

# ROAD SAFETY AUDIT (RSA) REPORT

## (PART 1: ROAD INFORMATION)

**State:** West Bengal  
**District:** Darjeeling  
**Block:** Darjeeling Pulbazar  
**Road Number (Core Network):** T12  
**Construction Package Number or DPR reference number:** WB07ADB-23  
**Road Name:** Kaijala to Goke via Kolbong  
**RSA Stage:** Road under construction

## (PART 2: AUDIT INFORMATION)

**Date of RSA:** 10/03/2016

### Audit Team and Participants

<b>Name:</b>	<b>Role:</b>	<b>Organisation:</b>
Mr. Pranoy Chettri	SAE	PIU, Darjeeling
Mr. Narendra Pradhan	AE	Do
Mr. Lalit Lama	Contractor's representative	Contractor
Mr. Gopal Mitra	Road Safety Expert	TSC

### Background to Inspection

The project road is under construction. The project road is a typical hill road with one side deep valley and other side steep rock cut for most of its length. Since the road is under construction, the road restraint systems are not yet installed on the project road. The road has many sharp and continues bends with steep vertical gradient. The speed will automatically be less on the road, hence chances of fatal accident due to running traffic and human contact is less, but the vehicle restraint system should be adequate enough to protect running vehicle. During inspection it was observed that in DPR guard post as vehicle restraint system has been provided only on the approaches of the culverts and no provision of the same has been made for other hazarders locations on the valley portion of the road. Provision of rumble strip as vehicle calming tool has been made in DPR only at two locations on the road, ignoring several road side habitations.

### Road Safety Audit (RSA) Process

Date – 10/03/2016  
Weather – Sunny  
Time – 11:00 AM  
Road Length – 6.13 Km  
Traffic – Car-15, LCV-8, Two Wheeler-6

# ROAD SAFETY AUDIT (RSA) REPORT

## (PART 3: ROAD SAFETY AUDIT FINDINGS)

### Safety Issue No 1

#### Unsafe valley side on road

##### Location

Chainage: throughout the project road

##### Description of Road Issue



Many places on the road no wheel guard in the form of parapet wall or other was observed to protect running vehicle from overtopping on the valley side .

##### Road Safety Risk

Exposure to Safety Issue: (4)

*Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue*

*Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5- very high*

Probability to Cause Accident: (4)

*Estimated as probability of traffic conflict resulting in an accident*

*Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5- very high*

Consequence of Accident: (5)

*Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe.*

*High speed of potential impact would have severe consequence.*

*Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5- very high*

Resulting Road Safety Risk: (4.3)

*Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3.*

*Higher the combined rating, greater the urgency of attending to the road safety issue.*

*Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5- very high*

##### Recommendation to Address the Issue

Provide guard post or parapet wall as wheel guard on valley side.

# ROAD SAFETY AUDIT (RSA) REPORT

## Safety Issue No 2

Un covered drain at habitation

### Location

Chainage: at start on habitation

### Description of Road Issue



Drain at this location is found uncoverd, creating risk of wheels to fall into the drain.

### Road Safety Risk

Exposure to Safety Issue: (3)

*Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Probability to Cause Accident: (3)

*Estimated as probability of traffic conflict resulting in an accident*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Consequence of Accident: (3)

*Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe.*

*High speed of potential impact would have severe consequence.*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Resulting Road Safety Risk: (3)

*Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3.*

*Higher the combined rating, greater the urgency of attending to the road safety issue.*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

### Recommendation to Address the Issue

Drain at habitation should be covered to ensure adequate road width and prevent wheels from falling into the drain.

# ROAD SAFETY AUDIT (RSA) REPORT

## Safety Issue No 3

Electric poles close to the road edge

### Location

Chainage: at various places along the project road

### Description of Road Issue



Some transformer electric poles are observed near to the road edge. Running traffic may get hit with them if not remain alert especially at night.

