National Asset Delivery

Technical Surveys and Testing

Scope for 605205 A42 to M1 Electrical Renewals - Topographical survey

CONTENTS AMENDMENT SHEET

Amend. No.	Revision No.	Amendments	Initials	Date
0	0	Original version issued with tender	RAS	06/04/21

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LIST OF ANNEXES

1 PURPOSE OF THE *SERVICES*

1.1 Project objectives

1.1.1 The principal objective of this project is to carry out a Topographical survey in accordance with MCHW Volume 5 Section 1 Part 2.

1.1.2 The survey information provided by the *Consultant* will be used by the Client for a range of purposes, including asset management and for the development and design of network maintenance and improvement schemes.

1.1.3 A topographical survey shall be carried out in the hatched areas as shown on drawing HE605205-KIER-VGN-A42_M1-DR-CH-0100-02 to 08

1.1.4 The specification that applies to the *services* is included in Section 6

1.2 Scope of *services*

1.2.1 The *services* to be provided under this contract are:

1.2.2 The *Consultant* will be required to undertake topographical surveys and record details of the features that make up the public highway in the area to be surveyed. This includes, but not limited to, details of the following:

- Roads
- Tracks
- Footways
- Road Markings
- Verges
- Earthworks
- Soft landscaping & vegetation
- Street Furniture
- Structures (including drainage assets and other physical assets)

1.2.3 The specification that shall apply to the services is detailed in Volume 5, Section 1, General Requirements 3, which incorporates elements of the Manual of Contract Documents for Highway Works (MCHW). This document can be found here:
http://www.standardsforhighways.co.uk/ha/standards/mchw/index.htm

1.2.4 The Services shall be provided in accordance with the requirements detailed within the contract documents.

1.2.5 A method statement, programme of works, risk assessment and safety plan for the survey shall be submitted to the *Client* before commencing work on-site.

1.3 Deliverables

1.3.1 The *Consultant* is required to produce the following deliverables:

(1) An appropriate individual to attend pre-commencement site inspection & client meeting.

(2) Plant, materials & labour to carry out a TOPO survey on site for the timings as stated in section 3 and specification as stated in section 6.

(3) Two CAD files in AutoCAD 2010 dwg or dxf format one to be 2D and the other 3D for use with AutoCAD Civil 3D & reports on TOPO findings as detailed in section 6 within 2 weeks of works being completed on site.

(4) Presentation of digital data to be Bentley MX V8i Genio format and all features shall be three dimensional.

2 EXISTING INFORMATION

1.1.1 The *Consultant* shall ensure that their survey results tie into the Ordnance Survey National Grid and datum.

1.1.2 The Drawings listed below apply to this contract.

Drawing Number	Title	Revision / Date
HE605205-KIER-VGN-A42_M1-DR-CH-0100-01 - 08	Proposed TOPO, GPR, Duct location	P01
HE605205-KIER-GEN-A42_M1-DR-Z-0000-01	Location Plan	P01
HSD-KIER-VTO-AREA7-DR-C-05	Typical Survey Requirements on Embankments & Cuttings	C1

1.1.3 Refer to the site information for details of existing site conditions including ground conditions, limitation on access, position of existing structures etc.

3 CONSTRAINTS ON HOW THE CONSULTANT PROVIDES THE SERVICES

3.1 General

3.1.1 The *Consultant* Provides the Services in such manner as to minimise the risk of damage or disturbance to or destruction of third party property.

3.1.2 The *Consultant* complies with the constraints and meets with the requirements outlined in Appendix 1.

3.1.3 The *Consultant* submits information detailing how the *Consultant* will provide the Services to the *Client* prior to the *services* commencing. This information will include any lifting plans, risk assessments, method statements, the *Consultant's* staff training information and any other relevant Health and Safety requirements.

3.2 Working hours & site specific constraints

2.1.1 The *Contractor's* working hours for site works shall be 20:00 to 06:00hrs and weekend working will be allowed with agreement of the *Client.*

2.1.2 Provisional Road space has been booked for 6th to 25th September 2021 inclusive.

2.1.3 The contractor to submit a detailed proposed programme at tender.

3.3 Health, Safety and Environment & Risk Management

Health and Safety requirements

3.3.1 In Providing the Services the *Consultant* meets the requirements of Annex 1 of Volume 3 in relation to health and safety duties.

3.3.2 The *Consultant* shall comply with the requirements of Highways England's safety passport scheme and ensure that all of his employees, and any of his subcontractor's, are registered in accordance with the implementation of the scheme. Details on the scheme can be found here: http://www.highwayssafetyhub.com/safety-passport.html

3.3.3 In circumstances where traffic management is provided by the *Client*, the traffic management company employed by the *Client* will undertake the CDM2015 duty holder role of principal contractor.

