

**National Asset Delivery
Technical Surveys and Testing**

**Works Information for 570127
M4 J15-16 EB MP125.9 – Drainage
Survey**

CONTENTS AMENDMENT SHEET

Amend. No.	Revision No.	Amendments	Initials	Date
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LIST OF ANNEXES

Appendix 1 Supplementary Constraints

1 DESCRIPTION OF THE WORKS

1.1 Project objectives

- 1.1.1 The principal objective of this project is to undertake a Drainage Survey of the existing drainage system within the site extents identified in drawing HE570127L-KIER-VDS-M4_MP125_9_B-DR-CD-0501-P01.
- 1.1.2 The drainage survey aims to complete the inventory and determine the condition of the drainage network within the site extents, as this will inform the remediation design for the geotechnical defects affecting the earthwork at the location: cracking and subsidence of the hard shoulder. Recorded assets on Highways England Drainage Data Management System (HADDMS) within the survey extents are based on as-built drawing records and most have not been validated or surveyed. Historical as-built drawing 3878/C2/69, dated 1972, is provided to facilitate the survey. Drainage assets of particular interest to the remediation scheme are:
- Double pipework present along the eastbound verge and central reservation, consisting of an upper motorway drain and a lower sub-soil drain, and their connections with verge and central reservation catchpits at MP125.9 and MP126.0;
 - Cross carriageway drains, flowing from central reservation to verge;
 - Pipework between verge catchpits and outlets into toe ditch.
- 1.1.3 The specification that applies to the *works* is included in Section 6.

1.2 Scope of works

- 1.2.1 The *works* to be provided under this contract are:
- (1) Drainage survey to be carried out of the existing drainage system within the scheme extents as shown on drawing HE570127L-KIER-VDS-M4_MP125_9_B-DR-CD-0501-P01.
 - (2) High volume jetting to be carried out to the existing drainage where blockages are encountered.
 - (3) Rubble or other obstructions to be removed where encountered.

1.3 Deliverables

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

- (1) Drainage Survey of the existing drainage system as shown on drawing HE570127L-KIER-VDS-M4_MP125_9_B-DR-CD-0501-P01 in accordance to CS551.
- (2) The Drainage Survey deliverables (data submission and report) are to be in accordance with CD535 Drainage Surveys.
- (3) Drainage Survey summary report in PDF and digital data format.
- (4) Drainage Survey drawings in DXF/DWG and PDF format.
- (5) Drainage Survey data to be packaged with a proprietary software viewer necessary to view all of the data (Wincan VX) in accordance with the following:
 - all of the coded data (both header and detailed defect observations) for every inspection carried out on every section of pipework, culvert, chamber, outfall/oulets, and gully, including repeat inspections;
 - all of the associated photographs and videos;
 - facilities that allow the survey data to be viewed in conjunction with the video and photographs, such that viewing an asset or observation in the data will automatically retrieve the associated section of video and relevant photographs;
 - an unrestricted licence for the use of the software viewer.
- (6) Drainage Survey data to be provided in HADDMS shape file format and to be uploaded to the Highways England Drainage Data Management System (HADDMS).

2 EXISTING INFORMATION

- 2.1.1 The Drawings listed below apply to this contract. Refer to the site information for details of existing site conditions including ground conditions, limitation on access, position of existing structures etc.

Drawing Number	Title	Revision / Date
HE570127L-KIER-VDS-M4_MP125_9_B-DR-CD-0501	Proposed Drainage Survey	P01/ August 2020
HE570127L-KIER-VDS-M4_MP125_9_B-DR-CE-0601	Proposed Ground Investigation and Topographic Survey	P01/ August 2020

- 2.1.2 Available historical and as-built information, as stated in Section 1, is listed below.

