National Oceanography Centre
NATURAL ENVIRONMENT RESEARCH COUNCIL

Outline Specification – Motorised Window System Enhancement

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National Oceanography Centre, Liverpool

Version 1
August 8, 2017

FINAL

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End users:
NOC

National Oceanography Centre
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NOC is seeking interest from consultant engineering firms to undertake the role of Principle Designer and Lead Consultant for the above named project. This contract will be awarded subject to NEC3 Short Contract Terms and Conditions.

INTRODUCTION

The Joseph Proudman building is located at 6 Brownlow Street, Liverpool L3 5D.This is a 5 storey building including a basement and rooftop plant room with a total estimated GIA of 2800m2.

The building is located in the core of the University of Liverpool's Brownlow Hill campus. All of the adjacent buildings are institutional in character and the unit is accessed through the University's site roads. The premises were formally opened in 2004 and are a shell and core fit out on a 1960's buildings concrete frame. The premises were substantially altered and extended. The building is a modern, glass and terracotta tile fronted, research building arranged over four floors, the lowest of which is part lower ground floor, part basement. The building has a dramatic entrance with a fully glazed, double height foyer. The building is linked with the adjacent University building.

Mainly office accommodation with semi-basement workshops, common areas and facilities.

Generally, the premises have raised floors, plastered and painted floors. Access to the roof, the store room and the ventilation plant room, is via staircase 2.

Aluminium windows in terracotta rain-screen cladding system with structural glazing to main entrance. Blockwork partition walls; suspended ceilings and floors. The roof is a flat construction with single ply membrane covering.

There are three known tunnels under the building. These tunnels, through which run the majority of site services, are in generally poor condition and can be prone to flooding. Only the central tunnel is considered to be the responsibility of NERC and is in relatively good condition. NERC have installed several pumps to prevent flood damage.

The building has a computer controlled ventilation system for the occupied open plan areas, cellular rooms and toilets. Mechanical ventilation is employed in the basement areas, meeting rooms and internal toilets. Comfort cooling is used in the meeting rooms.

Lighting is generally tubular or compact fluorescent throughout, supplemented by daylight from the general glazing. Water is collected from the roof and stored in an underground storage tank. The water is used for WC flushing.

Space heating is provided by a MTHW/LTHW plate heat exchanger located in the basement plantroom and controlled via the Building Management System (BMS). This supplies radiators in most areas. The steel annodised casement windows are a mix of sealed units, manual opening units (in open plan areas) and motorised opening units (in open plan areas, toilets and meeting rooms).

The motorised window opening chain box system was installed as part of the original build on floors two, three and four and is circa 12 years old. The control system, Window Master, for the motorised windows is closed protocol and independent of the main Building Management System, Siemens Desigo Insight.

The window control protocol is informed by wall mounted room sensors and the primary control parameters are internal temperature and CO_2 levels. In addition the system includes a roof mounted weather station which allows for heavy rain/high wind control functions. It has been observed that the under control system often 'fights' the heating system in the summer resulting in overheating of the building and increased heat consumption.

NOCL received full asbestos clearance in 2011.

PROJECT AIMS

To improve the comfort of the work environment

To reduce building heat consumption, standardised by degree-days, via assessment of and enhancement of the motorised window control system.

To increase the condition and life expectancy of the window control system at NOC Liverpool

CONSULTANT PROJECT OBJECTIVES

- To review the current condition and effectiveness of the Motorised Window System at NOC Liverpool.
- To summarise costed options for the enhancement of the system and presentation of options to the client.
- To progress the agreed option to full design, preparation of associated tender documentation, liaise with the client during appointment of the Principle Contactor to undertake the works.
- To project manage the enhancement works including contractor supervision, safe project delivery, user liaison, quality control, oversight of commissioning and sign off of OMs
- To act as CDM Principle Designer for the duration of the project.
- To ensure the project work is delivered on time and to programme.

APPROACH

Your duties and the scope of works for the Consultant/Principal Designer would therefore include the following requirements

Site Specific Terms of Responsibility

Ensure NOC Estates Permit Systems (if applicable), are followed by the contractors.

Ensure a thorough inspection of all overlapping systems which might have an impact due to the project commencing on site.

