

# field guide

traffic control devices for  
workzone traffic management

Version 9.1 2021



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O

Traffic Management Centre: 1800 018 313

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Government of South Australia  
Department for Infrastructure  
and Transport

## Preface

This field guide has been prepared by the Department for Infrastructure and Transport (“the department”) to assist in the preparation of Workzone Traffic Guidance Plans intended for use on or adjacent roads within South Australia.

The illustrated figures in this guide are examples only and this guide is not intended to cover all instances. Users remain at all times responsible for compliance with the provisions of the South Australian *Road Traffic Act 1961* and *Regulation* and to the *Manual of Legal Responsibilities and Technical Requirements for Traffic Control Devices* Australian Standard AS 1742.3 *Manual Uniform Traffic Control Devices Part 3: Traffic control for works on roads*, Austroads *Guide to Temporary Traffic Management (AGTTM) Parts 1-10* and the *SA Standards for Workzone Traffic Management*.

The department does not warrant the accuracy or completeness of this Field Guide and the department, the Minister for Transport and the Crown in Right of the State of South Australia are not jointly (or severally) liable for any claim, damages, injuries, deaths or liabilities with (or arising out of) the use of this Field Guide.

The department wishes to acknowledge the participation of the expert individuals that contributed to the development of this guide during the consultation period.

Readers are encouraged to notify the department immediately of any apparent inaccuracies or ambiguities.

### **Notification of works**

When planning to work on or adjacent to a road under the care and control of the department a permit number must be obtained from the department’s Traffic Management Centre (TMC). For further information contact the department’s 24 hour free call number on 1800 018 313.

Roads not controlled by the department that are within a local government area are under the control of the respective local council.

### **Reporting work site inaccuracies**

Road users are encouraged to report specific instances of deficient or unsafe workzone traffic management to the department (for roads under the care and control of the department) via the 24 hour enquiry line 1800 018 313.

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## General

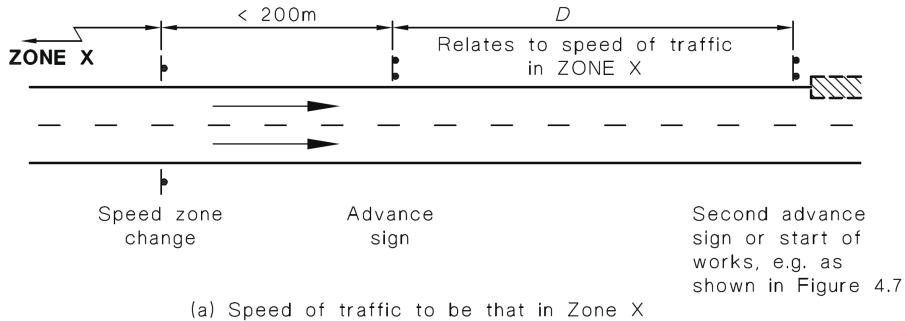
### Sign Spacing - Dimension D

Dimension  $D$ , as shown on the illustrated examples within this guide, is for the positioning of advance signs and is related to the speed of traffic. The value of  $D$  is shown in the following table.

Speed of traffic (km/h)	Dimension D (m)
45 or less	5
46-55	15
56-65	45
Greater than 65	Equal to speed of traffic, in km/h

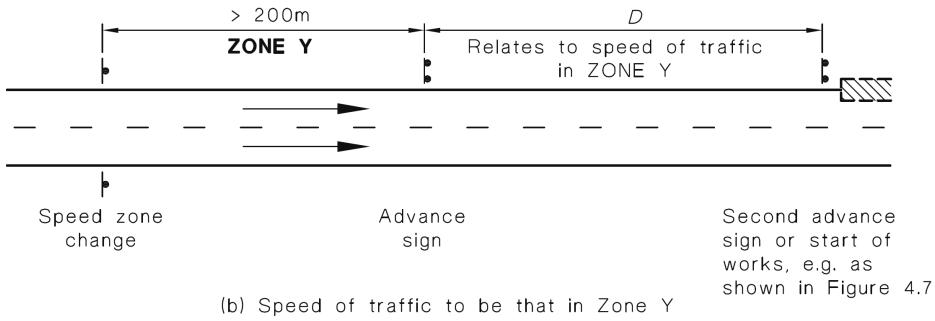
Reference: SA Standards for Workzone Traffic Management Table 5.2

Dimension  $D$  is the speed of traffic in the speed zone immediately preceding the zone where advance signs are placed, see figure below.



Reference: SA Standards for Workzone Traffic Management Section 5.5.1(a)

If there has been no zone change for at least the preceding 200m, Dimension  $D$  is the speed of traffic at the advance sign, see figure below.



Reference: SA Standards for Workzone Traffic Management Section 5.5.1(b)

### Speed Limits

Default speed limit for roadworks in SA is 40 km/h. (Refer to SA Standards for Workzone Traffic Management Section 6.2). Use of a 25 km/h temporary speed zone shall only be applied for work area involving an **unusually high level of hazard** (Hazard Category 2). (SA Standards for Workzone Traffic Management Table 6.1).

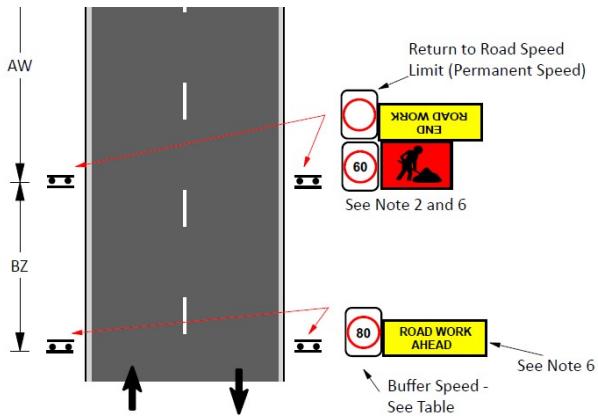
## Repeater signs

Repeater speed restriction signs shall be provided to confirm and remind road users of the speed limit where it is imposed over a considerable length and locations where it may appear that the limit no longer applies, e.g. between work areas in an extended work site and work sites through an intersection.

For examples refer to example figures with intersections and roundabouts.

## Duplication of signs

Multiple signs that are placed together and are duplicated and facing in the same direction as traffic must have the regulatory sign facing closer to the road (refer to figure below).



### DISTANCE LEGEND:

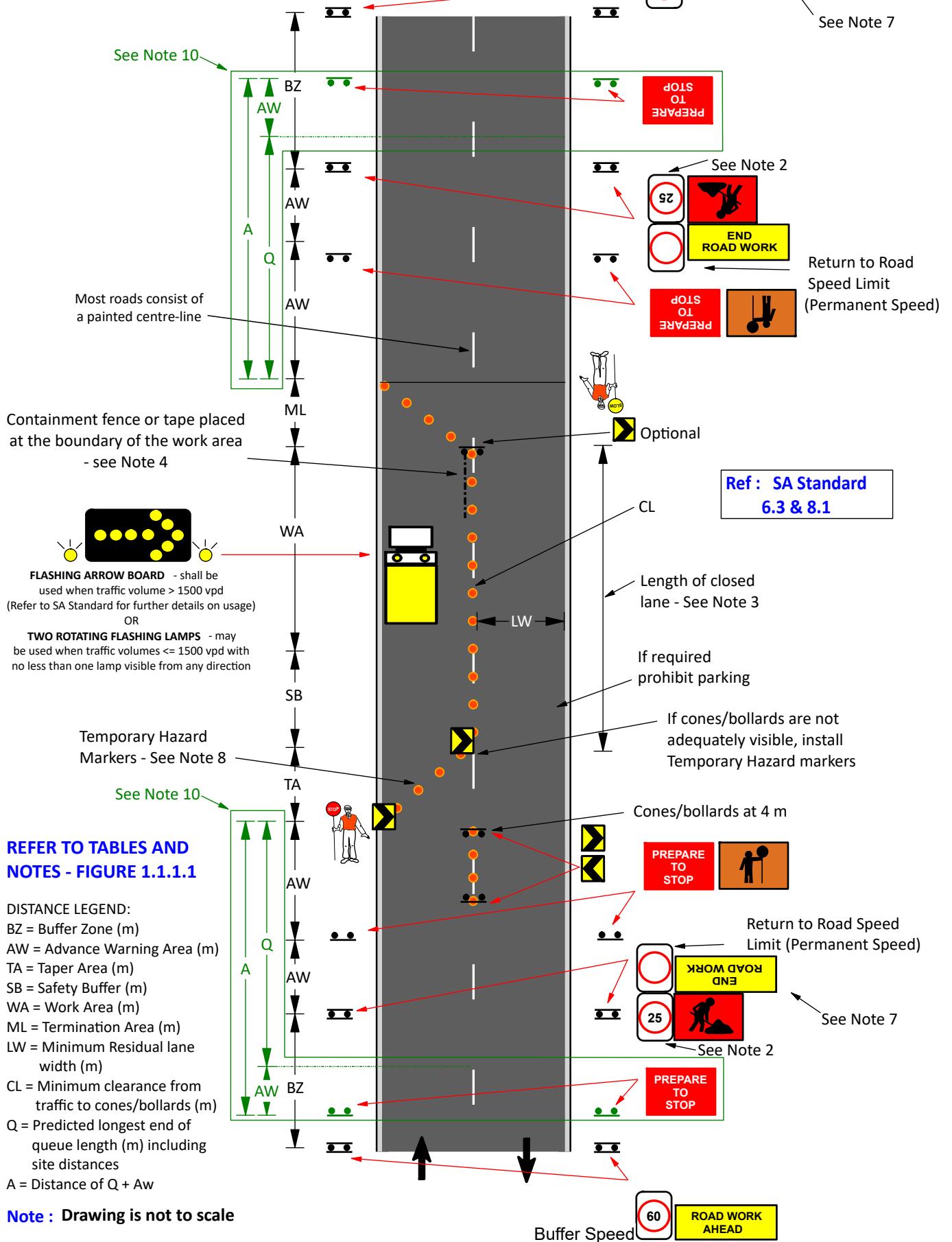
BZ = Buffer Zone (m)  
AW = Advance Warning Area (m)  
TA = Taper Area (m)  
SB = Safety Buffer (m)  
WA = Work Area (m)  
ML = Termination Area (m)  
LW = Minimum Residual lane width (m)  
CL = Minimum clearance from traffic to cones/bollards (m)  
Q = Predicted longest end of queue length (m) including site distances  
A = Distance of Q + Aw

# **Example traffic management plans**

# FIGURE 1.1.1.1

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EXAMPLE : TWO LANE - TWO WAY ROADS, MID BLOCK  
ONE LANE OPERATION, WITH TRAFFIC CONTROLLERS



## TABLES AND NOTES - Figure 1.1.1.1

### TWO LANE - TWO WAY ROADS, MID BLOCK – ONE LANE OPERATION WITH TRAFFIC CONTROLLERS

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	D** = 70	D**
TA	15	15	30	n/a	n/a
SB	***	***	20 - 30	20 - 30	20 - 30
WA	See Note 3				
ML	Optional, 5	Optional, 5	Optional, 15	Optional, 15	Optional, 15

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 - 110*
TA	4	4	12	12	18
SB	4	4	12	12	18
WA	4	4	12	12	18
ML – if installed	4	4	12	12	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 - 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

#### DESIRABLE MAXIMUM LENGTH OF SINGLE-LANE OPERATION UNDER REVERSIBLE FLOW

Traffic Volume (vph)	Length of single-lane section – measured from one control point to the other (m)
>= 701	70
601 - 700	100
501 - 600	150
301 - 500	250
<= 300	500

This Figure illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

## Continue for Figure 1.1.1.1

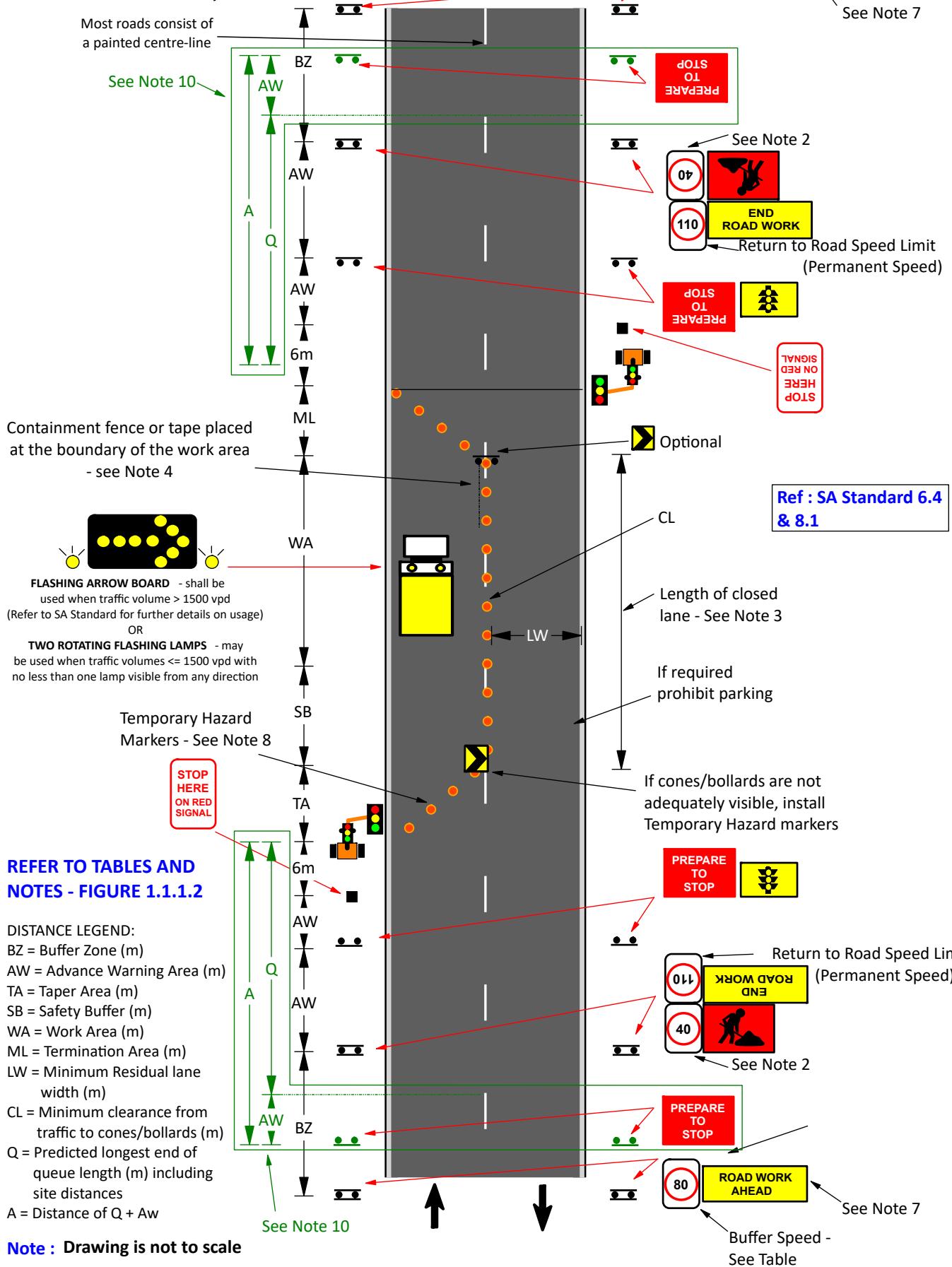
### NOTES:

1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2)
3. For the conditions of use:
  - Observe the desirable maximum length of single-lane operation under reversible flow table (as above)
  - High visibility clothing shall be worn by traffic controllers
  - Stop/Slow traffic bat shall be used (except if a boom gate is installed)
  - For night works an illuminated wand must be used
  - Portable two-way radios or similar shall be used (unless in blasting area) for communication between controllers unless they are able to communicate by sight
  - Traffic controllers shall not be located where the sight distance is less than 1.5D between controller and on-coming traffic. Determine "D" from Length of Zone table above selecting values from "AW" zone
  - Traffic controllers shall take rest breaks of 15 minutes or more for at least every 2 hours
  - Minimise the risk of end-of-queue collisions - see SA Standard section 5.6.5
4. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence of tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
5. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
6. Provision shall be made for pedestrians (including disabled persons) and bicycles
7. Install appropriate signs:
  - Advance Warning – Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90$  km/h)
  - Termination - T2-16A or T2-17A
8. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
9. For additional information on night works, please refer to SA Standard section 8.5
10. If distance A exceeds 4D, repeater sign(s) (prepare to stop) are required at evenly spaced distance(s)

# FIGURE 1.1.1.2

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## EXAMPLE : TWO LANE - TWO WAY ROADS, MID BLOCK ONE LANE OPERATION, WITH TRAFFIC SIGNALS



## TABLES AND NOTES - Figure 1.1.1.2

### TWO LANE - TWO WAY ROADS, MID BLOCK – ONE LANE OPERATION WITH TRAFFIC SIGNALS

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	D** = 70	D**
TA	15	15	30	30	30
SB	***	***	20 - 30	20 - 30	20 - 30
WA	See Note 3				
ML	Optional, 5	Optional, 5	Optional, 15	Optional, 15	Optional, 15

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	12	12	18
SB	4	4	12	12	18
WA	4	4	12	12	18
ML – if installed	4	4	12	12	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

#### DESIRABLE MAXIMUM LENGTH OF SINGLE-LANE OPERATION UNDER REVERSIBLE FLOW

Traffic Volume (vph)	Length of single-lane section – measured from one control point to the other (m)
>= 701	70
601 - 700	100
501 - 600	150
301 - 500	250
<= 300	500

This Figure illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

## Continue for Figure 1.1.1.2

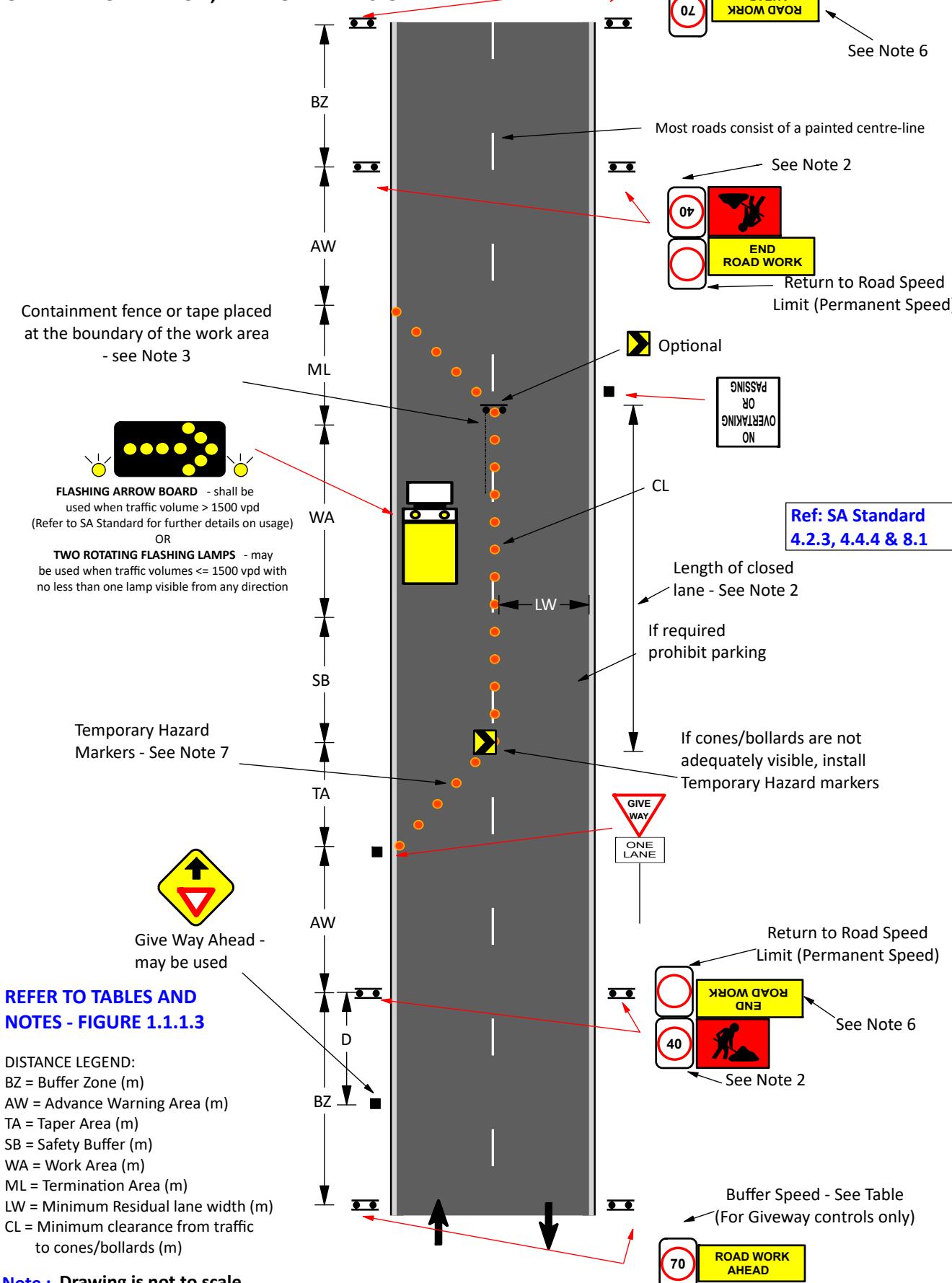
### NOTES:

1. Undertake a risk assessment
2. Speed through Work Site shall be  $\leq 60 \text{ km/h}$ 
  - Length of 60 km/h speed zone shall be  $\geq 200 \text{ metres}$
  - Length of 40 km/h speed zone shall be  $\leq 500 \text{ metres}$
  - Length of 25 km/h speed zone should be  $\geq 100 \text{ metres}$  and shall be  $\leq 200 \text{ metres}$
3. For the conditions of use:
  - Observe the desirable maximum length of single-lane operation under reversible flow table (as above)
  - Sight distance on approach to the primary face of traffic signals shall be  $\geq 150 \text{ metres}$
  - Minimise the risk of end-of-queue collisions - see SA Standard section 5.6.5
  - Monitor signals for safe and effective operation and to ensure traffic delays are not excessive
4. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
5. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
6. Provision shall be made for pedestrians (including disabled persons) and bicycles
7. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
  - Termination - T2-16A or T2-17A
8. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
9. For additional information on night works, please refer to SA Standard section 8.5
10. If distance A exceeds 4D, repeater sign(s) (prepare to stop) are required at evenly spaced distance(s)

## FIGURE 1.1.1.3

EXAMPLE : TWO LANE - TWO WAY ROADS, MID BLOCK

ONE LANE OPERATION, WITH GIVEWAY SIGN



REFER TO TABLES AND  
NOTES - FIGURE 1.1.1.3

DISTANCE LEGEND:

BZ = Buffer Zone (m)

AW = Advance Warning Area (m)

TA = Taper Area (m)

SB = Safety Buffer (m)

WA = Work Area (m)

ML = Termination Area (m)

LW = Minimum Residual lane width (m)

CL = Minimum clearance from traffic  
to cones/bollards (m)

Note : Drawing is not to scale

## TABLES AND NOTES - Figure 1.1.1.3

### TWO LANE - TWO WAY ROADS, MID BLOCK - ONE LANE OPERATION WITH GIVE WAY SIGN

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70
BZ	= AW	= AW	= AW	= AW
AW	D = 5	D = 15	D = 45	2D** = 140
TA	15	15	30	n/a
SB	***	***	20 - 30	20 - 30
WA	See Note 3			
ML	Optional, 5	Optional, 5	Optional, 15	Optional, 15

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	12	12	18
SB	4	4	12	12	18
WA	4	4	12	12	18
ML – if installed	4	4	12	12	18

\* Cone height  $\geq$  700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

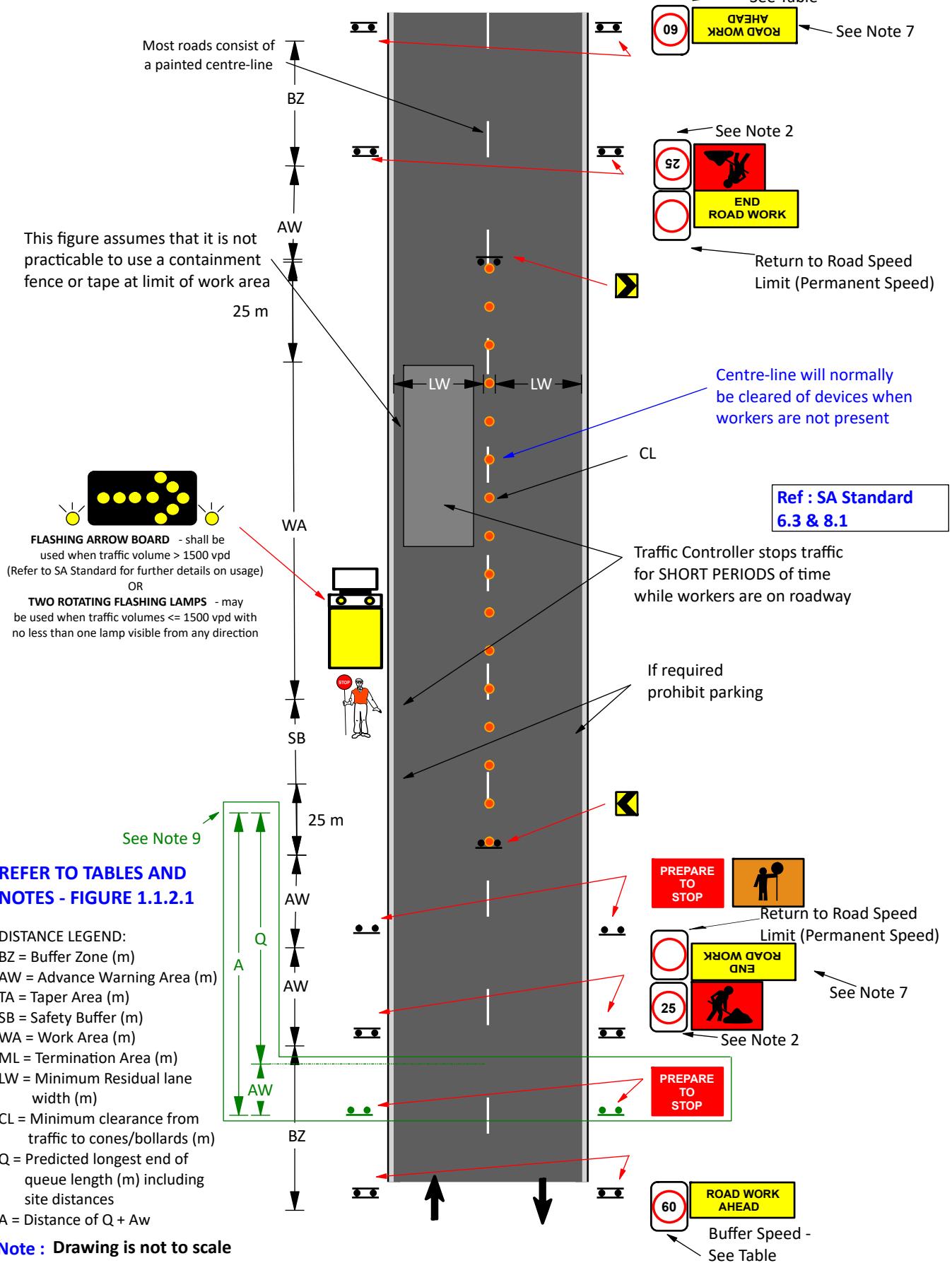
1. Undertake a risk assessment
2. Speed through Work Site shall be  $\leq$  60 km/h
  - Length of 60 km/h speed zone shall be  $\geq$  200 metres
  - Length of 40 km/h speed zone shall be  $\leq$  500 metres
  - Length of 25 km/h speed zone should be  $\geq$  100 metres and shall be  $\leq$  200 metres
3. For the conditions of use:
  - Observe the desirable maximum length of single-lane operation under reversible flow table (as above)
  - Sight distance on approach to the primary face of traffic signals shall be  $\geq$  150 metres
  - Minimise the risk of end-of-queue collisions - see SA Standard section 5.6.5
  - Monitor signals for safe and effective operation and to ensure traffic delays are not excessive
4. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
5. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
6. Provision shall be made for pedestrians (including disabled persons) and bicycles

### **Continue for Figure 1.1.1.3**

7. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds >= 90 km/h)
  - Termination - T2-16A or T2-17A
8. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
9. For additional information on night works, please refer to SA Standard section 8.5

# FIGURE 1.1.2.1

EXAMPLE : TWO LANE - TWO WAY ROADS, MID BLOCK  
TWO WAY OPERATION, WITH SINGLE TRAFFIC CONTROLLER



## TABLES AND NOTES - Figure 1.1.2.1

### TWO LANE - TWO WAY ROADS, MID BLOCK - TWO LANE OPERATION WITH SINGLE TRAFFIC CONTROLLER

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	40 - 50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	Approach D** = 70 Departure 2D**	Approach D** Departure 2D**
TA	n/a	n/a	n/a	n/a	n/a
SB	***	***	20 - 30	20 - 30	20 - 30
WA				See Note 2	
ML	Optional, 5	Optional, 5	Optional, 15	Optional, 15	Optional, 15

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	n/a	n/a	n/a	n/a	n/a
SB	4	4	12	12	18
WA	4	4	12	12	18
ML	n/a	n/a	n/a	n/a	n/a

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2)
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres

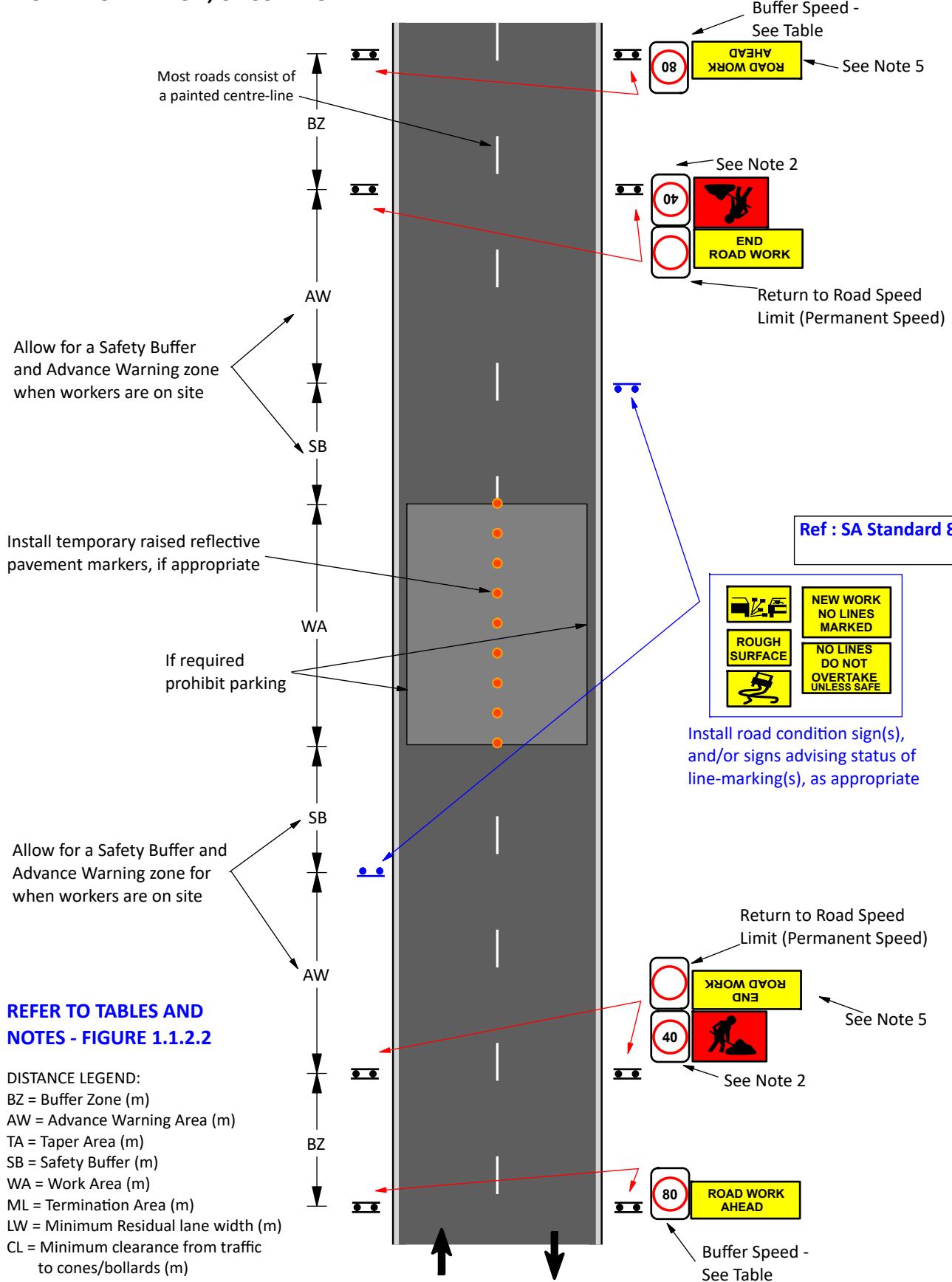
## Continue for Figure 1.1.2.1

3. For the conditions of use:
  - High visibility clothing shall be worn by traffic controllers
  - Stop/Slow traffic bat shall be used
  - For night works an illuminated wand must be used
  - Traffic Controller shall not be located where the sight distance is less than 1.5D between controller and on-coming traffic. Determine "D" from Length of Zone table above selecting values from "AW" zone
  - Traffic controllers shall take rest breaks of 15 minutes or more for at least every 2 hours
  - Minimise the risk of end-of-queue collisions - see SA Standard section 5.6.5
4. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
5. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
6. Provision shall be made for pedestrians (including disabled persons) and bicycles
7. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
  - Termination - T2-16A or T2-17A
8. For additional information on night works, please refer to SA Standard section 8.5
9. If distance A exceeds 4D, repeater sign(s) (prepare to stop) are required at evenly spaced distance(s)