3.3.4 Before commencing the construction phase of the *services*, the *Consultant* confirms to the *Client* that adequate welfare facilities are in place. Where the

facilities detailed in section 5 are not deemed adequate, the *Consultant* provides all necessary facilities to Provide the Services and to comply with the minimum requirements set out in HSE guidance document L153.

Environmental requirements

3.3.5 In Providing the Services the *Consultant* meets the requirements of Annex 2 of the supplementary constraints in relation to environmental duties.

Risk Management

3.3.6 The *Consultant* identifies, manages and mitigates risks in accordance with the principles of ISO31000.

3.3.7 The *Consultant* submits a risk register, which captures all risks associated with the delivery of the *services* including those identified by the *Client*, with his tender and maintains it for the contract period.

2.1.4 The following risks have been identified as associated with the works;

(i) Underground Services

(ii) Potential Asbestos

(iii) Journey Time Reliability

(iv) Environmental

(v) Access/Egress and movement around site

4 REQUIREMENTS FOR THE PROGRAMME

4.1.1 The *Consultant* submits a programme to the *Client* with his tender.

4.1.2 The *Consultant* Provides the Services taking into account the following programme constraints:

(i) The services and other things provided by *Employer* (see Section 5)

(ii) The *Consultant* is to allow for a pre-start meeting to develop the programme.

(iii) Survey results are expected to be returned within two weeks of the survey completing on site.

(iv) Welfare facilities are to be in place prior to works commencing on site.

(v) Coordination of survey in conjunction with other CWF disciplines.

(vi) Other Contractors will be working on this site, the principal contractor is to liaise with all parties to develop a programme for the works, it is anticipated that different surveys can be carried out concurrently to minimise the length of the programme.

4.1.3 The programme should be in the form of an activity and time related bar chart, produced as a result of a critical path analysis.

4.1.4 The programme should preferably be provided in either a PDF or MS Excel format and cover the full contract period including post site activities. Activities should be clearly defined and named and the programme should detail the following:

(i) dates and times associated with the project, including the *starting date*, *completion date* & *Consultant's* planned completion, and any other dates or times that will specifically impact the delivery of the project
(ii) activities associated with delivering the project

4.1.5 The *Consultant* should provide details of the proposed resources (plant, labour, subcontractors etc.) expected to deliver each activity. This information can either be shown on the programme itself or provided in an

associated resource statement included in the Proposal for Providing the Services.

4.1.6 The *Consultant* updates the programme every week. The *Consultant* submits an updated programme to the *Client* upon request.

5 SERVICES AND OTHER THINGS PROVIDED BY THE *CLIENT*

5.1.1 Temporary Traffic Management will be provided by others.

5.1.2 The proposed Traffic Management is expected to consist of night-time full closures of the A42 Northbound from junction 14, full closure of the A42 Southbound from Finger Farm RBT, various main line lane closure on M1, line closures on slip roads with some full slip closures. A453 lane closures and ring management of the A453 Finger Farm RBT where required. These TM requirements will be phased in order to minimise disruption to the travelling public.

5.1.3 There will be provision to escort pedestrian's and cyclist's through the works area if acceptable by the Traffic Management contractor and *Client*. All the above TTM is to be confirmed before works start.

5.1.4 Roadspace on Highways England network and Leicestershire County Council network is to be managed by the principal contractor in coordination with the TM contractor.

5.1.5 The other things that will be provided by the *Client* are as follows:

(1) Desktop search for utility information (Type D) survey has been completed and is available in the Stats folder.

(2) Welfare facilities are to be provided by the principal contractor (the TM provider), needs are to be identified by the *Consultant* and communicated with the principal contractor.

(3) Where necessary, site/vegetation clearance to ensure the survey can be carried out effectively will be carried out by others under the direction of the *Client*

6 SPECIFICATION FOR THE *SERVICES*

6.1.1 The *Consultant* shall Provide the Services in accordance with:

6.2 Topographical survey

6.2.1 The primary information to be surveyed is that which determines the shape, alignment and make-up of the public highway envelope. All features within the highway boundary (including the boundary) are to be recorded, similarly, any features within third party land. The level of accuracy and inclusion of the feature within the output model shall be as described in the tables below. This shall extend into the adjacent third party land. Specific items that must be recorded are detailed below. This shall not be taken as a complete list and any features / items not specifically referenced shall also be recorded.

6.2.2 The *Consultant* shall pick up ditch profiles and the verge to the highway boundary as accurately as possible. In some locations (refer to drawings) levels are required within third party land adjacent to the highway.

6.2.3 All surveys results shall be provided electronically and include two CAD files, one in 2D, the other a 3D file, both in dwg format compatible with AutoCAD Civil3D. In addition the survey shall be provided with 3D strings and points in GENIO format for use in Bentley MX V8i software.

