

## APPENDIX – II

### LEVEL CROSSING GATES

#### **I. Census of traffic at Level Crossings:**

Once in every three years, periodical census of traffic at all level crossings, i.e., both unmanned and manned shall be taken. This shall be carried out for 7 days and total Train Vehicle Units (TVUs) per day (train units x road vehicle units) are worked out. Train, road vehicle, bullock carts and tongas are being considered as one unit; and cycle rickshaw/auto rickshaw being considered as half a unit. The census shall be carried out by a multi-disciplinary inspectorial team consisting of inspectors of CE, S&T and Traffic Departments. The mechanism shall be set up by the Divisional Railway Manager to ensure that the representatives are present for the census by framing advance time table/ schedule for conducting census of level crossings.

#### **II. Classification of Level Crossings:**

The classification of level crossings shall be based on the volume of rail and road traffic and visibility conditions.

The classification of level crossings shall be as under:-

S. No.	CLASS	CRITERIA	INTERLOCKING
1.	Special Class	TVUs greater than 50,000	Compulsory
2.	'A' Class	TVUs between 50,000-30000 or line capacity utilization 80% (on single line) and number of road vehicles greater than 1000	Compulsory
3.	'B' Class	TVUs between 30,000 and 20,000 and number of road vehicles are greater than 750.	-----
	'B1' Class	TVUs between 30,000 and 25,000	Compulsory
	'B2' Class	TVUs between 25,000 and 20,000	-----
4.	'C' Class	All other level crossings not covered in above classes	-----
5.	'D' Class	For cattle crossings	-----

#### **III. These instructions should be read together with provisions in General & Subsidiary Rules.**

##### **1. General instructions for all types of Level Crossing (LC) gates.**

###### **1.1. Description of the LC gate:**

Following details shall be maintained at all level crossing gates:

S. No.	Subject	Details
1.	Number of LC Gate	
2.	Engineering or Traffic Gate	
3.	Under control of PWI/SM	

S. No.	Subject	Details
4.	Location (Km)	
5.	At station	
6.	Stations on either side	
7.	BG/MG	
8.	Single line/Twin single line/Double line/Multiple line	
9.	Normal position	
10.	Interlocked/non-interlocked	
11.	Means of interlocking	
12.	Provision of Gate signals (at Kms.)	Up: Down:
13.	Signalling arrangements	
14.	Means of communication (Telephone / Bell etc.)	
15.	Width of the Level Crossing Gate	
16.	Type of road (NH/SH/Others)	
17.	Name of road	
18.	Metal/non-metal	
19.	Approach road	
20.	Width of the road	
21.	Angle of road crossing (in case of the skew gates)	
22.	Road gradient (if any)	(i) North/East: (ii) South/West:
23.	Road Alignment (Straight/Curve)	(iii) North/East: (iv) South/West:
24.	Provision of height gauges	
25.	Type of barriers	
26.	Length of check rails	
27.	Road surface in between LC gates	
28.	Length of rumble strips/speed breakers	
29.	Road signs	
30.	Speed breaker indication board	
31.	No. of TVUs and Date of last Census taken	
32.	Date of next Census due	
33.	Demarcation for placement of detonators	
34.	Number of Gatemen working	
35.	Nearest railway medical assistance	

S. No.	Subject	Details
36.	Nearest private medical assistance available (if any)	
37.	List of equipment available yes/no	

### 1.2 Equipment:

S. No.	Items	Quantity/Numbers
1.	Hand Signal lamp tri colour	3 (5 on quadruple/twin single line section)
2.	Hand Signal flag – green	1 mounted on stick
3.	Hand Signal flags – red	3 mounted on sticks (6 on quadruple/twin single line section and 7 on hexaple section)
4.	Banner flags – Red	3 (5 on quadruple/twin single line section)
5.	Posts for exhibiting red banner flag	2 (4 on quadruple/twin single line section/ 5 on Hexaple section)
6.	Spare chains with padlocks	2 with stop mark
7.	Detonators	10
8.	Gate lamps	2
9.	Tommy bar	1
10.	Mortar pan	1
11.	Spade/faurah	1
12.	Rammer	1 (In case of asphalted road, this may not be provided)
13.	Pick axe	1 (In case of asphalted road, this may not be provided)
14.	Tin case for flags	1
15.	Can for oil	1
16.	Water pot/Bucket	1
17.	Canister for muster roll	1
18.	Set of spare spectacles of gateman wearing glasses.	1
19.	Board demarcating protection of LC gate diagram in case of obstruction on gate	1
20.	Basket	1
21.	Whistle	1
22.	Wall clock	1
23.	Small size chains with padlocks (for locking Gate Booms/Gate Leaves).	2

### 1.3. Records to be kept at gate lodge:

In addition to the above equipment, following records shall also be kept at the gate lodge.

