3.4.5 OCT 2013 Intertraffic INDIA

ALCHEMIST

SUSTAINABLE PAVEMENTS

"MEETING THE NEEDS OF THE PRESENT WITHOUT COMPROMISING THE ABILITY OF FUTURE GENERATIONS TO MEET THEIR OWN NEEDS"

HOW DO WE REDUCE CONSTRUCTION TIME

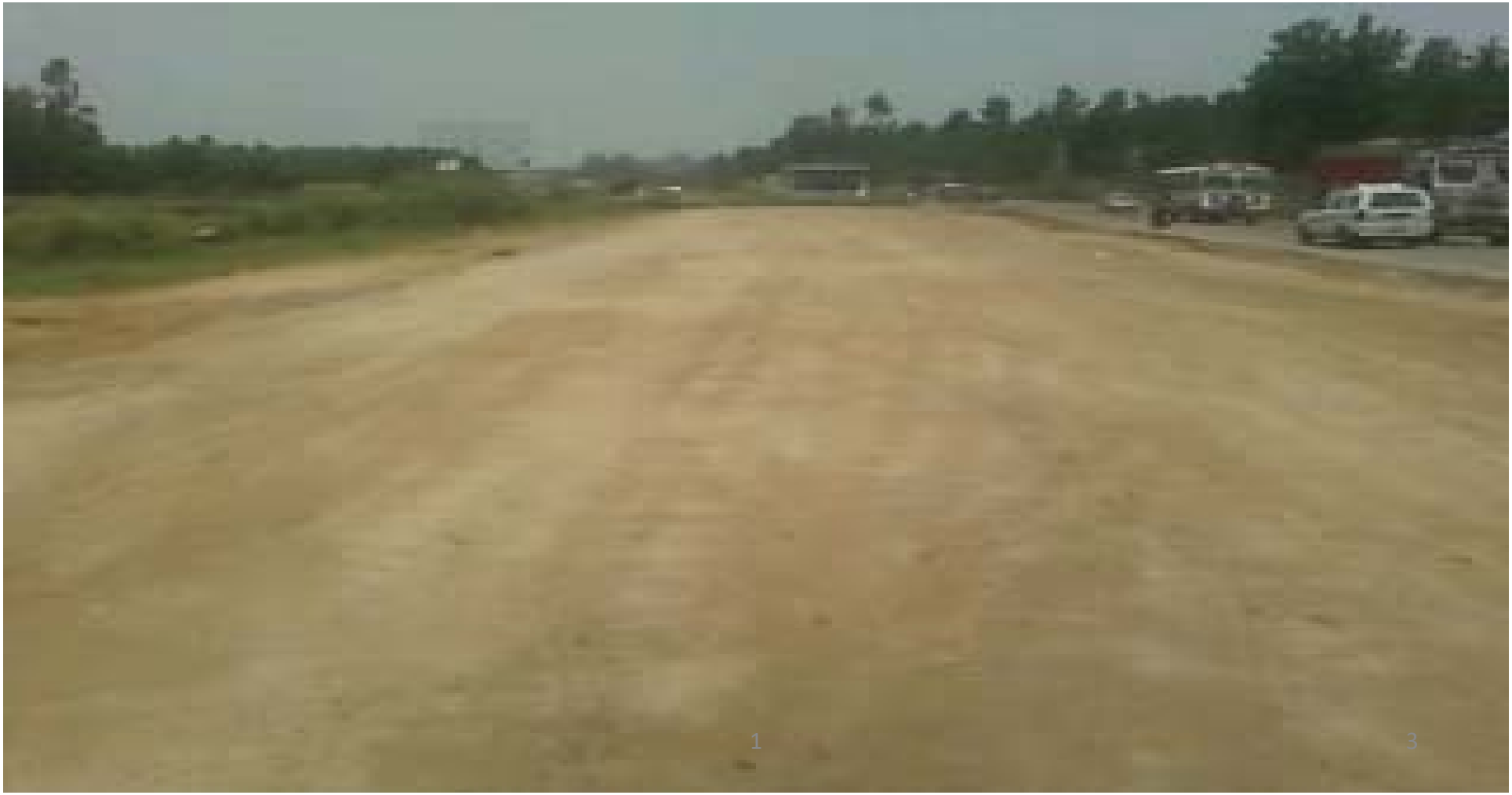
Rural Road	National Highway	State Highway
• CT : 30 Days • AT : 5 Days	• CT : 87 Days • AT : 37 Days	• CT : 37 Days • AT : 23 Days
83% Savings	57% Savings	37% Savings

