Specification Holbeam Dam MIOS 1&2

South West MEICA Framework

412_13_SD02

Project / contract Information

Project name	Holbeam Dam MIOS Improvements
Project SOP reference	ENV0002504C
Contract reference	
Date	30/3/2021
Version number	4
Author	[redacted]

Revision history

Revision date	Summary of changes	Version number
14/12/2020	First issue	1
4/3/2021	Scope reviewed and updated	2
24/3/2021	Amended to include delayed damages	3
30/3/2021	Amended post PCM Commercial review	4

The Works are to be delivered in accordance with the current version of the South West MEICA Framework Deed of Agreement. This Specification should be read in conjunction with the version of the South West MEICA Framework Deed of Agreement current at the Contract Date. In the event of conflict, this Specification shall prevail.

Background

This project has been established to complete the works identified within the Section 10 report and to ensure that the Holbeam Dam remains compliant relevant legislation and that the asset is compliant with Environment Agency Operational Instructions and technical standards.

The Holbeam Dam is a flood storage reservoir on the river Lemon, this was constructed by the South West Water Land Drainage Department and completed in 1983.

The flood storage area is retained by a roller compacted concrete dam embankment. The reservoir forms part of the River Lemon Flood Relief scheme build in 1983 and protects around 1000 properties in Newton Abbot.

The river passes through the reservoir embankment via a concrete culvert, with peak flows controlled by an automatic radial gate which is lowered by a winch mechanism when control levels in the downstream channel meet criteria.

A Section 10 (S10) inspection was undertaken in April 2019 and has identified a number of improvement works which are to be undertaken to the Holbeam Dam asset. A capital project has been set up in order to deliver these works. Therefore this contract will deliver the outline, and detailed design for construction of a number of the identified measures within the Section 10 report.

The section 10 inspection has identified several Measures in the Interest of Safety (MIOS) which are required to be constructed. This contract is for the construction of MIOS 1 and 2, including ancillary works on site.

The detailed design for MIOS 1 and 2 have been completed by the Consultant NMCN Sustainable Solutions Limited, and the Contractor is to undertake works in line with the design specifications provided.

The reservoir is known as Holbeam Dam, Newton Abbott, Devon. National Grid Reference SX 82618 71678. The nearest postcode is TQ12 6NA (Littlejoy Rd, is immediately downstream of the dam). It is located around 3km west of Newton Abbot town centre.

Holbeam Dam has capacity to contain up to a 1 in 30 year flood. Normal river flow passes through the dam in a reinforced concrete box culvert, controlled by a radial gate at the downstream end of the culvert.

Attenuation is triggered when the downstream water level in the stilling basin reaches 1.2m local datum. This will trigger the radial to lower and the storage reservoir to start to attenuate flows.

Details of the Works

Details of the Works are:

1. Description of the work:

1.1 Objective:

The Objective of this contract is to undertake the construction for the identified works in the Holbeam Dam Section 10 report MIOS 1&2 works, and a number of non Measures in the Interest of Safety works, identified within the Holbeam Dam S10 report.

The objective of the project is to ensure legal compliance under the Reservoirs Act 1975 by undertaking work to deliver the MIOS improvements 1 and 2 identified in the April 2019 report under Section 10 of the Reservoirs Act 1975 for Holbeam Dam. This project has been established to complete the works under MIOS 1 and 2 identified within the Section 10 report.

The works are to ensure that the Holbeam Dam remains compliant with relevant legislation and that the asset is compliant with Environment Agency Operational Instructions and technical standards, with regards to MIOS 1 and 2.

The findings of the Holbeam Dam Section 10 report are identified below:

An inspection of the Holbeam reservoir was carried out by the Inspecting Engineer (IE) Alan Brown (Stillwater Associates) on 21st of March 2019, under Section 10(2) of the Reservoirs Act 1975. Further to this, a 'Section 10 report' dated April 2019 was issued with the following recommendations made as 'Matters in the Interests of Safety' (MIOS) Section 10 (6):

1. A bypass pipe and valve are installed to allow lowering of the reservoir by bypassing the upstream trash screen if the screen blocks totally. The control for the valve should be hydraulic, located above TWL and easily accessible by an all-weather access route, all to the consent of a Panel AR Engineer (QCE). (included in Contractors scope)

2. Various items relating to operation of the reservoir

    a. A water level monitoring sensor, connected to telemetry, be installed upstream of the screen, to provide early warning of any blockage across the screen, and that an alarm be added in the Flood Indecent Duty Officer (FIDO) procedures, which shows when trash is starting to block the upstream screen. (excluded from Contractors scope)
    b. Additional functional isolation and lock out facility of the gate, combined with a safe system of work (possibly including physical locking pins) to be installed to the consent of a Panel AR Engineer (QCE) to improve reservoir safety, health and safety and operational flexibility. (included in Contractors scope)
    c. The site be upgraded to include a Programme Logic Controller (PLC), which would allow much more self diagnostic capability and therefore improved operational reliability. (included in Contractors scope)
    d. A review be carried out of the speed and reliability of lifting the gate, to ensure that both risk of maloperation, and inability to lift in the event of a structural problem with the dam are reduced as low as reasonably practicable. (included from Contractors scope)
    e. The location of the gate and telemetry controls is reviewed to ensure they are resilient and accessible during a 1 in 1000 chance per year weather events. (included from Contractors scope)
    f. The physical installations and outstations for the onsite telemetry are modified to make them resilient to adverse weather and/or vandalism. (Included from Contractors scope).