## FIGURE 1.1.2.2

EXAMPLE : TWO LANE - TWO WAY ROADS, MID BLOCK

TWO WAY OPERATION, UNCONTROLLED



### REFER TO TABLES AND NOTES - FIGURE 1.1.2.2

#### DISTANCE LEGEND:

BZ = Buffer Zone (m)

AW = Advance Warning Area (m)

TA = Taper Area (m)

SB = Safety Buffer (m)

WA = Work Area (m)

ML = Termination Area (m)

LW = Minimum Residual lane width (m)

CL = Minimum clearance from traffic to cones/bollards (m)

**Note :** Drawing is not to scale

## TABLES AND NOTES - Figure 1.1.2.2

### TWO LANE - TWO WAY ROADS, MID BLOCK - TWO LANE OPERATION UNCONTROLLED

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	2D** = 140	2D**
TA	n/a	n/a	n/a	n/a	n/a
SB	***	***	20 - 30	20 - 30	20 - 30
WA			See Note 2		
ML	n/a	n/a	n/a	n/a	n/a

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	n/a	n/a	n/a	n/a	n/a
SB	4	4	12	12	18
WA	4	4	12	12	18
ML	n/a	n/a	n/a	n/a	n/a

\* Cone height >= 700 mm

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
70	n/a	n/a	25 Ahead
80	n/a	40 Ahead	60
90	n/a	40 Ahead	60
100 or 110	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. Install speed zone for the work site (which may be a buffer speed – see table above), and a speed zone for the work area when workers are present (40 km/h, unless work area involves an unusually high level of hazard (Category 2); on higher speed roads, and where it is safe to do so, installing a speed limit of 60 km/h may be appropriate)
  - Length of 60 km/h speed zone shall be >= 200 metres
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres
3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Provision shall be made for pedestrians (including disabled persons) and bicycles

## **Continue for Figure 1.1.2.2**

5. Install appropriate signs:

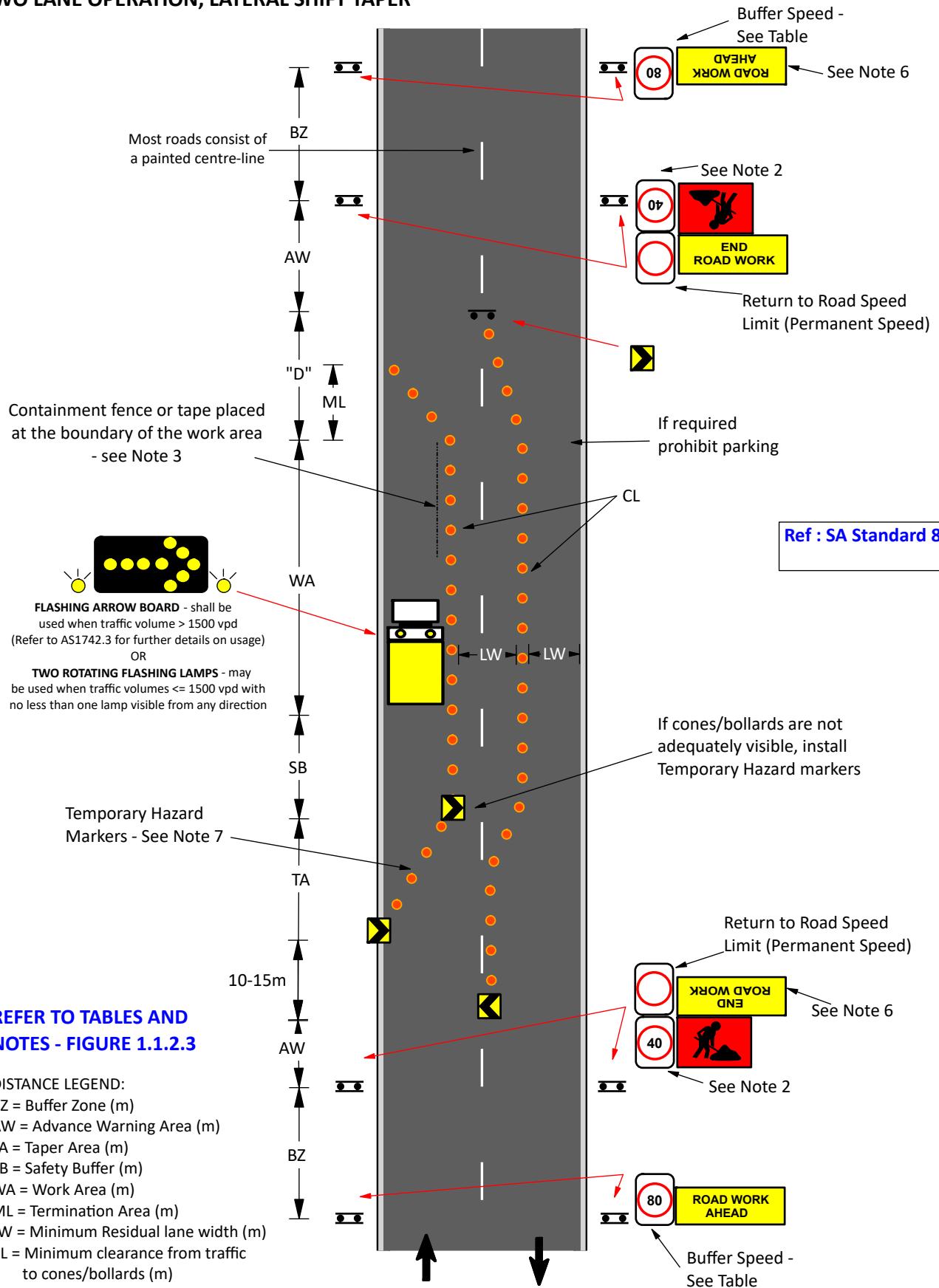
- Advance Warning - Refer to AS1742.3 section 4.6.2
  - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
  - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds >= 90 km/h)
- Termination - T2-16A or T2-17A

6. For additional information on night works, please refer to SA Standard section 8.5

# FIGURE 1.1.2.3

EXAMPLE : TWO LANE - TWO WAY ROADS, MID BLOCK

TWO LANE OPERATION, LATERAL SHIFT TAPER



## TABLES AND NOTES - Figure 1.1.2.3

### TWO LANE - TWO WAY ROADS, MID BLOCK - TWO LANE OPERATION LATERAL SHIFT TAPER

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	2D** = 140	2D**
TA	< 15	15	30	D** = 70	D**
SB	***	***	20 - 30	20 - 30	20 - 30
WA	See Note 2				
ML	Optional, 5	Optional, 5	Optional, 15	Optional, 15	Optional, 15

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	12	12	18
SB	4	4	12	12	18
WA	4	4	12	12	18
ML – if installed	4	4	12	12	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

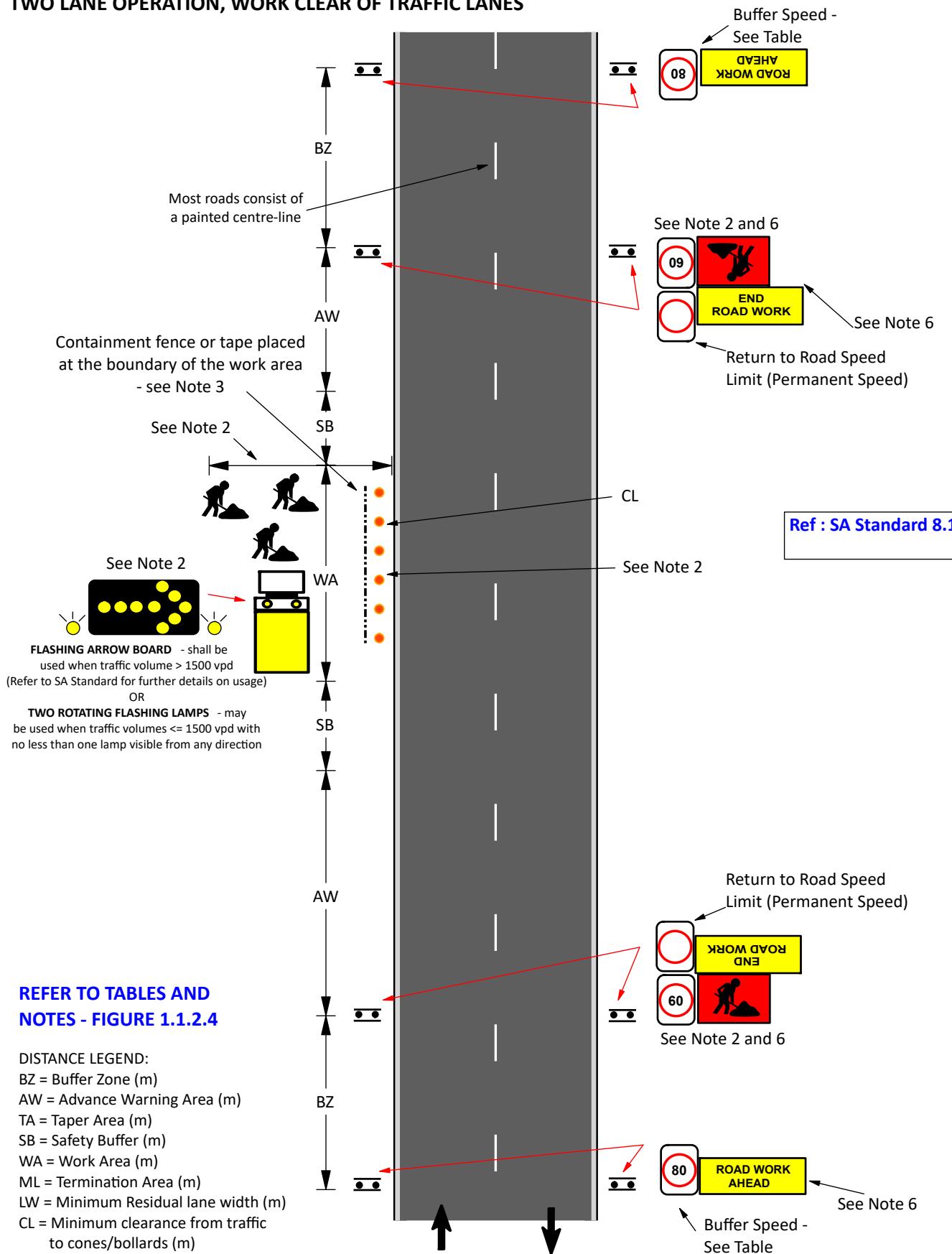
1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2)
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres

## **Continue for Figure 1.1.2.3**

3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
  - Termination - T2-16A or T2-17A
7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
8. For additional information on night works, please refer to SA Standard section 8.5

## FIGURE 1.1.2.4

EXAMPLE : TWO LANE - TWO WAY ROADS, MID BLOCK  
TWO LANE OPERATION, WORK CLEAR OF TRAFFIC LANES



REFER TO TABLES AND  
NOTES - FIGURE 1.1.2.4

DISTANCE LEGEND:

BZ = Buffer Zone (m)  
AW = Advance Warning Area (m)  
TA = Taper Area (m)  
SB = Safety Buffer (m)  
WA = Work Area (m)  
ML = Termination Area (m)  
LW = Minimum Residual lane width (m)  
CL = Minimum clearance from traffic to cones/bollards (m)

Note : Drawing is not to scale

## TABLES AND NOTES - Figure 1.1.2.4

### TWO LANE - TWO WAY ROADS, MID BLOCK - TWO LANE OPERATION WORK CLEAR OF TRAFFIC LANES

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	2D** = 140	2D**
TA	n/a	n/a	n/a	n/a	n/a
SB	***	***	20 - 30	20 – 30	20 - 30
WA			See Note 2		
ML	n/a	n/a	n/a	n/a	n/a

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m) \*

Note: Required if Work Area < 3 metres to traffic and a Road Safety Barrier System is not installed

Road Speed (km/h)	40	50	60	70	80 – 110**
WA	4	4	18	18	24

\* Shall be placed along kerb line or if no kerb on edge of the traffic lane with clearance as per Table below

\*\* Cone height >= 700 mm

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. Install speed zone and advance warning sign(s) in accordance to long term work site requirements. When workers are on site, set up any additional sign(s) as follows:
  - >= 6 metres clearance from the nearest edge of a lane carrying traffic to the entire work area including all vehicles and plant:
    - 1) Speed limit not mandated
    - 2) When workers or any plant are visible to passing traffic, a workers (symbolic) sign should be placed at the left side of the roadway in advance of the work area
    - 3) No requirement to operate a vehicle mounted warning device

## Continue for Figure 1.1.2.4

- $\geq 3$  metres to  $< 6$  metres clearance from the nearest edge of a lane carrying traffic to the work area including all vehicles and plant:
  - 1) 80 km/h speed limit shall be installed in speed zones  $> 80$  km/h where the traffic volumes are  $> 10,000$  vpd. Length of speed zone should be  $\geq 500$  metres
  - 2) Install workers sign (symbolic)
  - 3) Operate a vehicle mounted warning device
  - 4) Install a containment fence or tape as the work area draws near the 3 metres limit
- If the clearance is  $< 3$  metres between the nearest edge of a lane carrying traffic to the entire work area, install one of the following systems:
  - 1) "Road Safety Barrier System" (not shown in this figure), refer to SA Standard section 8.1.5
  - 2) A 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2)
    - Length of 40 km/h speed zone shall be  $\leq 500$  metres
    - Length of 25 km/h speed zone should be  $\geq 100$  metres and shall be  $\leq 200$  metres

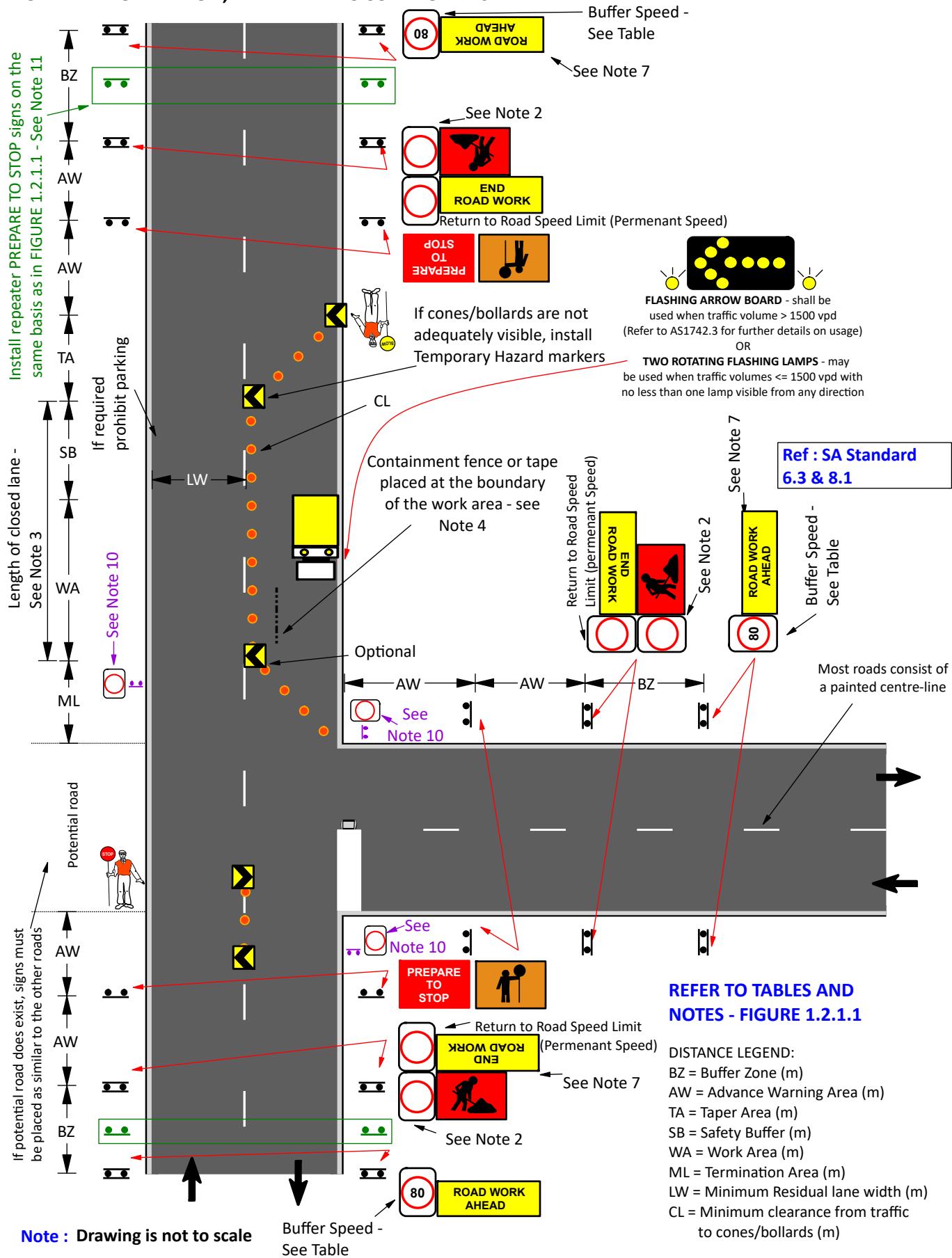
Other signs and devices according to the following notes

3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Install appropriate signs (other than allowed in note 2 above):
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90$  km/h)
  - Termination - T2-16A or T2-17A
7. For additional information on night works, please refer to SA Standard section 8.5

# FIGURE 1.2.1.1

EXAMPLE : TWO LANE - TWO WAY ROADS, WITH INTERSECTIONS

ONE LANE OPERATION, WITH TRAFFIC CONTROLLERS



## TABLES AND NOTES - Figure 1.2.1.1

### TWO LANE - TWO WAY ROADS, WITH INTERSECTIONS - ONE LANE OPERATION WITH TRAFFIC CONTROLLERS

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	Through D** = 70 Side 2D**	Through D** Side 2D**
TA	15	15	30	n/a	n/a
SB	***	***	20 - 30	20 - 30	20 - 30
WA				See Note 3	
ML	Optional, 5	Optional, 5	Optional, 15	Optional, 15	Optional, 15

\* Where applicable – see Buffer Speed table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	12	12	18
SB	4	4	12	12	18
WA	4	4	12	12	18
ML – if installed	4	4	12	12	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

#### DESIRABLE MAXIMUM LENGTH OF SINGLE-LANE OPERATION UNDER REVERSIBLE FLOW

Traffic Volume (vph)	Length of single-lane section – measured from one control point to the other (m)
>= 701	70
601 - 700	100
501- 600	150
301 - 500	250
<= 300	500

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

## Continue for Figure 1.2.1.1

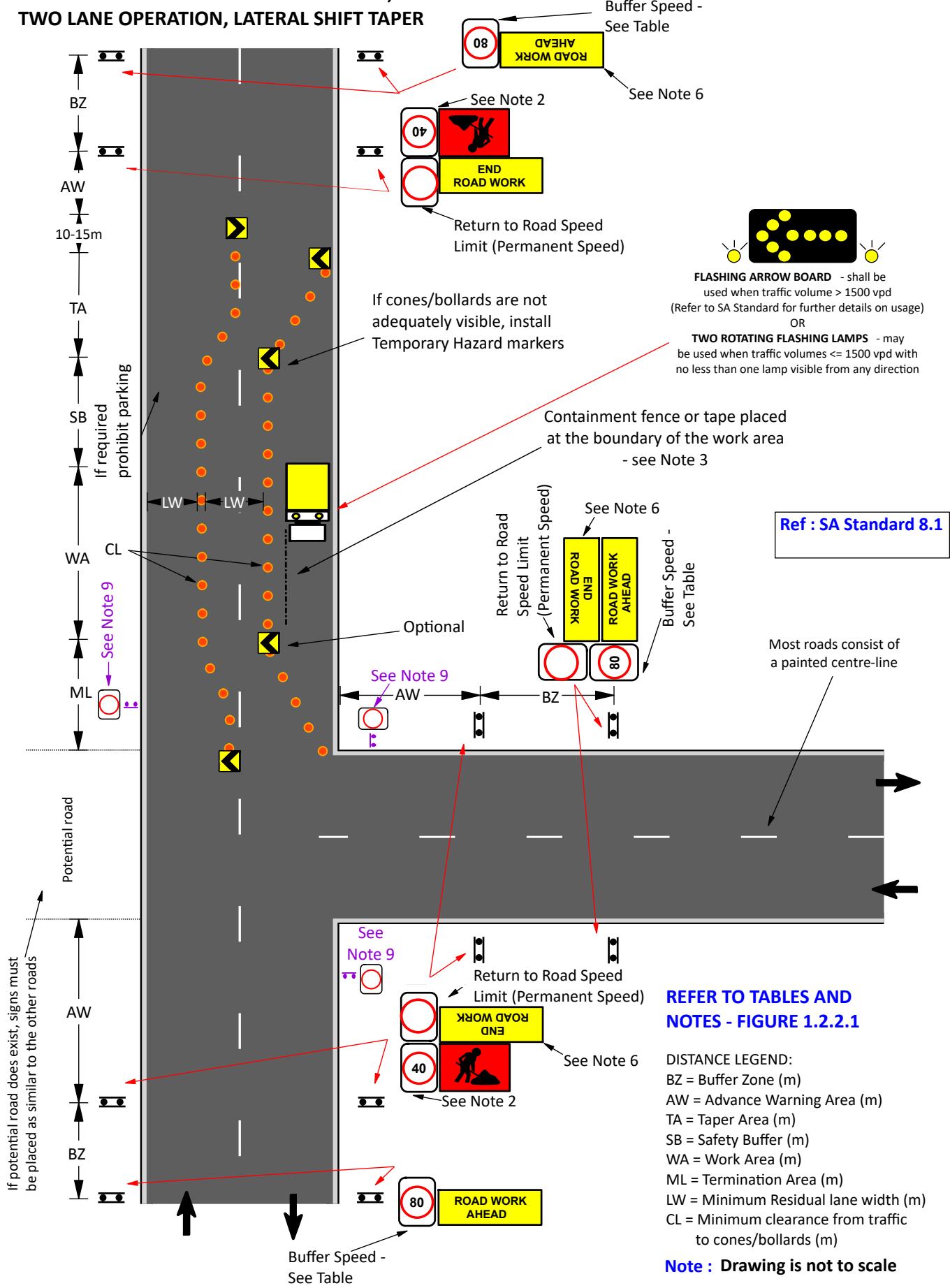
### NOTES:

1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2)
3. For the conditions of use –
  - Observe the desirable maximum length of single-lane operation under reversible flow table (as above)
  - High visibility clothing shall be worn by traffic controllers
  - Stop/Slow traffic bat shall be used (except if a boom gate is installed)
  - Night works an illuminated wand must be used
  - Portable two-way radios or similar shall be used (unless in blasting area) for communication between controllers unless they are able to communicate by sight
  - Traffic controllers shall not be located where the sight distance is less than 1.5D between controller and on-coming traffic. Determine “D” from Length of Zone table above selecting values from “AW” zone
  - Traffic controllers shall take rest breaks of 15 minutes or more for at least every 2 hours
  - Minimise the risk of end-of-queue collisions - see SA Standard section 5.6.5
4. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence of tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
5. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
6. Provision shall be made for pedestrians (including disabled persons) and bicycles
7. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
  - Termination - T2-16A or T2-17A
8. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
9. For additional information on night works, please refer to SA Standard section 8.5
10. If no Return to Road Speed Limit signs are present within a distance of 70 meters from the intersection on a leg of road, erect appropriate repeater speed signs within this distance
11. If distance A exceeds 4D, repeater sign(s) (prepare to stop) are required at evenly spaced distance(s)

## FIGURE 1.2.2.1

EXAMPLE : TWO LANE - TWO WAY ROADS, WITH INTERSECTIONS

TWO LANE OPERATION, LATERAL SHIFT TAPER



## TABLES AND NOTES - Figure 1.2.2.1

### TWO LANE - TWO WAY ROADS, WITH INTERSECTIONS - TWO LANE OPERATION LATERAL SHIFT TAPER

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	2D** = 140	2D**
TA	< 15	15	30	D* = 70	D*
SB	***	***	20 - 30	20 - 30	20 - 30
WA	See Note 2				
ML	Optional, 5	Optional, 5	Optional, 15	Optional, 15	Optional, 15

\* Where applicable – see Buffer Speed table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	12	12	18
SB	4	4	12	12	18
WA	4	4	12	12	18
ML – if installed	4	4	12	12	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

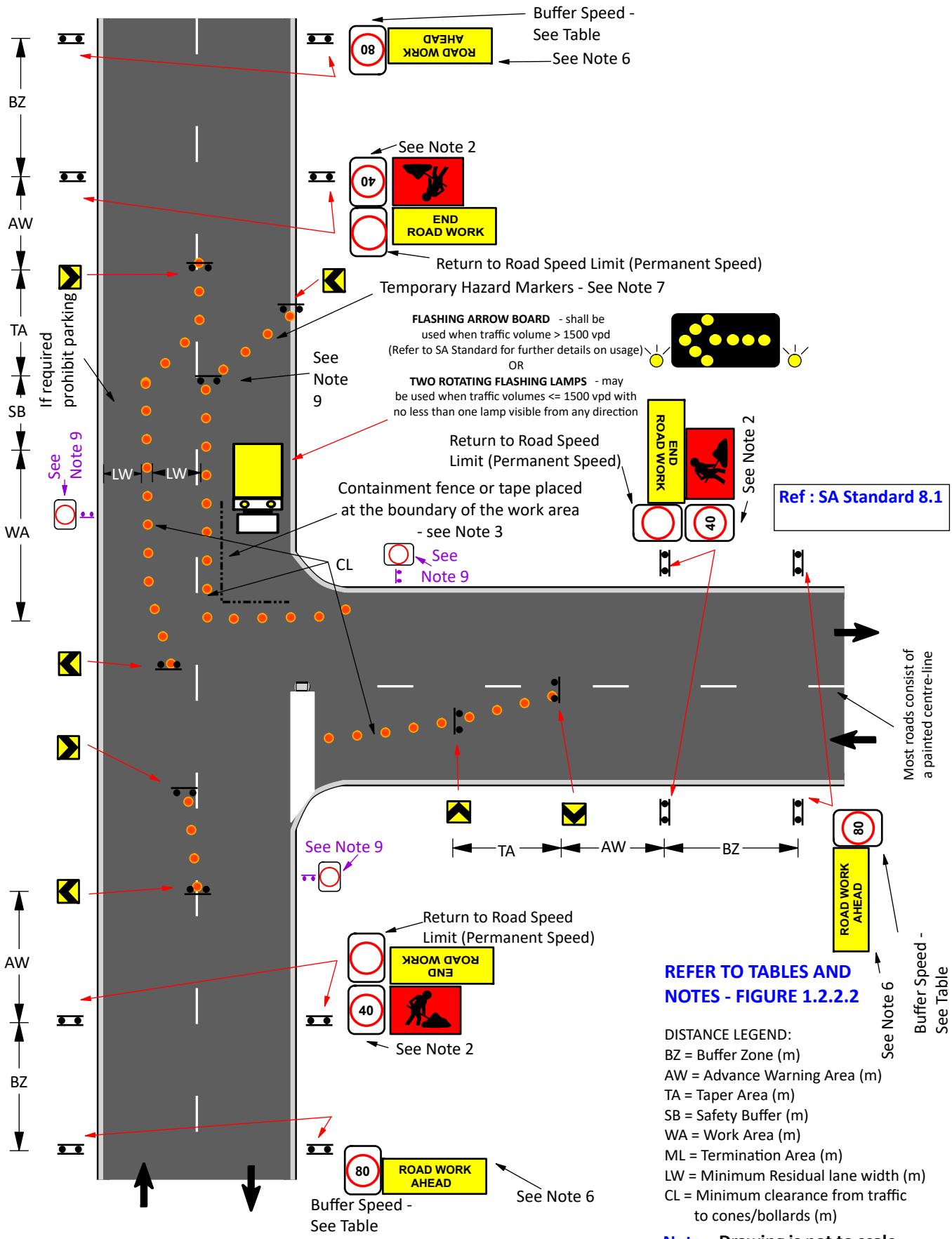
1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2)
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres
3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed

## Continue for Figure 1.2.2.1

- If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
  5. Provision shall be made for pedestrians (including disabled persons) and bicycles
  6. Install appropriate signs:
    - Advance Warning - Refer to AS1742.3 section 4.6.2
      - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
      - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
    - Termination - T2-16A or T2-17A
  7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
  8. For additional information on night works, please refer to SA Standard section 8.5
  9. If no Return to Road Speed Limit signs are present within a distance of 70 meters from the intersection on a leg of road, erect appropriate repeater speed signs within this distance

## **FIGURE 1.2.2.2**

**EXAMPLE : TWO LANE - TWO WAY ROADS, WITH INTERSECTIONS  
TWO LANE OPERATION, LATERAL SHIFT TAPER THROUGH AN INTERSECTION**



## TABLES AND NOTES - Figure 1.2.2.2

### TWO LANE - TWO WAY ROADS, WITH INTERSECTIONS - TWO LANE OPERATION LATERAL SHIFT TAPER THROUGH AN INTERSECTION

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	2D** = 140	2D**
TA	< 15	15	30	D* = 70	D*
SB	***	***	20 - 30	20 - 30	20 - 30
WA	See Note 2				
ML	Optional, 5	Optional, 5	Optional, 15	Optional, 15	Optional, 15

\* Where applicable – see Buffer Speed table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	12	12	18
SB	4	4	12	12	18
WA	4	4	12	12	18
ML – if installed	4	4	12	12	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 - 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2):
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres
3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed

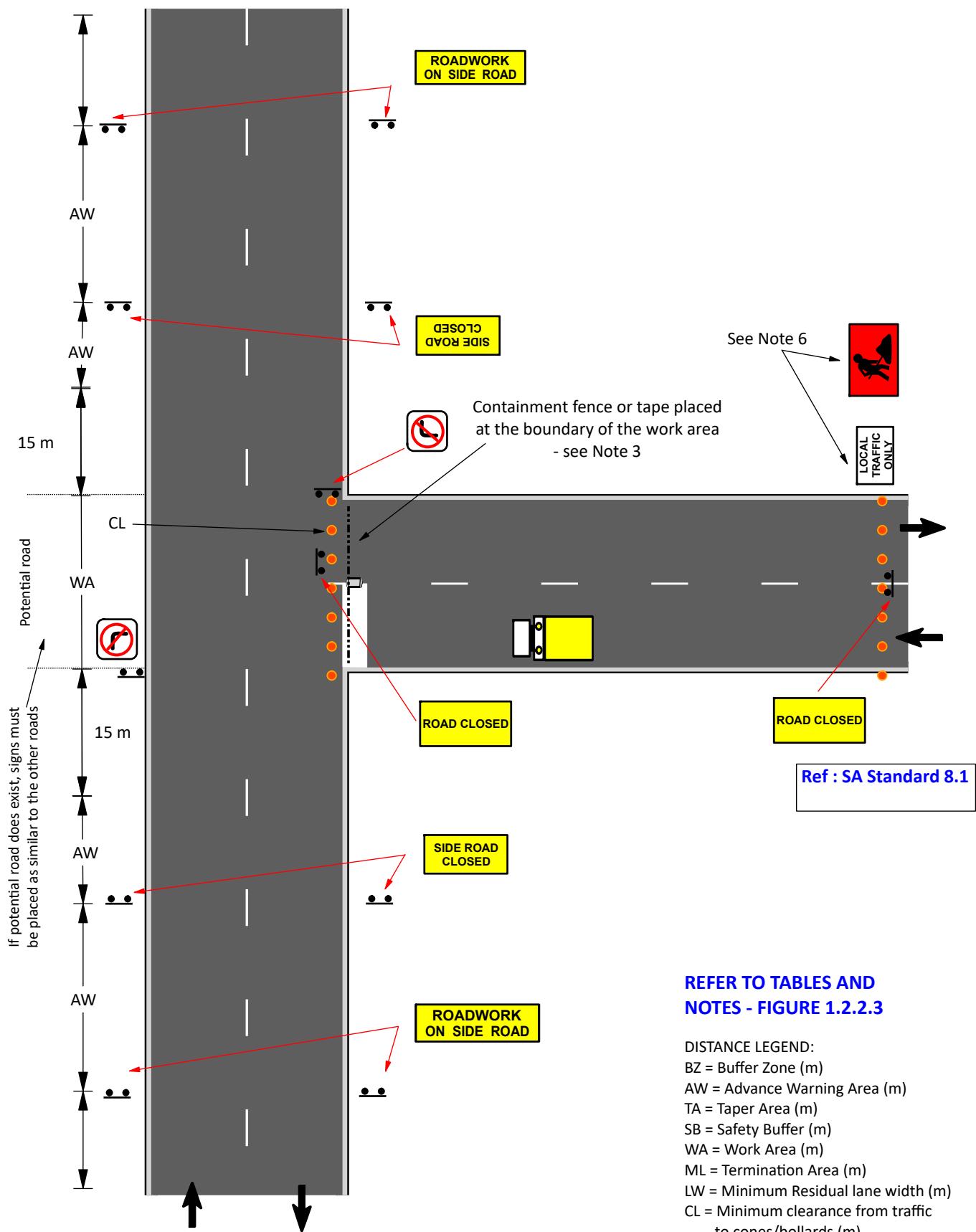
## Continue for Figure 1.2.2.2

- If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
  5. Provision shall be made for pedestrians (including disabled persons) and bicycles
  6. Install appropriate signs:
    - Advance Warning - Refer to AS1742.3 section 4.6.2
      - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
      - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
    - Termination - T2-16A or T2-17A
  7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
  8. For additional information on night works, please refer to SA Standard section 8.5
  9. If no Return to Road Speed Limit signs are present within a distance of 70 meters from the intersection on a leg of road, erect appropriate repeater speed signs within this distance