CT – CONVENTIONAL TECHNOLOGY
AT – ALTERNATE TECHNOLOGY

NATIONAL HIGHWAY CONSTRUCTED WITH ALTERNATE TECHNOLOGY

SAVING 57% OF CONSTRUCTION TIME

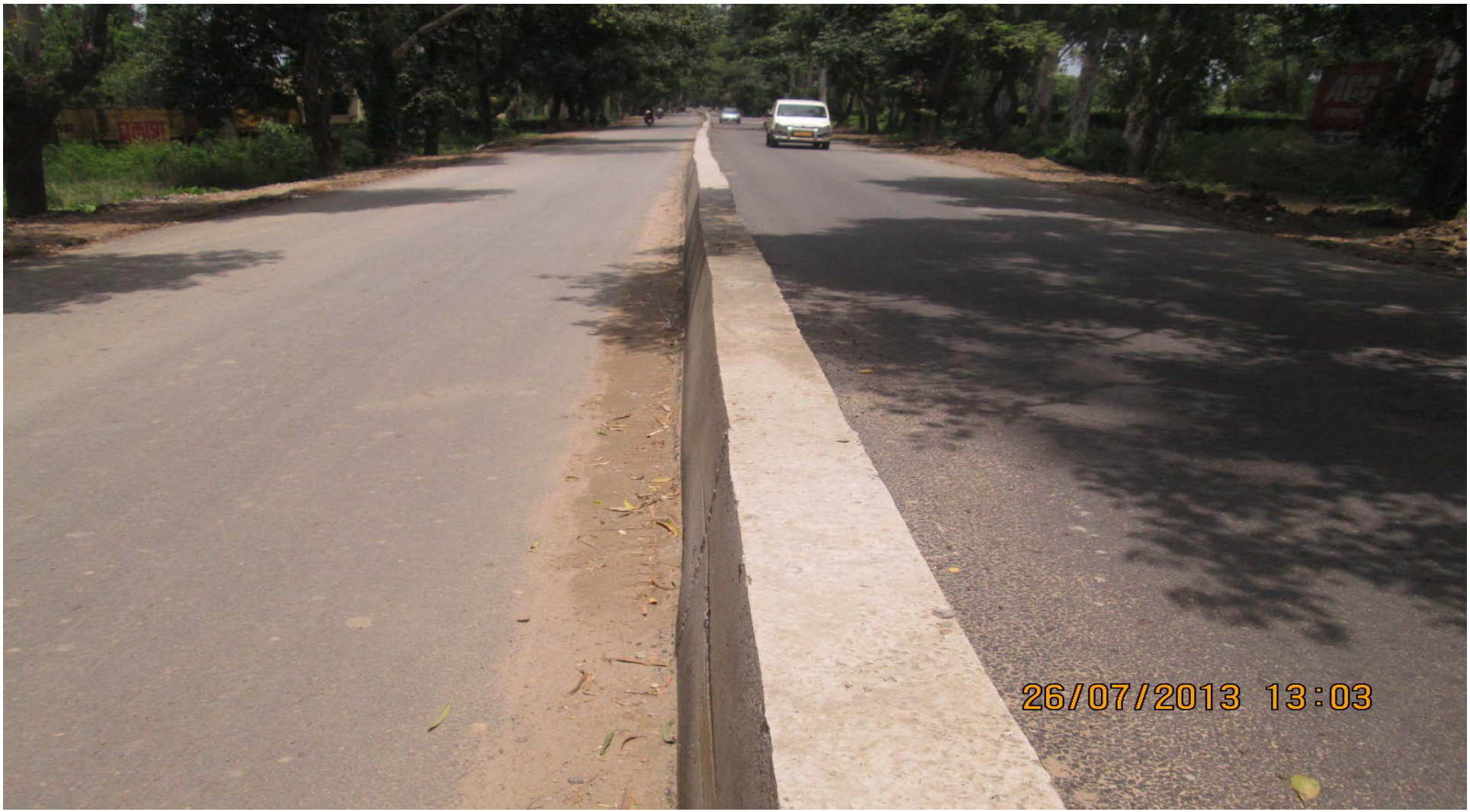
- **LOCATION : NH-58, DESIGN MSA : 80 MSA**



STATE HIGHWAY CONSTRUCTED WITH ALTERNATE TECHNOLOGY

SAVING 37% OF CONSTRUCTION TIME

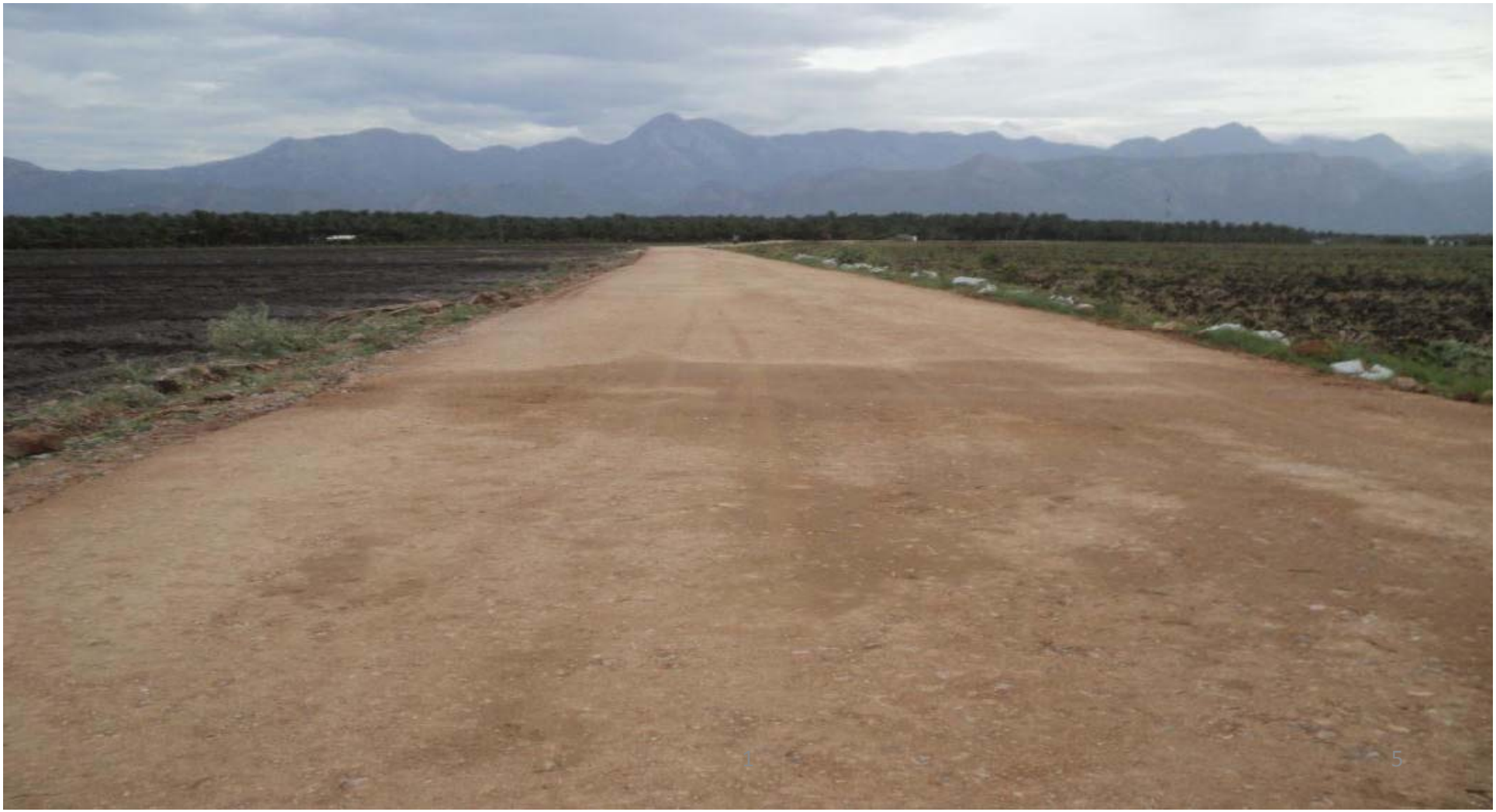
- **LOCATION : SH-45 UK, DESIGN MSA : 80 MSA**



