



Mount Colah Railway Station Footbridge Renewal Project Concept Design (Pre-Construction) Road Safety Audit

Prepared for:

AECOM

21 September 2022

The Transport Planning Partnership

Mount Colah Railway Station Footbridge Renewal Project

Concept Design (Pre-Construction) Road Safety Audit

Client: AECOM

Version: 02

Date: 21 September 2022

TTPP Reference: 22248

Quality Record

Version	Date	Prepared by	Reviewed by	Approved by	Signature
01	12/8/2022	Doris Lee	Wayne Johnson	Wayne Johnson	
02	21/09/2022	Doris Lee	Wayne Johnson	Wayne Johnson	

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APPENDICES

A. DESIGN PLANS

1 Road Safety Audit Summary

Audited project:	Mount Colah Railway Station Footbridge Renewal Project
Client:	AECOM
Project manager:	Cameron Ward
Email address:	cameron.ward@aecom.com
Telephone:	0404 159 916
Audit Team:	Wayne Johnson (level 3 lead road safety auditor) Doris Lee (level 3 road safety auditor)
Audit type:	Concept Design (Pre-Construction)
Commencement meeting:	N/A
Audit date:	08 August 2022
Completion meeting:	N/A

The objective of this road safety audit is to examine and identify road safety concerns for the Mount Colah railway station footbridge renewal project. The findings of the road safety audit have been detailed in Section 4.3 of this report.

2 Introduction

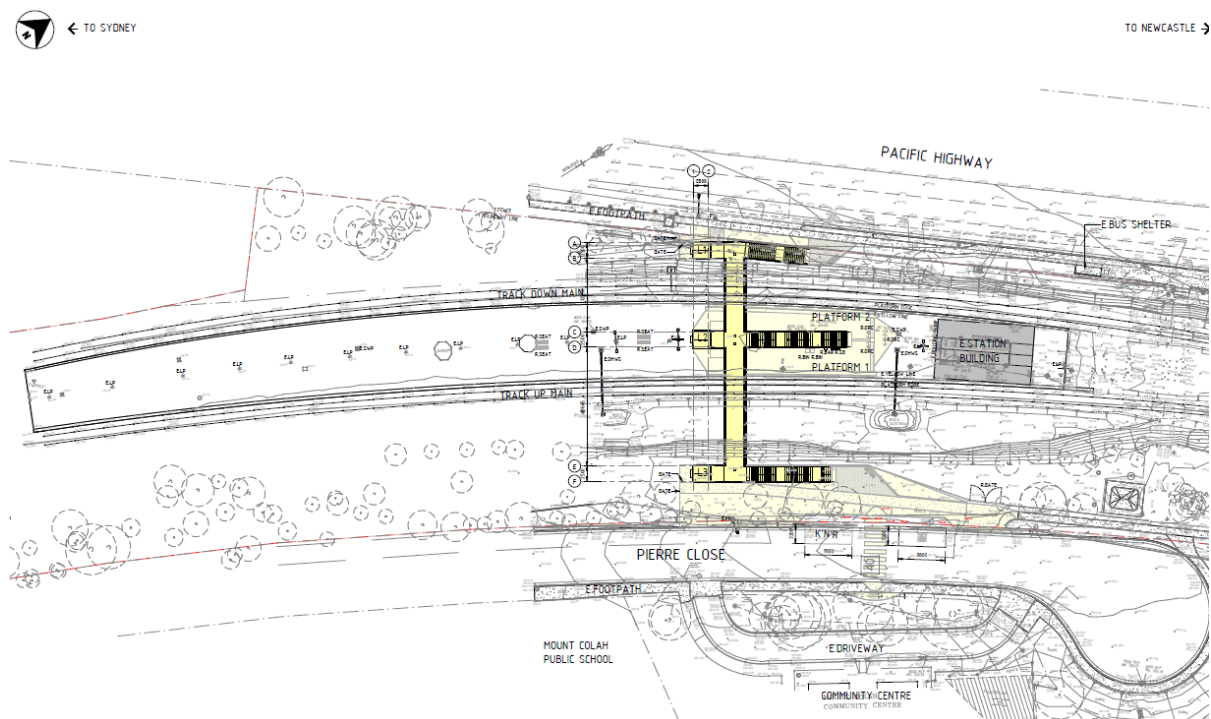
2.1 Background

This Road Safety Audit report relates to the concept design of the Mount Colah railway station footbridge renewal project for the interfaces on both the Pacific Highway and Pierre Close. The design essentially involves the following key features as shown in Figure 2.1 and an enlargement in Appendix A:

- Demolition of the existing footbridge
- Construction of a footbridge approximately 65m south of the existing location to connect the station entries on Pacific Highway and Pierre Close
- Construction of kerb ramps and a pedestrian crossing on Pierre Close
- Provision of one Kiss and Ride space and one accessible parking space on the north-west side of Pierre Close.

