

GOVERNMENT OF JAMMU AND KASHMIR



DETAILED PROJECT REPORT

FOR
UPGRADATION OF ROAD FROM
KM 4TH OF T02 TO MADAM

UNDER
PARDHAN MANTRI GRAM SADAK YOJANA

DISTRICT: BARAMULLA

BLOCK: TANGMARG

LENGTH OF ROAD: 2.50 KM

PACKAGE NO: JK03

Cost of Project:	432.73 Lacs	320.65
Maintenance Cost	44.75 Lacs	44.75
Renewal coat of OGPC	44.61 Lacs	31.77
Total Cost:	539.75 LACS	384.0

390.82

Executive Engineer
PMGSY (JKRRDA)
BARAMULLA
PMGSY (JKRRDA) District
BARAMULLA

PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY) SUMMARY SHEET

PACKAGE NO. :- JK03

Annexure 7.1, Format F-1

NAME OF PROJECT: KM 4TH OF T02 TO MADAM

BLOCK: TANGMARG

LENGTH: 2.5.00KM

DISTRICT: BARAMULLA

S.N o	Name of road	Total No of habitation	Unconnected habitations				Package No District		
			>1000	500-999	250- 500	<250			
1.	Km 4 th of T02 to Madam	5	3	2	-	-	JK03- BARAMULLA		
Type of work	No. of roads	Total length of roads (Km)	No of New CD structure	Estimate cost				No of New villages connected.	
				Pavement from Format F-5	CD structur e from Format F-6	Misc	Total (5+6+7)	Total No. of villages	SC/ST village s
1	2	3	4	5	6	7	8	9	10
U	1	2.50	11	457.57	79.25	2.93	539.75	5	NONE

Total =450.40 Lacs 317.72

M. Cost =44.75 Lacs 53.693177

Renewal coat of OGPC =44.61 Lacs 38.40

Grand Total =539.75 Lacs 549.058177

390.82 Lacs

Asstt. Ex. Engineer

Executive Engineer

PMGSY / JKRRDA

PMGSY (JKRRDA) Divd
BARAMULLA

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5. Traffic Survey
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9. Pavement Design
10. Design of Cross Drainage
11. Protective Works & Drainage
12. Land Acquisition
13. Utility shifting/relocation
14. Road Safety and Traffic Management
15. Specification
16. Environmental Issues
17. Analysis of Rates
18. Cost Estimate
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1. Introduction

1.1 Objectives of Pradhan Mantri Gram Sadak Yojna (PMGSY)

Rural Road connectivity is a key component of rural development by promoting access to economic and social services and thereby generating increased agricultural incomes and productive employment opportunities. It is also a key ingredient in ensuring poverty reduction.

It was against this background of poor connectivity that the Prime Minister announced in 2000, a massive rural roads program. The Prime Minister's Rural Road Program (Pradhan Mantri Gram Sadak Yojana, PMGSY) set a target of:

- Achieving all-weather road access to every village/habitation with a population greater than 1000 by 2003
- Providing all-weather road access to all villages/habitations of population greater than 500 people [250 in case of hill States (North-Eastern states, Sikkim, Himachal Pradesh, Jammu & Kashmir and Uttaranchal), the desert areas and tribal areas] by the end of the Tenth Five Year Plan, i.e., 2007

1.3 Core Network

The rural road network required for providing the 'basic access' to all villages/ habitations is termed as the Core Network. Basic access is defined as one all-weather road access from each village/ habitation to the nearby Market Centre or Rural Business Hub (RBH) and essential social and economic services.

A Core Network comprises of Through Routes and Link Routes. Through routes are the ones which collect traffic from several link roads or a long chain of habitations and lead it to a market centre or a higher category road, i.e. the District Roads or the State or National Highways. Link Routes are the roads connecting a single habitation or a group of habitations to Through Roads or District Roads leading to Market Centres. Link Routes generally have dead ends terminating on habitations, while Through Routes arise from the confluence of two or more Link Routes and emerge on to a major road or to a Market Centre.

The Core Network may not represent the most convenient or economic route for all purposes. However, since studies show 85-90% of rural trips are to market centres, the Core Network is likely to be a cost-effective conceptual frame work for investment and management purposes, particularly in the context of scarce resources.

The Sub-project road Km 4th of T02 to Madam, is a through road with Code L030 in Tangmarg block of Baramulla District. This road directly connects the habitations of Ranbirpora-A and B, Ranipora Brah and Sohach with populations of 2472, 1848, 3509, 1542 and 1076 respectively. Thus this link road serves the total population of 10447.