### Road Safety Risk

Exposure to Safety Issue: (3)

*Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Probability to Cause Accident: (3)

*Estimated as probability of traffic conflict resulting in an accident*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Consequence of Accident: (4)

*Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe. High speed of potential impact would have severe consequence.*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Resulting Road Safety Risk: (3.3)

*Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3. Higher the combined rating, greater the urgency of attending to the road safety issue.*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

### Recommendation to Address the Issue

Paint the poles with alternate black and white colour up to a height of 1.5m to make them visible for drivers, especially at night.

# ROAD SAFETY AUDIT (RSA) REPORT

## Safety Issue No 4

Un attended Sharp curves, habitations

### Location

Chainage: throughout the project road

### Description of Road Issue



Since the road has typical hilly road geometry with series of sharp bends and steep vertical gradient and hairpin bends, speed will be automatically be less on the road. But due to non-visibility at bends with steep up or down gradient, there will always be a chance of head on collision for vehicle coming from opposite directions.

### Road Safety Risk

Exposure to Safety Issue: (4)

*Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Probability to Cause Accident: (3)

*Estimated as probability of traffic conflict resulting in an accident*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Consequence of Accident: (4)

*Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe.*

*High speed of potential impact would have severe consequence.*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Resulting Road Safety Risk: (3.6)

*Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3.*

*Higher the combined rating, greater the urgency of attending to the road safety issue.*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

### Recommendation to Address the Issue

Provide speed breakers following proper guideline laid out in IRC 99-1988 and informatory signs for up and down traffic at these locations.

Ensure no overtaking takes place within and approach to these zones through cautionary signs.



## ROAD SAFETY AUDIT (RSA) REPORT

### Safety Issue No 5

Nonstandard Speed breaker

#### Location

Chainage:

#### Description of Road Issue



Though very few speed breakers observed on the project road as traffic calming instrument, they are found of non standard type and not serving the purpose for which they are built.

#### Road Safety Risk

Exposure to Safety Issue: (3)

*Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue*

*Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5 - very high*

Probability to Cause Accident: (3)

*Estimated as probability of traffic conflict resulting in an accident*

*Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5 - very high*

Consequence of Accident: (3)

*Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe.*

*High speed of potential impact would have severe consequence.*

*Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5 - very high*

Resulting Road Safety Risk: (3)

*Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3.*

*Higher the combined rating, greater the urgency of attending to the road safety issue.*

*Scale: 1 - very low, 2- low, 3- medium, 4 - high, 5 - very high*

#### Recommendation to Address the Issue

Speed breakers for up and down traffic should be provided following proper guideline laid out in IRC 99-1988.

Provide informatory signs for approaching vehicles before entering into these zones

Continue speed breakers at specified interval throughout the habitations as mentioned in the DPR safety check list

# ROAD SAFETY AUDIT (RSA) REPORT

## Safety Issue No 6

Junction at blind turn forming black spot on the road

Location:0+450



### Description of Road Issue

Road connects to a junction at blind curve with one side valley and the connecting road has steep vertical gradient at junction approach forming potential black spot

### Road Safety Risk

Exposure to Safety Issue: (4)

*Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Probability to Cause Accident: (5)

*Estimated as probability of traffic conflict resulting in an accident*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Consequence of Accident: (4)

*Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe. High speed of potential impact would have severe consequence.*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Resulting Road Safety Risk: (4.3)

*Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3. Higher the combined rating, greater the urgency of attending to the road safety issue.*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

### Recommendation to Address the Issue

Warn running traffic well before approaching to this spot

Construct speed breaker on the approaching connector road

## ROAD SAFETY AUDIT (RSA) REPORT

### Safety Issue No 7

Blind turn on steep vertical gradient

#### Location

Chainage: 1+370

#### Description of Road Issue



Places like these and at some other locations on the project road, forms black spot with blind curve on steep vertical gradient. There will always be a chance of head on collision from vehicle coming in opposite directions

#### Road Safety Risk

Exposure to Safety Issue: (4)

*Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Probability to Cause Accident: (4)

*Estimated as probability of traffic conflict resulting in an accident*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Consequence of Accident: (4)

*Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe.*

*High speed of potential impact would have severe consequence.*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Resulting Road Safety Risk: (4)

*Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3.*

*Higher the combined rating, greater the urgency of attending to the road safety issue.*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

#### Recommendation to Address the Issue

Provide speed breakers and informatory signs for up and down traffic before entering into these locations



## ROAD SAFETY AUDIT (RSA) REPORT

### Safety Issue No 8

Non standard traffic signs on the project road

#### Location

Chainage:

#### Description of Road Issue



Traffic signs installed on the project road are non standard and non reflective type.

