

Main Roads Specification

MRS62

Bridge Substructure

June 09

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Bridge Substructure

1 INTRODUCTION

This Specification applies to the construction of the substructure of bridges including abutments and piers from foundations to bearing pedestals.

This Specification shall be read in conjunction with MRS01 *Introduction to Specifications*, other Specifications and standards as appropriate and the quality system requirements of the Contract.

This Specification forms part of the Main Roads Specifications and Technical Standards Manual.

2 MEASUREMENT OF WORK

2.1 Standard Work Items

In accordance with the provisions of Clause 2 of MRS01 *Introduction to Specifications*, the Standard Work Items covered by this Specification are listed in Table 2.1.

Table 2.1 – Standard Work Items

| Standard Work Item No. | Description | Unit of Measurement |
|----------------------------|---|---------------------|
| Bridge Substructure | | |
| 7301 | Concrete Class [<i>compressive strength</i>] MPa/20 in pier footing. | m ³ |
| 7302 | Concrete Class [<i>compressive strength</i>] MPa/20 in pier pile cap. | m ³ |
| 7303 | Concrete Class [<i>compressive strength</i>] MPa/20 in pier above pile cap/cast-in-place pile/footing. | m ³ |
| 7304 | Concrete Class [<i>compressive strength</i>] MPa/20 in pier headstock. | m ³ |
| 7305 | Concrete Class [<i>compressive strength</i>] MPa/10 in pier pedestal. | each |
| 7311 | Concrete Class [<i>compressive strength</i>] MPa/20 in abutment footing. | m ³ |
| 7312 | Concrete Class [<i>compressive strength</i>] MPa/20 in abutment pile cap. | m ³ |
| 7313 | Concrete Class [<i>compressive strength</i>] MPa/20 in abutment above cast-in-place pile / footing / pile cap excluding parapet terminal. | m ³ |
| 7314 | Concrete Class [<i>compressive strength</i>] MPa/20 in abutment headstock excluding parapet terminal. | m ³ |
| 7315 | Concrete Class [<i>compressive strength</i>] MPa/10 in abutment pedestal. | each |
| 7321 | Steel reinforcing bar in piers and abutments including parapet terminals. | tonne |

Standard Work Items for associated work are included in the following Specifications –

- a) MRS03 *Drainage, Retaining Structures and Protective Treatments*
- b) MRS04 *General Earthworks*;
- c) MRS63 *Cast-In-Place Piles*;
- d) MRS65 *Precast Prestressed Concrete Piles*;
- e) MRS66 *Driven Steel Piles*;
- f) MRS67 *Bitumen Slip Layer on Piles*;
- g) MRS68 *Dynamic Testing of Piles*; and
- h) MRS83 *Anti-Graffiti Protection*.

2.2 Work Operations

- Item 7301 Concrete Class [*compressive strength*] MPa/20 in pier footing.
- Item 7302 Concrete Class [*compressive strength*] MPa/20 in pier pile cap.
- Item 7303 Concrete Class [*compressive strength*] MPa/20 in pier above cast-in-place pile / footing / pile cap.
- Item 7304 Concrete Class [*compressive strength*] MPa/20 in pier headstock.
- Item 7305 Concrete Class [*compressive strength*] MPa/10 in pier pedestal.
- Item 7311 Concrete Class [*compressive strength*] MPa/20 in abutment footing.
- Item 7312 Concrete Class [*compressive strength*] MPa/20 in abutment pile cap.
- Item 7313 Concrete Class [*compressive strength*] MPa/20 in abutment above cast-in-place pile | footing | pile cap excluding parapet terminal.
- Item 7314 Concrete Class [*compressive strength*] MPa/20 in abutment headstock excluding parapet terminal.
- Item 7315 Concrete Class [*compressive strength*] MPa/10 in abutment pedestal.

Work Operations incorporated in the above items include –

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*;
- b) Supply of concrete;
- c) Transport of concrete;
- d) Construction of formwork and falsework;
- e) Placing and compacting concrete;
- f) Finishing and curing concrete;
- g) Removal of formwork and falsework;
- h) Dressing of concrete;
- i) Fillers and sealants, unless measured separately; and
- j) Embedded and attached items, unless measured separately.

Item 7321 Steel reinforcing bar in abutments including parapet terminals and piers.

Work Operations incorporated in the above item include –

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*;
- b) Supply of all materials; and
- c) Fixing reinforcing steel in place.

2.3 Calculation of Quantities

2.3.1 Concrete

The quantity of concrete shall be calculated in accordance with Clause 2 of MRS70 *Concrete*.

2.3.2 Steel Reinforcing Bar

The quantity of steel reinforcing bars shall be calculated in accordance with Clause 2 of MRS71 *Reinforcing Steel*.