Specification

Site Information

SI 10 Structure Description

Canford Bridge is a Grade II listed structure comprising 3 arch spans over the River Stour between the civil parishes of Wimborne Minster and Canford Magna in Dorset, centred on NGR 401600 099100. Bridge supports the B3073.

The bridge comprises the main 3 spans over the River Stour and to the south are six spans over the flood plain. Attached to the western side is a steel footbridge that runs beside both structures.

The River Stour at this location is not tidal and is a slow flowing and intensively meandering.

SI 20 Surrounding Area

To the north of the bridge is Wimborne Minster which is a town with approximately 15.5k inhabitants. To the south is Oakley which is a residential area suburb of Wimborne Minster.

SI 30 Pre Construction Information

Further Site Information can be found in the Pre Construction Information document.

Works Information

WI 100 Contract Specific Drawings Supplied To Each Tenderer – List A

Drawing No	Title
WZ0048-101	General Arrangement
WZ0048-102	Haul Road Site Compound
WZ0048-103	Area of Works
WZ0048-108	Downstream Elevation Repairs

Standard Drawings Supplied to the Contractor
None

WI 200 Temporary Accommodation and Equipment for the Overseeing Organisation

The area designated for the Contractor's compound is shown on drawing number WZ0048-102 Haul Road Site Compound

The Contractor shall be responsible for providing all necessary offices, stores, workshops, and other temporary works or facilities which he may need to construct the works.

The Contractor shall be responsible for temporary drainage, security fencing, temporary roads, all other necessary works, maintaining, clearing away and reinstatement on Completion.

Location of Temporary Site Accommodation and Welfare Facilities are to be within the designated areas unless agreed in advance with the Project Manager. It shall not be located within the area of the floodplain.

The contractor is to take into account the surrounding land use so as to minimise any disturbance or nuisance.

All temporary site accommodation required shall be maintained by the Contractor throughout the works and be secured against access by the public.

WI 210 Site Utilities

The Contractor shall arrange for all his own water, electricity and telecommunications services for the performance of the Contract including the provision of any cables, pipes, valves, meters, storage tanks, etc. The Contractor shall be responsible for obtaining all permissions and consents from the relevant supply or service authorities for the use of their respective supplies or services.

WI 220 Toilet and Washing Facilities

The Contractor shall provide on the Site suitable temporary hygienic toilet and washing facilities for the use of his own workmen.

It is not considered possible to connect to an existing sewage system, therefore the contents from these temporary facilities shall be disposed of at such place and in such manner as approved by the local Statutory Authority.

The Contractor shall maintain the foregoing in a good sanitary condition throughout the period that they are in use and he shall remove and clear away same on completion of the Works or when no longer required.

The Contractor shall exercise strict supervision of all persons employed by him to avoid nuisance or contamination of the Works.

WI 230 Site Electricity Supply

The Contractor shall make his own arrangements for the temporary supply of any electricity required for the execution of the Works and he shall issue all notices and pay all fees, dues, charges and other costs in respect thereof.

The Contractor shall be responsible for providing and maintaining the whole of the temporary electrical installation and in relation thereto shall take all reasonable precautions to ensure the safety of every person on the Site. The Project Manager may require the disconnection or alteration of any parts that he considers may be dangerous.

The whole of the Contractor's temporary electrical installation shall comply with all statutory requirements, the Institution of Electrical Engineers Regulations for the Electrical Equipment of Buildings and the current British Standard Code of Practice for Distribution of Electricity on Construction and Building Sites.

As soon as any part or the whole of the Contractor's temporary electrical installation is no longer required for the carrying out of the Works, the Contractor shall disconnect and remove the same.

WI 240 Site Water Supply

The Contractor shall satisfy himself as to the availability and suitability of water supplies for use in the Works, and for his own use for the duration of the Contract, and he shall make arrangements for an adequate supply of water to cover all his requirements in connection with the execution of the Works and he shall issue all notices and pay all fees, dues, charges and other costs in respect thereof.

The Contractor shall make such temporary connections and execute such plumbing, including the provision of storage tanks as he may require to give him the requisite quantity of water at the pressure required at all times.

Plumbing and all temporary connection shall be carried out to comply with the requirements of the relevant Water Authority.