RURAL ROAD CONSTRUCTED WITH ALTERNATE TECHNOLOGY

SAVING 83% OF CONSTRUCTION TIME

- **LOCATION : TAMIL NADU**



HOW DO WE REDUCE DESTRUCTION OF HILLS FOR AGGREGATES

BEFORE

AFTER

HOW DO WE REDUCE CONSUMPTION OF AGGREGATES IN ROAD CONSTRUCTION

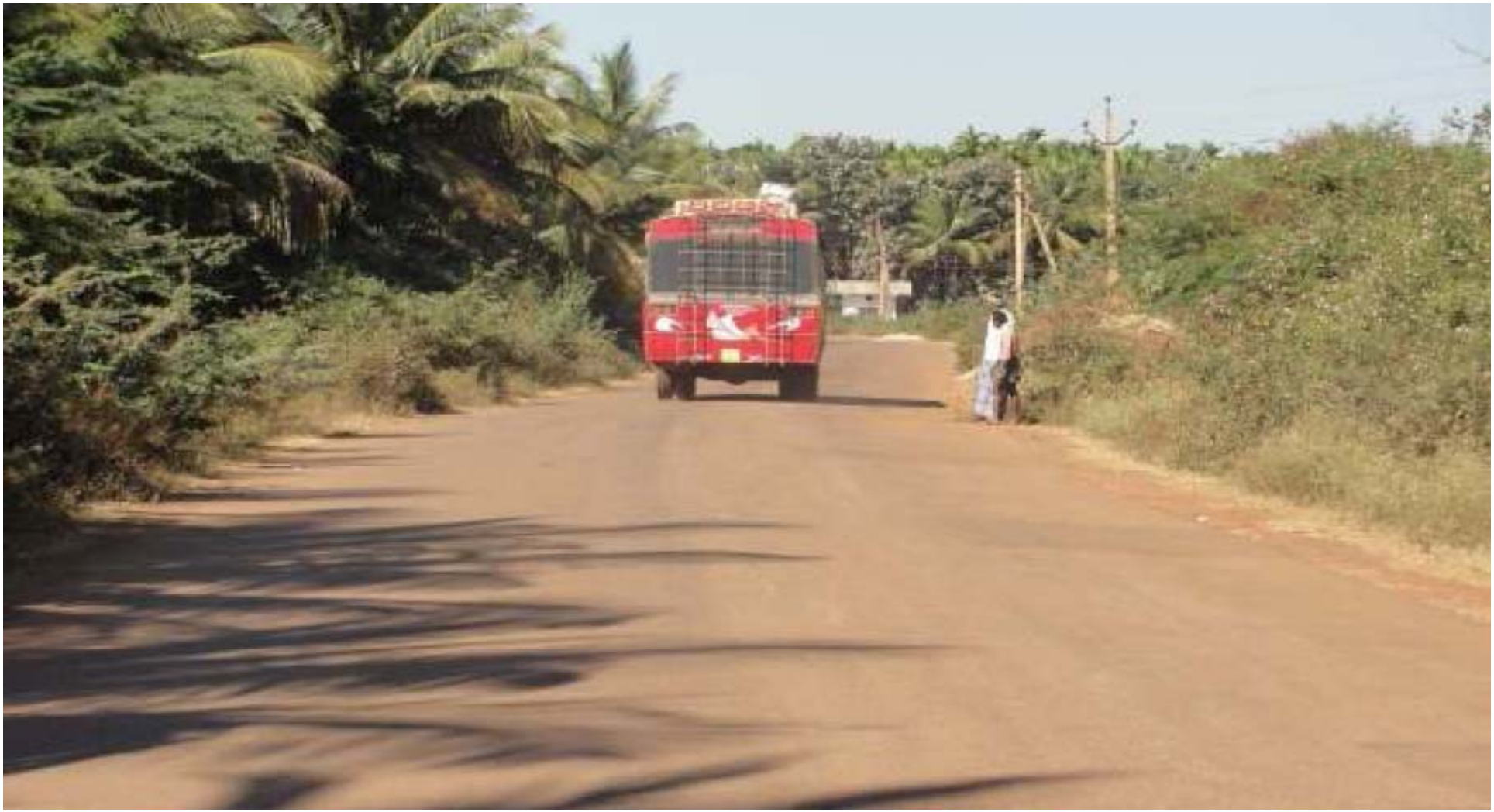
Rural Road	State Highway	National Highway
• CT : 30.1 MMT • AT : 3.5 MMT	• CT : 74.3 MMT • AT : 16.8 MMT	• CT : 114 MMT • AT : 19.7 MMT
88% Savings	77% Savings	83% Savings

