TRAFFIC AND TRANSPORTATION MANAGEMENT PLAN

FOR PROPOSED DEVELOPMENT
OF

THE ALBANY WIND ENERGY FACILITY
MAKHANDA (ERSTWHILE GRAHAMSTOWN)

WITHIN
MAKANA LOCAL MUNICIPALITY

MARCH 2020
(Revision 0)

PREPARED FOR**:**

c/o

CES - Environmental and Social Advisory Services

67 African Street
Makhanda
Eastern Cape
South Africa

Telephone: 046 622 2364
Facsimile: 046 622 6564

PREPARED BY:

31 Galway Road
Nahoon
East London
5241

Telephone: 043 735 0890
Facsimile: 086 556 1154
Cellular: 083 465 1558
E-mail: deonmcquirk@telkomsa.net

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LIST OF ABBREVIATIONS

COTO	Committee of Transport Officials
HSE	Health, Safety and Environment
HSEQ	Health, Safety, Environment and Quality
km/h	kilometres per hour
MW	Mega Watts
MLM	Makana Local Municipality
NRTA	National Road Traffic Act (Act 93 of 1996)
NRTR	National Road Traffic Regulations, 2000
PPE	Personal Protective Equipment
SANRAL	South African National Roads Agency SOC Limited
SARTSM	South African Road Traffic Signs Manual
TIS	Traffic Impact Study
TMP	Traffic Management Plan
TTMP	Traffic and Transportation Management Plan
WEF	Wind Energy Facility

1. INTRODUCTION AND BACKGROUND

Emonti Consulting Engineers CC was approached to prepare a Traffic and Transportation Management Plan (TTMP) for the proposed development of various properties situated within the Makana Local Municipality (MLM).

The site is located just east of Makhanda, which is situated within the MLM area. A site locality map can be seen in Figure 1.1. The proposed development comprises the implementation of a Wind Energy Facility (WEF).

Albany Wind Power (Pty) Ltd plans to develop, construct and operate a WEF approximately 7km east of Makhanda in the Eastern Cape Province. According to the data recorded by Albany Wind Power in the area, this project site appears to have favourable wind conditions to operate a wind farm.

The proposed Albany WEF will consist of up to 66 turbines each capable of generating approximately 4.5 Mega Watts (MW) of power. The WEF will also include a short power line and switching station in order to connect the WEF to the existing Eskom substation. The current layout allows for a maximum generating output of up to 297 MW, but the final design may be reduced dependant on the outcome of the specialist studies undertaken during the Environmental Impact Assessment process. The turbine footprints and associated facility infrastructure (internal access roads, substations, construction compound, batching plant and operations building) will cover a maximum area of approximately 46.19 ha (post rehabilitation) depending on the final layout design should the project proceed to the construction phase.

In summary the Albany WEF includes:

i. Up to sixty-six turbines with a generation capacity of up to 4.5 MW each resulting in a nominal power output of up to 297 MW;
ii. The proposed WEF will include turbines with a rotor diameter of up to 170m, a hub height of up to 130m and blade length of up to 85m;
iii. Internal access roads of between 8m (during operation) and 14m (during construction, to be partly rehabilitated) wide to each turbine;
iv. Existing roads will be used as far as possible. However, where required, internal access roads will be constructed between the turbines;
v. Three connecting substations (switching stations);
vi. Switching stations to connect the turbines to the WEF IPP 132/33kV s/s;
vii. WEF IPP 132/33 kV Substation;
viii. Foundations with an area of up to 550m² for each turbine;
ix. A primary laydown area of approximately 3,900m² adjacent to each turbine;
x. Temporary infrastructure including a site camp and a laydown area of approximately 30m² per turbine (all to be rehabilitated post construction);
xi. A 25m² area for switchgear and/or transformer at each turbine;
xii. Medium voltage cabling between turbines and the switching stations, to be laid underground where technically feasible;
xiii. An up to 100,000m² for the substation, battery storage and site office area; and
xiv. Batching plant, temporary laydown area and construction compound area of approximately 90 000m².

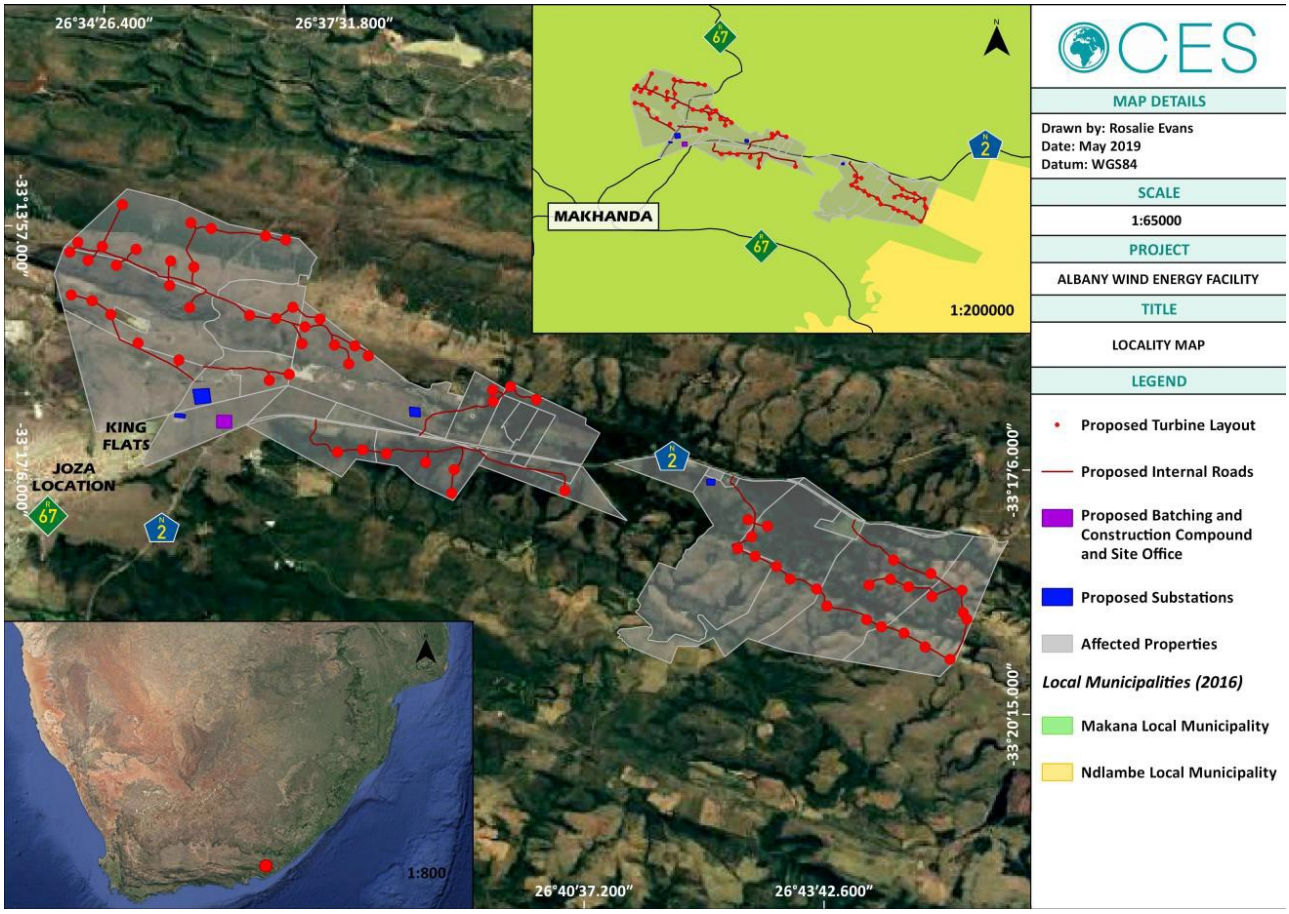


Figure 1.1: Site locality and proposed layout of the wind turbines

The commencement date of the project is unknown at the moment and will be based on the timeframes required to obtain all the approvals, shipment of equipment, financing, etc. It is expected that the working hours, once commenced, will be from the 07h30 till 16h30. This will however be refined once a detailed project programme has been finalised.

