Landslide incidence of 02nd September 2017 on NH-5 near Dhalli area, Shimla district, Himachal Pradesh

On 2nd September, 2017, a massive landslide (rock slide) took place on National Highway-5, near Dhalli area, Shimla district, Himachal Pradesh. A team from GSI office, State Unit: PH&HP, Chandigarh, comprising S/Sh. P.P. Ilamkar, Sr. Geologist and Rahul V., Geologist, led by Shri Manoj Kumar, Director, EG Division, visited the affected site and carried out preliminary assessment of the landslide. The 41- parametric inventory sheet of the landslide is given below:

Sl. No.	Field	Description
1	Slide No (LS .No.)	HP/SHIM/53E04/2017/01
2	State	Himachal Pradesh.
3	District	Shimla.
4	Toposheet	53E/4.
5	Name of the slide	Dhalli landslide.
6	NH/SH/Locality	NH-5, near Dhalli.
7	Latitude	31.102716
8	Longitude	77.204228
9	Length	50 m
10	Width	20 m
11	Height	40 m
12	Area	1,000 m^2
13	Depth	0 -1 m
14	Volume	1,000 m^3
15	Run out distance	100 m
16	Type of Material	Weathered & fractured bedrock.
17	Type of movement	Translational.
18	Rate of movement	Extremely rapid.
19	Activity	Active.
20	Distribution	Retrogressive.
21	Style	Successive.
22	Failure mechanism	Shallow translational failure.
23	History	Initiation in 2002; Reactivation-Rock fall almost every year since 2002.
24	Geomorphology	Escarpment.
25	Geology	Bedded & flaggy shale (Sanjhauli Formation, Simla Group).
26	Structure	S0/S1- 330°/35° SW (10-20 cm spacing, continuity >10m); J2-55°/75-80°NW (long continuity); J3 285°/ 80° NE) (Spacing 0.5m , long continuity).
27	Land use/ Land cover	Sparsely vegetated.
28	Hydrological condition	Dripping.
29	Triggering Factor	Rainfall & anthropogenic.
30	Death of persons	Nil.
31	People affected	Nil.
32	Live stock loss	Nil.

33	Communication	Road damaged and blocked.
34	Infrastructure	A temple building partially destroyed.
35	Agriculture/forest/Barren	Nil.
36	Geo-scientific Causes	The cause of the rock slide is due to the presence of closely jointed weathered & distressed shale exposed on steep spur and road cut was made and left without any toe support. The presence of high relief, dripping scarp slope, proximity to nala have added to the vulnerability of the slope. The open joints form a wedge (J2 & J3).
37	Remedial measures	Scaling of loose rock mass on the slope, deep anchorage of rock mass with wire mesh shotcrete and adequate toe support.
38	Remarks, if any	The slide is active and the settlements situated in the downslope are at risk and the dwellers should stay away till the remedial measures are applied. Local inhabitants and the appropriate authorities should be cautioned (also cautioned at the site). The geological consultation is necessary before any slope cut and for any further development of settlements. The area has already been classified under high landslide susceptibility zone, including the slide (Unpub. GSI report FS 2005-06).
39	Photos. Sketch of Plan & section of the slide	
40	Summary/Abstract	Heavy monsoon rainfall triggered a massive rock slide (reactivated) on NH-5 near Dhalli area, Shimla district, Himachal Pradesh on 2nd September, 2017 which resulted complete damage of few parked vehicles, blockage and damage of National Highway and partial damage of a temple building. No casualties were reported due to the slide.
41	Pdf	