

# **National Asset Delivery Technical Surveys and Testing**

## **Scope**

### **M4 J19 & M32 J1 & J3 Ground Penetrating Radar (GPR) survey**



**TABLE OF CONTENTS**

<b>1</b>	<b>PURPOSE OF THE <i>SERVICES</i></b> .....	4
1.1	Project objectives .....	4
1.2	Scope of <i>services</i> .....	4
1.3	Deliverables .....	4
<b>2</b>	<b>Existing INFORMATION</b> .....	6
<b>3</b>	<b>Constraints on how the Consultant Provides the Services</b> .....	7
3.1	General .....	7
3.2	Working hours & site-specific constraints .....	7
3.3	Health, Safety and Environment & Risk Management.....	8
<b>4</b>	<b>Requirements for the programme</b> .....	10
<b>5</b>	<b>Services and other things provided by the <i>Client</i></b> .....	11
<b>6</b>	<b>Specification for the <i>SERVICES</i></b> .....	12

## 1 PURPOSE OF THE *SERVICES*

### 1.1 Project objectives

- 1.1.1 The principle objective of this project is to undertake GPR survey of verges and existing footpaths to locate and map utilities as per PAS128:2014. The survey is to be carried out along across the area shown on drawing(s):

HE570129A-KIER-VGN-M4\_J19\_SR-DE-EO-0100\_14;  
HE570129A-KIER-VGN-M32\_J1\_SR-DE-EO-0100\_14;  
HE570129A-KIER-VGN-M32\_J3\_SR-DE-EO-0100\_14.

The information on utilities need to be captured between highway boundaries, excluding the carriageway unless otherwise indicated on the drawings. The GPR survey needs to cover areas between 6.0m from the kerb line, however if the highway boundary line is further than 6.0m from the kerb this area shall not be included. In areas of dense vegetation, every effort must be taken to capture areas of the verge and footpath as much as reasonably practical.

The deliverables for the GPR survey must be in accordance with the requirements detailed in the specification in sections 6 and 1.3 and ensure the accuracy of data in relation to existing services.

- 1.1.2 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:

Undertake detailed GPR survey over areas shown in the following location plan drawings and as per the specification in section 6:

- HE570129A-KIER-VGN-M4\_J19\_SR-DE-EO-0100\_14;
- HE570129A-KIER-VGN-M32\_J1\_SR-DE-EO-0100\_14;
- HE570129A-KIER-VGN-M32\_J3\_SR-DE-EO-0100\_14.

Traffic Management is to be arranged by the *Employer*, if required.

### 1.3 Deliverables

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

- (1) GPR Survey results shall be provided in PDF and drawing (.dwg) file formats. Electronic drawing files shall be to Ordnance datum and include 2-dimensional version.

GPR survey to identify types and depths of buried services using a PAS128:2014 location method M2/M3 with an accuracy / quality level of B1P.

- 1.3.2 The GPR detail surveyed must include all elements within the highway boundary, including the following but not limited to:
- (a) Services:
    - (i) Indication of underground services, top boxes, cabinets, manholes, valves etc. including an indication of the service company for:
      - Gas
      - Telephone
      - Electric underground
      - Communications
      - Water mains
      - Foul sewer
      - Oil Pipeline
      - Storm water
      - Carriageway loop connections, where applicable
  - (b) Drainage assets (chambers, gullies etc)
  - (c) Drainage (manholes, culverts, details of incoming/outgoing pipe sizes, invert and cover levels and direction of flow. Indicate whether surface water or foul)

## 2 EXISTING INFORMATION

2.1.1 The Statutory Undertakers Apparatus Drawings listed below apply to this contract and are to be used for information purposes only. Refer to the site information for details of existing site conditions including limitation on access, position of existing structures etc. The following drawings are available for viewing on request prior to the survey:

<b>Drawing Number</b>	<b>Title</b>
HE570129A-KIER-VGN-M4_J19_SR-DE-EO-0100_14	Ground Penetrating Radar Survey Location Plan M4 J19
HE570129A-KIER-VGN-M32_J1_SR-DE-EO-0100_14	Ground Penetrating Radar Survey Location Plan M32 J1
HE570129A-KIER-VGN-M32_J3_SR-DE-EO-0100_14	Ground Penetrating Radar Survey Location Plan M32 J3
HE570129A-KIER-HLG-M4_J19_SR-DE-EO-0100_02	Statutory Undertakers Apparatus Plan M4 J19
HE570129A-KIER-HLG-M32_J1_SR-DE-EO-0100_02	Statutory Undertakers Apparatus Plan M32 J1
HE570129A-KIER-HLG-M32_J3_SR-DE-EO-0100_02	Statutory Undertakers Apparatus Plan M32 J3