3. A risk based study of operation for sustainable long term strategy for spillway chute provision to reduce risk as low as reasonably practicable (ALARP). (excluded from Contractors scope)

4. The works recommended in the ALARP study, if considered dam safety, are implemented within the time provided given in the ALARP report. (excluded from Contractors scope)

Other measures recommended to be taken but not requiring Supervision by a Qualified Civil Engineer with the Meaning of the Act. (Non-MIOS)

a) A survey is to be carried out of the crest, with ground each side lowered to ensure that the crest is free draining, and additionally downstream to reduce the risk of overflow events unpeeling the turf starting at the top of the downstream slope (excluded from Contractors scope)

b) The damaged concrete on the dam crest around an instrumentation manhole be made good at the same time as sealing the instrumentation ducts. (excluded from Contractors scope)

c) Cut timber placed on the valley side at the right hand end of the dam be removed. (excluded from Contractors scope)

d) Moss and self-seeded vegetation on the concrete crest at the right abutment be removed. (excluded from contractors scope)

e) Existing trees and bushes within 20m of the downstream toe are removed, so that in the event of the spillway operating water can escape freely. (excluded from Contractors scope)

f) Drain holes are drilled into the sides of the stilling basin wall at say 0.6m Local datum, to drain the gravel behind, the size, number and location to be agreed with a All Reservoir Panel Engineer (QCE) (excluded from Contractors scope)

g) The gabions on the river bank upstream of the dam be made good at the same time as works to the gabions downstream of the dam. (included in Contractors scope)

h) The gabions forming the left hand river wall downstream of the dam are replaced/repaired. (included in Contractors scope)

i) The radial gate is repainted to a professional specification, to prevent corrosion. (gate replacement included in Contractors scope)

*note items a, b, c, d, and e are being completed by the Purchaser.

It is to be noted that under this commission the MIOS measures 3 & 4 are not being considered. Should these be required these will be considered a compensation event to this commission

The objective of this scope of works is to enable the implementation of the identified works to the satisfaction of the QCE , within the statutory timescales.

In order to comply with the identified measures, the Contractor is to:

- Construction of screen bypass culvert controlled by a hydraulic penstock upstream of the dam. This is to acts as a bypass to the Holbeam Dam debris screen to act as a reservoir drawdown feature should the screen blinds totally. To address MIOS 1.
- Actuated Penstock to be provided by purchaser.

- Holbeam Dam radial gate to be replaced to provide a 30 year asset life of installation. – To address MIOS 2b. and non-MIOS i.

- The mechanism for operating the gate is to be replace from a winch operated mechanism to a hydraulically operated mechanism to ensure improved resilience, including additional functionally and lock out mechanism on the radial gate. - To address MIOS 2b and d.

- Construction of a new control building to operate the Holbeam Dam radial gate. Decommissioning of equipment within the existing control building. The new building is to be relocated to the east bank above the top water level in a 1:1000 year event. This is to include a new motor control centre (MCC) and required hydraulic equipment. – To address MIOS 2e.

- Installation new Programmable Logic Control and all required ancillary equipment, telemetry outstations, and services within the new control building. – To address MIOS 2c and f.

- Replacement of downstream gabions on the east bank. – To address Non-MIOS h.

- Installation of eel passage improvements to the stilling basin weir and the channel immediately below the weir. – To Meet Water Framework Directive requirements.

The objective is to deliver the Construction as per the issued designs for construction, to be to the acceptance of the Purchaser and purchaser identified All Panel Reservoir Engineer, acting as Qualified Civil Engineer under the meaning of the Reservoirs Act 1975 (QCE).. The construction of these works are to be completed within the timescale identified within the Contract.

All works are to be undertaken in line with legislative requirements and where required with suitable supervision of a QCE.

The Contractor is to take account of, and manage, flood risk during delivery of these works associated with all in channel works and working within the flood storage area above the Holbeam dam.

1.2 Outcome Specification

Outcome Specification

The outcome specification of this commission is to complete construction of the works as per the approved detailed design for construction to meet the requirements identified within the Holbeam Dam S10 inspection report dated April 2019. The works are to be to the acceptance of the Purchaser and purchaser identified All Panel Reservoir Engineer, acting as QCE.

A summary of the identified works required includes but Is not limited to:

- Construction of a new culvert bypass upstream of the screen.
    - This shall include a hydraulically operated penstock, working platform, handrails, and access steps at penstock.
    - Purchaser to provide hydraulically operated penstock.
    - The new culvert is to be installed as per accepted design, this is to include coring through the existing culvert headwall.
    - This shall include installation of access steps to the main culvert screen.
    - This shall include replacement of the gabions immediately in front of the new bypass culvert, inclusive of concrete toe.

- Construction of new control building.
    - The Contractor shall construct a new control building and required MEICA equipment as per the accepted design.
    - This shall include a motor control center (MCC) inclusive of dual redundancy Programmable Logic Controllers (PLC).
    - This shall include a hydraulic power pack to meet the requirements of the new radial gate operating system. This installation is to include and automatic change over standby hydraulic diesel system should mains power fail.
    - Purchaser to provide hydraulic power pack.
    - This shall include all Software for the Holbeam Dam to be programmed in the new PLC, and final connections provided to the telemetry outstation.
    - The contractor shall design, install and commission a solar photo voltaic system upon the building roof to adequately cover the building base load of the Holbeam Dam electrical requirements.
    - The Contractor shall install an uninterruptible power supply capable of powering site essential services. The Contractor is to include for the installation of a generator connection point should this be required as well as a cat flap for the cable.
    - The Contractor shall commission the incoming mains power supply and distribution board to the new control building and equipment.
    - The Contractor shall ensure the construction of the building meets with the Environment Agency Strategical Important Assets Minimum Technical Requirements, any variation from these this is to be recorded through the Purchaser's MEICA concession process by the Contractor and submitted to the Engineer for acceptance.
    - The Contractor shall install all cable and hydraulic ducting to the new control building as required for all services, telemetry, and cables.
    - This shall include a full site CCTV system with logging capability
    - The Contractor is to take account of the requirement to install a new power main incomer to the new control building and is to manage the process of the change from the existing control building to the new control building to be constructed. The Contractor is to work with the local utility provider to facilitate these works.
    - The Contractor is to include for the Engineer and Engineer's Representatives to be present and witness Factory Acceptance Tests, and Site Acceptance Tests for MEICA equipment.