2. PURPOSE AND OBJECTIVES OF THE TRAFFIC AND TRANSPORTATION MANAGEMENT PLAN

2.1 Purpose of the Traffic and Transportation Management Plan

A Traffic Management Plan (TMP) provides a means to safely and efficiently guide road users through road works and to ensure the network performance is not negatively affected by the road works.

Traffic management is the management of occupational safety and network performance risks associated with work activities undertaken in a traffic environment.

The TMP is therefore a risk management plan consisting of:

i. documentation of the risk assessment for the project,
ii. the procedures that will be utilised to manage the risk exposure, and
iii. traffic control procedure that will be used to outlining signage etc. which are commonly used.

A site inspection was undertaken in preparation of the TMP. During the site inspection specific site conditions were identified such as, non-motorised transport facilities, speed limits, operating speeds, accesses, sight distance, etc. The findings of the site inspection are included in Chapter Seven of this report.

Transportation management addresses the traffic-related impacts of a project in a cost-effective manner with minimal interference to the travelling public. Measures that can be implemented include public and traveller information, transportation and incident management, construction approaches, alternate routing, etc.

2.2 Objectives of the Traffic and Transportation Management Plan

The main objectives of the TTMP are to ensure that the safety and health of the work personnel and road users are not unnecessary inconvenienced. Further objectives include:

i. project site overview and key project activities that may influence traffic patterns,
ii. a framework plan of the traffic and transportation management elements involved with undertaking the construction and operation of the proposed project,
iii. a structure within which the Developer can further develop more detailed traffic and transportation plans as a result of a detailed traffic impact study, and
iv. key management and mitigation measures that are to be adopted by the Developer, with final approval being obtained from relevant authorities.

3. ROLES AND RESPONSIBILITIES

This section outlines the responsibilities of the personnel to ensure the safety of workers and the road users that pass through the site. Possible management OSH hazards that will include the following:

i. Personal protective equipment (PPE) – High visibility clothing, appropriate footwear, sun protection, eye and respiratory equipment to be available.
ii. Plant and equipment – all equipment must have suitable flashing lights and reversing alarms.
iii. Incident/accident procedures – outlining first aid facilities, arrangements for obtaining medical assistance and the requirements for reporting incidents/accidents.
iv. Works personnel access – outlining details of where works personnel shall park their vehicles and how safe access is to be provided to and from the worksite.
v. Protection of non-motorised road users from hazards associated with the road works, prescribing the measures to be undertaken to address these hazards.

The roles of the key personnel regarding the TTMP are as follows:

i. *Project Manager*

The Project Manager will take overall responsibility of the TTMP and compliance with regards to the Road Traffic Act. The Project Manager will be responsible for the co-ordination of the engineering, procurement and construction activities, relevant policies, methods and the implementation of the TTMP. The Project Manager will ensure that all rules and procedures defined in the TTMP are adhered to. Encourage sound work practices and avoid those that are off a high risk nature. Ensure all employees comply with the TTMP.

ii. *Site Supervisors*

The Supervisors will continuously liaise with the Developer and the Health, Safety, Environment and Quality (HSEQ) department during the execution phase and ensure required tools and test equipment are in place, and are safe to use.

iii. *HSE Officer*

The Health, Safety and Environment (HSE) Officer will be responsible for all issues related to health, safety and environment and to see that employees conform to the requirements as laid down by the South African Occupational Health and Safety and Environmental Acts, and/or those acts applicable to South Africa.

iv. *HSE Manager*

The role of the HSE Manager is to lead all aspects of the HSE on the project and provide HSE leadership.

v. *Traffic Personnel*

The role of traffic personnel on site involves directing vehicular and pedestrian traffic around a construction zone, accident or other road disruption, thus ensuring the safety of emergency response teams, construction workers and the general public. The Traffic Safety Officer will manage the traffic on construction sites in line with SANRAL and Department of Transport specifications.

4. STATUTORY REQUIREMENTS

Traffic management is risk management and the principals, employers and persons in control of workplaces have a statutory duty under the Occupational Health and Safety Act, and Mine Health and Safety Act; to identify hazards, assess risks and consider means to control risk exposure.

Due to the size and quantity of components, trucks will be used to deliver components. It is anticipated that trucks carrying large enough loads to be considered abnormal loads in terms of the Road Traffic Act (Act No 29 of 1989) will be required. A permit for a vehicle carrying an abnormal load must be obtained from the relevant Provincial Authority and/or National Authority (SANRAL). The N2 will be used to transport the power transformers from the manufacturing plant/supplier to the site. The vehicle must comply with the Administrative Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads.

Legal and other provisions

The current versions of the following documents and legislative provisions apply for those planning to conduct work within the road reserve of any public road, or to manage traffic for an event:

i. National Road Traffic Act (Act No 93 of 1996),
ii. Local Government Act,
iii. Occupational Health and Safety Act (Act 85 of 1993),
iv. Mine Health and Safety Act 1996 No.29,
v. Compensation for Occupational Diseases Act 1993, and
vi. NEMA 107 – 1998.

5. RISK IDENTIFICATION AND ASSESSMENT

Risk Assessments will be drafted beforehand including all possible risks that may occur due to traffic and transportation management. Possible activities that might involve risk reviewing include the following:

i. **Vehicles required for the transport of infrastructure (e.g. turbines and cables) and materials would result in a direct negative impact on the used roads and road users.**

   Impact magnitude – Medium

   Extent: The extent of the impact is regional as it will extend along the selected transport route.

   Duration: The duration would be short-term for the duration of construction.

   Intensity: The intensity is likely to be medium given that the increase in traffic will temporary, but may create a nuisance and impact on the safety of other road users and the local neighbour.

   Likelihood – There is a definite likelihood of increased traffic.

ii. **Increased traffic from workers travelling to and from the site will result in a negative direct impact on people who use the site, the N2, the R67 and the access roads within the site.**

   Impact magnitude – Low

   Extent: The extent of the impact is local as impact would be restricted to the immediate vicinity of the site.

   Duration: The duration would be long-term for the operation of the wind farm, but greater during construction.

   Intensity: The intensity is likely to be low given that the increase in traffic will be minimal.

   Likelihood – There is a definite likelihood of increased traffic in the area surrounding the site and on-site during operation of the wind farm.

iii. **Increased delays on vehicles at road construction sites, particularly at the accesses onto the two national roads (i.e. the N2 and the R67).**

   Impact magnitude – Medium

   Extent: The extent of the impact is local as impact would be restricted to the immediate vicinity of the accesses to the site.

   Duration: The duration would be short-term for the duration of construction

   Intensity: The intensity is likely to be medium given that the increase in traffic will temporary, but may create a nuisance and impact on the safety of other road users and the local neighbour

   Likelihood – There is a definite likelihood of increased delays.

The risk assessors shall as far as reasonably possible, control and/or reduce the risks to an acceptable level.

The subcontractor that will be delivering and transporting the power transformers will be responsible for the compilation of the Method Statements and Risk Assessments for all activities associated with their activities.