As soon as any part or the whole of the Contractor's water supply installation is no longer required for carrying out the Works, the Contractor shall disconnect and remove the same.

The Contractor shall satisfy himself as to the suitability of the quantity and quality of the water available and shall be solely responsible for the transportation of water from the supply plant to the Site or his place of work or storage.

WI 250 Data Connections

The Contractor shall provide such telephones, facsimile machines and internet connections as are required for his own use on Site and he shall issue all notices and pay all fees, dues, charges and other costs in respect thereof. All temporary installations shall be removed on completion of the Works.

WI 260 Facilities for the Project Manager's Staff

The Project Manager and his staff shall have use of the Contractors welfare facilities for the duration of the Contract.

The Contractor shall make available to the Project Manager and his staff as required any surveying equipment required for checking of setting out lines and levels.

WI 300 Adjacent Land Use, Site Extent And Limitations On Use

The area of the site is deemed to be the areas shown on drawings numbered WZ0048-102 and WZ0048 -103 and shall be extended beyond the limits shown to include those areas of highway that the Project Manager deems necessary for the execution of temporary traffic management measures. Refer to WI 510 for restrictions on the availability of the site.

Access to the areas shown on drawing number WZ0048-102 Compound and Haul Road has been temporarily permitted for use during the construction of the works form Wessex Water and The Christchurch Angling Club

Roads, accesses, rights of way, etc., which are being used by construction traffic shall at all times be kept clean and clear of all dirt, mud and material dropped from vehicles or from tyres arising from such use. The Contractor shall provide, maintain and use suitable equipment for this purpose.

In carrying out the Works the Contractor shall ensure that all highway drains, ditches and grips be kept clear of any spoil, mud, slurry or other material likely to impede the free flow of water therein. The Contractor shall remove any such contamination immediately when instructed to do so.

WI 400 Control Of Noise And Vibration

The normal working hours within the site shall be Monday to Friday between **0800** hours and **1800** hours with no work on Saturdays, Sundays or Bank Holidays.

The Contractor must produce a comprehensive noise and vibration plan setting out how work will be carried out to current best practice and with due regard to the relevant national standards for control of noise and vibration on construction sites. Method statements for any particularly noisy operations should include control measures for noise and vibration.

Work outside of the stated hours may be permitted, with prior discussion and agreement with the Project Manager, if essential for the expedient completion of the project.

The Project Manager will require a minimum of 14 days' notice of any such works. Noisy works in particular should be kept to an absolute minimum, and prior dialogue with affected residents regarding dates and timings will be essential.

WI 500 Programme Of Works

In accordance with Clause 31 of the Conditions of Contract the Contractor shall provide the Programme of Works in the form of a Network Diagram or Bar Chart produced as a result of a Critical Path Analysis. It shall show the level of detail appropriate to each stage of the works and all activities and restraints, each of which shall be given a short title. All events shall be numbered and annotated with earliest and latest event dates. The programme shall be submitted with the tender documents.

WI 510 Constraints

Account should be taken of the following constraints.

- Refer to Environment Agency Permit EPR/QB3292JR (Appendix A of the PCI) for constraints on how the works are carried out.

- The contractor is to indicate a start date for the works in the Contract Data Part 2 and on the programme.

- Completion date for the works to be stated by the contractor however 12 weeks plus an additional 4 weeks for mobilisation has been permitted in the Contract Data.

- No works shall be permitted in the watercourse between 1 November 2020 and 30 April 2021 and minimum obstruction to river flows as a result of temporary works.

- River flows should be monitored before the works are installed and the pontoon is to be removed in a flood warning. The pontoon must be installed in only one arch at a time and fully tethered to the structure to ensure it cannot become dislodged.

- The Contractor must be signed up to flood warnings and take immediate action upon notification of impending flooding including weekends.

- Bridges may be occupied by many species of roosting bats at all times of the year. Roosts are more likely to be found in the bridge span, but may also occur in any crevice or gap including the abutment, the span/abutment interface, piers and so on. Indeed, they can occupy crevices as small as 12mm wide. There is 1 record of bat in the area but this may have been using the river corridor and not roosting. If any bats are seen works should stop immediately and the Project Manager must be no notified so the Council's ecologist can be notified.

