XS1	XC3/4, XF3, XS1	-
DC Class	DC-2	-	-
 Min Cement Content (kg/m3)	360	360	325
Max Free Water / Cement Ratio	0.40	0.40	0.5
Maximum Nominal Aggregate Size (mm)	20	20	20

Works mix	Mix 1	Mix 2	Mix 3
reference			
Chloride Class	Cl. 0,20	Cl. 1.0	Cl. 1.0
Cement and Combination Types [5,6]	IIIA (46%- 65% ggbs)	IIIA (46%- 65% qqbs)	Any in table A.6, BS
, , , , , , , , , , , , , , , , , , ,	IIIB (66%- 80% ggbfs) IIB-V+SR	IIIB (66%- 80% ggbfs) IIB-V+SR	8500 - 1
	(25%-35% PFA) IVB-V	(25%-35% PFA)	
Additional measures	Controlled permeabili	Controlled permeabili	N/A
	ty formwork [2]	ty formwork [2]	
Nominal Cover to Reinforcement1	-	-	-
Consistence Class3	-	-	-
Max Cement Content (kg/m3)4	-	-	-
Required Admixture	N/A	N/A	N/A
Air Entrainment Required (YES/NO)	NO	NO	NO
Sampling and Testing (Cross ref to App 1/5 or 1/6)	-	-	-
Aggregate Properties (Refer to section S2004.3.3 of this document)	-		
Notes:			

1) Nominal cover as shown on Contract Drawings

- 2) Controlled permeability formwork for in-situ and precast concrete works is only required for formed surfaces.
- 3) Contractor shall determine this
- 4) *Contractor* may use more cement provided the maximum permitted concrete temperature is not exceeded and the *Contractor* has demonstrated this through accepted calculations or trials.
- 5) IIB-V defined as 21%-35% PFA in BS8500. IIB-V defined as 21%-24% PFA and IIB-V+SR defined as 25%-35% PFA in BS6349-1-4.

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6) IIIA defined as 36%-65% GGBS in BS8500.

S2004.1.1 Fresh Concrete Temperature

- 1. Concreting in adverse temperatures shall be in accordance with Series 1700 of the Highways Specification.
- 2. During hot weather, with shade air temperatures (above 20°C), precautions shall be taken by the Concrete Supplier and *Contractor* to ensure the maximum temperature of the concrete mix at time of placing is less than 20°C, unless it has been demonstrated in the *Contractor*'s trials that a higher temperature will not adversely affect the concrete and its resistance to early cracking.
- 3. Concreting at shade air temperatures below 5°C shall be carried out only if the following conditions are met:
 - (i) Aggregates and water used in the mix are free from snow, ice and frost.
 - (ii) Formwork, reinforcement and any surface with which the fresh concrete will be in contact with is free from snow, ice and frost and be at a temperature above 0°C.
 - (iii)Initial temperature of the concrete is at least 5°C.
 - (iv)Temperature at the surface of the concrete shall be maintained at not less than 5°C until concrete reaches a strength of 5N/mm².
 - (v) Temperatures at the surface of the concrete shall be measured where the lowest temperature is to be expected.
 - (vi)Temperature of the concrete shall be prevented from falling below 0°C
 - (vii)Shade air temperatures (minimum): 2°C (subject to above).
 - (viii)During wet weather the concrete shall be adequately protected as soon as it is in position. No concreting shall be carried out during periods of continuous heavy rain.

S 2004.2 Surface Finishes

APPENDIX 17/3 SURFACE FINISHES

S2004.2.1 Surface Finishes

S2004.2.1.1 Formed Surface Finishes

- 1. Unless specified on the contract drawings, or agreed otherwise, formed surfaces shall have a F3 finish on exposed faces and F2 finish elsewhere.
- 2. Alverstoke Only:

Where the term "imprinted concrete finish" is specified on the contract drawings the 2/238 Via Aurelia formliner designed by Reckli shall be used, or similar accepted, to form the surface finish. It shall be used on the exposed face of the lake face of the wall.

3. Alverstoke Only:

The 2/238 Via Aurelia formliner shall not be used more than the number of uses specified in the manufacturer's data sheet.

4. Forton Only:

Where internal ties are used within a concrete surface to support brick cladding, the surface shall have a F4 finish.

S2004.2.1.2 Unformed Surface Finishes

- 1. Unless specified on the Drawings, or agreed otherwise, unformed exposed surfaces shall have a U3 finish elsewhere.
- 2. Where brushed finishes are required, these shall be formed by first applying a screed finished, which shall then be brushed transversely to produce a lightly brush-marked finish, with a 100mm arris steel trowel finish to sides and at joints

S2004.2.2 Trial Panels

- 1. A trial panel at least 1m x 1m of the F3 finish shall be prepared for the inspection and acceptance of the *Project Manager*.
- Alverstoke Only:
 A trial panel at least 1m x 1m of the imprinted concrete finish shall be prepared for the inspection and acceptance of the *Project Manager*.
- 3. Trial panels may form part of the permanent works. Whether or not the trial panel forms part of the *works*, it shall be retained, protected as required, photographed, etc. as a benchmark for comparison and compliance purposes.
- 4. The *Contractor* shall prepare trial panels of elements of work for the inspection and acceptance of the *Project Manager*, at least four weeks in advance of their procurement or construction.

S2004.2.3 Internal Ties

This sub-clause applies to Forton Only:

- 1. 75mm SP21 Wall Ties supplied by Ancon Building Products or similar accepted shall be used to tie the brick cladding to concrete walls.
- 2. For each tie an Ancon 21/18 Omega Channel or similar accepted shall be cast into the precast unit to allow for brick tie installation.
- 3. The minimum number of ties per unit area of brick cladding shall be 2.5/m² of brick cladding.

S2004.2.4 Repair of Surface defects in Concrete

- 1. All concrete work shall be inspected by the *Contractor* as soon as formwork has been stripped and no patching or other treatment shall be carried out before this inspection has been completed. Any concrete badly out of alignment or with a defective surface which and cannot be properly repaired or patched shall be cut out and made good. The *Supervisor* shall be consulted prior to any agreement to make good defective concrete.
- 2. Immediately on removal of the forms, all surfaces shall be carefully examined prior to any removal or repair work being carried. The surface in question shall be compared to the trial panel(s) to assess the extent of any repairs needed. Any irregularities found in the concrete surface shall be immediately rubbed down to produce a smooth, uniform and continuous surface. Blowholes shall be filled with a cementitious mortar within 48 hours. Concrete containing voids, holes, honeycombing or similar

depression defects shall be completely removed and replaced unless remediation is agreed with the *Project Manager*.

- Cement mortar for filling blowholes shall consist of 'Conbextra GP cementitious grout' or similar accepted, suitable for completely filling the blowholes.
- 4. Cement mortar for filling holes left by formwork components or lifting points (applicable for Precast units) shall consist of 1 part of cement to 3 parts of fine aggregate together with the minimum amount of water necessary to achieve a consistency suitable for compacting the mortar into the holes; the mix shall contain a non-shrink admixture.
- 5. Methods and materials for repair shall be subject to acceptance by the *Supervisor*.

S 2004.3 Concrete - General

S2004.3.1 Execution Class

1. Execution Class 3 as defined with BS EN 13670 is applicable for all concrete works.

S2004.3.2 Cements Requirements

- 1. When supplied separately, dry Portland cement, PFA and GGBS or other additions shall be thoroughly blended in the mixer.
- 2. Batches of cementitious additions shall be used in order of their delivery to the site.
- 3. Test data shall be submitted to the Supervisor.

S2004.3.3 Aggregate Requirements

- 1. Only accepted aggregates whose source contains a sufficient quantity of aggregate to complete the work shall be used. The following information shall be submitted to the *Supervisor* for acceptance prior to the commencement of the *works*:
 - (i) The name and location of the pit, quarry or source.
 - (ii) The rock or material type or types to be used.
 - (iii)Chloride content value
 - (iv)Potential alkali reactivity results
 - (v) Nominal grading details in tabular and graphical form of the fine and coarse aggregates;
 - (vi)Nominal grading details in tabular and graphical form of the combined aggregate together with details of the proportions in which the fine and coarse aggregates are combined;
- 2. All-in aggregate shall not be used.
- 3. Recovered aggregate may be used in accordance with BS EN 206-1 Section 5.2.3.
- 4. Single-sized coarse aggregates and fine aggregates shall be used. They shall be stored in separate hoppers, or different stacks, which shall be well separated from each other.

- 5. All aggregates shall be kept free from contact with deleterious matter with adequate provision for drainage and shall be stored and handled so as to avoid segregation and inter-mixing.
- 6. The Concrete Supplier shall measure the free moisture content of the aggregate prior to batching, at regular interval and not less than twice per day. The free moisture in the aggregate shall be allowed for in the quantity of water to be added to the concrete.
- 7. Copies of the results of routine control tests carried out by the aggregate producer shall be retained by the *Contractor*.

S2004.3.4 Admixtures Requirements

- 1. The quantity and method of adding admixtures shall be in accordance with the manufacturer's recommendations.
- 2. Admixtures containing chlorides or other corrosive agents shall not be used.
- 3. Calcium chloride shall not be used in any form.
- 4. Admixtures shall be stored and used in accordance with the manufacturer's recommendations. The shelf life of any admixture shall not be exceeded.
- 5. The *Contractor* shall demonstrate the action of any proposed admixture by means of trial mixes.

