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Number In Your Reply

9 March 2009

Our ref : LTA/DBC/R70.018.026
Your ref: -

DID: 6332 8283

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Dear Sirs

REVISION TO STANDARD DETAILS OF ROAD ELEMENTS
A) ENHANCED PEDESTRIAN CROSSING LINES (EPCL)
B) USE OF GI PIPES FOR TRAFFIC LIGHTS INSTALLATIONS

A) ENHANCED PEDESTRIAN CROSSING LINES (EPCL)

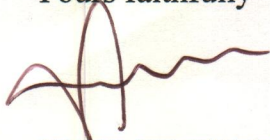
1. The EPCL consists of replacing the existing continuous pedestrian crossing lines with dashed lines. This enhancement is meant to help motorists to better differentiate between the stopping line and the pedestrian crossing line.
2. LTA had conducted trials which were proven to be successful. As such, we would be implementing EPCL islandwide.
3. The revised drawings for EPCL are enclosed in Annex A.

B) USE OF GI PIPES FOR TRAFFIC LIGHTS INSTALLATIONS

4. Presently, cables for traffic lights are encased in GI pipes where the cables are under a road carriageway, while UPVC pipes are used where the cables are laid under a footpath or sidetable. LTA has encountered frequent disruption and damaged to traffic light cables under a footpath or sidetable.
5. In view of the above, UPVC pipes would no longer be used and instead GI pipes would be used to encase traffic light cables even under footpath and sidetable.
6. With these revisions made, we will like to inform the industry that, with immediate effect, all new submissions made to this Division for approval of proposed street works related to development proposals are to comply with the new standards.

7. For approved cases, we are prepared to allow the adoption of the previous standard. However, we strongly encourage the industry to adopt the new standard, if the affected portions of works have not been constructed on site as yet. If the new standards are adopted for approved cases, there is no need to resubmit the plans for approval but the changes should be reflected in the as-built plans submitted during CSC stage. For roads that are presently maintained by private developers, the EPCL shall be adopted when applying the final premix layer before the end of maintenance period (MEP).
8. I would appreciate it very much if you could convey the contents of this circular to all members of your organization. If you have any queries, feel free to contact Mr Mohamed Saddiq Md Nor at Tel: 6332 8236.

Yours faithfully



QUEK TECK BENG
DEPUTY DIRECTOR
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Figure 1: Existing pedestrian crossing lines



