

PRODUCT USER GUIDE

STEEL ROAD PLATES



Introduction

This user guide is intended to provide basic information for users of Mabey Road Crossing Plates in NSW. Mabey Road Crossing Plates are intended to provide temporary vehicular access over narrow trenches and small manholes. They are not intended for other purposes.

In all applications the user should ensure that the sides of the trench to be crossed are adequately shored to support the reactions from the Road Crossing Plates when under service loading.

The user should also ensure that the units are adequately restrained against longitudinal or lateral movement. In certain applications the user may have to make his own separate arrangements for adequate handrails / kerbs.

IMPORTANT NOTES

All excavation work must be thoroughly planned before work commences on site to identify hazards and assess risk.

These instructions form guidance for the typical installation of Trench Box Equipment. Non-standard applications should be approved by a suitably qualified engineer.

Ensure all personnel engaged in installation operations are properly briefed and adequately supervised by a competent person,

All hire for this equipment will usually be accompanied by a general arrangement or scheme specific drawing. This must be read in conjunction with these instructions.

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1. General Guidance

Guidance for Safety of Road Openings and Restoration. RMS M208 and M209 provide further in-depth details on the requirements for Road Openings and Restoration in NSW. The above guide states that road crossing plates being used for street works or road works should have a skid resistant surface. Mabey have various road crossing plates available with an anti-skid surface. These plates should only be used for street/road works applications and NOT off-road or where tracked vehicles are in use.

Safe System of Work

These guidance notes are intended to draw the client's attention to practical aspects of Mabey Hire Pty. range of Steel plates during use and basic maintenance which need to be considered when completing method statements for a safe system of work.

Access, Hard standing Areas and Site Storage

- Suitable firm, level, dry areas should be made available on-site for storage and pre-assembly work.
- Suitable lifting equipment of adequate capacity should be provided for off-loading and installation.
- Slings should always be carried out by suitably experienced and competent personnel.
- The weights of components and assemblies are given in this guide.
- Large components should be stacked, nested with suitable timber dunnage, max 10no panels per stack.
- Smaller components should be stored in skips/bins.

Personnel

The Management of Health and Safety at Work Regulations require that personnel deployed are suitably trained, experienced, and supervised by a competent person.

The main activities associated with Aluminium Trench Shields use are:

- Unloading and loading the delivery vehicle.
- Pinning components together.
- Slings and lifting the Aluminium Trench Shields into and out of the trench.

Plant and Lifting Equipment

A suitable appliance is required for off-loading, installation, and re-loading of equipment, together with lifting chains, available from Mabey Hire Pty Ltd., of suitable length and capacity and with current certification.

WARNINGS:

- If Steel Plates are to be lifted in or around an excavation, the appliance should be located at a safe distance from the edge of the excavation and the lifts and radii checked against the safe lifting capacities of the appliance. A surcharge for the appliance must have been allowed for in the excavation brief/design.
- No more than one assembled component must be lifted at a time.

Sling Warning

If a sling is to be used on an excavator, be aware of the following:

- It is very important that a means of allowing the sling to swivel be introduced above the master (top) ring. This will allow the sling, and in particular the master ring, to turn and align with the load.
- Without a swivel arrangement, the load may severely twist the master ring, resulting in damage or failure.
- All lifting accessories attached to the excavator lifting point must hang freely and be free to move at all times.

Small Plant, Tools, and Lifting Chains

- Lifting Chains of suitable length and capacity complete with current certification. Typically for Steel Plates a set of 4 legs 10mm chains with 4m leg length.

Access & Egress and Edge Protection

- Install the edge protection as soon as possible before entering into the excavation.
- A competent person should inspect the means of access and egress regularly.

During Installation Works

- Check that plates are kept in correct position.
- Avoid striking equipment or loading it inappropriately.

After Installation Works

Each excavation must be inspected daily before personnel begin work.

Return of Equipment Off-Hire

Clients should ensure that on removal, the equipment is returned clean and assembled as supplied. Ensure all equipment is loaded to the satisfaction of the vehicle driver and is securely restrained to the vehicle bed.