- Decommission existing control building
    - The Contractor shall decommission the equipment within the existing control building.

- The Contractor shall take account of protected species roosting within the control building roof space. (Bat roost located within the roof space of the building).
- The Contractor shall apply for consents and permissions to decommission and for removal of the control building.

- Holbeam Dam radial gate and operating mechanism.
  - The Holbeam Dam radial gate is to be replaced, the new gate is to be fabricated off site and constructed to the accepted designs. – to be provided by the purchaser.
  - The new radial gate is to achieve the paint specifications as identified within the accepted designs.. – radial gate to be provided by the purchaser. Any damage to the gate paint system during installation will be repaired to the required paint specifications by the Contractor.
  - The new gate is to be driven by a hydraulic cylinder inclusive of Linear Variable Differential Transducer (LVDT). The new hydraulic system will include the ability for the gate to be programmed to modulate in future years. Back up position monitoring is also required to provide the required level of resilience
  - The existing gate is to be disposed of by the Contractor.
  - The Contractor is to include the provision and installation of 2no manual locking pins the Purchaser shall provide 1no automatic hydraulic locking pin to be installed by the Contactor.

- Replacement of gabions and downstream weir improvements
  - The Contractor shall replace the gabions forming the left hand river wall downstream of the dam. This is to include a new concrete toe for replacement gabions.
  - The Contractor shall install an eel pass to the Holbeam Dam stilling basin weir as per the accepted design. Installation of eel passage improvements to the stilling basin weir and the channel immediately below the weir. – To meet Water Framework Directive requirements. The Contractor is to submit the required eel license application for the constructed ell pass installed on the stilling basin weir.
  - The Contractor shall implement channel improvements within the river lemon below the stilling basing wear through the relocation of existing bed material to create two small weirs 10 metres and 20 metres downstream of the stilling basin weir. These are to be designed by the Contractor.

- Completion.
  - Provision of Operation and Maintenace Manual.
  - Provision of Health and Safety File
  - Eel Pass Completion certificate

A services search was carried out in April 2020. The Contractor shall carry out searches, surveys, inspections, etc. should their work require ground to be broken or excavated.

- The Contractor shall make best endeavours to ensure identified works meet the Purchaser carbon reduction target of 40% against the identified baseline.
- The Contractor shall undertake a review of the carbon impact and undertake reporting throughout the construction process. The Contractor shall populate the Purchasers Carbon Calculator and complete a Final Carbon Report.
- The Contractor shall be required to apply and gain approval for all required consents and permissions to implement the construction of the identified works.

1.3 Contractor Project Management:

In management of the commission and service the Contractor shall:

- Adhere to the project stages and timing of these stages and roles and responsibilities – in particular identifying those to be responsible for quality assurances that are removed from the day to day running of the project.

- Agree and manage change.
- Attend and manage project risk and programme reviews to achieve the Works as required by the Purchaser.
- Produce a monthly risk register review, update (including Contractor risk budget) and implement resulting actions.
- Provide input to and actively maintain project efficiency register on a monthly basis.
- Provide monthly financial updates and forecasts to meet the Purchaser's deadlines provided by no later than the 7th day of each month (or the preceding working day if a weekend).
- Deliver a monthly progress report in the Purchaser's standard template giving progress against programme, deliverables received and expected and financial summary against programme.
- Attend project board and programme board meetings as required by the Purchaser in capacity as Contractor.
- Attend monthly progress meetings and draft and issue minutes of meetings to the Purchaser within one week of the date of the meeting.
- Ensure quarterly input into framework performance assessment/environmental Performance Measures.
- Be responsible for delivery of the Works and products in line with accepted programme.
- Ensure that all key members of the team attend site and have a good understanding of the situation on the ground.
- Ensure the Contractor team is supported by technical specialists as appropriate.
- Review and update the lessons learnt log during monthly progress meetings and disseminate any key lessons learnt to the Purchaser and determine the appropriate action required to resolve.
- Discuss any developments in or changes to the design with the appointed Principal Designer.
- Attend risk workshops.
- Engage with and report to the Purchaser's appointed Engineer and Engineer's Representative
- The Contractor shall produce Method Statements stating how they will undertake each element of the construction Works. Method Statements provided to support a programme for acceptance include full particulars of the methods, timing and sequence of construction, including the use and design of temporary Works, Materials and Plant and Equipment proposed by the Contractor. Method statements shall contain sufficient information to enable the Engineer to assess any likely detriment to the proposed or the existing Works or to the Purchaser's overall objectives.

Method statements shall be submitted for acceptance, to include but are not limited to the following matters:

i. Health & safety measures
ii. Extent of Working Areas and protective barriers
iii. Access to Working Areas, including confined spaces
iv. The implementation of relevant statutory regulations
v. The design and construction of temporary Works/loading conditions and de-watering measures
vi. How the environmental impact of the activities are to be minimised
vii. Equipment requirements, siting and mode of operation
viii. Labour requirements and supervision
ix. Delivery and storage of Plant and Materials
x. Provision of access to third parties
xi. Details of the construction sequence
xii. Details of working methods
xiii. Detailed programme
xiv. Results of any consultation with third parties
xv. Contingency plans in the event of significant weather events, other difficulties or emergencies
xvi. Risk and COSHH assessments
xvii. Assess impact on proposed Works.