Weekly meetings to ensure project update which would include taking minutes and site inspection during construction period.

As the client, NOC is required to ensure all Design Consultants include sustainability procurement within the scope of works, which implies that the market has been tested to provide sustainable options for (all) products, with a focus on whole life costs for long-term utility, energy consumption and waste production.

The scope of works is to include a Standard Clause for Energy Performance by Practicable Measures. This includes pre and post-project energy usage via use of smart meters. The procurement of energy meters is to be built into project costs, as required.

Lead Consultant to also ensure the NOCS Site Waste Management Plan is completed and is part of Contractor Handover Information.

Lead consultant to liaise with the client to implement UKSBS procurement procedure.

Principal Designer is to liaise with the client to agree upon a Meeting Agenda, Project Handover and O&M Handover template(s).

Please allow for consultation with building controls as applicable.

Lead Consultant liaising with building controls, would be required ensure compliance under BS9990:2015, BS9999:2017; Regulatory Reform (Fire Safety) Order 2005; as well as industry guidelines such as ASFP guidelines and recommendations, which is available for review by the public, consultants and contractors. Any certifications on the project would require review & compliance under these guidelines. Any fire control dampers and associated products installed within the project - as part of passive fire protection measures, have to be compiled in the O&M handover documentation to be handed over NOC Estates.

Available drawings and services information is available upon request. CAD floor plans are available as Record Drawings.

As part of the Principal Contractor Tender Process - The bidders are recommended to attend a site visit on site. This will consist of a conducted tour of the building and its services, and the access to and from Reception. A pack of as fitted information will be made available on the day – this is to be prepared by the Design Consultant as part of the Scope of Works. Tenderers attending will be required to advise NOCS Reception of the names and vehicle registrations at least 48 hours before the commencement.

The tender package for the Scope of Works is to also include Network data specification guidelines, DMS/BMS guidelines for operations as compliant with the NOCL Building Standards.

Lead Consultant

Preliminary Feasibility Study

- To attend a contract initiation meeting onsite following contract award to review and define the scope of works and programme for completion of the feasibility study.
- To meet with site users and complete a document review to fully understand the operation of the current system, benefits and limitations.
- To complete a site survey to produce a schedule of all windows under motorised control and for each window determine the current and available control strategies based upon the current control arrangement. This must be issued to the client for review before finalisation.
- To undertake an assessment of the condition of the window master system, including but not limited, to the conditions of the windows, motorised units, chain gear, data cabling,

containment, sensors, network, PC Hardware and Software. Due consideration is to be given to the age of the units, availability of spares, integration of the system with other building controls and overall system life expectancy & resilience.

- To undertake an assessment of existing internal comfort levels within the office areas including where appropriate, heat mapping to determine the suitability of the locations of the current climate sensors informing the Window Master software, and assessment of noise disturbance associated with the current system operation.
- To undertake a review of user satisfaction with the current system including management of a building user group to be consulted through the project, a minimum of one meeting during the feasibility stage, one meeting during design stage and one post installation.
- Based upon the above to come up with recommendations (including outline costings and potential savings where appropriate) for the enhancement of the motorised window system. Options are to include but are not limited to:
    1. Retaining the existing mechanical system and controls with minor upgrades
    2. Retaining the existing mechanical system and upgrade the controls system
    3. Upgrading the existing mechanical system and upgrade the controls system
    4. Complete strip out and replacement of the mechanical system and upgrade the controls system

  For options 2 -4 above due consideration is due be given to integration of the window controls onto the existing Building Management System.

  Each recommendations is to clearly detail outline cost, option constraints and option benefits including any foreseen reduction in utility or maintenance costs.