6. GENERAL TRAFFIC AND TRANSPORTATION

SARTSM, Chapter 13 and Volume 2
It is not possible to predict how all construction sites shall be managed because there are too many variables. It is however considered very important to plan, and work, in a systematic manner and in standardised steps. Extracts from the SARTSM, Chapter 13 and Volume 2, are included in Appendix C, which outline this planning process.

All road works need to comply with the SARTSM, Chapter 13 and Volume 2.

Factors such as speed limits will be conveyed to all workforce and signs will be posted where needed. These will be enforced by the traffic control official/s. Temporary traffic control zone signs are to be adequate in order to convey both general and specific messages to the road users. Adequate signage will be placed on the roads, such as: speed limits, caution: electrical road works in progress, use of alternative roads, stop/go signs, flagman ahead, etc.

Transporting of staff
Company transport will be in the form of appropriate transportation vehicle/s. No persons will be transported in the back of a bakkie.

Site access control
Access control will be managed at the gate to ensure that no authorized person enters the site unless a valid access card is presented at the gate to the security guards. Control at pick-up locations prior to entering the transportation vehicle/s, will also ensure that no unauthorized person enters the site. All persons must be inducted before entering the gate and proof of induction must be kept for inspection purposes. Upon entering the site all persons will also undergo alcohol testing.

All vehicles entering the site must have a beacon light and a whip and flag to ensure that these vehicles are visible. Necessary signage will be placed where needed and only vehicles designated as construction vehicles will be allowed to travel on the main roads. No private vehicles will be allowed to travel on the main roads. Those travelling with private vehicles will be escorted to the site with their vehicles and from there they will be escorted in designated construction vehicles.

Parking areas
Designated parking areas will be identified on site where vehicles will park during the day. A designated walkway will also be created which will be barricaded, whereby workers can walk to access their work areas.

Rules for vehicle safety:
i. Personnel must be trained, declared competent and authorised to operate a specified vehicle.
ii. The vehicle must be in a safe and good working condition, with daily inspections conducted.
iii. Drivers/operators must at all times consider and adapt to environment conditions.
iv. Drivers/operators must at all times comply with all relevant traffic rules and regulations.
v. Seatbelts shall be worn when driving and/or operating vehicles or plant fitted with seatbelts.
vii. No talking on cell phones while driving will be permitted and alcohol or drugs are prohibited.
viii Adhere to all site traffic rules and signage, including speed limits.

7. ACCESS CONDITIONS

On-site inspections were performed on 26 February 2020. The focus on the site inspections was to determine the desirability of the proposed access with regards to factors such as:

i. sight distance,
ii. non-motorised facilities,
iii. speed limits and operating speeds,
iv. access condition, access width, etc.

There are seven proposed accesses which are shown in Figure 7.1.

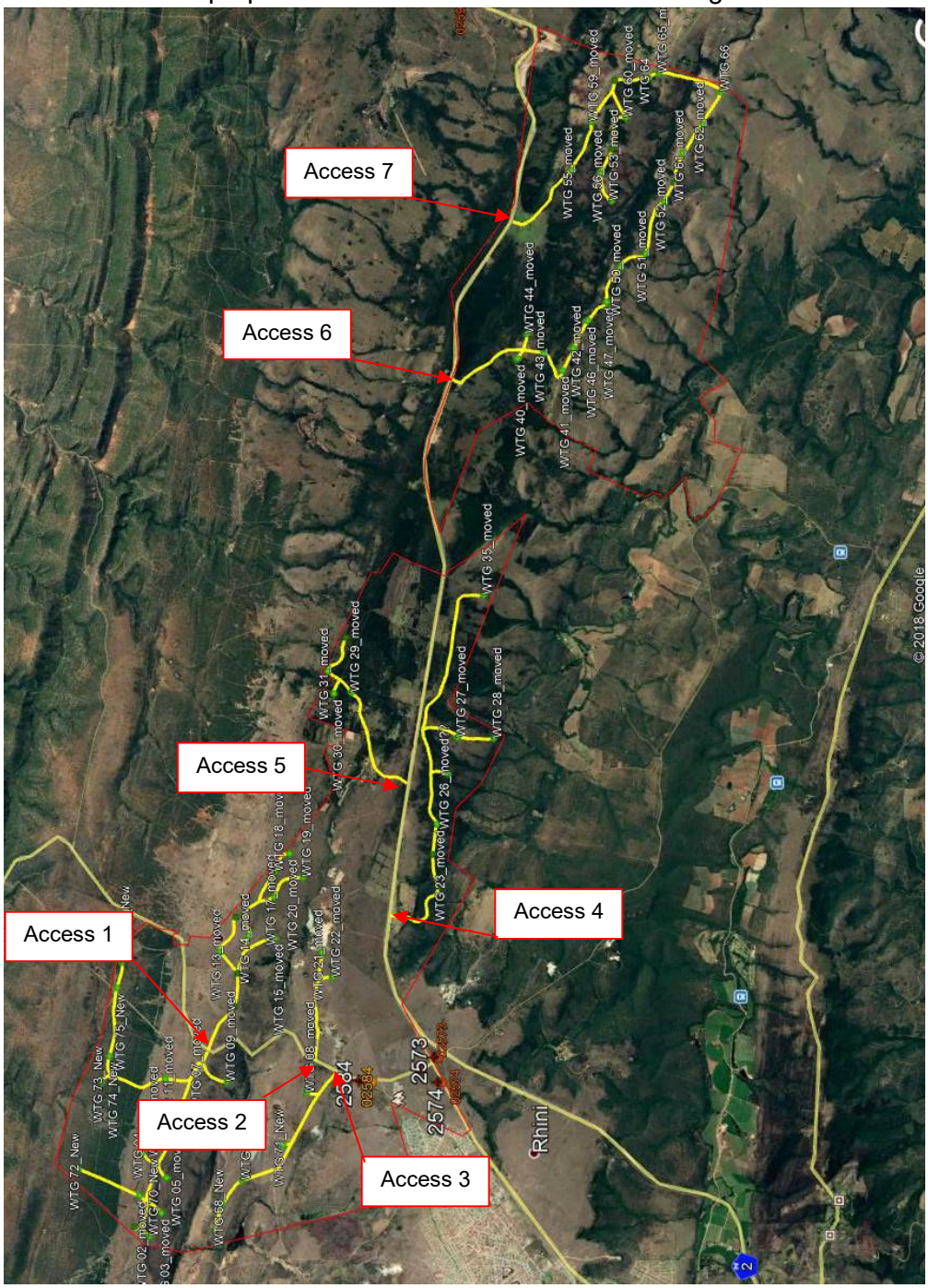


Figure 7.1: Proposed accesses

It should be noted that the sight distance is based on a single unit vehicle, i.e. a standard construction vehicles. It does not include abnormal vehicles as these will need to be escorted onto site via the relevant traffic official/s.

Once the extent of the access improvements have been identified then the required traffic management measures are to be planned.