S2004.3.5 Testing and Sampling

- 1. Identity testing is required as specified in Section S 701.25.2
- 2. Initial testing requirements:
 - a) Additional to the requirements of BS EN 206-1 at least three cubes from three batches shall be tested for compressive strength at an age of 7 days. This procedure shall be undertaken for each concrete mix as listed in Tables 18 & 19.
 - b) The tests shall be carried out using procedures, equipment and conditions similar to those to be used on site during construction.
 - c) The *Contractor* shall demonstrate the compliance of any proposed mix with the initial tests required by BS EN 206, no later than 28 days prior to the programmed use of the concrete mix.
- 3. Suitability of Proposed Mix Proportions:
 - a) The Concrete Supplier shall submit for the approval of the *Contractor* and the *Project Manager*, prior to the supply of any concrete, the following information for each concrete mix design specified in Tables 18 & 19.
 - (i) Aggregate requirements as specified in Section S 2004.3.3;
 - (ii) The quantities of each material per cubic metre of fully compacted concrete;

(iii)Any proposed admixtures.

b) Any changes in the source of material or in mix proportions, except changes in the cementitious content of not more than 20 kg/m³, shall be notified to the *Project Manager*. Where required by the *Project*

Manager the revised proportions are to be considered as a new mix design and initial tests will be required. The sampling rate shall be increased to that required for initial production for the next 35 test results.

S2004.3.6 Construction Joints

- 1. Location of Construction joints are shown within the Contract Drawings, as are the typical joint details.
- 2. Alverstoke Only:

Where Precast Joints are positioned at changes in direction between adjacent precast units the nominal width of the joint shall be between 15mm and 25mm.

3. Alverstoke Only:

Precast Joints shall be between 1.5m and 6m apart, from centre to centre. Individual precast units shall be 20mm shorter than the distance between precast joint centres (to take into account the 20mm wide joint as detailed on Drawing 405363-MMD-AS-XX-DR-C-1300).

4. Alverstoke Only:

In locations where precast units are used, the lengths of the base slabs shall be equal to a multiple of the lengths of the precast units. Precast units shall not overlap Expansion Joints, i.e. Expansion Joints shall line up with Precast Joints.

5. Alverstoke Only:

The distance between consecutive Expansion Joints shall be no greater than 12m.

- 6. Where wall stems are connected to in-situ concrete foundations, horizontal joints within the stem shall be located no less than 100mm from the junction of the foundation and the stem.
- 7. Dowel bars at construction joint locations shall be positioned perpendicularly to the joint in both horizontal and vertical directions.
- 8. *Contractor* to ensure dowels at construction joint locations are secured in place and are not liable to move during the pouring of concrete.

S2004.3.7 Retarding Agents

1. Retarding agents shall not be used unless agreed with the *Project Manager*.

S2004.3.8 Formwork

- 1. Plywood used for formwork shall be form lined.
- 2. Unless otherwise shown on the Drawings 25mm chamfers or fillets shall be formed at all exposed angles or arises of concrete except those against paving which should have a 10mm bull-nose radius.
- 3. Where any top surface created underwater will be covered within the next tide they shall be protected from damage.

4. The formwork release agents shall be compatible with any waterproofing and coating systems that may be required to be applied to the finished concrete surfaces.

S2004.3.8.1 Formwork Fixing Devices

1. No plugs, bolts, wire ties, holdfasts or any appliances whatsoever, for the purpose of supporting the formwork or reinforcement, shall be fixed permanently into the structure so that they have less cover than the reinforcement or in any way impair the strength or appearance of the work, nor shall they be placed in such a manner that damage to the work would result due to the removal of the formwork.

S2004.3.8.2 Release Agents

- 1. The concrete contact faces of the formwork shall be treated with a suitable non-staining release agent to prevent adhesion and to prevent absorption of water from the concrete or avoid shrinkage of the forms. Release agent shall not come into contact with any reinforcement.
- 2. For the formliner panel the manufacturer's recommended release agent should be used, it should be suitable for use in the marine environment.
- 3. Release agents shall be proprietary systems applied by the method and at the rate of application recommended by the manufacturer. Barrier paint, polyurethane varnish, wax or other materials shall not be used instead of a release agent.
- 4. Release agents used on steel formwork shall contain a rust inhibiting agent.
- 5. The same type and make of release agent shall be used throughout the entire area of any one finish in one location. The release agent shall be applied evenly to formwork surfaces, from the top downwards, and to horizontal surfaces last. The minimum necessary amount of release agent shall be used to obtain a clean release. Excessive local collection shall be prevented. The release agent shall be prevented from touching the previously placed hardened concrete, other materials not part of the formwork face and permanent forms to be built into the concrete.
- 6. The formwork release agents shall be compatible with any waterproofing and coating systems that may be required to be applied to the finished concrete surfaces. Where required, site trials shall be carried out to demonstrate the adhesion of primers to the concrete surface is not reduced and that the performance of the coating systems will not be impaired.
- 7. Release agents shall be biodegradable.

S2004.3.8.3 GRP Formwork

This sub-clause only applies to *works* at Alverstoke.

- 1. *Contractor* shall procure the GRP Formwork taking into consideration the expected construction loads.
- 2. *Contractor* shall fix GRP Formwork in position taking account the minimum bearing widths between existing concrete walls/assets.

- 3. *Contractor* shall take into consideration method for sealing joints between adjacent formwork panels to prevent loss of concrete during pouring.
- 4. The existing concrete wall/assets that the formwork is supported by shall be cut down flush to underside of formwork level. Any gaps between existing concrete and formwork shall be appropriately sealed prior to concreting to prevent loss of concrete and contamination of Stoke Lake.
- 5. Cover to reinforcement shall be measured from the top surface of the formwork.

S2004.3.8 Existing Structures as Formwork

This sub-clause only applies to works at Alverstoke.

 Where concrete is poured up against the existing masonry seawall, which runs along the edge of Stoke Lake, the pour shall be separated from the wall by 20mm thick compressible filler board (Aerofil 2 or similar accepted). Polythene sheeting or similar accepted shall also be secured between the concrete pour and existing masonry seawall where there are cracks or voids within the masonry, to prevent concrete seepage into the lake. Adjacent polythene sheets shall overlap by a minimum of 200mm.

S2004.3.9 Curing Class

- 1. For elements cast on site curing shall be in accordance with BS EN 13670 class 4.
- 2. For elements cast off site the standard curing class 3 is applicable.

S2004.3.10 Stainless Steel Wire

- 1. Tying wire shall be 1.6 mm diameter stainless steel wire in precast concrete and in-situ works.
- 2. The ends of tying wire, tying devices and clips shall not encroach into the cover to the reinforcement.
- 3. Tying wire shall be tied at locations in accordance with BS 7973-2:2001.

S2004.3.11 Welding of Reinforcement

1. Reinforcement shall not be held in position by welding.

S2004.3.12 Third Party Inspections

This sub-clause only applies to works at Alverstoke.

1. Hampshire County Council as the Highway Authority may require inspection of the *works* including but not limited to surfaced footpath areas, kerbs and highway surfaces.

S2004.3.13 Reinforcement

1. The scheduling of reinforcement shall be carried out in accordance with the reinforcement of intent drawings.

S 2004.3.14Tolerances

S2004.3.14.1 Geometrical Tolerance

1. Alverstoke Only:

All geometrical tolerances shall be to Clause 1728 of the Specification for Highways Works, unless otherwise specified the paragraphs below.

2. Alverstoke Only:

Regarding reinforcement cover where formliners are used (refer to Section S 2004.2.1.1), Δ cdev, referred to in Clause 1728, shall equal 5mm

3. Forton Only:

Tolerances shall be in accordance with BS EN 13670 tolerance class 1 unless otherwise specified.

S2004.3.14.2 Precast Unit Tolerances

This sub-clause only applies to works at Alverstoke.

- 1. The *Contractor* shall accurately set out the work within tolerances described in the following paragraphs.
- 2. If, due to inaccuracies in position or level or in the dimensions of the units, it is found impossible to assemble the units without straining them into position, no such straining shall be done without the permission of the *Project Manager* and when so directed the *Contractor* shall dismantle the work and re-erect.
- 3. No cutting of units, enlarging of holes for fixing bolts or other operations for the correction of lack of fit of units shall be carried out unless agreed with the *Project Manager*.
- 4. Unless otherwise specified, bearing or washer pads shall be inserted at all joints and seatings to prevent direct contact of concrete to concrete or concrete to metal.
- 5. The use of expanding agents or other additives to the mortar or in-situ concrete for the fixing of precast units shall be subject to the acceptance of the *Project Manager*.
- 6. During the installation of precast units, or the casting of associated in-situ concrete, the *Contractor* shall not impose any abnormal loads on foundation, pile caps, or abutments.
- During the installation of precast units, the placement tolerances shall be ±5mm when looking down on the wall in plan view, and +0 to 5mm regarding the level so as to ensure that the flood protection level is adhered to.