CT – CONVENTIONAL TECHNOLOGY
AT – ALTERNATE TECHNOLOGY

STATE HIGHWAY CONSTRUCTED WITH ALTERNATE TECHNOLOGY

SAVING 83% OF AGGREGATES

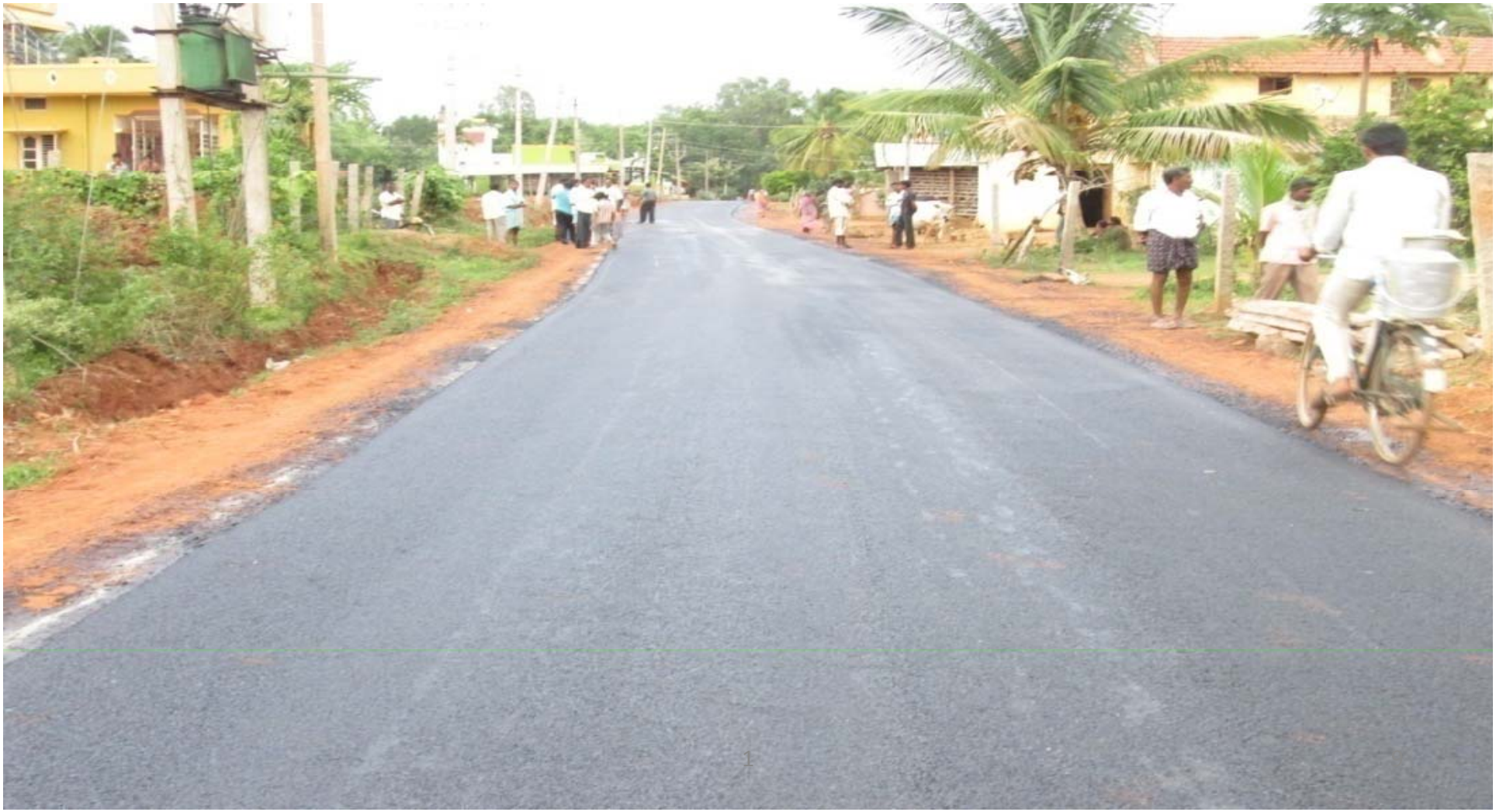
- **LOCATION : SH-48 KTK** **DESIGN TRAFFIC: 50 MSA**