- The following items must be considered as part of feasibility and subsequent design:
    - Boost functions for windows in open plan spaces with automatic return to the control strategy within one hour
    - Manual override for windows in the event of a building control system loss
    - Interface options with the fire system including options for window shut and purge functions
    - Appropriate of controls' 'status quo' and suggested changes
    - Addition of windows into the control system (e.g. server room)
    - Control enhancements e.g. alarms for faulty windows and high internal temperatures, time scheduling, data logging and data trending functions
    - Window cleaning, high wind and heavy rain functions on the control strategy
    - Availability of spares and maintenance service providers
    - How resilience can be designed into the project e.g. UPS protection for the associated outstations and head end PC, as applicable

- The site weather station is to be incorporated into the new window control system including visual display of weather data and data logging functionality
- Feasibility findings and recommendations are to be summarised in a draft report (format to be agreed at contract initiation with the client) and issued to the client electronically for comment
- Final feasibility report to be presented to the client at a face to face meeting onsite. At this meeting the consultant and client are to agree recommendation to be progressed to the project stage.

Detailed Design and Procurement

- For the agreed recommendation, consultant is required to produce a full detailed design and scope of works for issue to the Principle Contractor. This is to include but is not limited to:
    - Installation brief
    - Recommended Method Statement and Outline Risk Assessment
    - Drawings
    - Bill of Quantities
    - Provisional Programme
- To issue the draft design to the client and agree modifications as required before finalisation of the design package.
- To draft a specification of works for tender based upon the design for the appointment of the Principle Contractor. Tender documentation to include but is not limited to:
    - Scope of Works – Final draft to be reviewed & authorised by the client before tender launch
    - Summary of Site Constraints
    - Design Package
    - Suggested Pricing schedule for completion by contractors tendering
    - Recommended Quality questions for completion by contractors tendering
- To issue the tender package to the client and agree modifications as required before finalisation
- In conjunction with the client contract award to the Principle Contractor including attendance at selection interviews.

Mobilisation & Construction

- Coordinate and chair the project prestart meeting with the client and Principle Contractor onsite. Agree scope of works, programme of works, risk assessments and site Health and Safety Plan with the principle contractor.
- To review the construction phase plan submitted by the Principal Contractor & provide input, as the Principal Designer, before approval.
- Manage the mobilisation process for the project in conjunction with the Principle Contractor and the client including statutory notifications, CDM notifications and communication to building users as required.
- Monitor the quality of the installation against the defined cost schedule and programme of works
- Undertake regular site supervision visits, record them, resolve issues as encountered with the principle contractor and report at defined intervals on the progress of works to the client. This could be through EWNs and project meeting updates as confirmed during project pre-commencement.
- Ensure that the site Health and Safety Plan & RAMS are adhered to at all times by the Principle Contractor
- Ensure post works thermal images are taken of windows for validation purposes

Commissioning

Following installation works oversee the full commissioning of the system in line with CIBSE Commissioning Code C, to include:

- Witnessing of and ensuring recording of functional tests of motorised units
- Ensuring all electrical testing and verification is completed in line with current BS standards
- Review and sign off of new building control system/system control graphics, including validation of all input and outputs
- Thermal validation of window performance to ensure that they close fully under the new system, pre and post images to be included in the project O&M
- Collation of, review and approval of all commissioning information

Snagging & System Handover

- Management, recording of and oversight of the snagging process including identification of project defects, client liaison, notifications to the Principle Contractor. Management of the snagging programme and issuing of completion certificate as well as the penultimate completion certificate; which shall be due to the client 12 months/ 52 weeks, after project completion date.
- Arrangement and recording of training as required for the client and end users, including the NOC Estates Site Services Operatives.
- Agreement of handover date for new system and support for client and end users
- Agreement with Principle Contractor/Client on O&M content to be issued as hard copy and electronically following post installation commissioning. All drawings are to be issued electronically in CAD format. The format for O&M review must be discussed with the client before final draft is submitted for client records.

Post Installation Commissioning

- Two weeks following handover, lead consultant to ensure post installation commissioning takes place - including obtaining customer satisfaction information from users, reviewing functionality of the system to ensure it is operating correctly, reviewing heat data as appropriate and providing a summary report to the client on outcomes against the original project aims.

O&M Handover

- Review, comment on and arrange for final issue the project Operations Manuals to the client.
- Update cost plan (final account) and issue to the client
- Administer post-project review meeting including review of Operations Manuals, customer satisfaction, Health and Safety Plan comments and/or incidents, lessons learnt and delivery against the project aims.
- To oversee the installation and manage any defects raised 12 months post-handover
- Administration of the project financial retention process for both the services rendered by the lead consultant, as well as the Principal Contractor.