### **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**

- 3.2.1 Access to the site for undertaking works will not be possible without the provision of traffic management – This will be provided by the Client.
- 3.2.2 Due to the requirement for Traffic Management I and specialist access, it is envisaged that works will be restricted to night-time shifts. Temporary Traffic Management (TTM) shall not be implemented prior to the hour of 20:00 hrs nor removed later than 06:00 hrs. Late installation / early removal of Traffic Management or alteration to the length of closure may occur subject to the recorded on-site traffic flow. It is anticipated that in most cases, Traffic Management removal will commence at 04:00 hrs to allow sufficient time for removal. There may be an option for daytime working but this will be discussed on mobilisation and should not be part of any tender proposal
- 3.2.3 Traffic Management layout to be confirmed by the Employer. Layout provided to be in accordance with Traffic Signs Manual (TSM) Chapter 8.
- 3.2.4 Any site and task-specific lighting shall be directed away from dense vegetation and shall be positioned such that it does not cause a hazard to on-coming road users.
- 3.2.5 Some sections of the site will need vegetation clearance in order for GPR surveys to map the services. This will be undertaken by others. These sections are highlighted on the location plan drawings HE570129A-KIER-VGN-M32\_J1\_SR-DE-EO-0100\_14 and HE570129A-KIER-VGN-M4\_J19\_SR-DE-EO-0100\_14. Where vegetation is dense, every effort must be taken to capture data on the footpath and verge as much as reasonably practical. Although the site is confined to the highway boundaries, because of hedgerow/ vegetation, liaising with landowners may become necessary during/prior to the GPR surveys.

### 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 2 of the supplementary constraints 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 HE570129A-KIER-VGN-M4 J19 & M32 J1&J3-CDM-CH-0001 & HE570129A-KIER-VGN-M4 J19 & M32 J1&J3-CDM-CH-0004.
- 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.

#### 4 REQUIREMENTS FOR THE PROGRAMME

- 4.1.1 The *Consultant* submits programme to the *Client* with his tender.
- 4.1.2 The *Consultant* Provides the Services taking into account the following programme constraints:
- (i) the *starting date* and *completion date* and any post site works, reporting and review period.
  - (ii) The services and other things provided by *Client* (see Section 5)
  - (iii) Constraints on the sequencing of works on 3<sup>rd</sup> party land to be provided by the employer.
  - (iv) The consultant to provide 2-dimensional AutoCAD .dwg files (see section 6) within 2 weeks of field work.
- 4.1.3 The programme must 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 must be provided in a PDF or MS Project or MS Excel format and cover the full contract period including post site activities. All activities should be clearly defined and named, and the following shall be shown on the programme:
- (i) the *starting date*, *completion date* & *Consultant's* planned completion
  - (ii) for each activity, the proposed resources (plant & labour) expected to deliver each activity should be shown on the programme
  - (iii) review periods for any reporting requirements
  - (iv) key dates for the Client to provide 'services and other things'
  - (v) key dates for co-ordination with Others
- 4.1.5 The *Consultant* updates the programme every 2 weeks. The *Consultant* submits an updated programme to the *Client* upon request.

**5 SERVICES AND OTHER THINGS PROVIDED BY THE CLIENT**

- 5.1.1 The temporary traffic management will be provided by the *Client* to allow the *Consultant* to Provide the Works:
- 5.1.2 The Client via the Principal contractor will provide welfare facilities
- 5.1.3 The other things that will be provided by the Client are as follows:
- (1) The Client will provide entry agreements to 3<sup>rd</sup> party land, if necessary. Some sections of the site will need vegetation clearance for GPR surveys to map the services, this will be undertaken by others. These sections are highlighted on the location plan drawings HE570129A-KIER-VGN-M32\_J1\_SR-DE-EO-0100\_14 and HE570129A-KIER-VGN-M4\_J19\_SR-DE-EO-0100\_14. Although the site is confined to the highway boundaries, because of hedgerow/vegetation, liaising with landowners may become necessary during/prior to survey.

## 6 SPECIFICATION FOR THE SERVICES

6.1.1 The Contractor must provide the works under a quality management system which:

- (1) is certified to ISO 9001,
- (2) incorporates an environmental management system which works to the principles of ISO 14001,
- (3) includes requirements for adopting the principles of BS 11000
- (4) Complies with good industry practice and encourages innovation during the contract duration and,
- (5) is in accordance with PAS128:2014. The Consultant is required to produce the following deliverables:

Utility Survey – A buried utility survey to locate and verify underground utilities via scanning in accordance with PAS 128:2014 Type A. this information is to include;

- Type of service
- Chamber extents
- Diameter and depths of services
- Extents and depths of anomalous areas

6.1.3 A detailed specification for the Type A and Type B surveys is included in the table below:

Survey Extent	Location plan attached	✓	Textual Description		Proposals Plan	
Scale	1:50		1:100	✓	1:200	
Location Accuracy		Horizontal		±50mm	Vertical	±25mm
Plan control grid and datum	All PAS 128 surveys to be referenced to National Grid					
	GNSS derived datum (recommended)	✓	Benchmark derived datum			
Type D desktop utility records search		A	Type C Site reconnaissance			
Type B detection survey		✓	Type A verification survey			✓
Type B detection methods	M1	✓	M2		M3	M4
	Post-processing of GPR data			Yes	✓	No

Type A verification Methods	Inspection chamber survey		✓	Hand dug trial holes			Vacuum excavation	
	Number of inspection chambers			Soft dig (number)			Hard dig (number)	
Deliverables and delivery medium	CAD		PDF		BIM	B	GIS	
	Email	✓	DVD		Paper		Other	

## Notes:

- A. C2 returns provided by Client as part of task order package.
- B. All drawings to be provided in AutoCAD Civil 3D 2018.dwg format using the line types supplied as part of the task order package.
- 6.1.4 Consultant shall Provide the Services in accordance with: HD 29/08 Data for Pavement Assessment, PAS128:2014, Specification for underground utility detection & IAN 184/16 Highways Agency Data & CAD standard.
- 6.1.5 In addition to the programme of works required under Section 4 of this document, the Contractor is to provide method statements, risk assessments and safety plans for the survey to the Client before commencing works on site