1.4 Geography

Road allingment passes through orchards , builtup area with Plain/Hilly terrain.

1.5 Climatic Condition

In summer temperature rises to Max. 35 deg and in winters night temperature falls to min 5 deg.

1.6 The Sub-Project Road

The road passes through plain/ hilly terrain

Road is partly in filling and partly in cutting and passing through the apple orchards and builtup area comprising of schools , mosques, water supply lines and electricpoles.

District:	Baramulla
Block:	Tangmarg
Road Name:	Km 4 th of T02 to Madam
Road Code:	159105
Package No:	JK03-
Road Length:	2.5 Km
Start Point:	34.084896 N, 74.428197 E
End Point:	34.103911 N, 74.441388 E

2. Planning and Basic Design Consideration

2.1 Key maps

Annexure Attached

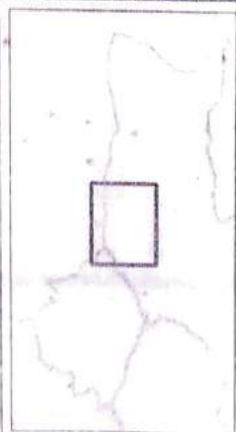
2.2 Preliminary alignment investigation Strip Plan Attached

Annexure Attached

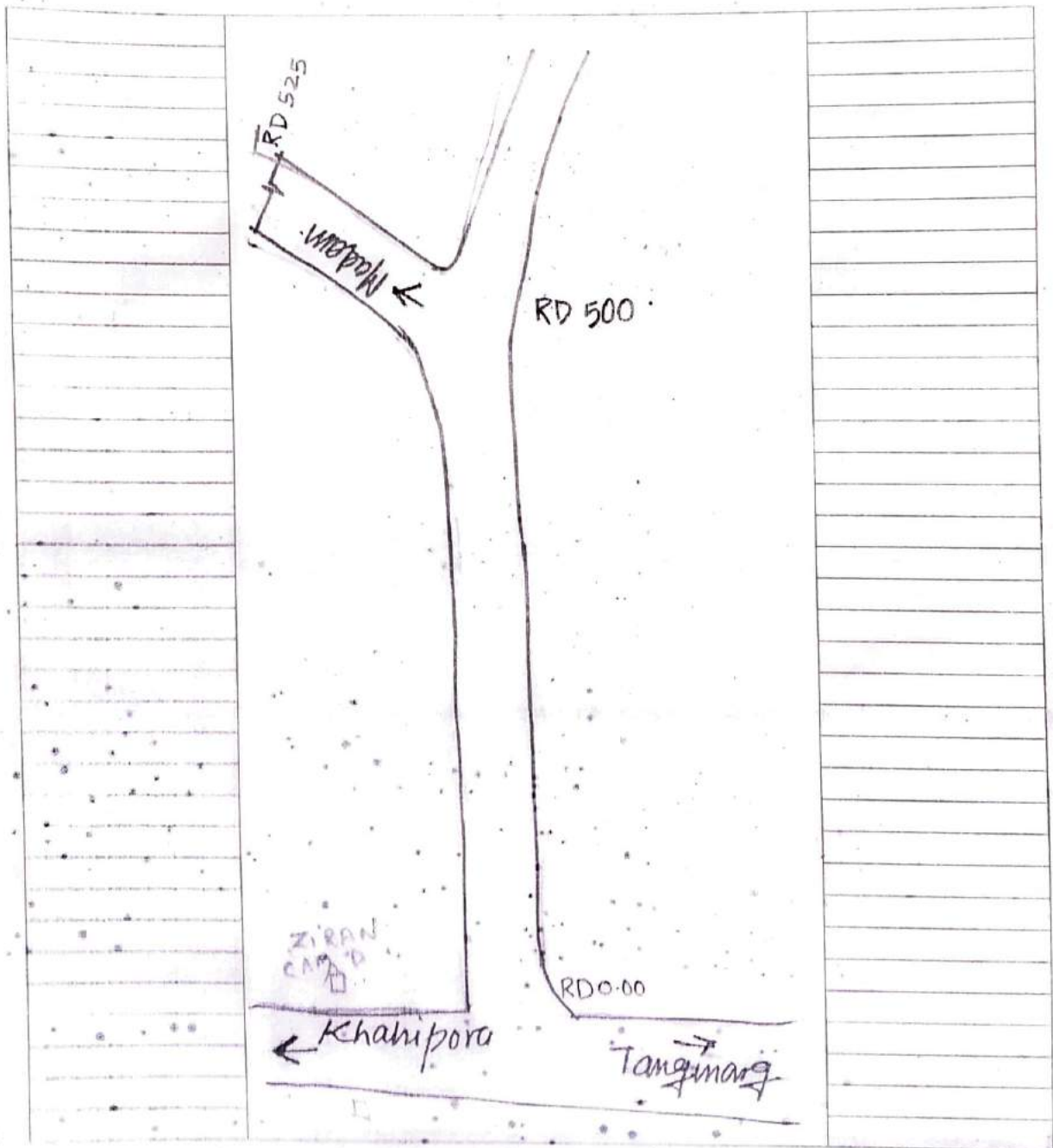
24-10607-2



Case No.	Case Name	Case No.	Case Date	Case Status	Case Type	Case Category	Case Subcategory	Case Description	Case Details	Case Outcome	Case Comments
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2	Case 2	1002	2023-01-02	Open	General	General	General	Case 2 Description	Case 2 Details	Case 2 Outcome	Case 2 Comments
3	Case 3	1003	2023-01-03	Open	General	General	General	Case 3 Description	Case 3 Details	Case 3 Outcome	Case 3 Comments
