

**National Asset Delivery
Technical Surveys and Testing**

605788-P-007

**Works Information for
Area 14 Coring and the Dynamic Cone
Penetrometer Surveys**

CONTENTS AMENDMENT SHEET

Amend. No.	Revision No.	Amendments	Initials	Date
0	0	Original version issued with tender	LPM	26/11/2020

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1 DESCRIPTION OF THE WORKS

1.1 Project objectives

The principle objective of this project is to undertake a Pavement Coring and Dynamic Cone Penetrometer survey to assess the condition of the existing pavement to determine its construction to support the development of treatment options for scheme works in accordance with CS 229.

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:

General scope of the works to be provided	
Category	Survey Description
Pavement	Pavement coring, test pits and material testing in accordance with CS 229.
Pavement	Dynamic Cone Penetrometer (DCP) pavement foundation test in accordance with CS 229.

1.3 Deliverables

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

- (1) A report inclusive of;
- stating date of survey, weather conditions, and testing procedures.
 - A plan demarcated with the test point locations.
 - A table showing a GIS location plan of road cores and table with the following column headings;
 - Core reference,
 - HAPMS chart section and chart section chainage,
 - Lane 1,2 etc. and offset from centre of lane, e.g. NS 0.2m, OS 0.1m
 - OSGR coordinates
 - Depth of bituminous material
 - Depth of hydraulically bound material
 - Depth of potential tar bound material

- Interpreted foundation CBR from DCP survey data
- (2) Records of road cores mapped against Highways England HAPMS chart sections and chainage, detailing materials and construction depths including photographs of extracted cores as per the example in HD29/08 Figure 7.1.
- (3) All cores to be GPS referenced and provided with OSGR Easting and Northing coordinates.
- (4) Road core records to be supplemented with a general description of surface condition as per HD29/08 Table 3.1: HVS Carriageway Defects, and a photograph of the surface condition.
- (5) Provide documentation DCP test records, logged with associated core. Interpreted of CBR value, and foundation classification based on HD 73/06.

2 EXISTING INFORMATION

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

2.1.2 The location of the survey is as per the location and overhead cable plans listed below in Table 1 showing the extent of the survey and summary of existing asset inventory.

Table 1 Existing Records and Plans

Drawing Number	Title	Revision/Date
Location & OHC Plans		
Appendix A – OH Plan (1)	A696 Kenton Bar – Prestwick Roundabout	02/06/2020
Appendix A – OH Plan (2)	A1 Highfields – Scottish Border	02/06/2020
Appendix A – OH Plan (3)	A66 Sedbury Layby - Footpath	02/06/2020
Appendix A – OH Plan (4)	A1 West Cawledge – Denwick	02/06/2020
Appendix A – OH Plan (5)	A1 South Charlton – North Charlton	02/06/2020
Appendix A – OH Plan (6)	A1 Scremerston – Oxford	02/06/2020
Appendix A – OH Plan (7)	A1M J60-61	02/06/2020
Appendix A – OH Plan (8)	A66 Little Burdon – Long Newton	
Appendix A – OH Plan (9)	A66 Long Newton – Elton	02/06/2020
Appendix A – OH Plan (10)	A19 Fisher Lane - Moor Farm	02/06/2020
Appendix A – OH Plan (11)	A1 Fairmoore – Warreners House	02/06/2020

Appendix A – OH Plan (12)	A1 Burgham – West Moor	02/06/2020
Appendix A – OH Plan (13)	A19 Holystone – Killingworth	02/06/2020
Environmental Rag Plans		
Appendix B – Rag Plans (1)	A696 Kenton Bar – Prestwick Roundabout	02/06/2020
Appendix B – Rag Plans (2)	A1 Highfields – Scottish Border	02/06/2020
Appendix B – Rag Plans (3)	A66 Sedbury Layby - Footpath	02/06/2020
Appendix B – Rag Plans (4)	A1 West Cawledge – Denwick	02/06/2020
Appendix B – Rag Plans (5)	A1 South Charlton – North Charlton	02/06/2020
Appendix B – Rag Plans (6)	A1 Scremerston – Oxford	02/06/2020
Appendix B – Rag Plans (7)	A1M J60-61	02/06/2020
Appendix B – Rag Plans (8)	A66 Little Burdon – Long Newton	02/06/2020
Appendix B – Rag Plans (9)	A66 Long Newton – Elton	02/06/2020
Appendix B – Rag Plans (10)	A19 Fisher Lane - Moor Farm	02/06/2020
Appendix B – Rag Plans (11)	A1 Fairmoore – Warreners House	02/06/2020
Appendix B – Rag Plans (12)	A1 Burgham – West Moor	02/06/2020
Appendix B – Rag Plans (13)	A19 Holystone – Killingworth	02/06/2020
Public Access Map		
Appendix C – Public Access Maps (1)	A696 Kenton Bar – Prestwick Roundabout	02/06/2020
Appendix C – Public Access Maps (2)	A1 Highfields – Scottish Border	02/06/2020
Appendix C – Public Access Maps (3)	A66 Sedbury Layby - Footpath	02/06/2020
Appendix C – Public Access Maps (4)	A1 West Cawledge – Denwick	02/06/2020
Appendix C – Public Access Maps (5)	A1 South Charlton – North Charlton	02/06/2020
Appendix C – Public Access Maps (6)	A1 Scremerston – Oxford	02/06/2020
Appendix C – Public Access Maps (7)	A1M J60-61	02/06/2020
Appendix C – Public Access Maps (8)	A66 Little Burdon – Long Newton	02/06/2020
Appendix C – Public Access Maps (9)	A66 Long Newton – Elton	02/06/2020
Appendix C – Public Access Maps (10)	A19 Fisher Lane - Moor Farm	02/06/2020
Appendix C – Public Access Maps (11)	A1 Fairmoore – Warreners House	02/06/2020
Appendix C – Public Access Maps (12)	A1 Burgham – West Moor	02/06/2020
Appendix C – Public Access Maps (13)	A19 Holystone – Killingworth	02/06/2020