S2004.3.14.3 Precast Unit Installation Tolerances

This sub-clause only applies to works at Alverstoke.

1. Precast units shall be installed so that the completed structure complies with the tolerance requirements for in-situ concrete. The various faces of the completed structure shall comply with the tolerance requirements for the classes of finish specified for those faces.

- 2. The tolerance of the floodwall in-situ base level shall be +0 5mm directly beneath the precast floodwall units so as to ensure the flood protection level is kept. The tolerance of the base level elsewhere for the floodwall insitu base level shall be ±5mm.
- 3. The difference in the exposed vertical face line between adjacent units shall not exceed 5 mm. This requirement shall also apply to the top level of units. In addition, the face line shall be visually matched to show a true straight or curved line (as appropriate).

S2004.3.14.4 Precast Unit Manufacturing Tolerances

This sub-clause only applies to works at Alverstoke.

1. Manufacturing of precast units shall be strictly within the tolerances specified in EN 13670 in addition to Table 20.

Table 20. Treeast concrete manufacturing tolerances	
Length	Tolerance
Up to 3m	±4mm
3 to 4.5m	±9mm
4.5 and over	±12mm
The above tolerances for length shall apply to the two	
major dimensions (i.e. side, length).	
Squareness	
When considering the squareness of a corner, the longer of adjacent sides being checked should be taken as the base shorter side should not vary in its distance from a perpend the difference between the greatest and the shortest dime exceeds:-	of the two line. The icular so that nsions
Length of shorter sides	
Up to and including 1.2m	6mm
Over 1.2m but less than 1.8m	9mm
1.8m and over	12mm
For the purpose of this requirement any error due to lack or should be ignored; squareness should be measured with r straight lines which are most nearly parallel with the featur	of straightness respect to the res being

 Table 20: Precast concrete manufacturing tolerances

2. Notwithstanding the above requirements for tolerance, the overall dimensions and shape of any precast unit shall not be such as to prevent the proper erection of that unit in conjunction with any other unit, steelwork or in situ construction.

S 2004.4 Buried Concrete

APPENDIX 17/5 BURIED CONCRETE

1. ACEC class for all buried concrete (below ground level) is AC-2, in accordance with Table A.2 of BS 8500-1.

S 2004.5 Precast Element Units – Alverstoke

APPENDIX 17/7 PRECAST ELEMENT UNITS

1. The word unit/units shall refer to the individual precast floodwall units used in the scheme.

S2004.5.1 Precast Elements Product Standard

- Precast concrete elements shall be manufactured and designed in accordance with a relevant European Product Standard or with BS EN 13369 'Common rules for precast concrete products' as stated in sub-Clause 1710.8(i) of the Highways Specification.
- **S2004.5.2** Performance Requirements for the Essential Characteristics of the Product
 - 1. Refer to see Section S 2004.1 (Appendix 17/1) for the requirements of the concrete mix of the precast floodwall units.
 - 2. Surface finishes of precast units shall comply with the requirements of Section S 2004.2.1 of this specification. In general, no construction joints will be permitted within any precast unit without prior approval of the *Project Manager*.

S2004.5.3 Precast Element Drawings

S2004.5.3.1 Precast Floodwall Units

1. The precast floodwall units shall be constructed in accordance with the contract drawings.

The length of precast units shall be in accordance with Section S 2004.3.6 of this Specification.

S2004.5.4 Minimum Technical Data to be Provided with the CE Marking

- 1. Marking and Records
 - a) As soon as possible after casting, each unit shall be indelibly marked with its type and a unique reference number. The *Contractor* shall maintain records for each unit, which shall include the following information:
 - (ii) Type & reference number,
 - (iii)Date of manufacture,
 - (iv)Mould number,
 - (v) Cube test results,
 - (vi)Location in the works,
 - (vii)Curing method and duration.
 - b) Any requirements in addition to the above specified by the *Client*'s Requirements shall be adhered to.
 - c) Copies of these records shall be supplied to the *Project Manager* on a weekly basis during the casting operations.

- 2. Certificate of Manufacture
 - a) For precast concrete units which are manufactured off site, the *Contractor* shall supply to the *Supervisor*, prior to any unit being delivered to site, a certificate stating that that unit complies in all respects with the Drawings and Specification.

S2004.5.5 Lifting, Handling and Storage

S2004.5.5.1 Provision for Handling

- 1. The *Contractor* shall make provision for all lifting hooks, etc. which are required for handling, lifting and erecting the units in position.
- 2. All such lifting and fastening devices shall be shown on the *Contractor's* fabrication drawings. In designing and locating such devices the *Contractor* should note the requirements of this Specification for avoiding damage or distress due to handling, maintaining concrete cover to embedded metal and providing the required standard of finish, particularly on exposed faces. Every attempt should therefore be made to incorporate any such devices on faces which will not be exposed in the finished works.

S2004.5.5.2 Handling of Precast Units

- All units shall be handled, lifted, and transported in a manner which does not cause damage or cracking. When units are lifted by tackle or crane the weight shall be taken up gradually without snatch. When units are being lowered they shall not be dropped but shall be let down gently into position without impact. Any units dropped and/or damaged during handling, storage, installation, etc. shall be replaced.
- 2. Where no particular fixings or holes are built in for lifting any unit, the unit shall be supported on blocks firmly bedded and adjusted to align in a true plane in order to avoid twisting.
- 3. Where units are placed up the existing masonry wall along the edge of Stoke Lake the *Contractor* shall ensure the units do not hit or damage the existing wall as they are lowered into place.

S2004.5.5.3 Storage of Precast Concrete Units

- 1. All precast units shall be stored off the ground in a manner and in the positions which will prevent damage or cracking of any kind, instability and permit erection with a minimum of preliminary handling and transportation.
- 2. Units shall be stored in a manner such that additional bending stresses in the units are prevented and the units are stable against overturning from wind or temporary construction loads. The accumulation of trapped water and deleterious matter in the units shall be prevented. Care shall be taken to avoid rust staining, efflorescence and the effects of salt spray.
- 3. Bolt hole recesses and other cavities, shall be plugged to prevent entry of rain or other water unless such water can freely drain away.

S 2004.5.5.4 Assembly and Erection

1. Moulds

- a) All moulds shall be of adequate strength and stiffness to carry without deformation the loads and pressures of wet concrete during the casting and compaction operations. Moulds shall be sufficiently tight to prevent leakage of the concrete and shall be adequately supported, braced and maintained so as to produce units within the tolerances specified.
- b) The assembled moulds shall be checked for accuracy immediately prior to the first casting of each type of unit, and thereafter prior to every third casting.
- c) Each mould shall be allocated a code number and all units cast in that mould shall have the mould code number and date of casting marked on.
- 2. Curing of Units
 - a) Units shall be cured in accordance with Clause S 2004.3.9 of this Specification.
 - b) Any proposals for accelerated curing shall be fully detailed including all arrangements for ensuring the effectiveness of curing under all possible climatic conditions and submitted to the *Project Manager* for review.
- 3. Tolerances of the units are described in Clause S 2004.3.14 of this specification.
- 4. Rejection of Units
 - a) All finished units, whether erected in position or not, which do not comply with the Drawings and Specifications shall be removed and replaced.
 - b) Reasons for rejection of units may include the following:-
 - (i) The presence of cracks or repairs,
 - (ii) The presence of broken edges whether reinforcement is exposed or not,
 - (iii)Concrete cover to any reinforcement being less than that required by this Specification,
 - (iv)A surface finish inferior to that indicated on the Drawings,
 - (v) Out of tolerance dimensions

S 2004.6 Precast Element Units – Forton

1. The word unit/units shall refer to the individual coping stone units used in the scheme, specifically on Wall Types 1 and 2 as indicated on the Contract Drawings.

S2004.6.1 Precast Elements Product Standard

 Precast concrete elements shall be manufactured and designed in accordance with a relevant European Product Standard or with BS EN 13369 'Common rules for precast concrete products' as stated in sub-Clause 1710.8(i) of the Highways Specification.

- **S2004.6.2** Performance requirements for the essential characteristics of the product
 - 1. Refer to see Section S 2004.1 (Appendix 17/1) for the requirements of the concrete of the precast floodwall units and the precast coping stones.
 - 2. Surface finishes of precast units shall comply with the requirements of Section S 2004.2.1 of this specification. In general, no construction joints will be permitted within any precast unit without prior approval of the *Project Manager*.

S2004.6.3 Precast Element Drawings

S2004.6.3.1 Precast Coping Stones

- 1. The Precast Coping Stones shall be constructed in accordance with the Contract Drawings which provide cross-sectional dimensions. The length of the coping stones shall be no less than 500mm.
- 2. The maximum length shall be determined by the *Contractor*, dependent on safe working methods.