RURAL ROAD CONSTRUCTED WITH ALTERNATE TECHNOLOGY

SAVING 88% OF AGGREGATES

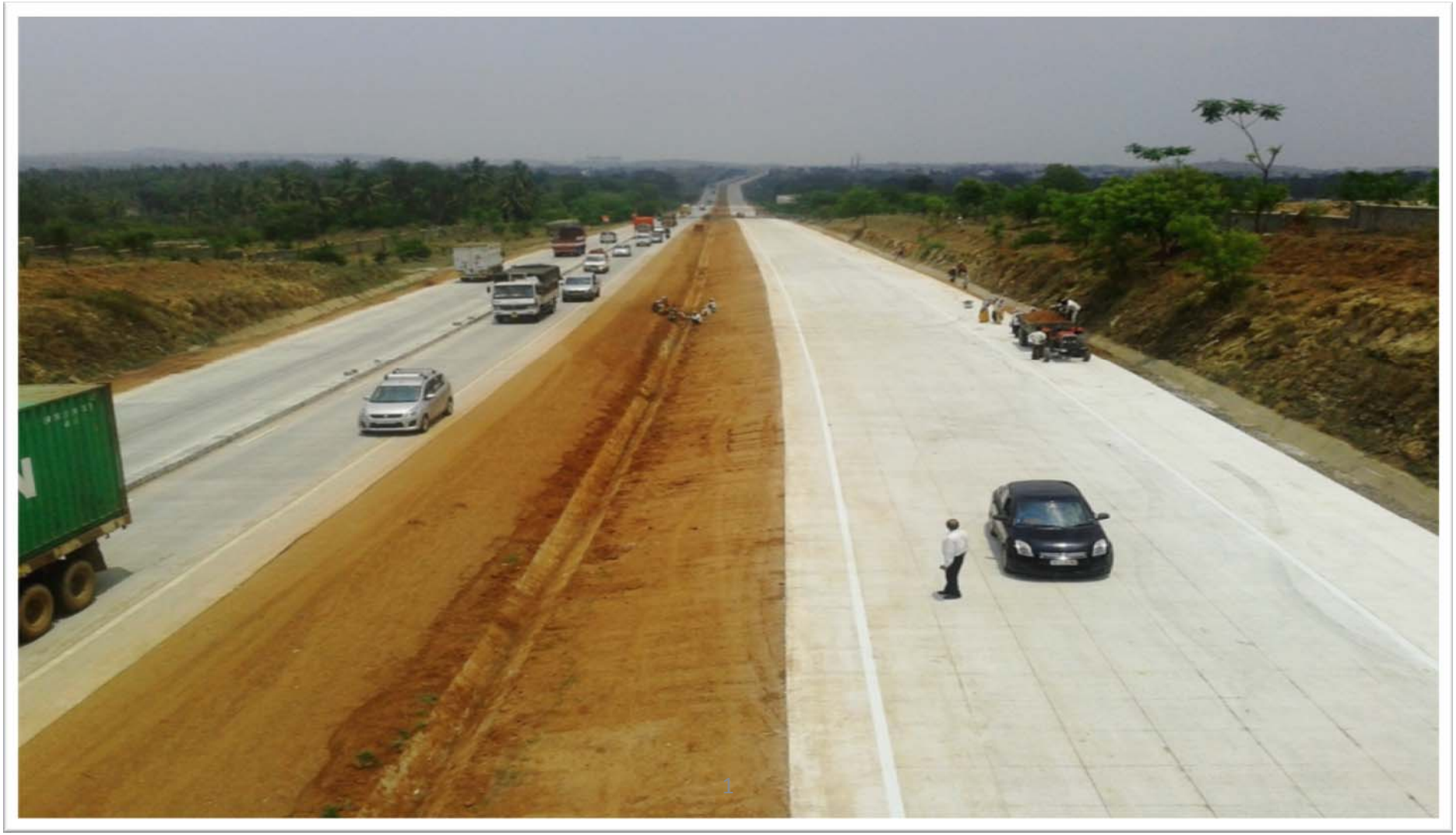
- **LOCATION: KARNATAKA**



EXPRESSWAY CONSTRUCTED WITH ALTERNATE TECHNOLOGY

SAVING 77% OF AGGREGATES

- **LOCATION (BENGALURU – MYSORE), DESIGN TRAFFIC 150 MSA**



HOW DO WE REDUCE CONSUMPTION OF BITUMEN IN ROAD CONSTRUCTION & ITS IMPACT ON ENVIRONMENT

HOW DO WE REDUCE CONSUMPTION OF BITUMEN IN ROAD CONSTRUCTION