- (1) Gate working instructions in Hindi/English.

- (2) Gate working instructions in local vernacular language
- (3) List of tools and books
- (4) Duty roster
- (5) Certificate for working as Gateman
- (6) Bio-data particulars of Gatemen, including date of passing vision test, initial/refresher course, safety camp, etc.
- (7) Public complaint book
- (8) Inspection book

#### **1.4. Mode of operation:**

- (1) Detailed mode of operation for opening and closing the gate shall be provided in the respective SWR and gate working instructions incorporating local operational requirements.
- (2) At non-interlocked gates, the Gateman, before opening the gate for road traffic, shall fix a banner flag by day and red light by night on the staff at the prescribed location of 5 metres distance on either side of the gate on the single line sections and direction wise on double line sections. The banner flag / red light can be removed only after closing the gate against road traffic for passage of trains.
- (3) When level crossing gate is required to be opened for passage of road traffic, the Gateman must first open the gate farthest away from approaching road traffic and then open the gate on the side nearest the approaching road traffic.

#### **1.5. Duties of Gateman:**

##### **(1) Alertness:**

The Gateman shall be alert and be prepared to take immediate action, should danger be apprehended. Keys of the gate shall be in his personal custody.

##### **(2) Position during passage of trains:**

During passage of trains, Gateman will stand in the manner indicated below:

- (i) Gateman will stand attentively in front of the gate lodge facing the approaching train.
- (ii) In day time, he shall hold red and green flags furled up on separate sticks in right and left hands respectively.
- (iii) In night time, he shall hold lighted hand signal lamp with white light facing the track.
- (iv) He shall keep the whistle slung around his neck from a cord.

##### **(3) Routine duties of Gateman:**

- (i) At non-interlocked LC gates and during emergencies or obstruction on track at other types of gates, Gateman shall ensure that red banner flag is placed across the track whenever the gate is kept in open condition for passage of road vehicles.
- (ii) He shall ensure that gate lamps and lamps of all gate signals are lighted and kept burning continuously from sunset to sunrise.
- (iii) Gateman shall perform his duties strictly according to the duty roster and shall not leave the gate unless reliever arrives and takes charge of it. However, if it is necessary to leave the gate in an emergency, he must close and lock the gates against road traffic, before leaving the gate.

- (iv) Except where otherwise prescribed under special instructions, he shall observe all passing trains and be prepared to take such action as may be necessary to ensure safety of trains.
- (v) He shall watch all passing trains and keep sharp look out for any unusual like hot axle, hanging chains, hanging battery, any vehicle/wagon/train/battery box on fire, shifted load, falling material like brake blocks, brake beams, safety bracket, vacuum cylinder or any other situation endangering safe running of trains.
- (vi) He shall also be prepared to repeat any signal which Guard may give to Loco Pilot on walkie-talkie or in any other way.
- (vii) If lifting barriers/leaf gates get damaged or becomes out of order, he shall use the spare chain with disc and padlocks for securing the gate against road traffic.
- (viii) If sliding boom arrangement is available, Gateman has to use them for closing the Gate against road traffic. If the interlocking arrangement is available for sliding booms, after closing the gate with sliding booms signals can be taken off. Before resorting to the use of sliding booms for closing the gate, Gateman shall make an entry in the Gate Timing Register and exchange PN with station master. After resuming working of normal booms again entry to be made and PN to be exchanged with SM to this effect.
- (ix) He shall report to the nearest Station Master, Gangman or PWI, any defect in his gate or apparatus pertaining to it, as soon as possible.
- (x) In the event of gate signal becoming defective, he shall maintain the signal in The 'on' position even by disconnecting the signal wire if necessary.
- (xi) At the gate, whose signal has become defective, he shall close and lock the lifting barriers / leaf gates on sighting a train and hand signal or pilot the train past the defective signal. In such case he should inform the Loco Pilot to report the defect at the next station.
- (xii) He shall wear badge and prescribed uniform while on duty at level crossing gate.
- (xiii) He shall ensure that he is having competency certificate in his possession while on duty.
- (xiv) He shall work the gate as per Gate Working Instructions and remain well conversant with these instructions.
- (xv) He shall ensure that equipment supplied at the gate is in good order and ready for immediate use.
- (xvi) He shall see that the channel for the flange of the wheel is kept clear.
- (xvii) He shall keep the road surface well watered and rammed in case of non-metal roads.
- (xviii) He must be vigilant to see that inconvenience to road users due to closure of gates should be to the minimum possible extent.
- (xix) Gateman on electrified section shall watch that road vehicles/animals passing from gate are within the height gauge provided on either side of the level crossing gate.
- (xx) He shall prevent trespassing by persons or cattle to the maximum extent.

