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Transport Infrastructure Ireland

## TII Publications



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# Technical Acceptance of Road Structures on Motorways and Other National Roads

**DN-STR-03001**  
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## About TII

Transport Infrastructure Ireland (TII) is responsible for managing and improving the country's national road and light rail networks.

## About TII Publications

TII maintains an online suite of technical publications, which is managed through the TII Publications website. The contents of TII Publications is clearly split into 'Standards' and 'Technical' documentation. All documentation for implementation on TII schemes is collectively referred to as TII Publications (Standards), and all other documentation within the system is collectively referred to as TII Publications (Technical). This system replaces the NRA Design Manual for Roads and Bridges (NRA DMRB) and the NRA Manual of Contract Documents for Road Works (NRA MCDRW).

## Document Attributes

Each document within TII Publications has a range of attributes associated with it, which allows for efficient access and retrieval of the document from the website. These attributes are also contained on the inside cover of each current document, for reference. For migration of documents from the NRA and RPA to the new system, each current document was assigned with new outer front and rear covers. Apart from the covers, and inside cover pages, the documents contain the same information as previously within the NRA or RPA systems, including historical references such as those contained within NRA DMRB and NRA MCDRW.

## Document Attributes

<b>TII Publication Title</b>	<i>Technical Acceptance of Road Structures on Motorways and Other National Roads</i>
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## NRA DMRB and MCDRW References

For all documents that existed within the NRA DMRB or the NRA MCDRW prior to the launch of TII Publications, the NRA document reference used previously is listed above under 'historical reference'. The TII Publication Number also shown above now supersedes this historical reference. All historical references within this document are deemed to be replaced by the TII Publication Number. For the equivalent TII Publication Number for all other historical references contained within this document, please refer to the TII Publications website.

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**Volume 1 Section 1  
Part 1A**



**NRA BD 02/09**

**Technical Acceptance of Structures  
on  
Motorways and Other National Roads**

**January 2009**



**Part 1A**

**NRA BD 2/09**

**TECHNICAL ACCEPTANCE  
OF STRUCTURES ON MOTORWAYS  
AND OTHER NATIONAL ROADS**

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# 1. INTRODUCTION

## Scope

1.1 This Standard specifies the procedures to be followed in order to obtain Technical Acceptance for structures on motorway and other national road schemes, and for the submission of as built records. The procedures cover the design of all road structures, including bridges, tunnels, subways, culverts, buried corrugated steel structures, retaining walls, reinforced earth structures, gantries, environmental noise barriers and temporary structures under or over motorways or other roads carrying public traffic.

The Technical Acceptance requirements, if any, for the assessment, alteration, modification, strengthening and repair of all road structures affected by national road schemes shall be agreed with the Bridge Management Section of the National Roads Authority (NRA).

1.2 This Standard supersedes NRA BD 2/01 dated June 2001.

## Implementation

1.3 The procedures described in this Standard shall be applied to the design of all structures constructed as part of a national road scheme and meeting any of the following criteria:

- (a) Bridges, tunnels, culverts etc. with a clear span or internal diameter greater than 2.0m;
- (b) Retaining structures with over 1.5m design retained height;
- (c) Environmental Noise Barriers of any height
- (d) Sign gantries extending over trafficable areas;
- (e) All alternative designs and temporary structures under or over or adjacent to a motorway or other national road carrying public traffic that fall within the coverage of items (a)-(d) above;
- (f) Other structure types designated by the NRA.
- (g) Temporary works (see Chapter 5).

1.4 The procedures shall also be applied to structures on non-national roads which are required as part of a national road project.

1.5 Depending on specific circumstances the procedures described in this standard may also be appropriate to any of the following structures when located on or adjacent to a national road: -  
catenary lighting systems,  
high masts for lighting and/or cameras,  
pipe bridges,  
inspection gantries.

The application of the procedures for these structures should be agreed with the structures section of the NRA at the earliest opportunity in a project.

1.6 The structures section of the NRA should be consulted with regard to any other structures not covered by the above to ascertain whether they fall within the scope of these procedures.

1.7 If this Standard is to be used for the design of local and regional road schemes, the Designer should agree with the relevant Road Authority the extent to which the document is appropriate in any particular situation.

1.8 The procedures detailed in this Standard are mandatory. Any deviation from these procedures requires the approval of a Departure from Standards.

1.9 This Standard shall be used forthwith for all schemes for the construction and/or improvement of national roads. The Standard should be applied to the design of schemes already being prepared unless, in the opinion of the National Roads Authority, application would result in significant additional expense or delay progress. In such cases the Designer should confirm the application of this Standard to particular schemes with the National Roads Authority.

## Definitions

1.10 Particular terms used in this Standard are defined as follows:

**Road Authority (RA):** - For the purposes of this Standard only, Road Authority shall mean:

- (i) For national road schemes, both the National Roads Authority and the Local Authority responsible for the roads and bridges
- (ii) For non national road schemes, the Local Authority.

**Employer:** - The Road Authority procuring the works.

**Structures Inspector:**- For national road schemes the Structures Inspector shall mean the National Roads Authority Structures Inspector responsible for the scheme. For non national road schemes the Structures Inspector shall mean the individual nominated by the Road Authority.

**Designer:** - The organisation or firm responsible for the design of a structure at any particular point in time during a project from inception until the structure is passed to/back to the Bridge Management Organisation.

**Contractor:** – The organisation or firm contracted by the Employer for the construction of a structure. In the case of Contractor Designed schemes or elements (D&B, ECI, PPP, Contractor Designed Structures, Contractor’s Alternatives, etc), the Contractor is also the Designer. Contractor also refers to the firm who may be tendering for the construction work.

**Checker:** – The organisation or firm responsible for the check.

**Design Team:** – The group of engineers responsible for the design or assessment.

**Checking Team:** – The group of engineers responsible for the check.

**Project Supervisor Design Process:** - The Project supervisor for the design process as required in the Safety, Health and Welfare At Work (Construction) Regulations.

**Bridge Management Organisation:** - The organisation responsible for the ongoing operation and maintenance of the structure on completion of the Defects/Maintenance Period defined in the construction contract.

**Technical Acceptance:** – Acceptance of the Technical Acceptance Report issued by the Structures Inspector on behalf of the Road Authority (as recorded on form STA-5).

**Technical Acceptance Process:** – Compliance with the submission requirements as scheduled in Table 2.1 leading to Technical Acceptance, and subsequent Design and Check certification (STA 6 or 7), as-built records and hand over of the structure to the Bridge Management Organisation.

**Contractor’s Proposals for Structures:** – proposals for structures where the Contractor is responsible for both the design and construction.

**Structure Category:** – The classification of a structure, dependent on structural complexity and/or cost, which determines the form of check to be applied and the Certificate to be presented.

**Certificate:** – A document titled ‘Design Certificate for Structures’ or ‘Design Certificate for Temporary Works’ with undertakings and conditions confirming that the design or assessment complies with the agreed standards and cost limitations and that the design including relevant drawings have been checked. It is signed by the design engineer, the checking engineer and others as appropriate.

## 2. PROJECT PHASING AND PROCUREMENT

### General

2.1 The development of a national road scheme typically progresses through seven phases:-

1. Overall Project Planning.
2. Constraint's Study.
3. Route Selection.
4. Preliminary Design / Land Acquisition Procedures.
5. Contract Document Preparation / Tender / Award ( or detailed design stage for Early Contractor involvement).
6. Scheme Construction.
7. Final Account / Close out.

NRA approvals are required at various of the above stages. These approvals are both technical and project management. The relationship between the above scheme phases and the Technical Acceptance Process defined in this Standard will vary depending on the particular procurement process selected. The relationships between the overall road scheme phases and the Technical Acceptance Process for structures, together with the associated structures related deliverables are scheduled in Table 2/1.

The intention is that the RA and their designated Structures Inspector will have an input into the development of the structures on any road scheme from route selection stage through Technical Acceptance prior to the commencement of detailed design and be kept fully informed as the scheme progresses thereafter. This is illustrated in Figure 2/1 overleaf and expanded upon in Table 2/1.

2.2 The Technical Acceptance Process must be followed for all Structures regardless of the nature of the contractual arrangements between the various parties. The effect of the contractual environment is to change the circumstances in which the Designer operates and to change the relationships between the various parties. There may be several designers involved in a project prior to hand over to the RA.

2.3 The following sections describe the procedures required as a result of different contractual environments. It should be noted that the terms 'Contractor Designed Structures' and

'Contractor's Alternatives' have different meanings. The former is in accordance with Series 2500 in the Specification for Road Works while the latter means an alternative to a structure which has been fully designed and detailed by the Employer's Designer.

### Works Designed by the Employer at both Preliminary and Detailed Design Stage

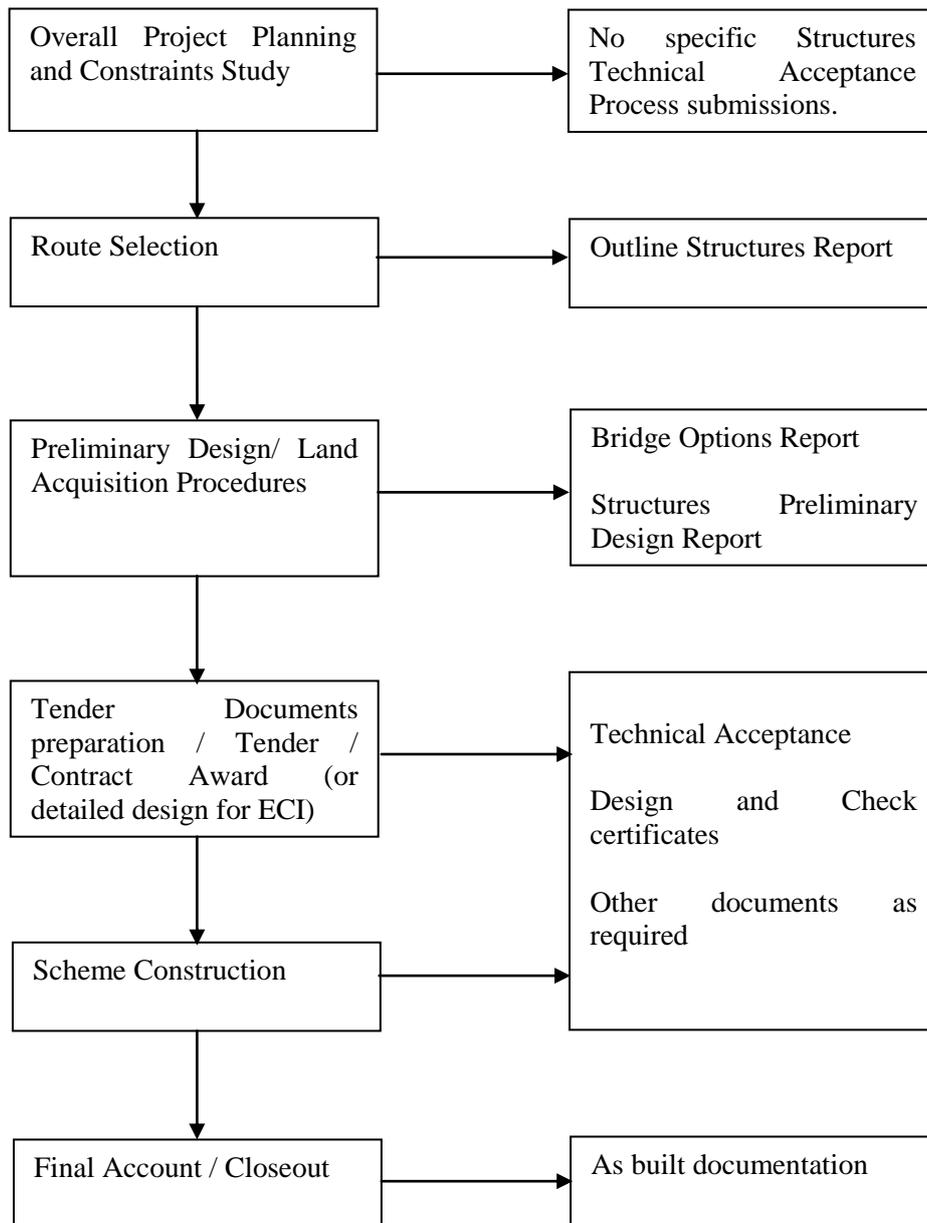
2.4 In a contract where the works have been fully designed by the Employer, the RA employs the Designer to prepare designs for structures and to prepare construction drawings and contract documents. In addition it is common that the same Designer will act as the Employer's Representative for the construction contract. In these circumstances the submission of the STA 6 Certificates signed by the Designer and Checker should include all the relevant tender documents in addition to the technical information.