State Highway

- CT : 0.87 MMT
- AT : 0.24 MMT

72% Savings

National Highway

- CT : 1 MMT
- AT : 0.3 MMT

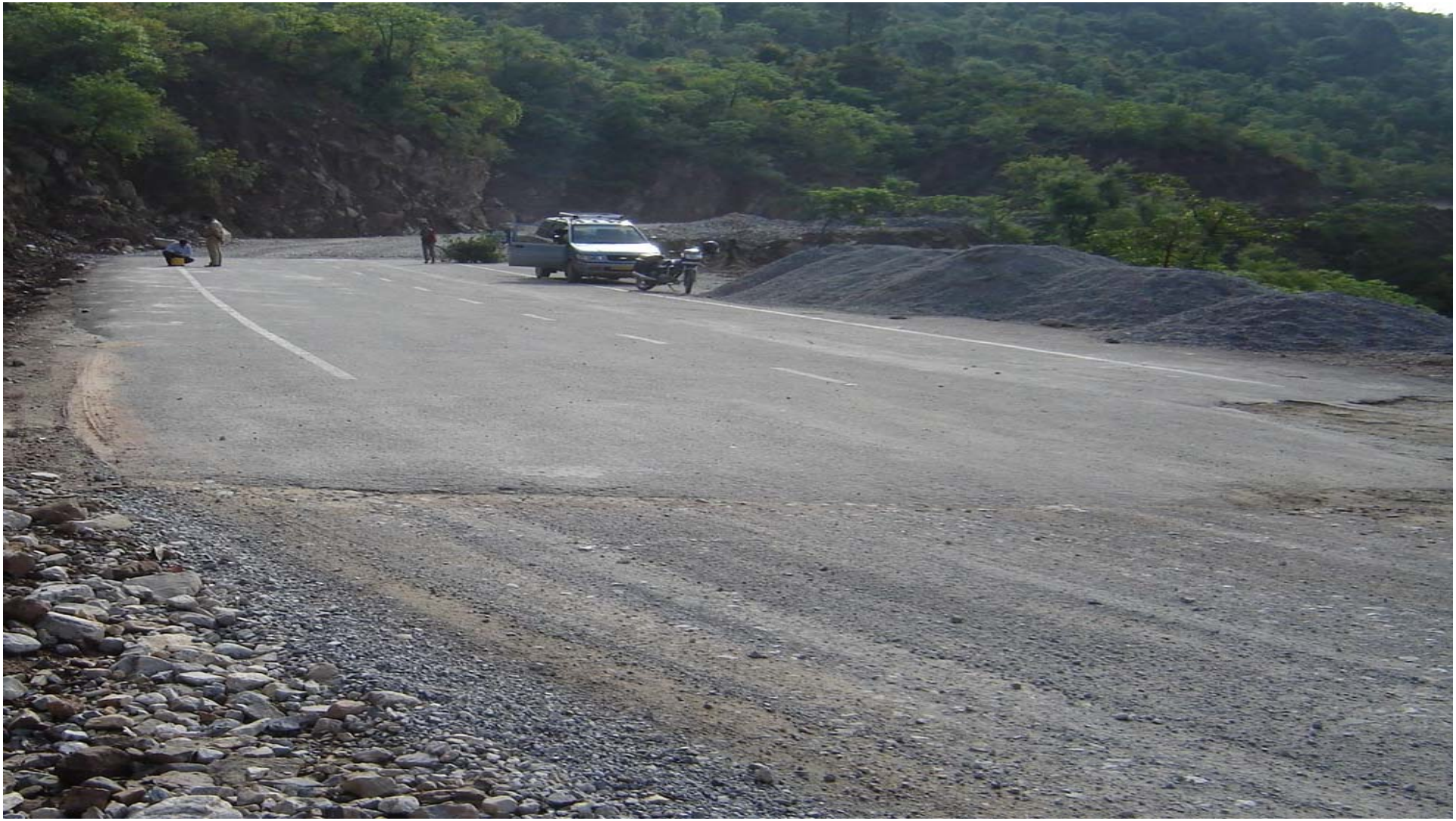
70% Savings

CT – CONVENTIONAL TECHNOLOGY
AT – ALTERNATE TECHNOLOGY

STATE HIGHWAY ROAD CONSTRUCTED WITH ALTERNATE TECHNOLOGY

REDUCING 70% OF BITUMEN

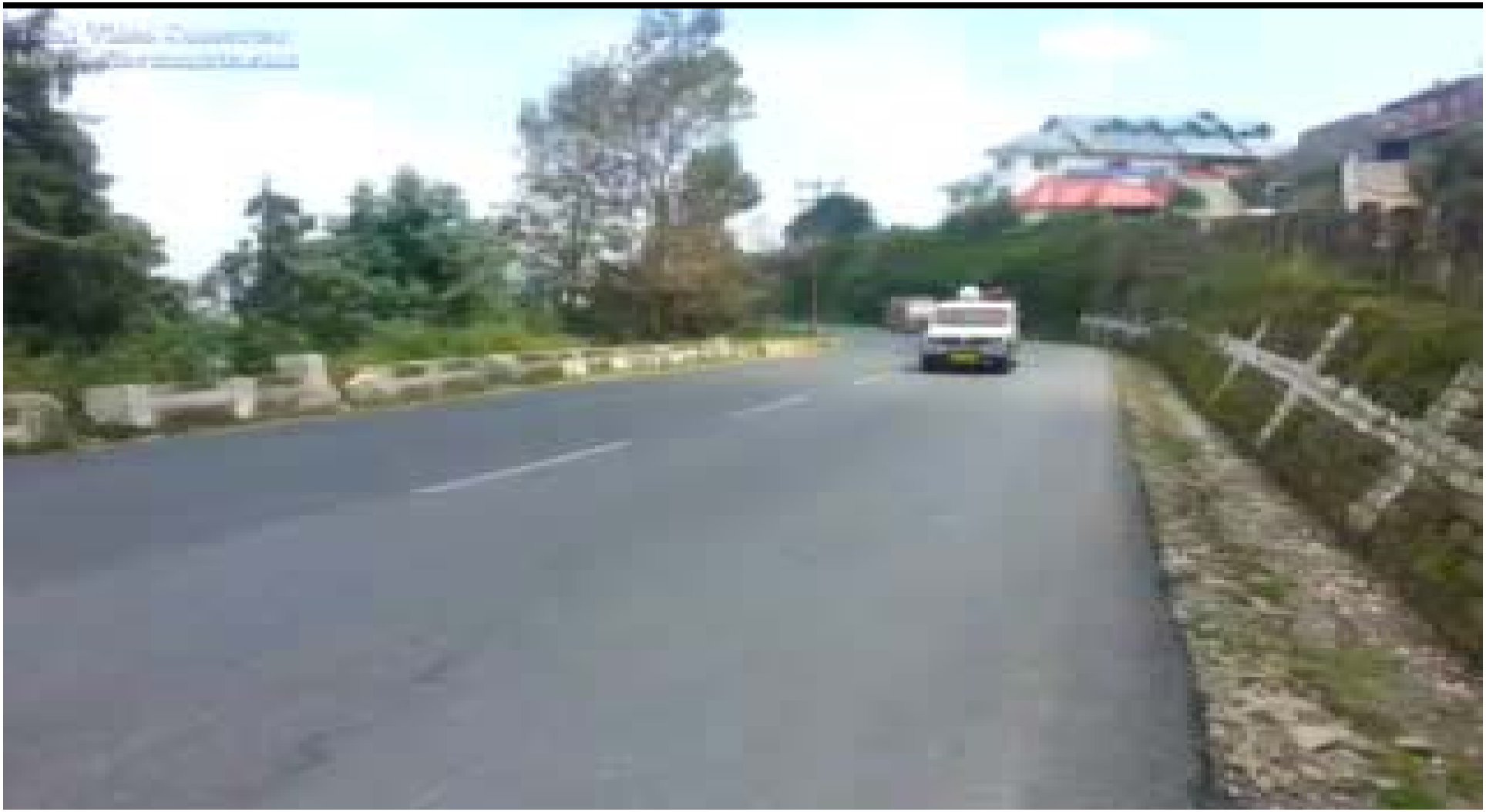
- **LOCATION- KATRA, J&K** **DESIGN TRAFFIC: 30 MSA**