**FIGURE 1.2.2.3**

EXAMPLE : TWO LANE - TWO WAY ROADS, WITH INTERSECTIONS

TWO LANE OPERATION, SIDE ROAD CLOSED



**REFER TO TABLES AND  
NOTES - FIGURE 1.2.2.3**

DISTANCE LEGEND:

BZ = Buffer Zone (m)

AW = Advance Warning Area (m)

TA = Taper Area (m)

SB = Safety Buffer (m)

WA = Work Area (m)

ML = Termination Area (m)

LW = Minimum Residual lane width (m)

CL = Minimum clearance from traffic to cones/bollards (m)

**Note :** Drawing is not to scale

## TABLES AND NOTES - Figure 1.2.2.3

### TWO LANE - TWO WAY ROADS, WITH INTERSECTIONS - TWO LANE OPERATION WITH SIDE ROAD CLOSED

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	D** = 70	D**
TA	n/a	n/a	n/a	n/a	n/a
SB	n/a	n/a	n/a	n/a	n/a
WA					See Note 2
ML	n/a	n/a	n/a	n/a	n/a

\* Where applicable – see Buffer Speed table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
WA	4	4	12	12	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. If deemed necessary Install speed zone - it may be possible to retain the existing speed limit on the through road. Otherwise, set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2)
  - Length of 60 km/h speed zone shall be <= 200 metres
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres

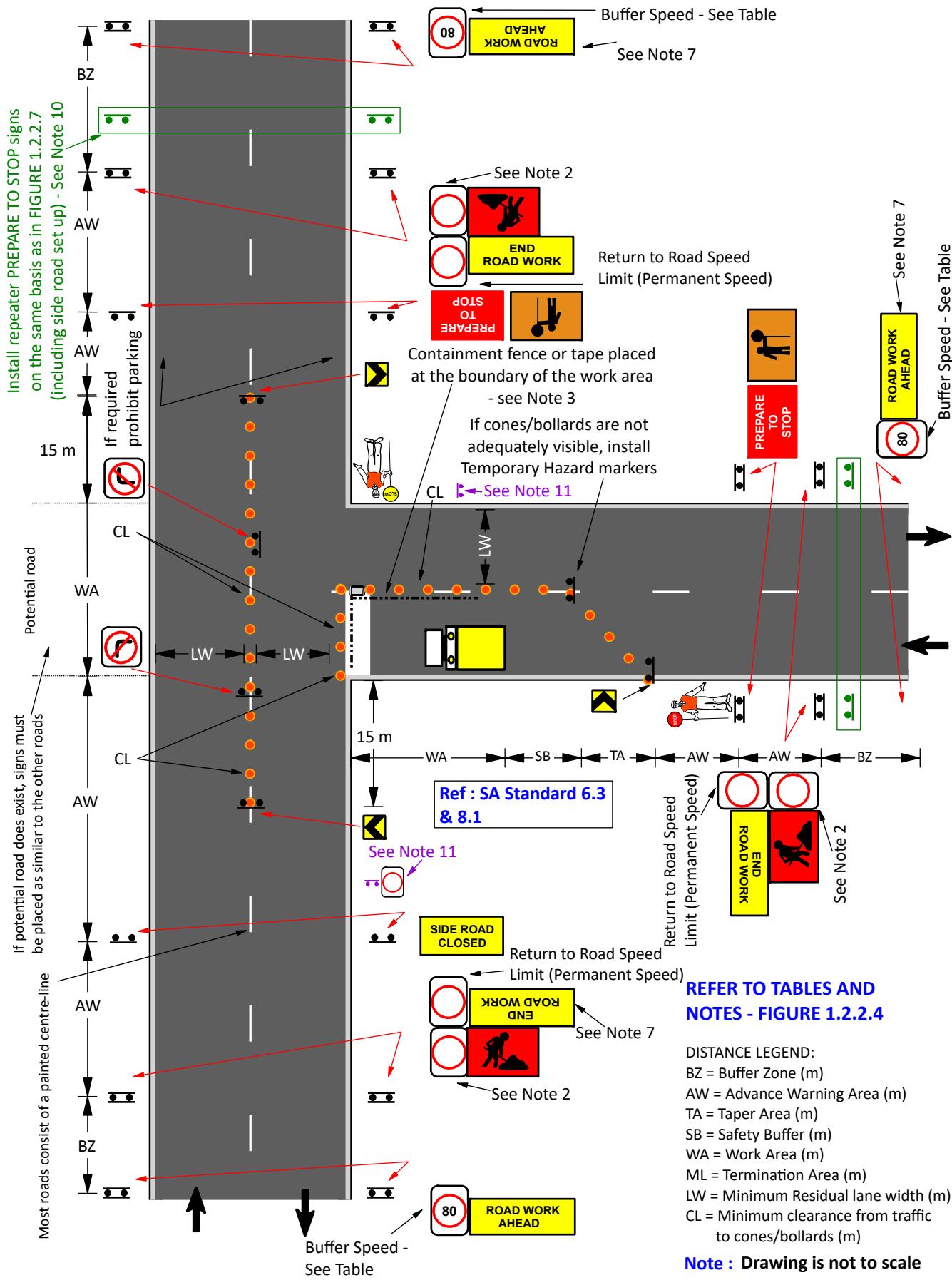
## **Continue for Figure 1.2.2.3**

3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Signs are to be set up to suit the situation, which includes advance warning, side road closed, local traffic only, speed limits and signed detour system
7. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
  - Termination - T2-16A or T2-17A
8. For additional information on night works, please refer to SA Standard section 8.5

## **FIGURE 1.2.2.4**

## **EXAMPLE : TWO LANE - TWO WAY ROADS, WITH INTERSECTIONS**

**TWO LANE OPERATION, WITH TRAFFIC CONTROLLERS ON SIDE ROAD**



## TABLES AND NOTES - Figure 1.2.2.4

### TWO LANE - TWO WAY ROADS, WITH INTERSECTIONS - TWO LANE OPERATION WITH TRAFFIC CONTROLLERS ON SIDE ROAD

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D= 5	D = 15	D = 45	D** = 70	D**
TA	15	15	30	n/a	n/a
SB	***	***	20 - 30	20 – 30	20 - 30
WA	See Note 2 and 3, as applicable				
ML	Optional, 5	Optional, 5	Optional, 15	Optional, 15	Optional, 15

\* Where applicable – see Buffer Speed table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	12	12	18
SB	4	4	12	12	18
WA	4	4	12	12	18
ML – if installed	4	4	12	12	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

#### DESIRABLE MAXIMUM LENGTH OF SINGLE-LANE OPERATION UNDER REVERSIBLE FLOW

Traffic Volume (vph)	Length of single-lane section – measured from one control point to the other (m)
>= 701	70
601 - 700	100
501- 600	150
301 - 500	250
<= 300	500

This Figure illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

## Continue for Figure 1.2.2.4

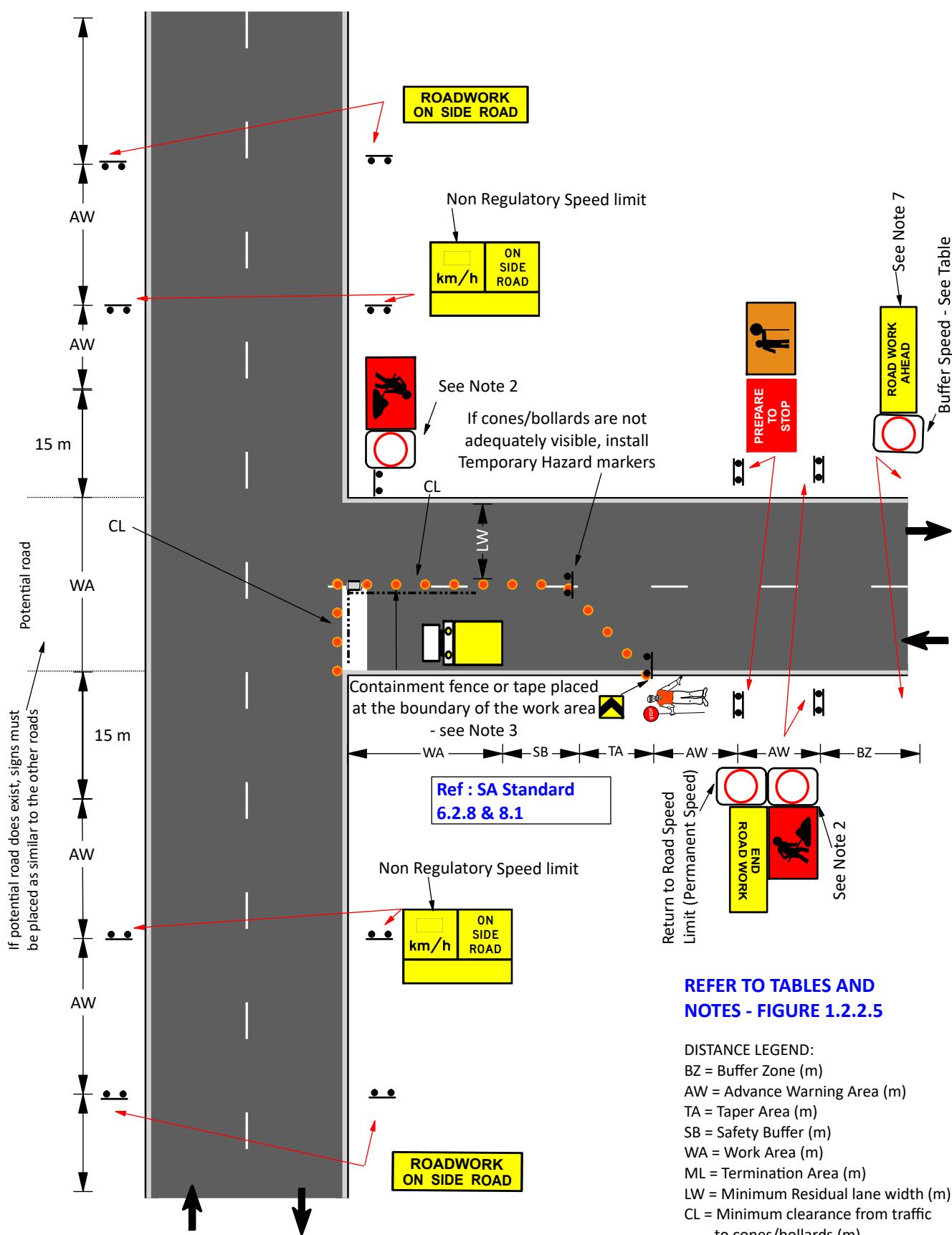
### NOTES:

1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2)
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres
3. For the conditions of use –
  - Observe the desirable maximum length of single-lane operation under reversible flow table (as above)
  - High visibility clothing shall be worn by traffic controllers
  - Stop/Slow traffic bat shall be used (except if a boom gate is installed)
  - For night works an illuminated wand must be used
  - Portable two-way radios or similar shall be used (unless in blasting area) for communication between controllers unless they are able to communicate by sight
  - Traffic controllers shall not be located where the sight distance is less than 1.5D between controller and on-coming traffic. Determine "D" from Length of Zone table above selecting values from "AW" zone
  - Traffic controllers shall take rest breaks of 15 minutes or more for at least every 2 hours
  - Minimise risk of end of queue collisions (refer to SA Standard section 5.6.5)
4. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
5. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
6. Provision shall be made for pedestrians (including disabled persons) and bicycles
7. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds >= 90 km/h)
  - Termination - T2-16A or T2-17A
8. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
9. For additional information on night works, please refer to SA Standard section 8.5
10. If distance A exceeds 4D, repeater sign(s) (prepare to stop) are required at evenly spaced distance(s)
11. If no Return to Road Speed Limit signs are present within a distance of 70 meters from the intersection on a leg of road, erect appropriate repeater speed signs within this distance

**FIGURE 1.2.2.5**

EXAMPLE : TWO LANE - TWO WAY ROADS, WITH INTERSECTIONS

TWO LANE OPERATION, WITH WORK ON SIDE ROAD



**REFER TO TABLES AND  
NOTES - FIGURE 1.2.2.5**

## DISTANCE LEGEND:

BZ = Buffer Zone (m)

AW = Advance Warning Area (m)

TA = Taper Area (m)

SB = Safety Buffer (m)

WA = Work Area (m)

ML = Termination Area (m)

LW = Minimum Residual lane width (m)

CL = Minimum clearance from traffic to cones/bollards (m)

Note : Drawing is not to scale

## TABLES AND NOTES - Figure 1.2.2.5

### TWO LANE - TWO WAY ROADS, WITH INTERSECTIONS - TWO LANE OPERATION WITH WORK ON SIDE ROAD

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	D** = 70	D**
TA	n/a	n/a	n/a	n/a	n/a
SB	n/a	n/a	n/a	n/a	n/a
WA					See Note 2
ML	n/a	n/a	n/a	n/a	n/a

\* Where applicable – see Buffer Speed table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
WA	4	4	12	12	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. If deemed necessary Install speed zone - it may be possible to retain the existing speed limit on the through road. Otherwise, set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2)
  - Length of 60 km/h speed zone shall be <= 200 metres
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres

## **Continue for Figure 1.2.2.5**

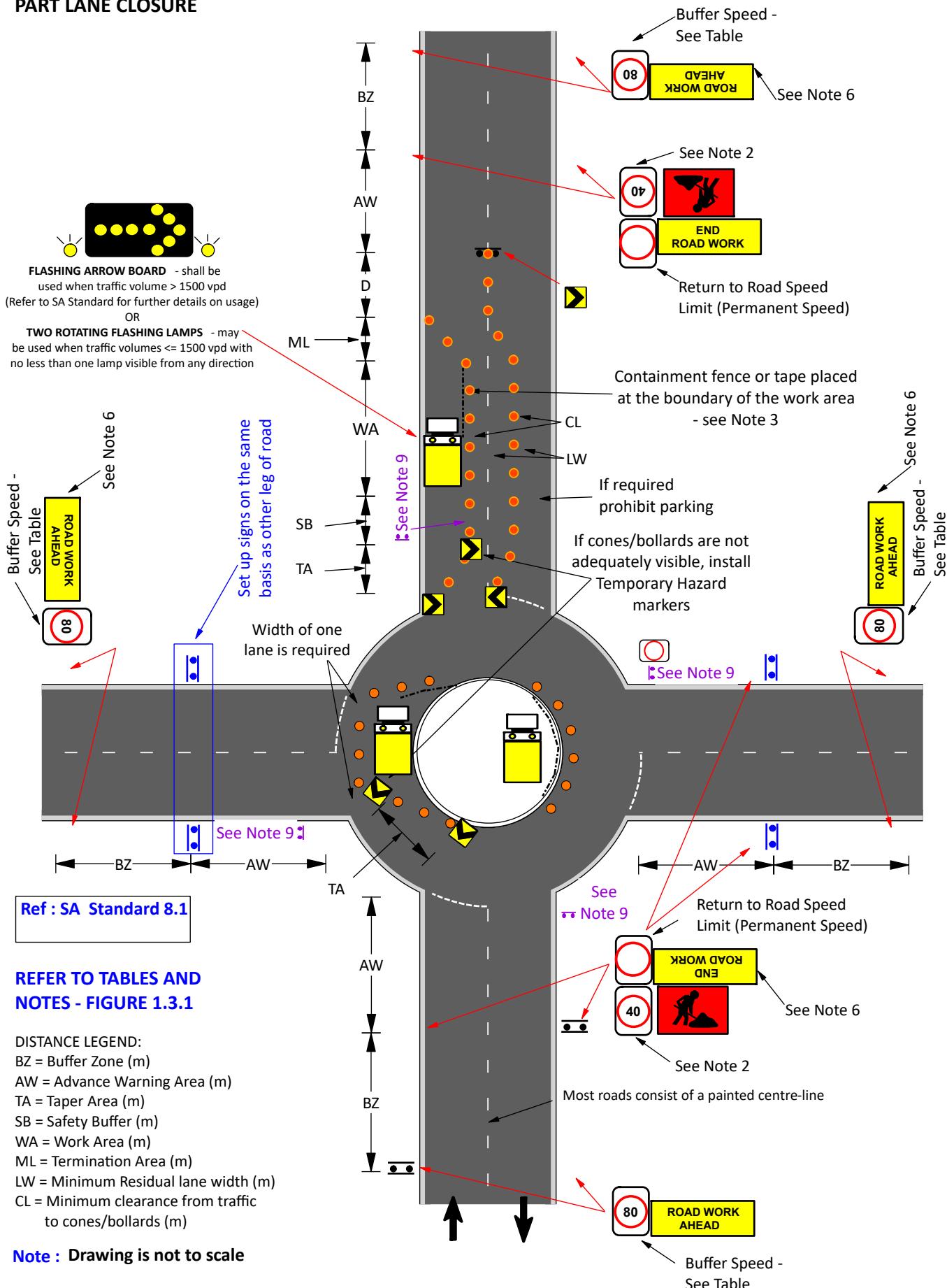
3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Signs are to be set up to suit the situation, which includes advance warning, side road closed, local traffic only, speed limits and signed detour system
7. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
  - Termination - T2-16A or T2-17A
8. For additional information on night works, please refer to SA Standard section 8.5

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## FIGURE 1.3.1

#### **EXAMPLE : TWO LANE - TWO WAY ROADS, ON ROUNDABOUTS**

## PART LANE CLOSURE



## TABLES AND NOTES - Figure 1.3.1

### TWO LANE - TWO WAY ROADS, ON ROUNDABOUTS PART LANE CLOSURE

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	2D** = 140	2D**
TA (1)	15	15	30	n/a	n/a
TA (2)	< 15	15	30	D* = 70	D*
SB	***	***	20 - 30	20 - 30	20 - 30
WA	See Note 2				
ML	Optional, 5	Optional, 5	Optional, 15	Optional, 15	Optional, 15

\* Where applicable – see Buffer Speed table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

TA (1) = Traffic control at beginning of taper

TA (2) = Lateral shift taper

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	12	12	18
SB	4	4	12	12	18
WA	4	4	12	12	18
ML – if installed	4	4	12	12	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m) – to allow 2-way traffic to continue

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

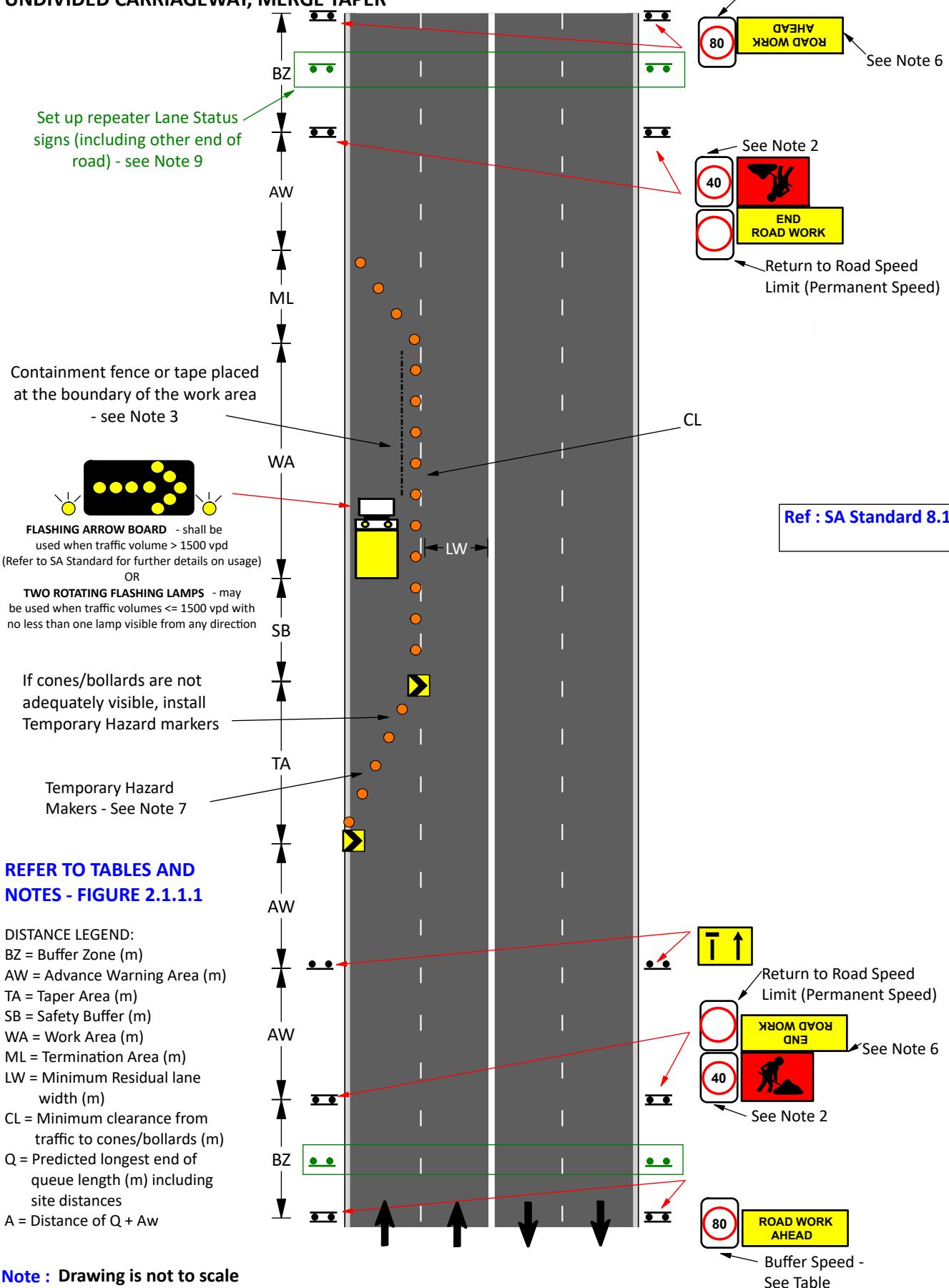
1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2)
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres

## **Continue for Figure 1.3.1**

3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
  - Termination - T2-16A or T2-17A
7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
8. For additional information on night works, please refer to SA Standard section 8.5
9. If no Return to Road Speed Limit signs are present within a distance of 70 meters from the intersection on a leg of road, erect appropriate repeater speed signs within this distance. Place signs as close to traffic as practical, safe, as possible to ensure they are not obscured from driver's vision.

# FIGURE 2.1.1.1

## EXAMPLE : MULTI LANE ROADS, MID BLOCK UNDIVIDED CARRIAGeway, MERGE TAPER



## TABLES AND NOTES - Figure 2.1.1.1

### MULTI LANE ROADS, MID BLOCK - UNDIVIDED CARRIAGEWAY MERGE TAPER

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80*	90*	100*	110*
BZ	n/a	n/a	n/a	n/a	300 +/- 50	300 +/- 50	300 +/- 50	300 +/- 50
AW	D = 5	D = 15	D = 45	D** = 70	D**	D**	D**	D**
TA	15	30	60	115	130	145	160	180
SB	***	***	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30
WA	See Note 2							
ML	Optional 5	Optional 5	Optional 15					

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	9	9	12
SB	4	4	18	18	24
WA	4	4	18	18	24
ML – if installed	4	4	18	18	24

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

Note: Residual width shall form a complete lane (or lanes). WZTM plan will be dependent on final available lane configuration

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
70	n/a	n/a	25 Ahead
80	n/a	40 Ahead	60
90	n/a	40 Ahead	60
100 or 110	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2). Any of the installed speed limits shall apply to the traffic in each direction
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres

## **Continue for Figure 2.1.1.1**

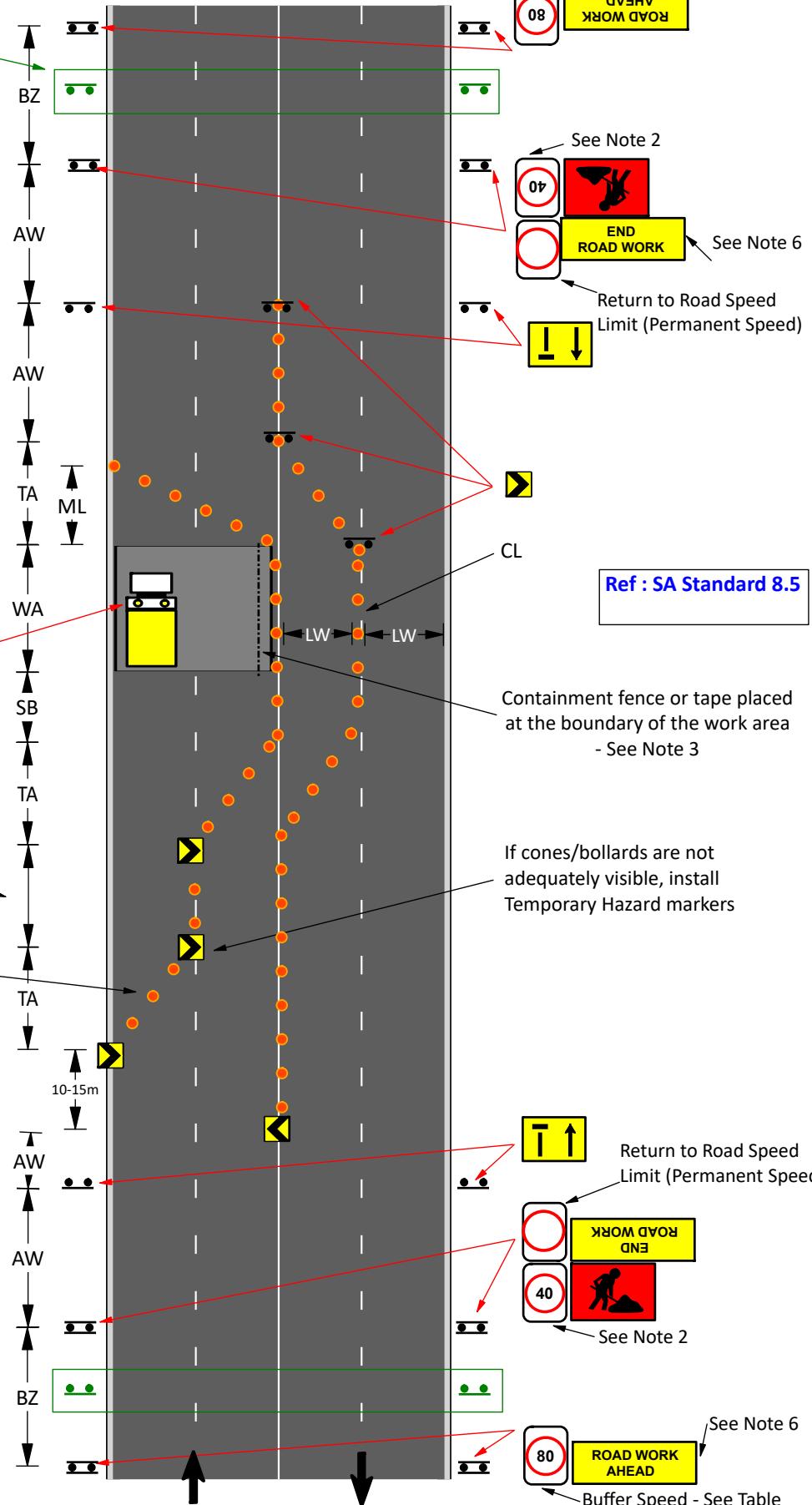
3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
  - Termination - T2-16A or T2-17A
7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
8. For additional information on night works, please refer to SA Standard section 8.5
9. If distance A exceeds 4D, repeater sign(s) (Lane Status) are required at evenly spaced distance(s)

# FIGURE 2.1.1.2

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## EXAMPLE : MULTI LANE ROADS, MID BLOCK UNDIVIDED CARRIAGEWAY, MERGE AND LATERAL SHIFT TAPER

Set up repeater Lane Status signs (including other leg of road)- see Note 9



## TABLES AND NOTES - Figure 2.1.1.2

### MULTI LANE ROADS, MID BLOCK - UNDIVIDED CARRIAGEWAY MERGE AND LATERAL SHIFT TAPERS

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80*	90*	100*	110*
BZ	n/a	n/a	n/a	n/a	300 +/- 50	300 +/- 50	300 +/- 50	300 +/- 50
AW	D = 5	D = 15	D = 45	D** = 70	D**	D**	D**	D**
TA	15	30	60	115	130	145	160	180
SB	***	***	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30
WA	See Note 2							
ML	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	9	9	12
SB	4	4	18	18	24
WA **	4	4	18 (12**)	18 (12**)	24 (18**)
ML – if installed	4	4	18	18	18

\* Cone height >= 700 mm

\*\* Apply this to cones on centre-line of the carriageway without work

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

Note: Residual width shall form a complete lane (or lanes). WZTM plan will be dependent on final available lane configuration

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
70	n/a	n/a	25 Ahead
80	n/a	40 Ahead	60
90	n/a	40 Ahead	60
100 or 110	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

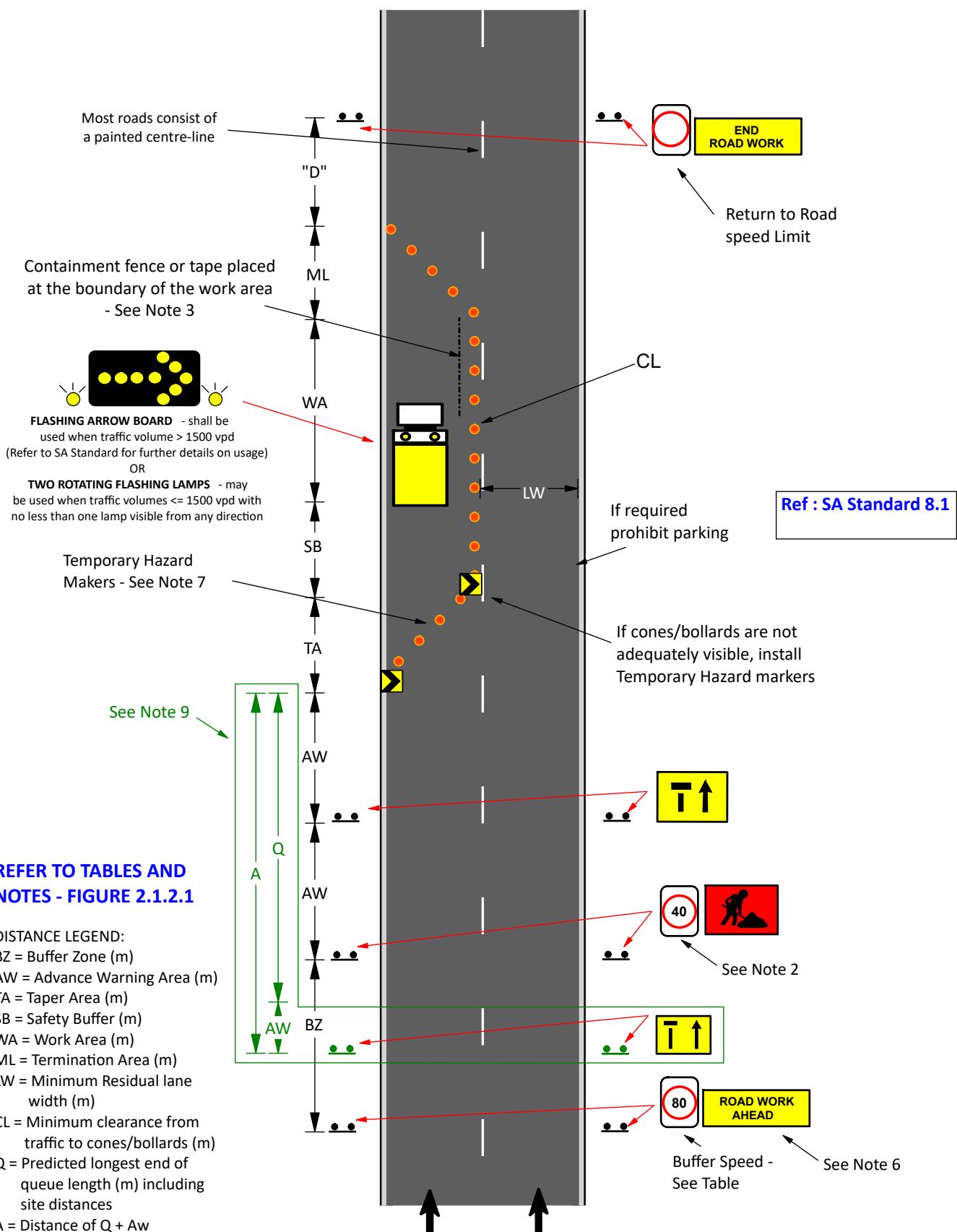
1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2). Any of the installed speed limits shall apply to the traffic in each direction
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres

## **Continue for Figure 2.1.1.2**

3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
  - Termination - T2-16A or T2-17A
7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
8. For additional information on night works, please refer to SA Standard section 8.5
9. If distance A exceeds 4D, repeater sign(s) (Lane Status) are required at evenly spaced distance(s)

## FIGURE 2.1.2.1

EXAMPLE : MULTI LANE ROADS, MID BLOCK  
DIVIDED CARRIAGeway, MERGE TAPER



**Note :** Drawing is not to scale

## TABLES AND NOTES - Figure 2.1.2.1

### MULTI LANE ROADS, MID BLOCK - DIVIDED CARRIAGEWAY MERGE TAPER

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80*	90*	100*	110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? "No" = AW "Yes" = 300 +/- 50			
AW	D = 5	D = 15	D = 45	D** = 70	D**	D**	D**	D**
TA	15	30	60	115	130	145	160	180
SB	***	***	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30
WA	See Note 2							
ML	Optional 5	Optional 5	Optional 15	Optional 15	Optional 15	Optional 15	Optional 15	Optional 15

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, "D" = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	9	9	12
SB	4	4	18	18	24
WA	4	4	18	18	24
ML – if installed	4	4	18	18	24

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

Note: Residual width shall form a complete lane (or lanes). If at least one lane width is not available, close the lane; this may require closing the carriageway

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
70	n/a	n/a	25 Ahead
80	n/a	40 Ahead	60
90	n/a	40 Ahead	60
100 or 110	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

## Continue for Figure 2.1.2.1

### NOTES:

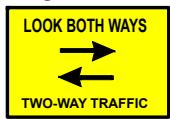
1. Undertake a risk assessment
2. Install speed zone for the work site (which may be a buffer speed – see table above), and a speed zone for the work area when workers are present (40 km/h, unless work area involves an unusually high level of hazard (Category 2); on higher speed roads, and where it is safe to do so, installing a speed limit of 60 km/h might be appropriate)
  - Length of 60 km/h speed zone shall be  $\geq$  200 metres
  - Length of 40 km/h speed zone shall be  $\leq$  500 metres
  - Length of 25 km/h speed zone should be  $\geq$  100 metres and shall be  $\leq$  200 metres
3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq$  90 km/h)
  - Termination - T2-16A or T2-17A
7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
8. For additional information on night works, please refer to SA Standard section 8.5
9. If distance A exceeds 4D, repeater sign(s) (Lane Status) are required at evenly spaced distance(s)

## FIGURE 2.1.2.2

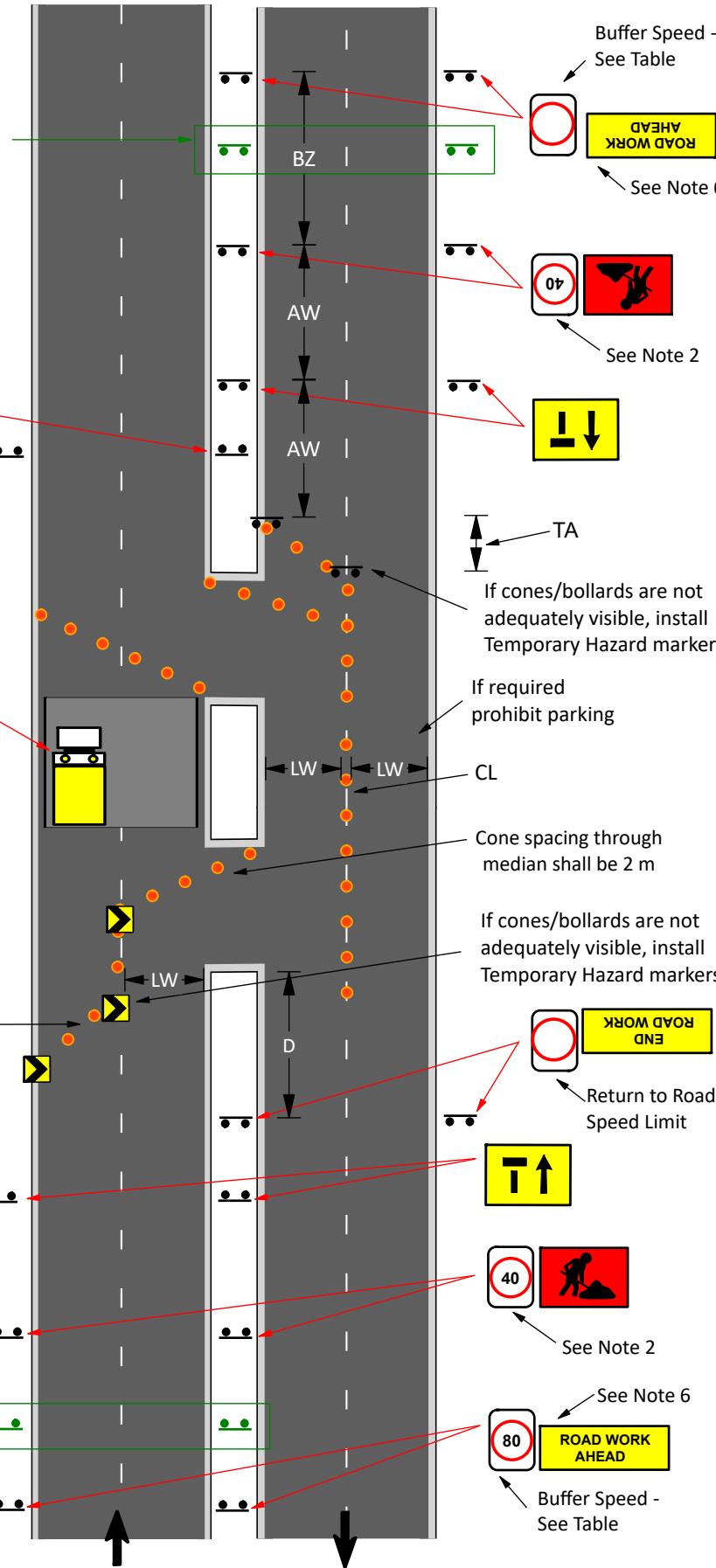
### EXAMPLE : MULTI LANE ROADS, MID BLOCK

### DIVIDED CARRIAGEWAY, MERGE AND LATERAL SHIFT TAPER TO OPPOSITE CARRIAGEWAY

See SA Standard 7.3 Pedestrian Management : It may be necessary to supply personnel to assist, to install containment fences, and/or to use this sign



Set up repeater Lane Status signs (including other leg of road) - see Note 9



## TABLES AND NOTES - Figure 2.1.2.2

### MULTI LANE ROADS, MID BLOCK - DIVIDED CARRIAGEWAY MERGE AND LATERAL SHIFT TAPERS TO OPPOSITE CARRIAGEWAY

#### LENGTH OF ZONE (m)

Road Speed (km/h)	50	60	70	80*	90*	100*	110*
BZ	= AW	= AW	= AW	Buffer speed applies? "No" = AW "Yes" = 300 +/- 50			
AW	D = 15	D = 45	D** = 70	D**	D**	D**	D**
TA	30	60	115	130	145	160	180
SB	***	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30
WA	See Note 2						
ML	Optional, 5	Optional, 15	Optional, 15	Optional, 15	Optional, 15	Optional, 15	Optional, 15

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, "D" = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	50	60	70	80 – 110*
TA	4	9	9	12
SB	4	12	12	18
WA **	4	12	12	18
ML – if installed	4	12	12	18

\* Cone height >= 700 mm

\*\* Apply this to cones on centre-line of the carriageway without work

Note: Cone spacing through median shall be 2 m

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	50	60	70	80 - 110
LW	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	50	60	70	80 – 110
CL	0.5	0.5	1.0	1.0

Note: Residual width shall form a complete lane (or lanes). If at least one lane width is not available, close the lane; this may require closing the carriageway

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
70	n/a	n/a	25 Ahead
80	n/a	40 Ahead	60
90	n/a	40 Ahead	60
100 or 110	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

## Continue for Figure 2.1.2.2

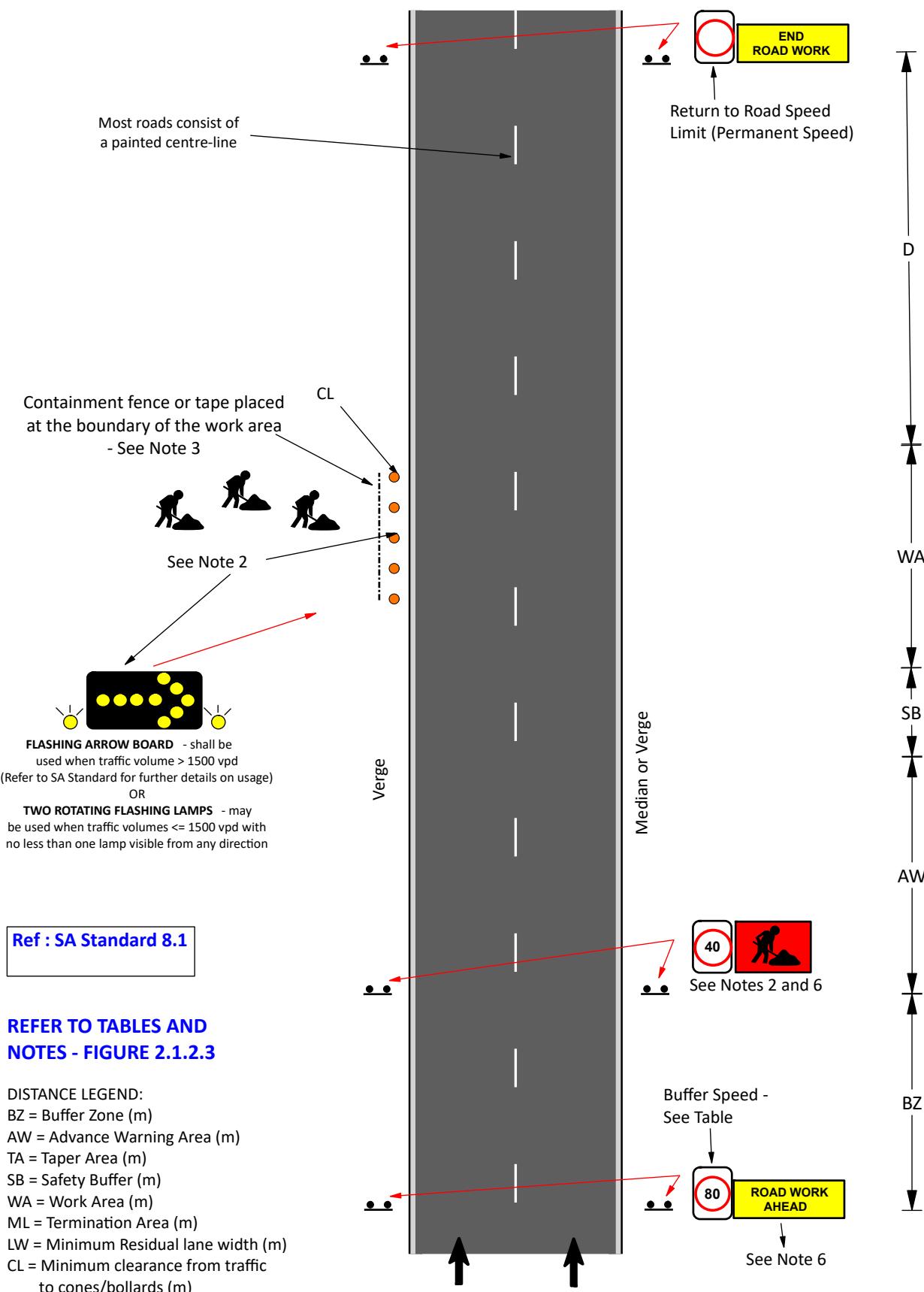
### NOTES:

1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2). Any of the installed speed limits shall apply to the traffic in each direction
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres
3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds >= 90 km/h)
  - Termination - T2-16A or T2-17A
7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
8. For additional information on night works, please refer to SA Standard section 8.5
9. If distance A exceeds 4D, repeater sign(s) (Lane Status) are required at evenly spaced distance(s)

## FIGURE 2.1.2.3

EXAMPLE : MULTI LANE ROADS, MID BLOCK - DIVIDED CARRIAGEWAY

WORK CLEAR OF TRAFFIC LANES



## TABLES AND NOTES - Figure 2.1.2.3

### MULTI LANE ROADS, MID BLOCK - DIVIDED CARRIAGEWAY WORK CLEAR OF TRAFFIC LANES

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 5	D = 15	D = 45	2D** = 140	2D**
TA	n/a	n/a	n/a	n/a	n/a
SB	***	***	20 - 30	20 - 30	20 - 30
WA			See Note 2		
ML	n/a	n/a	n/a	n/a	n/a

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m) \*

Note: Required if Work Area < 3 metres to traffic and a Road Safety Barrier System is not installed

Road Speed (km/h)	40	50	60	70	80 – 110**
WA	4	4	18	18	24

\* Shall be placed along kerb line or if no kerb on edge of the traffic lane with clearance as per Table below

\*\* Cone height >= 700 mm

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. Install speed zone and advance warning sign(s) in accordance to long term work site requirements. When workers are on site, set up any additional sign(s) as follows:
  - >= 6 metres clearance from the nearest edge of a lane carrying traffic to the entire work area including all vehicles and plant:
    - 1) Speed limit not mandated
    - 2) When workers or any plant are visible to passing traffic, a workers (symbolic) sign should be placed at the left side of the roadway in advance of the work area
    - 3) No requirement for a vehicle mounted warning device

## Continue for Figure 2.1.2.3

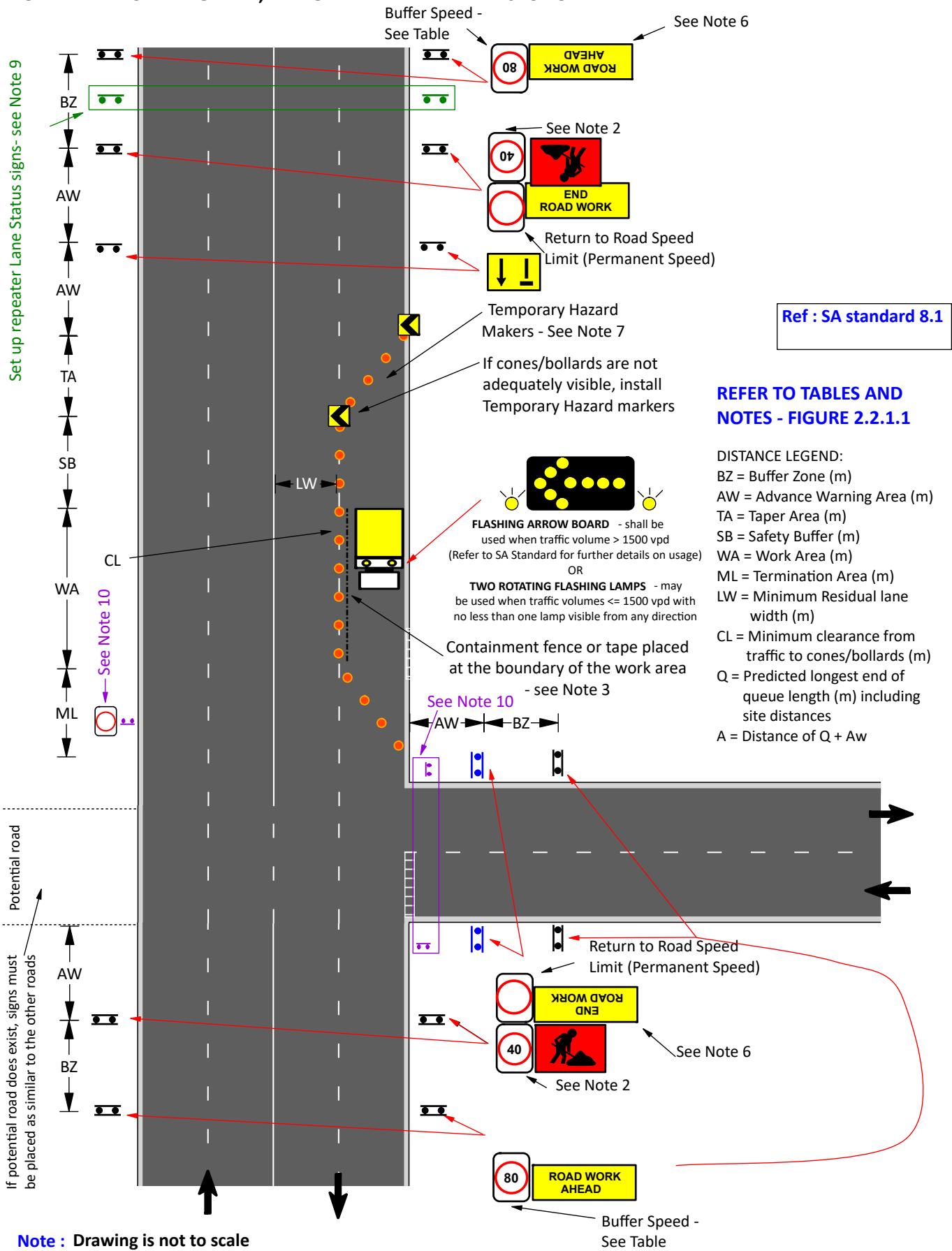
- $\geq 3$  metres to  $< 6$  metres clearance from the nearest edge of a lane carrying traffic to the work area including all vehicles and plant:
  - 1) 80 km/h speed limit shall be installed in speed zones  $> 80$  km/h where the traffic volumes are  $> 10,000$  vpd. Length of speed zone should be  $\geq 500$  metres
  - 2) Install workers sign (symbolic)
  - 3) Operate a vehicle mounted warning device
  - 4) Install a containment fence or tape as the work area draws near the 3 metres limit
- If the clearance is  $< 3$  metres between the nearest edge of a lane carrying traffic to the entire work area, install one of the following systems:
  - 1) "Road Safety Barrier System" (not shown in this figure), refer to SA Standard section 8.1.5
  - 2) A 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2)
    - Length of 40 km/h speed zone shall be  $\leq 500$  metres
    - Length of 25 km/h speed zone should be  $\geq 100$  metres and shall be  $\leq 200$  metres

Other signs and devices according to the following notes

3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Install appropriate signs (other than allowed in note 2 above):
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90$  km/h)
  - Termination - T2-16A or T2-17A
7. For additional information on night works, please refer to SA Standard section 8.5

## FIGURE 2.2.1.1

### EXAMPLE : MULTI LANE ROADS, WITH INTERSECTIONS UNDIVIDED CARRIAGEWAY, MERGE TAPER NEAR INTERSECTION



## TABLES AND NOTES - Figure 2.2.1.1

### MULTI LANE ROADS, WITH INTERSECTIONS - UNDIVIDED CARRIAGEWAY MERGE TAPER NEAR INTERSECTION

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80*	90*	100*	110*
BZ	n/a	n/a	n/a	n/a	300 +/- 50	300 +/- 50	300 +/- 50	300 +/- 50
AW	D = 5	D = 15	D = 45	Approach D** = 70 Other 2D** = 140	Approach D** Other 2D**	Approach D** Other 2D**	Approach D** Other 2D**	Approach D** Other 2D**
TA	15	30	60	115	130	145	160	180
SB	***	***	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30
WA	See Note 2							
ML	Optional 5	Optional 5	Optional 15	Optional 15	Optional 15	Optional 15	Optional 15	Optional 15

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	9	9	12
SB	4	4	18	18	24
WA	4	4	18	18	24
ML – if installed	4	4	18	18	24

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

Note: Residual width shall form a complete lane (or lanes). WZTM plan will be dependent on final available lane configuration

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
70	n/a	n/a	25 Ahead
80	n/a	40 Ahead	60
90	n/a	40 Ahead	60
100 or 110	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

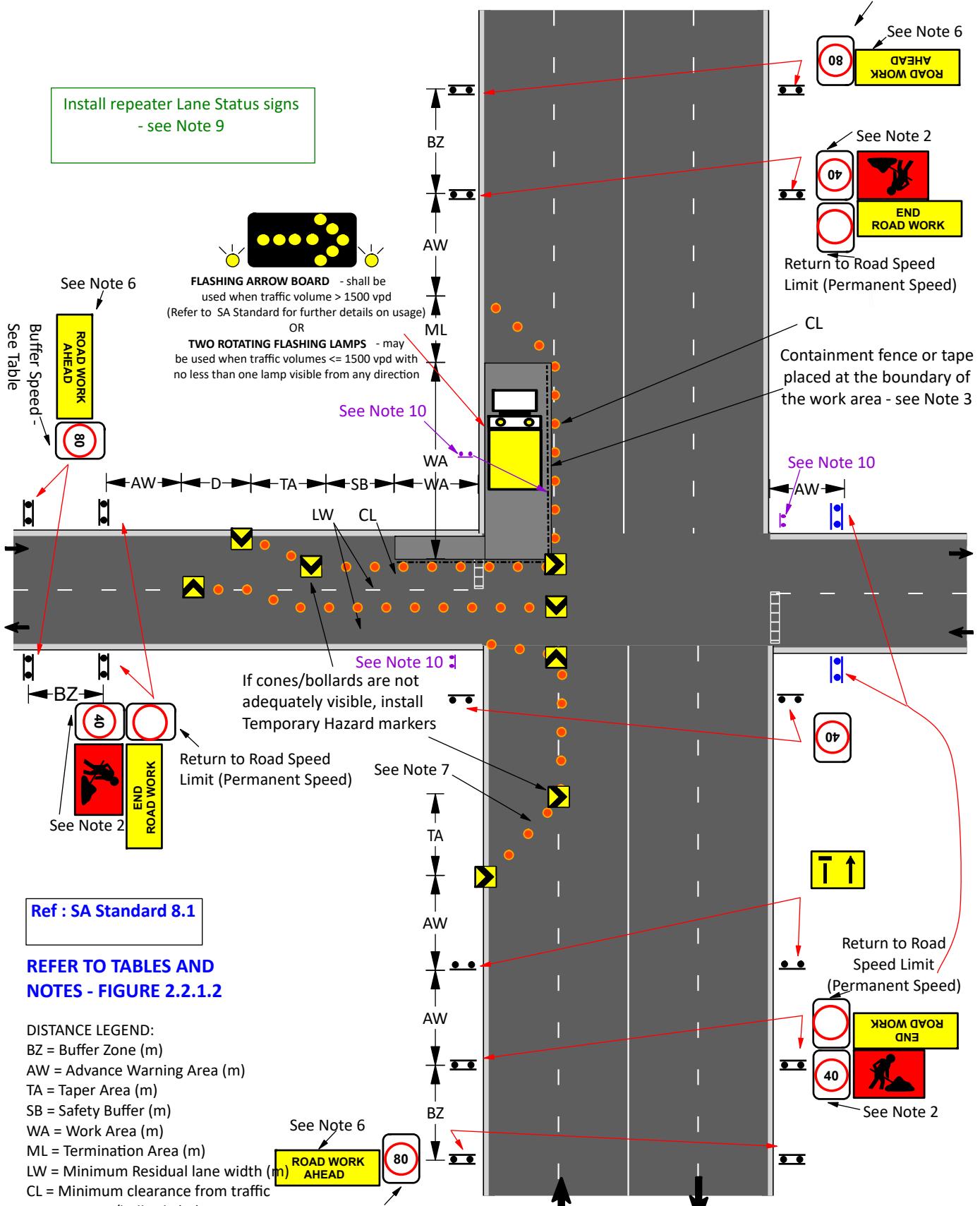
## Continue for Figure 2.2.1.1

### NOTES:

1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2). Any of the installed speed limits shall apply to the traffic in each direction
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres
3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds >= 90 km/h)
  - Termination - T2-16A or T2-17A
7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
8. For additional information on night works, please refer to SA Standard section 8.5
9. If distance A exceeds 4D, repeater sign(s) (Lane Status) are required at evenly spaced distance(s)
10. If no Return to Road Speed Limit signs are present within a distance of 70 meters from the intersection on a leg of road, erect appropriate repeater speed signs within this distance.

**FIGURE 2.2.1.2**

**EXAMPLE : MULTI LANE ROADS, WITH INTERSECTIONS  
UNDIVIDED CARRIAGEWAY, MERGE TAPER THROUGH INTERSECTION**



**Note :** Drawing is not to scale

## TABLES AND NOTES - Figure 2.2.1.2

### MULTI LANE ROADS, WITH INTERSECTIONS - UNDIVIDED CARRIAGEWAY MERGE TAPER THROUGH INTERSECTION

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80*	90*	100*	110*
BZ	n/a	n/a	n/a	n/a	300 +/- 50	300 +/- 50	300 +/- 50	300 +/- 50
AW+	D = 5	D = 15	D = 45	Approach D** = 70 Departure 2D** = 140	Approach D** Departure 2D**	Approach D** Departure 2D**	Approach D** Departure 2D**	Approach D** Departure 2D**
AW++	D = 5	D = 15	D = 45	2D** = 140	2D**	2D**	2D**	2D**
TA+	15	30	60	115	130	145	160	180
TA++	<15	15	30	D** = 70	D**	D**	D**	D**
SB	***	***	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30
WA					See Note 2			
ML	Optional 5	Optional 5	Optional 15	Optional 15	Optional 15	Optional 15	Optional 15	Optional 15

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

+ Multi-lane road without median

++ Two-lane two-way road

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA+	4	4	9	9	12
TA++	4	4	12	12	18
SB+	4	4	18	18	24
SB++	4	4	12	12	18
WA+	4	4	18	18	24
WA++	4	4	12	12	18
ML – if installed	4	4	18	18	24

\* Cone height >= 700 mm

+ Multi-lane road without median

++ Two-lane two-way road

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

Note: Residual width shall form a complete lane (or lanes). WZTM plan will be dependent on final available lane configuration

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
70	n/a	n/a	25 Ahead
80	n/a	40 Ahead	60
90	n/a	40 Ahead	60
100 or 110	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

## Continue for Figure 2.2.1.2

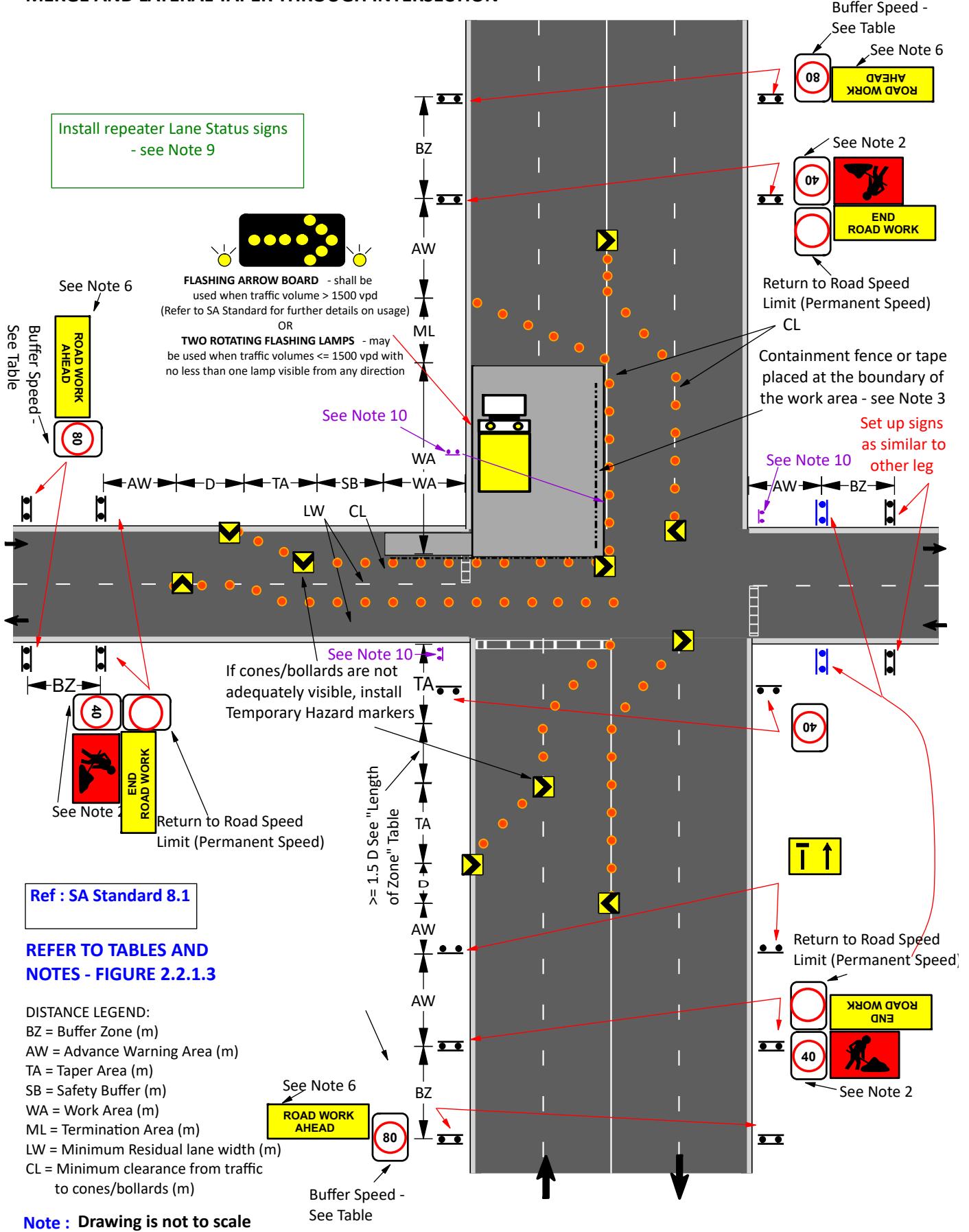
**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

### NOTES:

1. Undertake a risk assessment – Allow for any permanent traffic control devices (traffic lights, stop or give-way signs) if they are present
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2). Any of the installed speed limits shall apply to the traffic in each direction
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres
3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds >= 90 km/h)
  - Termination - T2-16A or T2-17A
7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
8. For additional information on night works, please refer to SA Standard section 8.5
9. If distance A exceeds 4D, repeater sign(s) (Lane Status) are required at evenly spaced distance(s)
10. If no Return to Road Speed Limit signs are present within a distance of 70 meters from the intersection on a leg of road, erect appropriate repeater speed signs within this distance. Place signs as close to traffic as practical, safe, as possible to ensure they are not obscured from driver's vision.

## FIGURE 2.2.1.3

EXAMPLE : MULTI LANE ROADS, WITH INTERSECTIONS - UNDIVIDED CARRIAGEWAY,  
MERGE AND LATERAL TAPER THROUGH INTERSECTION



## TABLES AND NOTES - Figure 2.2.1.3

### MULTI LANE ROADS, WITH INTERSECTIONS - UNDIVIDED CARRIAGEWAY MERGE AND LATERAL SHIFT TAPERS THROUGH INTERSECTION

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80*	90*	100*	110*
BZ	n/a	n/a	n/a	n/a	300 +/- 50	300 +/- 50	300 +/- 50	300 +/- 50
AW	D = 5	D = 15	D = 45	D** = 70	D**	D**	D**	D**
TA	15	30	60	115	130	145	160	180
SB	***	***	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30
WA	See Note 2							
ML	Optional 5	Optional 5	Optional 15					

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	9	9	12
SB	4	4	18	18	24
WA **	4	4	18 (12**)	18 (12**)	24 (18**)
ML – if installed	4	4	18	18	24

\* Cone height >= 700 mm

\*\* Apply this to cones on centre-line of the carriageway without work

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

Note: Residual width shall form a complete lane (or lanes). WZTM plan will be dependent on final available lane configuration

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
70	n/a	n/a	25 Ahead
80	n/a	40 Ahead	60
90	n/a	40 Ahead	60
100 or 110	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment – Allow for any permanent traffic control devices (traffic lights, stop or give-way signs) if they are present

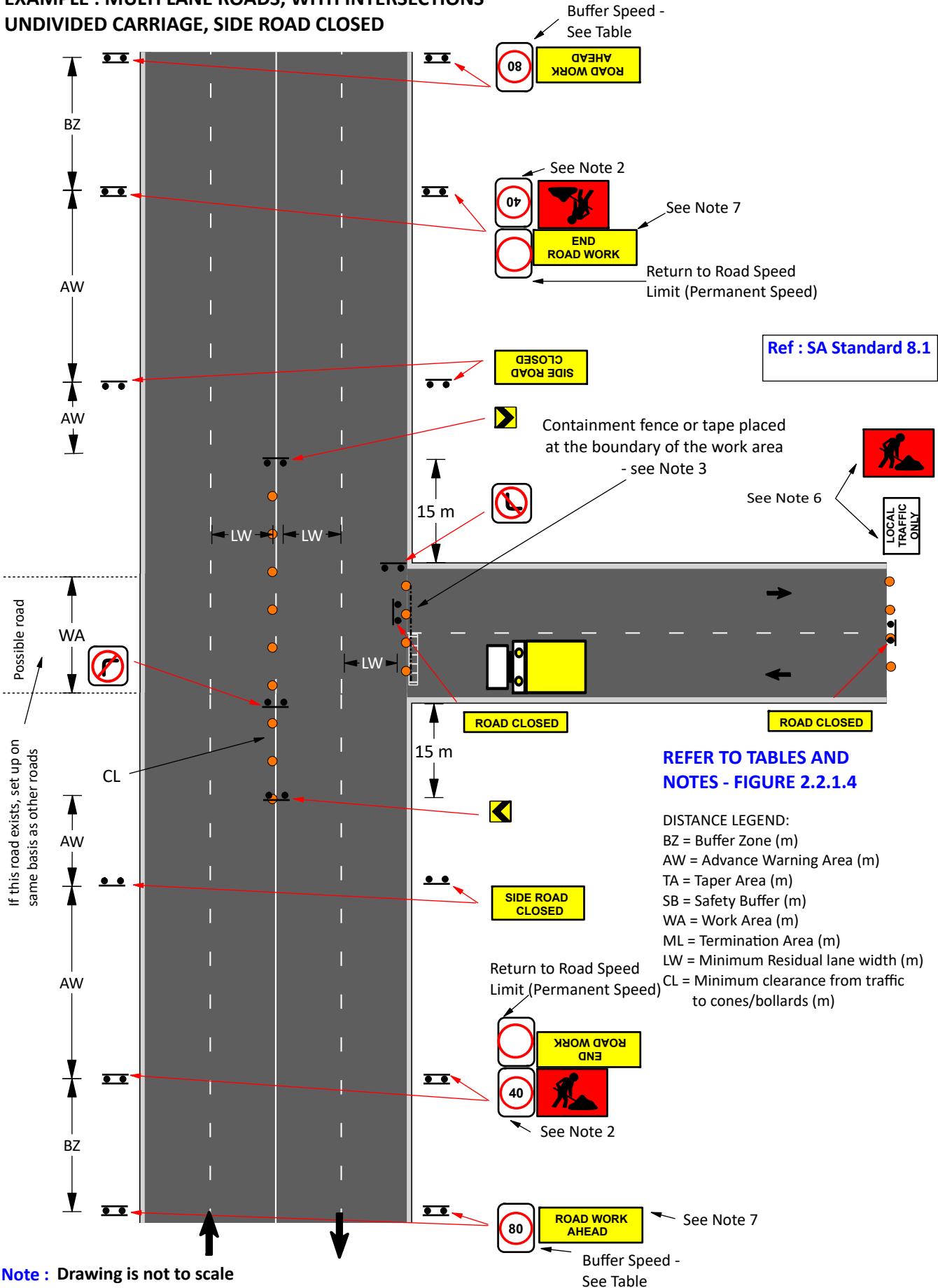
## Continue for Figure 2.2.1.3

2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2). Any of the installed speed limits shall apply to the traffic in each direction
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres
3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds >= 90 km/h)
  - Termination - T2-16A or T2-17A
7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
8. For additional information on night works, please refer to SA Standard section 8.5
9. If distance A exceeds 4D, repeater sign(s) (Lane Status) are required at evenly spaced distance(s)
10. If no Return to Road Speed Limit signs are present within a distance of 70 meters from the intersection on a leg of road, erect appropriate repeater speed signs within this distance. Place signs as close to traffic as practical, safe, as possible to ensure they are not obscured from driver's vision.