S2004.6.4 Minimum technical data to be provided with the CE marking

- 1. Marking and Records
 - a) As soon as possible after casting, each unit shall be indelibly marked with its type and a unique reference number. The *Contractor* shall maintain records for each unit, which shall include the following information:
 - (i) Type & reference number,
 - (ii) Date of manufacture,
 - (iii)Mould number,
 - (iv)Cube test results,
 - (v) Location in the works,
 - (vi)Curing method and duration.
 - b) Any requirements in addition to the above specified by the *Project Manager* shall be adhered to.
 - c) Copies of these records shall be supplied to the *Project Manager* on a weekly basis during the casting operations.
- 2. Certificate of Manufacture
 - a) For precast concrete units which are manufactured off site, the *Contractor* shall supply to the *Supervisor*, prior to any unit being delivered to site, a certificate stating that that unit complies in all respects with the Contract Drawings and Scope.
- **S2004.6.5** Lifting, Handling and Storage

S2004.6.5.1 Provision for Handling

1. The *Contractor* shall make provision for all lifting hooks, etc. which are required for handling, lifting and erecting the units in position.

2. All such lifting and fastening devices shall be shown on the *Contractor*'s fabrication drawings. In designing and locating such devices the *Contractor* should note the requirements of this Scope for avoiding damage or distress due to handling, maintaining concrete cover to embedded metal and providing the required standard of finish, particularly on exposed faces. Every attempt should therefore be made to incorporate any such devices on faces which will not be exposed in the finished works.

S2004.6.5.2 Handling of Precast Units

- All units shall be handled, lifted, and transported in a manner which does not cause damage or cracking. When units are lifted by tackle or crane the weight shall be taken up gradually without snatch. When units are being lowered they shall not be dropped but shall be let down gently into position without impact. Any units dropped and/or damaged during handling, storage, installation, etc. shall be replaced.
- 2. Where no particular fixings or holes are built in for lifting any unit, the unit shall be supported on blocks firmly bedded and adjusted to align in a true plane in order to avoid twisting.

S2004.6.5.3 Storage of Precast Units

- 1. All precast units shall be stored off the ground in a manner and in the positions which will prevent damage or cracking of any kind, instability and permit erection with a minimum of preliminary handling and transportation.
- 2. Units shall be stored in a manner such that additional bending stresses in the units are prevented and the units are stable against overturning from wind or temporary construction loads. The accumulation of trapped water and deleterious matter in the units shall be prevented. Care shall be taken to avoid rust staining, efflorescence and the effects of salt spray.
- 3. Bolt hole recesses and other cavities, shall be plugged in an approved manner to prevent entry of rain or other water unless such water can freely drain away.

S2004.6.6 Assembly and Erection

- 1. Moulds
 - a) All moulds shall be of adequate strength and stiffness to carry without deformation the loads and pressures of wet concrete during the casting and compaction operations. Moulds shall be sufficiently tight to prevent leakage of the concrete and shall be adequately supported, braced and maintained so as to produce units within the tolerances specified.
 - b) The assembled moulds shall be checked for accuracy immediately prior to the first casting of each type of unit, and thereafter prior to every third casting.
 - c) Each mould shall be allocated a code number and all units cast in that mould shall have the mould code number and date of casting marked on.
- 2. Curing of Units
 - a) Units shall be cured in accordance with Clause S 2004.3.9 of this Specification.

- b) Any proposals for accelerated curing shall be fully detailed including all arrangements for ensuring the effectiveness of curing under all possible climatic conditions and submitted to the *Project Manager* for review.
- 3. Tolerances of the units are described in Clause S 2004.3.13 of this specification.
- 4. Rejection of Units
 - a) All finished units, whether erected in position or not, which do not comply with the Contract Drawings and Specifications shall be removed and replaced.
 - b) Reasons for rejection of units may include the following:
 - (i) The presence of cracks or repairs,
 - (ii) The presence of broken edges whether reinforcement is exposed or not,
 - (iii)Concrete cover to any reinforcement being less than that required by this Specification,
 - (iv)A surface finish inferior to that indicated on the Contract Drawings,
 - (v) Out of tolerance dimensions.

S 2005 SECTION 5 – CONSTRUCTION OF PIPELINES AND ANCILLARY WORKS

This section of the scope is covered by MHCW Series 500 – Drainage & Service Ducts, superseding the relevant clauses in CESWI7 and the following appendices apply:

S 2005.1 Drainage Requirements

APPENDIX 5/1 DRAINAGE REQUIREMENTS

- 1. All existing drainage functionality is to be maintained unless otherwise specified.
- 2. Existing drainage that is damaged during the *works* shall be repaired by *Contractor* to the satisfaction of the *Supervisor*.
- 3. No extra material is anticipated to be required to maintain the current drainage functionality.

S 2005.2 Service Duct Requirements

APPENDIX 5/2 SERVICE DUCT REQUIREMENTS

 The depths and positioning of manhole chambers and any service ducts within the floodwall base shall be confirmed by the *Contractor*. The *Supervisor* shall be informed of dimensions of chambers and their positioning relative to in-situ base slab. Manhole chambers and any service ducts which are not to be removed or diverted as part of the *works*, within the footprint of the floodwall in-situ base slab shall be boxed out and isolated from the base slab to the satisfaction of the *Supervisor*.

S 2005.2.1 Service Ducts

- 1. Existing services are to be maintained and protected unless otherwise specified.
- 2. Services that require diversionary work or are affected by the *works* are noted in Section S 201.17.2 of this specification.
- 3. The material to be used for cable ducts, shall be selected from Table 5/2 of the Specification for Highways Works, and shall conform to any particular requirements and standards specified.
- 4. Alverstoke Only:

The locations of service ducts that will pass through the proposed floodwall are shown on drawing 405363-MMD-AS-XX-DR-C-1010. The details regarding cable duct sealants are shown on drawing 405363-MMD-AS-XX-DR-C-1330.

- 5. Other requirements for cable ducts include:
 - a) Spare duct ends shall be capped.
 - b) The Contractor shall ensure that every care is exercised when exposing existing ducts that contain existing cables and/or services and that the Contractor has appropriate approvals and consents in place. Where excavating in the vicinity of services, hand digging must be used.

- c) Any disturbance to any existing drains, ducts or other services is made good to the satisfaction of the *Contractor*.
- d) Ducts in verges shall be installed by open trench with a depth of cover of not less than 500mm clearance between the surface level of footway/verge and the top of the ducts. The *Contractor* shall ensure that there is no disturbance to any existing drains, ducts or other services.
- e) Any carriageway construction, drainage, ducts, cables or services damaged during the installation of service ducts shall be reinstated to the satisfaction of the *Contractor*.

S 2005.2 Fin Drains and Narrow Filter Drains

APPENDIX 5/4: FIN DRAINS AND NARROW FILTER DRAINS

1. Forton Only:

Location, route and design of fin and narrow filter drainage systems is indicated on the Contract Drawings.

S 2005.2 Linear Drainage Channel Systems

APPENDIX 5/6: LINEAR DRAINAGE CHANNEL SYSTEMS

- 1. Location, route and design of linear drainage channel systems is indicated on the Contract Drawings.
- 2. Alverstoke Only:

Where the term "Channel drain" is shown on the contract drawings, M100D No. 0100V Multidrain units supplied by ACO or similar accepted shall be used. The lengths of individual units used may be determined by the *Contractor*.

3. Forton Only:

Where the term "Channel drain" is shown on the contract drawings,

- M100D No. 0100V Multidrain units supplied by ACO or similar accepted shall be used where invert level +2.36m OD is shown.
- M100D No. 0.0 Multidrain units supplied by ACO or similar accepted shall be used at all other invert levels indicated.
- 4. Where the term "Sump Unit" is shown on the contract drawings, M100DS Universal sump supplied by ACO or similar accepted shall be used.
- 5. All gratings used for sump units and channel drains shall be designed for load class C 250 applications.

S 2006 SECTION 6 – BUILDING WORKS

S 2006.1 Electrical Installations

1. See Sections 14 and 15 for the items requiring electrical installations on these works.

S 2007 SECTION 7 – TESTING AND DISINFECTION

No further Scope under this heading.

S 2008 SECTION 8 – ROADWORKS

MCHW Series 700 Road Pavements - General applies to this section, superseding the relevant clauses in CESWI7 and the follow Appendices apply to the works.

S 2008.1 Permitted Pavement Options

APPENDIX 7/1 PERMITTED PAVEMENT OPTIONS

4. Schedules 1 to 8 detail the requirements for road pavements.

Schedule 1: Permitted Pavement Options			
Area	General Requirements	Permitted Pavement Option	
Roads	Schedule 2A	1	
Footpaths	Schedule 2A	2	

Schedule 2A: General Requirements			
Grid for checking surface levels of	Longitudinal dimension:	10m	
pavement courses	Transverse dimension:	2m1	
Surface regularity	Category of Road:	В	
Interval for measurement of longitudin	75m2		
Interval for measurement of transverse regularity: 20m			

Notes:

- (g) This transverse dimension may be greater than the width of the road to be reinstated. If this is the case, the width of road to be reinstated shall be the transverse dimension
- (h) Alverstoke Only:
- One measurement each side of the flood gate.
- (i) Forton Only:
- One measurement each side of the Stop Logs across St Vincent College Service Road.

Schedule 3: Permitted Construction Materials				
Pavement Layer	Material Ref	Pavement Option Type 1 - Road Thickness1 (mm)	Material Ref	Pavement Option Type 2 - Footpath Thickness1 (mm)
Surface Course	SC1 (Surface course)	-	SC2 (Surface Course)	-
Binder course	BC1 (Binder course)	-	BC2 (Binder course)	-
Base	BS1 (Base)	-	BS2 (Base)	N/A
Granular sub-base	GSB1 (Granular sub- base	-	GSB1 (Granular sub-base)	-
Total Thickness (mm)	-	-		-

Notes:

1) As shown on drawings 405363-MMD-AS-XX-DR-C-1310 & 405363-MMD-FT-XX-DR-C-1310.