### Contractor Designed Structures included in Projects where the majority of the Works have been fully designed by the Employer

2.5 In contracts where the majority of the Works have been fully designed by the Employer, it is common to designate certain minor structures to be designed by the Contractor. The purpose of this arrangement is to take advantage of the cost savings resulting from competition among manufacturers of proprietary and standard structures. The Contractor may also opt to provide these structures using conventional construction techniques rather than using proprietary or standard structures.

2.6 Contractor designed structures included within contracts where the majority of the works have been fully designed by the Employer are limited to the following types:

- (a) Category 0 structures
- (b) Category 1 structures where:
  - Spans are 10m or less.
  - The Contractor provides the whole structure
  - Soil structure interaction requires no special structural or geotechnical expertise.



**Figure 2/1**  
**Technical Approval Process Flowchart**

2.7 The Designer of any of the above shall submit a Technical Acceptance Report in accordance with Clause 3.10.

2.8 Prior to tender the Employer's Designer should take account of the Contractor's future inputs in the preparation of the Technical Acceptance Report for Category 1 structures.

2.9 For Category 1 structures it is the intention that the Contractor supplements the Technical Acceptance Report prepared by the Employer's Designer so that it becomes a comprehensive document as outlined in Paragraph 3.10.

2.10 The Contractor shall supplement and seek approval for any modifications to the Technical Acceptance Report and will provide the required Certificates when the design is complete. The Employer or his nominated Representative shall ensure that the Technical Acceptance Procedures are implemented.

#### **Contractor's Alternatives in Contracts for which the Works have been fully designed by the Employer**

2.11 In a contract where the Works have been fully designed by the Employer the Contractor may be permitted to provide an alternative design for a structure as part of the tender. The Contractor's alternative submission for consideration by the Employer should follow the procedures set out in Paragraphs 2.16 to 2.24. These procedures and the contract responsibilities of the Parties may be amended by the Instructions to Tenderers in order to suit the actual contract. Where an alternative is permitted after tender then a similar procedure may be followed.

2.12 The Contractor shall provide a Technical Acceptance Report in accordance with clause 3.10 and will provide the required Certificates when the design is complete. The Employer or his nominated Representative shall ensure that the Technical Acceptance Procedures are implemented.

#### **Schemes designed by the Contractor at both Preliminary and Detailed Design (Early Contractor Involvement)**

2.13 For schemes procured by means of an Early Contractor Involvement strategy the Contractor has the responsibility to achieve compliance with all aspects of Technical Acceptance and Certification as scheduled in Table 2/1 and in accordance with the requirements of the Contract.

#### **Schemes designed by the Employer at Preliminary Design Stage followed by Detailed Design by the Contractor (Design and Build, Private Public Partnership and Target Cost Contracts)**

2.14 For schemes procured by means of a Design & Build (D&B), Design, Build, Finance & Operate (DBFO) / Private Public Partnership (PPP) or Target Cost strategy, the procedures described in the sections 2.16 to 2.24 shall apply.

2.15 In D&B / Target Cost schemes, the Contractor is the organisation responsible for the design, construction and in certain cases maintenance of the scheme. In DBFO/PPP, the Concession Company has these responsibilities. The term 'Contractor' covers both circumstances. Prior to tender, the Employer's Designer shall submit structures deliverables as scheduled in Table 2/1 in accordance with Chapter 3. Relevant extracts from the Tender Documents and information pack shall be submitted to the Structures Inspector for approval at least 4 weeks prior to issue for tender. This shall include the approved Preliminary Design Reports to be included in the information pack.

#### **Contractor's Proposals for Structures**

2.16 Following issue of tender documents the Tendering Contractor shall submit documentation in accordance with this document and as defined in the Instructions for Tenderers.

2.17 During the tender period it is usual for the tenderers to be required to consult with the Employer with respect to their developing conceptual design proposals. This consultation may be via a series of meetings or otherwise, as defined in the Instructions to Tenderers.

2.18 As part of the consultations process the Contractor shall provide details of his developing conceptual design proposals for structures in accordance with the Instructions to Tenderers.

2.19 Following receipt of any structures design proposals for consultation the Employer or his nominated Representative shall review the submitted proposals and liaise with the Structures Inspector to provide appropriate comments and feedback to the tenderers.

2.20 At the completion of the consultation process the Contractor's outline consolidated proposals shall be capable of development to a detailed design that satisfies the requirements set out by the Tender Documents.

2.21 Following award of the Contract, the Contractor shall prepare the Structures Technical Acceptance Reports as scheduled in Table 2/1 in accordance with Chapter 3. Should the Contractor at this stage modify or amend his conceptual design, he shall submit revised details to the Employer in accordance with any Change Procedure contained within the Contract. The Contractor shall also submit a revised Technical Acceptance Report. The submissions shall provide details of his new proposals together with reasons and justification for the proposed changes. The Employer shall not be bound to accept any new proposals, modifications or amendments.

2.22 On completion of detailed design and checking of each structure, the Contractor shall provide the Employer with copies of the appropriate Certificates (STA6) as required in Paragraph 3.26.

### **Compliance with Procedures**

2.23 Where the Contractor carries out the design of structures under any of the contract arrangements described above or in any other contract arrangement, the Employer or his nominated Representative must put in place an auditing system to ensure that the Technical Acceptance Procedures are implemented.

2.24 Where reports, designs, drawings and specifications are prepared by a Contractor for construction, the Contractor shall ensure that the procedures described in this document have been adopted and that all documents used for construction have been subject to the agreed review procedure.

### **Other Approvals**

2.25 Bridges and structures constructed on National Roads must comply with other NRA approval requirements. While not part of the Technical Acceptance Procedure it is worth noting them here for consistency.

### **NRA Approval of Contract Documents**

2.26 Approval is required for the Contract Documents. The submission to the NRA shall be as scheduled in Table 2/1.

### **NRA Approval of the Tender Report**

2.27 Following submissions of tenders the Employer or his nominated Representative will prepare a report on the tenders received. This will normally include a recommendation to appoint a particular Contractor. NRA Approval is required before the contract can be placed. The submission should include:-

- (a) The Tender Report;
- (b) The form 'Structures Information Database' (STA-3), updated with the tender price.

### **NRA Approval of the Final Account**

2.28 Following construction the Employer or his nominated Representative will prepare a Final Account Report. The submission for approval should include:

- (a) The Final Account Report;
- (b) The form 'Structures Information Database' (STA-3), updated with the final account breakdown and total as well as a summary of final quantities.

Table 2/1

Project Phase	Deliverable	Technical Acceptance of Structures Deliverables		
		Employer Designed at both Preliminary and Detailed Design Stage	Contractor Designed at both Preliminary and Detailed Design Stage	Employer Designed at Preliminary Design Stage followed by Detailed Design by the Construction Contractor
1. Overall Project Planning	Identification of need	Reports and studies required to feed into the overall planning aspects of the project, including, where appropriate, reports for existing structures, particular geotechnical aspects which may affect structures, particular aesthetic requirements etc.		
2. Constraint's Study	Constraints Study Report. Identification of all constraints affecting all aspects of the project.			
3. Route Selection	Route Selection Report – identification of the most feasible route.	For the Preferred Route the Designer shall submit a structures report which shall include Layout Plans showing the location of each bridge structure with a unique reference and a schedule which identifies the route, chainage, structure reference and description of the anticipated structure type. If a requirement for a 'landmark' structure(s) has been identified during the Route Selection process justification shall be provided and agreement sought from the Structures Inspector.	For the Preferred Route the Contractor shall submit a structures report which shall include Layout Plans showing the location of each bridge structure with a unique reference and a schedule which identifies the route, chainage, structure reference and a description of the anticipated structure type. If a requirement for a 'landmark' structure(s) has been identified during the Route Selection process justification shall be provided and agreement sought from the Structures Inspector.	For the Preferred Route the Employer's Designer shall submit a structures report which shall include Layout Plans showing the location of each bridge structure with a unique reference and a schedule which identifies the route, chainage, structure reference and a description of the anticipated structure type. If a requirement for a 'landmark' structure(s) has been identified during the Route Selection process justification shall be provided and agreement sought from the Structures Inspector.
4. Preliminary Design / Land Acquisition Procedures	<ul style="list-style-type: none"> <li>• Preliminary Design Report</li> <li>• Environmental Impact Statement</li> <li>• Land Acquisition maps and documents</li> <li>• Updated Cost Estimate</li> </ul>	<ul style="list-style-type: none"> <li>• The Designer shall submit Options Reports in accordance with Paragraph 3.8.</li> <li>• The Designer shall submit Preliminary Design Reports in accordance with Paragraph 3.9 (see Note (i)).</li> </ul>	<ul style="list-style-type: none"> <li>• The Contractor shall submit Options Reports in accordance with Paragraph 3.8.</li> <li>• The Contractor shall submit Preliminary Design Reports in accordance with Paragraph 3.9 (see Note (i)).</li> </ul>	<ul style="list-style-type: none"> <li>• The Employer's Designer shall submit Bridge Options Reports in accordance with Paragraph 3.8.</li> <li>• The Employer's Designer shall submit Preliminary Design Reports in accordance with Paragraph 3.9. (see Note (i)).</li> </ul>

Table 2/1 contd.