Table 7.1: Summary of Access No. 1

Speed surveys on the main road

Speed Survey	Direction	
	Southbound	Northbound
	Speed (km/h)	
1	62	71
2	63	74
3	68	80
4	69	83
5	75	85
6	78	90
7	78	93
8	81	95
9	82	95
10	97	108
Highest Speed	**97**	**108**
Average Speed	**75**	**87**
85th perc. Speed	**82**	**95**
Current speed limit		100 km/h

Position of access (nearest route marker)

R67-2	
4,6	

Sight distances

Sight Distance type	Distance (m)			Comments
	Required	Available- Direction towards		
		North	South	
Intersection sight distance - stop control	490	290	190	Does not meet the requirement in both directions. Will require flagman etc.
Intersection sight distance - yield control	230			
Vegetation impacting on Sight distance	No			

General characteristics of roads

Road	Roadway		Shoulder	
	Width (m)	Surface type	Surface type	Width (m)
Main road - R67	8	Black top	Black top	West = 0.7, East = 0.7
Side road - access	4	Gravel	None	NA

General characteristics of sidewalks

Along Road	Roadway			Comments
	Width (m)	Surface type	Condition	
Main road - R67 (western side)	NA	NA	NA	No sidewalk
Main road - R67 (eastern side)	NA	NA	NA	No sidewalk
Side road - access (northern side)	NA	NA	NA	No sidewalk
Side road - access (southern side)	NA	NA	NA	No sidewalk

General characteristics of access gate

Access	Distance (m)	Comments
Distance from edge of road to property	10	
Distance from edge of property to gate	NA	No gate close to road

Access

View to the south

View to the north

Access road

None

Sidewalk along R67

None

Sidewalks along Access road

Table 7.2: Summary of Access No. 2

Speed surveys on the main road

Speed Survey	Direction	
	Southbound	Northbound
	Speed (km/h)	
1	79	76
2	83	87
3	90	88
4	99	92
5	104	95
6	106	95
7	111	98
8	112	100
9	114	100
10	130	117
Highest Speed	**130**	**117**
Average Speed	**103**	**95**
85th perc. Speed	**113**	**100**
Current speed limit		100 km/h

Position of access (nearest route marker)

R67-2
2,2

Sight distances

Sight Distance type	Distance (m)			Comments
	Required	Available- Direction towards		
		North	South	
Intersection sight distance - stop control	490	110	> 900	Very short to the north and will require flagman etc.
Intersection sight distance - yield control	230			
Vegetation impacting on Sight distance	No			

General characteristics of roads

Road	Roadway		Shoulder	
	Width (m)	Surface type	Surface type	Width (m)
Main road - R67	8,7	Black top	Black top	West = 1.0, East = 0.7
Side road - access (MN50682)	4	Gravel	None	NA

General characteristics of sidewalks

Along Road	Roadway			Comments
	Width (m)	Surface type	Condition	
Main road - R67 (western side)	NA	NA	NA	No sidewalk
Main road - R67 (eastern side)	NA	NA	NA	No sidewalk
Side road - access (northern side)	NA	NA	NA	No sidewalk
Side road - access (southern side)	NA	NA	NA	No sidewalk

General characteristics of access gate

Access	Distance (m)	Comments
Distance from edge of road to property	7	
Distance from edge of property to gate	NA	No gate close to road

Access

View to the south

View to the north

Access road

None

Sidewalk along R67

None

Sidewalks along Access road

Table 7.3: Summary of Access No. 3

Speed surveys on the main road

Speed Survey	Direction	
	Southbound	Northbound
	Speed (km/h)	
1	79	76
2	83	87
3	90	88
4	99	92
5	104	95
6	106	95
7	111	98
8	112	100
9	114	100
10	130	117
Highest Speed	**130**	**117**
Average Speed	**103**	**95**
85th perc. Speed	**113**	**100**
Current speed limit		100 km/h

Position of access (nearest route marker)

R67-2
1,8

Sight distances

Sight Distance type	Distance (m)			Comments
	Required	Available- Direction towards		
		North	South	
Intersection sight distance - stop control	490	530	670	Meets the requirement in both directions.
Intersection sight distance - yield control	230			Meets the requirement in both directions.
Vegetation impacting on Sight distance	No			

General characteristics of roads

Road	Roadway		Shoulder	
	Width (m)	Surface type	Surface type	Width (m)
Main road - R67	11	Black top	Black top	West = 1.8, East = 1.8
Side road - access	8 & 10	Black top then Gravel	None	NA

General characteristics of sidewalks

Along Road	Roadway			Comments
	Width (m)	Surface type	Condition	
Main road - R67 (western side)	NA	NA	NA	No sidewalk
Main road - R67 (eastern side)	NA	NA	NA	No sidewalk
Side road - access (northern side)	NA	NA	NA	No sidewalk
Side road - access (southern side)	NA	NA	NA	No sidewalk

General characteristics of access gate

Access	Distance (m)	Comments
Distance from edge of road to property	10	
Distance from edge of property to gate	NA	No gate close to road

Access

View to the south

View to the north

Access road first 100m

Access road after 100m

None

Sidewalks along Access road

Table 7.4: Summary of Access No. 4

Speed surveys on the main road

Speed Survey	Direction	
	Westbound	eastbound
	Speed (km/h)	
1	77	74
2	90	110
3	101	110
4	103	113
5	103	115
6	109	117
7	110	122
8	112	127
9	120	127
10	127	135
Highest Speed	**127**	**135**
Average Speed	**105**	**115**
85th perc. Speed	**116**	**127**
Current speed limit		120 km/h

Position of access (nearest route marker)

N2-13
63,4E

Sight distances

Sight Distance type	Distance (m)			Comments
	Required	Available- Direction towards		
		East	West	
Intersection sight distance - stop control	590	> 900	500	Meets the requirement in both directions.
Intersection sight distance - yield control	300			Meets the requirement in both directions.
Vegetation impacting on Sight distance	No			

General characteristics of roads

Road	Roadway		Shoulder	
	Width (m)	Surface type	Surface type	Width (m)
Main road - N2	13,2	Black top	Black top	North = 2.4, South = 3.0
Side road - access	4	Gravel	None	NA

General characteristics of sidewalks

Along Road	Roadway			Comments
	Width (m)	Surface type	Condition	
Main road - N2 (northern side)	3	Concrete	Good	Side walk is very wide and in good condition
Main road - N2 (southern side)	NA	NA	NA	No sidewalk
Side road - access (eastern side)	NA	NA	NA	No sidewalk
Side road - access (western side)	NA	NA	NA	No sidewalk

General characteristics of access gate

Access	Distance (m)	Comments
Distance from edge of road to property	7	
Distance from edge of property to gate	100	No gate close to road

Access

View to the east

View to the west

Access road

Sidewalk along N2

None

Sidewalks along Access road

Table 7.5: Summary of Access No. 5

Speed surveys on the main road

Speed Survey	Direction	
	Westbound	Eastbound
	Speed (km/h)	
1	81	70
2	98	76
3	99	79
4	102	86
5	112	98
6	112	101
7	114	106
8	128	115
9	130	122
10	152	157
Highest Speed	**152**	**157**
Average Speed	**113**	**101**
85th perc. Speed	**129**	**119**
Current speed limit		120 km/h

Position of access (nearest route marker)

N2-13	
65,4E	

Sight distances

Sight Distance type	Distance (m)			Comments
	Required	Available- Direction towards		
		East	West	
Intersection sight distance - stop control	590	410	> 900	Does not meet the requirement towads the east and requires a flagman etc.
Intersection sight distance - yield control	300			
Vegetation impacting on Sight distance	No			

General characteristics of roads

Road	Roadway		Shoulder	
	Width (m)	Surface type	Surface type	Width (m)
Main road - N2	13,1	Black top	Black top	North = 1.0, South = 3.0
Side road - access	4	Gravel	None	NA

General characteristics of sidewalks

Along Road	Roadway			Comments
	Width (m)	Surface type	Condition	
Main road - N2 (northern side)	3	Concrete	Good	Side walk is very wide and in good condition
Main road - N2 (southern side)	NA	NA	NA	No sidewalk
Side road - access (eastern side)	NA	NA	NA	No sidewalk
Side road - access (western side)	NA	NA	NA	No sidewalk

General characteristics of access gate

Access	Distance (m)	Comments
Distance from edge of road to property	15	
Distance from edge of property to gate	100	No gate close to road