## FIGURE 2.2.1.4

EXAMPLE : MULTI LANE ROADS, WITH INTERSECTIONS

UNDIVIDED CARRIAGE, SIDE ROAD CLOSED



## TABLES AND NOTES - Figure 2.2.1.4

### MULTI LANE ROADS, WITH INTERSECTIONS - UNDIVIDED CARRIAGEWAY SIDE ROAD CLOSED

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80*	90*	100*	110*
BZ	n/a	n/a	n/a	n/a	300 +/- 50	300 +/- 50	300 +/- 50	300 +/- 50
AW	D = 5	D = 15	D = 45	D** = 70	D**	D**	D**	D**
TA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SB	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
WA					See Note 2			
ML	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
Centre-line	4	4	12	12	18
Road closure	4	4	4	4	4

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

Note: Residual width shall form a complete lane (or lanes). If at least one lane width is not available, close the lane; this may require closing the carriageway

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
70	n/a	n/a	25 Ahead
80	n/a	40 Ahead	60
90	n/a	40 Ahead	60
100 or 110	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. If deemed necessary, install speed zone - it may be possible to retain the existing speed limit on the through road. Otherwise, set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2). Any of the installed speed limits shall apply to the traffic in each direction
  - Length of 60 km/h speed zone shall be <= 200 metres
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres

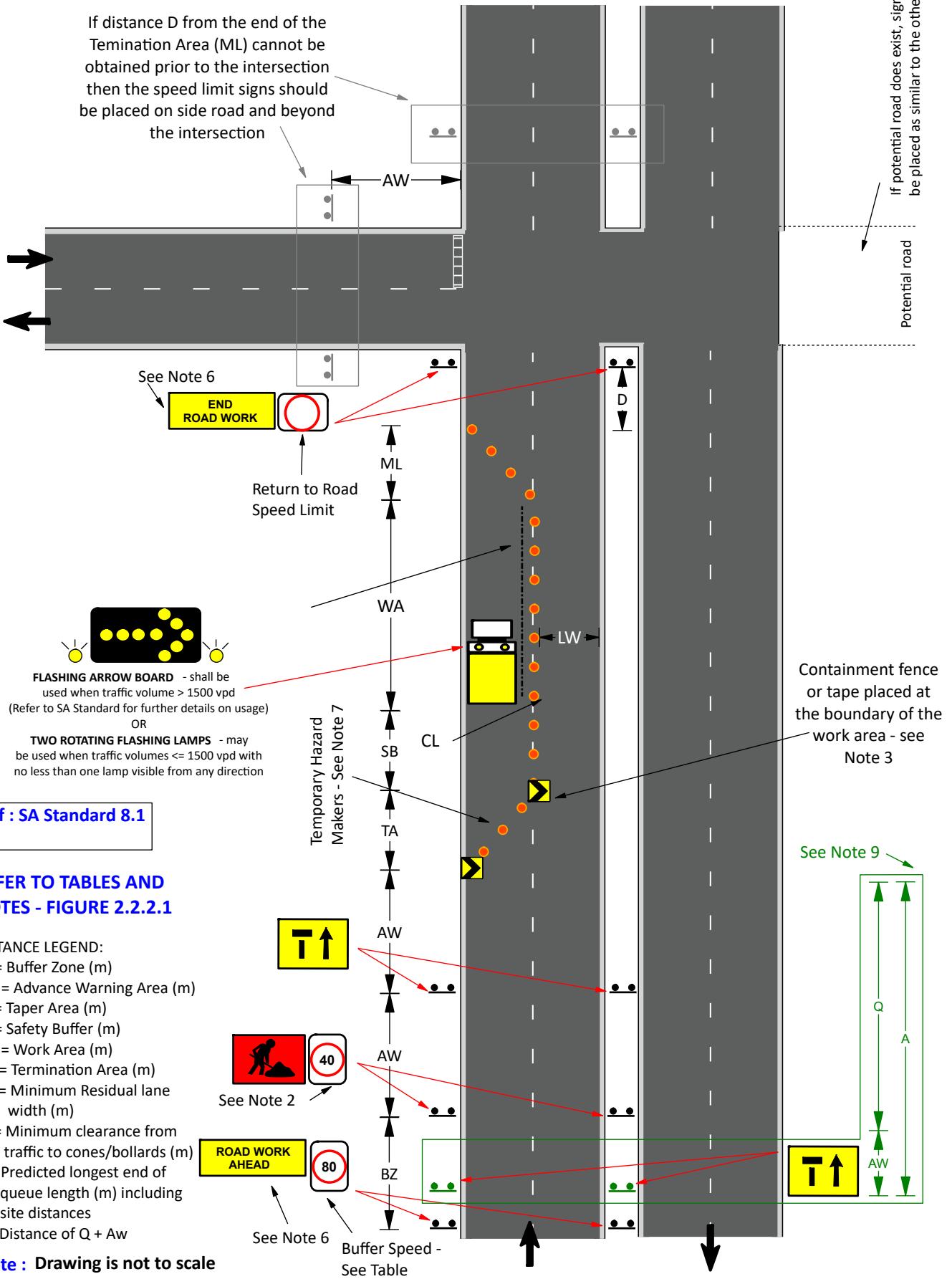
## **Continue for Figure 2.2.1.4**

3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Signs are to be set up to suit the situation, which includes advance warning, side road closed, local traffic only, speed limits and signed detour system
7. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
  - Termination - T2-16A or T2-17A
8. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
9. For additional information on night works, please refer to SA Standard section 8.5

## FIGURE 2.2.2.1

### EXAMPLE : MULTI LANE ROADS, WITH INTERSECTIONS DIVIDED CARRIAGEWAY, MERGE TAPER NEAR INTERSECTION

If distance D from the end of the Termination Area (ML) cannot be obtained prior to the intersection then the speed limit signs should be placed on side road and beyond the intersection



## TABLES AND NOTES - Figure 2.2.2.1

### MULTI LANE ROADS, WITH INTERSECTIONS - DIVIDED CARRIAGEWAY MERGE TAPER NEAR INTERSECTION

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80*	90*	100*	110*
BZ	n/a	n/a	n/a	n/a	300 +/- 50	300 +/- 50	300 +/- 50	300 +/- 50
AW	D = 5	D = 15	D = 45	D** = 70	D**	D**	D**	D**
TA	15	30	60	115	130	145	160	180
SB	***	***	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30	20 - 30
WA	See Note 2							
ML	Optional 5	Optional 5	Optional 15					

\* Where applicable – see Buffer Speed table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	9	9	12
SB	4	4	18	18	24
WA	4	4	18	18	24
ML – if installed	4	4	18	18	24

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

Note: Residual width shall form a complete lane (or lanes). WZTM plan will be dependent on final available lane configuration

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
70	n/a	n/a	25 Ahead
80	n/a	40 Ahead	60
90	n/a	40 Ahead	60
100 or 110	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

## Continue for Figure 2.2.2.1

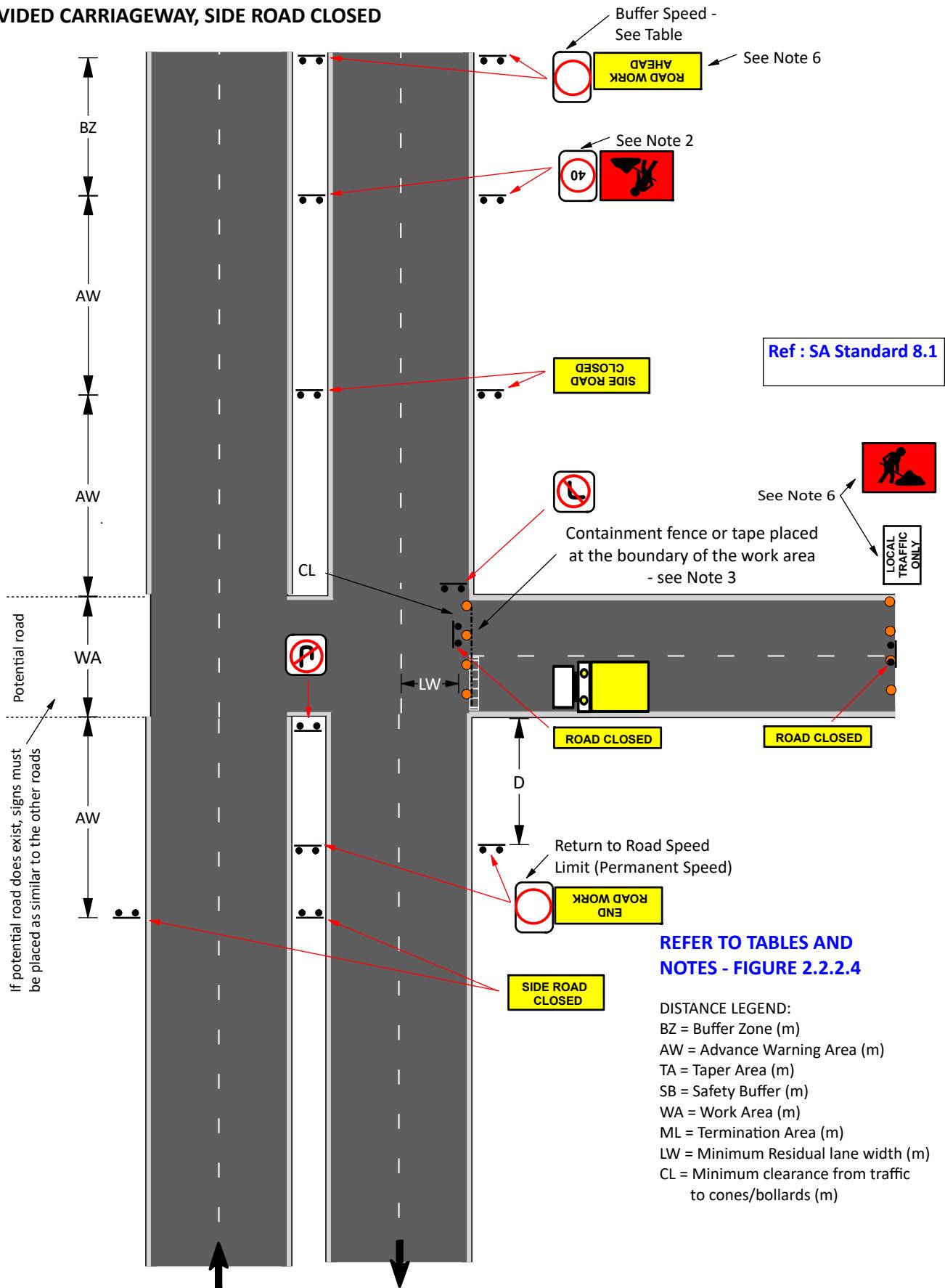
### NOTES:

1. Undertake a risk assessment
2. Install speed zone for the work site (which may be a buffer speed – see table above), and a speed zone for the work area when workers are present (40 km/h, unless work area involves an unusually high level of hazard (Category 2); on higher speed roads, and where it is safe to do so, installing a speed limit of 60 km/h might be appropriate)
  - Length of 60 km/h speed zone shall be  $\geq$  200 metres
  - Length of 40 km/h speed zone shall be  $\leq$  500 metres
  - Length of 25 km/h speed zone should be  $\geq$  100 metres and shall be  $\leq$  200 metres
3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Install appropriate signs:
  - Advance Warning – Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq$  90 km/h)
  - Termination - T2-16A or T2-17A
7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
8. For additional information on night works, please refer to SA Standard section 8.5
9. If distance A exceeds 4D, repeater sign(s) (Lane Status) are required at evenly spaced distance(s)

## FIGURE 2.2.2.2

EXAMPLE : MULTI LANE ROADS, WITH INTERSECTIONS

DIVIDED CARRIAGEWAY, SIDE ROAD CLOSED



Note : Drawing is not to scale

## TABLES AND NOTES - Figure 2.2.2.2

### MULTI LANE ROADS, WITH INTERSECTIONS - DIVIDED CARRIAGEWAY SIDE ROAD CLOSED

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80*	90*	100*	110*
BZ	= AW	= AW	= AW	= AW	Buffer speed applies? "No" = AW "Yes" = 300 +/- 50			
AW	D = 5	D = 15	D = 45	D** = 70	D**	D**	D**	D**
TA	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SB	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
WA				See Note 2				
ML	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

\* Where applicable – see Buffer Speed table

\*\* For 70 - 110 km/h road speeds, "D" = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	50	60	70	80 – 110*
Road closure	4	4	4	4

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	50	60	70	80 - 110
LW	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	50	60	70	80 – 110
CL	0.5	0.5	1.0	1.0

Note: Residual width shall form a complete lane (or lanes). If at least one lane is not available, close the lane which may require closing the carriageway

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
70	n/a	n/a	25 Ahead
80	n/a	40 Ahead	60
90	n/a	40 Ahead	60
100 or 110	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

## Continue for Figure 2.2.2.2

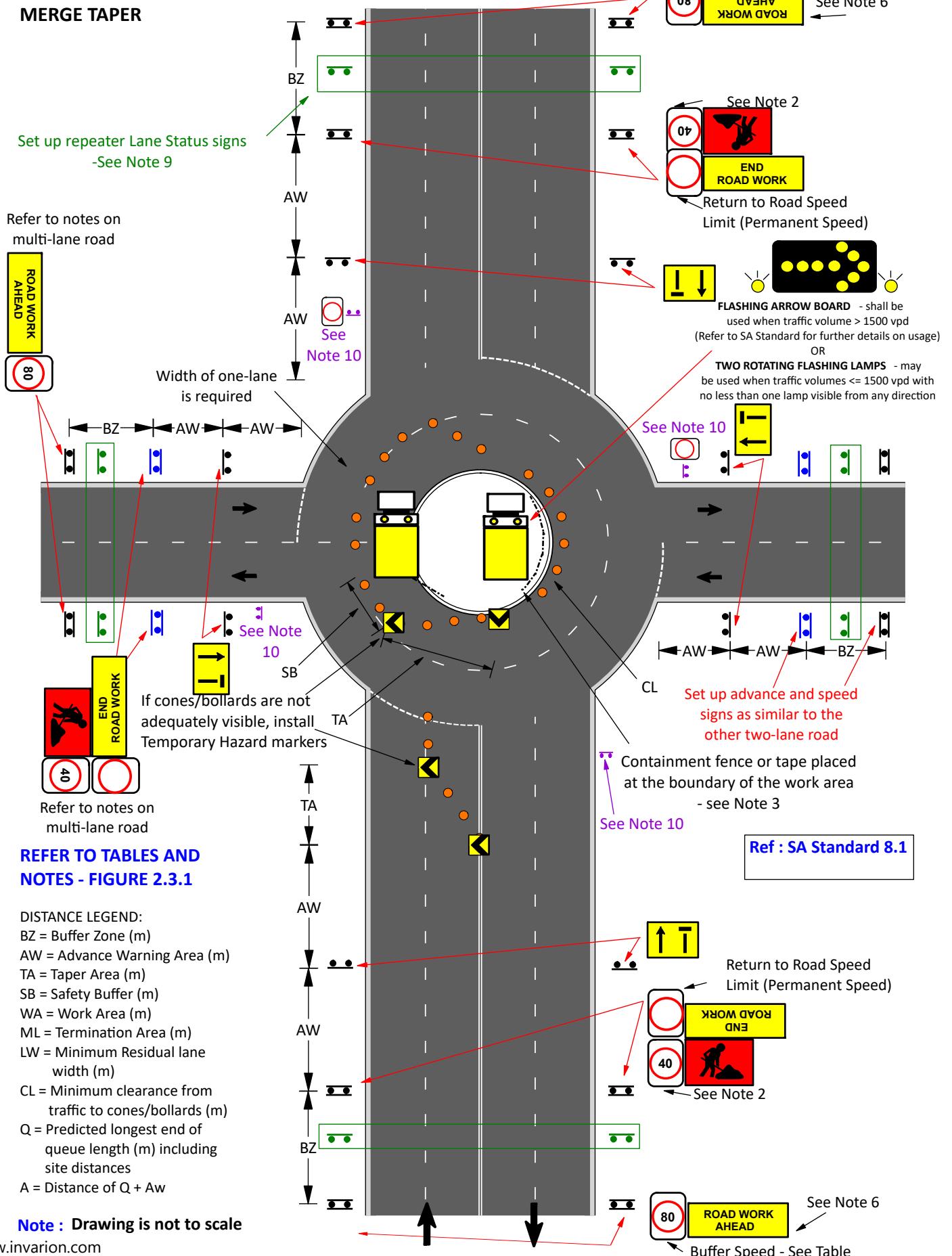
### NOTES:

1. Undertake a risk assessment
2. If deemed necessary install speed zone - it may be possible to retain the existing speed limit on one or both carriageways (observing the maximum speed in a work site). Otherwise, install 40 km/h, unless work area involves an unusually high level of hazard (Category 2). Only install a speed limit on the carriageway remote from the closed road if required through a risk assessment. Place return speed signs to correspond with speed zones set up
  - Length of 60 km/h speed zone shall be  $\geq$  200 metres
  - Length of 40 km/h speed zone shall be  $\leq$  500 metres
  - Length of 25 km/h speed zone should be  $\geq$  100 metres and shall be  $\leq$  200 metres
3. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles
6. Signs are to be set up to suit the situation, which includes advance warning, side road closed, local traffic only, speed limits and signed detour system
7. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq$  90 km/h)
  - Termination - T2-16A or T2-17A
8. For additional information on night works, please refer to SA Standard section 8.5

# FIGURE 2.3.1

EXAMPLE : MULTI LANE ROADS, ON ROUNDABOUT

## MERGE TAPER



## TABLES AND NOTES - Figure 2.3.1

### MULTI LANE ROADS, ON ROUNDABOUT MERGE TAPER

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80*
BZ	n/a	n/a	n/a	n/a	300 +/- 50
AW	D = 5	D = 15	D = 45	Undivided D** = 70 Two Lane Two Way 2D** = 140	Undivided D** Two Lane Two Way 2D**
TA	15	30	60	115	130
SB	***	***	20 - 30	20 - 30	20 - 30
WA	See Note 2				
ML	Optional	Optional	Optional	Optional	

\* Where applicable – see Buffer Speed Table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80*
TA	4	4	9	9	12
SB	4	4	18	18	24
WA	4	4	18	18	24
ML – if installed	4	4	18	18	24

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	40	50	60	70	80
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80
CL	0.5	0.5	0.5	1.0	1.0

Note: Residual width shall form a complete lane (or lanes). WZTM plan will be dependent on final available lane configuration

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
80	n/a	n/a	60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2). Any of the installed speed limits shall apply to the traffic in each direction
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres
3. When workers or small items of plant are in use:

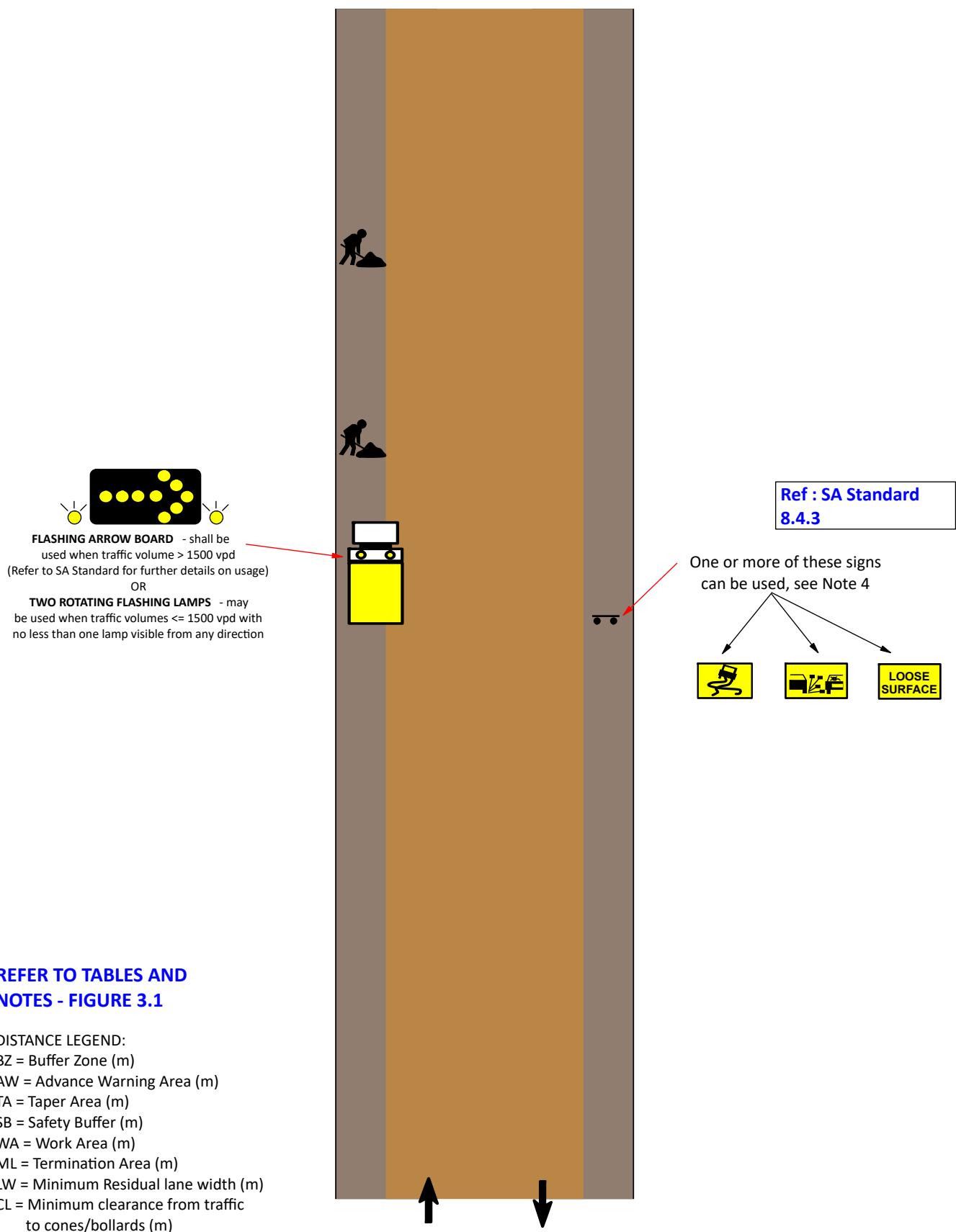
## Continue for Figure 2.3.1

- If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
  5. Provision shall be made for pedestrians (including disabled persons) and bicycles
  6. Install appropriate signs:
    - Advance Warning - Refer to AS1742.3 section 4.6.2
      - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
      - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90$  km/h)
    - Termination - T2-16A or T2-17A
  7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
  8. For additional information on night works, please refer to SA Standard section 8.5
  9. If distance A exceeds 4D, repeater sign(s) (Lane Status) are required at evenly spaced distance(s)
  10. If no Return to Road Speed Limit signs are present within a distance of 70 meters from the intersection on a leg of road, erect appropriate repeater speed signs within this distance

# FIGURE 3.1

EXAMPLE : UNSEALED ROADS

STATIC SITE WITHOUT ADVANCE WARNING SIGNS (SHORT TERM)



**REFER TO TABLES AND  
NOTES - FIGURE 3.1**

**DISTANCE LEGEND:**

BZ = Buffer Zone (m)

AW = Advance Warning Area (m)

TA = Taper Area (m)

SB = Safety Buffer (m)

WA = Work Area (m)

ML = Termination Area (m)

LW = Minimum Residual lane width (m)

CL = Minimum clearance from traffic  
to cones/bollards (m)

**Note :** Drawing is not to scale

## **TABLES AND NOTES - Figure 3.1**

### **UNSEALED ROADS STATIC SITE WITHOUT ADVANCE WARNING SIGNS (SHORT TERM)**

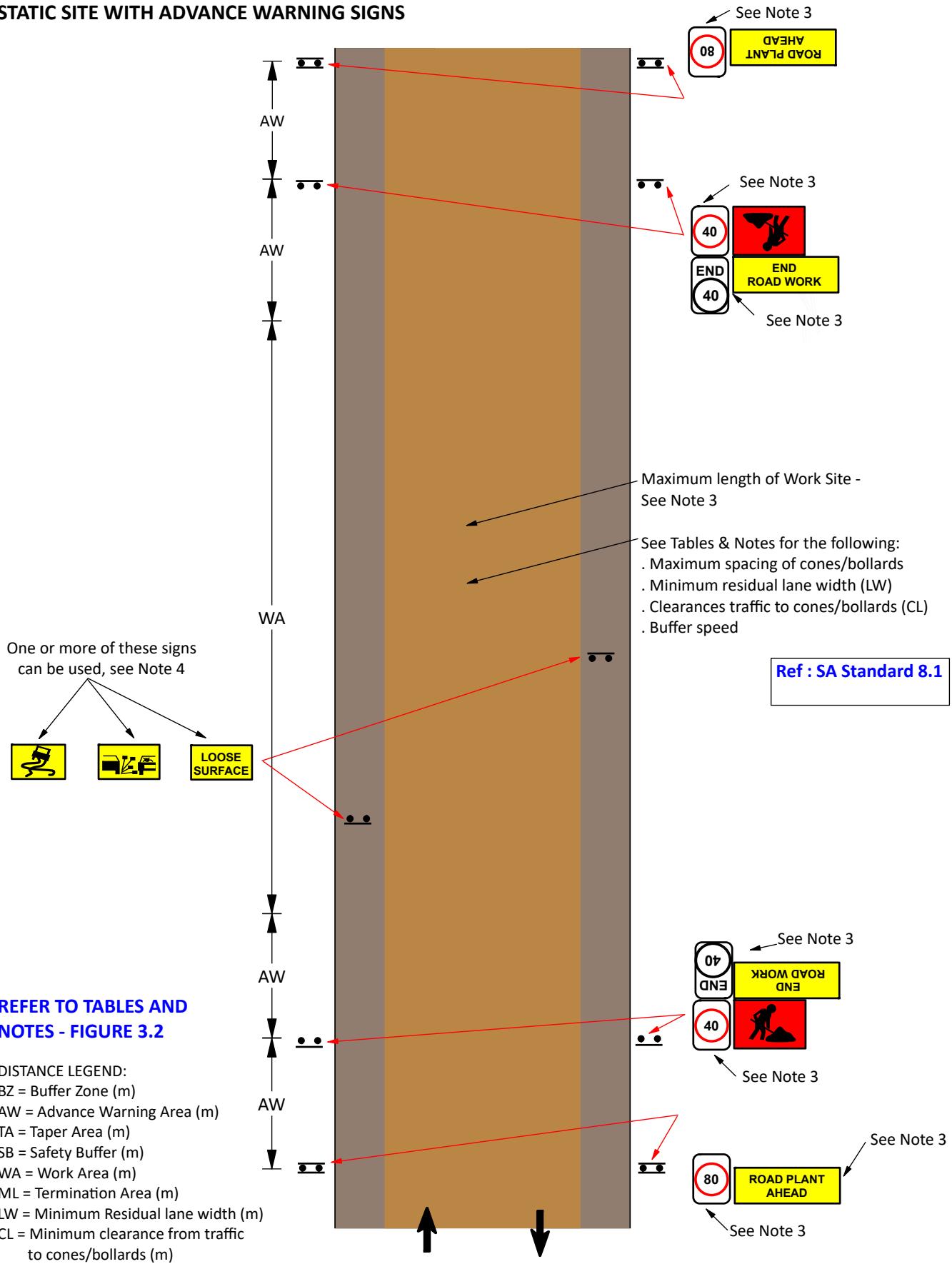
#### **NOTES:**

1. Undertake a risk assessment
  2. Unsealed road – A road surfaces that is not sealed with i.e. asphalt, concrete etc
  3. Advance signs may be omitted subject to the following conditions:
    - Vehicle mounted warning device on the work vehicle can be seen by approaching traffic  $\geq 250$  m
    - A traffic controller is not required
    - And:
      - Traffic volume is  $\leq 20$  vph, or
      - Adequate room for two-way traffic to go beyond the work area
  4. One or more of the following signs can be installed at various locations if the road surface has loose material that may be a hazard:
    - Slippery (symbolic) (T3-3)
    - Loose Stones (symbolic) (T3-9)
    - Loose Surface (T3-14)
- Locate signs that are  $\geq 100$  metres ahead of the hazard

# FIGURE 3.2

EXAMPLE : UNSEALED ROADS

STATIC SITE WITH ADVANCE WARNING SIGNS



## TABLES AND NOTES - Figure 3.2

### UNSEALED ROADS STATIC SITE WITH ADVANCE WARNING SIGNS

#### LENGTH OF ZONE (m)

Road Speed (km/h)	50	100*
BZ	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 15	2D**
TA	15	D**
SB	***	20 - 30
WA	See Note 3	
ML	Optional, 5	Optional, 15

\* Where applicable – see Buffer Speed table

\*\* For 100 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	50	100*
TA	4	18
SB	4	18
WA	4	18
ML – if installed	4	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL ROADWAY WIDTH (m) – to allow 2-way traffic to continue

Road Speed (km/h)	50	100
LW	6.0	7.0

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	50	100
CL	0.5	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
100	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. Unsealed road – A road surfaces that is not sealed with i.e. asphalt, concrete etc

## **Continue for Figure 3.2**

**3. Set up the appropriate speed zones**

- Maximum speed in work site shall be 80 km/h
- Where workers are present, or other conditions require a lower speed than 80 km/h, Install speed zone of 60 km/m or 40 km/h (to suit conditions), unless work area involves an unusually high level of hazard (Category 2)
  - Length of 80 km/h speed zone should be  $\geq$  500 metres
  - Length of 60 km/h speed zone shall be  $\geq$  200 metres
  - Length of 40 km/h speed zone shall be  $\leq$  500 metres
  - Length of 25 km/h speed zone should be  $\geq$  100 metres and shall be  $\leq$  200 metres
- The end of a speed zone shall be marked with End Speed Limit (R4-12) displaying the speed set up in the speed zone

**4. One or more of the following signs can be installed at various locations if the road surface has loose material that may be a hazard:**

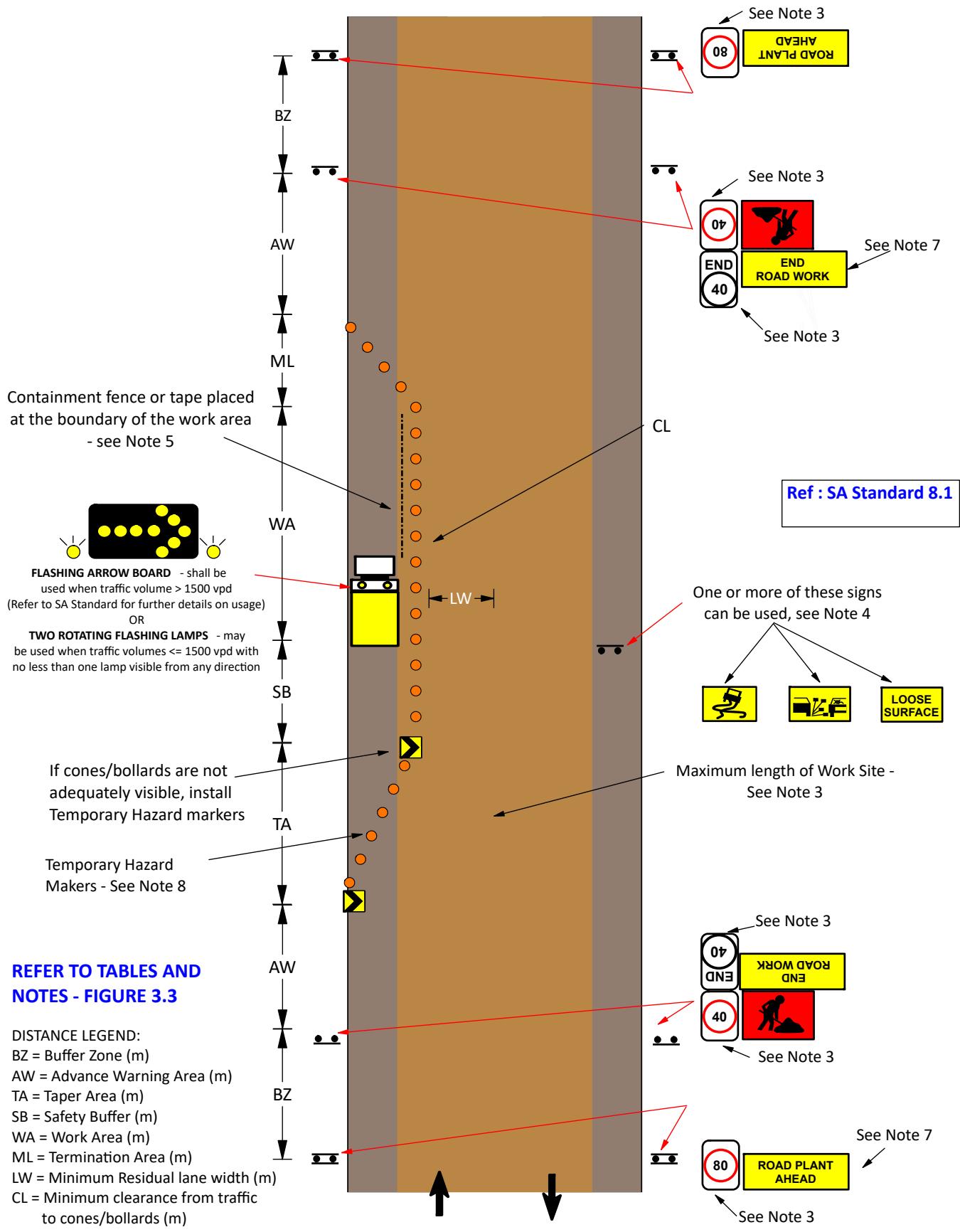
- Slippery (symbolic) (T3-3)
- Loose Stones (symbolic) (T3-9)
- Loose Surface (T3-14)

Locate signs that are  $\geq$  100 metres ahead of the hazard

**FIGURE 3.3**

EXAMPLE : UNSEALED ROADS

STATIC SITE ON ROAD



## TABLES AND NOTES - Figure 3.3

### UNSEALED ROADS STATIC SITE ON ROAD

#### LENGTH OF ZONE (m)

Road Speed (km/h)	50	100*
BZ	= AW	Buffer speed applies? “No” = AW “Yes” = 300 +/- 50
AW	D = 15	2D**
TA	15	D**
SB	***	20 - 30
WA	See Note 3	
ML	Optional, 5	Optional, 15

\* Where applicable – see Buffer Speed table

\*\* For 100 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	50	100*
TA	4	18
SB	4	18
WA	4	18
ML – if installed	4	18

\* Cone height  $\geq$  700 mm

#### MINIMUM RESIDUAL ROADWAY WIDTH (m) – to allow 2-way traffic to continue

Road Speed (km/h)	50	100
LW	6.0	7.0

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	50	100
CL	0.5	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
100	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. Unsealed road – A road surface that is not sealed with i.e. asphalt, concrete etc.