The existing bus stop and shelter on the south-east side of Pacific Highway will be retained.

Figure 2.1 Proposed Works



The design plans which are the subject of this Road Safety Audit is provided in Appendix A.

2.2 Audit Objective

The objective of this Audit is to examine the road safety issues associated with the proposed pedestrian crossing on Pierre Close, pedestrian access along Pacific Highway and station accessibility improvement.

2.3 Procedures and Reference Material

The procedures used are described in the following guidelines:

- Roads and Maritime Services' 2011 Guidelines for Road Safety Audit Practices
- Austroads Guide to Road Safety 2019: Part 6 Managing Road Safety Audits
- Austroads Guide to Road Safety 2022: Part 6 Managing Road Safety Audits

2.4 Audit Team

The RSA was carried out by the following team:

- Wayne Johnson (RSA-02-0769) - level 3 road safety auditor (lead auditor)
- Doris Lee (RSA-02-0128) - level 3 road safety auditor (team member).

Both Wayne and Doris are registered road safety auditors with the NSW Centre for Road Safety and experienced in traffic engineering and design/ inspection of traffic management schemes.

3 Road Safety Audit Program

3.1 Commencement Meeting

A formal meeting was not held.

3.2 Site and Field Audit

A site inspection was undertaken on 8 August 2022. Weather was fine and visibility was excellent.

The audited station access points were driven and walked over in each direction to identify possible road safety concerns. A number of photographs and video footage were taken.

3.3 Completion Meeting

A completion meeting is not required.

4 Road Safety Audit Findings

4.1 Introduction

Table 4.1 provides specific details of the audit findings and a risk rating as high, medium or low. The risk ratings have been based on the risk matrix presented in Table 4.1, which has been adopted from the standard Austroads Risk Matrix.

Table 4.1: Risk Matrix

	Likelihood	Highly probable	Occasional	Improbable
Severity				
Major		High	High	Medium
Moderate		High	Medium	Low
Minor		Medium	Low	Low

The terms in Table 4.1 are described below.

Likelihood:

- Highly probable: It is likely that more than one crash of this type could occur within a five-year period.
- Occasional: It is likely that less than one crash of this type could occur within a five-year period.
- Improbable: Less than one crash of this type could occur within a 10-year period.

Severity:

- Major: The crash is likely to result in a fatality or serious injuries
For example, high/medium speed vehicle collision, high/medium speed collision with a fixed object, pedestrian struck at high speed, and cyclist hit by car.
- Moderate: The crash is likely to result in minor injuries or large scale of property damage
For example, some slow speed vehicle collisions, cyclist falls, and rear end crashes.
- Minor: The crash is likely to result in minor property damage or many near miss crash events
For example, some slow speed collisions, pedestrian walks into object (no head injury), and car reverses into post.

Priority:

- High: Very important, and needs to be addressed urgently.
- Medium: Important, and needs to be addressed as soon as possible.

- Low: Needs to be considered as part of regular maintenance/planning program.

4.2 Responding to the Audit Report

As set out in the road safety audit guidelines, the responsibility for the road rests with the project manager, not with the auditor. The project manager is under no obligation to accept the audit findings. Neither is it the role of the auditor to agree to, or approve the project manager's responses to the audit.

The audit provides the opportunity to highlight potential road safety problems and have them formally considered by the project manager in conjunction with all other project considerations.

4.3 Road Safety Audit Findings

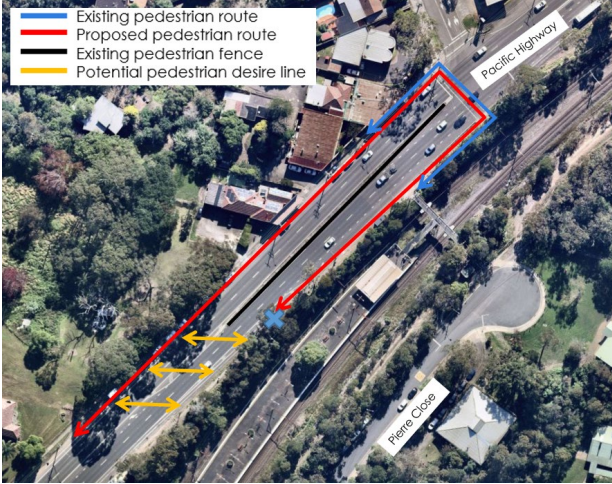
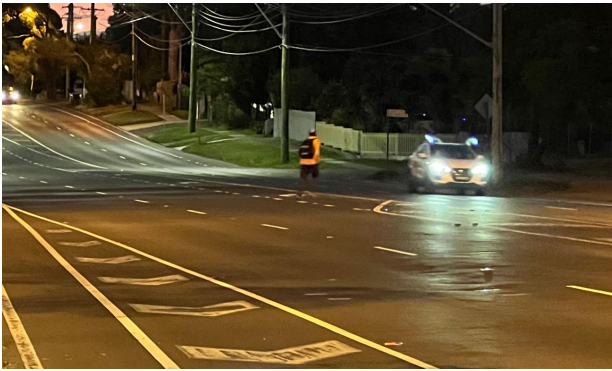
The audit findings are documented in Table 4.2 which provides:



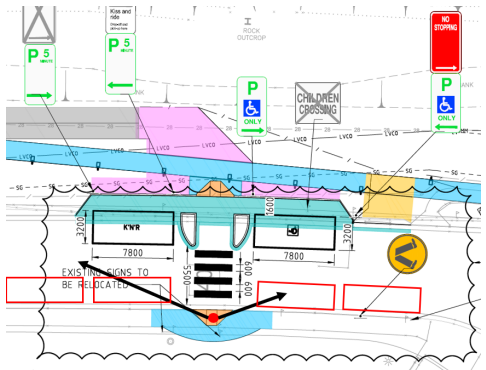
- specific details of the road safety issues identified during the audit
- a risk level rating for each of the road safety audit findings.

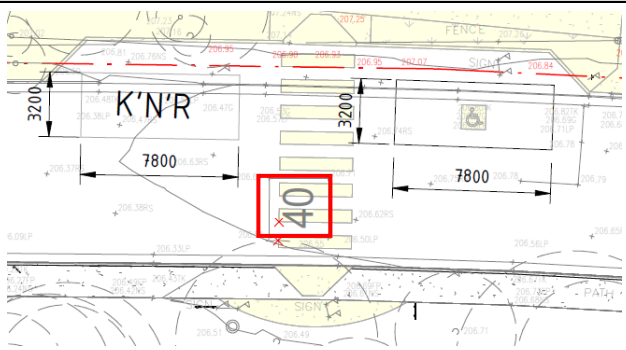

It should be acknowledged that positive attributes of the audited road section have not been discussed. Deficiencies that do not cause a safety problem are also not listed.

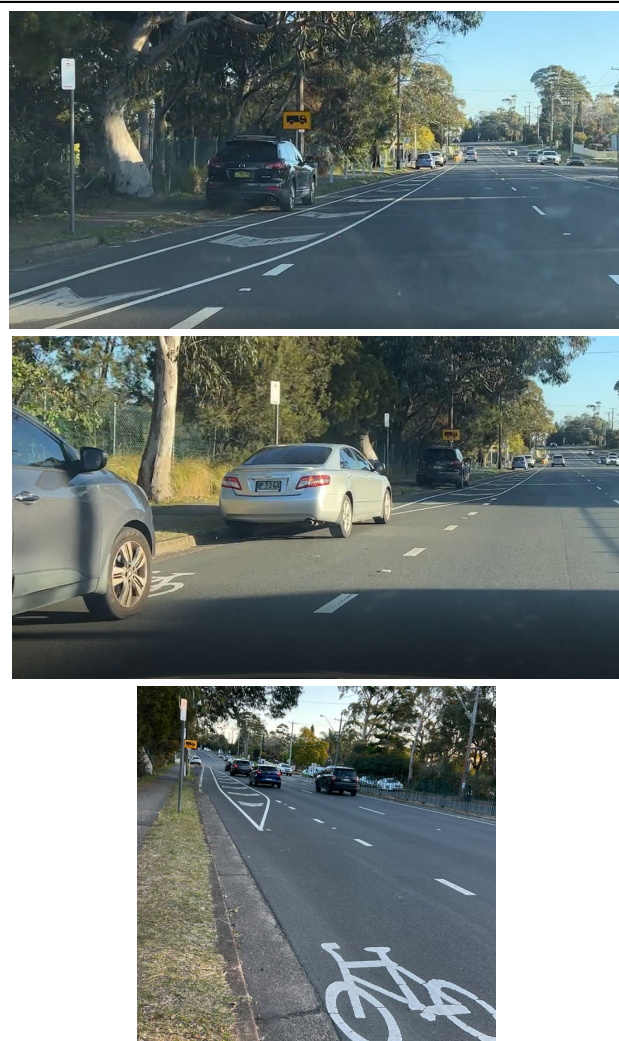
In-line with TfNSW's best practice recommendations have not been included in the road safety audit findings.

