PUBLIC TRANSPORT SERVICES

TECHNICAL STANDARD

PART 129003

STATIONS - PLATFORMS

AR-PW-PM-SPE-00129003

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<td>Prepared By:</td>
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<td>11/02/13</td>
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<td>Title: Rail Engineer</td>
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1.0 INTRODUCTION

The Department of Planning, Transport and Infrastructure (DPTI) Public Transport Services Division (PTS) owns and operates the Adelaide Metropolitan Passenger Rail Network (AMPRN). There are approximately 85 stations serving the AMPRN. The significant number of stations means that the process of upgrading or renewal is continuous. In order to both economise on design and construction effort and costs and enhance the passengers’ experience a set of common design and construction technical standards for stations has been developed.

Because the set of station standards is primarily used within the contract administration process the technical standards documents must be aligned with both the DPTI wide Master Specification and the PTS engineering management system.

The document attached at Annex A, Technical Standard – Stations - Platforms, is one of the set of station standards.

1.1 PURPOSE

The purpose of this Technical Standard is to outline the design requirements for side and island railway platforms at the station precinct.

1.2 SCOPE

This Technical Standard applies to all PTS projects and contractor organisations designing, constructing or maintaining passenger stations on the AMPRN.
2.0 ANNEX A – TECHNICAL STANDARD – STATIONS - PLATFORMS

CONTENTS

1. General
2. Standards and Drawings
3. Reference Documents
4. Design Requirements – General
5. Design Requirements – Dimensions
6. Design Requirements – Other Elements

1. GENERAL

This Part specifies the requirements for the design of new or upgraded marginal or island railway stations platforms on the Adelaide Metropolitan Passenger Rail Network (AMPRN).

2. STANDARDS AND DRAWINGS

STANDARDS

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<td>AS 2700</td>
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<td>AS 4586</td>
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<td>HB 197</td>
<td>An Introductory Guide to the Slip Resistance of Pedestrian Surface Materials</td>
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DRAWINGS

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<thead>
<tr>
<th>Drawing</th>
<th>Description</th>
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<tr>
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<td>Station Precinct Concept – Platform (Side) Signage &amp; Pavement Marking Layout</td>
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<td>S7071, sheet 7</td>
<td>Station Precinct Concept – Platform (Island) Signage &amp; Pavement Marking Layout</td>
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<td>S7071, sheet 10</td>
<td>Station Precinct Concept – End of Platform Signage Layout</td>
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<td>Station Precinct Concept – Basic Platform &amp; Shelter (Curved) General Layout</td>
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<td>Station Precinct Concept – Platform TGSIs &amp; Pavement Marking Layout</td>
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<td>301-A3-2010-2389</td>
<td>Platform Clearance 1 600 mm Gauge Track</td>
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3. REFERENCE DOCUMENTS

<table>
<thead>
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<th>Owner</th>
<th>Details / Part</th>
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<tr>
<td>AUSTRROADS</td>
<td>Guide to Traffic Engineering Practice</td>
</tr>
<tr>
<td>PTSOM</td>
<td>Code of Practice</td>
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</table>
4. DESIGN REQUIREMENTS – GENERAL

4.1 Design Life

The platform shall have a design life of 50 years.

4.2 Platform Location

Platforms shall be located entirely on DPTI land and on tangent track unless specified otherwise in the Project Design Brief.

4.3 Platform Types

There are five types of platform configurations currently in use on the Adelaide Metropolitan Rail Network:

1. Marginal platform – single track;
2. Marginal platforms – dual track;
3. Island platform – single side loading only;
4. Island platform – dual track; and
5. Integrated bus/rail platform.

Refer to the Project Design Brief for platform type.

4.4 Construction Loads

The Contractor shall be responsible for determining allowable construction loads that can be applied to structures and ensure that these allowable loads are not exceeded during construction.