Schedule 4: General Requirements for Construction Materials		
Clause Requirement		
N/A	N/A	

Schedule 5: Requirements for Construction Materials				
Material Ref	SHW Clause	Description	Requirement	
SC1	912	Close graded asphalt concrete surface course	AC 14 close surf 100/150 Maximum aggregate size: 14mm Traffic Count in cv/l/d: 190 Site Category: G Minimum PSV: 60 Maximum AAV: 16 Road/Tyre noise level relative to hot rolled asphalt required on BBA HAPAS certificate: Level 2	

			Whether surface macrotexture measurement is required: Required Surface Macrotexture Performance Guarantee: 2 Years
BC1	929	Dense Base and Binder Course Asphalt Concrete (Design mixtures)	AC 20 dense bin 40/60 des PD6691 Table D2 Wheel Tracking Test: Test Temperature: 60oc Max.Rut Rate = 5mm Max.Rut Depth = 7mm
BS1	929	Dense Base and Binder Course Asphalt Concrete (Design mixtures)	AC 32 dense base 40/60 des PD6691 Table D2 Wheel Tracking Test: Test Temperature: 60oc Max.Rut Rate = 5mm Max.Rut Depth = 7mm
GSB1	803	Type 1 unbound mixture	No additional requirements to those specified in clause 803 of the Highways specification.
SC2	909	Dense Asphalt Surface Concrete Surface course	AC 6 dense surf 100/150 Maximum aggregate size: 6mm Traffic Count in cv/l/d: 190 Site Category: G Minimum PSV: 50 Maximum AAV: N/A Road/Tyre noise level relative to hot rolled asphalt required on BBA HAPAS certificate: Not required Whether surface macrotexture measurement is required: Not required Surface Macrotexture Performance Guarantee: Not required
BC2	929	Dense Base and Binder Course Asphalt Concrete (Design mixtures)	AC 20 dense bin 100/150 des PD6691 Table D2 Wheel Tracking Test: Test Temperature: 60oc Max.Rut Rate = 5mm Max.Rut Depth = 7mm

SCHEDULE 6

1) The Surfacing *Contractor* shall provide the following information:

(ii) A copy of the British Board of Agreement HAPAS Roads and Bridges Certificate or Certificates for the thin surface course system or systems that are proposed for use in the *works*, together with a copy of the Installation Method Statement associated with each Certificate [942.1]

- (iii)For any Certificate that covers several variants of one thin surface course system, proposed variant or variants of the system to be used in the *works* [variants of a system occur from any option that results in different values being reported on the Certificate for one or more properties, and could involve changes in nominal maximum aggregate size, aggregate type, aggregate grading, binder type, binder content, fibres or other additives, type and rate of spread of bond coat]
- (iv)If requested, or if the thin surface course system is not produced under a Sector Scheme, the proposed component materials to be used in the thin surface course system and their proportions for each proposed system [942.4]
- (v) Proposed source or sources of coarse aggregate together with statement of properties including polished stone value, ten per cent fines value, aggregate abrasion value and flakiness index [942.5]
- (vi)If regulating material is to used, evidence of its deformation resistance either independently or in combination with the thin surface course system [942.10]

SCHEDULE 7

BINDER AND MIXTURE DATA REQUIREMENTS:

The following data shall be provided to the *Project Manager* for modified binders as required in MCHW Series 900 sub-Clauses 937.4 and 943.4. The data should not be more than 12 months old.

- I. Binder Samples
 - Bituminous binders shall be sampled from the delivery according to BS EN 58. For modifiers blended with the other component materials of the mixture at the mixer a simulated binder shall be prepared.
 - Such modifiers are generally less intimately mixed with the bitumen and less well dispersed throughout the mixture than when pre-blended. Evidence that the simulated binder offers the same performance as the binder produced when the modifier is added at the mixer shall be provided.

II. Penetration

 Binder penetration at 25°C (BS EN 1426), 100g 5 seconds, and at 5°C, 200g 60 seconds, before and after hardening in the Rolling Thin Film Oven Test (RTFOT) in accordance with BS EN 12607-1, or alternatively, after RTFOT and after RTFOT and Ageing in accordance with Clause 955.

III. Product Identification Test and Rheological Properties

 Results for the binder(s) proposed shall comprise rheological data for each binder in the form of complex shear (stiffness) modulus (G*) and phase angle (°) determined in accordance with Clause 956 for binder as supplied, after RTFOT and after RTFOT and Ageing in accordance with Clause 955.

IV. Storage Stability Test

• All binders shall be stored strictly in accordance with the manufacturer's instructions. Polymer modified binders claimed to remain homogeneous in storage without agitation shall be tested

for storage stability in the manner described in Clause 958. The mean of the differences in softening point between the top and bottom samples, of not less than five pairs of such samples shall not exceed 5°C. Manufacturers of pre-blended modified binders shall state what precautions are necessary to ensure that adequate homogeneity is maintained during storage.

- V. Photomicrograph
 - A typical photomicrograph of the modified binder and binder using ultra-violet or other technique to provide maximum contrast of the polymer structure to the binder before modification shall be supplied together with details of sample preparation techniques.
- VI. Cohesion
 - Vialit Pendulum cohesion test curve of the binder, in accordance with Clause 957 for the binder as supplied, after RTFOT and after RTFOT and Ageing in accordance with Clause 955.
- VII. FRAASS Brittle Point
 - FRAASS brittle point measured using BS EN 12593 shall be provided on the binder as supplied, after RTFOT and after RTFOT and Ageing in accordance with Clause 955.

SCHEDULE 8

MIXTURE DATA REQUIREMENTS:

The following data should be provided to the *Project Manager* for materials designed in accordance with Clause 901.17 and Clause 929 in respect of the proposed mixture.

- (i) Saturation Ageing Tensile Stiffness (SATS) ratio as described in Clause 953
- **S 2008.2** Excavation, Trimming and Reinstatement of Existing Surfaces

APPENDIX 7/2: EXCAVATION, TRIMMING AND REINSTATEMENT OF EXISTING SURFACES

- When Bituminous surfacing is reinstated against existing bituminous surfacing, a minimum of a 200mm horizontal step shall be provided at all existing to new layers (e.g. surface, binder, base course layers) interfaces. No vertical joint between existing to new asphalt layers shall pass through more than one layer.
- **S 2008.3** Series 1100 Kerbs, Footways, and Paved Areas

APPENDIX 11/1 KERBS, FOOTWAYS AND PAVED AREAS

S 2008.3 Kerbs

1. Any Kerbs that are damaged during the *works*, shall be replaced like for like.

- 2. Precast concrete edging kerbs shall have dimensions as shown on the drawings.
- 3. Precast concrete kerbs, channels, edgings and quadrants shall conform to BS EN 1340.
- 4. All precast kerbs to be bonded to the pavement surface are indicated on the drawings.

S 2008.3 Paved Areas

- 1. Alverstoke Only:
 - (i) Details of the footway paving are given in Appendix 7/1 Schedules 2A and 3.
- 2. Forton Only:
 - (i) Details of bituminous paving are given in Appendix 7/1 Schedules 2A and 3.
 - (ii) The surface of concrete paving, unless otherwise specified, shall be brushed, the details of which are given in Section S 2004.2.1 (Appendix 17/3).
 - (iii)Concrete Mix 1 design as per Table 19 of this Specification shall be used for construction of concrete pavements.
 - (iv)Testing of concrete paving shall be in accordance with Section S 701.25.2 (Appendix 1/5).

S 2009 SECTION 9 – SEWER RENOVATION

No further Scope under this heading.

S 2010 SECTION 10 – WATER MAINS RENOVATION

No further Scope under this heading.

Construction of Flood defence Structures at Alverstoke and Forton Scope

S 2011 SECTION 11 – TUNNELLING AND SHAFT SINKING WORKS

No further Scope under this heading.
S 2012 SECTION 12 – BRICKWORK, BLOCKWORK AND STONEWORK

MCHW Series 2400 – Brickwork, Blockwork and Stonework applies to this section, superseding the relevant clauses in CESWI7 the following appendix applies to the w*orks*.