4	Case 4	1004	2023-01-04	Open	General	General	General	Case 4 Description	Case 4 Details	Case 4 Outcome	Case 4 Comments
5	Case 5	1005	2023-01-05	Open	General	General	General	Case 5 Description	Case 5 Details	Case 5 Outcome	Case 5 Comments
6	Case 6	1006	2023-01-06	Open	General	General	General	Case 6 Description	Case 6 Details	Case 6 Outcome	Case 6 Comments
7	Case 7	1007	2023-01-07	Open	General	General	General	Case 7 Description	Case 7 Details	Case 7 Outcome	Case 7 Comments
8	Case 8	1008	2023-01-08	Open	General	General	General	Case 8 Description	Case 8 Details	Case 8 Outcome	Case 8 Comments
9	Case 9	1009	2023-01-09	Open	General	General	General	Case 9 Description	Case 9 Details	Case 9 Outcome	Case 9 Comments
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11	Case 11	1011	2023-01-11	Open	General	General	General	Case 11 Description	Case 11 Details	Case 11 Outcome	Case 11 Comments
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13	Case 13	1013	2023-01-13	Open	General	General	General	Case 13 Description	Case 13 Details	Case 13 Outcome	Case 13 Comments
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24	Case 24	1024	2023-01-24	Open	General	General	General	Case 24 Description	Case 24 Details	Case 24 Outcome	Case 24 Comments
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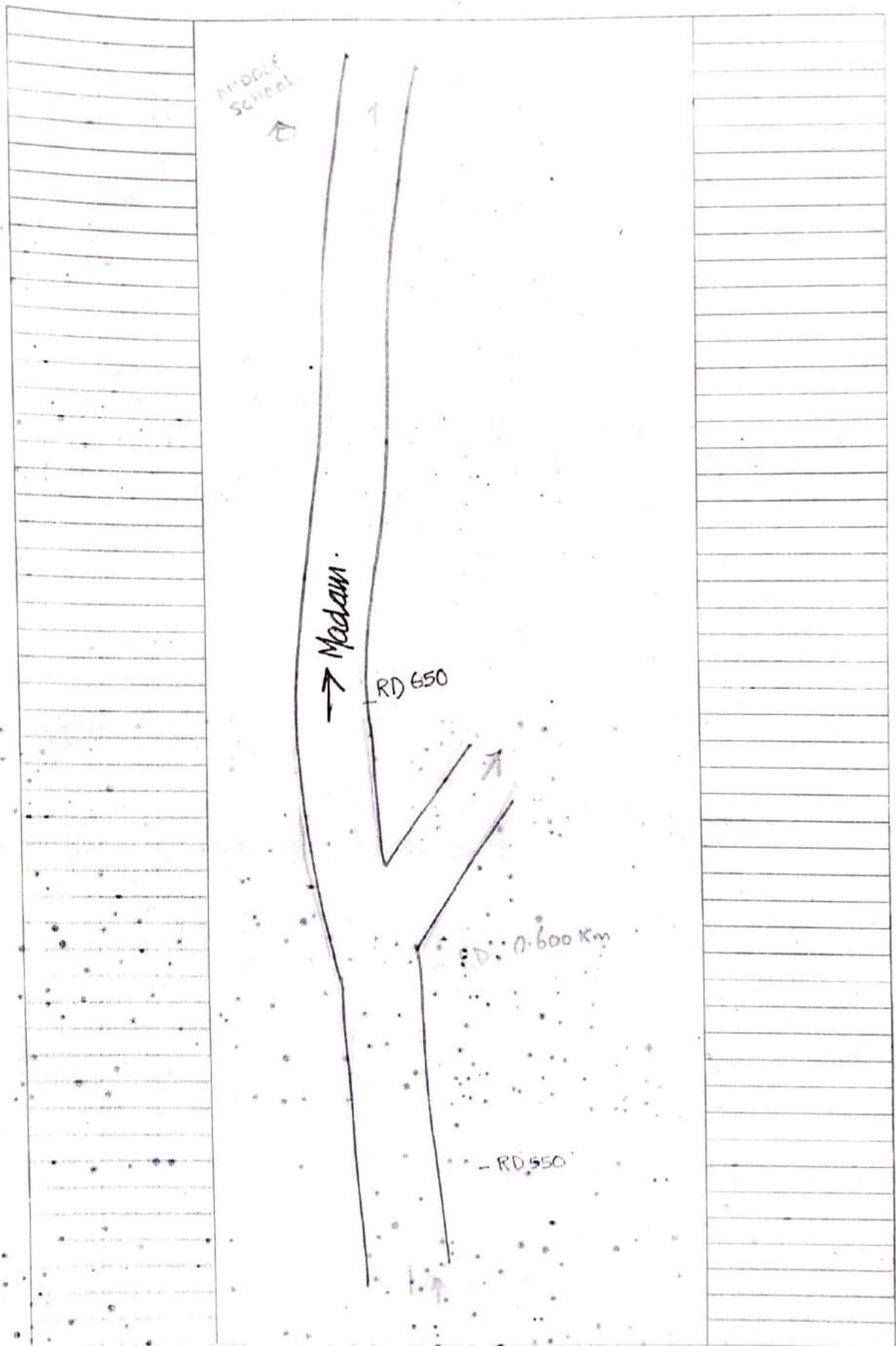