Table 4.2: Road Safety Audit Findings

Item No.	Location	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Comment
1.	Pacific Highway	<p>Relocation of the footbridge may alter the pedestrian desire line across Pacific Highway.</p> <p>The south-western end of the existing pedestrian fencing on the median of Pacific Highway is near the proposed station access and may not deter pedestrians from jaywalking across Pacific Highway. Pedestrians may stage the crossing on the nearby painted median.</p> <p>This deficiency would increase the likelihood of collisions involving pedestrians.</p>	 	Occasional	Moderate	Medium	<p>As per the Reference Design, in CDR set we will show RMS fence on the east side to deter jaywalking to the extent as discussed in meeting held with designers 26/08/2022.</p>



Item No.	Location	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Comment
2.	Pierre Close	<p>There is no street lighting directly above the proposed pedestrian crossing.</p> <p>Motorists may not see a pedestrian about to step off the kerb or already on the pedestrian crossing during the night time when the visibility is low. This may increase the likelihood of collisions involving pedestrians.</p>		Improbable	Moderate	Low	Street lighting be provided by ASP L3.
3.	Pierre Close – south side	<p>The design does not show any changes to the existing 15-minute parking restriction on the south-east side of Pierre Close in the vicinity of the proposed pedestrian crossing.</p> <p>There is no provision of a No Stopping zone to prohibit parking on the south-east side of Pierre Close on both sides of the pedestrian crossing, in accordance with TfNSW Technical Direction TDT 2002/12c.</p> <p>Impeded crossing sight distance from the footpath on the south-east side of Pierre Close by parked vehicles adjacent to the crossing would increase the likelihood of a crash involving a pedestrian.</p>	 	Occasional	Moderate	Medium	<p>New traffic signs and/or marking to be provided to compliment the new layout.</p> <p>Civil – Traffic drawings should be added to the CDR set.</p>

Item No.	Location	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Comment
4.	Pierre Close	<p>The design does not indicate any changes to the 40km/h School Zone pavement marking where the proposed pedestrian crossing will be located.</p> <p>As such, the 40km/h School Zone pavement marking will be covered by the proposed pedestrian crossing pavement marking.</p> <p>Consequently, motorists may not be aware of the speed limit and travel above the speed limit. This may result in possible conflicts with other road users.</p>	 	Improbable	Moderate	Low	<p>New traffic signs and/or marking to be provided to compliment the new layout.</p> <p>Civil – Traffic drawings should be added to the CDR set.</p>

Item No.	Location	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Comment
5.	South-east side of Pacific Highway	<p>No Parking restrictions are provided along the south-east side of Pacific Highway near the proposed station access point to Pacific Highway.</p> <p>"No Parking" restriction permits motorists to stop for two minutes or less and the driver has to be within three metres of the vehicle at all times.</p> <p>There are two safety concerns:</p> <ul style="list-style-type: none"> Motorists were observed stopped on Pacific Highway adjacent the proposed station access on Pacific Highway for a period longer than two minutes. Motorists parked within the Pacific Highway merge lane may result in rear end collisions due to a reduced merge length. Vehicles parked near the station access point on Pacific Highway may result in incidents between parked vehicles and cyclists, given a cycleway is located within the No Parking zone. 		Occasional	Moderate	Medium	<p>New traffic signs and/or marking to be provided to compliment the new layout.</p> <p>Civil – Traffic drawings should be added to the CDR set.</p>

Item No.	Location	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Comment
6.	South-east side of Pacific Highway	<p>No kerb and gutter is provided along the south-east side of Pacific Highway in close proximity to the proposed station access point on Pacific Highway.</p> <p>Lack of kerbing exposes pedestrians on the footpath, particularly motorists stopping outside the new station access point on Pacific Highway. As such, vehicles may pull over to the verge and potentially hit pedestrians on the footpath.</p>		Improbable	Moderate	Low	As per item 1, the RMS fence on the east side would mitigate this concern.
7.	Pierre Close	<p>Cyclists were observed cycling across Pierre Close and on the footpath to the station. One cyclist was observed cycling down the existing steps across the existing railway station bridge.</p> <p>Cyclists may attempt to cycle across the new pedestrian footbridge as it will not include any steps.</p> <p>It is acknowledged that cyclists (less than 16 years old) are permitted to cycle on a footpath.</p> <p>However, all cyclists are not permitted to cycle across a pedestrian crossing. A lack of signage may result in conflicts between cyclists and pedestrians.</p>		Improbable	Moderate	Low	A sign for cyclist to dismount should be posted near station entries on both sides.

