Highway Structures Design Criteria (2026)

Contents

1. Abbreviations and Definitions 1
2. Introduction 2
3. Definition of Highway-Related Structures 3
   3.1 General Definition 3
   3.2 Structures Requiring Technical Approval 3
   3.3 Typical Highway Structures 3
4. Design Requirements 4
   4.1 Standards and Codes 4
5. Competency Requirements 4
6. Technical Approval Procedure 4
   6.1 Overview of Approval Stages 5
7. Supervision and Testing Requirements 6
8. Fees and Commuted Sums 6
9. Failure to Comply 6
10. Technical approval Flowchart 7
11. Design Criteria for Structures 8

1. Abbreviations and Definitions

Abbreviation	Full Term	Description
AIP	Approval in Principle	Formal document setting out design standards and key design parameters for a highway structure.
AIP/TAS	Approval in Principle / Technical Approval Schedule	Combined documentation forming the basis of technical approval.
BMP/JPG	Bitmap / JPEG	Required formats for digital photographs submitted at completion.

DMRB	Design Manual for Roads and Bridges	UK-wide standards for the design of highways and highway structures.
DfT	Department for Transport	Central government body responsible for transport policy and standards.
GA	General Arrangement Drawing	Drawing showing key layout, dimensions, and form of the proposed structure.
HA	Highways Act 1980	Primary legislation governing highways, structures, agreements and licences.
MCHW	Manual of Contract Documents for Highway Works	National specification for highway construction works.
NGSHW	Notes for Guidance on the Specification for Highway Works	Volume 2 guidance on the application of the highway specification.
NRSWA	New Roads and Street Works Act	Governs statutory undertakers' works in the highway.

2. Introduction

This Design Guide sets out the requirements for the design, approval, construction, supervision and adoption of **highway-related structures**. It consolidates the requirements of:

- The *Specification for Highway Works* (SHW), Volumes 1 and 2 of the *Manual of Contract Documents for Highway Works* (MCHW)
- The *Design Manual for Roads and Bridges* (DMRB), including CG 300 *Technical Approval of Highway Structures and CD 350 The Design of Highway Structures*
- Local authority requirements, specifications, and standard drawings.

Where local authority specifications or standard drawings differ from the SHW, **the authority's documents take precedence**.

All structures associated with the highway—whether to be adopted or not—must follow this Design Guide.

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3. Definition of Highway-Related Structures

3.1 General Definition

A *highway related structure* includes:

- Any structure built **in, under, over or adjacent** to the highway.
- Any structure supporting the highway.
- Any retaining wall or structure built within **3.65 m** of the highway boundary or where the **retained height is 1.37 m or more** (under S167 Highways Act 1980).

Highway includes carriageway, footway, footpaths and verges.

3.2 Structures Requiring Technical Approval

Technical Approval is required for the following:

A. Structures with a span ≥ 1.0 m, including:

- Bridges and footbridges
- Culverts (pipe or box)
- Tunnels and subways
- Chambers, shafts, cellars
- Manholes and large drainage structures (diameter or span > 900 mm)

B. Retaining Walls

- Walls retaining **1.37 m or more** of fill.

C. Miscellaneous Highway Structures

Including, but not limited to:

- Reinforced earth or soil embankments ≥ 1.37 m where slope > internal friction angle
- High-mast lighting columns ≥ 20 m
- Structural elements of sign and signal gantries (DMRB definition)
- Structural elements of traffic signal mast-arm assemblies

3.3 Typical Highway Structures

Examples include:

- Bridges
- Tunnels and subways
- Retaining walls (reinforced soil, crib wall, anchored earth, reinforced brickwork, etc.)

- Corrugated steel buried structures
- Environmental barriers (noise barriers, fencing)
- Drains, culverts, and sewers with a diameter or span > 900 mm

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4. Design Requirements

4.1 Standards and Codes

All structures must be designed and constructed in accordance with:

- The SHW and Notes for Guidance
- Relevant DMRB standards
- Relevant British Standards, Eurocodes, and Technical Memoranda
- Local authority specifications and standard drawings

If standard drawings do not cover the proposal, **scheme-specific drawings** must be submitted.

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5. Competency Requirements

- All design and construction oversight must be carried out by a **Chartered Civil or Structural Engineer** experienced in highway structures and **approved by the authority**.
- The developer must appoint an **independent consultant** (not the contractor) for site supervision.

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6. Technical Approval Procedure

The Council is the **Technical Approval Authority (TAA)** for all highway structures within its jurisdiction, except those owned by Railtrack or National Highways (motorways and trunk roads).