Figure 2: Proposed pedestrian crossing lines

TYPE	MARKINGS	DESCRIPTION	THICKNESS OF THERMOPLASTIC PAINT (mm)
(A)		THESE WHITE LINES ARE USED TO INDICATE THE EDGE OF THE CARRIAGEWAY ADJACENT TO AUXILIARY LANES EG. EXCLUSIVE RIGHT / LEFT TURN LANES AT JUNCTIONS, LAY-BYS, BUS BAY ETC AND FOR GUIDING MOTORISTS MAKING RIGHT TURN.	1.5
(A1)		THESE WHITE LINES ARE USED TO INDICATE THE EDGE OF THE CARRIAGEWAY ADJACENT TO AUXILIARY LANES EG. EXCLUSIVE RIGHT / LEFT TURN LANES AT JUNCTIONS, LAY-BYS, BUS BAY ETC AND FOR GUIDING MOTORISTS MAKING RIGHT TURN.	1.5
(A2)		THESE WHITE LINES ARE USED TO INDICATE THE EDGE OF THE CARRIAGEWAY ADJACENT TO AUXILIARY LANES EG. EXCLUSIVE RIGHT / LEFT TURN LANES AT JUNCTIONS, LAY-BYS, BUS BAY ETC AND FOR GUIDING MOTORISTS MAKING RIGHT TURN.	1.5
(A3)		THESE WHITE LINES ARE USED TO INDICATE THE EDGE OF THE CARRIAGEWAY ADJACENT TO AUXILIARY LANES EG. EXCLUSIVE RIGHT / LEFT TURN LANES AT JUNCTIONS, LAY-BYS, BUS BAY ETC AND FOR GUIDING MOTORISTS MAKING RIGHT TURN.	1.5
(A4)		THESE WHITE LINES ARE USED TO INDICATE THE EDGE OF THE CARRIAGEWAY ADJACENT TO AUXILIARY LANES EG. EXCLUSIVE RIGHT / LEFT TURN LANES AT JUNCTIONS, LAY-BYS, BUS BAY ETC AND FOR GUIDING MOTORISTS MAKING RIGHT TURN.	1.5
(A5)		THESE WHITE LINES ARE USED TO INDICATE THE EDGE OF THE CARRIAGEWAY ADJACENT TO AUXILIARY LANES EG. EXCLUSIVE RIGHT / LEFT TURN LANES AT JUNCTIONS, LAY-BYS, BUS BAY ETC AND FOR GUIDING MOTORISTS MAKING RIGHT TURN.	1.5
(B)		THESE WHITE LINES ARE USED TO INDICATE THE EDGE OF THE CARRIAGEWAY ADJACENT TO AUXILIARY LANES EG. EXCLUSIVE RIGHT / LEFT TURN LANES AT JUNCTIONS, LAY-BYS, BUS BAY ETC AND FOR GUIDING MOTORISTS MAKING RIGHT TURN.	1.5
(B1)		THESE WHITE LINES ARE USED TO INDICATE THE EDGE OF THE CARRIAGEWAY ADJACENT TO AUXILIARY LANES EG. EXCLUSIVE RIGHT / LEFT TURN LANES AT JUNCTIONS, LAY-BYS, BUS BAY ETC AND FOR GUIDING MOTORISTS MAKING RIGHT TURN.	1.5
(C)		THESE WHITE LINES ARE USED TO INDICATE THE EDGE OF THE CARRIAGEWAY ADJACENT TO AUXILIARY LANES EG. EXCLUSIVE RIGHT / LEFT TURN LANES AT JUNCTIONS, LAY-BYS, BUS BAY ETC AND FOR GUIDING MOTORISTS MAKING RIGHT TURN.	1.5
(D)		THESE WHITE LINES ARE USED TO INDICATE THE EDGE OF THE CARRIAGEWAY ADJACENT TO AUXILIARY LANES EG. EXCLUSIVE RIGHT / LEFT TURN LANES AT JUNCTIONS, LAY-BYS, BUS BAY ETC AND FOR GUIDING MOTORISTS MAKING RIGHT TURN.	1.5
(E)		THESE WHITE LINES ARE USED TO INDICATE THE EDGE OF THE CARRIAGEWAY ADJACENT TO AUXILIARY LANES EG. EXCLUSIVE RIGHT / LEFT TURN LANES AT JUNCTIONS, LAY-BYS, BUS BAY ETC AND FOR GUIDING MOTORISTS MAKING RIGHT TURN.	1.5
(F)		THESE WHITE LINES ARE USED TO INDICATE THE EDGE OF THE CARRIAGEWAY ADJACENT TO AUXILIARY LANES EG. EXCLUSIVE RIGHT / LEFT TURN LANES AT JUNCTIONS, LAY-BYS, BUS BAY ETC AND FOR GUIDING MOTORISTS MAKING RIGHT TURN.	1.5

NOTES :-

- SINGLE / DOUBLE YELLOW LINES ARE NOT REQUIRED UNDER THE FOLLOWING SITUATIONS :
- FLYOVER AND UNDERPASS
- RAMPS LEADING TO FLYOVER AND UNDERPASS
- SLIP ROAD (BOTH SIDES)
- EDGE OF TRAFFIC ISLAND (FORMING THE SLIP ROAD) AT ROAD INTERSECTION