Project Phase	Deliverable	Technical Acceptance of Structures Deliverables		
		Employer Designed at both Preliminary and Detailed Design Stage	Contractor Designed at both Preliminary and Detailed Design Stage	Employer Designed at Preliminary Design Stage followed by Detailed Design by the Construction Contractor
5. Tender Documents Preparation / Tender / Award (or detailed design stage for Early Contractor Involvement)	<ul style="list-style-type: none"> <li>Tender Documents</li> <li>Tender Report</li> </ul>	<ul style="list-style-type: none"> <li>The Designer shall submit Technical Acceptance Reports for each structure to the Structures Inspector in accordance with Paragraph 3.10 (see Note (i)).</li> <li>STA-5 Technical Acceptance is required prior to commencing Detailed Design.</li> <li>Approvals Issue of Tender Documents to be submitted to the Structures Inspector not less than 4 weeks prior to tender.</li> <li>If required revised approvals issue of Tender Documents should be issued until accepted.</li> <li>Signed STA 6 Form to be submitted prior to award of Contract.</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor shall submit Technical Acceptance Reports for each structure to the Employer or his nominated Representative in accordance with Paragraph 3.10 (see Note (i)).</li> <li>The Technical Acceptance Report shall be reviewed by the Employer or his nominated Representative and forwarded to the Structures Inspector together with the Employer's Representative's commentary. If on agreement with the Structures Inspector it is deemed that the Technical Acceptance Report does not meet the requirements of this document, the Technical Acceptance Report shall be rejected and the Contractor shall submit a revised Technical Acceptance Report for approval.</li> <li>STA-5 Technical Acceptance is required prior to commencing Detailed Design.</li> </ul>	<ul style="list-style-type: none"> <li>The Employer's Designer shall forward relevant extracts from the Tender Documents and information room data relating to structures to the Structures Inspector for approval at least 4 weeks prior to Tender. This shall include the approved Preliminary Design Reports in accordance with Paragraph 3.9.</li> <li>If required revised approvals issue of Tender Documents should be issued until accepted.</li> <li>The Tenderer shall submit Consolidated Outline Proposals required in accordance with the Instructions to Tenderers. The Employer's Designer shall forward the Consolidated Outline Proposals to the Structures Inspector together with their commentary in time for the Structures Inspector to review and comment on the proposals prior to the designated date for response to the tenderers.</li> </ul>

Table 2/1 contd.

Project Phase	Deliverable	Technical Acceptance of Structures Deliverables		
		Employer Designed at both Preliminary and Detailed Design Stage	Contractor Designed at both Preliminary and Detailed Design Stage	Employer Designed at Preliminary Design Stage followed by Detailed Design by the Construction Contractor
6. Scheme construction	Construction Phase of Project	<ul style="list-style-type: none"> <li>The Designer shall prepare Construction Issue Drawings, Specifications and Bar Bending Schedules for each structure and provide copies to both the Contractor and the Structures Inspector.</li> <li>The Designer shall compile and submit on an ongoing basis during construction a Schedule of Construction Related Revisions to the Technical Acceptance Report with technical justification for approval, as required.</li> <li>The Contractor shall submit details of Contractor Designed Structures and Alternative Designs in accordance with the requirements of Chapter 2.</li> <li>Signed STA7 Forms for temporary works in accordance with Chapter 4.</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor shall submit relevant detailed design documents (Drawings, Specification Appendices, Bending Schedules etc.) relating to structures to the Employer or his nominated Representative in accordance with the certification procedures defined in the contract.</li> <li>Signed STA 6 Forms to be submitted once all elements of the structure have been designed, checked and certified under the Contract.</li> <li>The Contractor shall compile and submit on an ongoing basis during construction a Schedule of Construction Related Revisions to the Technical Acceptance Report with technical justification for approval, as required.</li> <li>Signed STA7 Forms for temporary works in accordance with Chapter 4.</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor shall submit a Technical Acceptance Report for each structure to the Employer or his nominated representative in accordance with Paragraph 3.10.</li> <li>The Technical Acceptance Report shall be reviewed by the Employer or his nominated Representative and forwarded to the Structures Inspector together with the Employers Representative's comments. If on agreement with the Structures Inspector it is deemed that the Technical Acceptance Report does not meet the requirements of this document the Technical Acceptance Report shall be rejected and the Contractor shall submit a revised Technical Acceptance Report for approval.</li> <li>STA-5 Technical Acceptance is required prior to commencing Detailed Design.</li> <li>The Contractor shall submit relevant Detailed Design documents (Drawings, Specification Appendices, Bending Schedules etc.) relating to structures to the Employer or his nominated Representative in accordance with the certification procedures defined in the contract.</li> <li>Signed STA 6 Forms to be submitted once all elements of the structure have been designed, checked and certified under the Contract.</li> <li>The Contractor shall compile and submit on an ongoing basis during construction a Schedule of Construction Related Revisions to the Technical Acceptance Report with technical justification for approval, as required.</li> <li>Signed STA7 Forms for temporary works in accordance with Chapter 4.</li> </ul>

Table 2/1 contd.

Project Phase	Deliverable	Technical Acceptance of Structures Deliverables		
		Employer Designed at both Preliminary and Detailed Design Stage	Contractor Designed at both Preliminary and Detailed Design Stage	Employer Designed at Preliminary Design Stage followed by Detailed Design by the Construction Contractor
7. Final Account / Closeout	Completed Scheme	<ul style="list-style-type: none"> <li>The Designer/Contractor shall submit As-Built records and reports in accordance with paragraph 3.34.</li> <li>On completion of the defects/maintenance period and correction of all defects, the Designer shall inform the NRA Bridge Management Section that the structure is complete (see paragraph 3.35).</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor shall submit As-Built records and reports in accordance with paragraph 3.34.</li> <li>On completion of the defects/maintenance period and correction of all defects, the Designer shall inform the NRA Bridge Management Section that the structure is complete (see paragraph 3.35).</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor shall submit As-Built records and reports in accordance with paragraph 3.34.</li> <li>On completion of the defects/maintenance period and correction of all defects, the Designer shall inform the NRA Bridge Management Section that the structure is complete (see paragraph 3.35).</li> </ul>

**Notes**

- (i) Where agreed by the National Roads Authority Structures Inspector for the scheme, it is acceptable to incorporate the Preliminary Design Report into the Technical Acceptance Report for each structure and apply for Technical Acceptance during the Preliminary Design phase of the road scheme.

## 3. TECHNICAL ACCEPTANCE

### General

3.1 The procedures for achieving Technical Acceptance are required for all structures as defined in Paragraph 1.3.

The purpose of the Technical Acceptance stage is to enable the RA to be satisfied as to: -

- (a) Compliance with the NRA scheme approvals.
- (b) The economy of the type and form of structure proposed within the overall scheme concept.
- (c) Its suitability for the environment and sub-soil conditions.
- (d) Its appearance, including the standards of finish to be adopted.
- (e) The adequacy of proposals for geotechnical and other investigations.
- (f) The loading and other design and durability criteria proposed.
- (g) The suitability of the design method(s) proposed for use in the final design.
- (h) The application of selected documents and Standards, and the suitability of any methods or criteria outside existing Codes or Standards proposed for adoption in a particular structure.
- (i) The need for consultation with interested authorities and compliance with statutory requirements.
- (j) Constructability issues in the context of the environment, traffic management, services, utilities and timing issues of related work.
- (k) The provision made for the inspection and maintenance of the structure both in the context of the structure itself and the environment in which it will function.
- (l) In the case of temporary works, the adequacy of the proposal and design approach to enable the temporary structure to perform its intended purpose (see Chapter 4).

Technical Acceptance shall not be given until the Designer and RA are satisfied that all foreseeable aspects have been covered and any differences resolved. Technical Acceptance may be made conditional on specific requirements being

addressed during the progress of the detailed design

3.2 Technical Acceptance is a continuing process and the period required for consideration will vary according to the size and complexity of the structure and the items falling outside current design standards. The Structures Inspector may agree certain aspects in outline as the consideration of the proposals proceed prior to formal submission for Technical Acceptance. One or two presentations using visual aids, together with discussions, have been found to be a useful method of progressing expeditiously to formal submission for Technical Acceptance. Such presentations may deal with some or all of the structures in a road scheme.

### Design Development

3.3 Designers shall liaise as early as possible with the Structures Inspector prior to making formal submissions. In the course of design development the Designer shall prepare the reports scheduled in Table 2/1 and as described in Paragraph 3.8 to 3.10. During this liaison the Structure Category shall be proposed and agreed.

### Classification of Structures

3.4 All road infrastructure structures shall be classified into one of the following broad categories. The decision of the Structures Inspector as to the appropriate classification for any particular structure shall be binding.

**Category 0** - Minor structures, which conform in all respects to current NRA Standards.

Individual structures for which all aspects of design and construction are covered by NRA Standards may be classified as Category 0 provided they are: -

- (a) single span of under 10m and statically determinate for all load cases;
- (b) buried structures less than 3m clear span/diameter, or

- (c) multicell buried structures where the cumulative span is less than 5m, having more than 1m cover.
- (d) Environmental noise barriers up to 3.0m in height.

**Category 1** - Simple structures which can be analysed by static methods and where all aspects of design are in accordance with current NRA Standards. Category 1 structures include simple structures, which contain no departures from, or aspects not covered by, current NRA Standards and which are: -

- (a) single simply supported spans less than 20m with less than 30° skew;
- (b) buried concrete box type structures with less than 7.5m span,
- (c) corrugated steel buried structures,
- (d) retaining walls with a retained height of less than 7m;
- (e) sign gantries;
- (f) Environmental noise barriers greater than 3.0m in height.

**Category 2** - Intermediate structures which have redundant features and may contain departures from, or aspects not covered by, current NRA Standards. Category 2 structures include intermediate Structures: i.e. all those not within the parameters of categories 0, 1 & 3

**Category 3** - Complex structures, which require sophisticated analysis of highly redundant features, and where consequences of failure would be severe. Category 3 structures include complex structures with any one of the following features: high redundancy, unconventional design aspects, any span exceeding 50m, skew exceeding 45°, difficult foundation problems, tunnels, structures with M&E installation i.e. moveable bridges.

### Registration of Minor Structures (Category 0)

3.5 Technical Acceptance of Structures classified as Category 0 is based on registration of each structure and a combined Minor Structures Report for all Minor structures contained within the road scheme. The Registration shall include:-

- (a) The form 'Application for Technical Acceptance for Structures', (STA-2). One form is sufficient for all 'minor' structures on a road scheme (Appendix C);

- (b) One copy of a 'Minor Structures Report' briefly describing each structure, where possible in a single paragraph, and a general arrangement drawing of each structure;
- (c) The form 'Structures Information Database' (STA-3) completed for each structure.