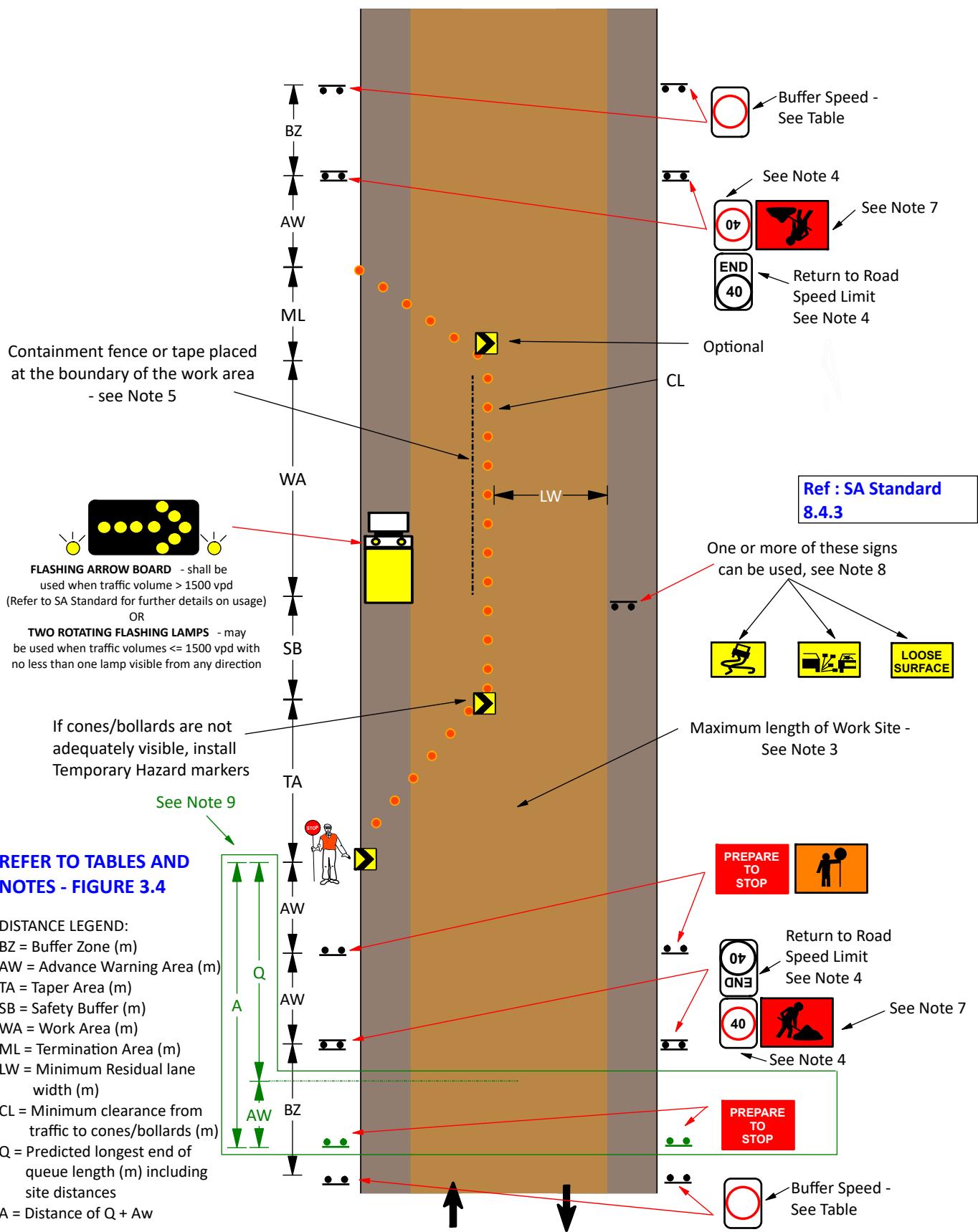
## Continue for Figure 3.3

3. Set up the appropriate speed zones.
  - Maximum speed in work site shall be 80 km/h
  - Where workers are present, or other conditions require a lower speed than 80 km/h, install speed zone of 60 km/m or 40 km/h (to suit conditions), unless work area involves an unusually high level of hazard (Category 2)
    - Length of 80 km/h speed zone should be  $\geq$  500 metres
    - Length of 60 km/h speed zone shall be  $\geq$  200 metres
    - Length of 40 km/h speed zone shall be  $\leq$  500 metres
    - Length of 25 km/h speed zone should be  $\geq$  100 metres and shall be  $\leq$  200 metres
  - The end of a speed zone shall be marked with End Speed Limit (R4-12) displaying the speed set up in the speed zone
4. One or more of the following signs can be installed at various locations if the road surface has loose material that may be a hazard:
  - Slippery (symbolic) (T3-3)
  - Loose Stones (symbolic) (T3-9)
  - Loose Surface (T3-14)
- Locate signs that are  $\geq$  100 metres ahead of the hazard
5. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
6. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
7. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-3-2B or T1-1A
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq$  90 km/h)
  - Termination - T2-16A or T2-17A
8. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
9. For additional information on night works, please refer to SA Standard section 8.5

# FIGURE 3.4

EXAMPLE : UNSEALED ROADS

WITH SINGLE TRAFFIC CONTROLLER (SHORT TERM)



**REFER TO TABLES AND NOTES - FIGURE 3.4**

DISTANCE LEGEND:

- BZ = Buffer Zone (m)
- AW = Advance Warning Area (m)
- TA = Taper Area (m)
- SB = Safety Buffer (m)
- WA = Work Area (m)
- ML = Termination Area (m)
- LW = Minimum Residual lane width (m)
- CL = Minimum clearance from traffic to cones/bollards (m)
- Q = Predicted longest end of queue length (m) including site distances
- A = Distance of Q + Aw

**Note :** Drawing is not to scale

## TABLES AND NOTES - Figure 3.4

### UNSEALED ROADS WITH SINGLE TRAFFIC CONTROLLER (SHORT TERM)

#### LENGTH OF ZONE (m)

Road Speed (km/h)	50	100*
BZ	= AW	300 +/- 50
AW	D = 15	Approach D** Departure 2D**
TA	15	D**
SB	***	20 - 30
WA	See Note 3	
ML	Optional, 5	Optional, 15

\* Where applicable – see Buffer Speed table

\*\* For 100 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	50	100*
TA	4	18
SB	4	18
WA	4	18
ML – if installed	4	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	50	100
LW	3.0	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	50	100
CL	0.5	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
100	80 or 60 Ahead	40 Ahead	60 Ahead and 60

#### NOTES:

1. Undertake a risk assessment
2. Unsealed road – A road surfaces that is not sealed with i.e. asphalt, concrete etc
3. For the conditions of use:
  - Single lane section is <= 50 metres
  - Traffic volume is <= 20 vph
  - The traffic controller must have good view of traffic advancing from both directions when stationed at one end of the job
4. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2). The end of a speed zone shall be marked with End Speed Limit (R4-12) displaying the speed set up in the speed zone
5. When workers or small items of plant are in use:
  - If the clearance is between 1.5 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.5 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
6. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines

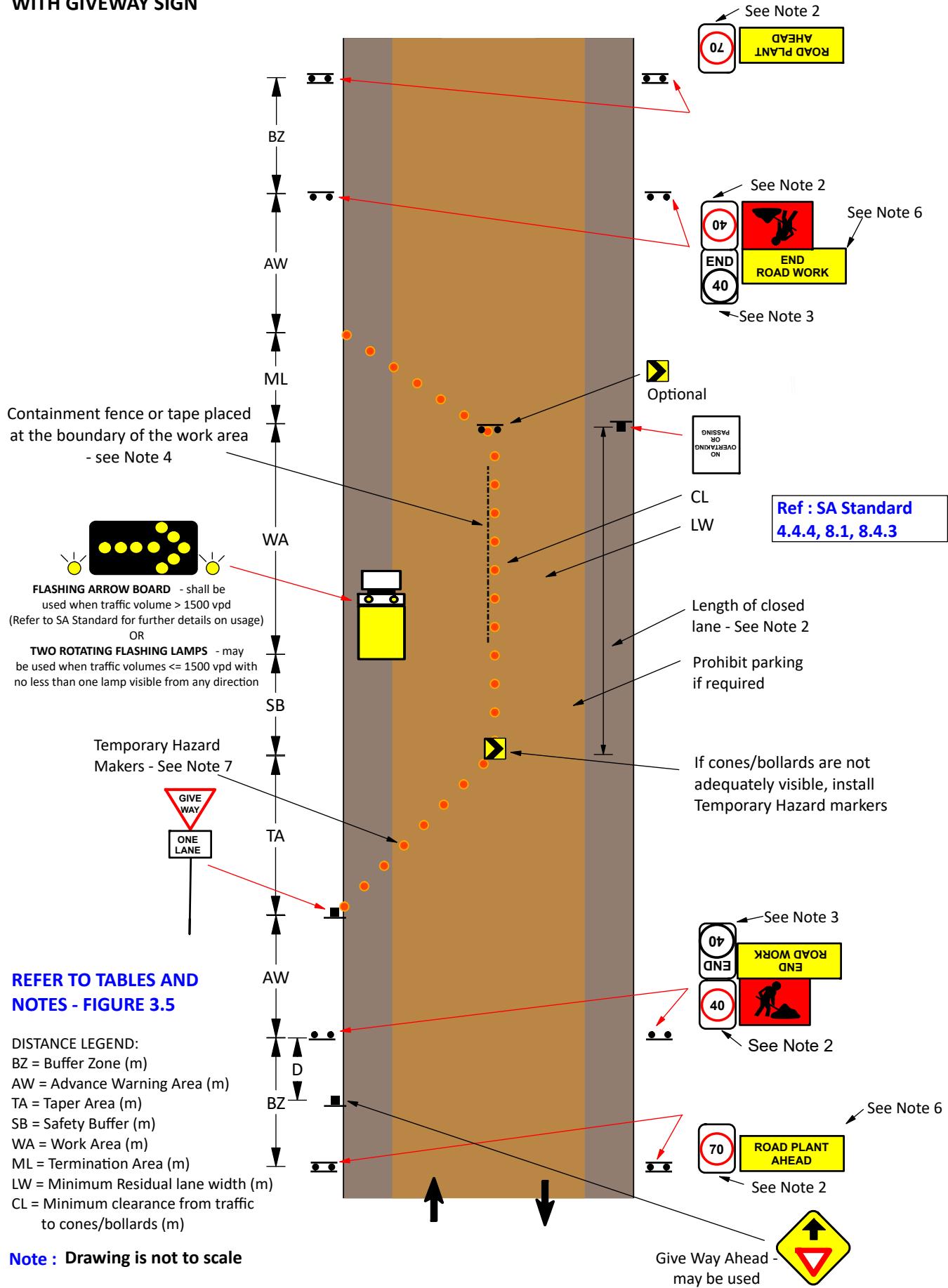
## **Continue for Figure 3.4**

7. Install appropriate signs: Refer to AS1742.3 section 4.6.2
    - Advance Warning - T1-5A or T1-5B sign
    - Termination - none required
  8. One or more of the following signs can be installed at various locations if the road surface has loose material that may be a hazard:
    - Slippery (symbolic) (T3-3)
    - Loose Stones (symbolic) (T3-9)
    - Loose Surface (T3-14)
- Locate signs that are  $\geq 100$  metres ahead of the hazard
9. If distance A exceeds 4D, repeater sign(s) (prepare to stop) are required at evenly spaced distance(s)

## FIGURE 3.5

## **EXAMPLE : UNSEALED ROADS**

## **WITH GIVEAWAY SIGN**



## TABLES AND NOTES - Figure 3.5

### UNSEALED ROADS WITH GIVE WAY SIGN (LONG TERM)

#### LENGTH OF ZONE (m)

Road Speed (km/h)	50	100*
BZ	= AW	300 +/- 50
AW	D = 15	2D**
TA	15	D**
SB	***	20 - 30
WA	See Note 2	
ML	Optional, 5	Optional, 15

\* Where applicable – see Buffer Speed table

\*\* For 100 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	50	100*
TA	4	18
SB	4	18
WA	4	18
ML – if installed	4	18

\* Cone height  $\geq$  700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m)

Road Speed (km/h)	50	100
LW	3.0	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	50	100
CL	0.5	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
100	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. For the conditions of use –
  - Traffic volume is  $\leq$  150 vpd
  - Traffic speed is  $\leq$  70 km/h
  - Length of Work Area is  $<$  100 metres
  - The work area entrances are visible from one another
  - Sight distance to the opposing traffic is  $\geq$  200 metres past the furthest end of the work area (as seen from the give way assembly)
  - Install a No Overtaking or Passing sign at the start of the single lane for traffic in the opposite direction
  - Monitor Give Way setup for safe and effective operation and to ensure traffic delays are not excessive
  - Give way assembly and no overtaking or passing signs may both be placed at the opposite end of the work area as shown in the figure above

## **Continue for Figure 3.5**

3. The end of a speed zone shall be marked with End Speed Limit (R4-12) displaying the speed set up in the speed zone
4. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
5. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
6. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-1A or T1-1B (preferred format), or T1-31A (when space is limited)
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq 90 \text{ km/h}$ )
  - Termination - T2-16A or T2-17A
7. Tapers for night works shall be formed using Temporary Hazard Markers (T5-5) that are placed at twice the cone spacing, or T5-4 may be used where space is limited
8. For additional information on night works, please refer to SA Standard section 8.5
9. One or more of the following signs can be installed at various locations if the road surface has loose material that may be a hazard:
  - Slippery (symbolic) (T3-3)
  - Loose Stones (symbolic) (T3-9)
  - Loose Surface (T3-14)

Locate signs that are  $\geq 100$  metres ahead of the hazard

# FIGURE 3.6

## EXAMPLE : UNSEALED ROADS WORK ON SIDE ROAD (SHORT TERM)

### REFER TO TABLES AND NOTES - FIGURE 3.6

#### DISTANCE LEGEND:

BZ = Buffer Zone (m)  
 AW = Advance Warning Area (m)  
 TA = Taper Area (m)  
 SB = Safety Buffer (m)  
 WA = Work Area (m)  
 ML = Termination Area (m)  
 LW = Minimum Residual lane width (m)  
 CL = Minimum clearance from traffic to cones/bollards (m)

Containment fence or tape erected at limit of work area - see Note 5



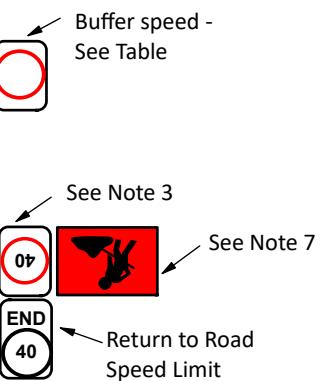
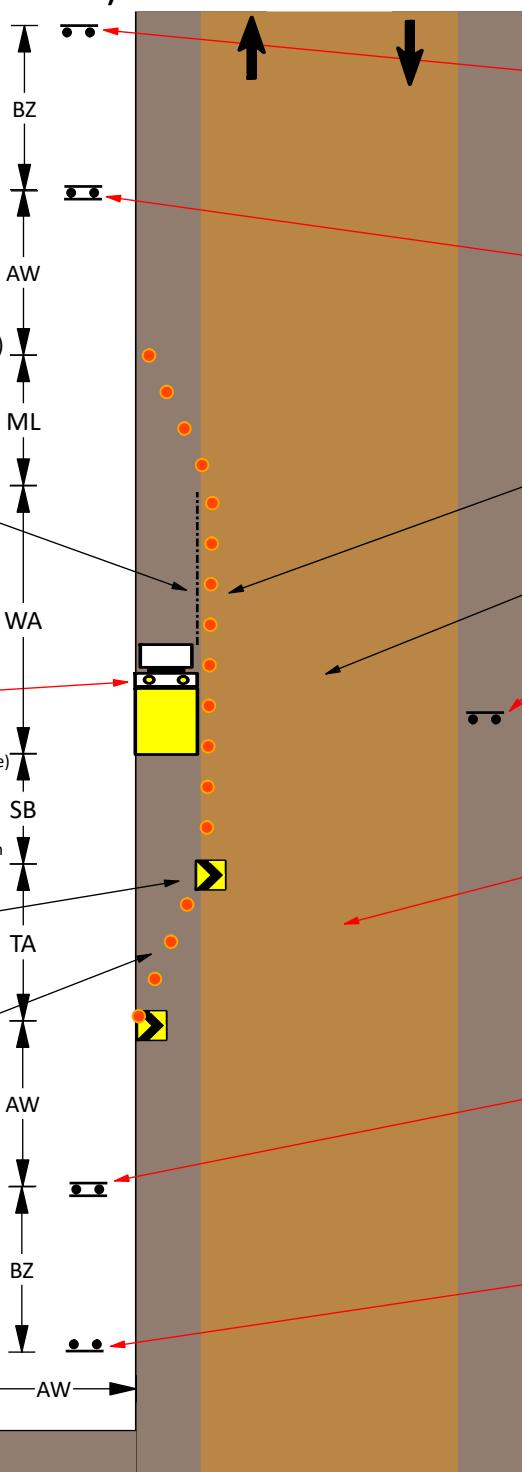
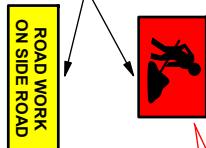
**FLASHING ARROW BOARD** - shall be used when traffic volume > 1500 vpd (Refer to SA Standard for further details on usage)

OR  
**TWO ROTATING FLASHING LAMPS** - may be used when traffic volumes <= 1500 vpd with no less than one lamp visible from any direction

If cones/bollards are not adequately visible, install Temporary Hazard markers

Temporary Hazard Makers - See Note 8

See Note 10

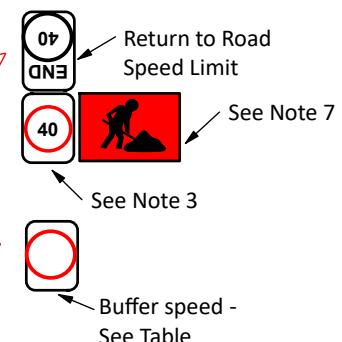


Ref : SA Standard 8.1

One or more of these signs can be used, see Note 4



Maximum length of Work Site - See Note 3



Signs must be placed similar to the other leg



Note : Drawing is not to scale

## TABLES AND NOTES - Figure 3.6

### UNSEALED ROADS WORK ON SIDE ROAD (SHORT TERM)

#### LENGTH OF ZONE (m)

Road Speed (km/h)	50	100*
BZ	= AW	300 +/- 50
AW	D = 15	2D**
TA	15	D**
SB	***	20 - 30
WA	See Note 2	
ML	Optional, 5	Optional, 15

\* Where applicable – see Buffer Speed table

\*\* For 100 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	50	100*
TA	4	18
SB	4	18
WA	4	18
ML – if installed	4	18

\* Cone height  $\geq$  700 mm

#### MINIMUM RESIDUAL ROADWAY WIDTH (m)

Road Speed (km/h)	50	100
LW	6.0	7.0

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	50	100
CL	0.5	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
100	80 or 60 Ahead	40 Ahead	60 Ahead and 60

#### NOTES:

1. Undertake a risk assessment
2. Unsealed road – A road surfaces that is not sealed with i.e. asphalt, concrete etc
3. Set up the appropriate speed zones:
  - Maximum speed in work site shall be 80 km/h
  - Where workers are present, or other conditions require a lower speed than 80 km/h, Install speed zone of 60 km/m or 40 km/h (to suit conditions), unless work area involves an unusually high level of hazard (Category 2)
    - Length of 80 km/h speed zone should be  $\geq$  500 metres
    - Length of 60 km/h speed zone shall be  $\geq$  200 metres
    - Length of 40 km/h speed zone shall be  $\leq$  500 metres
    - Length of 25 km/h speed zone should be  $\geq$  100 metres and shall be  $\leq$  200 metres
  - The end of a speed zone shall be marked with End Speed Limit (R4-12) displaying the speed set up in the speed zone

## Continue for Figure 3.6

4. One or more of the following signs can be installed at various locations if the road surface has loose material that may be a hazard:
  - Slippery (symbolic) (T3-3)
  - Loose Stones (symbolic) (T3-9)
  - Loose Surface (T3-14)
- Locate signs that are  $\geq 100$  metres ahead of the hazard
5. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
6. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
7. Install appropriate signs: - Refer to AS1742.3 section 4.6.2
  - Advance Warning - T1-5A or T1-5B sign
  - Termination - none required
8. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
9. For additional information on night works, please refer to SA Standard section 8.5
10. Road Work on Side Road (T1-25) or Road Plant on Side Road (T1-27) shall be used in advance of an intersection to warn of activities on the side road where there is insufficient distance from the intersection to the start of the works for turning traffic to be given adequate warning. On the same basis, Worker (symbolic) (T1-5) may need to be installed. All warning and delineation of the works should be confined to the side road when the distance on the side road is  $> 5$  seconds of travel time at the intersection turning speed.

# FIGURE 3.7

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## EXAMPLE : UNSEALED ROADS WORK ON SIDE ROAD

### REFER TO TABLES AND NOTES - FIGURE 3.7

#### DISTANCE LEGEND:

BZ = Buffer Zone (m)

AW = Advance Warning Area (m)

TA = Taper Area (m)

SB = Safety Buffer (m)

WA = Work Area (m)

ML = Termination Area (m)

LW = Minimum Residual lane width (m)

CL = Minimum clearance from traffic to cones/bollards (m)

Containment fence or tape erected at limit of work area - see Note 5



**FLASHING ARROW BOARD** - shall be used when traffic volume > 1500 vpd (Refer to SA Standard for further details on usage)

OR

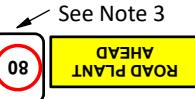
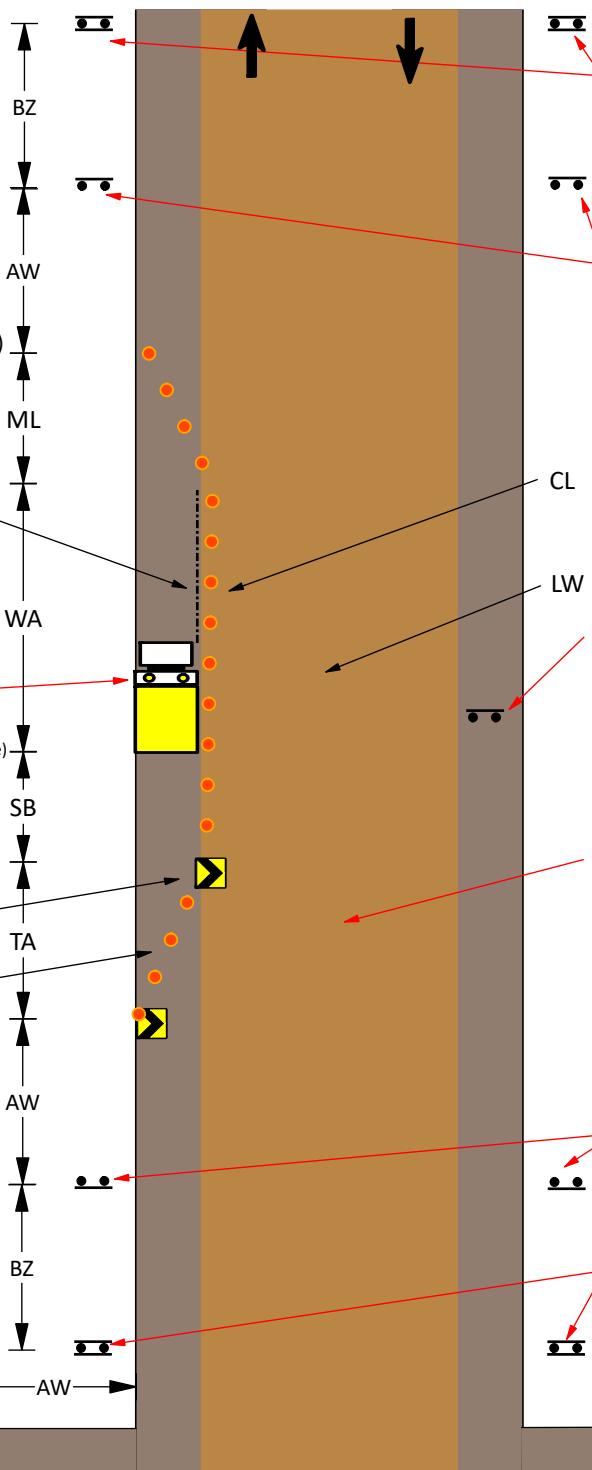
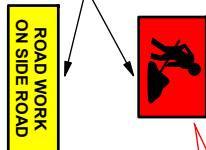
**TWO ROTATING FLASHING LAMPS** - may be used when traffic volumes <= 1500 vpd with no less than one lamp visible from any direction

If cones/bollards are not adequately visible, install

Temporary Hazard markers

Temporary Hazard  
Markers - See Note 8

See Note 10



See Note 3



See Note 3

See Note 7

Ref : SA Standard 8.1

One or more of these signs can be used, see Note 4



Maximum length of Work Site -  
See Note 3



See Note 3



See Note 3

See Note 7

Signs must be placed similar to the other leg



Note : Drawing is not to scale

## TABLES AND NOTES - Figure 3.7

### UNSEALED ROADS WORK ON SIDE ROAD (LONG TERM)

#### LENGTH OF ZONE (m)

Road Speed (km/h)	50	100*
BZ	= AW	300 +/- 50
AW	D = 15	2D**
TA	15	D**
SB	***	20 - 30
WA	See Note 3	
ML	Optional, 5	Optional, 15

\* Where applicable – see Buffer Speed table

\*\* For 100 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	50	100*
TA	4	18
SB	4	18
WA	4	18
ML – if installed	4	18

\* Cone height  $\geq$  700 mm

#### MINIMUM RESIDUAL ROADWAY WIDTH (m)

Road Speed (km/h)	50	100
LW	6.0	7.0

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	50	100
CL	0.5	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up		
	60	40	25
100	80 or 60 Ahead	40 Ahead	60 Ahead and 60

Note: As shown on Figure, 80 km/h may represent the maximum allowable speed through a Work Site

**This Figure** illustrates a Long-term Work Site with a Work Area (with workers being present) commencing immediately within the Work Site. Where the need for a temporary speed zone (for whatever reason) occurs part way into a Work Site the zone should be situated at that point rather than at the beginning of the Long-term Work Site

#### NOTES:

1. Undertake a risk assessment
2. Unsealed road – A road surfaces that is not sealed with i.e. asphalt, concrete etc

## Continue for Figure 3.7

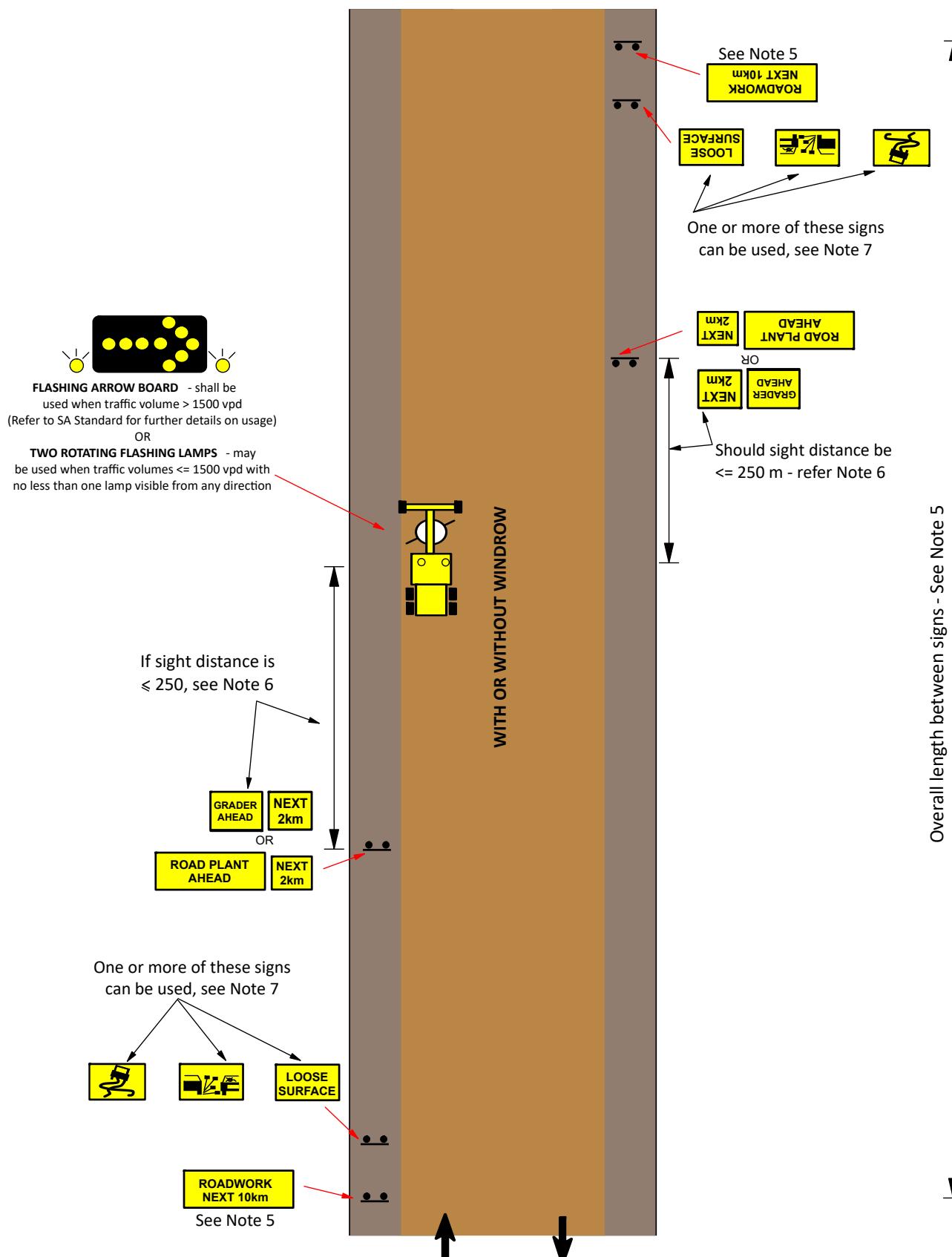
3. Set up the appropriate speed zones:
  - Maximum speed in work site shall be 80 km/h
  - Where workers are present, or other conditions require a lower speed than 80 km/h, Install speed zone of 60 km/m or 40 km/h (to suit conditions), unless work area involves an unusually high level of hazard (Category 2)
    - Length of 80 km/h speed zone should be  $\geq$  500 metres
    - Length of 60 km/h speed zone shall be  $\geq$  200 metres
    - Length of 40 km/h speed zone shall be  $\leq$  500 metres
    - Length of 25 km/h speed zone should be  $\geq$  100 metres and shall be  $\leq$  200 metres
  - The end of a speed zone shall be marked with End Speed Limit (R4-12) displaying the speed set up in the speed zone
4. One or more of the following signs can be installed at various locations if the road surface has loose material that may be a hazard:
  - Slippery (symbolic) (T3-3)
  - Loose Stones (symbolic) (T3-9)
  - Loose Surface (T3-14)

Locate signs that are  $\geq$  100 metres ahead of the hazard
5. When workers or small items of plant are in use:
  - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
  - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
6. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
7. Install appropriate signs:
  - Advance Warning - Refer to AS1742.3 section 4.6.2
    - T1-3-2B or T1-1A
    - Roadwork X km Ahead: T1-16A or T1-16B (on roads with speeds  $\geq$  90 km/h)
  - Termination - T2-16A or T2-17A
8. Tapers for night works shall be formed using Temporary Hazard Markers (T5-4) that is placed at twice the cone spacing, or T5-5 may be used where space is limited
9. For additional information on night works, please refer to SA Standard section 8.5
10. Road Work on Side Road (T1-25) or Road Plant on Side Road (T1-27) shall be used in advance of an intersection to warn of activities on the side road where there is insufficient distance from the intersection to the start of the works for turning traffic to be given adequate warning. On the same basis, Worker (symbolic) (T1-5) may need to be installed. All warning and delineation of the works should be confined to the side road when the distance on the side road is  $>$  5 seconds of travel time at the intersection turning speed.