DATE OF REVISION
A. 05-07-2008

STANDARD DETAIL

LANE MARKINGS

Land Transport Authority

DRAWING NO. LTA/RSEU/RSP /37 /2008
DATE OF ISSUE DEC 2008
SCALE 1:100
SHEET NO. 1 OF 2

TYPE	MARKINGS	DESCRIPTION	THICKNESS OF THERMOPLASTIC PAINT (mm)
(G)		THIS CONTINUOUS YELLOW LINE BY THE SIDE OF THE CARRIAGEWAY INDICATES NO PARKING FROM 7.00am TO 7.00pm ON THAT SIDE OF THE CARRIAGEWAY EXCEPT SUNDAYS AND PUBLIC HOLIDAYS. (SEE NOTE)	1.5
(H)		TWO PARALLEL CONTINUOUS WHITE LINES ARE USED AS CENTRE LINE ON A TWO-WAY CARRIAGEWAY OR BETWEEN LANES TO INDICATE NO CROSSING OF THE LINES.	1.5
(I)		TWO PARALLEL CONTINUOUS YELLOW LINES BY THE SIDE OF THE CARRIAGEWAY INDICATE NO PARKING AT ALL TIMES ON THAT SIDE OF THE CARRIAGEWAY.	1.5
(J)		THIS CONTINUOUS WHITE LINE IS USED ALONG EXPRESSWAY ADJACENT TO PAVED SHOULDER AND ALSO AS STOP LINES.	1.5 3.0 (STOP LINE)
(K)		THESE ZIG ZAG WHITE LINE ARE USED TO INDICATE APPROACHING ZEBRA CROSSING. THEY ALSO INDICATE NO CROSSING AND NO PARKING AT AREA WHERE THESE LINES ARE PAINTED.	1.5
(L)		THIS CONTINUOUS YELLOW LINE IS USED AS BUS LANE MARKING.	1.5
(M)		THIS CONTINUOUS WHITE LINE IS USED AS EDGELINES PAINTED NEXT TO THE CENTRE DIVIDER KERBS, ALONG DUAL 3-LANE (AND ABOVE) ROADS WHERE STREET LIGHTINGS ARE NOT PROVIDED ALONG THE CENTRE DIVIDER.	1.5 (EDGELINE)
(N)		THESE CONTINUOUS YELLOW LINES ARE USED FOR YELLOW BOX JUNCTION. 200mm FOR THE DIAGONALS AND 455mm FOR THE SIDES.	3.0
(O)		SINGLE ZIG ZAG YELLOW LINE AT THE EDGE OF A ROAD PROHIBITING PARKING AT ALL TIMES	1.5
(P)		DOUBLE ZIG ZAG YELLOW LINE AT THE EDGE OF A ROAD PROHIBITING STOPPING OF VEHICLES AT ALL TIMES UNLESS THE VEHICLE IS PREVENTED FROM PROCEEDING DUE TO TRAFFIC CONDITIONS.	1.5

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DATE OF REVISION

A. 05-07-2008

STANDARD DETAIL

LANE MARKINGS

Land Transport Authority

DRAWING NO.