Access

View to the east

View to the west

Access road

Sidewalk along N2

None

Sidewalks along Access road

Table 7.6: Summary of Access No. 6

Speed surveys on the main road

Speed Survey	Direction	
	Westbound	Eastbound
	Speed (km/h)	
1	49	102
2	77	117
3	79	120
4	81	123
5	86	123
6	104	125
7	110	131
8	114	132
9	115	133
10	119	146
Highest Speed	**119**	**146**
Average Speed	**93**	**125**
85th perc. Speed	**114**	**132**
Current speed limit		100 km/h

Position of access (nearest route marker)

N2-13
72,0E

Sight distances

Sight Distance type	Distance (m)			Comments
	Required	Available- Direction towards		
		East	West	
Intersection sight distance - stop control	490	320	530	Does not meet the requirementtowards the east and requires a flagman etc.
Intersection sight distance - yield control	230			
Vegetation impacting on Sight distance	No			

General characteristics of roads

Road	Roadway		Shoulder	
	Width (m)	Surface type	Surface type	Width (m)
Main road - N2	15	Black top	Black top	North = 3.0, South = 1.0
Side road - access	4	Gravel	None	NA

General characteristics of sidewalks

Along Road	Roadway			Comments
	Width (m)	Surface type	Condition	
Main road - N2 (northern side)	NA	NA	NA	No sidewalk
Main road - N2 (southern side)	NA	NA	NA	No sidewalk
Side road - access (eastern side)	NA	NA	NA	No sidewalk
Side road - access (western side)	NA	NA	NA	No sidewalk

General characteristics of access gate

Access	Distance (m)	Comments
Distance from edge of road to property	14	increases to 40m if along access road
Distance from edge of property to gate	10	

Access

View to the east

View to the west

Access road

Notes: There is a sharp angle off the N2 and therefore abormal vehicles will have to approach from the west. Alternatively access to be relocated to eliminate sharp bend. Also access road is under tower cables and will most likely need to be relocated just east of the tower.

Table 7.7: Summary of Access No. 7

Speed surveys on the main road

Speed Survey	Direction	
	Westbound	Eastbound
	Speed (km/h)	
1	85	74
2	108	88
3	111	102
4	116	105
5	116	107
6	122	113
7	122	118
8	129	125
9	131	127
10	137	134
Highest Speed	**137**	**134**
Average Speed	**118**	**109**
85th perc. Speed	**130**	**126**
Current speed limit		100 km/h

Position of access (nearest route marker)

N2-13
74,6E

Sight distances

Sight Distance type	Distance (m)			Comments
	Required	Available- Direction towards		
		East	West	
Intersection sight distance - stop control	490	520	> 900	Meets the requirement in both directions.
Intersection sight distance - yield control	230			Meets the requirement in both directions.
Vegetation impacting on Sight distance	No			

General characteristics of roads

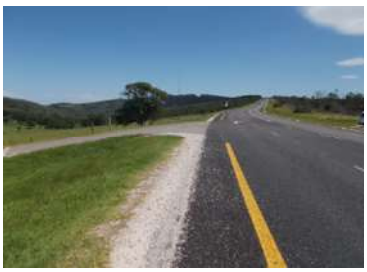
Road	Roadway		Shoulder	
	Width (m)	Surface type	Surface type	Width (m)
Main road - N2	14,7	Black top	Black top	North = 2.7, South = 1.2
Side road - access	5,8	Gravel	None	NA

General characteristics of sidewalks

Along Road	Roadway			Comments
	Width (m)	Surface type	Condition	
Main road - N2 (northern side)	NA	NA	NA	No sidewalk
Main road - N2 (southern side)	NA	NA	NA	No sidewalk
Side road - access (eastern side)	NA	NA	NA	No sidewalk
Side road - access (western side)	NA	NA	NA	No sidewalk

General characteristics of access gate

Access	Distance (m)	Comments
Distance from edge of road to property	10	
Distance from edge of property to gate	18	



Access

View to the east

View to the west

Access road

None

Sidewalk along N2

None

Sidewalks along Access road

8. ABNORMAL LOADS TRANSPORTED ON NATIONAL ROADS

The National Road Traffic Act (Act 93 of 1996) (NRTA) and the National Road Traffic Regulations, 2000 (NRTR), prescribe certain limitations on vehicle dimensions and axle and vehicle masses that a vehicle using a public road must comply with. However, certain vehicles and loads cannot be moved on public roads without exceeding the limitations in terms of the dimensions and/or mass as prescribed in the NRTR. Where such a vehicle or load cannot be dismantled, without disproportionate effort, expense or risk of damage, into units that can travel or be transported legally, it is classified as an abnormal load. Provision for such abnormal vehicles and loads is made in the NRTA, and specifically in Section 811 of the NRTA, which reads as follows:

"Vehicle and load may be exempted from provisions of Act

81. (1) The Minister may, after the applicant has paid the fees or charges referred to in Section 7(3) and subject to such conditions as he or she may determine, authorise in writing, either generally or specifically, the operation on a public road of a vehicle which, due to such vehicle's original design cannot comply with this Act.
(2) The MEC may, after the applicant has paid the fees or charges referred to in Section 7(3) and subject to such conditions as he or she may determine, authorise in writing, either generally or specifically, the conveyance in a safe manner on a public road of passengers or any load otherwise than in accordance with this Act.
(3) An MEC shall determine the fees or charges payable for a vehicle or load that does not comply with this Act." When the movement of an abnormal load is considered to be in the economic and/or social interest of the country, an exemption permit may be issued to allow a vehicle(s) transporting such an abnormal load to operate on a public road for a limited period.

The Administrative Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads, issued by the COTO, 2015, deals with the administrative procedures relating to the registration of abnormal vehicles and the application to or issuing of exemption permits.

The fundamental principles guiding this process are:

i. An exemption permit for an abnormal load will only be considered for an indivisible load, abnormal in dimension and/or mass, where there is no possibility of transporting the load in a legal manner;
ii. The damage to the road infrastructure by an abnormal vehicle has to be recovered from the carrier;
iii. The risks to other road users must be reduced to a level equivalent to what it would be without the presence of the abnormal vehicle on the road; and
iv. The conditions imposed must take the economic and/or social interest of the country and public at large into account.
v. The purpose of the exemption permit system is not to undermine or circumvent the NRTA and the NRTR.
vi. The issuing authority can deviate from the guidelines and/or impose additional requirements when taking the circumstances applicable to each application into account.

As abnormal loads have to be transported by road to the site, a *permit* will need to be obtained from the Eastern Cape Department of Transport.

In addition, SANRAL require a *route clearance report* to be undertaken. The requirements of the route clearance report are included in Appendix A, which include the following:

i. Delay to road users.
ii. Road closures.
iii. Road construction works.
iv. Wide loads.
v. Monitoring and records.

It should be noted that SANRAL reserves the right to oppose any issued abnormal load permit in the event of any un-envisioned delay or disruption to public road users on National roads, or in the event that the carrier does not consistently meet the requirements as set out in Appendix A.

A detailed programme will be issued in advance as to when the abnormal vehicles will be used. The local municipality will be notified prior to the transporting of abnormal loads which might have a negative impact on the public road users. Traffic planners/personnel will ensure that the lane width, turning movements and vertical alignments of temporary arrangements are suitable for these vehicles. All personnel will be advised to stay clear of any trucks with abnormal loads. Heavy oversized vehicles with abnormal loads will be escorted into site. All heavy oversized vehicles or heavy mobile equipment are to have the right of way.

9. EMERGENCY PLANNNING

Contact details of emergency services will be conveyed to all necessary personnel, thus ensuring that in the event of an incident occurring, the necessary service/s are informed immediately.

Provision will be made to ensure that in the event of an incident occurring, access to the site will be available and accessible to emergency services to travel through the site where the incident occurred.