**(4) Action in case of unusual occurrence on train:**

In case Gateman observes anything unusual with a passing train, he shall take following action:

- (i) He shall take prompt action to warn the Loco Pilot/Guard of the passing train by showing red flag by day / red light by night.
- (ii) He shall simultaneously try to draw the attention of the Loco Pilot/Guard by whistling continuously, shouting, gesticulating or by any other means.
- (iii) If Loco Pilot / Guard fail to take notice, he shall immediately inform the Station Master/Switchman, if connected on telephone, to take appropriate action.
- (iv) In case of train parting, he shall not show Stop hand signal but shall show prescribed signal for train parting (refer para 1.8);
- (v) In case the train does not stop, he shall immediately inform the Station Master/ Switchman, if connected on telephone, to take appropriate action.

**(5) Action in an emergency at the LC gate:**

- (i) In case of an obstruction at the LC gate, Gateman shall maintain the gate signals, if any, in the 'on' position.
- (ii) Thereafter, if he is unable to remove the obstruction, he shall immediately advise the Station Master on duty, if connected by telephone, regarding the defects/obstructions at the gate.
- (iii) If there is no response from the Station Master after two or three attempts, he shall first protect the gate and then inform on phone.

**The Gateman shall protect the line as under:-**

**(a) On double line section:**

- (i) If both lines are obstructed the Gateman shall plant a red banner flag by day/ red light by night 5 metres away on posts duly provided for the purpose. He shall first protect the line on which a train is expected to arrive first.
- (ii) Then he will similarly plant the other red banner flag by day / red light by night on the other line 5 metres away from the site of obstruction.
- (iii) Gateman shall then proceed to protect the gate along with detonators, and red flag by day/red hand signal lamp by night.
- (iv) Gateman shall proceed exhibiting red flag by day / red hand signal lamp by night on the line on which a train is expected to arrive first, to a point 600 metres on BG and 400 metres on MG and place one detonator on the line, thereafter he shall proceed to a distance of 1200 metres on BG and 800 metres on MG from the level crossing gate and place 3 detonators on the track 10 metres apart. Having thus protected the line, he shall return to the level crossing gate picking up the intermediate detonator on his way back.
- (v) Thereafter, he shall proceed on the other line, showing red hand signal, similarly place detonators as described in para (iv) above and return to the site of obstruction, picking up the intermediate detonator on his way back.
- (vi) Having returned to the gate, he must then take steps to remove the obstruction and warn the Loco Pilot of the approaching train.
- (vii) In case the Gateman observes or hears a train approaching when he is still on his way to protect and before he reaches the stipulated distance to place detonators, he shall place detonators on the line at a distance as far away as he can go.
- (viii) Thereafter, he shall warn the Loco Pilot and stop the approaching train by waving his red flag by day / red hand signal lamp by night repeatedly.

(b) On single line section:

- (i) Gateman shall plant a red banner flag by day/ red light by night 5 metres away on posts duly provided for the purpose. He shall first protect the direction from which a train is expected to arrive first.
- (ii) Then he will similarly plant the other red banner flag by day/red light by night towards the other direction 5 metres away from the site of obstruction.
- (iii) Gateman shall then proceed to protect the gate along with detonators, and red flag by day/red hand signal lamp by night.
- (iv) Gateman shall proceed exhibiting red flag by day/red hand signal lamp by night towards the direction from which a train is expected to arrive first, to a point 600 metres on BG and 400 metres on MG and place one detonator on the line. Thereafter he shall proceed to a distance of 1200 metres on BG and 800 metres on MG/NG from the level crossing gate and place 3 detonators on the track 10 metres apart. Having thus protected the line, he shall return to the level crossing gate picking up the intermediate detonator on his way back.
- (v) Thereafter, he shall proceed towards the other direction, showing red hand signal, similarly place detonators as described in para (iv) above and return to the site of obstruction, picking up the intermediate detonator on his way back.
- (vi) Having returned to the gate, he must then take steps to remove the obstruction and warn the Loco Pilot of the approaching train.
- (vii) In case the Gateman observes or hears a train approaching when he is still on his way to protect and before he reaches the stipulated distance to place detonators, he shall place detonators on the line at a distance as far away as he can go.
- (viii) Thereafter, he shall warn the Loco Pilot and stop the approaching train by waving his red flag by day / red hand signal lamp by night repeatedly.