LTA/RSEU/RSP/38/2008

DATE OF ISSUE

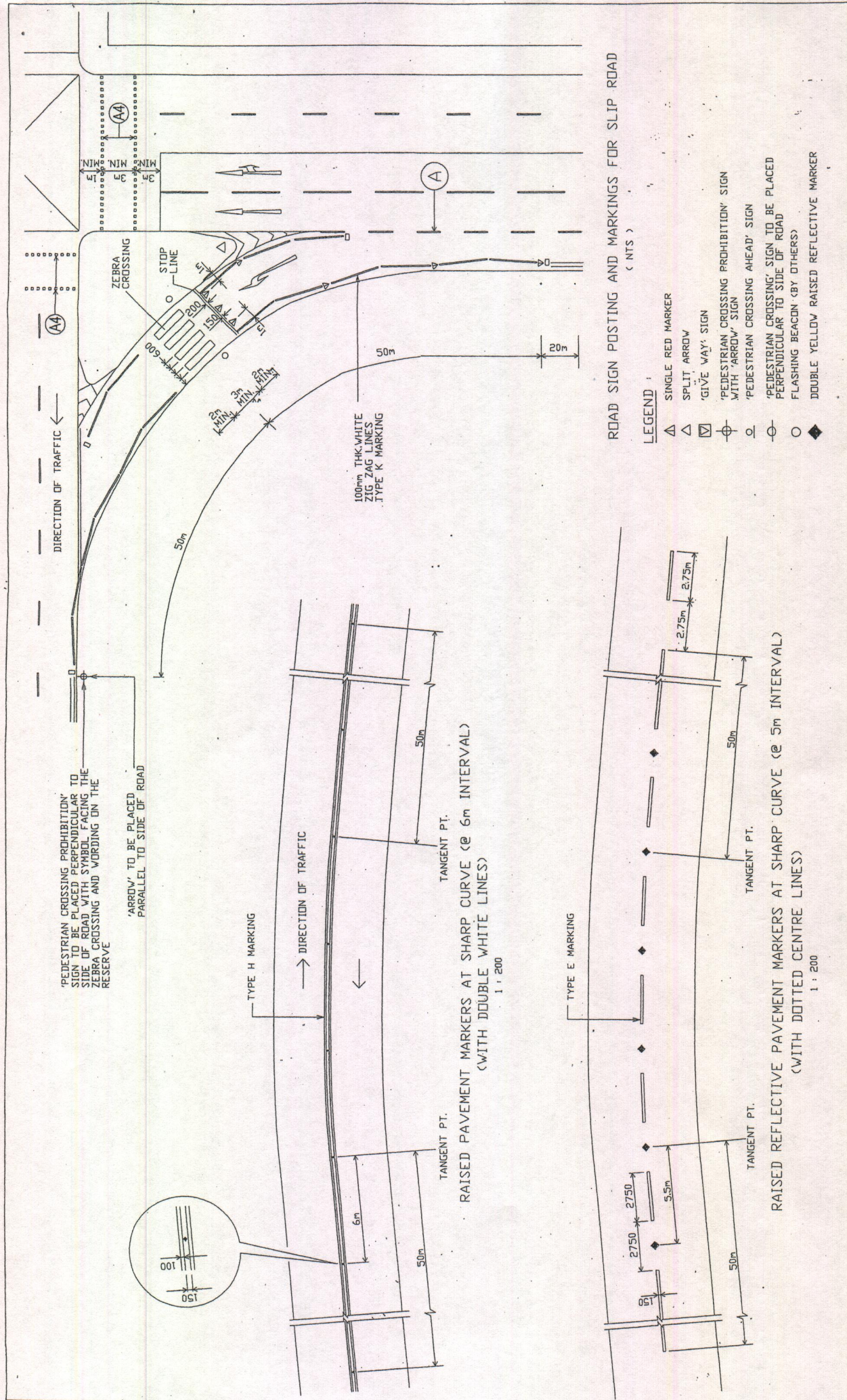
DEC 2008

SCALE

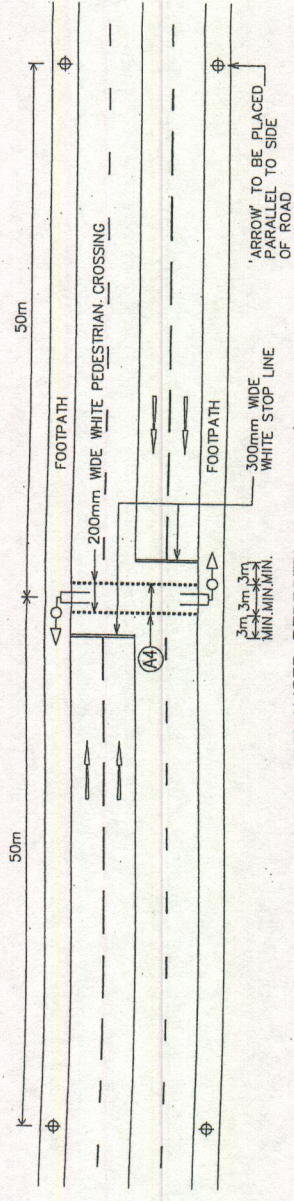
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SHEET NO.