- No vegetation clearance that will disturb nesting birds (typically within period March to August inclusive). The Contractor must only access the site of works using the low cut swathe of land provided by the Council.

- No road closures will be permitted. No full time single lane working will be permitted. Single way working will be allowed for specific activities during off peak hours only (09:30 – 15:30). No more than 20 days of traffic control will be permitted during the course of the works. Any single way working must be shown on the programme.

WI 600 Payment Applications

The payment applications submitted to the Overseeing Organisation in accordance with the Conditions of Contract by the Contractor shall, whenever dealing with matters covered by the Activity Schedule, be set out under headings similar to those in the Activity Schedule and shall separately identify each item. Items not described in the Schedule but appropriate for inclusion as agreed work shall be shown separately. The Contractor shall allow the Overseeing Organisation to inspect invoices for goods or materials included in the statement as may be required.

WI 700 Progress Photographs

The following photographic records are required

- The condition of the structure and site area is to be recorded before the contractor commences work.
- A photographic record of every repair carried out. An electronic copy of the photographs is to be supplied to the Project Manager at intervals agreed with the Contractor.

WI 800 Substances Hazardous to Health

Dust: As soon as dust is noticeably emanating from the works action shall be taken to eliminate the dust at its source.

The following substances Hazardous to Health have been identified that may be used on the site or that may arise during construction of the works:

LOW RISK SUBSTANCES
L002 - Sand
L003 - Natural Aggregates
MODERATE RISK SUBSTANCES
M012 - Cement
M013 - Cementitious Mortars and Grouts
M014 - Concrete
M018 - Dust from cutting cement, concrete, etc.
HIGH RISK SUBSTANCES
H007 - Epoxy mortars

The precautions for handling, use and emergency procedures for the hazardous materials listed above are included in specific data sheets in Annexes A, B and C of the Highways Agency Advice Note SA8/94. The Contractor shall adhere to the advice listed on the data sheets.

The Contractor shall be familiar with the relevant legislation, `Control of Substances Hazardous to Health Regulations 1988', which governs the use of the substances listed therein.

Attention is drawn to the possible presence of hazardous materials in the existing footbridge structure to be demolished.

The Contractor shall not permit the use of any of the following materials in the works:

- High alumina cement
- Wood wool slabs as permanent formwork
- Calcium chloride in admixtures for use in structural concrete
- Calcium silicate bricks or tiles
- Asbestos
- Lead
- Urea formaldehyde foam
- Slip bricks
- Vermiculite plaster
- Crocidolite
- Lightweight or air-entrained concrete blocks
- Sands and gravels containing lignite
- Polyisocyanurate or polyurethane foam
- Polytetrafluroethylene (PTFE)
- Glass reinforced concrete
- Materials that are generally composed of mineral fibres either man-made or naturally occurring which have a diameter of 3 microns or less and a length of 200 microns or less or, which contain any fibres not stabilised or otherwise sealed to prevent fibre migration.

WI 900 Visitors to Site.

The Contractor is to keep a visitors book on site and all visitors are required to sign in on arrival and out on leaving.

If visitors need to enter the working area they shall be accompanied at all times by either a representative of the Contractor or the Project Manager.

WI 1000 General Safety

The Contractor shall be responsible for carrying out the Works in a safe manner to avoid risk or danger to all people employed on the Site, whether or not employed by the Contractor, and the General Public.

The Contractor shall provide all equipment, training and facilities necessary to fulfil any statutory obligations on matters relating to Safety, Health and Welfare.

The Contractor shall be responsible for acquainting his employees with the potential hazards and shall institute positive measures, as necessary to ensure both the safety of his employees and that his own activities cause no additional hazards.

The Contractor shall make his own arrangements for the treatment of casualties on Site and for transporting the injured to hospital or their home at the expense of the Contractor.

WI 1100 Emergency Arrangements & Procedures

Before commencement of any of the Works the Contractor shall submit his proposed emergency procedures to the Project Manager for consent.

The Contractor shall prepare a Site Emergency Response Plan giving a detailed explanation of its policy for organizing and maintaining emergency services on Site throughout the construction phase. The procedures will be in accordance with local Fire and Safety Regulations. The Contractor shall prepare procedures to define the action to be taken in the

event of an emergency or potential emergency and obtain the Project Manager's review. Such emergency conditions shall include adverse meteorological conditions and his planning shall include for an appropriate response in the event that such conditions are forecast.