Name of the Road up-gradation and Maintenance of Road from KM 41.5 of T0-3 to Madam
 Block TANGMARG
 District PZARAMULLA
 State Jammu and Kashmir
 Date 21-07-2019
 Staff _____

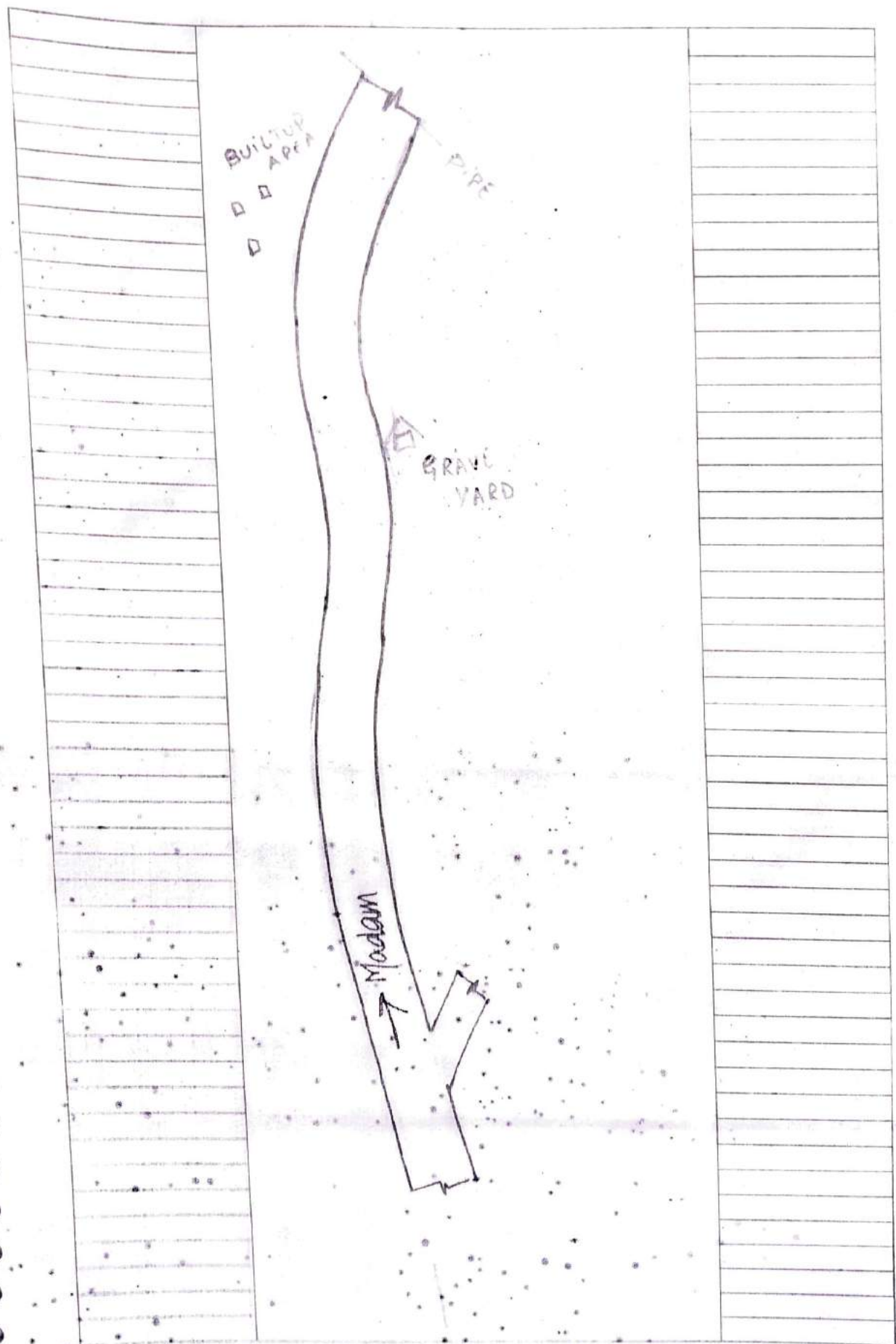


Up-gradation and Maintenance of Road from km 4th of T.O. 2 to Madam

(2)