3.6 The forms STA-2 (Appendix C) and STA3 (Appendix D) must accompany the report and be bound into the report after the cover. The Application form (STA-2) must be signed by the Project Supervisor Design Process to demonstrate that the structure has been taken into account in accordance with the requirements of the Safety, Health and Welfare at Work (Construction) Regulations.

3.7 Technical Acceptance of the Minor Structures Report is recorded on form STA-5.

### Options Report

3.8 The Options Report shall be submitted to the Structures Inspector during the Preliminary Design phase of the road scheme, or before, and shall describe the options considered for each structure or family of structures on the scheme, with the exception of Category 0 structures. A minimum of 3 options shall be considered for each structure or family of structures unless otherwise agreed by the Structures Inspector. A family of structures shall have a similar structural and articulation arrangement.

The information required in the Options Report will vary and is unique for each structure or family of structures, however, a model for a Options Report is given in Appendix A.

### Preliminary Design Report

3.9 The Preliminary Design Report shall be submitted to the Structures Inspector during the Preliminary Design phase of the road scheme and shall describe the recommended option for each structure or family of structures, with the exception of Category 0 structures. However, if a single report is provided for a family of structures certain structure specific information is required. This is described in Appendix B. A family of structures shall have a similar structural and articulation arrangement.

The information required in the Preliminary Design Report will vary and is unique for each structure, however, a model for a Preliminary design Report is given in Appendix B. Innovative or landmark structures may require further studies, investigation and/or specialist reports in addition to the Preliminary Design Reports and specific requirements in this regard should be agreed with the Structures Inspector.

### Technical Acceptance Report

3.10 The Technical Acceptance Report shall be submitted during the appropriate phase of the road scheme as scheduled in Table 2/1 and shall describe the recommended option for each structure. The information required for the Technical Acceptance Report will vary and is unique for each structure; however, a model for a Technical Acceptance Report, which should be suitable for the majority of new structures, is given in Appendix C. This is a comprehensive document drawn up to cover the design of new bridges; some of the information requested may not be applicable to certain structural arrangements or other purposes, e.g. temporary works. The report should only contain information pertinent to the particular structure. Irrelevant information should not be included. Notwithstanding, the Structures Inspector may ask for additional information before Technical Acceptance can be granted.

### Relevant Documents and Standards

3.11 The Technical Acceptance Report shall contain a list of relevant documents and Standards. The list must set out the name of the actual document to be used together with the relevant date or version number. It is not sufficient to quote standards by general references, e.g. to the NRA DMRB or equivalent. The list may be compiled from the following sources: -

- (a) Relevant Irish Standards where there is a substitute for a European or British Standard;
- (b) NRA Standards;
- (c) The latest editions of the NRA Design Manual for Roads and Bridges (NRA DMRB);
- (d) The latest relevant European and British Standards.

3.12 The latest revision of a relevant document or standard shall be that at the date of the Technical Acceptance Report, or its subsequent amendment or endorsement. Where it is considered necessary to provide revisions and there are cost or programme implications, then approval should be sought from the NRA by using an addendum to the Technical Acceptance Report.

### Application for Technical Acceptance

3.13 The Application for Technical Acceptance shall be made on form STA-2.

### Technical Acceptance

3.14 The Structures Inspector will issue the Technical Acceptance (STA5) when satisfied in accordance with Paragraph 3.1 above. The Technical Acceptance may be conditional on the Designer addressing specific requirements in the course of the detailed design.

Together with the Technical Acceptance the Structures Inspector will issue a blank Certificate (STA6) which must be completed and returned when the design has been completed and checked.

3.15 Technical Acceptance is valid for four years after the acceptance date. If a structure has not commenced construction within this period, the RA shall review it and decide whether or not updating or any other amendment in the design is required. The RA's decision on a resubmission will be recorded as a revision to the original Technical Acceptance and will then be sent to the Designer.

3.16 Where Technical Acceptance has been granted prior to the receipt of statutory approvals a further review of the Technical Acceptance must be completed following receipt of such. The Designer will review the Technical Acceptance Report to ensure consistency with the Statutory Approvals and make any modifications that may be required. All modifications will require approval by the Structures Inspector and if approved will be recorded as a revision to the original Technical Acceptance.

## Detailed Design

3.17 The design must comply with the Technical Acceptance Report. Should any variations or additions prove necessary during the detailed design, these must be agreed with the Structures Inspector before they are implemented. Such variations must be recorded on an addendum/revision to the Technical Acceptance.

3.18 The Designer shall be responsible for the applicability and accuracy of all computer programs used and shall also ensure the validity of the program for each application.

3.19 Where a structure has been placed in Category 0 or 1, and a need arises subsequently to depart from current standards, the Category will be changed to 2, unless the Structures Inspector considers, when agreeing the departure, that a change of category is unnecessary. The change of category shall be recorded in the appropriate Technical Acceptance Report and the design supported by the appropriate Certificate. Any previous Minor Structures or Category 1 Technical Acceptance shall be endorsed as superseded.

## Checking

3.20 Design documentation including Technical Acceptance Reports, Drawings, Schedules, Specification, Contract Documents etc. shall be checked as follows: -

- (a) Categories 0 and 1 will require a check by another Engineer within the Design Team;
- (b) Category 2 will require a check by a Checking Team, which may be from the same office or firm but must be independent of the Design Team;
- (c) Category 3 will require a check to be carried out by a Checking Team from a separate organisation, proposed by the Designer and agreed by the RA, having knowledge and experience relating to the type of structure it is to examine.

3.21 Although the form and detail of the check is for the Checker to decide, his analytical work shall be independent of that of the Designer and carried out without reference to the Designer's calculations. The Designer must make the Checker aware of the design assumptions and details of any approved deviations to the design.

The Designer shall not give calculation sheets to the Checker.

3.22 Independence between the Design Team and the Checking Team must be maintained, and although the methods of analysis they employ need not be the same, they should consult each other to ensure that the results they are obtaining are directly comparable.

3.23 The Checker shall carry out a comprehensive examination of all aspects of the design and any proposed Departure, including amended Specification clauses that affect structural integrity.

3.24 The Checker shall draw the attention of the Designer and Structures Inspector to any aspect of the agreed Technical Acceptance Report where changes are considered necessary.

3.25 The Checker shall be responsible for the applicability and accuracy of all computer programs used in the check and shall ensure the validity of the programs for each application.

## Certification

3.26 When the design and check of each structure have been completed, the following shall be sent to the Structures Inspector:-

- (a) The appropriate Certificates (STA6) (Appendix E) filled in and signed by the Designer and Checker where appropriate. They shall be sent by the Designer, with original signatures, for acceptance and, if appropriate, endorsement. The certificate shall reference the final approved Technical Acceptance Report, recording all Departures and aspects not covered by Standards;
- (b) The form 'Structures Information Database' (STA-3).

3.27 The signatories submitting the Certificate must clearly indicate their name and office. Signatures are required from the team leader responsible for the design and independent check and the Principal in charge of the organisation or firm which is responsible for the design and independent check, either of whom may delegate this responsibility for Category 0 and 1 structures.

3.28 Any proposed substitute, additional or cancelled specification clauses relating to

structures which require endorsement by the RA must be sent to the Structures Inspector prior to submission of the Certificates, together with notes fully explaining the reasons for Specification variations. Endorsement will be recorded on the Certificates.

3.29 The persons who sign as Team Leader for design and check on Certificates must be Chartered Civil or Structural Engineers (or equivalent) with appropriate experience.

3.30 The Structures Inspector will acknowledge the Certificate(s) (STA6) and return a copy to the Designer.

### Health and Safety Requirements

3.31 The Designer shall inform the Employer of any alterations to design or construction arising from Risk Assessments, Health and Safety requirements, Safety Audits or any other cause related to Health and Safety. The Employer shall liaise with the Structures Inspector to decide on the appropriate procedure for dealing with any such changes that would require amendment of the Technical Acceptance or the Certificates.

### Amendments during Construction

3.32 It is the responsibility of the Designer to inform the Employer of any amendments to the design during construction which have structural or durability implications. All such amendments shall be included in an addendum to the Technical Acceptance and be shown on As-Built documentation.

3.33 Additionally, where the proposed erection procedure induces different stresses in the completed structure from those anticipated in the design, design checks shall be undertaken and revised Certificates submitted and accepted by the Employer or his nominated Representative before erection commences.

### Completion of Construction

3.34 On completion of construction the Designer/Contractor shall submit to the Employer or his nominated Representative one electronic copy of As-Built records and reports in

accordance with the Contract, which shall include inter alia the following :

- Section 1: Technical Acceptance Report.
- Section 2: As-built Drawings including Fabrication Drawings.
- Section 3: Specification by reference plus Appendices.
- Section 4: Datasheets – one for each proprietary item (including but not limited to bearings, joints, waterproofing, parapets, coatings).
- Section 5: Testing – summary report of testing undertaken and details of any failures or non-conformances.
- Section 6: Ground Investigation Report, and any other relevant technical report,
- Section 7: extracts from H&S file relating to maintenance of the structure.
- Section 8: Details of PSCS, PSDP and Contractor.
- Section 9: Progress Photos – with labelled photos.
- Section 10: Schedule of relevant Operation and Maintenance issues for each structure. This shall include structure description, schedule of elements, inspection procedures (including description and frequency), maintenance procedures (including description and frequency) and means of access. Where similar issues arise on multiple structures i.e. time of maintenance of paint, design life for joint, these may be scheduled.
- Section 11: Copies of the Signed STA6 and STA7 Forms.

The Employer's Representative shall confirm compliance with the contract before forwarding the above to the Structures Inspector.

3.35 On completion of the defects/maintenance period and correction of all defects, the Designer shall inform the NRA Bridge Management Section that the structure is complete. A Principal Inspection shall then be carried out and details of the structure shall be entered in the Bridge Management System database.

## 4. TEMPORARY WORKS

### Introduction

4.1 This Chapter describes the requirements for temporary works including temporary structures. These requirements are in addition to any particular contract requirements.

### Scope

4.2 The procedures described in this Chapter shall apply without limitation to the following temporary structures:

- (a) Temporary works and falsework.
- (b) Proposals where erection procedure, method of construction or the procedure for the demolition or removal of an existing structure is of critical importance to the overall stability of a structure.

### Types of Temporary Works

4.3 All Temporary Works Submissions shall define the proposed works by one of the following Types:-

- (a) **Type A:**  
Erection proposals or temporary works where the works would not affect or potentially affect any road or other way or area used by or accessible to the public.
- (b) **Type B**  
Erection proposals, temporary works including those over, under, alongside or otherwise affecting or potentially affecting any road or other way or area used by, or accessible, to the public.

4.4 Where necessary and depending on the degree of risk, the RA may require a Type A submission to be re-submitted as Type B.

### Structure Category of Temporary Works

4.5 The Structure Category applied to Temporary Works Proposals shall reflect the adverse consequences of any potential failure.