The Contractor shall inform the Project Manager as soon as is reasonably practicable of any emergency situation which develops on Site.

WI 1200 Construction (Design & Management) Regulations 2015

The management of Health and Safety on the works shall be undertaken in conformity with the requirements of the Construction (Design & Management) Regulations 2015 (The CDM Regulations) and the corresponding Approved Code of Practice.

The appointed Contractor shall be the Principal Contractor for the Works on Site. The Principal Contractor shall develop the Pre-Construction Information in accordance with the requirements of the CDM Regulations prior to the commencement of Works on Site. This development of the Construction Phase Plan shall set out the arrangements which, taking account of the risks of health and safety involved, will ensure, so far as it is reasonably practicable, the health and safety of all persons at work on the project or who might be affected by the Works. The consideration of health and safety risks in the Principal Contractor's development of the Construction Phase Plan shall not be limited to those particular risks identified in the Pre-Construction Information but shall include consideration of all reasonably foreseeable risks. The development of the Construction Phase Plan shall include the arrangements for the management of the construction works and for monitoring compliance by all persons with the requirements of relevant statutory provisions.

The Pre-Construction Information is in Appendix D. The Construction Phase Plan must be adequately developed by the Principal Contractor, as far as is reasonably practicable allowing for any phasing of works, etc., and be submitted to the Project Manager for comment not less than one week before the commencement of Works on Site. In the case of phased works the Plan relating to the work content of any phase must be adequately developed and submitted for approval prior to the commencement of work on the project.

Construction work shall not commence until the Construction Phase Plan has been accepted as conforming to the requirements of the CDM Regulations.

The Principal Contractor shall be deemed to have included in his Tender for:

- Conformance with the duties of the Principal Contractor in accordance with the CDM Regulations
- The provision for adequately controlling the risks to health and safety arising out of matters identified in the Construction Phase Plan
- The monitoring and control of all contractors in respect of health and safety
- The carrying out of all duties under all relevant statutory health and safety legislation, including the recommendations of all relevant health and safety codes of practice, guidance and advisory notes produced by the Health and Safety Executive or other relevant authorities, trade bodies etc.

All contractors shall complete appropriate assessments of the risks to health and safety in respect of their works as required under applicable statutory legislation, including the Management of Health & Safety at Work Regulations 1999 and the Control of Substances Hazardous to Health Regulations 2002.
The Principal Contractor shall review, and revise as necessary, the project Construction Phase Plan in line with any information received from other contractors or any changes in

the requirements of the project. Any changes shall be promptly advised to all relevant contractors and the Project Manager as appropriate.

The Principal Contractor will be responsible for co-ordinating co-operation between contractors, employees and self-employed persons who are at work on the construction of the project.
The Principal Contractor shall ensure, so far as is reasonably practicable, that all contractors, employees and self-employed persons conform with the requirements of the project Construction Phase Plan.

The Principal Contractor shall appoint a competent person on the site to manage health and safety during construction.

The Principal Contractor shall ensure, so far as is reasonably practicable, that all persons employed on, or visiting, the site are adequately informed instructed, trained, supervised and equipped such that they are able to carry out their duties safely.

The Principal Contractor shall take the steps necessary to ensure that only authorised persons are allowed into any construction area.

The Principal Contractor shall produce "as-built" records during the course of the work. He shall ensure that similar information is produced by all sub-contractors and suppliers. This information is to be passed to the Project Manager within one calendar month of completion – in digital.

The Health and Safety File will contain all the necessary information for the proper maintenance, repair and operation of the completed works. Details of construction methods and materials that may present significant residual hazards with respect to maintenance or demolition will be included together with Layout Drawings, specifications, manufacturer's literature, maintenance instructions, loading limitations, guarantees, warranties, certificates, and all other relevant details.

WI 1300 Environmental Protection Act 1990, Duty Of Care

The Employer may be defined as a co-producer or broker of waste (depending on circumstances) as far as the Environmental Protection Act 1990 is concerned.