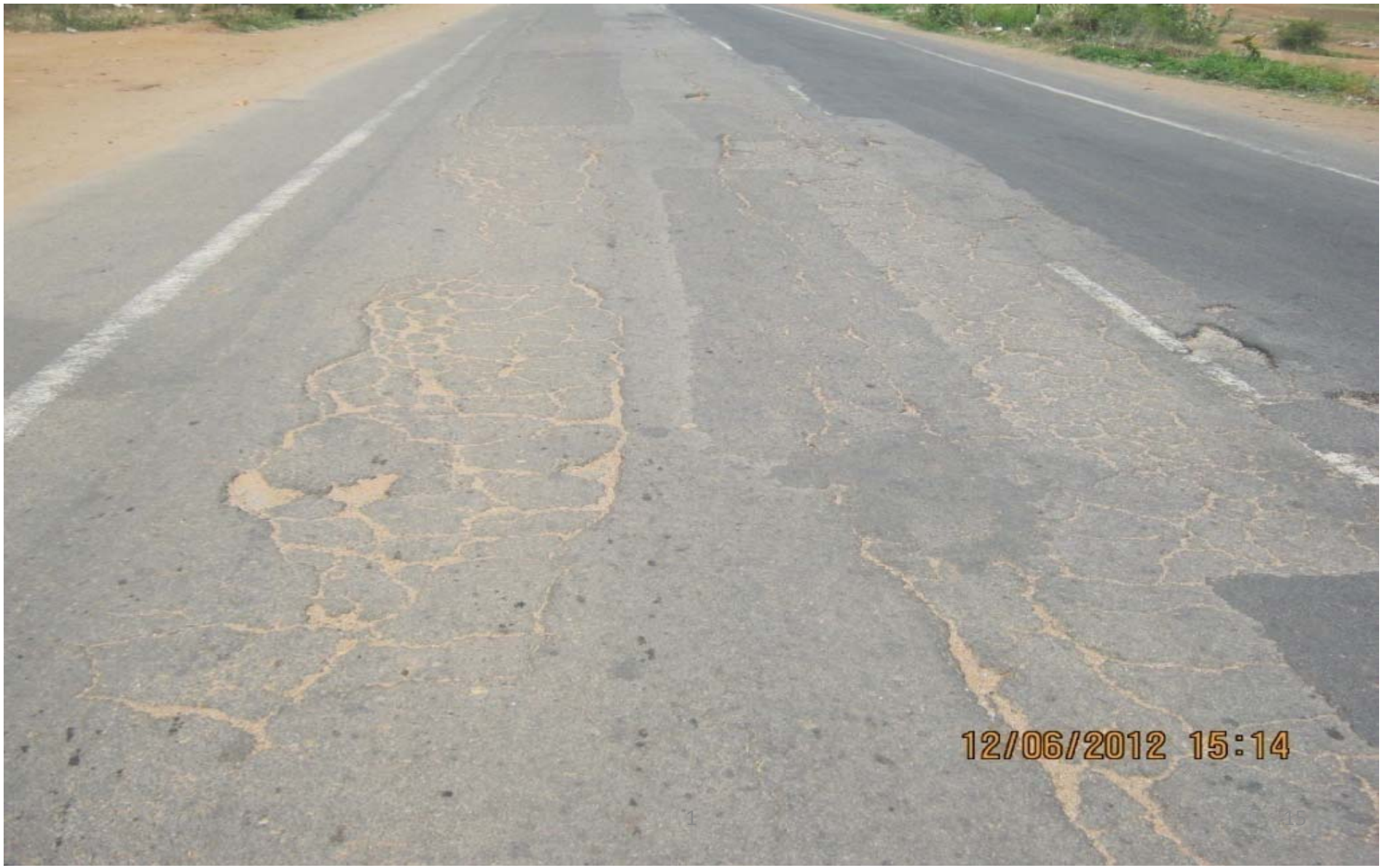
NATIONAL HIGHWAY ROAD CONSTRUCTED WITH ALTERNATE TECHNOLOGY

REDUCING 72% OF BITUMEN

- **LOCATION- NH-22 (HP)** **DESIGN TRAFFIC 60 MSA**

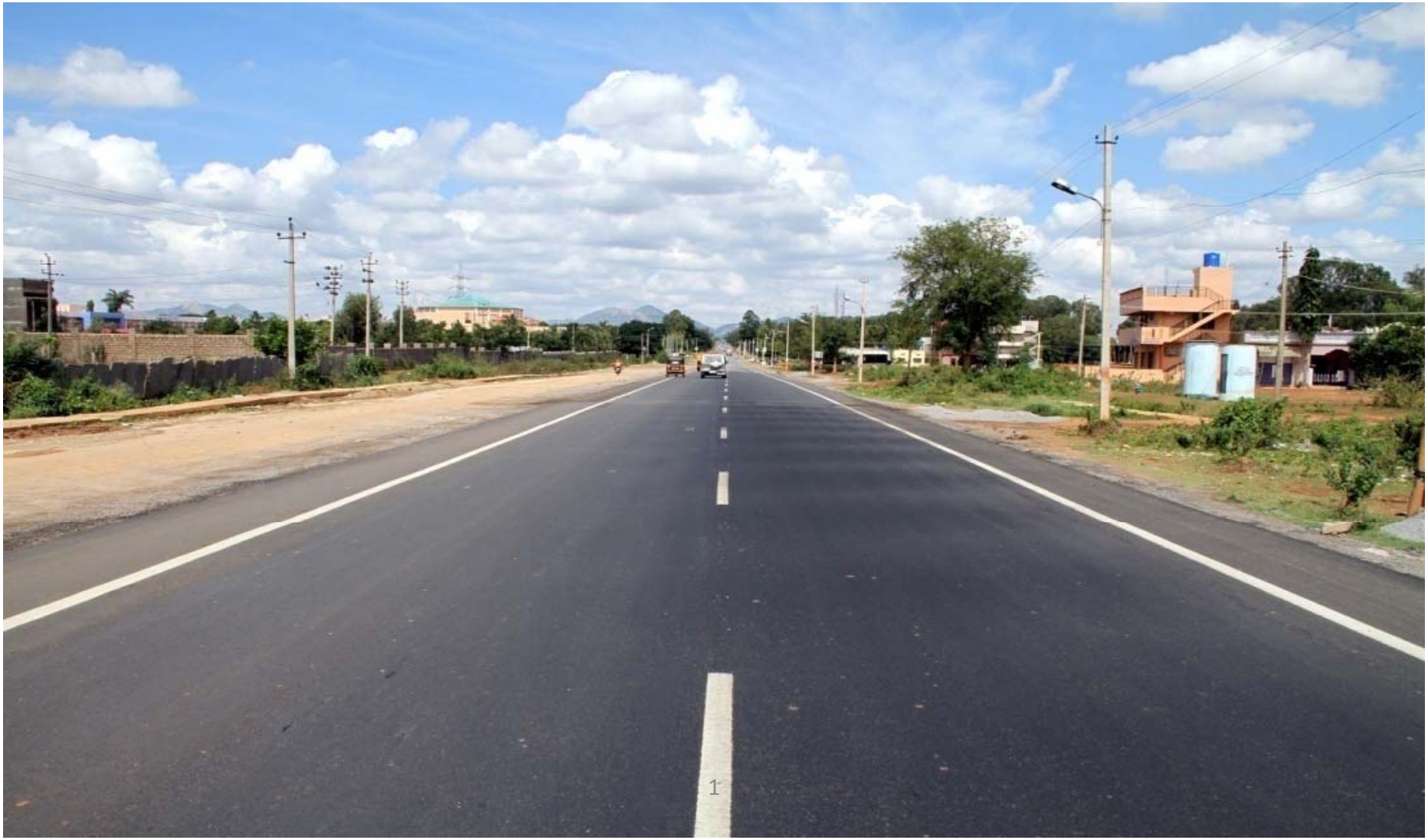


HOW DO WE REHABILITATE DAMAGED ROADS REDUCING USAGE OF MATERIALS



REHABILITATION BY COLD INSITU RECYCLING RECLAIMING 100% MATERIAL OF EXISTING PAVEMENT

(LOCATION :NH-206)