All method statements submitted to the Engineer and Engineers Representatives and are to include environmental management actions where relevant.

The Contractor shall submit Risk Assessments and Method Statements (RAMS) to the Engineer and Engineers Representatives at least 2 weeks in advance of carrying out items of work. The Contractor allows the period for reply for acceptance or rejection of Method Statements. The Works shall not commence until the Engineer has accepted the relevant Method Statements. The Contractor provides the Works in accordance with the accepted method statement.

- An inspection and testing schedule shall be prepared and maintained to manage the undertaking of tests and allow the Engineer adequate notice to witness tests. The Engineer shall be given at least 48hr notice for all tests to be witnessed, with the exception of offsite tests when one week's notice shall be given. The Contractor shall offer the Engineer the opportunity to witness all work before completed work is covered up.

- Provide a programme for the construction period, including site mobilisation and demobilisation, and showing the key constraints, environmental constraints and opportunities.

- Provide technical support as necessary to the Purchaser in its public relations and liaisons including but not limited to local authorities and the appointed QCE. Deliver a copy of all survey data etc. undertaken and collected for this contract, and supporting detailed technical reports.

- Ensure that project deliverables or anything of a personal nature such as questionnaires or address data is returned to the Purchaser in an encrypted format using WinZip 128 bit encryption.

- Ensure that all original data sent to the Contractor (i.e. all model and survey information provided by the Purchaser in an encrypted format (using WinZip 128 bit encryption) according to the Purchaser's data security policy), which is classed as commercially sensitive, is returned to the Purchaser in an encrypted format using WinZip 128 bit encryption. The Contractor shall make full use of the Purchaser's web based project collaboration tool for document management (Asite) where practicable. All project and contract communications and records are to be distributed and stored using the project collaboration tools.

- The Contractor shall provide a monthly report on how the project is performing against the carbon baseline.

- Engage with the Purchaser appointed QCE.

- The Contractor shall engaged with the Purchase appointed Consultant and Contractors undertaking works on MIOS 3 and 4 in the spirit of collaborative working.

- Engage with the nominated Environment Agency Reservoir Act Coordinator with regards to works proposed covered by the Reservoir Act 1975.

- In delivery of the Works the Contractor shall consider the following and points and how they may be addressed on this contract

- Complete a health and safety file and operation and maintenance manual upon completion of the works.

Deliverables: These are to include but are not limited to:

- The works as described in the drawings and specifications listed in Section 2 below.

The Contractor shall undertake all construction in line with the Environment Agency Minimum Technical Requirements.

The Contractor shall undertake a review of the asset against the Environment Agency Strategically Important Assets (SIA) OI and identify any asset gap and propose suitable asset improvements to meet the SIA requirements.

The Contractor is to take account of potential environmental impact of the proposed works within their design. The contractor shall apply for all consents and permissions with regards to the delivery of the works. This is inclusive of:

- Environmental Permits (FRAP).
- Conditions within the determination of the planning application submitted by the Purchaser: 5174245 – Decision Notice - APPLICATION REF NO: 20/02317/FUL
- Eel Pass License

The Contractor shall comply with the Environmental Action Plan, Precautionary Methods of Work, or watching brief issued by the Purchaser.

The Contractor shall ensure identified works will meet the Purchaser carbon reduction target of 40% against the identified baseline provided by the Client.

The Contractor Shall Provide:

- Risk registers – to be updated monthly
- RAMS as listed above
- Carbon reporting:
    - Carbon Calculator,
    - Final Carbon report

- In addition the Contractor shall produce the following deliverables which are an absolute requirement for Completion to be certified, without these items the Purchaser is unable to use the works:

- Health and Safety File, inclusive of information as detailed below:
    - As built records including CAD plans showing the completed works and any fabrication drawings. Construction Issue drawings will be provided to the Contractor in CAD format for the purposes of preparing as-built record drawings only. Any CAD format drawings provided to the Contractor for this purpose are for information only
    - All temporary works plans used during construction
    - Photos which provide a record of construction
    - Any changes to public utilities and services
    - Equipment and Materials used
    - Suppliers used
    - Any maintenance procedures or information associated with a product used.
    - COSHH
    - Methods used in construction – Method statements
    - 2 hard copies of Operating and Maintenance Manuals and one electronic version.
    - A populated version of the Purchaser's latest version of the Project Cost Tool, or its successor

- Operation and maintenace manual
    - The Contractor is to provide an updated Operation and Maintenace Manual for the site.
    - This is to also include Operation and Manual to include all elements of the work undertaken by the Contractor as part of this contract.
    - Contractor will include within the new Operation and Maintenace manual information relating to the existing assets and historic works.
    - The Contractor will provide this document within 2 months of completion of works on site.

- Within 4 weeks of the start date the Contractor shall provide to the Purchaser and Engineer an outline commissioning and installation plan for approval, this shall as a minimum include the following

- How the Contractor shall complete surveys to verify any information on which he relies on for his delivery of the construction Works.
- Method for how to demonstrate operation of the control system, telemetry, and alarms.
- Method for demonstrating the radial gate operation
- Method for demonstrating the operation of the reservoir drawdown culvert / screen bypass culvert.
- Method for demonstrating the operation of the stilling basin weir eel pass.
- Acceptance criteria, agreed with the Purchaser prior to commencement of commissioning.
- Programme.
- Methods used for construction, included proposals for any traffic management, and measures to exclude the public from the site.