The following list provides a few contact numbers for emergency services in the vicinity of the site:

i. Police – 10111
ii. Ambulance – 10 177/ Net care 082 911
iii. Fire Brigade – 046 622 2932
iv. Disaster Management – 046 603 6048
v. Settlers Hospital – 046 622 2215
vi. Fort England Hospital – 046 602 2300
vii. Med-Life Ambulance Service – 046 622 7976
viii. Netcare 911 Air Ambulance – 082 911

D M McQUIRK Pr. Eng.
MSc. Transportation & Traffic Eng., BSc Civil Eng, Dipl Traffic Safety Management
Registered with ECSA 970660, member of IMESA

APPENDIX A

ABNORMAL LOADS TRANSPORTED ON NATIONAL ROADS

Conditions to carriers of frequent abnormal loads for wind turbines to be included into the route clearance report and abnormal load permits

The statement by the Professional Engineer regarding road safety and traffic engineering aspects shall ensure that the transportation of the intended abnormal loads shall conform to the maximum impacts on road users as detailed below. In order to assist the analysis of traffic impacts, SANRAL traffic monitoring information is available for use.

1. Delay to Road Users:
   - Queue lengths: not more than 6 vehicles for longer than 1km should follow behind the abnormal load train without being afforded the opportunity to overtake.
   - No single vehicle may follow the abnormal train for more than 5km without being afforded the opportunity to overtake.
   - Assessment of the national road constraints and road user trends to be done to plan abnormal passage and to minimise delays to the public road users.
   - Utilisation of climbing lanes, rest areas and additional constructed pull-off areas must be actively planned to achieve overtaking of the abnormal train.
   - The above requirements must apply in all weather conditions.

2. Road Closures:
   - No longer than 3 hours of accumulated closures per week for all abnormal passage/ all carriers on a road link of 200km shall be permitted. (On mountain pass closures, this closure time could be extended to 6 hours accumulated per week, which closure would be required mainly for the long loads around small radius curves.)
   - The carrier must co-ordinate long closures (excess of 1 hour) with other Road Authorities as well as SANRAL construction projects where blasting or other closures could be undertaken. Advance warning of repetitive closures in excess of 15 minutes must be signposted, and signing to be approved by SANRAL. Where abnormal closures and construction closures are located within 50km, they must in all instances be co-ordinated.

3. Road Construction works:
   - The carrier shall liaise continuously at projects of road construction sites to ensure passage of abnormal loads at construction works constraints (which change regularly) and potential damage to temporary bypasses. Should alteration of construction works be required by the carrier, the carrier shall liaise with the Engineer supervising the construction project and be required to pay for any alterations, disruptions or construction delays which may be caused. SANRAL reserves the right to limit passage on construction works to non-abnormal vehicles dimensions and loads, unless suitable arrangements have been made to allow for the passage of abnormal vehicles and loads. Contact details of SANRAL construction projects are available from the relevant SANRAL Regional offices.

4. Wide Loads:
   - Unless other acceptable arrangements are provided to SANRAL, abnormally wide loads along two directional roads, where the abnormal width plus 0.4m is in excess of half the surfaced road width, must be done under stop/go conditions, not longer than 5 km in length. Public vehicles in both directions shall be afforded the opportunity to

overtake the abnormal load at the stop/go point. For lesser trafficked roads, and with SANRAL approval, the delay impact criteria (number of vehicles in queue and length of following) may be used instead of the 5km stop/go length criteria.

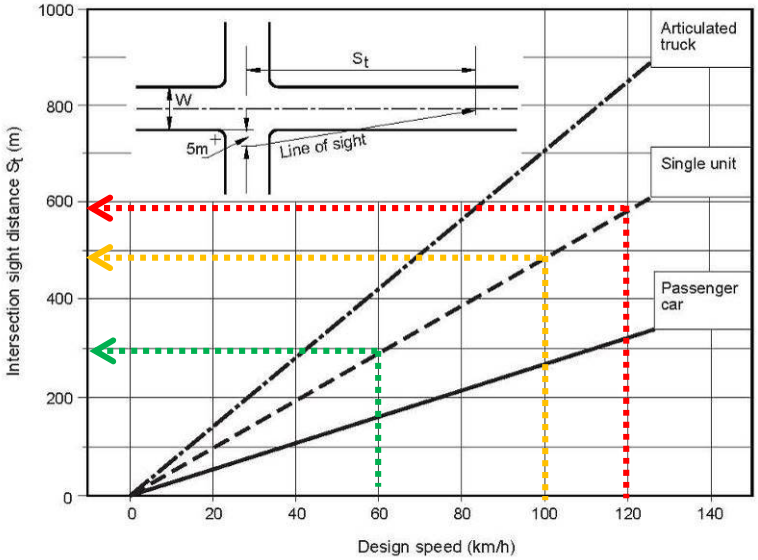
- Under conditions of reduced visibility, abnormally wide loads in the above stated vehicle width /road width limit should not be transported.

5. Monitoring and Records:
   - The carrier shall ensure that all dangerous/illegal overtaking of the abnormal load and train are recorded, and provided to SANRAL on request.
   - The carrier shall ensure that all deviations to these requirements are recorded, and provided to SANRAL on request.
   - The carrier shall ensure that all newly identified risks are recorded and conveyed to Provincial Roads Authority and to SANRAL, and negative impacts are mitigated.

6. General:
   - The detailed route description for each type of abnormal load, frequency and general travel times must be submitted to SANRAL for assessment. Periods of high or peak traffic flows must be identified and avoided as much as possible.
   - The route clearance statement for each type of abnormal load must be included in the report to be submitted to SANRAL for assessment, which must incorporate the above requirements.
   - A statement of passage of dimensional and mass abnormal loads over /under structures and bridges must be submitted to SANRAL for consideration, with protective measures where required.
   - The modification of National Road infrastructure for the passage of abnormal loads requires separate consents by SANRAL.
   - SANRAL approval shall be required in the event of abnormal loads being planned to overnight on a consistent basis, within National Road reserves.
   - The carrier must indicate what advertising will be done to warn to road users, nationally, of the impacts of the abnormal load passage, as well as indicating alternate routes. This must be done on a continuous basis as the transport of abnormal loading unfolds.
   - Provision for curtailing of transportation of abnormal loads in adverse weather conditions, and measures to be undertaken in the event of incidents such as crashes and breakdowns must be included in the planning.
   - SANRAL reserves the right to oppose any issued abnormal load permit in the event of any un-envisioned delay or disruption to public road users on National roads, or in the event that the carrier consistently not meeting the above requirements.