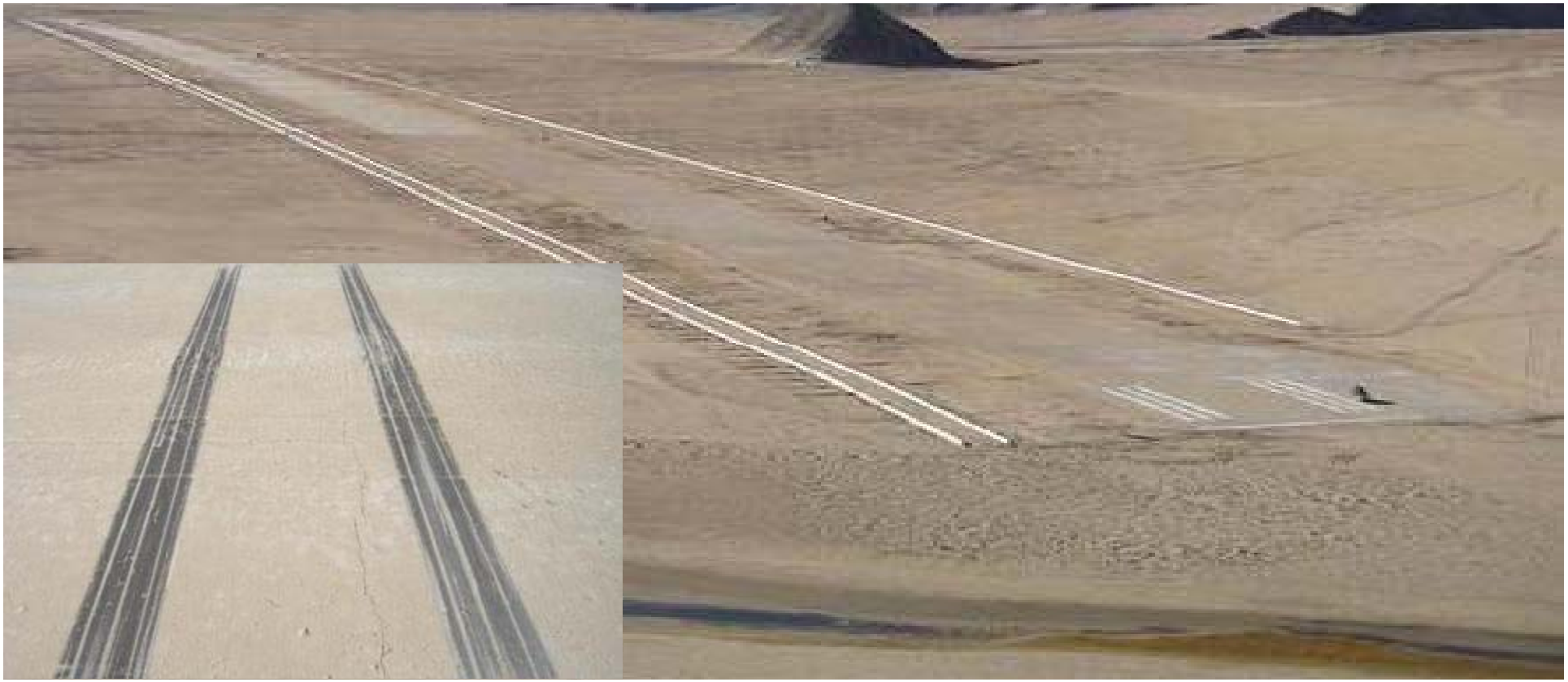


CONSTRUCTION OF AIRSTRIP USING ALTERNATE TECHNOLOGY

AT AN ALTITUDE OF ABOUT 14000 FT ABOVE MEAN SEA LEVEL

REDUCED CONSUMPTION OF AGGREGATE BY – 100%

REDUCED CONSTRUCTION TIME BY – 92%
(CONSTRUCTED IN 67 DAYS AS COMPARED TO 913 DAYS IN CONVENTIONAL METHOD)



HOW DO WE REDUCE CRUST THICKNESS AS PER IRC:37

- **Design Traffic : 150 MSA**
- **Design CBR : 3 %**

Conventional Design
50 mm, BC (1 Layer)
170 mm, DBM (2 Layers)
250 mm, WMM (2 Layers)
380 mm, GSB (2 Layers)
TOTAL: 850 mm (7 Layers)

Stabilized Pavement Design
50 mm, BC (1 Layer)
50 mm, DBM (1 Layer)
230 mm, Stabilized Base (2 Layers)
250 mm, GSB (1 Layer)
REDUCTION IN CRUST THICKNESS BY 32%
TOTAL: 580 mm (5 Layers)

HOW WE SAVED CARBON FOOTPRINTS IN RURAL ROAD AT MATIGATTA VILLAGE (REF. CHANGER)

S.NO	CONSTRUCTION ACTIVITIES	CONVENTIONL METHOD $t\ CO_2\ eq.$	WITH NEW TECHNOLOGY $t\ CO_2\ eq.$
1.a	Clearing and Piling: Machines	0.19	0.09
1.b	Clearing and Piling: Vegetation	0.00	0.00
2. a	Cut transport	0.00	0.00
2.b	Fill transport	1.85	1.47
3.a	Onsite Impacts: Electricity	0.00	0.00
3.b	Onsite Impacts: Transport fuel usage	4.64	3.44
4	Construction materials :	10.47	13.14
5	Materials transport :	27.38	11.10
6	Construction machines :	1.58	1.69
	Total CO2 equivalent emissions	**46.11**	**30.94**
Percentage Reduction in Carbon Footprint		**32.91**	

HOW WE SAVED CARBON FOOTPRINTS IN NH 206 WIDENING (REF. CHANGER)

S.NO	CONSTRUCTION ACTIVITIES	CONVENTIONL METHOD $t\ CO_2\ eq.$	WITH NEW TECHNOLOGY $t\ CO_2\ eq.$
1.a	Clearing and Piling: Machines	0.00	0.00
1.b	Clearing and Piling: Vegetation	0.00	0.00
2. a	Cut transport	3.99	3.70
2.b	Fill transport	0.00	0.51
3.a	Onsite Impacts: Electricity	0.00	0.00
3.b	Onsite Impacts: Transport fuel usage	8.26	8.65
4	Construction materials :	35.20	22.07
5	Materials transport :	57.83	34.94
6	Construction machines :	2.67	2.67
	Total CO2 equivalent emissions	**107.94**	**65.27**
Percentage Reduction in Carbon Footprint		**39.53**	

HOW WE SAVED CARBON FOOTPRINTS IN REHABILITATION OF ROAD NH-206 (REF. CHANGER)

S.NO	CONSTRUCTION ACTIVITIES	CONVENTIONL METHOD $t\ CO_2\ eq.$	WITH NEW TECHNOLOGY $t\ CO_2\ eq.$
1.a	Clearing and Piling: Machines	0.00	0.00
1.b	Clearing and Piling: Vegetation	0.00	0.00
2. a	Cut transport	40.07	0.00
2.b	Fill transport	21.97	0.00
3.a	Onsite Impacts: Electricity	0.00	0.00
3.b	Onsite Impacts: Transport fuel usage	21.47	8.26
4	Construction materials :	124.91	53.84
5	Materials transport :	105.04	72.83
6	Construction machines :	2.23	2.13
	Total CO2 equivalent emissions	**315.68**	**137.05**
Percentage Reduction in Carbon Footprint		**56.58**	

HOW WE REDUCE CONSTRUCTION COST

Rural Road

- CT : 36 Lacs
- AT : 28 Lacs

22%
Savings

Highway New Construction

- CT : 130 Lacs
- AT : 105 Lacs

19%
Savings

Highway Rehabilitation

- CT : 105 Lacs
- AT : 80 Lacs

24%
Savings

CT – CONVENTIONAL TECHNOLOGY
AST – ALTERNATE TECHNOLOGY

ALTERNATE TECHNOLOGY USED……

RBI GRADE-81

STABILIZATION TECHNOLOGY USED FOR SUSTAINABLE LONG LASTING PAVEMENTS


THANK YOU
ALCHEMIST TOUCHNOLOGY LIMITED
ALCHEMIST HOUSE,BUILDING NO.23
NEHRU PLACE,NEW DELHI
TEL.:011-40600800