- (a) For Type A the Structure Category shall generally be the same as the associated permanent structure and shall be agreed with the NRA Structures Inspector responsible for the scheme.
- (b) For Type B the Structure Category shall generally be Category 2 or 3 and shall be agreed with the NRA Structures Inspector responsible for the scheme.

### Design Criteria relating to the interaction of Temporary and Permanent Works

4.6 Design criteria for temporary works shall include all relevant design data arising from the design and construction of the associated permanent works to ensure the protection and/or safe operation of the permanent work and any live public way during the temporary condition, including but not limited to: allowable deflections, settlements, rotations, loading, jacking forces, propping requirements, clearances, and/or impact protection, and all prescribed erection or demolition procedures assumed by the design of the permanent works. The Temporary Works design criteria shall also define all traffic management / diversion requirements, carriageway possessions etc.

### Submission Requirements for Temporary Works Proposals

4.7 Temporary Works Proposals shall be submitted to the Employer or his nominated Representative in accordance with the requirements of the Contract. The submission shall clearly define the extent and purpose of the proposed temporary works/erection proposals and construction staging. Proposals shall state the criteria that have been adopted to encompass the technical, operational and safety requirements of the authorities consulted and shall demonstrate to the satisfaction of the Employer that adequate safeguards and contingency measures have been introduced and will be maintained throughout the duration of the work.

4.8 For Type B Temporary works the above requirements shall be fully defined in a Technical

Acceptance Report relating to the proposed temporary works which shall be prepared and submitted in accordance with the requirements of Chapter 3 above.

4.9 Prior to the commencement of the relevant parts of the Works, a Design and check Certificate for Temporary Works STA-7 Type A and STA-7 Type B in the form given in Appendix F, (Type A or Type B as appropriate) shall be submitted to the Employer or his nominated Representative, who shall copy these to the Structures Inspector. The certificate shall be recorded and kept with the Safety File and the As-Built records for the associated permanent structure.

4.10 The temporary works certificate is required to be signed by the Designer of the Temporary works and a Checker with the level of independence from the Temporary works Designer appropriate to the Structure Category.

## 5. ROLE OF THE ROAD AUTHORITY

5.1 The role of the Road Authority and their nominated Structures Inspector shall be to:-

- (a) examine proposals contained in the Structures Deliverables scheduled in Table 2/1 and when satisfied give approval to proceed to the next stage and ultimately grant Technical Acceptance.
- (b) agree the application of selected documents and Standards to particular structures and record any directives on principles to be followed in the detailed design.
- (c) determine and agree the Category of each structure.
- (d) be available for consultation by the Designer and to give advice on interpretations of Codes and Standards during the design stage.
- (e) consider at any stage proposals for additional criteria or for departures from relevant documents and Standards.
- (f) assist with the resolution of differences between the Design Team and Checking Team when necessary.
- (g) receive Certificates of compliance with the Technical Acceptance, signed by the Designer, Checker and others as appropriate, which will also record:-
  - (a) Departures from and aspects not covered by Codes and Standards;
  - (b) Directives issued by the NRA.

5.2 Neither the Road Authority or their nominated Structures Inspector will check the calculations nor their translation into design documentation other than to such limited extent as may be required for the purposes of Paragraph 5.1 above.



## 6. REFERENCES

6.1 The following documents are referred to in this Standard:

NRA Design Manual for Roads and Bridges

Safety, Health and Welfare at Work  
(Construction) Regulations



## 7. ENQUIRIES

7.1 All technical enquiries or comments on this Standard should be sent in writing to:

Head of Engineering Operations  
National Roads Authority  
St Martin's House  
Waterloo Road  
Dublin 4



.....

E O'CONNOR  
Head of Engineering Operations



# APPENDIX A – OPTIONS REPORT

## Instructions for Category 0 Structures

A.1 Category 0 structures do not require an Options Report.

## Instructions for Category 1, 2 & 3 Structures

A.2 This appendix illustrates the layout of the Options Report.

A.3 The accompanying model for an Options Report should not be regarded as prescriptive nor should its contents be regarded as exhaustive. However, Designers are expected to have considered all of the headings and demonstrate such consideration by developing the heading or stating that it is not relevant. New headings should be introduced at the end of each section if relevant.

A.4 Text should be concise and to the point.

A.5 Appendices should include A3 General Arrangement drawings, of the options considered and may be supplemented to include photographs, photomontages, third party reports etc.

## Reports

A.6 The reports should be in A4 format and portrait page layout. Drawings should be A4 or A3 size folded to A4 size and bound into the document.

## NRA Agreement

A.7 The Designer shall agree the recommended form of structure/family of structures with the Structures Inspector prior to commencing to Preliminary Design Stage.

## Options Report

### Name and Nature of Structure or Name and Nature of Family of Structures

1. Introduction
2. Site and Location
3. Description of Structure and Options Considered
4. Technical Evaluation
5. Economic Evaluation (including Construction and Whole Life Cost Estimates)
6. Aesthetic Evaluation
7. Evaluation of Maintenance Requirements
8. Hydraulic Considerations (where applicable)
9. Health & Safety Considerations
10. Construction and Buildability
11. Ground Conditions
12. Consultation with Relevant Authorities
13. Recommendations

Appendix 1 – Drawings (Drawings shall be adequately detailed to describe the options considered).



## **APPENDIX B – PRELIMINARY DESIGN REPORT**

### **Instructions for Category 0 Structures**

B.1 Category 0 structures do not require a Preliminary Design Report.

### **Instructions for Category 1, 2 & 3 Structures**

B.2 This appendix illustrates the layout of the Preliminary Design Report.

B.3 The accompanying model for a Preliminary Design Report should not be regarded as prescriptive nor should its contents be regarded as exhaustive. However, Designers are expected to have considered all the headings in the model and should demonstrate such consideration by developing the heading or stating that it is not relevant. New headings should be introduced at the end of each section if relevant.

B.4 Text should be concise and to the point.

B.5 Appendices should include relevant drawings, information that may be supplemented include photographs, photomontages, Third Party Reports and geotechnical information.

### **Reports**

B.6 The reports should be in A4 format and portrait page layout. Drawings should be A3 size folded to A4 size and bound into the document.

### **NRA Agreement**

B.7 The Designer shall agree the proposed structural arrangements with the Structures Inspector prior to commencing the Technical Acceptance Report.

## Preliminary Design Report for Individual Structures or Family of Structures

### Name and Nature of Structure or Name and Nature of Family of Structures

#### Section 1.0 – Introduction

- 1.1 Instructions or brief given to the authors, including dates.
- 1.2 Background information covering the origins for the need for the structure.
- 1.3 Previous studies and their recommendations.

#### Section 2.0 – Site & Function

- 2.1 Site location (for each structure).
- 2.2 Function of the structure and obstacles crossed (for each structure).
- 2.3 Choice of location (for each structure).
- 2.4 Site description and topography (for each structure).
- 2.5 Vertical and horizontal alignments (for each structure).
- 2.6 Cross sectional dimensions on the alignments (for each structure).
- 2.7 Existing underground and overground services (for each structure).
- 2.8 Geotechnical summary (for each structure).
- 2.9 Hydrology and hydraulic summary (for each structure).
- 2.10 Archaeological summary (for each structure).
- 2.11 Environmental summary.
- 2.12 Sustainability.

#### Section 3.0 – Structure & Aesthetics

- 3.1 General description of recommended structure or family of structures.
- 3.2 Aesthetic considerations.
- 3.3 Proposals for the recommended structure or family of structures.
  - 3.3.1 Proposed Category
  - 3.3.2 Span arrangements (for each structure)
  - 3.3.3 Approaches including run-on arrangements
  - 3.3.4 Substructure
  - 3.3.5 Foundation type (for each structure).
  - 3.3.6 Superstructure
  - 3.3.7 Articulation arrangements, joints and bearings.
  - 3.3.8 Parapet (for each structure).
  - 3.3.9 Inspection and maintenance

#### Section 4.0 – Safety

- 4.1 Traffic management during construction including land for temporary diversions (for each structure).
- 4.2 Safety during construction
- 4.3 Safety in use
- 4.4 Lighting (for each structure).

#### Section 5.0 – Cost

- 5.1 Budget Estimate in current year, including whole life cost (for each structure).

#### Section 6.0 – Design Assessment Criteria

- 6.1 Normal Loading (for each structure).
- 6.2 Abnormal Loading (for each structure).
- 6.3 Footway or footbridge live loading (for each structure).
- 6.4 Provision for exceptional abnormal loads
- 6.5 Any special loading not covered above
- 6.6 Heavy or high load route requirements and arrangements being made to preserve route

- 6.7 Minimum headroom provided
- 6.8 Authorities consulted and any special conditions required.

Section 7.0 – Ground Conditions

- 7.1 Description of the ground conditions and compatibility with proposed foundation design (for each structure).

Section 8.0 – Drawings and Documents

- 8.1 List of all documents accompanying the submission

***For Tunnels the following additional headings shall be included in the Preliminary Report:***

**Section 2**

- *Tunnel details*

**Section 3**

- *Description of tunnel traffic and road geometry*
- *Accommodation of M&E services*
- *Emergency communication, escape facilities, fire points, cross passages*
- *Specific drainage details – ground water seepage, accidental spillage, water carried in by vehicles, fire main burst, tunnel washing.*
- *Articulation arrangements*

**Section 4**

- *Protection of tunnel roof*
- *Compliance with EU Road Tunnel Safety directive*

***For M&E installation in tunnels the following additional headings shall be included in the Preliminary Report:***

**Section 2**

- *Accommodation of M&E services in the tunnel*
- *Location of tunnel monitoring centre and maintenance building*
- *Location of tunnel services building*

**Section 3**

- *Environmental conditions within the Tunnel Plant Rooms and building*
- *Ventilation – including description, justification, design criteria, pollution and vehicle emission, fresh air requirements, ventilation system and fans, monitoring and control.*
- *M&E elements of drainage including; general description, design criteria, effluent standard, volumes to be handled, pumping equipment*
- *Fire safety*
- *Tunnel operation and plant control including; basis of tunnel operation, plant monitoring and control, data logger and transfer, plant inspection and maintenance*
- *Electrical power supply and distribution including; general description, design criteria, supply distribution, emergency arrangements, cabling.*

**Section 4**

- *Communications and traffic control including; general description, design criteria, traffic management, telephone system, emergency procedures, traffic signs, traffic monitoring*

*For M&E installation in moveable structures the following additional headings shall be included in the Preliminary Report:*

**Section 3**

- *Proposed mode of operation*
- *Location of operating and control mechanisms*
- *Electricity power supply and distribution*
- *Stand-by power facilities*
- *Communication systems*
- *Emergency works testing and site operating conditions*
- *Fail safe operating safety system*
- *Commissioning and handover*
- *Plant room*