5. DESIGN REQUIREMENTS – DIMENSIONS

5.1 Platform Lengths

Table 5.1 below specifies the minimum platform lengths and maximum number of rail cars for the various lines and sections on the Adelaide Metropolitan Network.

<table>
<thead>
<tr>
<th>LINE</th>
<th>SECTION</th>
<th>MINIMUM PLATFORM LENGTH (m)</th>
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<tbody>
<tr>
<td>Seaford</td>
<td>Woodlands Park, Oaklands and all platforms between Seaford and Brighton</td>
<td>160</td>
</tr>
<tr>
<td>Seaford</td>
<td>All platforms between Hove and Adelaide Railway Station; excluding Woodlands Park and Oaklands</td>
<td>65</td>
</tr>
<tr>
<td>Tonsley</td>
<td>All</td>
<td>65</td>
</tr>
<tr>
<td>Belair</td>
<td>All</td>
<td>65</td>
</tr>
<tr>
<td>Outer Harbor</td>
<td>All</td>
<td>120</td>
</tr>
<tr>
<td>Gawler</td>
<td>All</td>
<td>120</td>
</tr>
</tbody>
</table>

Refer to the Project Design Brief for platform lengths.

The design of the platform shall not preclude future extension.
5.2 Platform Widths

Platforms consist of four zones:

(1) Loading zone – 600 mm strip where people board/ alight the train including 100 mm wide yellow line;

(2) TGSIs zone – 600 mm strip which provides blind or vision-impaired customers with warning information;

(3) Clear Circulation Zone (primary access path) – minimum 1 800 mm wide area free of obstructions which provides customers with an uninterrupted path of travel and access to Station facilities including 100 mm white line; and

(4) Physical Structure Zone – minimum 1 500 mm wide for Side platforms and 1 800 mm wide for Island platforms area which provides space for installation of station furniture and poles for lighting, security system and passenger information systems infrastructure. It is preferred that seats or lean rails located in physical structure zone are a minimum of 500 mm away from the clear circulation zone (primary access path).

A 3 000 mm wide clear zone extending from the edge of platform to back of the Clear Circulation Zone (primary access path) shall be provided on all platforms.

Refer to Figure 5.2 for platform zones and width details.

FIGURE 5.2 – PLATFORM ZONES AND WIDTHS

Minimum platform widths are as follows:

(1) Marginal platforms – single or dual track
   • 4 500 mm – allows for a clear zone width of 3 000 mm and 1 500 mm physical structure zone

(2) Island platform – single side loading only
   • 4 500 mm – allows for a clear zone width of 3 000 mm and 1 500 mm physical structure zone

(3) Island platform – dual track
   • 7 800 mm – allows for one clear zone width of 3 000 mm each side and one 1 800 mm physical structure zone in the centre with allowance for back to back seating.

(4) Integrated bus/ rail interchange side platform (bus and rail)
• 8,000 mm - allows for one clear zone widths of 3,000 mm each side and one 1,800 mm physical structure zone in the centre with allowance for back to back seating.

Refer to the Project Design Brief for platform widths.

5.3 **Platform Height**

The platform height at the front of all platforms adjacent AMPRN tracks shall be in accordance with Drawing No. 301-A3-2010-2389.

Design of the platform edge shall be based on the track design provided by the Principal. Refer to the Project Design Brief for track design details.

5.4 **Edge of Platform to Track Clearance**

5.4.1 **Allowance for AMPRN Track**

The platform edge shall be set back from the centre line of the adjacent AMPRN tracks in accordance with Drawing No. 301-A3-2010-2389.

5.4.2 **Allowance for ARTC Track**

Refer to ARTC for clearance requirements adjacent to ARTC tracks:

5.4.3 **Construction Tolerances**

The tolerances of the edge of platform alignment shall be in accordance with Table 5.4.3 and shall be verified using Survey in accordance with Part 130 “Survey”. These construction tolerances are applicable to both straight and curved platforms.