2. Component Identification

2.1 Design

No information on detailed design is included in this publication. Users may need to employ a competent engineer to confirm that the plates are suitable for their application. Appendix A provides Road Plate size guidance from RMS 209.

2.2 Steel Plate Details

Panel Length (mm)	Panel Width (mm)	Panel Width (mm)	Unit Weight (kg)
2400	1200	25	565
3000	1200	25	706
3000	2400	25	1412
3000	2400	32	1810
4000	1800	32	1810
4000	2400	25	1885
4000	2400	32	2415
6000	2400	25	2825
3600	1200	60	2000
3000	1200	60	1700



5.0 Tons Centre Lifter is available for some steel plates sizes. If required contact the Depot for enquires.

3. Stacking and Handling

- Suitable firm level storage areas should be made available on site for stacking.
- Suitable lifting equipment of adequate capacity should be provided for off-loading and installation.
- Slings should always be carried out by suitably experienced and competent personnel.
- The weight of each unit is given in Section 4 - Identification.
- Units should be stacked on 4"x3" timbers, to a maximum of 10no high depending on size, weight, and storage area.

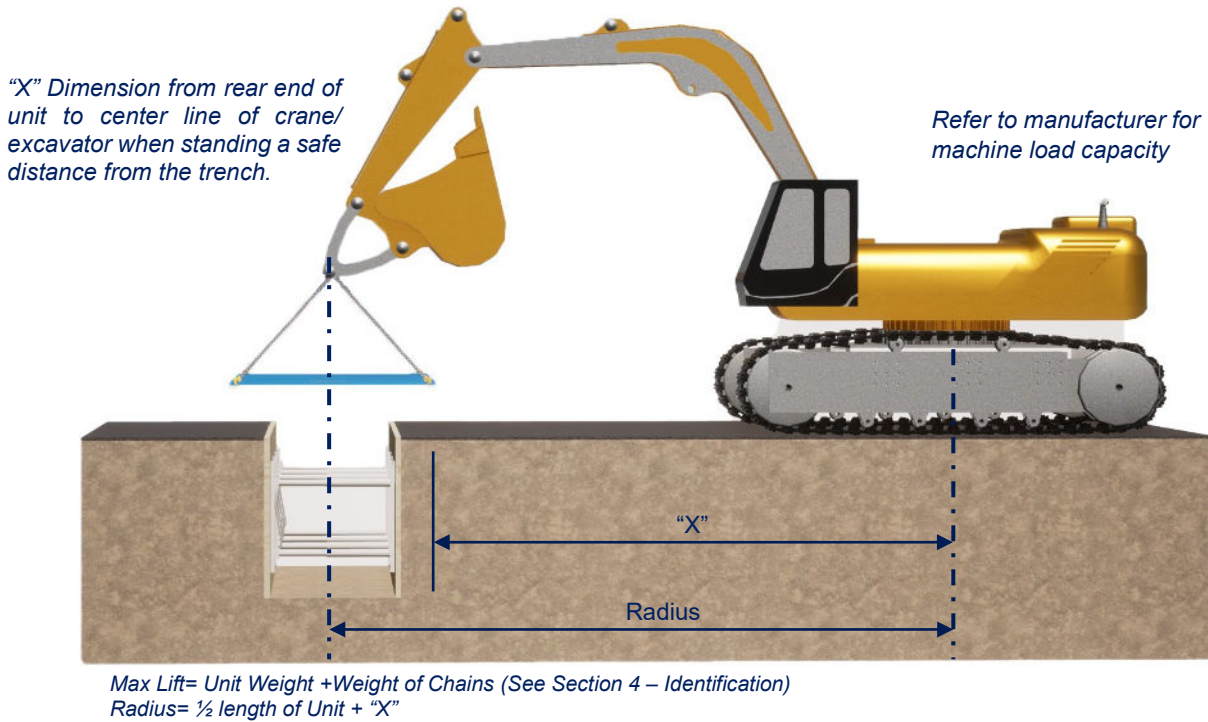


4. Transportation

Ensure that the plates are securely restrained to the vehicle bed.