Up-gradation and Maintenance of Road from km 4th of T.O.2 to Madam ②



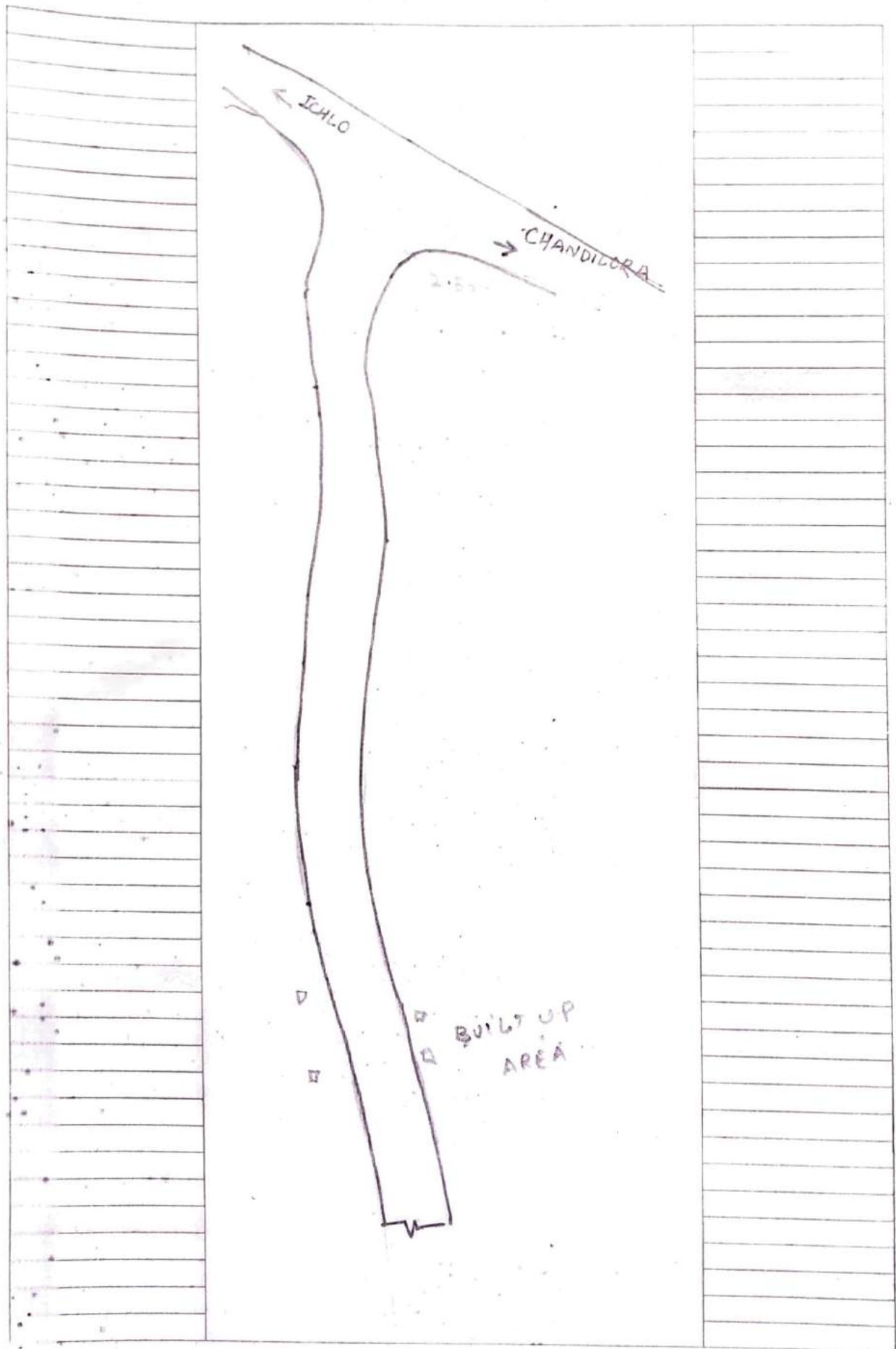
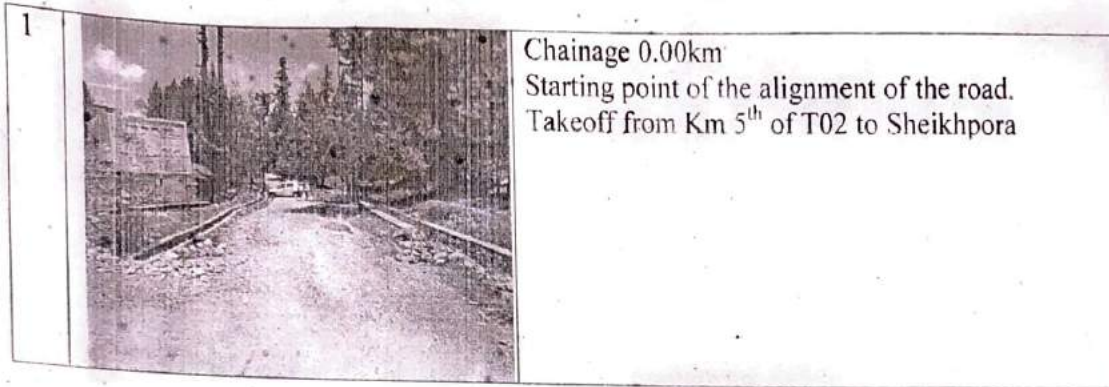












Figure-2 Strip plan showing land and alignment details




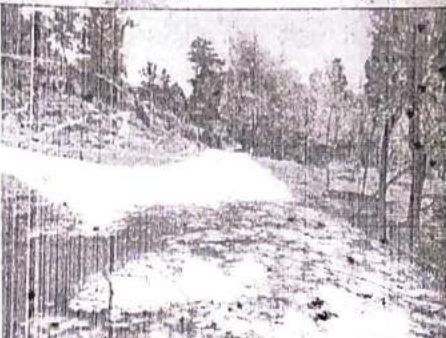
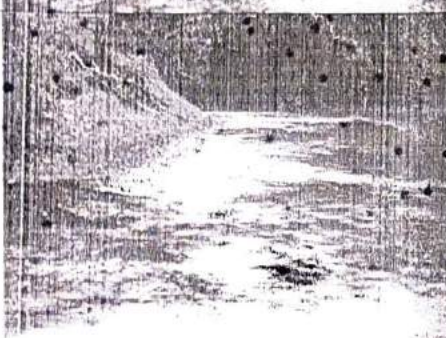
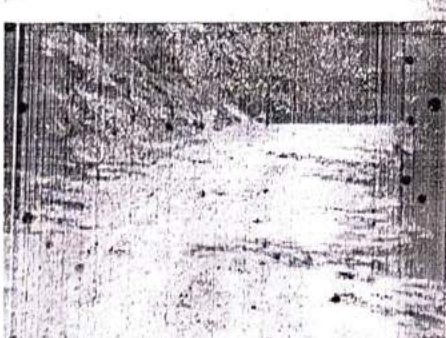

Upgradation of Road From Km 4th of T02 to Madam

2		Chainage 0.050km Starting point of the alignment of the road. View of the road intersection looking towards the Madam.
3		Chainage 0.100km Photograph showing R/S forest Land and LHS private land.
4		Chainage 0.150km Right side open land for road widening, left side private land.
5		Chainage 0.200km Requisite road width available for widening of the road.
6		Chainage 0.250km Left side forest land. Right side paddy land requires protection work.