APPENDIX 24/1 BRICKWORK, BLOCKWORK AND STONEWORK

S 2012.1 General Requirements

1. Locations of brickwork, blockwork or stonework cladding is indicated on the Contract Drawings.

S 2012.2 Pointing

Alverstoke Only:

- All masonry subject to re-pointing is to be cleared of vegetation, loose debris and the presence of any saline water product prior to re-pointing. Vegetation, loose debris or existing mortar shall not be allowed to fall into the Lake, the *Contractor* must include details of the systems to be used in their method statement.
- 2. Where the existing mortar of joints is loose or cracked, this mortar shall be raked out to a depth the greater of 25mm or twice existing joint width and shall be jet-washed immediately prior to pointing.
- 3. Where jet washing is used to clean existing masonry, it shall be undertaken only by experienced and skilled operatives in order to prevent abrasion damage, 'gun-shading' or disintegration of weaker areas such as joints. A test section should be approved by the *Supervisor* prior for agreement on the method and pressure required for the remaining wall. *Contractor* to advise the *Supervisor* one week in advance of the jet washing with details of the operator and the method statement.
- 4. The pointing shall be gunned or otherwise pressed deep into the joints.
- 5. The outside of the mortar shall have a "recessed" finish, depth of recess to be agreed with the *Project Manager*.
- **S 2012.3** Mortar designations for brickwork, blockwork, and stonework

S 2012.3.1 Mortar Designation

- The mortar to be used for all masonry repointing works shall be Rotafix Underwater Mortar or similar accepted. The mortar shall be cementitious, applied by pressure pointing or otherwise, and shall have a minimum strength at 28 days of 40N/mm². The mortar shall be suitable for underwater placement.
- 2. Mortar used for all masonry repointing works shall be of a colour matching, as closely as reasonably possible, that of the existing mortar.
- 3. Trial panel of 1m² by 1m² to be completed to be accepted by the *Project Manager*.

S 2012.3.2 Mortar Designations.

Forton Only:

- 1. Mortar designations are given in Table 21.
- 2. Where the same brick is used in different exposure conditions different mortars are specified. The highest mortar designation for the brick panel may be used throughout the panel.

Performance Characteristic	Reference	Engineering Class A Brick	Engineering Class B Brick	Structural Brick	Facing Brick
Mortar designation, moderate exposure	BS EN 1996-1-1 UK NA	M6	M6	M4	M4
Mortar designation severe exposure	BS EN 1996-1-1 UK NA	M12	M12	M6	M6

Notes:

- 1) These are the limiting, maximum/minimum, characteristics of the mortar and more onerous characteristics may be used.
- The correspondence between the 'M' designation of mortars and the '(i)' designations of mortars is given in Table NA.2 of BS EN 1996-1-1 UK National Annex.
- 3) Severe exposure is required except where moderate exposure is shown on the Contract Drawings.

S 2012.4 Grout Requirements

Alverstoke Only

- 1. Where applicable a non-shrink cementitious flowable grout shall be used to in-fill gaps between the floodwall and existing masonry wall along Stoke Lake.
- 2. Polythene sheeting shall be fixed to the landside face of the existing masonry wall prior to grouting to ensure no grout seeps into the lake. Polythene sheeting shall finish 20mm lower than the top of the existing wall.

S 2012.5 Requirements for Clay Bricks

Forton Only

1. Type of brick to be used for all brick cladding works shall be Wienerberger "Woodhurst Red Multi" or similar accepted.

S 2012.6 Brickwork and Blockwork bonding

Forton Only

1. All brickwork and blockwork on the scheme shall be constructed with an English Bond.

S 2012.7 Overhanding working

Forton Only

1. Overhand work is not permitted for brickwork cladding words.

S 2012.8 Brickwork Pointing

Forton Only

- 1. All exposed faces are to be pointed.
- 2. Bucket handle pointing is to be used throughout.
- 3. Recessed joints shall be formed to facilitate subsequent pointing.
- 4. Width of joints shall be 10mm.

S 20012.9 Brickwork Repointing

Forton Only

- 1. Joints shall require repointing where the existing mortar is loose, has cracks wider than or equal to 2mm or of a bad condition.
- 2. Existing mortar shall be raked out to a minimum of depth of 15mm prior to repointing.
- 3. Loose debris shall be cleaned away prior to repointing.
- 4. Bucket handle pointing is to be used throughout.

S 20012.10 Built in items

Forton Only

1. Built in items, ties straps hangers etc., shall be stainless steel grade 316 for severe exposure and when cast into a concrete structure. Galvanised items are acceptable for moderate exposure.

S 2012.11 Trial Panel

Forton Only

1. A trial panel of facing brickwork shall be constructed for the acceptance of the *Project Manager*. This shall consist of at least 100 bricks constructed to the same height and with the same materials, methods and supervision proposed for the *works*. The viewing distance for visual comparisons shall be 2m. The accepted trial panels shall be the reference panel for the workmanship in the *works*. The first panel in the *works* may be used as the trial panel provided that any re-working before acceptance does not damage the *works*.

S 2013 SECTION 13 – FENCING

MCHW Series 300 – Fencing & Series 400 Road Restraint Systems applies for this section and the following appendices apply:

S 2013.1 Fencing, Gates and Stiles

APPENDIX 3/1 FENCING, GATES, AND STILES

S 2013.1.1 Timber Fencing

- 1. Locations and designs of timber fencing, are indicated on the drawings.
- 2. Fencing shall be designed to withstand a 1.5kN/m applied horizontally at the top of the fencing and to withstand a 1kN point load applied in any direction.
- 3. Quality of timber shall be in accordance with sub-clause 304.3.
- 4. Preservation requirements shall be in accordance with Clause 311.

S 2013.2 Road Restraint Systems (Vehicle and Pedestrian)

This appendix is for Alverstoke only:

APPENDIX 4/1: ROAD RESTRAINT SYSTEMS (VEHICLE AND PEDESTRIAN)

1. No vehicle or pedestrian restraint systems to be installed as part of the scheme.

S 2014 SECTION 14 – TRAFFIC SIGNS AND ROAD LIGHTING COLUMNS

MCHW Series 1200 - Traffic Signs and Series 1300 – Road Lighting Columns and Brackets applies for this section, superseding the relevant clauses in CESWI7 and the following appendices apply:

S 2014.1 Traffic Signs: General

S 2014.1 Traffic Signs: General

APPENDIX 12/1 TRAFFIC SIGNS: GENERAL This Appendix applies to Alverstoke Only:

S 2014.1.1 Schedule of Traffic Signs

- 1. The location of traffic signs to be installed as part of the *works* are included on drawing 405363-MMD-AS-XX-DR-C-1030.
- 2. Sizes or signs are included in drawings 405363-MMD-AS-XX-DR-C-1030 and 405363-MMD-AS-XX-DR-C-1031. Sign Diagram 7010.1 (Road Closed Ahead) on posts to be flip-down design, with default position to be grey non-reflected blank.
- 3. All permanent traffic signs shall be manufactured and marked in accordance with BS EN12899-1.
- 4. Sign Manufacturers will have a quality standard of ISO 9001 2000 or similar and be able to provide copy of their certification.
- 5. The material of all signs shall be aluminium.
- 6. Traffic signposts shall have a galvanised G2a finish (refer to Series 1900).
- 7. All post tops of non-illuminated signs shall be fitted with post caps.
- 8. All signs to be reflectorised as required in TRSGD and as shown on the relevant contract drawings.

S 2014.2 Traffic Signs: Road Markings and Studs

APPENDIX 12/3 TRAFFIC SIGNS: ROAD MARKINGS AND STUDS This Appendix applies to Alverstoke Only:

- 1. Road markings shall be reinstated as existing were required.
- 2. The material of road markings shall be a thermoplastic spray.
- 3. The dimensions and spacing of road markings shall be the same as the existing road markings. These measurements shall be surveyed by the *Contractor*.
- 4. The colour of road markings shall be white.

S 2014.3 Road Lighting Columns and Brackets

MCHW Series 1300 Applies for this clause:

1. Where applicable to facilitate floodwall construction or other works the removal and reinstatement of the lighting columns and brackets may be required. The locations of lampposts that may require removing are shown on the contract drawings.

- 2. The *Contractor* is to supply sleeves and ducting within the *works* with the installation and connection of lighting columns to be carried out by Hampshire County Council (Hampshire Highways). The *Contractor* shall liaise with Hampshire Highways for programme and site access requirements. Lighting column sleeves shall be grouted at the base to reduce the potential for floodwater seepage up through the light column.
- 3. Forton Only:

The diameter of sleeves shall be a minimum of 300mm.

- 4. The *Contractor* shall provide 25mm³ core XLPE/SWA.XLPE cable within a 50mm diameter orange duct between lamp post column locations.
- 5. No appendices to the Highway Specification apply.

S 2015 SECTION 15 – ELECTRICAL WORK FOR ROAD LIGHTING AND TRAFFIC SIGNS

MCHW specification in Series 1400 Electrical Work for Road Lighting and Traffic Signs, superseding the relevant clauses in CESWI7 and the following appendices apply for Alverstoke only:

S 2015.1 Locations of Lighting Columns and Feeder Pillars

APPENDIX 14/2 LOCATIONS OF LIGHTING COLUMNS AND FEEDER PILLARS

1. Refer to Section S2014 of this specification regarding the locations of the lighting columns affected by the *works*.

S2016 SECTION 16 - LANDSCAPING WORKS

MCHW Series 3000 Landscape and Ecology forms this section and the following appendices apply:

S 2016.1 General

Appendix 30/1 General

- 1. The *Contractor* shall give at least 48 hours notice to the *Supervisor* of the intention to commence any of the operations listed in sub-Clause 3001.2.
- 2. The bird nesting season is March to August inclusive each year.

S 2016.2 Weed Control

Appendix 30/2: Weed Control Not used.

S 2016.3 Control of Rabbit or Deers

Appendix 30/3: Control of Rabbit or Deers Not used.