<table>
<thead>
<tr>
<th>PLANE</th>
<th>DESCRIPTION</th>
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<tr>
<td>Vertical</td>
<td>distance measured from top of rail to top of platform edge</td>
<td>+0/-10 mm</td>
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<tr>
<td>Horizontal</td>
<td>distance measured from vertical face of platform to gauge face of near side rail, where a negative value means an increase in the clearance dimension</td>
<td>+0/-10 mm</td>
</tr>
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5.5 **Vertical Head Clearances**

Vertical head clearances on the platform shall be in accordance with AS 1428.2.

Refer to Part 12905 “Shelters”, Part 12904 “Overpasses” and Part 12910 “Signage and Pavement Marking” for details on other vertical clearances.

5.6 **Allowance for Track Gauge Standardisation for New Built Platforms**

Unless otherwise specified in the Project Design Brief, for stations where new platforms are being constructed the contractor shall allow for track gauge standardisation in accordance with Drawing No. S7071, sheet 26.

6. **DESIGN REQUIREMENTS – OTHER ELEMENTS**

6.1 **Platform Slab**

The platform shall be a suspended concrete slab unless otherwise specified in the Project Design Brief.
The platform face on all sides shall be enclosed to prevent debris and public access under the platform. Vandal resistant cladding shall be fixed to each bay of the structure, with fittings that allow for easy removal for maintenance purposes and access to services under the platform whilst preventing unauthorised removal.

The platform slab shall comply with AS 3600 and/or AS 5100, Part D035 “Structural” and Division 3 “Concrete”. The slab shall be designed to withstand crowd and light vehicle maintenance loads in accordance with AS 1170.1.

Obstacles that abut an access path shall have a luminance contrast with a background of not less than 30%.

### 6.2 Drainage

#### 6.2.1 General

All platforms shall be designed so that no water ponds on the platform.

The Contractor shall obtain all necessary approvals relating to the Station Precinct drainage design in accordance with Part D022 “Design Road Drainage”.

Where platform drainage includes grates, these shall be securely fixed with tamper proof fixings. If gratings are located in a walking surface they shall comply with AS 1428.2 Clause 9 (c)

#### 6.2.2 Side Platforms

Side platforms shall drain towards the back of the platform away from the tracks. The storm water shall drain:

1. into a drainage system; and/or
2. over the rear platform edge onto a suitably designed landscape area. Refer to Part 12901 “Design – Stations - General”, Clause 10 “Water Sensitive Urban Design”.

#### 6.2.3 Island Platforms

Island platforms shall drain towards the middle of the platform where water is collected and discharged into a drainage system.

#### 6.2.4 Integrated Bus/ Rail Interchange (Side) Platforms

Integrated bus/ rail interchange platforms where there is an at-grade, multi use platform servicing both buses on one side and trains on the other, shall drain away from the tracks. Water shall be collected in a kerb and gutter on the road side of the platform and shall drain into drainage system.

### 6.3 Platform Surface

The platform surface shall:

1. be graded so that the cross fall is away from tracks and be graded between a minimum grade of 1:100 and a maximum grade 1:40; and;
2. the longitudinal fall shall predominantly match the adjacent AMPRN track grade and have a minimum longitudinal fall of 1:200.
3. The platform shall meet the requirements of Part 129001 “Design-Stations-General” Clause 18 “Vandal Resistance and Anti-graffiti Coating”

Refer to Part 129006 “Pedestrian Access”, Clause 4.8 “Surfaces” for details on surfaces of platforms.

The colour of the concrete for platform surfaces shall be grey within the following colour range in accordance with AS 2700:
(a) Lightest tone – Dark Grey (N64); and
(b) Darkest tone – Graphite Grey (N65).

The concrete between the tactile and the coping of the platform shall be a natural concrete colour.

Refer to the Project Design Brief for the platform surface design requirements at heritage stations.

6.4 Tactile Ground Surface Indicators

TGSIs shall be provided in accordance with Part 129006 “Pedestrian Access”, Clause 4.10 “Tactile Ground Surface Indicators”.