How key health and risks will managed, eg confined space working and lifting operations. The Works shall not commence until the Engineer has accepted the plan.

The contractor shall provide all documentation in accordance with the Purchasers BIM requirements.

The Works specifically excludes the following:

Section 10 report MIOS 3 & 4
3 - A risk based study of operation for sustainable long term strategy for spillway chute provision to reduce risk as low as reasonably practicable (ALARP). (Excluded from Contractors scope)

4 - The works recommended in the ALARP study, if considered dam safety, are implemented within the time provided given in the ALARP report. (Excluded from Contractors scope)

Section 10 report non-MIOS recommended works

A. A survey is to be carried out of the crest, with ground each side lowered to ensure that the crest is free draining, and additionally downstream to reduce the risk of overflow events unpeeling the turf starting at the top of the downstream slope
B. The damaged concrete on the dam crest around an instrumentation manhole be made good at the same time as sealing the instrumentation ducts.
C. Cut timber placed on the valley side at the right hand end of the dam be removed. (excluded from Contractors scope)
D. Moss and self-seeded vegetation on the concrete crest at the right abutment be removed.
E. Existing trees and bushes within 20m of the downstream toe are removed, so that in the event of the spillway operating water can escape freely.

2. Drawings, information or reports already available:

Please see appendix 1 – for drawings, information and reports.

3. Specifications of standards to be used:

a) The Works are to be delivered in accordance with the current version of the South West MEICA Framework Deed of Agreement (9WAL-G23EAE), including Schedule 1 (Framework Specification) and its Annexes;
b) Minimum Technical Requirements Operational Instruction I 412_13_SD01
c) MEICA standard specification: Operational instruction 369_13 (Issued 06/06/2013) and its Associated supplementary documents;

d) 677_15 Safety, Health, Environment and Wellbeing Code of Practice (SHEW CoP) May 2018

The Contractor is to consider the requirements within the following Environment Agency MTRs:
17_17_SD02 Fire - minimum technical requirement for Fixed Operational Assets
17_17_SD03 · 17_17 SD 03 Resilience: Minimum Technical Requirements for Fixed Operational Assets
17_17_SD04 · 17_17 SD 04 Security: Minimum Technical Requirements for Fixed Operational Assets

4. Constraints on how the Contractor delivers the Works:

In undertaking the above the Contractor shall,

- Meet the Purchasers Technical Specification for the works.
- Implement, adhere to and update the Environmental Action Plan
- Produce and adhere to construction phase plan as submitted to and accepted by the Principal Designer
- Produce all standard forms and subsequent updates as expected of suppliers
- Obtain and adhere to appropriate permissions, consents and licenses required for works, inclusive of utilising the Purchasers Dive Safe 4 procedures for any diving operations.

The Contractor may only use the Site for purposes connected with the outcomes and deliverables stated.

Working hours, noise and vibration requirements are as stated in the Minimum Technical Requirements (412_13_SD01), or unless otherwise agreed with both the Engineer and Purchaser.

The Contractor shall provide and install suitable welfare in the proposed location identified by the Purchaser, or identify a suitable alternative. The Contractor is to agree required compound and working areas with the Purchaser. Space on site for vehicles is restricted, the number of vehicles on site shall be kept to a minimum

Access to the site is restricted by narrow lanes, which are classed as “Unsuitable for Heavy Goods Vehicles”.

The Contractor shall engage with the Purchaser appointed QCE throughout the construction period.

The Contractor shall engage with the nominated Environment Agency Reservoir Act Coordinator with regards to works proposed covered by the Reservoir Act 1975.

In undertaking this work, the Contractor shall ensure that they

i) Comply with the legal requirements for Health & Safety for owners, operators, maintainers and the public.

ii) The Contractor shall ensure that the function of flood defence asset is taken into account throughout the works.
   - Where works may require the temporary removal of the Holbeam Dam radial gate the Contractor is to consider the impact which this may have on the flood protection afforded by this asset.
   - Where the Contractor is working upstream of the dam within the impoundment area, the Contractor is to consider the impacts which impoundment may have on their activities and is to take account of this within their risk allowance.

   Contractor must provide a dynamic risk management monitoring local weather forecasts and Environment Agency flood warning alerts to be agreed and signed off as satisfactory

by the Engineer or Engineer's Representative prior to any work commencing on site. Any changes to the plan must be agreed with the Engineer or Engineer's Representative.

The Contractor shall engage with the Purchaser appointed QCE throughout the delivery of these works.

The Contractor shall engage with the nominated Environment Agency Reservoir Act Coordinator with regards to works proposed covered by the Reservoir Act 1975.

Management and mitigation of flood risk.

Debris screen clearance

The Contractor shall be responsible for ensuring that the Holbeam Dam debris screen is cleared regularly. The Contractor is to inspect the Holbeam Dam screen for debris at the start and end of each working day during the construction programme. The Contractor is responsible for ensuring that debris is cleared from the screen during the construction period / programme.

Radial gate operation

The Contractor shall ensure that the operation of the Holbeam Dam radial gate remains operational, and on the Purchasers telemetry system, and can be operated throughout the construction programme, with the exception of when the radial gate is being changed over.

The Contractor shall only operate the Holbeam Dam radial gate upon instruction of the Engineer or Engineer's Representative, or following the acceptance of the Engineer and Engineer's Representative.

Holbeam dam Radial gate change over.

The Contractor shall only decommission with Holbeam Dam radial gate for change over following agreement in writing of the Purchaser, the Engineer, and the Engineers Representatives.