5. Installation

Excavator or crane lifting requirements when positioning units over narrow trench



Method of Installation (Dismantling is the Reverse Procedure)

1. Simply crane into position onto the previously prepared foundation.
2. When in position, ensure the units are adequately restrained against movement.
3. Install asphalt toe ramps or similar (if required).
4. Install kerbs or handrails as appropriate.

6. General

In-Services

Regularly inspect the trench walls to ensure the trafficked units are not overloading them. Check that the units are not moving longitudinally or laterally.

Do's and Don'ts

- ▶ DO use a ladder to enter the working space between the struts of the shield.
- ▶ DO wear a safety helmet to minimize the risk of head injury.
- ▶ DO ensure that the excavator operator is aware of your intentions.
- ▶ DO ensure that the unsupported part of the trench is safely battered.
- ▶ Do NOT climb up or down the struts.
- ▶ Do NOT use any unsupported part of the trench for access.
- ▶ Do NOT move the shield when personnel is inside it.

7. Appendix A

Below is an extract from clause 2.6.3.6 from RMS 209. The reader should obtain and follow the full guidance within the most recent copy of RMS 209. The below should only be used as a guide once the reader fully understands RMS 209 publication.

2.6.3.6 The thickness of a road plate must be no less than 25 mm and must not exceed 60 mm.

The area of each road plate must be no less than 3.6 m².

The plate length (in the span direction – see diagram) must exceed the trench width by at least 800 mm (refer Clause 2.6.3.9).

The length to width ratio of each plate must not exceed 3:1.

Where the trench width exceeds 1.8 m, plate widths in between 1.2 m and 2.2 m are not permitted (to avoid critical load patterns).

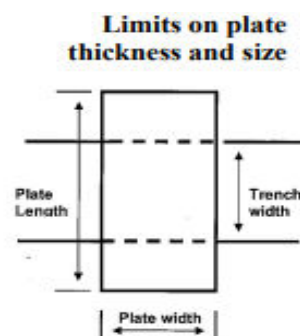


Table 6 - Live Load Design Requirements for Road Plates

Road Type	Location of Road Plate	Functional Road Class [AS 5100.7 App. A Table A1]	Live Load Factor (LLF)	Dynamic Load Allowance (DLA)
A	Major arterial road, highway, port access, transport depot access or abnormal case	Urban: Class 6 and 9 Rural: Class 1, 2 and 5	1.8	0.6
B	Minor arterial road, state route, sub-arterial or local road (except port or transport depot access)	Urban: Class 7 and 8 Rural: Class 3 and 4	1.5	0.4
C	Light vehicle property access (<10 tonnes gross)	Not applicable	1.0	0.2
D	Heavy vehicle property access (>10 tonnes gross)	Not applicable	As per the adjoining road	

Table 7 - Design Sizes for Road Plates [trench width up to 2.1 m]

Trench Width (mm)	Plate Clear Span [Trench Width plus 400] (mm)	Minimum Plate Length [Trench Width plus 800] (mm)	Minimum Plate Thickness ¹ (mm) [Grade 250 Plate]			
			Road Type for Plate Location (refer Table 6)			
			Type A	Type B	Type C	Type D
300 or less	700	1100	32	28	25	As per the adjoining road
450	1150	1550	36	28	25	
600	1000	1400	36	32	28	
900	1300	1700	40	36	32	
1200	1600	2000	45	40	36	
1500	1900	2300	50	45	45	
1800	2200	2600	55	55	50	
2100	2500	2900	60 ²	60 ²	55 ²	
More than 2100	Site-specific structural design for road plate is mandatory					

DESIGN ASSUMPTIONS:

- Road plate design in accordance with Clause 2.6.3.
- Where the trench width exceeds 1.8 m, plate widths in between 1.2 m and 2.2 m are not permitted (refer Clause 2.6.3.6 and its diagram).

Since our policy is one of continual improvement, components may vary in detail from the descriptions given in this publication.

While information in this Guide is correct at time of printing, product specifications and product availability are subject to change without further notice. Please visit our website for the most up to date information. Job site photos are strictly intended for general product illustration only and may not comply with all applicable safety standards or site requirements. Specification data has been taken from manufacturers' serialised specific tabulated data.

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