**FIGURE 3.8**

EXAMPLE : UNSEALED ROADS

MAINTENANCE GRADING AND RESHEETING ROAD



Note : Drawing is not to scale

Ref : SA Standard 8.1

## TABLES AND NOTES - Figure 3.8

### UNSEALED ROADS MAINTENANCE GRADING AND RESHEETING

#### NOTES:

1. Undertake a risk assessment
2. Unsealed road – A road surfaces that is not sealed with i.e. asphalt, concrete etc
3. If feasible, grading (i.e. road, shoulders etc) is to be avoided along the right side of the road from approaching traffic
4. Work may be carried out either with or without leaving a windrow
5. Work shall be undertaken:
  - In lengths of <= 10 km (km)
  - With the Roadwork Ahead Next 10 km (km) sign (T1-24) placed at the end of the section being worked on
6. If sight distance fall to < 250 metres from the grader's vehicle mounted warning device then the following must be undertaken:
  - Grader Ahead (T1-4) or Road Plant Ahead (T1-3-1) sign combined with Next 2 km (T1-28) shall be installed at each end of each section with reduced sight distance
  - Signs shall be placed >= 100 metres in advance of the start any windrow
  - Length of each section shall be <= 2 km
  - Such a section shall be completed and any installed signs shall be removed or relocated before proceeding to the next section
  - If there is difficulty in turning a grader around at the end of a 2 km section, it may be extended to the next available turning point but not > 6 km in total length

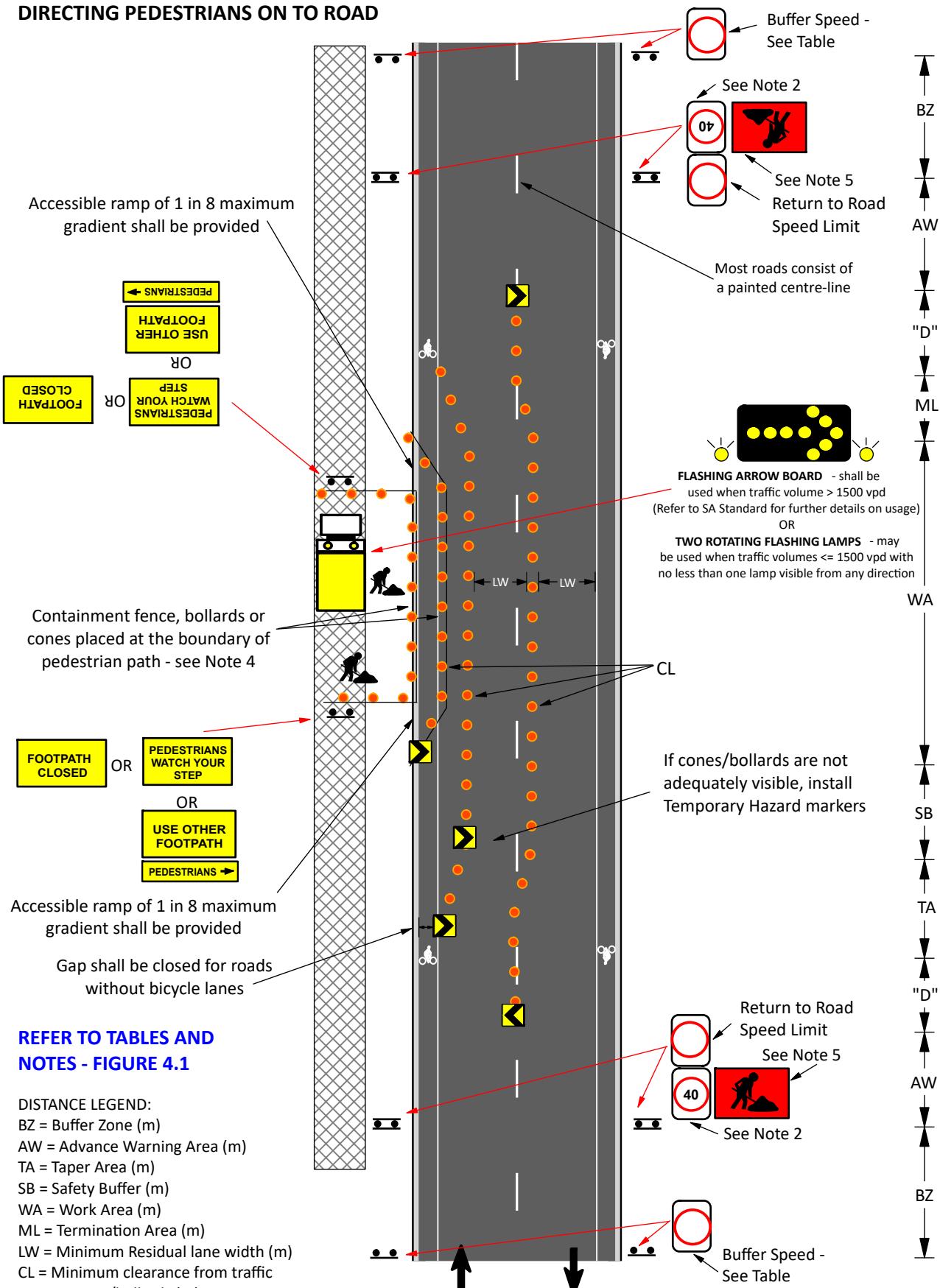
The signage in this point may be omitted provided that the specified sight distance of >= 250 metres is met

7. One or more of these signs (below) can be installed at various locations if the freshly graded surface has loose material that may be a hazard:
  - Slippery (symbolic) (T3-3)
  - Loose Stones (symbolic) (T3-9)
  - Loose Surface (T3-14)
- Locate signs that are >= 100 metres ahead of the hazard
8. The appropriate speed limits may be applied. Set up a speed zone of 60 km/h or 40 km/h (to suit conditions), unless work area involves an unusually high level of hazard (Category 2)
  - Length of 60 km/h speed zone shall be >= 200 metres
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres
- The end of a speed zone shall be marked with End Speed Limit (R4-12) displaying the speed set up in the speed zone
9. No advance working signs for either direction of travel are required when:
  - Grader is always to operate leaving room for opposing traffic to pass it without driving off the roadway
  - Sight distance to the grader's vehicle mounted warning device is >= 250 m throughout the entire section of road being worked on

Should the operating conditions in this note not be met, the work shall be carried out with advance warning signs as described above

# FIGURE 4.1

## EXAMPLE : PEDESTRIANS & CYCLISTS DIRECTING PEDESTRIANS ON TO ROAD



Note : Drawing is not to scale

Ref : SA Standard 8.1

## TABLES AND NOTES - Figure 4.1

### PEDESTRIANS DIRECTING PEDESTRIANS ON TO ROAD

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	n/a	n/a	n/a	n/a	300 +/- 50
AW	D = 5	D = 15	D = 45	2D** = 140	2D**
TA	15	15	30	D* = 70	D*
SB	***	***	20 - 30	20 - 30	20 - 30
WA	See Note 2				
ML	Optional, 5	Optional, 5	Optional, 15	Optional, 15	Optional, 15

\* Where applicable – see Buffer Speed table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	4	4	12	12	18
SB	4	4	12	12	18
WA	4	4	12	12	18
ML	4	4	12	12	18

\* Cone height >= 700 mm

#### MINIMUM RESIDUAL LANE WIDTH (m) – to allow 2-way traffic to continue

Road Speed (km/h)	40	50	60	70	80 - 110
LW	3.0	3.0	3.0	3.5	3.5

Subject to AGTTM Part 3 Section 2.5.8

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

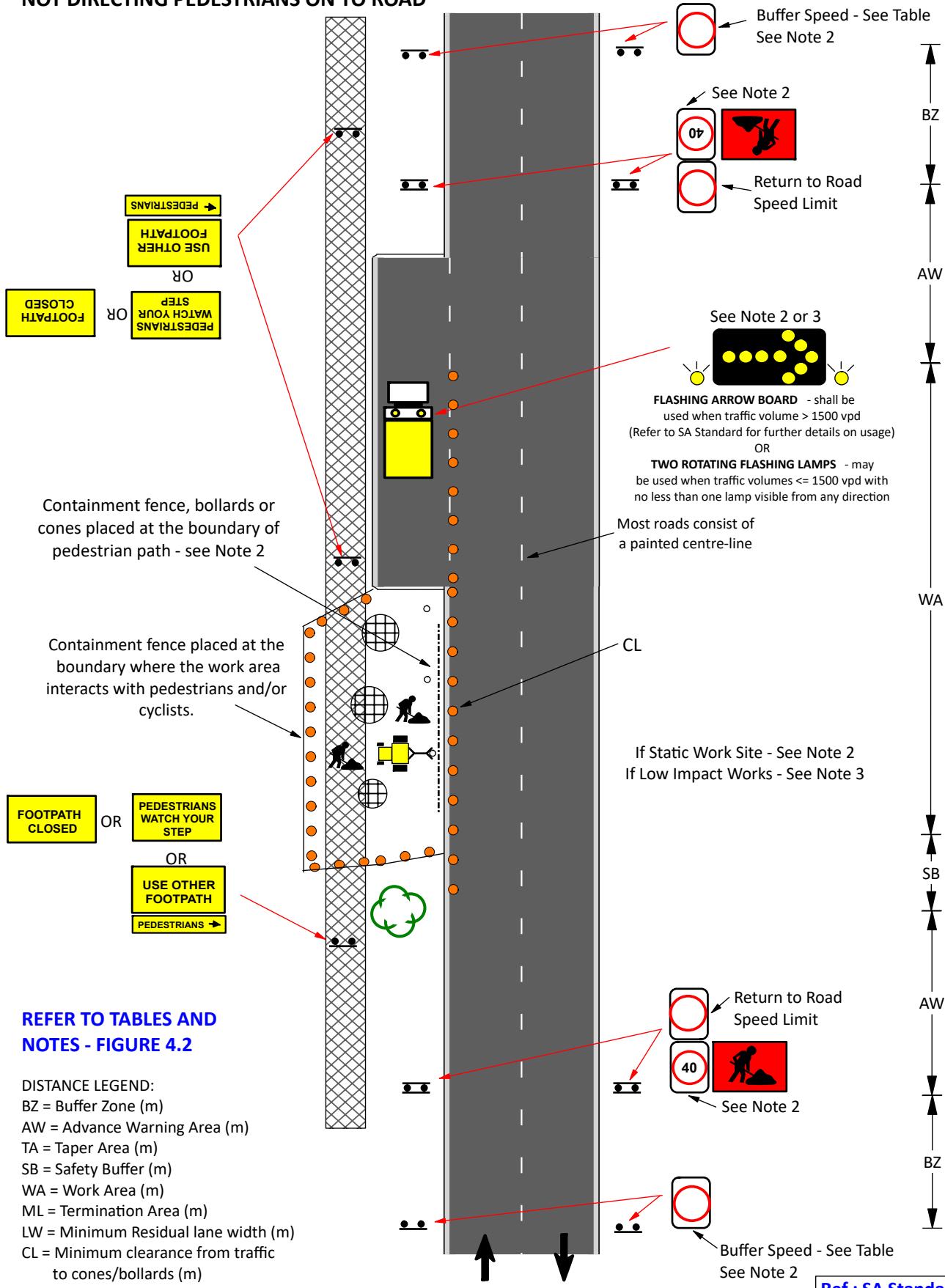
Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

#### NOTES:

1. Undertake a risk assessment
2. Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2). Consider deviation of pedestrians and cyclists on or near roadway.
  - Length of 40 km/h speed zone shall be <= 500 metres
  - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres
3. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
4. Provision shall be made for pedestrians (including disabled persons) and cyclists including installing signs as illustrated. Define the path for pedestrians and cyclists to move onto roadway by installing a containment fence or tape. Appropriate surface conditions and ramps are to be provided, while maintaining existing widths
5. Install appropriate signs: Refer to AS1742.3 section 4.6.2
  - Advance Warning - T1-5A or T1-5B sign
  - Termination - none required

**FIGURE 4.2****EXAMPLE : PEDESTRIANS****NOT DIRECTING PEDESTRIANS ON TO ROAD**

Ref : SA Standard 8.1 & 8.2.3

## TABLES AND NOTES - Figure 4.2

### PEDESTRIANS NOT DIRECTING PEDESTRIANS ON TO ROAD

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
BZ	n/a	n/a	n/a	n/a	300 +/- 50
AW	D = 5	D = 15	D = 45	2D** = 140	2D**
TA	n/a	n/a	n/a	n/a	n/a
SB	***	***	20 - 30	20 - 30	20 - 30
WA			n/a		
ML	n/a	n/a	n/a	n/a	n/a

\* Where applicable – see Buffer Speed table

\*\* For 70 - 110 km/h road speeds, “D” = speed of approaching traffic

\*\*\* A Safety Buffer Zone is recommended

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	n/a	n/a	n/a	n/a	n/a
SB	4	4	12	12	18
WA	4	4	12	12	18
ML	n/a	n/a	n/a	n/a	n/a

\* Cone height >= 700 mm

#### MINIMUM CLEARANCE FROM TRAFFIC TO CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110
CL	0.5	0.5	0.5	1.0	1.0

Subject to AGTTM Part 3 Section 2.5.8

#### BUFFER SPEED (km/h)

Road Speed (km/h)	Work Area Speed Limit as set up	
	40	25
70	n/a	25 Ahead
80	40 Ahead	60
90	40 Ahead	60
100 or 110	40 Ahead	60 Ahead and 60

#### NOTES:

- Undertake a risk assessment – The result of this assessment will determine whether a Static work site can be established (SA Standard section 8.1) or whether the site meets the requirements of Short Term Low Impact Works (SA Standard section 8.2.2)
- The requirements for a Static work site are:
  - Set up a 40 km/h speed zone, unless work area involves an unusually high level of hazard (Category 2)
    - Length of 40 km/h speed zone shall be <= 500 metres
    - Length of 25 km/h speed zone should be >= 100 metres and shall be <= 200 metres
  - Install a buffer zone speed limit, this is required, based on the table above
  - A vehicle mounted warning device is required
  - When workers or small items of plant are in use:
    - If the clearance is between 1.2 metres to less than 3 metres to traffic and there is a risk of the clearance area being infringed, a containment fence or tape must be installed
    - If the clearance is less than 1.2 metres to traffic and there is inadequate room to place the containment fence or tape, then these devices may be excluded
  - Install appropriate signs: Refer to AS1742.3 section 4.6.2
    - Advance Warning - T1-5A or T1-5B sign
    - Termination - none required

## Continue for Figure 4.2

3. For the conditions of use to conform to the requirements of Short Term Low Impact Works (SA Standard section 8.2.3 which obviates the requirements for speed zones to be established):
  - Work shall be limited to a single shift
  - A vehicle mounted warning device may be displayed
  - A support vehicle is not required on the roadway
  - When using large plant items only, and there are no workers on foot, clearance to edge of traffic lane shall be:
    - > 1.2 metres for speed limits that are  $\geq 90 \text{ km/h}$
    - May be  $< 1.2 \text{ metres}$  for speed limits that are  $\leq 80 \text{ km/h}$ ; provided the plant items shall not encroach onto traffic lane
  - When there are workers on foot or using small items of plant, or both, one of the following shall apply:
    - The work area shall not encroach onto a moving traffic lane where speed limits are  $\leq 60 \text{ km/h}$
    - $\geq 1.2 \text{ metres}$  clearance to edge of traffic lane
    - The entire work area is  $\geq 3 \text{ metres}$  clear of a moving traffic lane
  - Worker (symbolic) (T1-5) sign or Road Plant Ahead (T1-3) shall be displayed when either workers on foot or plant items alone (as appropriate) are working  $< 3 \text{ metres}$  to a moving traffic lane
  - Bollards or cones shall be placed along the kerb line or the edge of traffic lane (if there are no kerb) when either workers on foot or plant items alone (as appropriate) are working  $\leq 3 \text{ metres}$  to a moving traffic lane
4. Distance of clearances are determined by measuring from the boundary of the work area to the edge of traffic as defined e.g. cones, bollards or edge lines
5. Provision shall be made for pedestrians (including disabled persons) and bicycles including installing signs as illustrated
6. For additional information on night works, please refer to SA Standard section 8.5

## **5 - MOBILE WORKS**

***Currently under review***

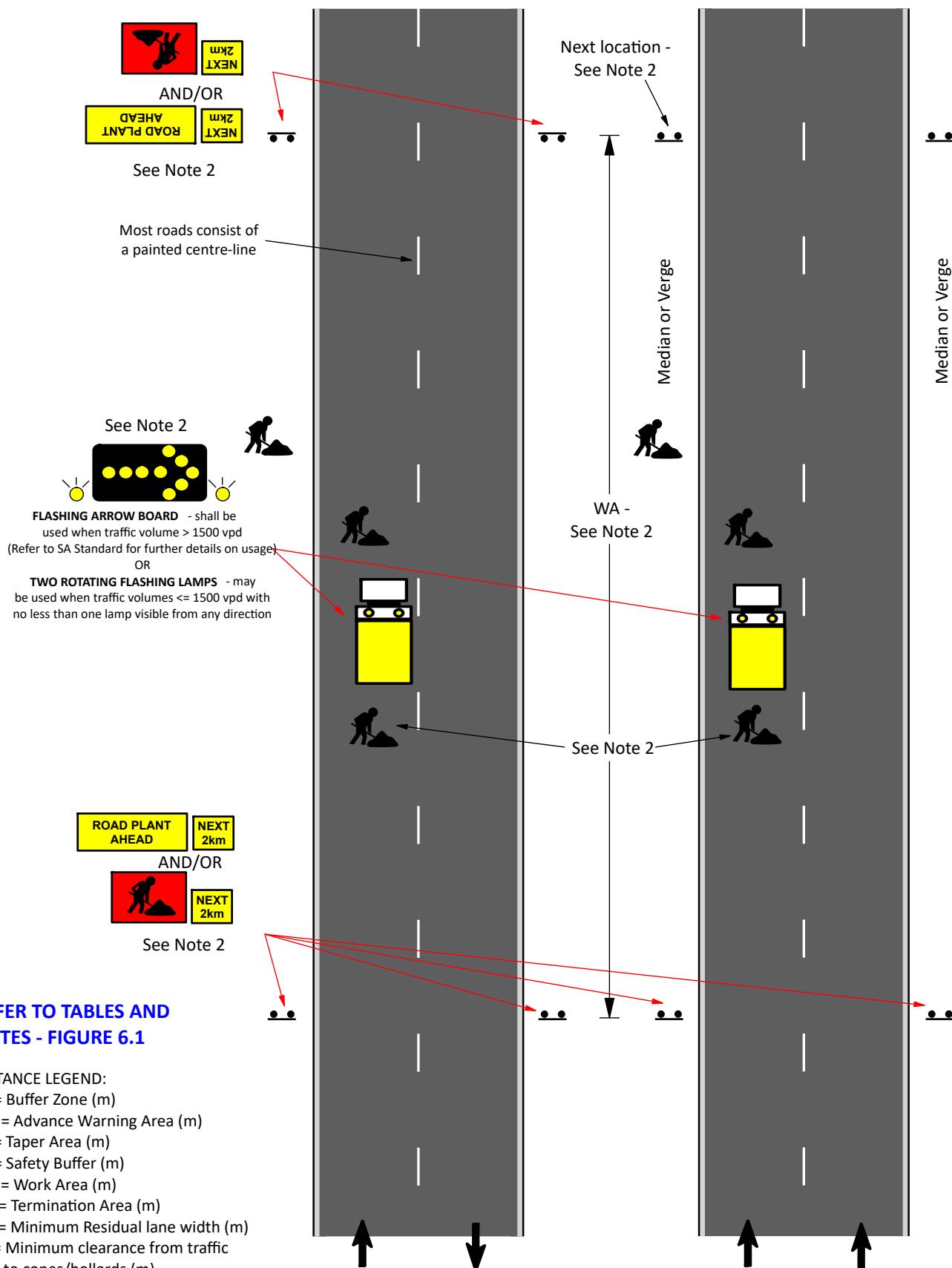
**NOTES:**

Refer to SA Standard Section 8.3 & Austroads Guide to Temporary Traffic Management Part 4

# FIGURE 6.1

EXAMPLE : FREQUENTLY CHANGING WORK AREA  
IN OPEN ROAD AREA

OR



Ref : SA Standard  
8.2.1

## **TABLES AND NOTES - Figure 6.1**

### **FREQUENTLY CHANGING WORK AREA IN OPEN ROAD AREA**

#### **NOTES:**

1: Undertake a risk assessment

2: For the conditions of use:

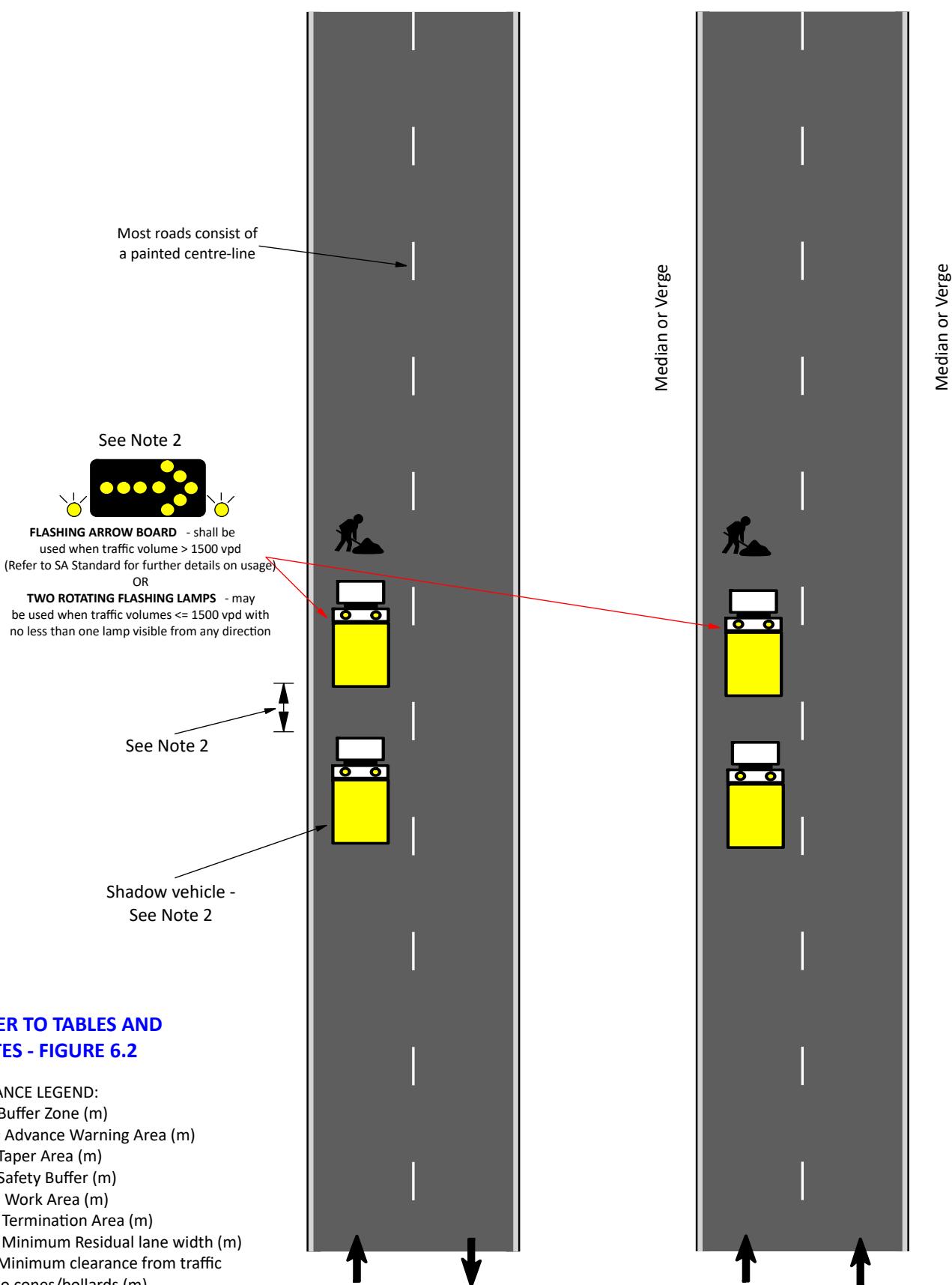
Method may be applied for activities at successive locations < 2 km apart. Method may be applied provided that:

- A vehicle mounted warning device is displayed on a work vehicle or item of plant and it is not obscured at any time
- Work vehicle positioning and length of occupation of any one site <= 20 minutes
- Sight distance to the vehicle mounted warning device for approaching driver are:
  - > 150 metres in speed zones that are <= 60 km/h, or
  - > 250 metres in speed zones that are > 60 km/h
- A lookout person is placed to advise workers that are on foot on the roadway of any approaching vehicle whose speed or size might constitute a safety threat. The lookout may be dispensed with if:
  - the works are > 1.2 metres clear of moving traffic, or
  - the work will take <= 10 seconds and the advancing traffic can be viewed from a distance away that is >= 20 seconds of travel time
- Advance signs up to 2 km in advance of each work position or item of moving plant are displayed. (The distance between advance signs for opposing directions to be <= 2 km at any time).
- Appropriate advance signs are installed at each location:
  - Worker (symbolic) (T1-5A or B) where workers are on foot
  - Road Plant Ahead (T1-3-1) where moving plant only are being used
  - Next 2 km (T1-28)

## FIGURE 6.2

EXAMPLE : FREQUENTLY CHANGING WORK AREA  
IN BUILT-UP AREA WITHIN TRAFFIC LANE

OR



### REFER TO TABLES AND NOTES - FIGURE 6.2

#### DISTANCE LEGEND:

- BZ = Buffer Zone (m)
- AW = Advance Warning Area (m)
- TA = Taper Area (m)
- SB = Safety Buffer (m)
- WA = Work Area (m)
- ML = Termination Area (m)
- LW = Minimum Residual lane width (m)
- CL = Minimum clearance from traffic to cones/bollards (m)

Note : Drawing is not to scale

Ref : SA Standard  
8.2.2

## **TABLES AND NOTES - Figure 6.2**

### **FREQUENTLY CHANGING WORK AREA IN BUILT-UP AREA WITHIN TRAFFIC LANE**

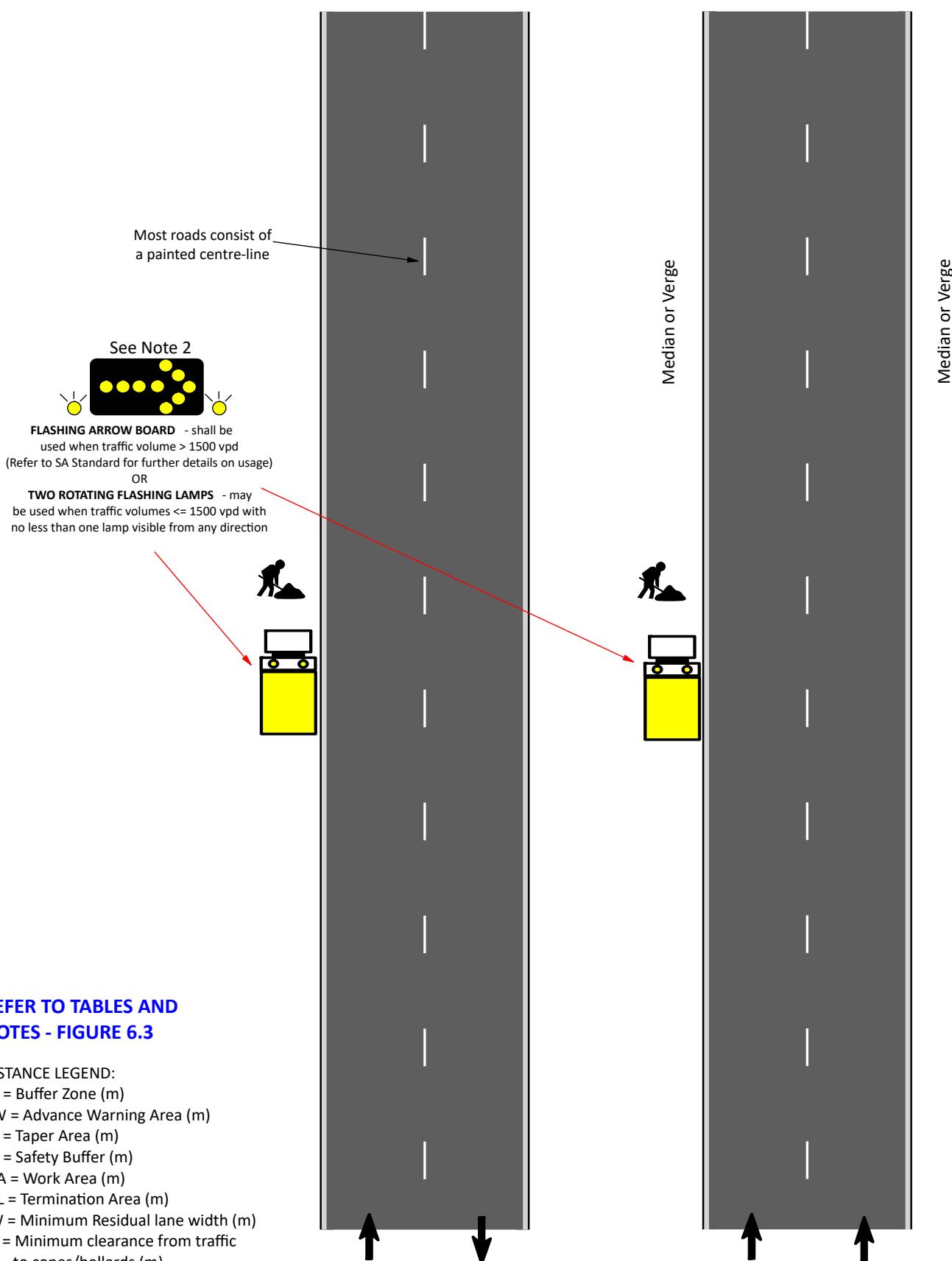
#### **NOTES:**

1. Undertake a risk assessment
2. For the conditions of use:
  - Work shall be carried out by operating work vehicle or a large plant item, and a shadow vehicle; both equipped with a mounted warning device
  - Shadow vehicle shall:
    - If work is being carried out by a large item of plant and there are no workers on foot or small items of plant present, follow behind the plant item > 15 metres and < 30 metres, either in the lane or shoulder to the left of the work lane (if free), or otherwise, within the work lane
    - If work is being carried out by workers on foot or small plant items, even though large items of plant may also be present, travel in the same lane as the work area, > 20 metres and < 40 metres behind the work vehicle
  - Shadow vehicle may be dispensed with if traffic volumes are < 60 vph, given that sight distance to oncoming traffic is >= 50 metres or 2D metres, whichever is the greater (where D = speed of approaching traffic)
  - Speed limit <= 60 km/h
  - Time limit to apply at any one location:  
<= 20 minutes apply at any traffic volume