The Contractor is required to complete the changeover of the radial gate within a 4 week period once commenced. This is from decommissioning of existing radial gate to the new gate being operational.

Following the replacement radial gate, a temporary operating mechanism may need to be installed by the Contractor to facilitate operation of this until the new control building is commissioned.

Contractor shall be responsible for the operation and maintenance of any temporary radial gate operating mechanism up until the completion of the commissioning and signature of the Test on Completion of the new radial gate control system.

Any Tests on Completion is to be signed off by the Purchaser, Engineer, and Engineers Representative.

Management of Flood Risk during the works.

The Contractor is to sign up to the Environment Agency flood warning system and is to receive relevant flood alerts during the programme of the works.

The Contractor is to ensure that all temporary works upstream of the debris screen are secured and do not present a flood risk. The Contractor is to ensure that any temporary works in this location are resilient to an attenuation event of the reservoir.

5. Requirements of the programme:

The Contractor shall be required to complete the construction works and vacate the site by 31/10/2021.Delay damages will be applied from this point onwards,

The Contractor shall provide a detailed project plan in Microsoft Project 2016 / PDF format meeting all requirements of clause 14.1 of MF/1 (rev 6). A baseline plan shall be provided for the project start up meeting and this shall be updated monthly for progress meetings with actual and forecast progress against the baseline.

The Programme shall cover all the activities to be undertaken by the Contractor and other members of the project team, and shall include:

• all major milestones from commencement to the end of the Works;
• appropriate review and consultation periods for drafts, scoping reports, statutory consultation etc; and

The following consultation periods are to be incorporated into the programme, with adequate allowance for review and revision of documents by the project team where appropriate:
• Contractor internal review (as per your quality review procedures) and Purchaser review of all outputs before circulation to the wider project team to ensure high quality of all output;
• Sufficient allowance for internal and external consultation. Statutory consultation periods at scoping & draft stages;
• Local Authority time for planning approval;
• Purchaser approvals as required to include for Reservoirs Act, impoundment licence and working in watercourse approvals (if required); and
• Submission for approval and time allowance for the Purchaser's approval process.

The Contractor shall provide a detailed project plan in Microsoft Project 2016 / pdf format meeting all requirements of clause 14.1 of MF/1 (rev 6). A baseline plan shall be provided for the project start up meeting and this will be updated monthly for progress meetings with actual and forecast progress against the baseline. The Programme shall also include alignment and submission of the BEP and Master Information Delivery Plan (MIDP).

6. Services and other things provided by the Purchaser:

The Purchaser shall provide.

- Holbeam Dam Radial Gate – Constructed to specification.
- Holbeam Dam Hydraulically operated penstock – Constructed to specification.
- Holbeam Dam Hydraulic Power pack - Constructed to specification.

These items shall be delivered to the Contractor on site and shall be available from:

- Holbeam Dam Radial Gate – to specification (as per design drawings)
- Date: 15/6/2021

Holbeam Dam Hydraulic Penstock – to specification - HQ2-0167-A02 - SPEC

- Date : 16/7/2021

Holbeam Dam Hydraulic Power pack : ENV0002504C-NOM-ZZ-ZZ-SP-M-026

- Date : 16/7/2021

Data and information management and intellectual property rights

All of the data listed as being supplied to the Contractor as part of this study remains the IP of the Purchaser.

Data custodianship

The data custodian for project deliverables from this commission will be the Purchaser Partnership and Strategic Overview team.

Licensing information

Licences for LiDAR Data, Ordnance Survey mapping, model, survey, hydrometric and historical data will be provided to the Contractor upon award of this commission.

Data management and metadata

The Purchaser populates a metadata database called the information asset register (IAR). It is a requirement that all information produced by modelling work is appropriately tagged with metadata. The Purchaser will supply an IAR spreadsheet (and any supplementary local metadata requirements if appropriate) where any relevant metadata can be recorded and handed over on project completion.

Data security

All model and survey information shall be provided to the Contractor in an encrypted format (using WinZip 128 bit encryption) according to Purchaser data security policy. It is expected that once the commission is completed, all the original data sent to the Contractor, which is classed as commercially sensitive, is returned in an encrypted format using WinZip 128 bit encryption.

Project deliverables such as model files, survey data or anything of a personal nature such as questionnaires or address data must also be returned in an encrypted format using WinZip 128 bit encryption.

Further details regarding security measures will be discussed at the start-up meeting for this commission

Purchasers Advisors and Engineers Representatives

The Purchaser has a number of advisory departments. Instructions shall only be deemed enacted from them when they are confirmed by an Instruction from the Engineer. These departments include Asset Performance, Partnership and Strategic Overview, National Environmental Assessment and Sustainability, etc.

The appointed Engineer, may delegate responsibility to Engineers Representatives who may act as technical specialists to oversee construction Activities. The Contractor will be notified of the appointment of Engineers Representatives.

Completion

Prior to any works being offered for Takeover the Contractor shall arrange a joint inspection with the Engineer, Engineer's Representative, and Purchaser. The initial inspection shall take place a minimum of three weeks in advance of the planned Takeover. All identified defects shall be addressed in a reasonable time, and before the Completion date of 12 months after the Takeover date

Prior to the Takeover date, the site shall undergo full Site Acceptance Testing, and Test on Completion to the satisfaction of the Purchaser's nominated QCE.