Reference	Title	Revision / Date
3878/C2/69 (As-built record drawing)	London South Wales Motorway M4 – Contract 2 Motorway Drainage Plan, Sheet 6	1972

3 CONSTRAINTS ON HOW THE CONTRACTOR PROVIDES THE WORKS

3.1 General

- 3.1.1 The *Contractor* Provides the Works in such manner as to minimise the risk of damage or disturbance to or destruction of third party property.
- 3.1.2 The *Contractor* complies with the constraints and meets with the requirements outlined in Appendix 1.
- 3.1.3 The *Contractor* submits information detailing how the *Contractor* will provide the Works to the *Employer* prior to the *works* commencing. This information will include any lifting plans, risk assessments, method statements, the *Contractor's* staff training information and any other relevant Health and Safety requirements.

3.2 Working hours & site specific constraints

- 3.2.1 The *Contractor's* working hours for site works are anticipated to be 2000-0600hrs Monday to Friday.
- 3.2.2 Contractor to remain within the Highways Boundaries for the duration of the works. Access to 3rd Party land is not anticipated for the undertaking of the Drainage Survey.
- 3.2.3 The drainage survey will require traffic management in addition to the existing hard shoulder emergency closure, in place due to cracking and subsidence of the pavement. It is anticipated that the traffic management will comprise closure of eastbound Lanes 1 and 2 for the survey of the eastbound verge assets, and of Lanes 2 and 3, both directions for the survey of the central reservation assets. TM requirements are to be confirmed by the Contractor.
- 3.2.4 The drainage survey works may require entry into confined spaces (drainage chambers). The Contractor is to provide risk assessment and method statement for confined spaces work.
- 3.2.5 Vegetation clearance is being planned as enabling works for the ground investigation and topographical surveys, which will be procured through Highways England's new GI Framework. Clearance will comprise 2m wide strips along the back of the kerb line and from crest to toe of the embankment at 20-30m intervals or at exploratory hole locations, along the eastbound verge. At this moment it is not possible to anticipate if the clearance will precede the drainage survey. Access to the ditch and ditch outlets is possible from the eastern end of the site where the embankment is shallow, walking west along the boundary fence. The proposed vegetation clearance is shown

in drawing HE570127L-KIER-VDS-M4_MP125_9_B-DR-CE-0601-P01, provided for information only.

- 3.2.6 Environmental constraints apply as the site area is suitable habitat for nesting birds, and reptiles and amphibians. Any vegetation clearance (to be procured separately to this contract) will require ecological supervision for hibernating reptiles and amphibians.

3.3 Health, Safety and Environment & Risk Management

Health and Safety requirements

- 3.3.1 In Providing the Works the *Contractor* meets the requirements of Annex 2 of the supplementary constraints relation to health and safety duties.
- 3.3.2 The *Contractor* 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 For details of the CDM duty holders, refer to the pre-construction information included within this package of works.
- 3.3.4 Before commencing the construction phase of the *works*, the *Contractor* confirms to the *Employer* that adequate welfare facilities are in place. Where the facilities detailed in section 5 are not deemed adequate, the *Contractor* provides all necessary facilities to Provide the Works and to comply with the minimum requirements set out in HSE guidance document L153.

Environmental requirements

- 3.3.5 In Providing the Works the *Contractor* meets the requirements of Annex 2 of the supplementary constraints in relation to environmental duties.

Risk Management

- 3.3.6 The *Contractor* identifies, manages and mitigates risks in accordance with the principles of ISO31000.
- 3.3.7 The *Contractor* submits a risk register, which captures all risks associated with the delivery of the *works* including those identified by the *Employer*, with his tender and maintains it for the contract period.

4 REQUIREMENTS FOR THE PROGRAMME

- 4.1.1 The *Contractor* submits programme to the *Employer* with his tender.
- 4.1.2 The *Contractor* Provides the Works 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 *Employer* (see Section 5)
 - (iii) The timing of the works will be subject to the availability of roadspace and traffic management and the Consultant shall liaise with the *Client* for confirmation of traffic management arrangements.
 - (iv) Access to chambers is classified as confined spaces working, and the Contractor should include for this within their method statement and risk assessment.
- 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* & *Contractor'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
 - (iii) for each activity, the proposed resources (plant & labour) expected to deliver the activity should be shown on the programme;
 - (iv) review periods for any reporting requirements;
 - (v) key dates for the Employer to provide 'services and other things';
 - (vi) key dates for co-ordination with Others.
- 4.1.5 The *Contractor* updates the programme every week. The *Contractor* submits an updated programme to the *Employer* upon request.