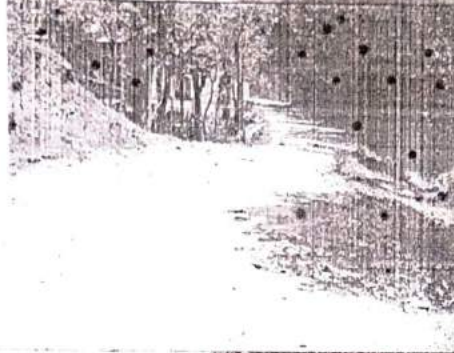


Upgradation of Road From Km 4th of T02 to Madam

7		Chainage 0.300km Land available for road widening.
8		Chainage 0.350km Non-Cultivated land both sides.
9		Chainage 0.400km Non-Cultivated land both sides.
10		Chainage 0.450km Straight alignment with requisite road width available.
11		Chainage 0.500km Alignment showing junction left link is followed for alignment.





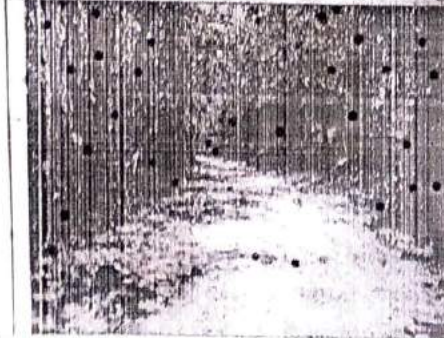
Upgradation of Road From Km 4th of T02 to Madam

12		Chainage 0.550km General view of the road .
13		Chainage 0.600m Right side paddy field left side junction. Straight way is followed for alignment.
14		Chainage 0.650km Protection work required for road widening land available for both sides.
15		Chainage 0.700km Protection work required for road widening land available for both sides.
16		Chainage 0.750km Dilapidated condition of the existing road surface.





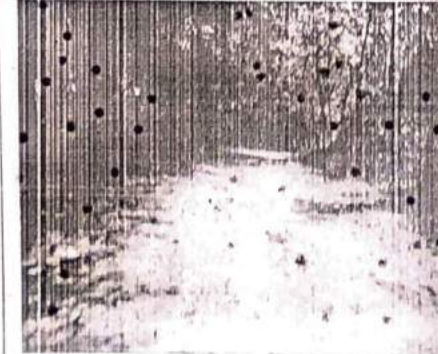
Upgradation of Road From Km 4th of T02 to Madam

17		Chainage 0.800km Un cultivated land both sides land available for widening of road.
18		Chainage 0.850km Un cultivated land both sides land available for widening of road.
19		Chainage 0.900km Un cultivated land both sides land available for widening of road.
20		Chainage 0.950km Left side school building with permanent fencing.
21		Chainage 1.000km Protection work required for both sides and dilapidated condition of road .






Upgradation of Road From Km 4th of T02 to Madam

22		Chainage 1.050km Protection work required for both sides and dilapidated condition of road .
23		Chainage 1.100km Orchards on left side necessary width available.
24		Chainage 1.150km Orchard on left side protection work required on Right side.
25		Chainage 1.200km Orchard on left side protection work required on Right side.
26		Chainage 1.250km Orchard on left side protection work required on Right side.





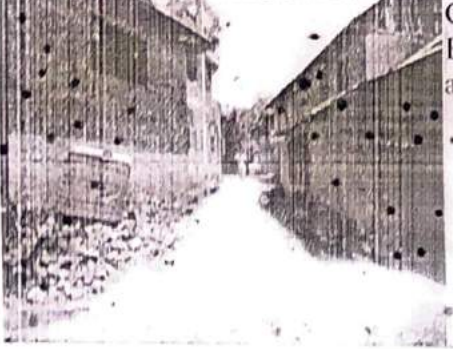
Upgradation of Road From Km 4th of T02 to Madam

27		Chainage 1.300km Orchard on left side protection work required on Right side.
28		Chainage 1.350km Orchard on left side protection work required on Right side.
29		Chainage 1.400km Left side straight link followed in the alignment.
30		Chainage 1.450km General view with both sides agricultural land.
31		Chainage 1.500km Orchards on both sides. Involvement of fruit/ non fruit-bearing trees involved in the alignment.