Item No.	Location	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Comment
8.	Pierre Close	<p>Pedestrian Crossing signage should be duplicated and positioned on both sides of the pedestrian crossing as per Figure 1 AS2890.10.</p> <p>Substandard visibility of Pedestrian Crossing signage may result in conflicts on the pedestrian crossing between motorists and pedestrians.</p>	<p>The drawing shows a plan view of a road with a pedestrian crossing. It includes dimensions for lane widths (7800mm) and crossing width (3200mm). Signs shown include 'ONLY' signs with wheelchair icons, 'KWR' (Keep Right) signs, and 'P 5' (Pedestrian Crossing) signs. A note indicates 'EXISTING SIGNS TO BE RELOCATED'. A legend at the bottom shows 'NO STOPPING' and 'P 5' signs.</p>	Improbable	Moderate	Low	<p>New traffic signs and/or marking to be provided to compliment the new layout.</p> <p>Civil – Traffic drawings should be added to the CDR set.</p>
9.	Pierre Close	<p>The Children Crossing signage is to be removed. The proposed concept design does not mention removal of Children Crossing line marking.</p>	<p>The photograph shows a road with a 'CHILDREN CROSSING' sign on the left and a white line marking on the road. The design drawing below shows a 'CHILDREN CROSSING' sign with a large 'X' over it, indicating it should be removed. It also shows 'LVCO' and 'SG' markings on the road.</p>		Note only		<p>These items will be included in Architectural Demolition Plan.</p>

Item No.	Location	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Comment
10.	Pacific Highway	There is no end to the No Parking area on the south-west side of Pacific Highway. Vehicles were observed parked for more than two hours within the existing No Parking zone.			Note only		Not in scope.
11.	Pacific Highway	The location of proposed station access on Pacific Highway in relation to existing power poles and street lighting should be confirmed to ensure there is no conflict.			Note only		Existing assets not owned by Sydney Trains are affected by the proposed works.

5 Concluding Statement

The findings and opinions in the report are based on the examination of the specific road and environs, and might not address all concerns existing at the time of the audit.

The auditors have endeavoured to identify features of the road that could be modified in order to improve safety, although it must be recognised that safety cannot be guaranteed since no road can be regarded as absolutely safe.

While every effort has been made to ensure the accuracy of this report, it is made available strictly on the basis that anyone relying on it does so at their own risk without any liability to the Auditors.



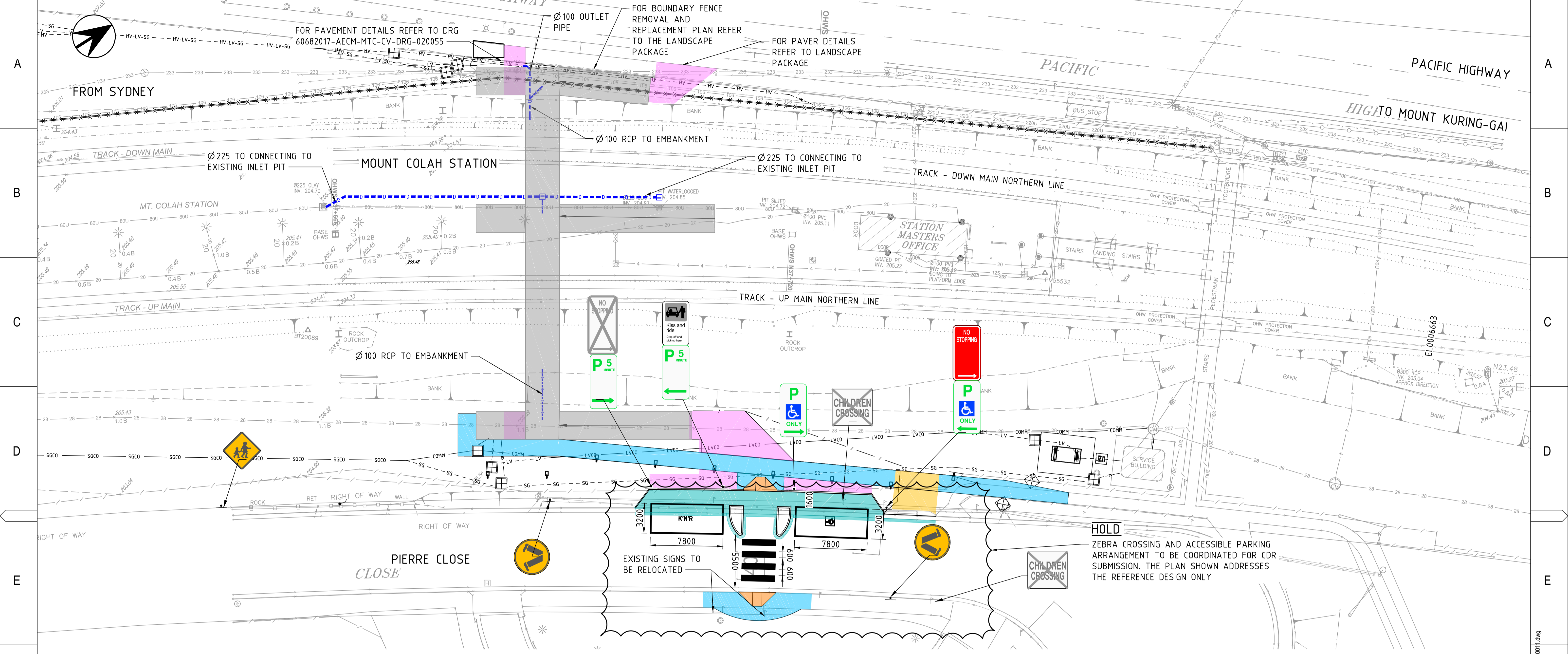
Wayne Johnson
Level 3 Lead Road Safety Auditor
The Transport Planning Partnership