(c) Other action to be taken by Gateman:

- (i) At night Gateman shall light two hand signal lamps and take action to exhibit red light and protect the lines as described in sub paras (a) and (b) above.
- (ii) If the gate is broken by a road vehicle which is fouling the track or if lifting barriers / leaf gates or any other part of the gate foul the track or if there is any other obstruction at the gate, the Gateman shall take immediate action by noting down the particulars of the road vehicle, vehicle number, name of the driver, owner and relay these details to the nearest Station Master/Switchman or PWI regarding the particulars and obstructions at the level crossing gate, through messenger or other means available.

**1.6. Normal Position of LC gates**

The normal position of all non-interlocked gates shall be closed to road traffic. On exceptional circumstances, 'B' & 'C' class level crossing gates where road traffic is heavy may be kept open for road traffic with the prior approval of PCE/CE (CO-ordination) and PCOM provided the following conditions are satisfied:

- (i) The level crossing should not be on a suburban section.
- (ii) The level crossing should be equipped with co-acting lifting barriers.
- (iii) The section concerned should not have automatic block signalling.
- (iv) The level crossing should be provided with a telephonic connection with the Station Master and should have a system of obtaining private number from gateman in token of having closed the gate.

- (v) The railway track at the level crossing should be straight on either side to afford a clear view of an approaching train.
- (vi) As long as the gate is kept open for road traffic a red flag by day time and a red light during night should be displayed towards the approaching train on either side of the level crossings.
- (vii) The level crossing shall be provided with Whistle Board on either side at an adequate distance to enjoin the Loco Pilot of approaching train to give audible warning of the approach of train to the road users.
- (viii) Adequate number of Gatemen are provided. All such proposals should be personally decided by the DRM and with details submitted for approval of PCE/CE (Co-ordination) and PCOM.

Review of such level crossings should be taken every two years and attempts should be made to provide necessary facilities and upgrade them to 'A' class at the earliest.

### **1.7. Gate Working Rules for Engineering LC Gates:**

The instructions for working of the level crossings, situated outside Stop signals (including the working of bell and/or telephone communications with station, if provided) and also for the procedure to be followed by the Gateman to protect the line, if an obstruction is caused at the level crossing, shall be issued by the Engineering branch and a copy is kept at the gate lodge. Where a level crossing is equipped with gate signals, a copy of the signalling and interlocking diagram shall also be posted at the gate lodge.

### **1.8. Gateman's action in case of train parting:**

If a Gateman observes a train running in two or more portions, he shall draw the attention of the Loco Pilot, Guard or Brakes-man by shouting and/or by whistling. He shall also show green hand signal during day and white light during night waving up and down vertically as high and as low as possible. He shall in no case show the red signal. Should he fail to attract the attention of the Loco Pilot and if there is sufficient distance between the parted portions of the train, he must place 3 detonators on the line, 10 metres apart for the following portion or portions to attract the attention of the Guard. Gateman shall also look out for the tail board or tail lamp, as the case may be and advise the Station Master, if telephone communication is provided.

### **1. Special Instructions for different types of level crossings:**

Instructions for different types of level crossing gates are given in Annexures as follows:

Annexure	Description
I	Engineering level crossing gate, interlocked with gate signals, provided with telephone, with normal position 'open to road traffic'.
II	Traffic level crossing gate, interlocked with stop signals of the station, provided with telephone, with normal position 'open to road traffic'.
III	Traffic level crossing gate, non-interlocked, provided with telephone, with normal position 'closed to road traffic'.
IV	Engineering level crossing gate, non-interlocked, provided with telephone, with normal position 'open to road traffic'.
V	Engineering level crossing gate, non-interlocked, provided with telephone, with normal position 'closed to road traffic'.
VI	Engineering level crossing gate, non-interlocked, not provided with telephone, with normal position 'closed to road traffic'.