6.5 Service Pits and Conduits

The number of service pits on the platform shall be minimised to prevent trip hazards.

Pits shall:

1. be flush with the surrounding surface level and grouted in accordance with the manufacturer’s instructions;
2. not be placed within the clear zone, ramps or access paths; and
3. not be located under platform furniture.

Where the platform is a concrete suspended slab, service conduits shall be fixed to the underside of the platform slab.

Where the Platform is earth filled, 2 x 100 mm power and 2 x 100 mm HD PVC conduits shall be installed along the length to provide additional capacity for future requirements.

6.6 Platform Access

6.6.1 Public

The platform shall be accessible by either stairs, lifts, ramps or direct access (generally interchanges where the bus stop and platform are integrated and at grade). Refer to Part 12904 “Overpasses” for information on stairs, lifts and ramps.

Refer to the Project Design Brief for platform access and types.

6.6.2 Vehicles

Public vehicular access to the platforms is prohibited. The Contractor’s design shall allow for removable bollards in locations potentially accessible to vehicles to enable easy access for Public Transport Services (PTS) maintenance and other vehicles such as emergency vehicles under controlled conditions. This shall be considered for all at grade platforms such as side platform(s) with bus interchange.

6.7 Train Driver’s Platform Sighting Mirrors

Unless otherwise specified in the Project Design Brief, provisions shall be made for mirrors at island platforms, bi-directional platforms and where the track geometry dictates a curved platform. The mirrors shall be supplied, fitted and aligned by the Principal.

The preferred method for mirror installation is to cantilever from the nearest light pole in accordance with drawing number 735-A1-12-116. If this is not possible a gantry shall be provided in the Physical Structure Zone to accommodate a mirror in accordance with relevant details shown on Drawing No. 735-A3-10-164.
The exact location of the mirror shall be determined by the Superintendent.

All mirrors shall be heated as per Part 129014 “Electrical Infrastructure”, Clause 5.7(3) “Heated Mirrors”.

6.8 Water Point

To facilitate cleaning, a metered water point shall be provided on every platform in the Physical Structure Zone adjacent to the shelter. For platforms of length 160 metres or greater two water points shall be provided.

Unless otherwise stated in the Project Design Brief, the water point shall:

1. be located outside the access path, in a vandal resistant access box which shall be locked with an “M” padlock.
2. have the padlock recessed and covered by a flush fitting spring loaded cover plate; and
3. be set in the platform deck so the top of the access box is flush with the platform.
4. be installed in accordance with Part 129002 “Earthing and Bonding”.

The access box shall be large enough to allow easy operation of the tap, and easy cleaning and maintenance.

6.9 Shelters

Shelters shall be provided in accordance with Part 12905 “Shelters”.

6.10 Furniture

Furniture including seats, lean rails and litter bins shall be provided in accordance with Part 129007 “Furniture”.

6.11 Toilet Facilities

Toilet Facilities shall be provided in accordance with Part 129008 “Toilet Facilities”.

6.12 Fencing

Fencing on the station platforms shall be provided in accordance with Part 129009 “Fencing”.

6.13 Signage

Signs shall be provided in accordance with Part 12910 “Signage and Pavement Marking”.

6.14 Pavement Marking

Pavement Marking shall be provided in accordance with Part 12910 “Signage and Pavement Marking”.

6.15 Lighting

Lighting on platforms shall be provided in accordance with Part 129014 “Electrical Infrastructure”.

6.16 Security System

The CCTV system including emergency help phones shall be provided in accordance with Part 129015 “Security System”.
6.17 **Passenger Information Systems**

The design and installation of Passenger Information Systems (PIS) including Public Information Displays, Voice Annunciators, Hearing Impaired Induction Loop and Public Address System shall be provided in accordance with Part 129016 “Passenger Information System”.

6.18 **Vending Machines**

No vending machines shall be provided on the platform.