**Appendices to Accompany the Preliminary Design Report**

Appendix 1 Photographs and photomontages

Appendix 2 Site Location for each structure, General Arrangement Drawings for each structure drawn to scale with border identifying the scheme, Employer, Designer and include inter alia the following details;

**Plan**

- North arrow
- Lands made available
- Existing topographical survey
- chainages
- Earthworks profile
- Plan dimension on carriageway(s) / watercourse / rail
- Skew angle
- Structure drainage
- Service ducts / chambers
- Lighting
- Limit and type of river bank protection
- Interface with existing structures
- Direction of flow for watercourses
- Articulation arrangement

**Long Section**

- Chainage line with levels
- Existing ground profile
- Paving details
- Slope protection
- Intermediate and end support details including dimensions
- Foundations including dimensions
- Rock profile / competent strata
- Access arrangements

- Safety barrier
- Interfaces with existing structures
- Span dimensions
- Water levels (2yr and 100 yr flood)
- Joint details

#### **Elevation**

- Existing ground profile
- Paving details
- Slope protection
- Access arrangements
- Lighting
- Safety barriers
- Interfaces with existing structures
- Clearance envelope
- Overall length
- Water levels (2yr and 100 yr flood)
- Road / rail under – camber, dimensions and level
- Watercourse cross section dimensions
- Parapets / pedestrian guardrail
- Earthworks profile

#### **Cross Section**

- Cross section dimension
- Camber
- Superstructure cross section
- Interface with existing structures
- Interface with intermediate supports
- Raised verge / footway details
- Services
- Parapet / pedestrian guardrail
- Surfacing and waterproofing
- Cantilever length (superstructure / sub-structure)

#### **Miscellaneous**

- Wingwall details including dimensions
- Approach arrangements including joint details
- Finishes
- Concrete / steel grades
- Waterproofing details
- Indicative location of proposed construction joints

Appendix 3 Relevant extracts from Factual Site Investigation Data

Appendix 4 Other Relevant Documentation / Reports



# APPENDIX C – TECHNICAL ACCEPTANCE REPORT

## Instructions for Category 0 Structures

C.1 Technical Acceptance of Structures classified as Category 0 is based on registration of each structure and a combined Minor Structures Report for all Minor structures contained within the road scheme. Technical Acceptance Reports are not required for Minor structures; however they are required to have Certificates. In order that they can be entered in a database for certification, they must be identified. This is achieved through registration using a single form (STA-2), the layout of which is illustrated overleaf. The form will accompany a report entitled 'Minor Structures Report' as described in Clauses 3.5 to 3.7. The form should be bound into the report inside the front cover.

## Instructions for Category 1, 2 & 3 Structures

C.2 This appendix illustrates the layout of the form (STA-2) 'Application for Technical Acceptance for Structures' and the accompanying Technical Acceptance Report. The application form should be bound into the report inside the front cover.

C.3 The accompanying model for a Technical Acceptance Report should not be regarded as prescriptive nor should its contents be regarded as exhaustive. However, Designers are expected to have considered all the headings in the model and should demonstrate such consideration by developing the heading or stating that it is not relevant. New headings should be introduced at the end of each section.

C.4 Text should be concise and to the point.

C.5 Appendices shall be used to include; STA 3 Form, photographs, photomontages, drawings, extracts from factual site investigation data, structure geotechnical summary sheets / extracts from geotechnical interpretative reports, third party reports, and lists of standards to be used. The appendices should include references to other reports, studies and working papers, which were used to develop the structure to the Technical Acceptance stage.

## Reports

C.6 The reports should be in A4 format and portrait page layout. Drawings should be A3, folded to A4 size and bound into the document.

C.7 The executive summaries should be not more than one A4 page. The body of the Preliminary Report between 1.0 and 11.0 should be contained in approximately ten A4 pages. The reports should be in 12-point font.

## Database and Forms

C.8 The information provided in the Technical Acceptance Report and the Registration of Minor Structures, as well as the Certificates, are held in a database by the NRA. The database is used for the Acceptance process and to collect statistical information about structures. Appendix D illustrates the form (STA-3) which must be completed and returned to the NRA as information becomes available, at the following stages:-

- (a) Technical Acceptance
- (b) Certificates
- (c) Approval of Contract Documents.
- (d) Tender Report

(e) Final Account

Cost information shall be provided at the relevant stages for Employer Designed Schemes and as agreed with the RA for Contractor Designed Schemes.

**Application for Technical Acceptance**

C.9 Application for Technical Acceptance for Categories 1, 2 and 3 structures shall include:

- (a) The form 'Application for Technical Acceptance (STA-2 completed).
- (b) One copy of the Technical Acceptance Report.
- (c) The form 'Structures Information Database (STA-3).

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**APPLICATION FOR TECHNICAL  
ACCEPTANCE FOR STRUCTURES\***

**STA-2**

**Categories 0,1, 2 & 3**

**Structure(s)**

Name and nature of the Structure(s) \_\_\_\_\_

Technical Acceptance/Minor Structures Report

Reference \_\_\_\_\_

Revision \_\_\_\_\_

Date \_\_\_ / \_\_\_ / \_\_\_

**Submitted by**

Signed \_\_\_\_\_

Name \_\_\_\_\_

Position \_\_\_\_\_ (Team Leader)

Organisation \_\_\_\_\_

Date \_\_\_ / \_\_\_ / \_\_\_

**Other Information** (signatures are not required)

Name of the Principal responsible  
for the Design Organisation: - \_\_\_\_\_

Name of the checking organisation: - \_\_\_\_\_

Name of the Principal responsible  
for the checking organisation: - \_\_\_\_\_

Name of the Team Leader responsible  
for the check:- \_\_\_\_\_

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\* This application should appear as the first page after the cover of the Technical Acceptance/Minor Structures Report.



## 1.0 Introduction

- 1.1 Instructions or brief given to the authors, including dates.
- 1.2 Background information covering the origins for the need for the structure.
- 1.3 Previous studies and their recommendations.
- 1.4 As required.

## 2.0 Site and Function

- 2.1 Site location. Described generally with reference to existing towns and roads. Location map at 1:50,000 or other agreed scale.
- 2.2 Function of the structure and obstacles crossed.
- 2.3 Choice of location.
- 2.4 Site description and topography.
- 2.5 Vertical and horizontal alignments  
*To include both mainline vertical and horizontal alignments and also minor road / railway / watercourse alignment as applicable. Curve radii and gradients to be provided along with design speeds.*
- 2.6 Cross sectional dimensions on the alignments.  
*To include both mainline and minor road / rail / watercourse cross sections as applicable.*
- 2.7 Existing underground and overground services and proposed services.
- 2.8 Geotechnical summary.  
*To identify site investigation data applicable to the structure along with the measured depths of the main strata and groundwater level.*
- 2.9 Hydrology and hydraulic summary.  
*Statement required clearly indicating whether the proposed structure will affect the local hydrology or have a hydraulic impact. If so, details of flood (i.e. levels / flows) events and the effects or impacts identified along with any mitigation measures shall be included.*
- 2.10 Archaeological summary  
*Statement required indicating whether any specific archaeological impacts arise due to the structure and any mitigation measures required.*
- 2.11 Environmental summary.  
*Statement required indicating whether any specific environmental impacts arise due to the structure and any mitigation measures required.*
- 2.12 Sustainability.
- 2.13 As required.

## 3.0 Structure and Aesthetics

- 3.1 General description of recommended structure.  
*Brief summary of number and length of spans, skew, articulation and materials.*

3.2 Aesthetic considerations.

*Summary of cantilever proportions, ratio of span lengths, ratio of deck depth to clearance underneath, setting out of parapet posts, construction joints, fascia joints and other relevant structure specific aesthetic considerations.*

3.3 Proposals for the recommended structure:

*Where proprietary products are included in the proposed structural arrangement this heading should include a clear statement that equivalent products to those specified from another EU country will be accepted subject to equivalence being demonstrated.*

3.3.1 Span arrangements.

3.3.2 Approaches including run-on arrangements.

3.3.3 Substructure.

3.3.4 Foundation type.

3.3.5 Superstructure.

3.3.6 Articulation arrangements, joints and bearings.

*Statement of whether the structure is fully integral or not and justification of the proposed articulation arrangement. Description of proposed bearings and movement joint, i.e. saw cut, buried joint, asphaltic plug joint, mechanical joint, etc.*

3.3.7 Parapet.

*Details of proposed parapet including material, containment level, working width, impact severity level, height and infill if appropriate. Details of transitions between safety barriers and parapets. Details of any other restraint system on the structure i.e. safety barrier, pedestrian protection, environmental barrier, etc.*

3.3.8 Waterproofing.

*Details of structure waterproofing including list of areas to receive proprietary waterproofing, all areas to receive below ground waterproofing and details of waterproofing systems.*

3.3.9 Drainage.

*Details of bridge deck drainage, deck subsurface drainage, back of wall drainage and inspection gallery drainage if required. Details of drained area, longitudinal fall and crossfall.*

3.3.10 Construction and buildability aspects.

*Identification of any issues relevant to the buildability of the structure.*

3.3.11 Inspection and maintenance.

*Describe future maintenance requirements for the structure and demonstrate how the structural arrangement minimises maintenance requirements and facilitates inspection and maintenance i.e. abutment gallery.*

3.3.12 Materials and finishes.

*Details of types of materials used in the structure including grades of steel and concrete for elements of the structure. Details of the concrete mix (i.e. ggbs). Details of finishes to steel and concrete including paint specifications, coating types, types of formed or unformed finishes to concrete.*

3.3.13 As required.

#### 4.0 Safety

- 4.1 Traffic management during construction. Authorities consulted. Proposals for assessment shall include proposals for access, traffic management and intrusive investigation.
- 4.2 Safety during construction – Health and Safety regulations, etc.
- 4.3 Safety in use – inspection and maintenance, impact, vandalism, etc.
- 4.4 Lighting – under, over, supply, fittings and fixtures.
- 4.5 Deck surface considerations – water disposal, freezing, different users, etc.
- 4.6 Damage – accidental, age, deterioration, etc.
- 4.7 As required

#### 5.0 Cost (Not required for Design and Build, Private Public Partnership or Target Cost Contracts)

- 5.1 Estimated Construction Cost - State the estimated cost of proposed structure with date of estimates. Whole life costs - Include the effects of traffic management and diversions required during future maintenance. For comparison purposes, the discounted cost for 50 years should be used using a discount rate of 5%. Costs should be exclusive of VAT, however summaries of Costs should show, the VAT exclusive cost, VAT and total cost.
- 5.2 Base Year - state the base year and the source of rates and unit costs used in the estimate.
- 5.3 As required.