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 shall be within 20:00 – 06:00 hours once the traffic management has been installed. [
- 3.2.2 The traffic management working window is 20:00hrs for earliest start of installation and removal of last cone by 06:00hrs. Late or early removal of traffic management or alteration to the length of closure may occur subject to the recorded on-site traffic flow.
- 3.2.3 The traffic management requirements shall be provided by Highways England's M&R Contractor, CHC.
- 3.2.4 See below for site specific constraints on methods and or conduct of the work.

Table 2 Site Specific Constraints

Site Ref.	Shift Pattern	Survey	Traffic Management	Survey Length	Estimated No of Shifts
A696 Kenton Bar – Prestwick Roundabout	Night shift	Coring	Lane closure, inner and outer ring closure.	20,032m	15
A1 Highfields – Scottish Border	Night shift	Coring	Lane closure	11,284m	8
A66 Sedbury Layby - Footpath	Night shift	Coring/DCP	Lane closure	640m	1
A1 West Cawledge – Denwick	Night shift	Coring	Lane closure	20,956m	14
A1 South Charlton – North Charlton	Night shift	Coring	Traffic Signals	5,386m	9
A1 Scremerston – Oxford	Night shift	Coring	Traffic Signals	5,778m	10
A1M J60-61	Night shift	Coring	Lane closure	13,478m	9
A66 Little Burdon – Long Newton	Night shift	Coring	Lane closure	19,232m	13
A66 Long Newton – Elton	Night shift	Coring	Lane closure	21,449m	14

A19 Fisher Lane - Moor Farm	Night shift	Coring	Lane closure	13,596m	9
A1 Fairmoore – Warreners House	Night shift	Coring/DCP	Lane closure and TTRO slip	4,840m	10
A1 Burgham – West Moor	Night shift	Coring/DCP	Traffic Signals	4,128m	7
A19 Holystone – Killingworth	Night shift	Coring	Lane closure	5,342m	4

3.2.5 For traffic signal working, the maximum distance between signal heads is 600m. Switching TM closure to opposing lane is achievable within a single shift, i.e. expected output to be a survey length of 1.2km/shift.

3.2.6 The programme duration has been estimated based upon an output of 20 collected road cores/shift for lane closure, and 15cores/shift for traffic light traffic management set ups in order to complete by the end date.

3.2.7 The Contractor should consider and increase resource where achievable to reduce programme and associated traffic management costs.

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 in relation to health and safety duties.

3.3.2 When implemented, 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.

3.3.3 For details of the CDM duty holders, refer to the pre-construction information which is included within the package of Tender documents uploaded to Bravo.

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.

- 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) The traffic management requirements shall be provided by Highways England's M&R Contractor, CHC.
- (2) See Table 3 below for site specific constraints on methods and or conduct of the work:

Table 3 Traffic Management and Constraints

Plan. Ref.	Site Ref.	Shift Pattern	Traffic Management
Appendix A – OH Plan (1)	A696 Kenton Bar – Prestwick Roundabout	Night shift	Lane closure, inner and outer ring closure
Appendix A – OH Plan (2)	A1 Highfields – Scottish Border	Night shift	Lane closure
Appendix A – OH Plan (3)	A66 Sedbury Layby Footpath	Night shift	Lane closure
Appendix A – OH Plan (4)	A1 West Cawledge – Denwick	Night shift	Lane closure
Appendix A – OH Plan (5)	A1 South Charlton – North Charlton	Night shift	Traffic Signals
Appendix A – OH Plan (6)	A1 Scremerston – Oxford	Night shift	Traffic Signals
Appendix A – OH Plan (7)	A1M J60-61	Night shift	Lane closure
Appendix A – OH Plan (8)	A66 Little Burdon – Long Newton	Night shift	Lane closure
Appendix A – OH Plan (9)	A66 Long Newton – Elton	Night shift	Lane closure
Appendix A – OH Plan (10)	A19 Fisher Lane - Moor Farm	Night shift	Lane closure
Appendix A – OH Plan (11)	A1 Fairmoore – Warreners House	Night shift	Lane closure and TTRO slip
Appendix A – OH Plan (12)	A1 Burgham – West Moor	Night shift	Traffic Signals
Appendix A – OH Plan (13)	A19 Holystone – Killingworth	Night shift	Lane closure

- (3) For traffic signal working, the maximum distance between signal heads is 600m. Switching TM closure to opposing lane is achievable within a single shift, i.e. expected output to be a survey length of 1.2km/shift.
- (4) Temporary traffic management is to be provided by the Highways England M&R Contractor, CHC.
- (5) TM shall not to be implemented prior to the hour of 20:00 nor removed later than 06:00hrs. Late or early removal of traffic management or

alteration to the length of closure may occur subject to the recorded on-site traffic flow.