#### Road Safety Risk

Exposure to Safety Issue: (3)

*Estimated as potential for traffic conflicts (e.g. braking, swerving, etc) caused by the issue*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Probability to Cause Accident: (2)

*Estimated as probability of traffic conflict resulting in an accident*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Consequence of Accident: (3)

*Estimated likelihood of personal injury or death caused by accident. Involvement of pedestrians/bicyclists versus vehicle would have severe consequence. If trucks are involved, the consequence would be even more severe.*

*High speed of potential impact would have severe consequence.*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

Resulting Road Safety Risk: (2.6)

*Combined rating equals sum of exposure rating plus probability rating plus consequence rating divided by 3.*

*Higher the combined rating, greater the urgency of attending to the road safety issue.*

*Scale: 1 - very low, 2- low, 3 – medium, 4 – high, 5 – very high*

#### Recommendation to Address the Issue

All traffic signs should be as per standard guidelines laid out in the IRC code, IRC:67,2012 to have continuity and uniformity to the drivers.

Traffic signs should be of semi-reflective type as reported in DPR, to have night visibility

## RSA REPORT ATTACHMENT

### (FORM A: EMPLOYER'S RESPONSE TO RSA FINDINGS)

**State:** West Bengal  
**District:** Darjeeling  
**Block:** Darjeeling Pulbazar  
**Road Number (Core Network):** T12  
**Construction Package Number or DPR reference number:** WB07ADB-23  
**Road Name:** Kaijala to Goke via Kolbong  
**Date of Audit:** 10/03/2016

S No	PIC Details of issue	PIU Agree? Yes/No	PIU If disagree, explain why	RSA suggestion(s)	PIU To be implemented? yes, no, partial (elaborate)	PIU If yes or partial: arrangements for implementation and timeline	PIU If no, describe an alternative action to be taken and arrangements for implementation
1.	Unsafe valley side on road			Provide guard post or parapet wall as wheel guard on valley side.			
2.	Un covered drain at habitation			Drain at habitation should be covered to ensure adequate road width and prevent wheels from falling into the drain.			
3.	Electric poles close to the road edge			Paint the poles with alternate black and white colour up to a height of 1.5m to make them visible for drivers, especially at night.			
4	Un attended Sharp curves, habitations			Provide speed breakers following proper guideline laid out in IRC 99-1988 and informatory signs for up and down traffic at these locations. Ensure no overtaking takes place within and approach to these zones through cautionary signs.			
5	Nonstandard Speed breaker			Speed breakers for up and down traffic should be provided following proper guideline laid out in IRC 99-1988. Provide informatory signs for approaching vehicles before entering into these zones. Continue speed breakers at specified interval throughout the habitations as mentioned in the DPR safety check list			

## RSA REPORT ATTACHMENT

S No	PIC Details of issue	PIU Agree? Yes/No	PIU If disagree, explain why	RSA suggestion(s)	PIU To be implemented? yes, no, partial (elaborate)	PIU If yes or partial: arrangements for implementation and timeline	PIU If no, describe an alternative action to be taken and arrangements for implementation
6	Junction at blind turn forming black spot on the road			Warn running traffic well before approaching to this spot Construct speed breaker on the approaching connector road			
7	Blind turn on steep vertical gradient			Provide speed breakers and informatory signs for up and down traffic before entering into these locations			
8	Non standard traffic signs on the project road			All traffic signs should be as per standard guidelines laid out in the IRC code, IRC:67,2012 to have continuity and uniformity to the drivers. Traffic signs should be of semi-reflective type as reported in DPR, to have night visibility			