2 OF 2

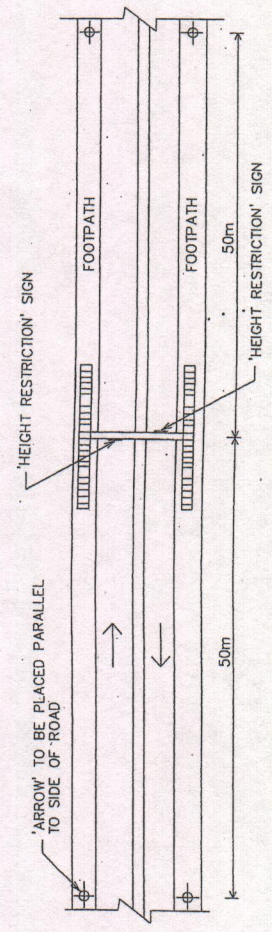


STANDARD		DETAIL
ROAD SIGNS & MARKINGS FOR SLIP ROADS & SHARP CURVE		
DRAWING NO.		Land Transport Authority
DATE OF ISSUE	SCALE	AS SHOWN
DEC 2008		
DRAWING NO.		LTA/RSEU/RSP/35/2008
DATE OF ISSUE	SHEET NO.	1 OF 1
DEC 2008		



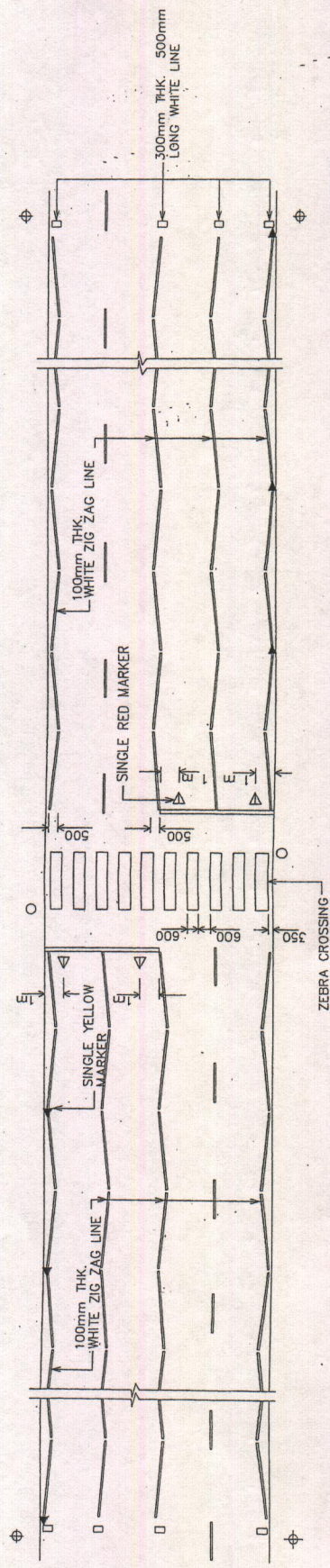
SIGNALISED PEDESTRIAN CROSSING
1 : 500

- LEGEND :**
- △ SINGLE RED MARKER
 - ▲ SINGLE 'YELLOW MARKER
 - △ SPLIT ARROW
 - ▽ 'GIVE WAY' SIGN
 - ⊕ 'PEDESTRIAN CROSSING PROHIBITION' SIGN
 - ⊙ WITH 'ARROW' SIGN
 - ⊖ 'PEDESTRIAN CROSSING AHEAD' SIGN
 - ⊕ 'PEDESTRIAN CROSSING' SIGN TO BE PLACED PERPENDICULAR TO SIDE OF ROAD
 - FLASHING BEACON