S 2016.4 Ground Preparation

Appendix 30/4: Ground Preparation

- 1. Final preparations of topsoil shall be applied in accordance with sub -Clauses 3004.8 to 3008.11 to all landscape areas prior to planting or seeding.
- 2. Alverstoke only:

Herbicides shall not be used in areas to be planted or within the site due to the designations in place.

- 3. Landscape areas may require ripping if the subsoil compaction is judged to prevent satisfactory root penetration. The requirement for ripping shall be confirmed by the *Client*.
- 4. Topsoil shall be laid to a depth of 150mm unless otherwise stated.
- 5. Topsoil to be spread in layers no greater than 100 mm for seeding.
- 6. All spoil material shall be removed from site.

S 2016.5 Grass Seeding, Wildflower Seeding and Turfing

Appendix 30/5: Grass Seeding, Wildflower Seeding and Turfing

- 1. Grass seed shall be sown during the periods stated in sub-clause 3005.1.
- 2. Grass seed mixture and rate at which it shall be sown shall be confirmed by the *Client*.

- 3. Establishment cuts required for newly sown grass before it shall be accepted as complete shall be two cuts to 100mm high.
- 4. The Contractor shall provide the Supervisor with certificates from the seed supplier indicating germination rate and species purity together with copies of each delivery note. These documents must be in the possession of the Supervisor to seeding commencing. Each bag label must be passed to the Supervisor as proof of origin.

Forton Only:

5. Wildflower Seeding

The locations where wildflower mix shall be sown are shown on the landscape drawings 405363-MMD-FT-XX-DR-L-1600 and 405363-MMD-FT-XX-DR-L-1601.

- 6. Wildflower seed mix designs shall be MG12 Grassland. The seed mix design of MG12 Grassland is specified in Table 22.
- 7. Sowing rate for wildflower seed mixes shall be 5g/m².
- 8. Sowing of wildflower seed mixes shall not be permitted outside of the months March to October.
- 9. Sowing depth for wildflower seeds shall be 10mm.

	GIZ GIASSIANU SEEU MIX	นธราฐกา
Common Name	Species Name	Percentage of total mix
AUTUMN HAWKBIT	(Leontodon autumnalis)	0.2%
BIRDSFOOT TREFOIL	(Lotus corniculatus)	1.6%
CATS-EAR	(Hypochaeris radicata)	1.2%
CREEPING BENT	(Agrostis stolonifera)	2.5%
CRESTED DOGSTAIL	(Cynosurus Cristatus)	10.0%
DANDELION	(Taraxacum officinale)	2.0%
GREATER PLANTAIN	(Plantago major)	1.0%
MEADOW BUTTERCUP	(Ranunculus acris)	4.0%
MEADOW FESCUE	(Festuca pratensis)	9.0%
RED CLOVER	(Trifolium pratense)	2.0%
RIBWORT PLANTAIN	(Plantago lanceolata)	5.0%
SLENDER CREEPING RED FESCUE	(Festuca rubra litoralis)	20.0%
SWEET VERNAL GRASS	(Anthoxanthum odoratum)	1.0%

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Table 22: Wildflower - MC12 Grassland seed mix design

Common Name	Species Name	Percentage of total mix
TALL FESCUE	(Festuca arundinacea)	30.0%
TALL OAT- GRASS	(Arrhenatherum elatius)	2.5%
WHITE CLOVER	(Trifolium repens)	2.0%
YELLOW FLAG	(Iris pseudacorus)	1.0%
YORKSHIRE FOG	(Holcus lanatus)	5.0%

S 2016.6 Planting

Appendix 30/6: Planting

S 2013.6.1 Alverstoke Only: Type A Plants – Along Palisade Fencing

- 1. Where the term plant Type A is indicated on the contract drawings this shall refer to Ivy, where TPO trees remain in place. If TPO trees are removed the plant Type A shall refer to honeysuckle trees. The type of Ivy and Honeysuckle tree shall be confirmed by the *Client*.
- 2. Individual Type A plants shall be planted at 1.5m centres.
- 3. The height of the Type A plant shall match the height of the steel palisade fencing above ground level.
- 4. All plants shall have been grown for at least one full growing season.
- 5. All labels, canes and ties shall be removed from plants following planting.
- 6. The use of compost in planting areas shall be confirmed by the Client.
- 7. Composition or compost requirements including pH, N: P: K: Mg and electrical conductivity (ms/cm) shall be confirmed by the *Client*.
- 8. Time of planting during the year shall be confirmed by the *Client*.
- 9. Planting depth of plants shall be to original nursery soil mark.
- 10. Pit sizes for plants shall comply with Table 30/1.
- 11. Plants shall be planted upright in the centre of pits.
- 12. Pits shall be backfilled with a topsoil/compost ratio to be confirmed by the *Client*.
- 13. Stakes and ties to be in accordance with sub-Clauses 3006.36 and 37.
- 14. Plants shall be watered to ground capacity immediately following planting
- 15. The *Contractor* shall use the shortest possible stake to support trees in accordance with sub-Clause 3006.41.

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16. The *Contractor* shall replace all plants that are missing, have died or in the opinion of the *Supervisor* are failing to make satisfactory extension growth for a period of 12 months following planting.

S 2013.6.2 Alverstoke Only: Planting in Stoke House and Lakeside House Gardens

- 1. The *Contractor* shall remove all plants that are within the footprint of the construction works or would likely be damaged during the *works*. A record of the type of the plants and their locations shall be undertaken by the *Contractor* with the *Supervisor* in attendance, before the plant removal.
- 2. Plants should be removed with a rootball equal to the height of the plant.
- 3. All plants that are removed shall be stored and maintained by the *Contractor*, until the plants are reinstated back to their existing locations.
- 4. The use of compost in planting areas shall be confirmed by the *Client*.
- 5. Composition or compost requirements including pH, N: P: K: Mg and electrical conductivity (ms/cm) shall be confirmed by the *Client*.
- 6. Time of planting during the year shall be confirmed by the *Client*.
- 7. it sizes for plants shall comply with Table 30/1.
- 8. Plants shall be planted upright in the centre of pits.
- 9. Pits shall be backfilled with a topsoil/compost ratio to be confirmed by the *Client*.
- 10. Stakes and ties to be in accordance with sub-Clauses 3006.36 and 37.
- 11. Plants shall be watered to ground capacity immediately following planting
- 12. The *Contractor* shall replace all plants that are missing, have died or in the opinion of the *Supervisor* are failing to make satisfactory extension growth for a period of 12 months following planting.

S 2016.6.3 Alverstoke Only: Saltmarsh Habitat Ecological Enhancement

The exact alignment of the saltmarsh area will need to be determined on site with the Environmental representative of the client and the *Contractor* to ensure that approximately 20m² of saltmarsh can be created over the existing concrete deposited on the foreshore. The approximate alignment is shown on Drawing 405363-MMD-AS-XX-DR-C-1004.

- 1. Plants to be included within the Saltmarsh Habitat area include:
 - a) Cord grass. Species name: Spartina anglica
 - b) Sea Purslane. Species name: Halimione portulacoides
- 2. Plants shall be obtained from a local area, as agreed with the *Client* and shall be transplanted to the Saltmarsh Habitat area.

The saltmarsh should be transplanted in April or May for the highest chance of success, should planting occur later in the summer additional planting may be required to ensure the planting has been successful. The work should be undertaken in the summer period (April to September), during the later period any floating mats or wireweed present adjacent to the enhancement works area will be gently swept away with a net or rake so not trapped within the geotextile.

- 3. The spacing and distribution of individual plants shall be confirmed by the *Client*.
- 4. The mix ratio of brushwood and soil mix shall be confirmed by the *Client*.

- 5. Use of a natural geotextile (for example Coir (not plastic)) shall be used to retain soil and brushwood within the brushwood bundles if necessary
- 6. Brushwood shall be locally sourced, the source of which shall be confirmed by the *Client*.
- 7. Brushwood bundles shall be made 2m long by 0.3m diameter and be secured by fixing twine.
- Brushwood bundles shall be secured in place using timber stakes as shown on drawing 405363-MMD-AS-XX-DR-C-1104. The spacing of lakeside stakes shall be 0.5m c/c and the spacing of landside stakes shall 1m c/c.

S 2016.7 Grass, Bulbs and Wildflower Maintenance

Appendix 30/7: Grass, Bulbs and Wildflower Maintenance

- 1. Grass cutting shall be carried out at a medium frequency in accordance with Clause 3007 unless otherwise confirmed by the *Project Manager*. Grass cutting applies to all grassed areas.
- 2. All grass cuttings shall be removed by the Contractor.

S 2016.8 Watering

Appendix 30/8: Watering

1. The *Contractor* shall be required to water plants planted during an establishment period (in 3 months). Establishment periods shall be confirmed by the *Client* at the start of the construction period.

S 2016.9 Establishment Maintenance for Planting

Appendix 30/9: Establishment Maintenance for Planting

Alverstoke Only:

1. The *Contractor* shall be required to maintain plants planted during an establishment period (in 3 months). Establishment periods shall be confirmed by the *Client* at the start of the construction period

S 2016.10 Maintenance of established Trees and Shrubs

Appendix 30/10: Maintenance of established Trees and Shrubs

1. The *Contractor* may be required to trim the branches of established trees and shrubs that impede the *works*. This shall be undertaken in accordance with any TPO guidance in place.