#### 6.0 Design Assessment Criteria

- 6.1 Normal Loading.
- 6.2 Abnormal Loading.
- 6.3 Footway or footbridge live loading.
- 6.4 Provision for exceptional abnormal loads:
  - Gross weight ..... tonnes on vehicle No. ....
  - Axle load and spacing
  - Air cushion ..... tonnes over ...m x ...m
  - Location of vehicle track on deck cross section.
- 6.5 Any special loading not covered above.
- 6.6 Heavy or high load route requirements and arrangements being made to preserve route.
- 6.7 Minimum headroom provided .... m over ..... m under.
- 6.8 Authorities consulted and any special conditions required.
- 6.9 List of relevant documents and Standards (list here or refer to Appendix).
- 6.10 Proposed Departures from Standards.
- 6.11 Proposed methods of dealing with aspects not covered in Standards.
- 6.12 Proposed substitute or amended specification clauses.
- 6.13 As required.

## **7.0 Structural Analysis**

- 7.1 Methods of analysis proposed for superstructure, substructure and foundations. Details of staged construction, assumed Construction Sequence, description of the model proposed for the analysis.
- 7.2 Methods of analysis and design proposed for earth retaining systems.
- 7.3 As required.

## **8.0 Ground Conditions**

- 8.1 Acceptance of the interpretative recommendations of the soils report to be used in the design and reasons for any proposed departures.
- 8.2 Acceptance of the topographical survey.
- 8.3 Describe the proposals for the foundations and demonstrate the merits (technical and cost) for the adoption of a particular solution.
- 8.4 Differential settlement to be allowed for in the design of the structure.
- 8.5 Anticipated vertical or lateral ground movements or settlements due to embankment loading, mineral extraction, flowing water, etc. Measures proposed to deal with these effects as far as they apply to the structure.
- 8.6 Results of tests on ground water and any particular measures proposed.
- 8.7 As required.

## **9.0 Checking**

- 9.1 Proposed Category of structure.
- 9.2 Erection proposals or temporary works for which the Contractor will be required to arrange an independent check listing the parts of the structure affected with reasons for recommending the independent check. Temporary Works Design and Design Check Certificate.
- 9.3 As required.

## **10.0 Road Design**

- 10.1 Interface with the Road Designer. Demonstrate that there is full agreement between the road and bridge designers regarding alignments, traffic management, services, utilities, temporary works and the programming of works.
- 10.2 Separate construction of structures. Consider the construction, contractual and cost implications of the bridge works progressing as a separate contract before, after or concurrently with the road works. This may only be relevant if advantages have been identified in a procurement strategy previously agreed with the RA.
- 10.3 As required.

## **11.0 Drawings and Documents**

- 11.1 List of all documents accompanying the submission. All documents are to be bound into sets. Each set is to contain a revision history together with signatures from the author, Checker, etc. A list of drawing titles, numbers and revision designations must be included.

***For Tunnels the following additional headings shall be included in the Technical Acceptance Report:***

**Section 2**

- Tunnel details

**Section 3**

- Description of tunnel traffic and road geometry
- Accommodation of M&E services
- Emergency communication, escape facilities, fire points, cross passages
- Specific drainage details – ground water seepage, accidental spillage, water carried in by vehicles, fire main burst, tunnel washing.
- Articulation arrangements

**Section 4**

- Protection of tunnel roof
- Compliance with EU Road Tunnel Safety directive

**Section 12**

- Tunnel support system and method of construction
- Basis of the design of the tunnel support system for temporary and permanent conditions and any proposals for ground treatment.
- Demonstrate the proposed method of construction, i.e. excavation and application of ground support, will ensure the continued safe use of the road and prevent structural failure of the carriageway.
- Details of predicted tunnelling effects on adjoining structures and the carriageway; including maximum vertical settlement and trough width.
- Proposals to use explosives, if any. State any vibration limits adopted or imposed. Specific site rules relating to charge weight, distance, peak particle velocity and frequency.
- Method(s) to be adopted to monitor and control the effects of tunnel construction to ensure compliance with any criteria imposed to limit surface movements or vibration.

***For M&E installation in tunnels the following additional headings shall be included in the Technical Acceptance Report:***

**Section 2**

- Accommodation of M&E services in the tunnel
- Location of tunnel monitoring centre and maintenance building
- Location of tunnel services building

**Section 3**

- Environmental conditions within the Tunnel Plant Rooms and building
- Ventilation – including description, justification, design criteria, pollution and vehicle emission, fresh air requirements, ventilation system and fans, monitoring and control,
- M&E elements of drainage including; general description, design criteria, effluent standard, volumes to be handled pumping equipment
- Fire safety
- Tunnel operation and plant control including; basis of tunnel operation, plant monitoring and control, data logger and transfer, plant inspection and maintenance
- Electrical power supply and distribution including; general description, design criteria, supply distribution, emergency arrangements, cabling.

#### **Section 4**

*Communications and traffic control including; general description, design criteria, traffic management, telephone system, emergency procedures, traffic signs, traffic monitoring*

**For M&E installation in moveable structures the following additional headings shall be included in the Technical Acceptance Report:**

#### **Section 3**

- *Proposed mode of operation*
- *Location of operating and control mechanisms*
- *Electricity power supply and distribution*
- *Stand-by power facilities*
- *Communication systems*
- *Emergency works testing and site operating conditions*
- *Fail safe operating safety system*
- *Commissioning and handover*
- *Plant room (layout drawings also required)*

#### **Appendices to Accompany the Technical Acceptance Report**

Appendix 1	STA-3
Appendix 2	Relevant documents and Standards used for this Structure.
Appendix 3	Photographs and photomontages.
Appendix 4	Drawings Site Location Plan General Arrangement Drawing(s). General Arrangement Drawings shall be drawn to scale with border identifying the Scheme, Employer, Designer and include inter alia the following details;

##### **Plan**

- North arrow
- Lands made available
- Existing topographical survey
- Chainage
- Earthworks profile
- Plan dimension on carriageway(s) / watercourse / railway
- Skew angle
- Structure drainage
- Service ducts / chambers
- Lighting
- Limits and type of river bank protection
- Interface with existing structures
- Direction of flow for watercourses
- Articulation arrangement

### **Long Section**

- Chainage line with levels
- Existing ground profile
- Paving details
- Slope protection
- Intermediate and end support details including dimensions
- Foundations including dimensions
- Rock profile / competent strata
- Access arrangements
- Safety barrier
- Interfaces with existing structures
- Span dimensions
- Water levels (2yr and 100 yr flood)
- Joint details

### **Elevation**

- Existing ground profile
- Paving details
- Slope protection
- Access arrangements
- Lighting
- Safety barriers
- Interfaces with existing structures
- Clearance envelope
- Overall length
- Water levels (2yr and 100 yr flood)
- Road / rail under – camber, dimensions and level
- Watercourse cross-section dimensions
- Parapets / pedestrian guardrail
- Earthworks profile

### **Cross Section**

- Bridge cross section dimensions
- Camber
- Superstructure cross section
- Interface with existing structures
- Interface with intermediate supports
- Raised verge / footway details
- Services
- Parapet / pedestrian guardrail
- Surfacing and waterproofing
- Cantilever length (superstructure / sub-structure)

### **Miscellaneous**

- Wingwall details including dimensions

- Approach arrangements including joint details
- Finishes
- Concrete grades
- Waterproofing details
- Indicative location of construction joints

Appendix 5 Relevant extract of the Factual Site Investigation Data.  
Structure Summary Sheets / extracts from Geotechnical Interpretative Report.

Appendix 6 Other Relevant Documentation / Reports.

# APPENDIX D – STRUCTURES INFORMATION DATABASE – STA-3

## STRUCTURES INFORMATION DATABASE

STA-3

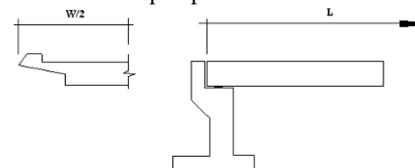
<b>Local Authority</b>		<b>Scheme</b>	
<b>Name of Structure</b>		<b>Designers reference:</b>	

General Information	
NRA ref.	
Design office/firm	
Principal	
Designer (team leader)	
Proj. Superv'r. design	
Check office/firm	
Principal	
Checker (team leader)	
<b>Preliminary Approval or Registration</b>	
Submitted	Date: / /
Approved/registered	Date: / /
<b>Design approval</b>	
Submitted	Date: / /
Accepted	Date: / /
<b>Other Approvals</b>	
Apr. of Contract Docs	Date: / /
Apr. of Tender Report	Date: / /
Apr. of Final Account	Date: / /
Category (0, 1, 2 or 3)	Design load
Over bridge	

Cost information		
Costs (excl VAT)	Date	Amount €
Preliminary estimate		
Pre-tender estimate		
Tendered cost		
Final cost		
<b>Final cost breakdown by Series</b>		
Prelims		
100-1500		
1600		
1700		
1800		
1900		
2000		
2100		
2200		
2300		
2400		
Other		

**Notes:**

1. Costs are in €.
2. Costs exclude VAT.
3. Costs exclude discounted whole life cost.
4. Where bridges are part of a road scheme then the costs include a relevant proportion of the overall preliminaries.
5. Bridge costs should include their relevant proportion of final account settlements, as preliminaries.
6. Bridge area is based on the length to the centrelines of the abutment bearings and the overall width to the outside of the parapet fascia.



7. For buried structures such as culverts, the deck should be described from the list (e.g. Solid slab, reinforced). The area should be the width x horizontal span.
8. Financial and Quantity information is not required for D&B/PPP projects

Structure Information (see list next page)	
No.	Type
Cross Section	
Elevation	
Superstructure Material	
Pier Type	
Pier Material	
Pier Foundation Type	
Abutment Type	
Abutment Material	
Abutment Foundation Type	
Bridge Type	
Integral pier	
Integral abutment	
Deck Area	Sq m
No. Spans	
Maximum Span	m

Quantities information			
Quantities	F <sup>2</sup> work	Rebar	Conc.
Pre-tender	Sq m	Tonne	Cu m
End supports			
Intermediate supports			
Superstructure			
<b>Final Account</b>			
End supports			
Intermediate supports			
Superstructure			

**STRUCTURES INFORMATION DATABASE**  
**Bridge Information**

STA-3

<b>Cross Section Types</b>	
10	Slab
11	Slab/girder, 1 girder
12	Slab/girder, 2 girders
13	Slab/girder, 3 girders
14	Slab/girder, 4 or more girders
30	Box beam, single box
31	Box beam, 2 or more boxes
40	Truss, interior passage
41	Truss below the deck
42	Truss beside the deck
43	Plate girders
50	Arch above the deck
51	Arch (not masonry) below, open
52	Arch (not mas.) below, closed
60	Masonry arch
65	Pipe
70	Retaining wall
90	Other
91	Not applicable
92	Unknown
93	Not registered
<b>Elevation Types</b>	
10	Simple span, cons. cross sect.
11	Simple span, var. cross sect.
20	Continuous, const. cross sect.
21	Continuous, var. cross sect.
30	Cantilever, const. cross sect.
31	Cantilever, var. cross sect.
40	Frame, constant cross section
41	Frame, varying cross section
42	Box culvert
43	Pipe culvert
44	Semi-integral, constant cross-section
45	Semi-integral, varying cross-section
50	Arch, one or more spans
60	Cable stayed bridge
70	Suspension bridge
80	Bascular bridge
90	Other
91	Not applicable
92	Unknown
93	Not registered
<b>Superstructure Materials</b>	
10	Mass concrete
20	Reinforced conc., cast in situ
21	Reinforced concrete, precast
22	Precast prestressed concrete
30	Stressed conc., cast in situ
31	Stressed concrete, precast
40	Concrete, in situ and precast
41	Conc., in situ & prec. Prestr.
42	Composite, concrete and steel
50	Steel
60	Stone masonry
61	Brick masonry
90	Other
91	Not applicable

