

**MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS**  
**VOLUME 2 NOTES FOR GUIDANCE ON THE SPECIFICATION FOR HIGHWAY WORKS**

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**SERIES NG 2600**  
**MISCELLANEOUS**

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**Contents**

Clause	Title	Page
NG 2601	Bedding Mortar	2
NG 2602	Concrete for Ancillary Purposes	2
NG 2606	Cored Thermoplastic Node Markers	3
NG	Sample Appendices	A1

# MISCELLANEOUS

## NG 2601 Bedding Mortar

### General

1 Great importance is attached to the material having flow characteristics sufficient for it to occupy all the spaces between base plates and the surrounding sub-strata completely including around all holding down bolts. The Specification for Highway Works does not cover non-flowing mortars or dry pack mortars.

Where a higher strength is required, this should be specified in Appendix 26/2. Materials with higher strengths may be more temperature sensitive and variable.

Mortar test cubes required in connection with early loading should be cured under conditions which simulate as far as possible those of the mortar in the Works.

### Materials

- 2 (i) The minimum thickness of bedding mortar should be 10 mm and the maximum thickness without reinforcement should be 30 mm. This will allow sufficient space to enable filling yet reduce creep and shrinkage effects. The nominal thickness, with tolerances, should be shown on the Drawings.
- (ii) A purpose-made portable insulated store, equipped with thermostatically controlled heaters would be suitable for complying with sub-Clause 2601.2(ii)(a). It may be convenient to include provision for storage of the mixing water at 20°C.

### Site Mixing, Placing and Curing

- 3 (i) It is common practice to add the dry material to the water in the mixer. If the material does not flow correctly the addition of extra water or dry mortar to the sample is not permissible. In order to control the amount of water accurately it is good practice to use a proprietary graduated container. A bucket with a mark is not suitable.
- (ii) Where permanent shims are used underneath base plates to align or support parapet posts etc. they should take the form of either central

packers or slotted washers placed around the shanks of the holding down bolts. Packers and washers should be made of materials which will not corrode. Adequate bedding cover should also be provided to the packers and washers to ensure that they are fully protected from the weather and any road and traffic contaminants. Packers and washers should be compatible with the materials used in the base plates or bolts.

- (iii) Addition of mortar may be required to form a finished plinth. Voids may occur under the base plate if this operation is carried out incorrectly.
- (iv) The quantity of mortar in the plinth extending beyond the base plate should be kept to a minimum to reduce cracking. Forming of large plinths to support two or more base plates is not recommended.

### Approval Tests

- 4 (i) It is important that the various temperatures required in the flow tests are accurately maintained within the tolerances specified. The testing laboratory appointed should be able to demonstrate that it has the facilities for accurate cold testing.
- (ii) Where different methods of placing the mortar are proposed, eg. pumping, or where the geometry of the base plate is significantly different from that shown on HCD Drawing No. K2, then the glass plate test, specified in sub-Clause 2601.4(iii), should be modified to take account of the differences.

### Batch Acceptance Tests

5 The tests on Site should be conducted by a competent person. Proof of ability to carry out the flow cone test method consistently may be checked by trials using water.

## NG 2602 Concrete for Ancillary Purposes

1 (11/03) Concrete mixes complying with Clause 2602 will normally be suitable for the purposes described in Table 26/1 and need not be shown on the Drawings for these purposes. Standardised prescribed concretes from

BS EN 206-1 and BS 8500 may also be suitable for other purposes and should be called up on Drawings where necessary. Sub-Clause 1 of Clause 2602 makes it unnecessary to do more than show “ST4 concrete” (for example) on the Drawings.

**2** (11/03) Where additional requirements are necessary, for example the use of sulfate-resisting cement in ground containing sulfates (see sub-Clause 1704.2), or resistance to alkali-silica reaction, these requirements should be specified in Appendix 26/1. Air entrainment will not normally be necessary but if it is required, this should also be specified in Appendix 26/1. Alkali-silica reaction will not normally be a risk because cement contents are comparatively low but in some areas where aggregates are known to be highly reactive, it may be necessary to state in Appendix 26/1 that ancillary concrete is to comply with sub-Clause 1704.5 for ST4 and ST5 concretes.

**3** (11/03) Foundations for traffic sign supports, lighting columns, CCTV masts, cantilever masts and safety fence anchors including foundations requiring technical approval, should where necessary be structural concrete complying with the Series 1700 and be shown on the Drawings accordingly.

## NG 2606 Cored Thermoplastic Node Markers

### Node Markers

**1** (11/03) Node markers should be installed at all CHART nodes, link and section ends. The position of the CHART nodes should be in accordance with Trunk Road Maintenance Manual Volume 1 in England and the Welsh Assembly Government (NAW) Trunk Road Management and Maintenance Notice 2/86 in Wales. For works in Scotland reference should be made to the Scottish Executive (SE) and in Northern Ireland reference should be made to the documents designated by the Overseeing Organisation. Where node markers have previously been installed the re-established markers shall be installed in accordance with the existing site record and this should be provided in Appendix 26/3. On new roads or altered roads where the CHART referencing is to change the CHART network and the location of new CHART nodes, link and section ends must be agreed between the designer, the Overseeing Organisation and its Network Maintainers and the Overseeing Organisation's Maintenance Agent. The location of the node markers should then be indicated in Appendix 26/3. The location must be given both longitudinally and transversely.

### Site Records

**2** (11/03) On completion of the installation of a node marker a record form should be prepared in accordance with Trunk Road Maintenance Manual Volume 1. This form must contain sufficient information to enable the node markers to be restored after resurfacing to the tolerances in sub-Clause 2606.2 (i).

**3** The site records for the completed node markers should only use references to permanent features. Where features to which existing node markers are referenced are to be removed during the Contract other suitable references for the re-establishment of the node markers must be provided in Appendix 26/3.

## NG SAMPLE APPENDIX 26/1: ANCILLARY CONCRETE

*[Note to compiler: Special requirements for Ancillary Concrete, eg. sulfate-resisting cement, etc. should be listed here. Also to distinguish different mix designs, mix references should be listed here but differentiated from those for structural concrete in Appendix 17/1]*

## NG SAMPLE APPENDIX 26/2: BEDDING MORTAR

*[Note to compiler: Include here:]*

1. Compressive strength requirements. *[Where different from 2601.1(i)]*
2. Locations at which permanent metal shims are acceptable *[2601.3(v)]*.
3. Early loading requirements *[For bridge bearings, cross-reference should be made to Appendix 21/1].*

## NG SAMPLE APPENDIX 26/3: CORED THERMOPLASTIC NODE MARKERS

*[Note to compiler: Include here:]*

1. Locations of node markers *[2606.1]*
2. Copies of existing site records
3. References for the re-establishment of existing node markers