APPENDIX B

SIGHT DISTANCES

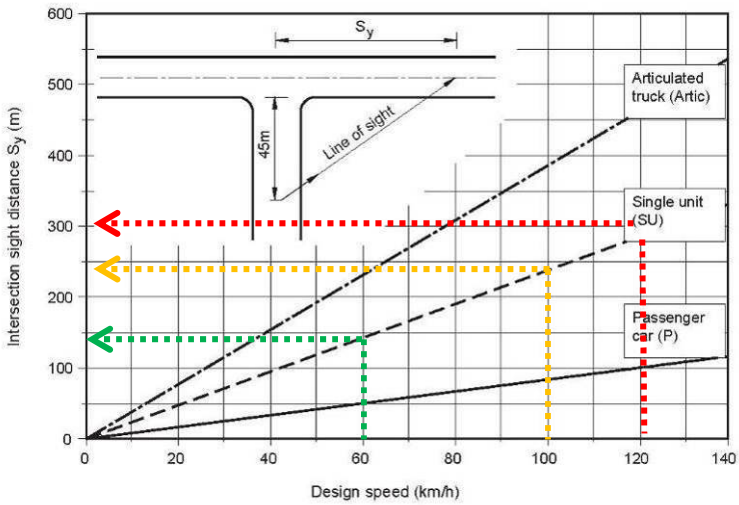


290m sight distance for yield condition- Single unit vehicles (60km/h)

490m sight distance for yield condition- Single unit vehicles (100km/h)

590m sight distance for yield condition- Single unit vehicles (120km/h)

Figure B.1 Intersection sight distance for turning maneuvers-stop condition

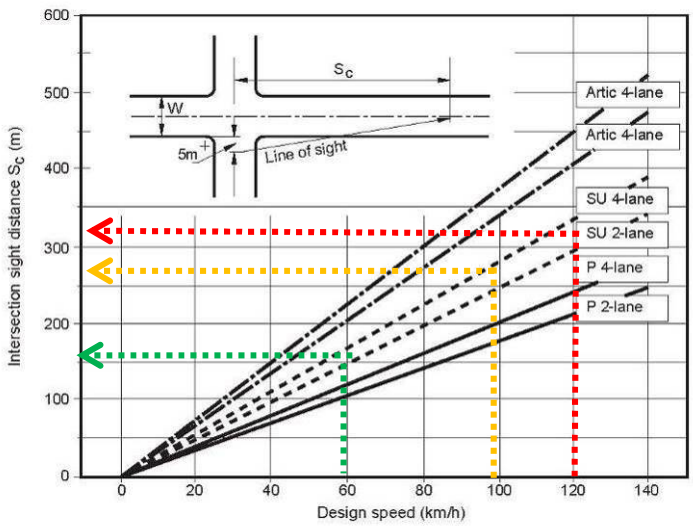


140m sight distance for yield condition- Single unit vehicles (60km/h)

230m sight distance for yield condition- Single unit vehicles (100km/h)

300m sight distance for yield condition- Single unit vehicles (120km/h)

Figure B.2 Intersection sight distance for turning maneuvers- yield condition



160m sight distance for crossing maneuvers- Single unit vehicles (three lanes) - (60km/h)

250m sight distance for crossing maneuvers- Single unit vehicles (three lanes) - (100km/h)

330m sight distance for crossing maneuvers- Single unit vehicles (three lanes) - (120km/h)

Figure B.3 Intersection sight distance for crossing maneuvers

APPENDIX C

EXTRACTS FROM CHAPTER 13, VOLUME 2 OF THE SARTSM

13.3 TRAFFIC MANAGEMENT

13.3.1 General

1 In order to adequately deal with the needs of manual or handbook users, it is necessary to go beyond the specification of sign face designs and sequences. It is necessary to develop a standardised approach to the traffic management of roadworks sites. This applies particularly to the more complex conditions. Ideally it should be possible for almost any site condition to be simplified to a number of standard treatments and, therefore, traffic should be accommodated within the range of signs detailed in this Chapter. According to this principle, the motorist should then have to deal only with familiar situations and preferably with only one at a time.

2 The layouts provided in later sections have therefore been prepared with these objectives in mind. Each condition has been subdivided into standard components or sections as shown in Figure 13.20. In some cases, one or more of the area or zone subdivisions may be repeated. **The primary reason for this approach is the ultimate safety of drivers and workers.** It is not an uncommon practice to complicate the situation presented to drivers by superimposing changing conditions such as road width reductions or carriageway crossovers upon each other and/or by locating them at interchanges. This results in drivers trying to negotiate these changes in condition and interpret their directional needs at the same time. Wherever possible this situation should be avoided. There will,however,always be circumstances where, for reasons of cost or physical conditions,such a superimposing of activities is unavoidable. In this event carefully prepared special signing techniques will have to be employed.

3 In the interests of safety these principles should be carried through to the preparation of less complex traffic management situations. A systematic breakdown of any site into standardised sub-components is likely to result in more efficient and safe site operation because it will allow the site supervisor to clearly understand the traffic operation of the site.

4 In certain instances it will be necessary to create,within sections of a roadworks site, conditions where traffic is reduced to one-way operation. In this event the passage of traffic will have to be controlled manually or automatically. Three methods of traffic control available are:

(a) flagmen;

(b) STOP/RY-GO signs;

(c) temporary traffic signals.

Details of these traffic control methods are given in Subsection 13.3.9.

5 As part of the general traffic management effort at a roadworks site, the resident engineer AND the contractors' representative dealing with temporary signing and delineation should institute a regular programme of checking the site for compliance with specifications, including sign cleanliness. This inspection programme should occur as frequently as necessary to keep the site correctly signed and delineated. This may need several inspections a day. The inspection programme should pay particular attention to the effectiveness of the signs and delineation under adverse weather conditions, at dusk, and at night. In extreme cases, the illumination of critical signs may be justified by a combination of such conditions and high traffic volumes. Care should be exercised not to create running lanes which are too wide for one traffic stream but not quite wide enough for two traffic streams (see paragraph 13.4.3.2(c)).

13.3.2 The Advance Warning Area

1 This area is used to advise motorists that there are temporary conditions ahead of them which require particular care. Almost invariably, a stepped reduction in the speed will be required within this area. These speed reductions should be indicated at reasonable intervals (200 m minimum), and occur in 20 km/h steps until the speed for which the traffic control has been designed is indicated. It is good practice to repeat the final speed limit at least once. It should be noted that, depending on the nature of the change ahead, any of the DIAGRAMMATIC guidance sign layouts given in Figures 13.11 to 13.15 may be used, but the use of non-standardised sign layouts should be avoided.

2 The length of the Advance Warning Area should relate directly to measured approach speeds. A realistic distance must be allowed for speed reduction. High traffic volumes will be better handled if the standard length of this area is generous, since more time is needed to take in the sign messages and react to them under heavy traffic conditions. For approach speeds of around 120 km/h and moderately high to high volumes, a base length for the Advance Warning Area of 1000 m is required. If traffic volumes are low and/or approach speeds in the region of 80 km/h, this length may be reduced to 600 m. This reduction applies particularly when changes in road conditions, such as alignment or width, occur within the main site.

eg. a section of 16 kilometres of rural road may be under repair or reconstruction - the effects of work on traffic will vary widely through the site - assuming a 120-100 km/h approach speed and high traffic volumes, a full Advance Warning Area sign sequence covering 1000 m should be used - speed within the site is likely to be controlled at 80-60 km/h - at these approach speeds the secondary Advance Warning Area sign sequence for local deviations can be reduced to 600 m in length, or, for simple cases, even to 400 m.

3 Urban sites will commonly have limited space for Advanced Warning Area signs. However, every attempt should be made to provide adequate advance signing. High speed arterials should normally have sufficiently long block lengths to allow Advance Warning Areas in the range of 600-300 m. On lesser roads or in busy business areas, shorter Advance Warning Areas in the range of 150-75 m should be used. In the latter cases, consideration should be given to taking lane closures and the relevant signing into the preceding block.

13.3.3 The Transition Area

1 This is the area in which drivers are required to **take an action,** such as:

(a) shift position on the roadway without reduction in

the number of lanes;

(b) merge two lanes into one (lane drop);

(c) cross the central median (crossover);

(d) enter a detour completely separate from the road under construction.

2 The transition area must be clearly defined using delineator plates and should conform to the layout depicted on the guidance signs preceding it. The more complex roadworks sites should be broken down into a number of standard transition situations. No signing for subsequent transition conditions should be included within a transition area.

3 The transitionary action required of traffic can be achieved in a limited number of ways, eg.:

(a) a taper;

(b) a crossover;

(c) a deviation (normally reserved for complete re-routing).