Technical Approval applies **to all promoters**, including:

- Developers
- Private companies
- Other councils
- Transport authorities

- Utility providers (including NRSWA undertakers)

6.1 Overview of Approval Stages

1. **Early Liaison**
    - Designers must contact the TAA early to confirm requirements and obtain blank AIP/TAS forms.
2. **Approval in Principle (AIP) Submission** A formal AIP submission must include:
    - Location plan
    - General arrangement drawing
    - Soil investigation (factual + interpretive)
    - Completed AIP and TAS
      No design work should begin until the TAA accepts the AIP.
3. **Design and Independent Check**
    - Once design is completed, the designer and checker must submit signed **Design** and **Check Certificates** confirming compliance with agreed standards.
4. **Maintenance Audit**
    - The TAA reviews maintainability and safety implications before construction approval.
5. **Legal Agreements & Consents** Where applicable:
    - Section 38 / 278 Agreements
    - S167, S169, S176 or S177 Highways Act licences or consents
      Licences are issued **only after** AIP and Design Certificates are accepted.
6. **Construction Approval** Construction cannot begin until:
    - Legal agreements are signed
    - TAA-endorsed Design and Check Certificates received
    - Supervision programme approved
    - Developer has notified the TAA of start/finish dates
7. **Construction Supervision**
    - Supervision is the developer's responsibility.
    - TAA may audit at any time.
8. **Completion and Adoption** The designer must supply:
    - As-built drawings (preferably digital PDFs)
    - Design calculations (if not previously submitted)

    - Inspection and testing certificates
    - Digital photographs (JPG/BMP)
    - Maintenance manuals
    - Construction Compliance Certificate

Structures will not be adopted until documentation is complete and accepted.

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7. Supervision and Testing Requirements

Before construction:

- A detailed **Programme of Supervision** must be agreed with the TAA.
- The programme must set out:
    - Levels and frequency of supervision
    - Materials testing proposals

During construction:

- TAA will conduct periodic audits.
- Developer must keep TAA informed of progress.

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8. Fees and Commuted Sums

- **Design checking and inspection fees** are charged at actual cost. An estimate will be provided early.
- A **commuted sum** for future maintenance is required for any structure to be adopted by the Council.

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9. Failure to Comply

Failure to:

- follow the approved design
- submit required evidence
- meet supervision requirements

may result in the **Council refusing to adopt the structure**.

10. Technical approval Flowchart

Highway Structures Technical Approval Process

Early Liaison with TAA
Confirm requirements and obtain Approval in Principle (AIP) and Technical Approval Schedule (TAS) templates.

Approval in Principle (AIP) Submission
Submit location plan, General Arrangement drawing, ground investigation reports, and completed AIP and TAS.

TAA Review and Acceptance of AIP
Technical Approval Authority reviews submission and requests revisions if necessary.

Detailed Design and Independent Check
Designer completes detailed design and an independent checker undertakes formal checking.

Design and Check Certificates
Signed Design and Check Certificates submitted confirming compliance with the approved AIP.

Maintenance Audit
TAA undertakes maintenance audit focusing on inspection access, safety and long-term maintainability.

Legal Agreements and Consents
Section 38 / 278 Agreements and Highways Act licences (S167, S169, S176, S177) obtained as required.

Construction Approval
Supervision arrangements agreed, certificates endorsed and start dates formally notified.

Construction Phase
Works constructed under approved supervision with TAA permitted access for audit inspections.

Completion and Construction Compliance
Construction Compliance Certificate issued with as-built drawings, test certificates and photographs.

Final Adoption
TAA endorses documentation and approves structure for adoption where applicable.

11. Design Criteria for Structures

1. The Developer shall provide a plan showing the position of the structure in relation to the highway boundary.

2. Any structure within 3.65 metres of the highway boundary, will need to be notified to the structures team, (this should also include PROW Public Rights of Way).

3. Existing and finished ground levels are to be shown at the structures position.

4. A ground investigation for the structures design and an interpretative report to be supplied in all cases.

5. The approval process for the design of the structure is to be to the Highways England (formerly Highways Agency) Design Manual for Roads and Bridges CG 300 Technical Approval of Highway Structures and CD350 The Design of Highway Structures.

6. The cost of processing each Approval In Principal (AIP) will be minimum of £3,500.00 payable on submission of each AIP, based upon the complexity /size of the structure

7. The design is to be in accordance with the Highways England (formerly Highways Agency) Design Manual for Roads and Bridges.

8. The specification is to be the Highways Agency Manual of Contract Documents for Highway Works Volume 1.

9. The design calculations are to be made by a qualified Civil/Structural Engineer.

10. The check calculations are to be made by a different qualified Civil/Structural Engineer. (dependent upon Category)

11. The Bridges Section of the Environment Department of Wigan Council will be the Technical Approval Authority.

12. A copy of the design calculations and the check calculations are to be supplied to Wigan Council. (these will not be checked, but are for our records)

13. Two full sets of construction drawings, specification and CDM Safety Plan/File are to be supplied to Wigan Council (electronically in AutoCAD).

14. The name of the CDM Principal Designer is to be notified to Wigan Council.

15. The quality control aspects of the construction of the work will be supervised and approved by the Bridges Section of the Environment Department of Wigan Council (for structures to be adopted).

16. A set of the as-built drawings is to be supplied to Wigan Council on completion of the construction.

17. The structure(s) are to be mentioned in the agreement as adopted or not adopted as appropriate.

18. Any structure that is to be adopted will be subject to a commuted sum, payable by the developer

19. A permanent right of access is to be granted to Wigan Council for a minimum width of 3 metres around the structure (for structures to be adopted).

20. Trees and shrubs shall not be planted within 3 metres of the structure. Trees that are likely to cause damage to the structure or it's foundation shall not be used within 5 metres of the structure.

21. Where underpasses are constructed to enable equestrians to cross below a road or railway, the minimum recommended height is 3.7m and a width of 5 metres.

22. For any further information on the procedure please contact the Bridges Section Adrian Worthington tel. No. 01942 489281.