Doris Lee
Level 3 Road Safety Auditor
The Transport Planning Partnership

Appendix A

Design Plans



LEGEND

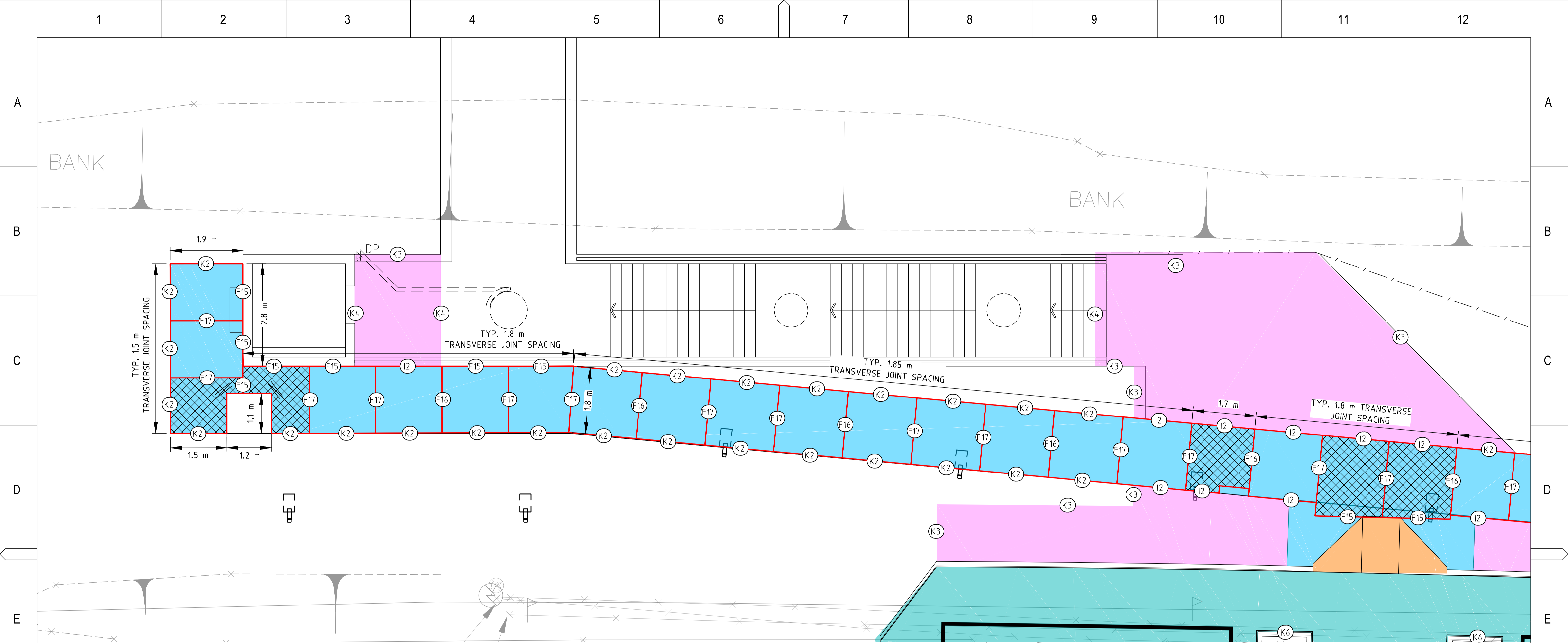
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	FLEXIBLE PAVEMENT		EXISTING DRAINAGE		NEW DRAINAGE PIT		EXISTING DRAINAGE PIT
	RAMP		SIGNAGE LOCATION				
	VEHICLE CROSSING						
	PAVERS						