5 SERVICES AND OTHER THINGS PROVIDED BY THE *EMPLOYER*

5.1.1 The following temporary traffic management will be provided by the *Employer* to allow the *Contractor* to Provide the Works:

- (1) Eastbound Lane 1 and 2 closure for eastbound verge assets; Lane 2 and 3 closure both directions for central reservation assets; 2000-0600 working hours window

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

- (2) Welfare facilities will be provided by the Principal Contractor.

Full details will be finalised upon successful award of the contract.

FOR INFORMATION ONLY

6 SPECIFICATION FOR THE WORKS

6.1.1 Drainage Survey

6.1.2 The *Contractor* shall undertake the works in accordance with drawing HE570127L-KIER-VDS-M4_MP125_9_B-DR-CD-0501

6.1.3 The *Contractor* must provide the *works* under a quality management system which is certified to ISO 9001 & BS 11000 and Environmental management system which works to ISO14001.

6.1.4 The Drainage Survey is to be carried out in accordance with the Design Manual for Roads and Bridges, Volume 4 Geotechnics and Drainage, Part 10, CS 551 Drainage Surveys.

6.1.5 The Drainage Survey recording of inventory and condition of drainage assets is to be carried out in accordance with the Design Manual for Roads and Bridges, Volume 4 Geotechnics and Drainage, Part 4, CD 535 Drainage Asset Data and Risk Management.

6.1.6 Outfalls to watercourses are to be bunged prior to jetting to prevent habitat/ watercourse pollution.

6.1.7 Schedule of Requirements, Appendix A1 General Requirements;

- Drainage Survey to be carried out of the existing drainage system within the survey extents marked in drawing HE570127L-KIER-VDS-M4_MP125_9_B-DR-CD-0501.
- The Drainage Survey is to include the following:
 - a) validation survey;
 - b) priority asset survey;
 - d) all assets condition and connectivity survey;
 - e) pipework and chambers defect survey by CCTV.
 - f) drainage inlet and outlet including photos of the inlet/outlet/headwalls
- Validation survey to verify whether the inventory information (chambers, inlets, outlets, kerb channels and ditches) held on the drainage data management system (DDMS), previously derived from drawings, is a true record of the visible surface point assets.
- The works will have the following constraints;
 - a) access to the site will be by the M4 carriageway traffic management;
 - b) drainage survey works are anticipated to be carried out week days, 2000 to 0600.

- The classification of the site for the use of electrical equipment in potentially explosive atmospheres, in accordance with DSEAR S.I. No. 2776 [Ref 2.I], is the site is classified as Zone 2.
- The responsibility for traffic management will be by others arranged by the Overseeing Organisation's representative.

6.1.8 **Appendix A2 Survey Requirements.**

A2.1 General.

- Survey data round-tripping is required, some drainage inventory information in the catchment(s) to be surveyed is available on the DDMS and round-tripping of this data is required.
- There is no off-highway working, use of off-road vehicles are not required.

A2.2 Pipework and chambers defect survey by CCTV.

- Pan and tilt CCTV camera will be required.
- Forced ventilation of pipework and/or culverts will not be required.
- Pre-cleansing of the drainage system is not required.
- If any blockages are encountered to the pipework the following is to be carried out to continue the survey and clear the blockages;
 - a) survey the pipework run from the other direction, then proceed to remove the blockage by cleansing.

6.1.9 **Appendix A3 Reporting Requirements.**

A3.1 General – Not Any.

A3.2 Pipework and chambers defect survey by CCTV

- The summary report is required in PDF format in addition to digital data.
- CAD drawings in DXF and PDF formats are required in addition to digital data.
- The survey data is to be packaged with a proprietary viewer in addition to the standard data deliverables.
- Interim survey data or report will not be required during the survey.
- The survey data is to be transferred by internet transfer.