OVERHEAD BRIDGE
NTS

50m
APPROX. 50m



ZEBRA CROSSING AND ZIG ZAG MARKING
1 : 250

- NOTES:-**
1. PEDESTRIAN CROSSING WITH GREEN AND RED MAN ASPECT IS TO BE PAINTED WHITE.
 2. PEDESTRIAN CROSSING WITHOUT GREEN AND RED MAN ASPECT IS TO BE PAINTED YELLOW.
 3. THE ZIG ZAG MARKINGS MUST NOT OVERLAP EXISTING DOUBLE YELLOW LINES.
 4. THE ZIG ZAG MARKINGS SHOULD BE 350mm AWAY FROM THE ROAD KERB.
 5. THE RAISED REFLECTIVE PAVEMENT MARKERS SHOULD COMPLY WITH THE REQUIREMENTS LAID DOWN IN THE PARTICULAR SPECIFICATION AND B.S. 873 PART 4.

STANDARD DETAIL

ROAD SIGNS & MARKINGS
FOR PEDESTRIAN CROSSINGS

Land Transport Authority

DRAWING NO. LTA/RSEU/RSP/34/2008
DATE OF ISSUE SCALE SHEET NO.

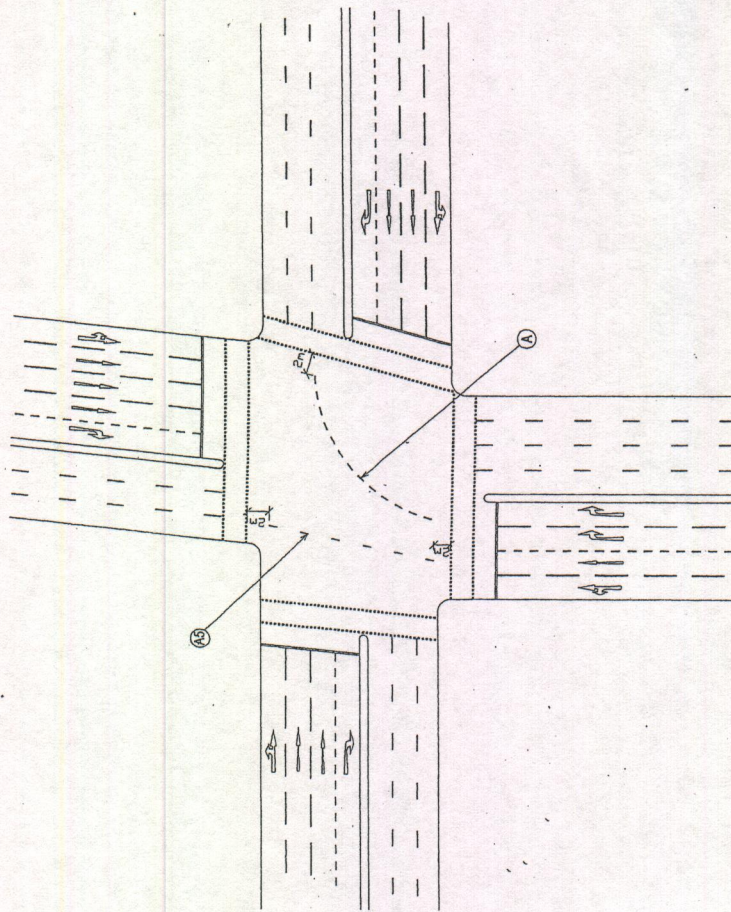


Figure 1

GENERAL GUIDELINES FOR PAINTING GUIDING LINES

- 1) The guiding principle is, if it is a straight guiding line, use 1m mark by 3m gap. If it is for guiding turning movement, then use 1m mark by 1m gap (see Figure 1)
- 2) Guiding lines should be painted at least 2m away from the outer pedestrian crossing line or stop line (for approach without pedestrian crossing) (see Figure 1)
- 3) Guiding lines are not recommended to be applied directly next to the pedestrian crossing lines, where not possible, pedestrian crossing lines and/or stop line may need to be offset (at least 1 lane width) from guiding line.
- 4) Guiding lines should not intersect with existing turning pocket and should not be drawn within turning pocket.
- 5) Guiding lines should not be painted over yellow box markings.