# FIGURE 6.3

EXAMPLE : FREQUENTLY CHANGING WORK AREA  
IN BUILT-UP AREA NOT WITHIN TRAFFIC LANE

OR



REFER TO TABLES AND  
NOTES - FIGURE 6.3

DISTANCE LEGEND:

BZ = Buffer Zone (m)

AW = Advance Warning Area (m)

TA = Taper Area (m)

SB = Safety Buffer (m)

WA = Work Area (m)

ML = Termination Area (m)

LW = Minimum Residual lane width (m)

CL = Minimum clearance from traffic  
to cones/bollards (m)

Note : Drawing is not to scale

Ref : SA Standard  
8.2.2

## **TABLES AND NOTES - Figure 6.3**

### **FREQUENTLY CHANGING WORK AREA IN BUILT-UP AREA NOT WITHIN TRAFFIC LANE**

#### **NOTES:**

1: Undertake a risk assessment

2: For the conditions of use:

- A vehicle mounted warning device is displayed on a vehicle parked on a shoulder or a parking lane or elsewhere where parking is permitted adjacent to moving traffic
- Vehicle shall shadow the work area at all times, either in front or behind it
- Speed limit is  $\leq 70$  km/h
- Sight distance to oncoming traffic is  $\geq 50$  metres
- Time limit applies at any one location:
  - For  $\leq 20$  minutes at any traffic volume

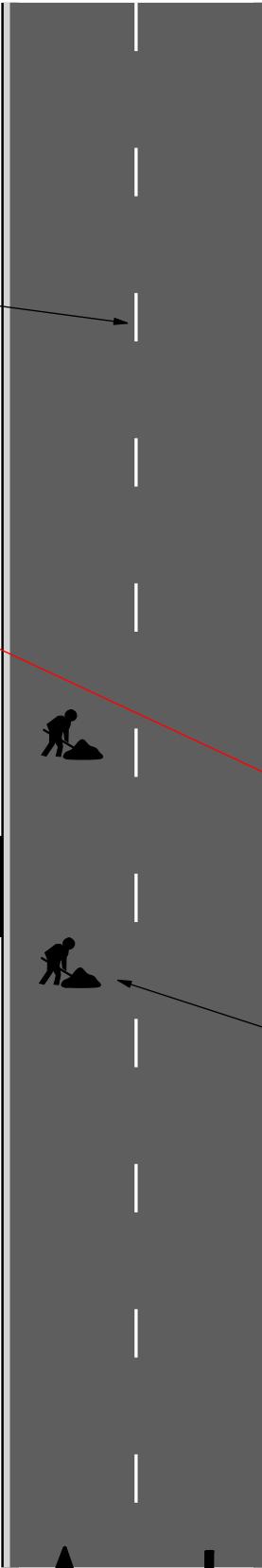
**FIGURE 7.1**

EXAMPLE : LOW IMPACT

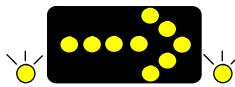
WORK BETWEEN GAPS IN TRAFFIC (SHORT TERM)

OR

Most roads consist of  
a painted centre-line



See Note 2



**FLASHING ARROW BOARD** - shall be used when traffic volume > 1500 vpd  
(Refer to SA Standard for further details on usage)

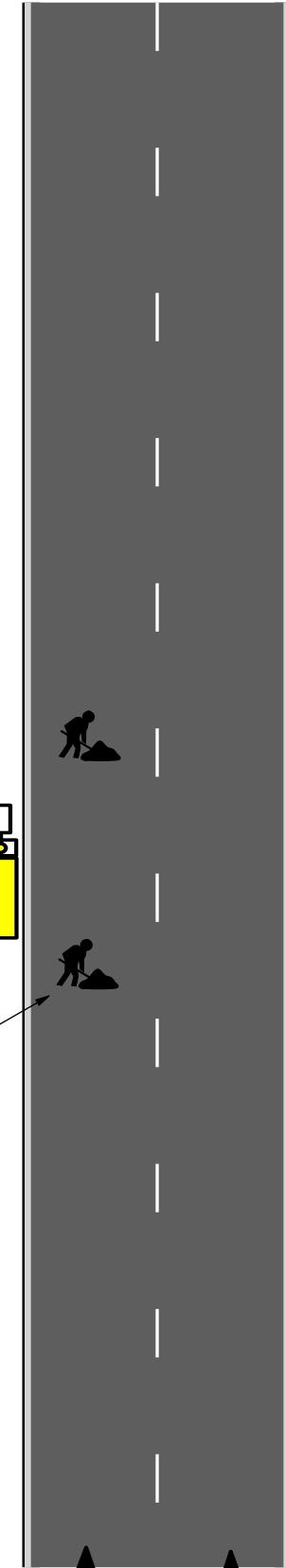
OR

**TWO ROTATING FLASHING LAMPS** - may be used when traffic volumes <= 1500 vpd with no less than one lamp visible from any direction

See Note 2

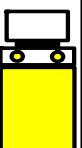


Median or Verge



Median or Verge

See Note 2


**REFER TO TABLES AND  
NOTES - FIGURE 7.1**

## DISTANCE LEGEND:

BZ = Buffer Zone (m)

AW = Advance Warning Area (m)

TA = Taper Area (m)

SB = Safety Buffer (m)

WA = Work Area (m)

ML = Termination Area (m)

LW = Minimum Residual lane width (m)

CL = Minimum clearance from traffic  
to cones/bollards (m)

Note : Drawing is not to scale

Ref : SA Standard  
8.25 & 8.27

## **TABLES AND NOTES - Figure 7.1**

### **LOW IMPACT WORK**

#### **WORK BETWEEN GAPS IN TRAFFIC (SHORT TERM)**

##### **NOTES:**

1. Undertake a risk assessment
2. For the conditions of use:

Work that is of such short duration that it can be carried out within gaps in traffic may be done without advance signs or delineation provided that:

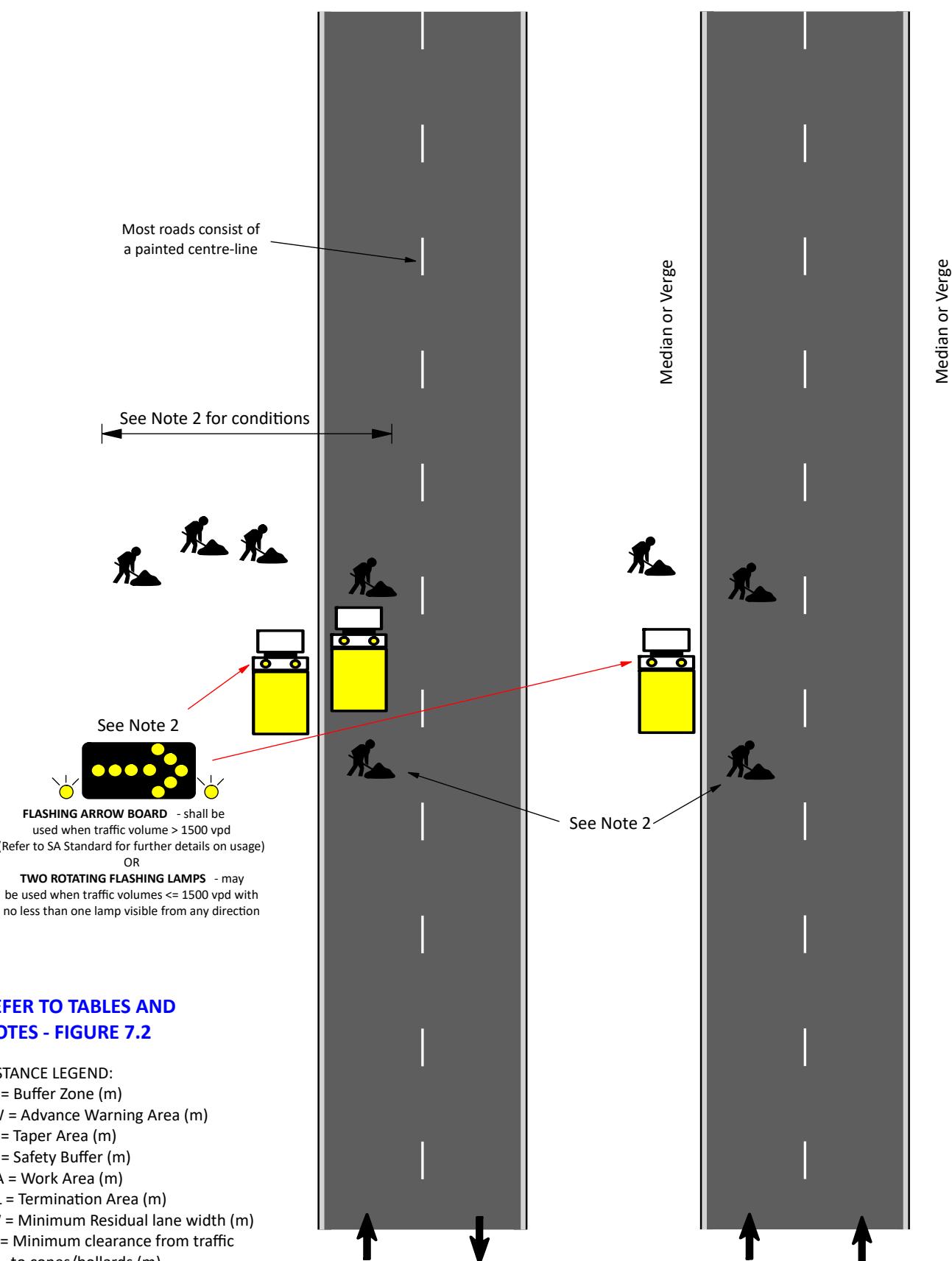
- A lookout person is placed so that can see approaching traffic in time to warn workers to vacate the roadway before it arrives
- The roadway at any one work site is occupied <= 20 minutes  
The lookout person may be dispensed with if the work will not take longer than 10 seconds and approaching traffic can be seen for a distance that is >= 20 seconds of travel time  
This method is not recommended in Built-up Areas where traffic volumes are > 100 vph unless a significant gap is created by existing traffic control such as traffic lights
- Work vehicles and plant items are to be parked clear of travelling traffic lanes
- Vehicle mounted warning device is to be displayed on the work vehicle

**FIGURE 7.2**

EXAMPLE : LOW IMPACT

IN OPEN ROAD AREA - WORK WITHIN TRAFFIC (SHORT TERM)

OR


**REFER TO TABLES AND  
NOTES - FIGURE 7.2**
**DISTANCE LEGEND:**

BZ = Buffer Zone (m)

AW = Advance Warning Area (m)

TA = Taper Area (m)

SB = Safety Buffer (m)

WA = Work Area (m)

ML = Termination Area (m)

LW = Minimum Residual lane width (m)

CL = Minimum clearance from traffic to cones/bollards (m)

**Note :** Drawing is not to scale
**Ref : SA Standard**  
**8.2.2**

## **TABLES AND NOTES - Figure 7.2**

### **LOW IMPACT WORK IN OPEN ROAD AREA – WORK WITHIN TRAFFIC (SHORT TERM)**

#### **NOTES:**

1. Undertake a risk assessment
2. For the conditions of use:

Workers may work on the roadway or < 1.2 metres of moving traffic without advance signs or delineation provided that:

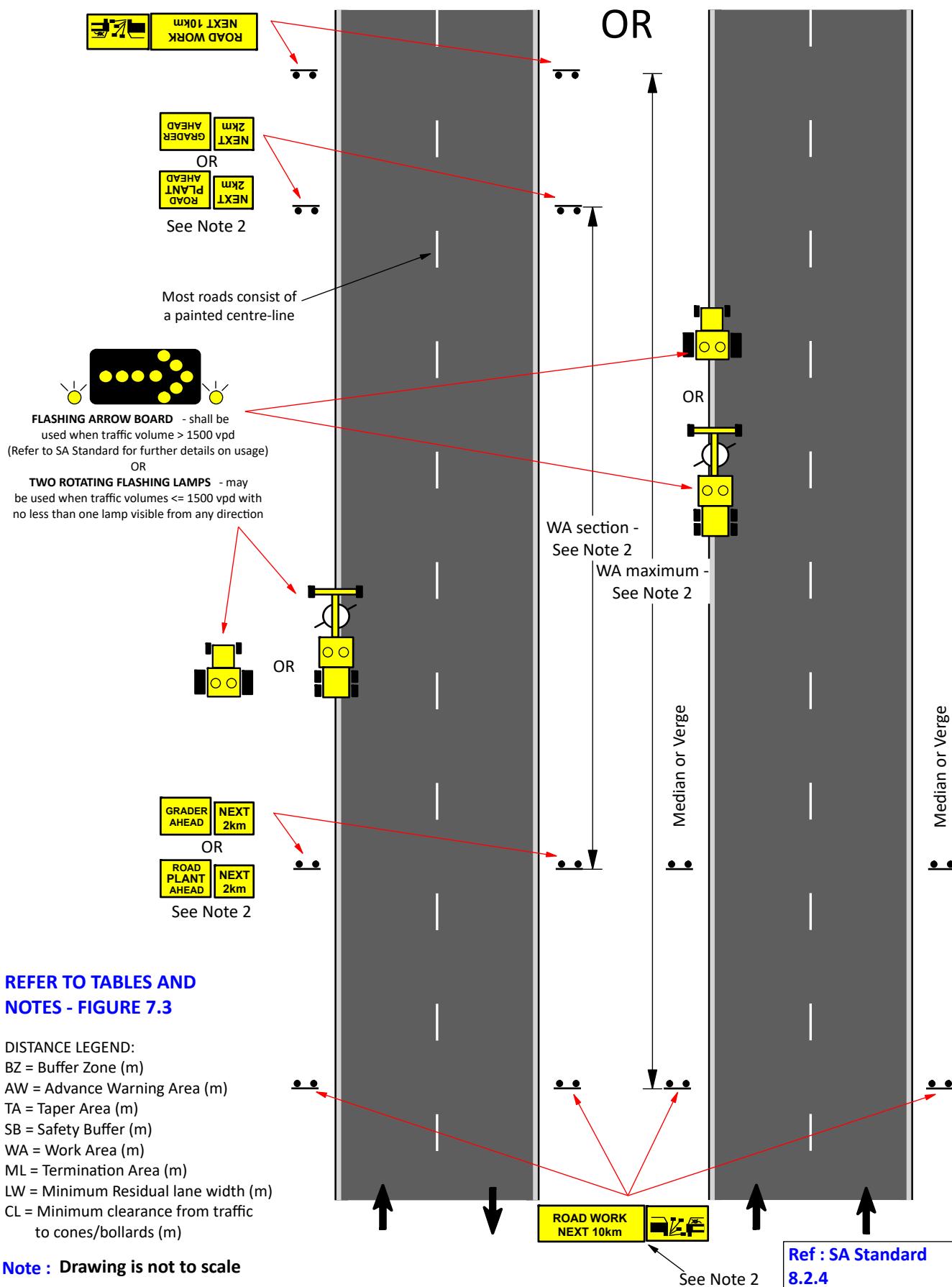
- A vehicle mounted warning device is displayed on a work vehicle or item of plant and it is not obscured at any time
- The roadway at any one work site is occupied <= 20 minutes
- Sight distance to the vehicle mounted warning device for approaching drivers is:
  - > 150 metres in speed zones that are <= 60 km/h, or
  - > 250 metres in speed zones that are > 60 km/h
- A lookout person is placed to advise workers that are on foot on the roadway of any approaching vehicle whose speed or size might constitute a safety threat. The lookout may be dispensed with if:
  - the works are > 1.2 metres clear of moving traffic, or
  - the work will take <= 10 seconds and the advancing traffic can be viewed from a distance away that is >= 20 seconds of travel time
- The work does not decrease:
  - the overall width to less than that required for safe passage for two-way traffic, or one-way traffic for traffic volumes < 50 vpd, or
  - the running lane width adjacent to a barrier line to less than that needed to allow vehicles to proceed without crossing the line

If there are two or more locations that are within a distance of <= 2 km, which requires to be worked on, this site shall be considered as a frequently changing work area

**FIGURE 7.3**

EXAMPLE : LOW IMPACT

IN OPEN ROAD AREA - SHOULDER GRADING AND MOWING (SHORT TERM)



## **TABLES AND NOTES - Figure 7.3**

### **LOW IMPACT WORK IN OPEN ROAD AREA – SHOULDER GRADING AND MOWING (SHORT TERM)**

#### **NOTES:**

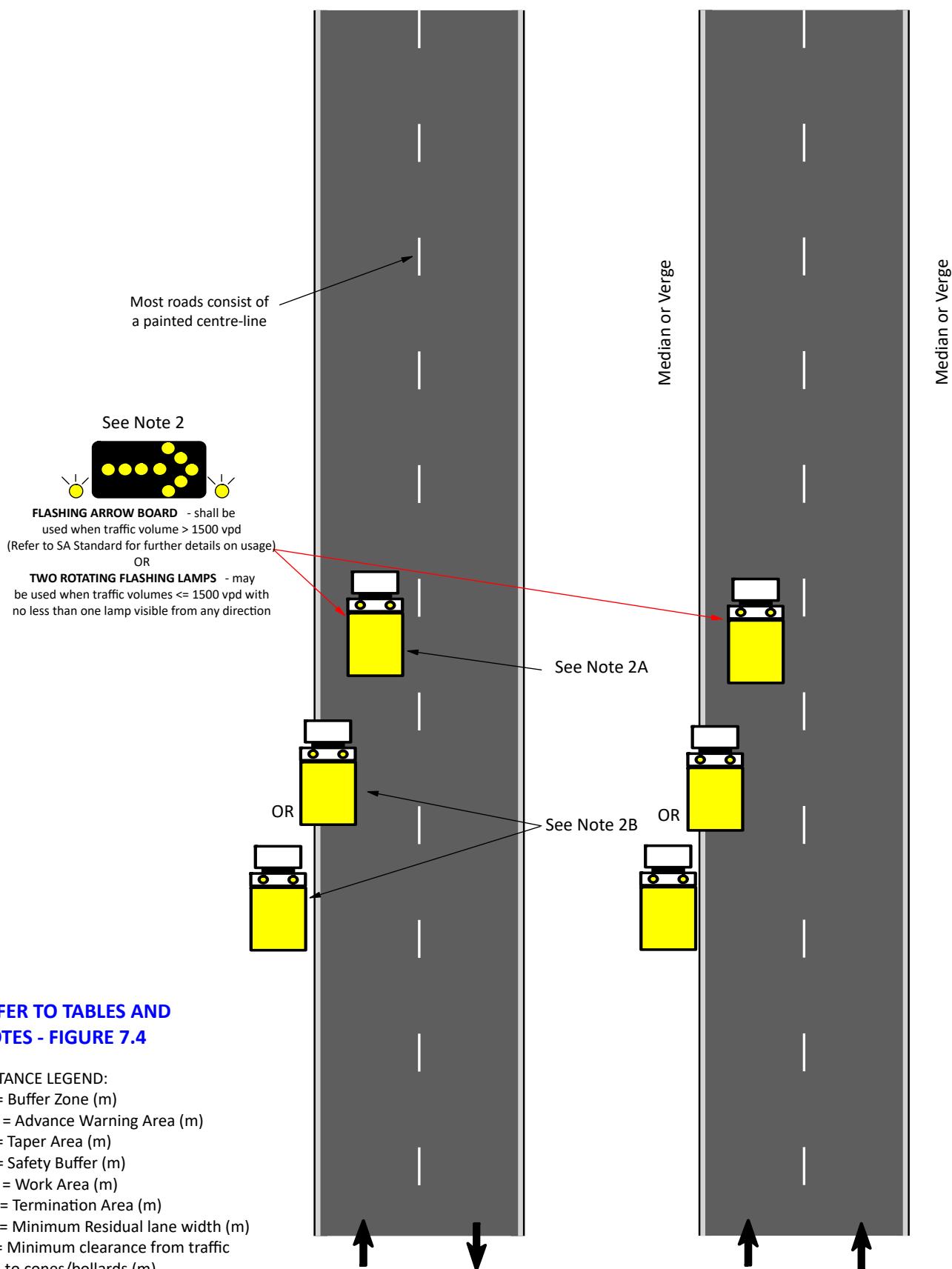
1. Undertake a risk assessment

2. For the conditions of use:

- Traffic volumes are < 1,500 vpd
- Length of any section of work is <= 10 km
- If sight distance to the vehicle mounted warning equipment on the grader or mower is:
  - >= 250 metres throughout the section of road being worked on:
    - Road Work Next 10 km (T1-24) shall be placed at each end of a section. Loose Stones (T3-9) or similar may be required at the beginning and/or along the section
  - < 250 metres at any section:
    - Grader Ahead (T1-4) or Road Plant Ahead (T1-3-1) together with Next 2 km (T1-28) shall be installed on each approach to the section of diminished sight distance. If traffic speed >= 80 km/h, install 60 km/h speed limit
    - Such 2 km sections shall be completed and signs shall be removed or relocated before proceeding to the next section
    - Should there be insufficient room to turn grader at the end of a 2 km section it may be extended to the next available turning point provided total length <= 6 km

**FIGURE 7.4**

**EXAMPLE : LOW IMPACT WORK  
IN OPEN ROAD AREA - MOBILE INSPECTIONS (SHORT TERM)**

**OR**

**REFER TO TABLES AND  
NOTES - FIGURE 7.4**

**DISTANCE LEGEND:**

BZ = Buffer Zone (m)

AW = Advance Warning Area (m)

TA = Taper Area (m)

SB = Safety Buffer (m)

WA = Work Area (m)

ML = Termination Area (m)

LW = Minimum Residual lane width (m)

CL = Minimum clearance from traffic to cones/bollards (m)

**Note : Drawing is not to scale**

## **TABLES AND NOTES - Figure 7.4**

### **LOW IMPACT WORK IN OPEN ROAD AREA - MOBILE INSPECTIONS (SHORT TERM)**

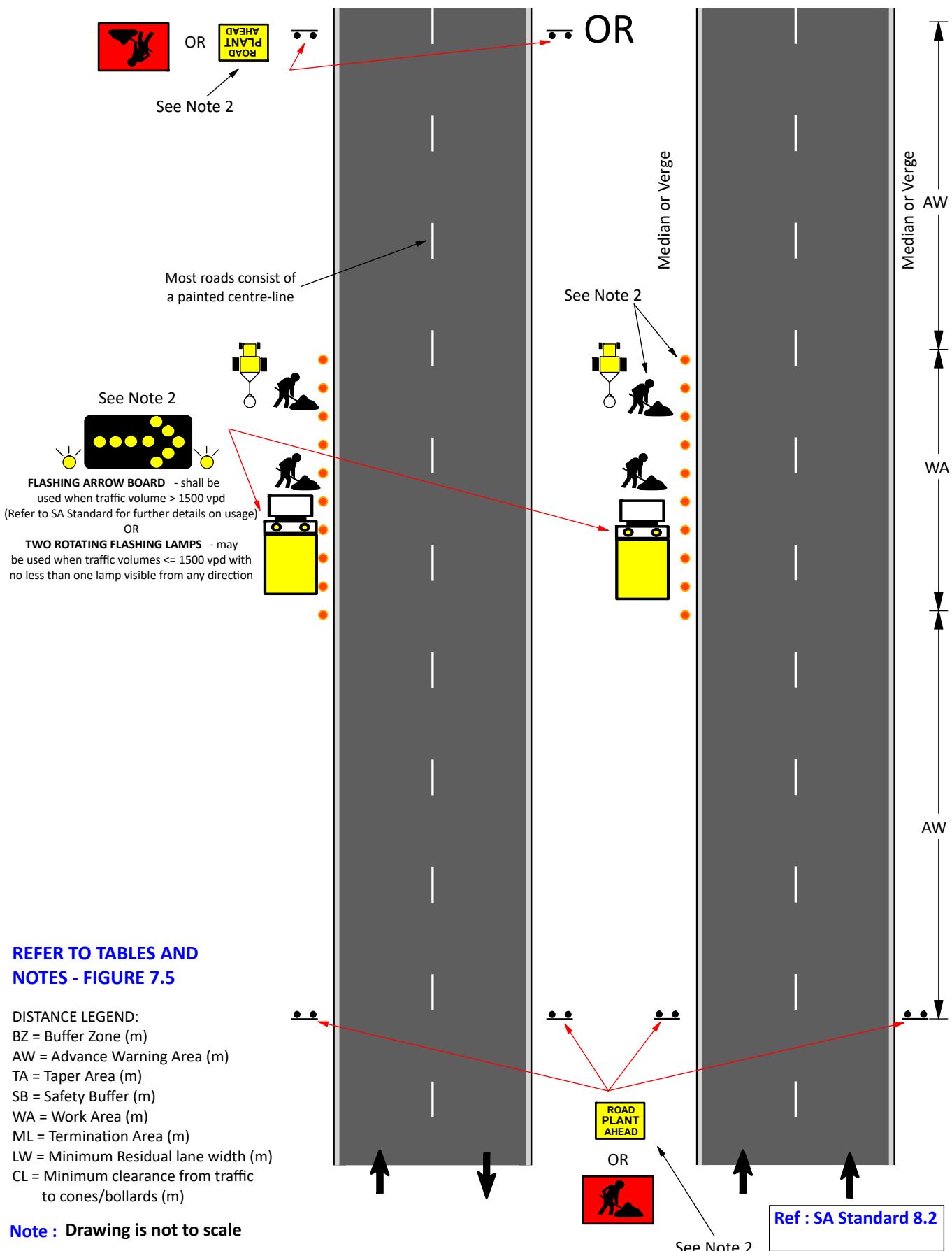
#### **NOTES:**

1. Undertake a risk assessment
2. For the conditions of use:
  - (a) Inspection vehicle may travel in the traffic stream provided that it maintains speed that is:
    - < 20 km/h below the speed limit, or
    - >= 25 km/h on a road with < 200 vpd given that it shall display at least one flashing yellow light
  - (b) An inspection vehicle can operate by travelling along a shoulder or verge clear of moving traffic, using gaps in traffic to pass any obstructions in the shoulder or verge given that it shall display at least one flashing yellow light
  - (c) If the inspection vehicle is required to block or partially block a traffic lane continuously at speeds lower than item 2(a) above, it shall operate within a mobile works convoy

# FIGURE 7.5

## EXAMPLE : LOW IMPACT WORK

### IN BUILT-UP AREA - WORK ON MEDIANS, VERGES AND FOOTPATHS (SHORT TERM)



## TABLES AND NOTES - Figure 7.5

### LOW IMPACT WORK IN BUILT-UP AREA - WORK ON MEDIANs, VERGES AND FOOTPATHS (SHORT TERM)

#### LENGTH OF ZONE (m)

Road Speed (km/h)	40	50	60	70	80 – 110
BZ	n/a	n/a	n/a	n/a	n/a
AW	D = 5	D = 15	D = 45	2D* = 140	2D*
TA	n/a	n/a	n/a	n/a	n/a
SB	n/a	n/a	n/a	n/a	n/a
WA			n/a		
ML	n/a	n/a	n/a	n/a	n/a

\* For 70 - 110 km/h road speeds, "D" = speed of approaching traffic

#### MAXIMUM SPACING OF CONES OR BOLLARDS (m)

Road Speed (km/h)	40	50	60	70	80 – 110*
TA	n/a	n/a	n/a	n/a	n/a
SB	n/a	n/a	n/a	n/a	n/a
WA	4	4	12	12	18
ML	n/a	n/a	n/a	n/a	n/a

\* Cone height >= 700 mm

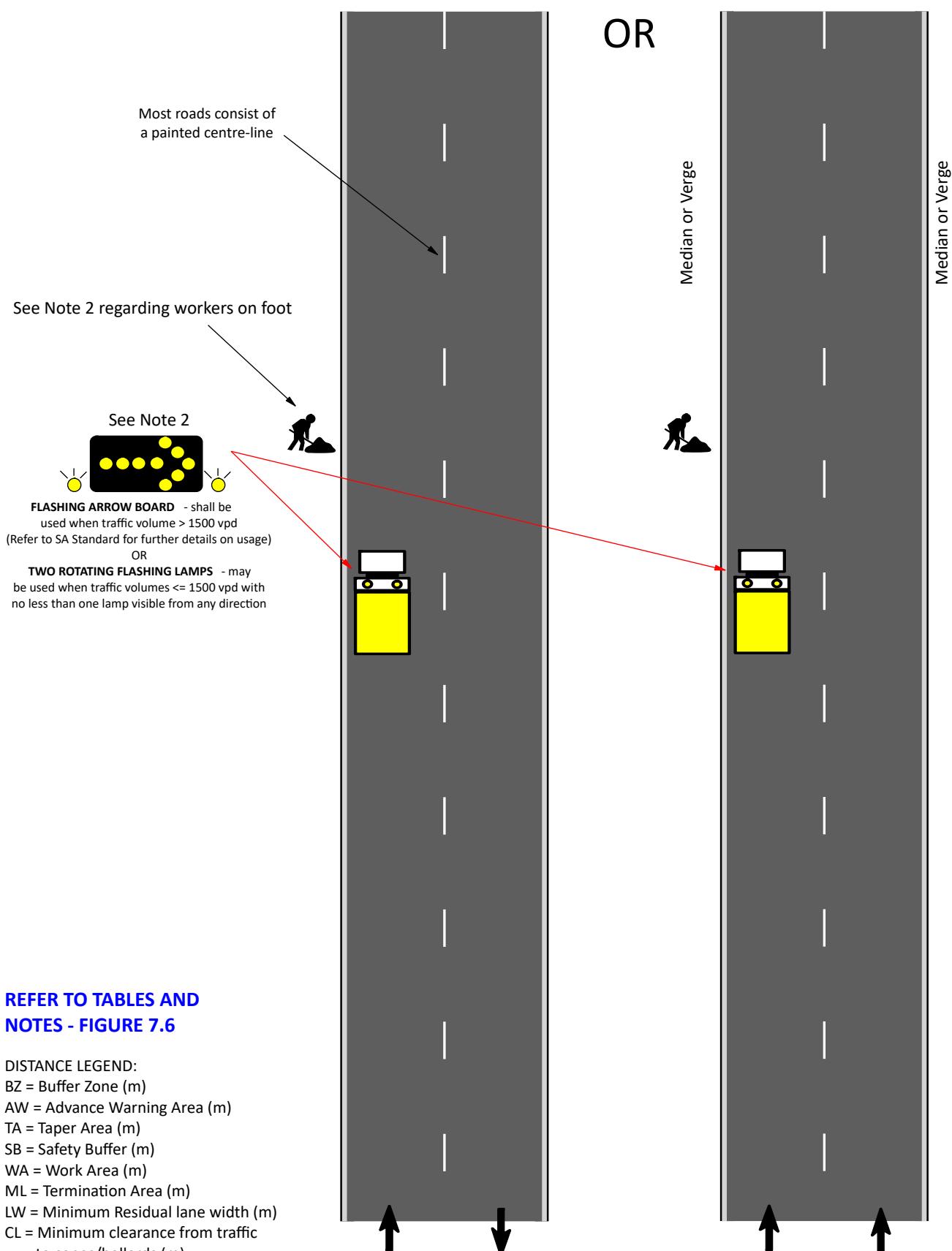
#### NOTES:

1. Undertake a risk assessment
2. For the conditions of use:
  - A support vehicle is not required on the roadway
  - A vehicle mounted warning device may be displayed
  - Work shall be limited to a single shift
  - When using large plant items only, and there are no workers on foot, clearance to edge of traffic lane shall be:
    - > 1.2 metres for speed limits that are >= 90 km/h
    - May be < 1.2 metres for speed limits that are <= 80 km/h; provided the plant items shall not encroach onto traffic lane
  - When there are workers on foot or using small items of plant, or both, one of the following shall apply:
    - The work area shall not encroach onto a moving traffic lane where speed limits are <= 60 km/h
    - >= 1.2 metres clearance to edge of traffic lane
  - The entire work area is >= 3 metres clear of a moving traffic lane
  - Worker (symbolic) (T1-5) sign or Road Plant Ahead (T1-3) shall be displayed when either workers on foot or plant items alone (as appropriate) are working < 3 metres to a moving traffic lane
  - Bollards or cones shall be placed along the kerb line or the edge of traffic lane (if there are no kerb) when either workers on foot or plant items alone (as appropriate) are working <= 3 metres to a moving traffic lane

**FIGURE 7.6**

EXAMPLE : LOW IMPACT WORK

IN BUILT-UP AREA - STREET SWEEPING AND GARBAGE COLLECTION (SHORT TERM)



Ref : SA Standard 8.2

## **TABLES AND NOTES - Figure 7.6**

### **LOW IMPACT WORK IN BUILT-UP AREA - STREET SWEEPING AND GARBAGE COLLECTION (SHORT TERM)**

#### **NOTES:**

1. Undertake a risk assessment
2. For the conditions of use:
  - Figure applies for operations which do not involve workers on foot working < 1.2 metres towards the edge of a travelling traffic lane
  - Vehicle equipped with a vehicle mounted warning device
  - Speed limit <= 70 km/h, or <= 80 km/h if work vehicle can operate > 1.2 metres from the edge of the nearest running lane
  - Sight distance for the following traffic is shown in the table below

#### **MINIMUM SIGHT DISTANCE FOR FOLLOWING TRAFFIC (m)**

Road Speed (km/h)	40	50	60	70	80
Sight distance (m)	7.5	22.5	67.5	105	120