Pursuant to this Act, the Contractor shall comply with the following:

Obtain a Controlled Waste Transfer Note from the Employer prior to the commencement of the Works.
Provide a copy of the Waste Management Licence (or evidence of a valid exemption) for the recipient of the surplus material to be disposed off-site.
Provide a copy of the Registered Waste Carrier Certificate for all carriers (including sub-contract hauliers, owner drivers and self-employed drivers) or surplus material to be disposed off-site. Also, make available original certificates for inspection by the Overseeing Organisation upon request.
Make available to the Overseeing Organisation for inspection, copies of all Controlled Waste Transfer Notes.

A list of licensed waste management sites is available from the Environment Agency (formerly the Waste Regulation Authority), whose address is as follows:

Environment Agency

Rivers House
Sunrise Business Park
Higher Shaftesbury Road
BLANDFORD

WI 2000 Brickwork, Blockwork and Stonework

WI 2100 Stone Repairs General

The contractor is responsible for verifying all site measurements necessary for the execution of the works. The contractor is required to make all necessary arrangements for access to the structure to carry out these surveys.

Repairs to the eastern elevation are shown on drawing number WZ0048-108. The face of the new render repairs are to be tooled to a finish to match existing stones.

If any material is to be removed from the depth of the arch, the contractor will be required to demonstrate the structural adequacy of the remainder of the arch and any strengthening proposed.

WI 2200 General Notes for Repair Mortar

The weather forecast shall be monitored daily and works planned accordingly to minimise any risks due to adverse weather. All repairs will be protected and cured as required. A damped Hessian cloth will be used and covered in polythene as necessary.

There are two types of lime mortar required as follows:

1. Moderately Hydraulic Lime Mortar – Above 17.200 AOD (Arch Springing level +300m)

2. Eminently Hydraulic Lime Mortar – Below 17.200 AOD (Arch Springing level +300m)

Mortar is to be used strictly in accordance with the manufacturer's instructions.

Overhand working shall not be permitted.

Only specially formulated mortar based on Natural Hydraulic Lime and aggregates for the repair or simulation of masonry, brick or stone to be used.

The mortar to be applied and re-compacted where required to avoid possible shrinkage marks.

Where ashlar masonry or very finely jointed masonry has considerable damage to arisses, flush finishing with a false joint is acceptable.

No cement or sand shall be added to the mixture.

WI 2300 Technical Data – Natural Hydraulic Lime Mortar

The repairs to the voussoirs and arch barrels are to be made using a Natural Hydraulic Lime with the properties listed below. The Contractor shall supply details of the proposed product to the Project Manager for approval prior to repairs being carried out.

Granulometry: from 0.8 to 0.08mm	
Tests on hardened mortar (water addition at 18.7%)	
Capillarity 2.06 gr.cm^2. root2 min	**LOW** tested at 28 days
Water permeability 0.25 ml.m.day	**LOW** tested at 28 days
Vapour permeability 0.75gr.m^2.hour.mmHg	**VERYHIGH** tested at 28 days

	Tensile Strength N/mm^2	**Compressive Strength N/mm^2**	**Elasticity Moduli MPa**	**Shrinkage mm.m**
7 days	2.20	6.20		0.81
28 days	2.38	7.25	7690	0.85

(e.g. St. One by St Astier or equivalent.)

The Contractor shall verify all survey dimensions given prior to commencing.

The area of the mortar repair will be agreed with the BCP Council, and recorded.

The method of applying the repair mortar to the masonry will be generally as described below and supplemented by the Contractors method statement.

1. Any concrete render or loose stone will be removed and the remaining stone cleaned of any loose material, using wire brush.
2. The void to be filled and faced will be sprayed with water.
3. Minimum thickness of repair is 5mm.
4. Simulation of stone finishes, false joints etc to be made, shaping and forming of details to be carried out to achieve the finish approved by the Conservation Officer.

WI 2400 Pinning of Stones and Mortar Repairs

If any pinning is required, this will be instructed by the BCP Council. 2 no 10mm diameter grade 1.4301 to BS EN 10088-1 stainless steel pins will be used side by side.

Length to be determined by the repair. The minimum depth of anchorage for pins is 150mm into sound stone.

Holes will be drilled in the stones, approximately 2mm oversize and a chemical anchor will be used to fix the pins in place (Hilti Hit HY 150)

WI 2500 Sample Panels

Sample panels for repair mortar will be insitu on an area of the structure accessible from the river bank to be designated by the Project Manager. This sample is to be approved by the Council's Conservation Officer prior to continuing with further work. A minimum of 48 hours notice to inspect sample panels will be required.