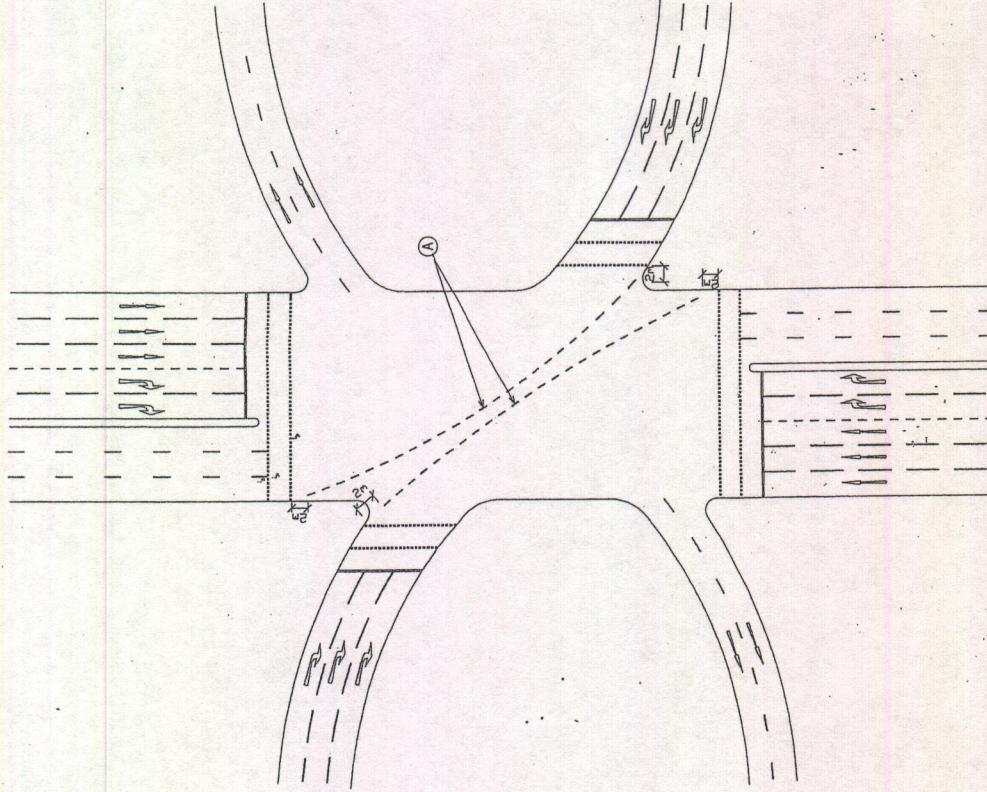


Figure 2

USING GUIDING LINES AS BOUNDARY GUIDING LINES

- NOTES:-
1. GUIDING LINES SHOULD BE USED ONLY WHEN ABSOLUTELY NECESSARY
 2. GUIDING LINES COULD BE APPLIED UNDER THE FOLLOWING SCENARIOS:
 - (a) FOR SKEWED INTERSECTIONS OR INTERSECTIONS WITH CREST WHERE THE RECEIVING LANES ARE NOT CLEARLY SEEN BY MOTORISTS AND WHERE IT IS NOT FEASIBLE TO REALIGN THE INTERSECTIONS.
 - (b) FOR COMPLEX INTERSECTIONS (USUALLY LARGE JUNCTIONS) WHERE MOTORISTS NEED TO MAKE RIGHT TURN ACROSS MORE THAN 3 LANES (EXCLUDING EXCLUSIVE RIGHT TURN LANE); OR
 - (c) WHERE THERE MAY BE POSSIBLE CONFLICTS BETWEEN TWO OPPOSITE TURNING TRAFFIC E.G. AT CRAB-CLAW JUNCTIONS (THOSE ADJOINING EXPRESSWAY) IN THIS

DATE OF REVISION

STANDARD DETAIL

GUIDING LINES AT INTERSECTIONS

Land Transport Authority

DRAWING NO.

LTA/RSEU/RSP/36/2008

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SCALE

SHEET NO.