

SECTION 25

PRESENTATION OF SURVEY DATA AND INFORMATION

Delivery of results

- 1** The original records of observations, computations and adjustment, shall be supplied bound and indexed.

Two sets of final results shall be supplied in robust ring binders containing:

- (i) Horizontal and vertical control net diagrams,
- (ii) Abstracts of unadjusted and adjusted observations (eg height differences between bench marks),
- (iii) Lists of P.G.M.s, photopoints, Ordnance Survey control stations and bench marks used, with final National Grid and true grid co-ordinates and heights based on Ordnance Survey Newlyn datum together with the transformation factor, to allow transformation of true grid to Ordnance Survey co-ordinates,
- (iv) Designations of all P.G.M.s with location map, description, type of mark, photograph and instructions for gaining access if not on public access.
- (v) Photo control results including diapositives, control prints and lists and descriptions of plan and height control points with run/exposure number of pricked aerial photograph.
- (vi) An ASCII Moss Genio Data file on a 1/4" magnetic tape containing true co-ordinates and height of all control stations, traverse stations and Ordnance Survey control stations.

(25.001)

Technical report on horizontal and vertical control

- 2** A concise technical report shall be provided as part of the final delivery of control results containing the following:
- (i) A copy of the Contract Specification with any variations or agreed amendments,
 - (ii) Horizontal and vertical control net diagrams (A3 size) showing connections to existing stations and bench marks and summaries of closures and residuals after adjustment,
 - (iii) A description of the methods, equipment and staff employed on the project,
 - (iv) Confirmation of the survey accuracy required and achieved,
 - (v) A summary of the planned and actual programme of work and delivery schedule,
 - (vi) Abstracts of unadjusted and adjusted observations (eg height differences between bench marks),

- (vii) Description of the method of adjustment of the horizontal and vertical net with rejected values, residuals etc,
- (viii) A quality management report describing the procedures used to test the accuracy, completeness and reliability of data and the results of tests,
- (ix) Comments on the specification and results and recommendations for future work.

A draft of the report shall be submitted for comment and amendment by the Employer's Representative and two copies of the final report shall be provided, one bound and one unbound.

(25.002)

**Digital mapping
for site verification**

- 3** Interpretative skills shall be used to complete detail features which are partly obscured or fully obscured for short distances, using the unreliable feature codes and dashed lines.

Features such as running rails, cess lines and railway boundaries which are required for mapping shall be continued through the Site as continuous strings.

The plans shall be plotted at 1:500 for site verification by Railtrack.

A paper plot from the actual data shall be provided with all survey files for comment or acceptance.

(25.003)

**Digital data
drawings**

- 4** All topographic mapping data shall be supplied to Railtrack as three dimensional strings. Each string within the system will have a unique label associated with it as a means of identification.

The standard string identification as specified in Clause 25.008 shall be used.

The digital data shall be supplied as an AutoCAD 12 drawing file or in compatible DXF data transfer format and as three dimensional strings in Moss Genio format suitable for entry to Railtrack's Moss system in accordance with Table 25/1.

Table 25/1 System Information	
System name	Moss
Data Interchange Format	Genio
Make of Computer	IBM RS6000
Exchange Data	Magnetic tape ¼" cartridge or 3½" diskette
Code	ASCII

The data will be considered as delivered once the information contained on the cartridge or diskette has been successfully loaded on to the Railtrack system and verified correct.

Files shall be provided on high density double sided 3.5 inch diskettes, to MS-DOS format or compatible. Two copies of the diskette shall be supplied free from computer viruses.

All information is to be at "real scale" (the plan should form the base scale for the whole drawing if different scales are used in the finished plot). Real grid co-ordinates shall be used for all survey drawings.

Dimensions and levels shall be stated in metres to three decimal places or in millimetres for dimensions less than 10.0 metres.

The survey shall be contoured at one metre intervals.

With respect to AutoCAD, the work shall be in a layered format to enable the following features to be shown separately using the designated layer names:

O-TITLE	title block
O-LEVELS	elevations
O-WATER	electrical services
O-GAS	gas service
O-TELEPHONE	telephone services
O-RAILWAY	railways
O-DRAIN	drains
O-SEWERS	sewers
O-POWERHV	power high voltage
O-POWERLV	power low voltage
O-ROADS	roads
O-EMBANKS	embankments
O-TREES	trees
O-FENCES	fences
O-MARKERS	markers
O-STREETFURN	street furniture
O-TEXT	general text
O-TOPO	general topography, boundaries and surface features
O-CONMAIN	main contours
O-CONTINT	intermediate contours

Text relating to the survey layers above shall be placed on that particular layer. Only general text not related to any of the layers above shall be placed on the layer O-TEXT.

All AutoCAD layers shall be "colour by layer" and "line type by layer". The colour RED shall be used for all text. The text size on the finished plot shall be 2.5 mm high, style ISO.

AutoCAD profile drawings shall be as follows:

LAYER	DESCRIPTION
W-18ISO	all text 1.8 mm
W-25ISO	all text 2.5 mm
W-35ISO	all text 3.5 mm
W-50ISO	all text 5.0 mm
W-35BOX	the profile box outline

AutoCAD pen size are to relate to colours as follows:

Pen size 0.25 mm	White or Red
Pen size 0.35 mm	Magenta or Yellow
Pen size 0.50 mm	Green or Brown
Pen size 0.70 mm	Blue or Cyan

(25.004)

**Presentation of
detail**

5 The digital data supplied shall be externally marked with a label showing:

- (i) Originator,
- (ii) Date,
- (iii) Computer,
- (iv) Operating system name and version,
- (v) Utility used to write on to medium,
- (vi) Density,
- (vii) Block size,
- (viii) Record size,
- (ix) Code,
- (x) File name.

A paper plot shall accompany the digital data showing all the detail contained in the file.

Digital mapping shall be compiled with two strips on each sheet, approximately 0.5 km per string with London to the /left. /right./

The trackwork survey shall be split into models, covering sections of the surveyed route not more than 2 km in length to ensure convenient transfer of data and economical working. Permanent ground marker Ordnance Survey control stations and bench marks shall be shown on the final drawings and recorded in the digital data by symbols with numbers.

Co-ordinates shall not be shown on the plan. Height values shall be shown.

All survey data shall be supplied as true grid co-ordinates based upon co-ordinates related to the Ordnance Survey National Grid.

The true grid shall be plotted at 100 metre intervals. String identification shall be in accordance with Clauses 25.007 and 25.008.

(25.005)

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