2. The *Contractor* shall carry out any maintenance works of established trees and shrubs as instructed by *Project Manager*.

S 2016.11 Management of Waterbodies

Appendix 30/11: Management of Waterbodies

Not used

S 2016.12 Special Ecological Measures

Appendix 30/12: Special Ecological Measures

S 2016.12.1 Forton Only: Bee Posts

Forton Only

1. 3No. Bee Posts supplied by Green & Bluebuild or similar accepted shall be installed at the locations shown on drawings 405363-MMD-FT-XX-DR-L-1600 and 405363-MMD-FT-XX-DR-L-1601.

The Bee Posts shall be 230cm tall x 12cm deep x 12cm wide and contain approx. 150 cavities. They shall be installed at different elevations.

- 2. The post shall be made of cast concrete. CEM 1 Cement with waterproofing agent.
- 3. Bee Posts shall be set in mass concrete foundations to a minimum depth of 300mm.
- 4. Bee Posts shall be orientated such that they face southeast/south direction.

S 2016.13 Interpretation Board

Alverstoke Only

- 1. The Interpretation board as shown on drawings 405363-MMD-AS-XX-DR-C-1022 and 405363-MMD-AS-XX-DR-C-1104, shall be 600mm high by 1700mm long.
- 2. The board shall be mounted upon two timber posts, the foundations and size (excluding height) of which shall match the details of the "Timber Bollard" detail on drawing 405363-MMD-AS-XX-DR-C-1310.
- 3. The timber used for the posts and the interpretation board shall be a domestic hardwood from a sustainable source that is FSC registered.
- 4. The written content and layout of the interpretation board shall be agreed by the *Client*.
- 5. It shall incorporate a section that will allow an A4 sheet to be placed and updated within the information board.

S 2100 DRAWINGS

S 2100.1 Preamble

- 1. The Drawings are to be read in conjunction with the Conditions of Contract, Scope and matters referred to, shown, or described in one are not necessarily repeated in the *Others*.
- 2. Drawings and separate views within a drawing are to be read in conjunction with each other. Descriptions, details, dimensions etc. given in one place are not necessarily repeated in *Others*.
- 3. References should be made to the Specification, British Standards etc. for the tolerances, which apply to the dimensions given on the drawings. Where no specific tolerance is given then that generally accepted, as good working practice shall apply. Where a dimension is described as "nominal", the *Contractor*'s attention is particularly drawn to the likelihood of the dimension varying (within reasonable limits) from that stated.
- 4. Where written dimensions differ from scaled dimensions the written dimensions shall be taken as correct.
- 5. In all references to drawings, it shall be taken that the latest revision applies.
- 6. The expressions "confirmed on site", "agreed on site", "directed on site", etc. mean as confirmed, agreed, directed, etc. by the *Project Manager* during the course of the contract on site unless otherwise stated.

BIM reference	Drawi	Title
	ng	
	Numb	
	er	
405363-MMD-SA-XX-	1001	Alverstoke: Location Plan. Sheet 1 of 1
DR-C-1001		
405363-MMD-AS-XX-	1002	Alverstoke: Site Boundary. Plan Sheet 1 of 1
DR-C-1002		
405363-MMD-AS-XX-	1003	Alverstoke: Access and Compound Plan. Sheet 1 of 1
DR-C-1003		
405363-MMD-AS-XX-	1004	Alverstoke: General Arrangement Plan. Sheet 1 of 1
DR-C-1004		
405363-MMD-AS-XX-	1005	Alverstoke: Chainage Plan. Sheet 1 of 1
DR-C-1005		
405363-MMD-AS-XX-	1006	Alverstoke: Site Clearance Plan. Sheet 1 of 1
DR-C-1006		
405363-MMD-AS-XX-	1010	Alverstoke: Services Plan. Sheet 1 of 1
DR-C-1010		

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7. The Drawings are as follows.

405363-MMD-AS-XX-	1021	Alverstoke: General Arrangement Plan. Areas of
DR-C-1021		Interest 1. Sheet 1 of 2
405363-MMD-AS-XX-	1022	Alverstoke: General Arrangement Plan. Areas of
DR-C-1022		Interest 2. Sheet 2 of 2
405363-MMD-AS-XX-	1030	Alverstoke: Road Works Plan. Sheet 1 of 1
DR-C-1030		
405363-MMD-AS-XX-	1031	Alverstoke: Road Signs. Sheet 1 of 1
DR-C-1031		
405363-MMD-AS-XX-	1100	Alverstoke: Cross Sections. Sheet 1 of 5
DR-C-1100		
405363-MMD-AS-XX-	1101	Alverstoke: Cross Sections. Sheet 2 of 5
DR-C-1101		
405363-MMD-AS-XX-	1102	Alverstoke: Cross Sections. Sheet 3 of 5
DR-C-1102		
405363-MMD-AS-XX-	1103	Alverstoke: Cross Sections. Sheet 4 of 5
DR-C-1103		
405363-MMD-AS-XX-	1104	Alverstoke: Cross Sections, Sheet 5 of 5
DR-C-1104		
405363-MMD-AS-XX-	1200	Alverstoke: Elevations, Sheet 1 of 2
DR-C-1200		
405363-MMD-AS-XX-	1201	Alverstoke: Elevations, Sheet 2 of 2
DR-C-1201		
405363-MMD-AS-XX-	1300	Alverstoke: Joint/ Dowel Detail Drawings. Sheet 1 of 1
DR-C-1300		· · · · · · · · · · · · · · · · · · ·
405363-MMD-AS-XX-	1310	Alverstoke: Road/ Kerb Detail Drawings, Sheet 1 of 1
DR-C-1310		
405363-MMD-AS-XX-	1320	Alverstoke: Drainage Detail Drawings, Sheet 1 of 1
DR-C-1320		
405363-MMD-AS-XX-	1330	Alverstoke: Utility Crossings and Diversions, Sheet 1
DR-C-1330		of 1
405363-MMD-AS-XX-	1400	Alverstoke: Floodgate, Sheet 1 of 1
DR-C-1400		5
405363-MMD-AS-XX-	1410	Alverstoke: Pumping Station, Sheet 1 of 1
DR-C-1410		
405363-MMD-AS-XX-	1420	Alverstoke: Seawall Repairs, Sheet 1 of 1
DR-C-1420		
405363-MMD-AS-XX-	1500	Alverstoke: Reinforcement Drawings, Sheet 1 of 2
DR-C-1500		
405363-MMD-AS-XX-	1501	Alverstoke: Reinforcement Drawings, Sheet 2 of 2
DR-C-1501		· · · · · · · · · · · · · · · · · · ·
405363-MMD-AS-XX-	1600	Alverstoke: Landscaping Plan, Sheet 1 of 2
DR-C-1600		
405363-MMD-AS-XX-	1601	Alverstoke: Landscaping Plan, Sheet 2 of 2
DR-C-1601		
405363-MMD-AS-XX-	1700	Alverstoke: Environmental/ Archaeology/ Heritage
DR-C-1700		Exclusion Plan
405363-MMD-FT-XX-	1001	Forton: Location Plan, Sheet 1 of 1
DR-C-1001		
405363-MMD-FT-XX-	1002	Forton: Site Boundary, Plan Sheet 1 of 1
DR-C-1002	1002	
1 2 0 1002	1	I

405363-MMD-FT-XX-	1003	Forton: Access and Compound Plan. Sheet 1 of 1
DR-C-1003	400.4	
405363-MMD-FT-XX- DR-C-1004	1004	Forton: General Arrangement Plan. Sheet 1 of 1
405363-MMD-FT-XX-	1005	Forton: Chainage Plan. Sheet 1 of 1
DR-C-1005		
405363-MMD-FT-XX-	1006	Forton: Site Clearance Plan. Sheet 1 of 1
DR-C-1006		
405363-MMD-FT-XX-	1010	Forton: Services Plan. Sheet 1 of 1
DR-C-1010		
405363-MMD-FT-XX-	1021	Forton: General Arrangement Plan. Areas of Interest 1.
DR-C-1021		Sheet 1 of 3
405363-MMD-FT-XX-	1022	Forton: General Arrangement Plan. Areas of Interest 2.
DR-C-1022		Sheet 2 of 3
405363-MMD-FT-XX-	1023	Forton: General Arrangement Plan. Areas of Interest 3.
DR-C-1023		Sheet 3 of 3
405363-MMD-FT-XX-	1100	Forton: Cross Sections. Sheet 1 of 6
DR-C-1100		
405363-MMD-FT-XX-	1101	Forton: Cross Sections. Sheet 2 of 6
DR-C-1101		
405363-MMD-FT-XX-	1102	Forton: Cross Sections. Sheet 3 of 6
DR-C-1102	-	
405363-MMD-FT-XX-	1103	Forton: Cross Sections. Sheet 4 of 6
DR-C-1103		
405363-MMD-FT-XX-	1104	Forton: Cross Sections. Sheet 5 of 6
DR-C-1104		
405363-MMD-FT-XX-	1105	Forton: Cross Sections. Sheet 6 of 6
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