- To arrange, chair and take notes at all project meetings, interviews, client liaison groups and site visits
- To undertake routine site visits to ensure suitable supervision of contractor works
- To provide written monthly summary update reports to the client for the duration of the project including programme and budget updates. This is to include weekly project meeting minutes for client review.
- To ensure compliance with all associated H&S and Building Control statutory requirements
- To ensure effective budget, programme control, and administer a change management system as required under the NEC3 contract.
- To facilitate effective communication between the client, principle contractor, building users and other interested parties
- To issue and manage Early Warning Notices issued in accordance with the NEC3 short term contract.
- To undertake the role of principle designer as defined under CDM Regulations 2015
- To issue all notifications on behalf of the client as required under the CDM Regulations 2015
- Manage project close down procedure
- To provide update information for the building log book
- To ensure site CAD drawings are updated to reflect the new installation

CONSTRAINTS

NOC (Client) is operating under the assumption that the following outline programme dates shall be achievable by working in coordination with the Principle Contractor, Client and UKSBS.

It is thereby the duty of the lead consultant to ensure that the availability of site and manufacturer lead times is considered when offering the best value solution as part of the tender package.

If required, the below noted programme can be subject to change providing that final installation and commissioning is complete by 1st March 2018 and final post installation commissioning and handover by 23rd March 2018

NOC Outline Programme Dates –

Task Name	Programme
Contract Initiation - Consultant	Contract Award – during the week of 18th September 2017
Feasibility Study	September 2017
Design Period	September - October 2017
Tender Preparation	October 2017
Tender	November 2017
Contract Initiation – Principle Contractor	December 2017
Mobilisation and Construction	January 2018 – March 2018*
OM Handover	O&M Handover – 23rd March 2018

Release of retention	12 months from handover

*Note NOC Liverpool is closed 25th December – 2nd January inclusive

DEPENDENCIES

Project end date is 23rd March 2018. All project works are to be completed onsite by 1st March 2018 to allow for post installation commissioning. The lead consultant is required to be on site to undertake sampling of the commissioning data; and must ensure a minimum of 1 site visit per week during the project works.

Please note - Any envisaged delay or impact on the programme will be deliberated jointly between the consultant and NOCL Lead Consultant, to ensure minimal cascade effect on overall completion of works.

Principal Designer to allow 2 working days' notice to the NOC Lead Consultant for Return and Flow of Information, before any issue of EWNs or programme slippage.

TENDER REQUIREMENTS

All tendering consultants are to:

- Provide a breakdown of fees as per the schedule below.
- Complete the quality questions issued as part of this tender package
- Agree that if successful they will complete their duties under NEC3 Short Term Contract Terms and Conditions
- Hold a minimum of £10 million public liability and £5 million design liability insurance for the duration of the project.
- Provide the client with a completed NOC H&S Questionnaire for appraisal prior to the start of the feasibility study including all associated documentation as requested (attached)
  A site visit is strongly recommended, NOC will accept no changes for attendance at this visit from any tenderer.

Attending site prior to tendering is strongly recommended. Site visits are available on 21st and 22nd August 2017. Please send a message via the e-sourcing portal requesting to attend the site visit should you wish to attend stating the names of those wishing to visit. Bidders will be limited to 2 people per company. A reply will be sent via the e-sourcing portal in confirmation.

SCHEDULE OF RATES FOR CONSULTANT FEES

All consultant tenderers are to complete the price schedule attached to Question AW5.2 on the e-sourcing portal which asks for costs as per the below schedule of rates (as per the scope noted in the Invitation to Quote document):

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Schedule	Fee
Lead Consultant – Preliminary Feasibility Study	£
Lead Consultant – Detailed Design & Procurement	£
Lead Consultant – Project Management included Mobilisation, Construction & Handover	£
Lead Consultant – Post Project Completion & Handover	£
Principal Designer as defined under CDM	£
Total Tender Sum	£

Please Note - Fees to be open for acceptance for 90 days and fixed for the duration of the contract

ALL TENDER RETURNS ARE TO BE SUBMITTED via the e-sourcing portal by 11am on 4th September 2017