The sample is to demonstrate matching of colour, texture and finish to existing voussoir and barrel stones as appropriate.

Two sample panels each to be provided of:-

Voussoir repair
Ashlar Repair

These samples may be required at different times during the works. A sample panel that is not approved, unless it has been prepared in strict accordance with the Conservation Officer's and product manufacturers guidance, will not be deemed to be a sample panel.

Should a colour match not be approved then the Contractor must return to the supplier to adjust the pigment accordingly.

WI 2600 Stone Replacement (Provisional only)

Should it be necessary to replace any of the voussoir stones it shall be carried out in accordance with the requirements of this clause.

The Contractor shall verify all survey dimensions given prior to commencing the ordering and cutting of the stone (including stone supplied by the Employer) required for the replacement of the string course and flood arch cutwater coping stones.

Any length of stone to be removed will be agreed with the BCP Council, and recorded and marked on the face of the stones. For voussoir stones, the length of stone to be removed from adjacent stones will vary to provide a non uniform joint between new stone and existing.

The method of replacing the stones will be generally as described below and supplemented by the Contractors method statement.

i) Identify stone to be re-faced and mark with chalk.

ii) The stone face will be cut back by hand using a hammer and mason's point or chisel to the agreed depth.

i) Hand tools only are to be used unless the consent of the Council's Conservation officer is obtained. If powered tools are necessary the Contractor will be required to submit a method statement detailing the specific need for the tools.

ii) If the stone is damaged, fractured or deteriorated to a greater depth than 300mm, the weakened material will be removed until competent material is found. This additional work will be agreed with the BCP Council.

iii) Any local voids in the stone will be filled using a coarse lime mortar, the specification and volumes are to be agreed on site with BCP Council. (It is possible to bulk out the approved lime mortar mix with sharp sand)

iv) The cut face will be cleaned and wire brushed to remove any loose material. The top and bottom stones will also be cleaned to remove any loose mortar.

v) If any mortar is lost from the remaining joints, these will be packed out with the approved lime mortar.

vi) If the new outside face of the stone requires any further redressing, this will be assessed on a stone by stone basis.

vii) The stones will be damped down using a water sprayer.

viii) A mortar bed will be placed and the new facing stone lifted into position.

ix) Lead / Stainless steel wedges will be used to keep the stone in a central position.

x) The rest of the joints will then be filled with mortar and tamped into position using a churn brush.

xi) The pointing will then be finished in accordance with the approved sample panel.

xii) The faces of the stones are to be finished to match the existing voussoirs.

xiii) Any small pieces of stone that are dislodged from the spandrel wall during replacement of the voussoirs shall be replaced as per existing.

WI 2700 General Notes for Dealing with Voids in the Bridge

The following three methods will be used to fill any voids found within the bridge structure during the works. The specification and volume of repair will be instructed and agreed on site with the BCP Council.

The voids will be filled in compacted layers.

<u>Method 1</u>

- The lime mortar will be bulked out using a 4/5mm sharp sand and this will be placed and compacted to fill the void.

<u>Method 2</u>

- The lime mortar will be bulked out with a graded all in hard stone ballast (10mm down).
- Additional lime will be added as instructed by the BCP Council.
- If deemed necessary the void will be filled with masonry and bedded in place as per the stone replacement methodology below.

<u>Method 3</u>

- The lime mortar will be bulked out with hard stone ballast (25 – 20mm).
- Additional lime will be added as instructed by the BCP Council.
- If deemed necessary the void will be filled with masonry and bedded in place as per the stone replacement methodology below.

WI 2800 Re-pointing

1. Areas requiring re-pointing will be identified and marked with chalk.

2. The existing mortar will be removed using hammer and masons point or chisel.

3. The mortar will be removed to a nominal depth of 25mm or to the width of the joint if this is greater than 25mm.

4. The area to be re-pointed will be sprayed with water.

5. The new approved lime mortar will be packed into the joint using a trowel and churn brush.

6. The joint will be finished in accordance with the approved sample panel with any staining be removed by wire brush.

7. Any additional areas requiring re-pointing will be identified, agreed and instructed by the BCP Council.