- 5.1.2 Mobile welfare facilities (including water and electricity) are to be provided by the M&R Contractor, CHC. The facilities are to be provided for the entirety of the works.

6 SPECIFICATION FOR THE WORKS

- 6.1.1 The *Contractor* shall undertake the works in accordance with Design Manual for Roads and Bridges CS 229, Section 6 Invasive testing that includes Coring and Dynamic cone penetrometer.

1. Laboratory testing to be undertaken by organisations holding UKAS accreditation to ISO/IEC 17025:2005, General requirements for the competence of testing and calibration laboratories.
2. Core logs are to be extracted by core cutting method in accordance with BS EN 12697-27:2001 and BS EN 12504-1:2009 and to be documented in accordance with the requirements of the DMRB CS 229.
3. 150mm diameter coring of bituminous pavements at locations specified.
4. Reinstatement of extracted core holes with a cold laid asphalt reinstatement material. A cold applied bitumen emulsion spray is to be applied to existing surfaces to provide a bond to the reinstatement material. Compaction shall be achieved by placing material in layers no deeper than 200mm and utilising a heavy duty vibratory hammer with a 150mm compaction foot.
5. All collected core samples are to be tested for the presence of PAH by the spray application of PAK marker.
6. PAH testing to be undertaken on 1:10 samples that have been identified as having presence of tar by PAK marker.
7. Lab testing for surface course to determine needle penetration at 25°C in accordance with BS EN 1426:2015; and softening point, to be ring and ball method in accordance with BS EN 1427:2015, is to be undertaken from 1:10 samples collected from road cores with a hot rolled asphalt surface material only.
8. Lab testing for binder course material to determine needle penetration at 25°C in accordance with BS EN 1426:2015; and softening point, to be ring and ball method in accordance with BS EN 1427:2015, is to be undertaken from 1:10 samples
9. Lab testing to determine stiffness of binder course material to be ITSM (IT-CY) to BS EN 12697-26:2018.

10. Determination of Air Voids Content to be in accordance with BS EN 12697-8
11. Additional cores should be taken through potential structural defects as identified on site by the surveyor. Cores to be taken through the defect area and the sound area carriageway adjacent to the defect for reference. Defect photographs to be provided with the additional core.
12. All cold laid bituminous material for reinstatement to be BBA approved and hold current HAPAS certification and be approved for use on the Highways England Strategic Road Network.
13. Dynamic cone penetrometer testing is to be undertaken at a frequency of 1 in every 3 cores, within each route.
14. Determine of the foundation strength by dynamic cone penetrometer testing is to be undertaken and recorded as per the guidance laid out in CS 229
15. Road coring is to be suspended over structures to avoid damage to waterproofing layer. The Contractor should ascertain of the location of all structures prior to commencement of coring activity. Highways England shall provide the OSGR location of all structures within the extent of works to the TS Contractor.
16. Coring and DCP on highway pavements must always be carried out in accordance with Health and Safety legislation and with appropriate traffic management in accordance with the Traffic Signs Manual Chapter 8.
17. Refer to the table below for Coring spacing.
18. Lab testing schedule is subject to change following collection of cores and condition of samples. Actual requirement to be agreed by Client in conjunction with the testing lab.

Drawing Number	Location	Core Spacing (m)
Appendix A – OH Plan (1)	A696 Kenton Bar – Prestwick Roundabout	100
Appendix A – OH Plan (2)	A1 Highfields – Scottish Border	100
Appendix A – OH Plan (3)	A66 Sedbury Layby - Footpath	Through defects – to be determined on site
Appendix A – OH Plan (4)	A1 West Cawledge – Denwick	100
Appendix A – OH Plan (5)	A1 South Charlton – North Charlton	100
Appendix A – OH Plan (6)	A1 Scremerston – Oxford	100
Appendix A – OH Plan (7)	A1M J60-61	100
Appendix A – OH Plan (8)	A66 Little Burdon – Long Newton	100
Appendix A – OH Plan (9)	A66 Long Newton – Elton	100
Appendix A – OH Plan (10)	A19 Fisher Lane - Moor Farm	100
Appendix A – OH Plan (11)	A1 Fairmoore – Warreners House	Carriageway – 50 Slip – 20
Appendix A – OH Plan (12)	A1 Burgham – West Moor	100

Appendix A – OH Plan (13)	A19 Holystone – Killingworth	100
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