4 The length of a transition area will depend on the approach speed of traffic and the amount of shift in alignment involved by the transition. Details of the length of tapers and crossovers are given in Subsections 13.5.5. and 13.5.6.

13.3.4 The Stabilising Area

1 The purpose of this area is to allow traffic flow to stabilise after negotiating a transition area before reaching another change of condition. If more than one transition area is required to achieve the final traffic configuration, the signing for second or subsequent transitions should be located within the stabilising area(s). The stabilising area is normally defined by delineator plates.

13.3.5 The Buffer Zone

1 This is the limiting form of stabilising area.It is normally used between a transition area and the work area. In a situation involving more than one transition area the buffer zone will occur after the transition area closest to the work area. The principal function of the buffer zone in such situations is to separate the traffic from the workers at the site in the interests of worker safety. It can be a relatively short distance but never less than 50 m. Provision of a longitudinal buffer zone, and indeed a lateral buffer zone within the work area, must be considered as fundamental to effective worker safety.

13.3.6 The Work Area

1 This area must be adequately defined by delineators in the less complex conditions. Where there is a risk to traffic or workers of vehicles entering the work area, temporary barriers of a standard sufficient to prevent vehicle penetration are recommended (see Subsection 13.5.3).

2 When traffic is relocated well away from the work area, little action is required along the length of the work area other than to protect contractors' vehicles and employees. If such a relocation results in two-way traffic flow then special attention should be paid to the definition of the line separating the two traffic flows. Under normal conditions, the minimum treatment should involve the marking of a temporary DIVIDING or NO OVERTAKING line where appropriate. This line should be supplemented by temporary roadstuds.

3 If the section of detour running parallel to the work area uses asymmetrical lane configurations, drivers should be reminded of this situation by using lane arrangement signs as shown in Figure 13.70. If the condition exists for considerable distances, it is recommended that these signs be repeated at regular intervals and that a distance plate indicating the remaining extent of the condition be added to the signs.

4 Where an asymmetrical lane configuration is varied to permit overtaking through a long site for instance, then the signing and marking of this treatment should follow the principles laid down for transition and stabilising areas. An example is given in Figure 13.70.

5 Experiences with major road rehabilitation contracts have shown a tendency towards increasingly long road sections under construction. There may be very valid economic reasons for such a practice. However, if a site is going to be long, extra care must be taken to ensure adequate overtaking opportunities. In addition, great care must be taken to control the manner in which work phases are completed and reopened to traffic. The random mixture of full construction, with and without road markings, and short incomplete sections of work should be avoided at all costs. The resultant confusion on the part of drivers is to be expected, and can be extremely hazardous.

13.3.7 The Termination Area

1 This area involves the return of traffic to normal flow conditions. In simple cases this can be achieved by a relatively rapid taper of delineator signs. In more complex conditions a reverse crossover may be required. This should follow the same principles given for such conditions at the start of a site and dealt with under Subsections 13.3.3 and 13.3.4.

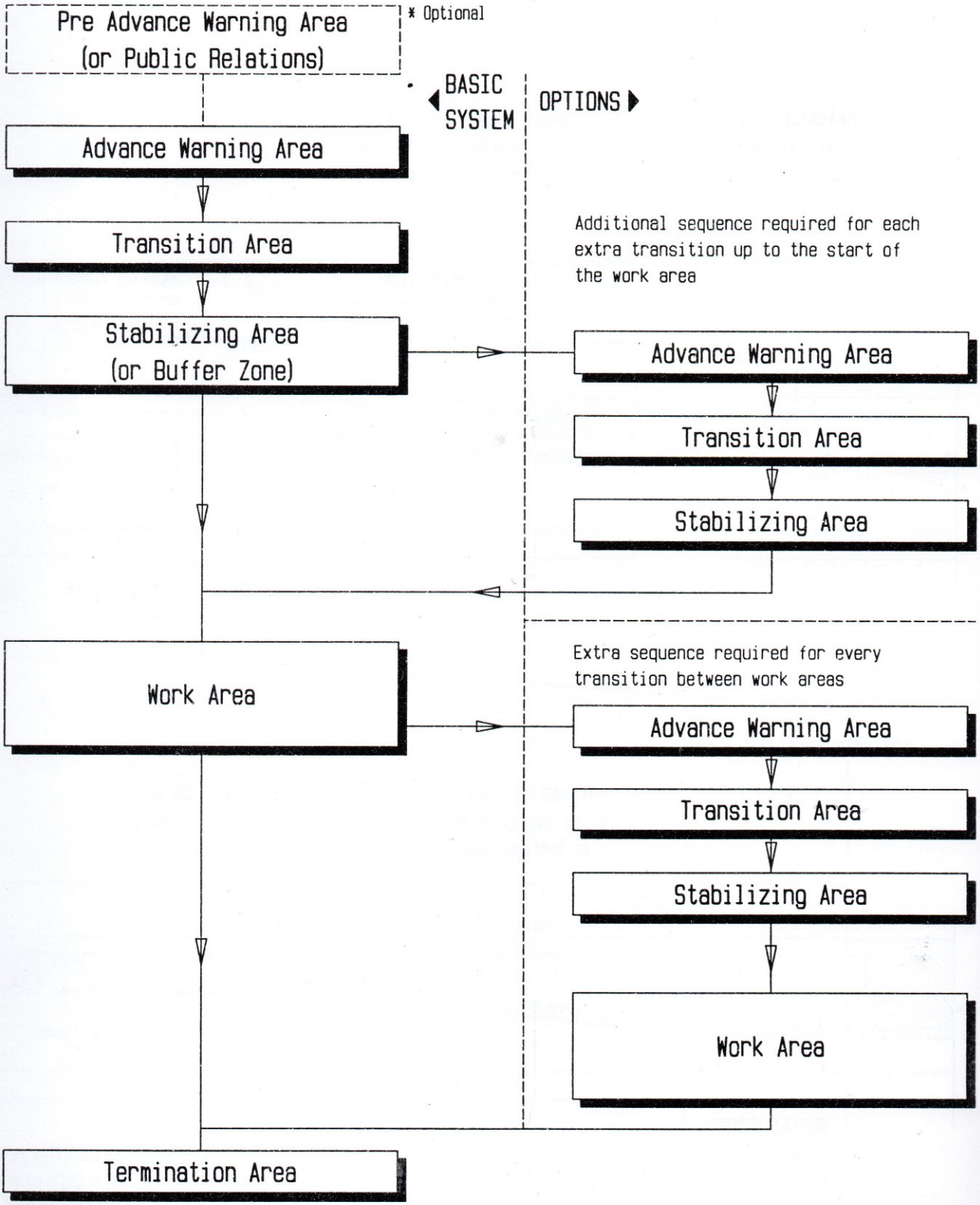
2 Courtesy signs and permanent speed limit signs restoring the normal speed limit conditions should be erected adjacent to each other as soon as possible after the end of the Termination Area.

13.3.8 Traffic Management Planning

1 It is not possible to predetermine how all construction sites shall be managed because there are too many variables. As has been mentioned earlier, however, it is considered very important to plan, and work, in a systematic manner and in standardised steps. The objective of such an approach is to optimize site efficiency, traffic flow and all aspects of safety.

2 The temporary road signing system covered by the typical applications in this chapter have been documented and in use for several years. However well developed the system may be, there will always be scope for improvement and refinement. It is therefore important that practitioners develop their utilization of the system along disciplined lines and include feedback at all phases of the process. Detail 13.21.1, in Figure 13.21, illustrates a breakdown of a structured planning process.

3 At a more detailed level planners should identify the component parts of a site long before ordering signs or transporting them to site. Detail 13.21.2 shows an



Detail 13.21.2 Systematic Arrangement of Typical Site Components.