<b>Abutment Types</b>	
10	Abutm. wall, integ. wing walls
11	Abutm. wall, indep. wing walls
20	Buried, solid
21	Buried, col./pile w. cap beam
22	Bankseat with reinforced earth retaining wall
23	Bankseat (column or pile) with reinforced earth retaining wall
29	Buried, unknown type
30	Buried abutment, unknown type with reinforced earth retaining wall
90	Other
91	Not applicable
92	Unknown
93	Not registered
<b>Abutment and Pier Materials</b>	
10	Masonry
11	Masonry & concrete
20	Mass concrete
21	Reinforced concrete
22	Post-tensioned concrete
30	Steel
40	Steel and concrete
50	Reinforced earth
51	Reinforced concrete and reinforce earth
90	Other
91	Not applicable
92	Unknown
93	Not registered
<b>Type of foundation of pier / abutment</b>	
10	Spread footing
20	Concrete piles
21	Steel piles
22	Wooden piles
30	Steel caissons
40	Concrete caisson
90	Other
91	Not applicable
92	Unknown
93	Not registered

<b>Pier Types</b>	
10	Solid wall
20	Single column
30	2 or more separate columns
31	2 or more col., sep. cap beams
32	2 or more col., comm. cap beam
33	Columns w. bracing & cap beam
40	Piles with common cap beam
41	Piles w. bracing & cap beam
90	Other
91	Not applicable

<b>Bridge Type</b>	
10.	Crossing a Road
20.	Crossing a River
30.	Crossing a Railway
40.	Footbridge
50.	Buried structure



## APPENDIX E – FORMS

### Introduction

E.1 The various forms STA-5 and STA-6 have a similar appearance. They include the following information:-

- (a) Header with the RA name and the form name;
- (b) Administrative information and dates of events such as submissions and acceptances;
- (c) History of Conditions, Revisions, etc.;
- (d) Acceptance text and signatures.

Examples of typical forms are shown overleaf.

# NATIONAL ROADS AUTHORITY COUNTY COUNCIL



## Technical Acceptance for Structures

STA-5

Scheme \_\_\_\_\_

NRA reference \_\_\_\_\_

Designers Reference \_\_\_\_\_

Category  
\_\_\_\_\_

Structure Name \_\_\_\_\_

### Technical Acceptance Report

Submitted \_\_\_\_\_

Technical Acceptance Report Reference \_\_\_\_\_ - TA

Accepted \_\_\_\_\_

Valid Until \_\_\_\_\_

## Technical Acceptance

### Conditions / Amendments / Addenda

No.	Date.	Details
-----	-------	---------

This acceptance is subject to the amendments and conditions shown above

Signed \_\_\_\_\_

Name \_\_\_\_\_

Position \_\_\_\_\_ - Structures, National Roads Authority

Date \_\_\_ / \_\_\_ / \_\_\_

\_\_\_\_\_ - TA/1 Page 1

# NATIONAL ROADS AUTHORITY COUNTY COUNCIL



## Design and Check Certificate for Structures

STA-6 page 1 of 2

Scheme \_\_\_\_\_

NRA reference \_\_\_\_\_

Designers Reference \_\_\_\_\_

Category  
\_\_\_\_\_

Structure Name \_\_\_\_\_

### Technical Acceptance Report

Submitted \_\_\_\_\_

Technical Acceptance Report Reference \_\_\_\_\_ - TA

Accepted \_\_\_\_\_

Valid Until \_\_\_\_\_

### Design/Check Certificate

Submitted \_\_\_\_\_

Certificate reference \_\_\_\_\_ - DC

Accepted \_\_\_\_\_

## Design & Check

### Conditions / Amendments / Addenda

No.	Date	Details
-----	------	---------

\_\_\_\_\_

\_\_\_\_\_ -DC/1 Page1

# NATIONAL ROADS AUTHORITY COUNTY COUNCIL



## Design and Check Certificate for Structures

STA-6 page 2 of 2

1.0 Undertaking

1.1 We certify that reasonable professional skill and care has been used in the preparation of the design of this structure and that:-

1.1.1 It has been designed in accordance with the Technical Acceptance Report referenced above and the conditions and amendments listed above;

1.1.2 It has been checked for compliance with the relevant Standards in 1.1.1;

1.1.3 The design has been accurately translated into contract drawings, specifications and bar schedules. The unique numbers of these drawings and schedules are listed in the enclosed Annex 1.

Signed \_\_\_\_\_  
Name \_\_\_\_\_  
Position Team Leader – Design office or firm  
\_\_\_\_\_

Signed \_\_\_\_\_  
Name \_\_\_\_\_  
Position Principal Officer or Director - Design office or firm  
\_\_\_\_\_

Date \_\_\_ / \_\_\_ / \_\_\_

Signed \_\_\_\_\_  
Name \_\_\_\_\_  
Position Team Leader - Design check  
\_\_\_\_\_

Signed \_\_\_\_\_  
Name \_\_\_\_\_  
Position Principal Officer or Director - Design check Office or Firm  
\_\_\_\_\_

Date \_\_\_ / \_\_\_ / \_\_\_

2.0 Acceptance of Certificate

The National Roads Authority accepts this certificate.

Signed \_\_\_\_\_  
Name \_\_\_\_\_  
Position \_\_\_\_\_ - Structures, National Roads Authority

Date \_\_\_ / \_\_\_ / \_\_\_

\_\_\_\_\_

\_\_\_\_\_ - DC/1

Page 2

**Text Used for Category 0 Structures**

1.0 Undertaking

1.1 We certify that reasonable professional skill and care has been used in the preparation of the design of this structure and that:-

1.1.1 It has been designed in accordance with the Standard listed in the enclosed Annex 1 referenced above and the conditions and amendments listed above;

1.1.2 It has been checked for compliance with the relevant Standards in 1.1.1;

1.1.3 The design has been accurately translated into contract drawings, specifications and bar schedules. The unique numbers of these drawings and schedules are listed in the enclosed Annex 2.

Signed \_\_\_\_\_  
Name \_\_\_\_\_  
Position Team Leader – Design Office or Firm  
\_\_\_\_\_

Signed \_\_\_\_\_  
Name \_\_\_\_\_  
Position Principal Officer or Director - Design Office or Firm  
\_\_\_\_\_

Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Signed \_\_\_\_\_  
Name \_\_\_\_\_  
Position Team Leader - Design Check  
\_\_\_\_\_

Signed \_\_\_\_\_  
Name \_\_\_\_\_  
Position Principal Officer or Director – Design Check Office or Firm  
\_\_\_\_\_

Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

2.0 Acceptance of Certificate

The National Roads Authority accepts this certificate.

Signed \_\_\_\_\_  
Name \_\_\_\_\_  
Position \_\_\_\_\_ - Structures, National Roads Authority

Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_



# APPENDIX F – MODEL FORM OF CERTIFICATION TEMPORARY WORKS

## Introduction

F.1 There are two types of Temporary Works, Type A and Type B works.

F.2 The description to be inserted shall define unambiguously the extent of the structure to which the design and check is to be applied. Where necessary the extent of the Works shall be shown on the drawings and the relevant Drawings numbers stated.

F.3 A copy of each certificate should be forwarded to the Structures Inspector for the permanent structure to which it relates.

# NATIONAL ROADS AUTHORITY



Category

Design and Check Certificate for Temporary Works

STA – 7 Type A

Name of Project \_\_\_\_\_

Structure Name \_\_\_\_\_ Ref No \_\_\_\_\_

## 1.0 Undertaking

1.0 We certify that reasonable professional skill and care has been used in the preparation of the design and check for the temporary works comprising: \_\_\_\_\_  
(description of temporary works) and design criteria listed in the attached schedule.

1.2 We also certify, but without undertaking any responsibility other than towards \_\_\_\_\_ (name of organisation procuring the temporary works) that in our opinion the erection proposals and proposed temporary works details specified in the attached schedule for the construction of \_\_\_\_\_ (project title) are satisfactory for the proper discharge of his responsibilities, for the safety of the said part of the works and for their safe execution in accordance with the drawings and specification and without detriment of the related permanent works.

Signed \_\_\_\_\_ Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_  
Position Principal officer or Director of the Design Organisation

Engineering Qualifications \_\_\_\_\_

Signed \_\_\_\_\_ Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_  
Position Principal officer or Director of the Checking Organisation

Engineering Qualifications \_\_\_\_\_

2.0 This certificate is received by \_\_\_\_\_  
(Organisation Procuring the Temporary Works)

Signed \_\_\_\_\_ Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Position Held \_\_\_\_\_

# NATIONAL ROADS AUTHORITY



Category  
\_\_\_\_\_

Design and Check Certificate for Temporary Works

STA - 7 Type B

Name of Project \_\_\_\_\_

Structure Name \_\_\_\_\_ Ref No \_\_\_\_\_

## 1.0 Undertaking

1.1 We certify that reasonable professional skill and care has been used in the design preparation of the design and check of the temporary works comprising: \_\_\_\_\_ (description of temporary works) and design criteria with a view to securing that:

- (i) It has been designed and checked in accordance with the Technical Acceptance Report dated \_\_\_/\_\_\_/\_\_\_ including the attached departures and additional methods or criteria, uniquely numbered \_\_\_\_\_.
- (ii) The design proposals reflect the requirements of the relevant authorities.
- (iii) The design of the temporary works has been accurately translated into temporary works drawings. The unique numbers of these drawings and schedules are: \_\_\_\_\_

Signed \_\_\_\_\_ Date \_\_\_ / \_\_\_ / \_\_\_  
Position Principal officer or Director of the Design Organisation

Engineering Qualifications \_\_\_\_\_

Signed \_\_\_\_\_ Date \_\_\_ / \_\_\_ / \_\_\_  
Position Principal officer or Director of the Checking Organisation

Engineering Qualifications \_\_\_\_\_

2.0 This Certificate is received by \_\_\_\_\_  
(Organisation Procuring the Temporary Works)

Signed \_\_\_\_\_ Date \_\_\_ / \_\_\_ / \_\_\_





Bonneagar Iompair Éireann  
Transport Infrastructure Ireland



Ionad Ghnó Gheata na  
Páirce,

Stráid Gheata na Páirce,  
Baile Átha Cliath 8, Éire



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