- NOTES:**
- FOR GENERAL NOTES REFER TO DRG 60682017-AECM-MTC-CV-DRG-020002 & 020003.
 - DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL AND LANDSCAPE PACKAGES.
 - PIT LIDS AND WALLS TO BE ADJUSTED TO SUIT PROPOSED PAVEMENT SURFACE LEVEL WHERE APPLICABLE. FOR DETAILS REFER TO DRG 60682017-AECM-MTC-CV-DRG-20052.
 - FOR PAVEMENT DETAILS REFER TO DRG 60682017-AECM-MTC-CV-DRG-020055, 020056 & 020057.
 - FOR SIGNAGE DETAILS REFER TO DRG 60682017-AECM-MTC-CV-DRG-20062

SAFETY IN DESIGN INFORMATION
 ARE THERE ANY ADDITIONAL HAZARDS / RISKS NOT NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING?
 NO
 YES

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REFERENCES:	THIS DRAWING MAY BE PREPARED IN COLOUR AND MAY BE INCOMPLETE IF COPIED.			SCALE: AS SHOWN	CLIENT:	MT COLAH MAIN NORTH LINE 37.675km MOUNT COLAH STATION UPGRADE CIVIL - MAIN WORKS GENERAL ARRANGEMENT PLAN
					Transport for NSW 	
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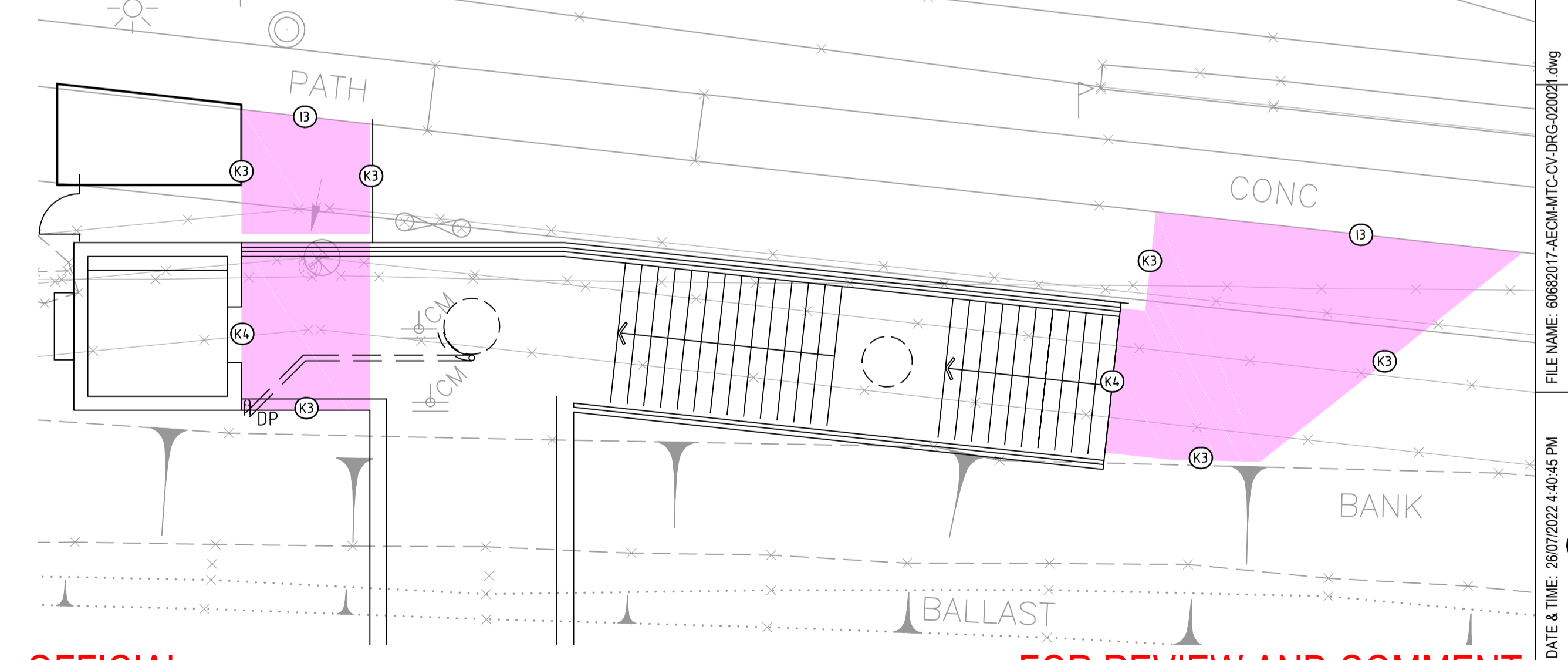
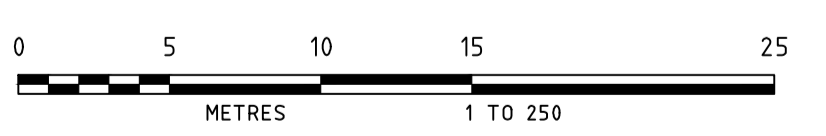