The following are absolute requirements for Completion to be certified, without these items the Purchaser is unable to use the works:

- The whole of the Works have been completed in accordance with the Scope
- There are no Defects that prevent safe access and operation by the Purchaser
- There are no Defects that present a health and safety hazard to the public or landowners
- Inspection and acceptance of the works by the Purchaser's nominated QCE.
- Provide all Health & Safety file relevant information to the Principal Designer
- 3 hard copies of Operating and Maintenance Manuals and one electronic version.
- 3 hard copies of As Built drawings and one electronic version
- Population of the Purchaser's latest version of the Project Cost Tool, or its successor
- Delivery of the completed Carbon Calculator and the Final Carbon Report

The Contractor shall leave the Site in a clean, tidy condition and having removed all Equipment, Plant and Materials not required for the permanent Works, to the satisfaction of the Purchaser.

Correcting Defects

The Purchaser shall arrange access to the Site for the correction of Defects following Takeover within the Defects Liability Period. The Contractor shall provide the Engineer and Purchaser with at least 3 weeks' notice of his intention to gain access to the Site; the Contractor shall not gain access to the Site following Takeover without the prior written approval of the Engineer.

Appendix 1

For Construction Drawings provided as part of this tender		
Drawing Title	**Date**	**Drawing Title**
Screen_Bypass_General_Arrangement	15/3/2021	ENV0002504C-NOM-00-00-DR-C-013
Stilling_Basin_General_Arrangement	15/3/2021	ENV0002504C-NOM-00-00-DR-C-029
Upstream_Gabion_Wall_General_Arrangement	15/3/2021	ENV0002504C-NOM-00-00-DR-C-030
Downstream_Gabion_Wall_General_Arrangement	15/3/2021	ENV0002504C-NOM-00-00-DR-C-031
Hydraulic_Circuit_1_of_2	15/3/2021	ENV0002504C-NOM-00-00-DR-Z-300
Hydraulic_Circuit_2_of_2	15/3/2021	ENV0002504C-NOM-00-00-DR-Z-301
Screen_Bypass_General_Arrangement	15/3/2021	ENV0002504C-NOM-00-HOL-DR-C-013
Stilling_Basin_General_Arrangement	15/3/2021	ENV0002504C-NOM-00-HOL-DR-C-029
Downstream_Gabion_Wall_General_Arrangement	15/3/2021	ENV0002504C-NOM-00-HOL-DR-C-031
MCC_Building_General_Arrangement	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-034
S01, F02 & F03 RC Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-061
W01.a_to_W01.f_Wall_Concrete_Outlines	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-069
W02_to_W05_Wall_Concrete_Outlines	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-070
W101.a_to_W101.c_Wall_RC_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-071
W101.e_to_W101.f_Wall_RC_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-072
W102_to_W104_Wall_RC_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-073
W105_to_W106_Wall_RC_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-074
W207,_W208_&_W210_Wall_Concrete_Outline	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-078
W207a_RC_Wall_Details_Sheet_1_of_4	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-079
W207.b_RC_Details_Sheet_2_of_4	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-080
W207.c_ &_W208_RC_Details_Sheet_3_of_4	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-081
W09_&_W10_RC_Details_&_S03_Concrete_Outline_Sheet 4_of_4	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-082
S03_Stair_RC_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-083
Bypass_Pipe_Layout	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-088
PS01_RC_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-089
Wing_Wall_Extention_RC_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-091
F01_Construction_Phases	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-093
Site_Duct_Route_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-098
F08_Setting_Out_for_Tree_Clearance	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-099

F07_MCC_Building_RC_Foundation_Plan	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-102
F07_RC_Foundation_Plan_Continued_&_Sections	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-103
F08_RC_Plan_&_Sections	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-107
W401_&_W402_RC_Wall_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-113
W403_&_W404_RC_Wall_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-114
W405_RC_Wall_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-115
W406,_W407_&_W410_RC_Wall_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-116
W411_&_W412_RC_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-117
B04_RC_Beam_Details	15/3/2021	ENV0002504C-NOM-00-HOL-DR-S-135
MCC_Building_ventilation_Calculation	15/3/2021	ENV0002504C-NOM-00-XX-CA-M-016
Gate_General_Arrangement	15/3/2021	ENV0002504C-NOM-SG-HOL-DR-M-014
Radial_Weir_General_Arrangement_1_of_4	15/3/2021	ENV0002504C-NOM-SG-HOL-DR-M-018
Radial_Weir_General_Arrangement_2_of_4	15/3/2021	ENV0002504C-NOM-SG-HOL-DR-M-019
Radial_Weir_General_Arrangement_3_of_4	15/3/2021	ENV0002504C-NOM-SG-HOL-DR-M-020
Radial_Weir_General_Arrangement_4_of_4	15/3/2021	ENV0002504C-NOM-SG-HOL-DR-M-021
Radial_Weir_Support_Beam	15/3/2021	ENV0002504C-NOM-SG-HOL-DR-M-022
Trunnion Bearing & Locking Pin	15/3/2021	ENV0002504C-NOM-SG-HOL-DR-M-023
F01_Concrete_Outline	15/3/2021	ENV0002504C-NOM-SS-HOL-DR-S-057
F01_RC Detail_1_of_2	15/3/2021	ENV0002504C-NOM-SS-HOL-DR-S-058
F01_RC_Detail_2_of_2	15/3/2021	ENV0002504C-NOM-SS-HOL-DR-S-059
F05_Concrete_Outline	15/3/2021	ENV0002504C-NOM-SS-HOL-DR-S-066
F05_Trash_Screen_RC_Details	15/3/2021	ENV0002504C-NOM-SS-HOL-DR-S-067
F01_Schedule	15/3/2021	ENV0002504C-NOM-SS-HOL-SC-S-060
F05_Trash_Screen_RC_Schedule	15/3/2021	ENV0002504C-NOM-SS-HOL-SC-S-068
F07_MCC_Building_RC_Foundation_Plan	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-102
F07_RC_Foundation_Plan_Continued_&_Sections	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-103
F07_RC_Sections_EE_to_HH	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-104
F08_Concrete_Outline_Plan_&_Section_AA	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-105
F08_Concrete_Outline_Sections_BB_to_DD	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-106
F08_RC_Plan_&_Sections	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-107
F08_RC_Sections_BB_to_DD	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-108
W401_to_W413_RC_Wall_Outline_Plan	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-109
RC_Wall_Outline_Plan_Continued_Sections_AA_&_BB	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-110