Requirements specific to 2D files

2D files shall include contours represented at regular intervals across the survey extents. The required interval for contours will vary between sites and as such should be determined in a manner that provides sufficient indication of the general topography of the site without undue 'clutter'. Broadly the interval shall not be less than 100mm on flat sites or greater than 500mm on sites with significant level range. Major contours at each fifth interval shall be shown differently (weight or line type) so as to aid reading and shall be labelled with its level.

The 2D output file shall contain spot level information for all key features along with heights of features such as walls, fences and overhead cables. Additional information on type, size and nature of features surveyed shall also be included.

Requirements specific to 3D files

No string lines shall cross any other string or block entity as this causes errors when creating a surface with AutoCAD Civil 3D.

Contours shall not be included in the 3D file. No feature or item within the 3D file shall have a zero level.

6.2.4 The required accuracy when surveying features for TOPO surveys has been identified using two categories, Max and Medium. These are defined below. See Table 1 & 2 for details of the level of accuracy required for the various features required to be captured during the survey.

Max

This shall represent survey using a Total Station offering accuracy tolerance of +/- 5mm or better. Use of GPS survey techniques or other means not providing this level of accuracy shall not be permitted.

Medium

This shall represent items for which survey via total station is preferred but that use of GPS is not precluded. However, it is likely that use of GPS techniques will be limited to large areas of third party agricultural land or expansive highway verges.

Table 1 - Roads, Tracks, Footways and Road Markings

Ref.	Features	Trunk Roads	Motorways	To be Included in Output	Accuracy	3D feature type
1.1	All Road edges (where no kerbs) including side roads, laybys, private access's etc.	5m (2.5m on radii below ~12m)	10m	2D + 3D	Max	String
1.2	All Kerb lines at channels + Channel blocks including side roads, laybys, private access's and traffic islands	5m (2.5m on radii below ~12m)	10m	2D + 3D	Max	String

1.3	All Kerb tops including side roads, laybys, private access's and traffic islands	5m (2.5m on radii below ~12m)	10m	2D + 3D	Max	String
1.4	Location of drop kerbs and transition kerbs (each end)	All	All	2D + 3D	Max	Part of kerb strings
1.5	Tactile paving and colour	Footprint	N/A	2D	Medium	-
1.6	Footway (each edge)	5m (2.5m on radii below ~12m)	5m	2D + 3D	Max	String
1.7	Other paved areas (extents / material type and changes)	Footprint (max 5m)	Footprint (max 5m)	2D + 3D	Max	String
1.8	Zebra and signal controlled crossings	Position and extents	N/A	2D	Max	-
1.9	All Road and footway crown lines	5m	10m	2D + 3D	Max	String
1.10	Steps including construction type and railings if present.	Position, extents and height of each step	Position, extents and height of each step	2D + 3D	Max	Strings
1.11	Road markings – edge of carriageway / rib line, lane markings, give way markings and stop lines and directional arrows and text	5m	10m	2D	Max	-

1.12	Extents of High Friction Surfacing and colour surfacing including 'gateway features'	Footprint / extents	Footprint / extents	2D	Medium	-

Table 2 - Verges, earthworks and other soft landscaping and vegetation

Ref	Features	Trunk Roads	Motorways	To be Included in Output	Accuracy	3D feature type
2.1	Cuttings and embankments – mid-slope points, crest and toe lines	5m	10m	2D + 3D	Medium	String
2.2	Retaining Walls or other level change without a slope such as raised planting beds.	Footprint (max 5m) Levels at top and bottom	Footprint (max 5m) Levels at top and bottom	2D + 3D	Max	String
2.3	Localised changes of level such as mounds and swales.	Footprint (max 5m) Enough levels to illustrate form / shape	Footprint (max 5m) Enough levels to illustrate form / shape	2D + 3D	Medium	Strings and points as required
2.4	Drainage ditches and all other waterways. Footprint including embankments and bed plus levels of each element including water.	5m or less if required to accurately capture shape	10m or less if required to accurately capture shape	2D + 3D	Medium	String
2.5	Line of filter / French drains	5m along run to both sides	10m along run to both sides	2D + 3D	Medium	String

2.6	Line and height of Safety barriers including terminals, guard railings or parapets (see note 1 below table)	5m along run and changes of beam type / height	10m along run and changes of beam type / height	2D	Max	-
2.7	Open fields / soft verge	5m centres / grid pattern or less if required to accurately capture features	5m centres / grid pattern or less if required to accurately capture features	2D + 3D	Medium	Spots as blocks or points
2.8	Trees – Canopy extents, height and trunk where latter is greater than 0.5m diameter 1m above ground	All	All	2D	Medium	-
2.9	Small trees / Bushes / scrub / brambles etc. Extents and height	All areas	All areas	2D	Medium	-
2.10	Areas of overgrown vegetation			Where area(s) exist in excess of those cleared in accordance with 4.3.5, the *Consultant* shall endeavor to record ground level information around the full extent of the inaccessible area(s) to provide as reliable a representation of the ground levels as possible.		