PLAN
SCALE 1:50

LEGEND

	TRIMMER REINFORCEMENT BAR		FLEXIBLE PAVEMENT		RIGID PAVEMENT
	CORNER STEEL REINFORCEMENT		PAVERS		RAMP
	JOINT/INTERFACE TAG		MESH REINFORCEMENT		
	JOINT TYPE				

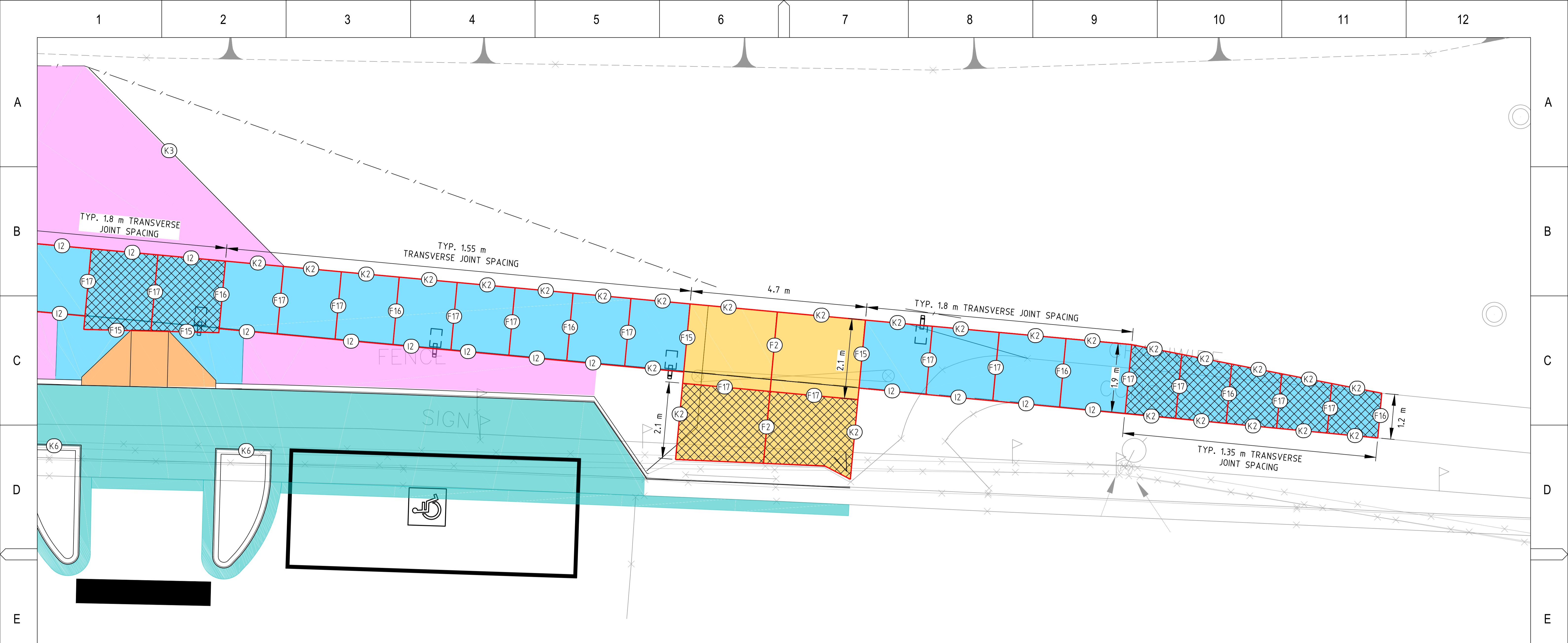
- NOTES:**
- FOR GENERAL NOTES REFER TO DRAWINGS 60682017-AECM-MTC-CV-DRG-020002 & 020003.
 - FOR GENERAL ARRANGEMENT PLAN REFER TO DRAWING 60682017-AECM-MTC-CV-DRG-020011.
 - FOR PAVEMENT PROFILES AND DETAILS REFER TO DRAWING 60682017-AECM-MTC-CV-DRG-020055-020057.



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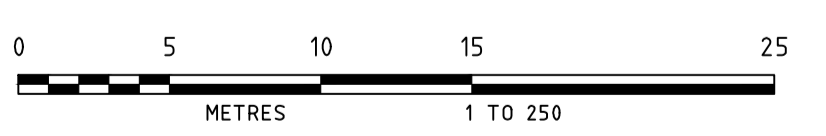


PLAN
SCALE 1:50

LEGEND

	TRIMMER REINFORCEMENT BAR		FLEXIABLE PAVEMENT		RIGID PAVEMENT
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	JOINT/INTERFACE TAG		MESH REINFORCEMENT		
	JOINT TYPE				

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