RC_Wall_Outlines_Sections_CC_&_DD	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-111
RC_Wall_Outlines_Sections_EE_&_FF	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-112
W401_&_W402_RC_Wall_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-113
W403_&_W404_RC_Wall_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-114
W405_RC_Wall_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-115
W406,_W407_&_W410_RC_Wall_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-116
W411_&_W412_RC_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-117
W413_W408_&_W409_RC_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-118
C01_to_C04_RC_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-119
C05_to_C06_RC_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-120
C08_to_C10_RC_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-121
B01_RC_Beam_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-122
B02_RC_Beam_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-123
B03_RC_Beam_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-124
F10_Concrete_Outlines_&_RC_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-125
F09_Concrete_Outlines_and_RC_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-126
S04_Concrete_Outlines_and_RC_Details	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-127
F07_Concrete_Outline_Plan	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-94
F07_Concrete_Outline_Plan_Contined_&_Section	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-95
F07_Sections_EE_to_GG	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-96
F07_Sections_HH_to_MM	15/3/2021	ENV0002504C-NOM-VZ-HOL-DR-S-97
F07_RC_Schedule_Sheet_1	15/3/2021	ENV0002504C-NOM-VZ-HOL-SC-S-128
F07_RC_Schedule_Sheet_2	15/3/2021	ENV0002504C-NOM-VZ-HOL-SC-S-129
MCC_Building_Layout_Drawing	15/3/2021	ENV0002504C-NOM-XX-XX-DR-C-034
Federated Model	15/3/2021	ENV0002504C-NOM-ZZ-HOL-M3-LD-025
Electrial_Power_and_Control_Single_Line_Diagram	15/3/2021	ENV0002504C-NOM-ZZ-ZZ-DR-E-028
Existing Site Location Plan	15/3/2021	ENV0002504C-NOM-ZZ-ZZ-DR-PL-100
Proposed Block Plan	15/3/2021	ENV0002504C-NOM-ZZ-ZZ-DR-PL-101
Proposed Building Elevations	15/3/2021	ENV0002504C-NOM-ZZ-ZZ-DR-PL-102
Proposed Floor Plans	15/3/2021	ENV0002504C-NOM-ZZ-ZZ-DR-PL-103
Roof Plans	15/3/2021	ENV0002504C-NOM-ZZ-ZZ-DR-PL-104
MCC_Specification	15/3/2021	ENV0002504C-NOM-ZZ-ZZ-SP-E-026
Hydraulic_Equipment_Specification	15/3/2021	ENV0002504C-NOM-ZZ-ZZ-SP-M-026

Report	Date	Format	Outcomes of study
5174245 – Decision Notice	12/2/2020	PDF	Planning permission determination
Holbeam Dam CMT Phase 1	28/10/2020	Excel	
Holbeam DamPhase 2 CMT	28/10/2020	Excel	
Design Access Statement	15/3/2021	PFD	
Design_Risk_Assessment	15/3/2021	PFD	
Buildability_Statement	15/3/2021	PDF	
Structural_Assessment_Report	15/3/2021	PDF	
Water Framework Directive Initial Screening Assessment	20-Nov-2020 10:55	PDF	
Holbeam Wood FSR Bypass System Capacity	10-Jul-2020 15:45	PDF	
Effect of Proposed Infrastructure Works on Trees	16-Oct-2020 08:28	PDF	
Technical Report for Badger	17-Mar-2021 16:40	PDF	
Holbeam Dam Preliminary Ecological Appraisal Report	01-Oct-2020 16:35	PDF	
Holbeam Dam Protected Species Survey Report	07-Sep-2020 15:47	PDF	
Holbeam Dam Vegetation Survey Report	08-Sep-2020 16:31	PDF	
Precautionary Method of Working	15-Sep-2020 10:22	PDF	
Section 10 report	April 19	PDF	
Surveys – Topographic	Dec 2019	DWG	
Service Search Records	Nov 19	PDF	
Holbeam Wood FSR investigation	March 2019	PDF	Identification of potential optimisation of control philosophy.
Holbeam Dam Flow information	7/4/2020		Historic flow information
Holbeam - Newton Abbott 1D hydraulic model	March 2019	Digital format	
140102 Site visit record – Holbeam and Palmers 24Dec2013	24/12/2013	PDF	
180802 Holbeam FSR – scope of flood modelling	August 18	PDF	

Newton Abbot Flood Alleviation….	1982	PDF	Historic review
Hydraulic Modelling of the Holbeam Wood Flood Control Structure	1984	PDF	Historic review
Access Improvements – Various	Various	Zip file – PDF	Previous asset improvement information.
Holbeam O&M Manual & Drawings	Various	15 PDF Files	Previous files
191213 Holbeam ALARP calcution	December 2019	Excel	Estimation and tolerability of risk
Engineering or risk based approach to spillway capacity	December 2019	PDF	For Information only
Holbeam Dam MIOS Screen Register	December 2019	Excel	For information
Holbeam spillway chute options – Draft	December 2019	PDF	For information
A2131 Holbeam Dam Report R3 Approved Full	August 2020	PDF	Ground conditions assessment for information.