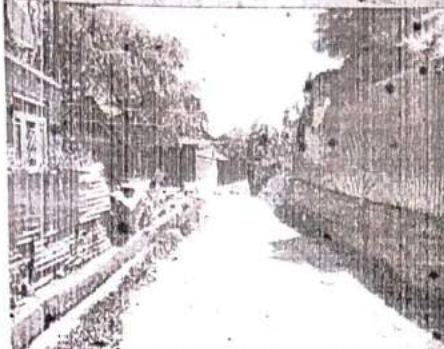



Upgradation of Road From Km 4th of T02 to Madam

32		Chainage 1.550km Protection work required on right side of hill slope.
33		Chainage 1.600km Agriculture land on both sides. And dilapidated condition of the road.
34		Chainage 1.650km Orchard land on both sides and dilapidated condition of existing pavement.
35		Chainage 1.700km Orchards on both sides.
36		Chainage 1.750km Left side uncultivated land Right side cultivated land requires protection work.






Upgradation of Road From Km 4th of T02 to Madam

37		Chainage 1.800km Junction shows straight R/side alignment followed.
38		Chainage 1.850km Existing least width of the road with dilapidated condition of pavement.
39		Chainage 1.900km Right side Grave yard.
40		Chainage 1.950km Left side irrigation canal requires C.C Drain . Right side Grave yard.
41		Chainage 2.000km Built up area Structures coming in the road alignment.

Upgradation of Road From Km 4th of T02 to Madam

42		Chainage 2.050km Built up area.
43		Chainage 2.100km Built up area both sides.
44		Chainage 2.150km Junction
45		Chainage 2.200km Orchards on both sides.
46		Chainage 2.250km Orchards both sides

Upgradation of Road From Km 4th of T02 to Madam

47		Chainage 2.300km Front view.
48		Chainage 2.350km Orchards both sides
49		Chainage 2.400km Orchards both sides requires protection work.
50		Chainage 2.450km Orchards both sides requires protection work.
51		Chainage 2.500km Orchards both sides requires protection work.

Upgradation of Road From Km 4th of T02 to Madam

52



Chainage 2.50 km

A general of road at tail end.

No.	NAME		AGE	SEX	RACE	RELIGION	EDUCATION	OCCUPATION	MARRIAGE	CHILDREN	SIBLINGS	PARENTS	GRANDPARENTS	OTHER RELATIVES	SOCIAL HISTORY	PHYSICAL EXAMINATION	LABORATORY EXAMINATIONS	TREATMENT	PROGNOSIS	FOLLOW-UP	COMMENTS
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1. **History of Present Illness**

1. Onset of symptoms
2. Duration of symptoms
3. Character of symptoms
4. Associated symptoms
5. Factors aggravating or relieving symptoms
6. Previous similar attacks
7. Family history of similar symptoms
8. Social history
9. Physical examination
10. Laboratory examinations
11. Treatment
12. Prognosis
13. Follow-up
14. Comments

2. **Physical Examination**

3. **Diagnosis**

- 4. **History of Present Illness**
- 5. **Physical Examination**
- 6. **Laboratory Examinations**
- 7. **Treatment**
- 8. **Prognosis**
- 9. **Follow-up**
- 10. **Comments**

11. **History of Present Illness**

12. **Physical Examination**

13. **Laboratory Examinations**

14. **Treatment**

15. **Prognosis**

16. **Follow-up**

17. **Comments**

18. **History of Present Illness**

19. **Physical Examination**

20. **Laboratory Examinations**

21. **Treatment**

22. **Prognosis**

23. **Follow-up**

24. **Comments**

25. **History of Present Illness**

26. **Physical Examination**

27. **Laboratory Examinations**

28. **Treatment**

29. **Prognosis**

30. **Follow-up**

31. **Comments**

32. **History of Present Illness**

33. **Physical Examination**

34. **Laboratory Examinations**

35. **Treatment**

36. **Prognosis**

37. **Follow-up**

38. **Comments**

3. Topographic Survey

3.1 General

Topographic survey true to ground realities have been done using Topographic survey true to ground realities has been done using Auto level and measuring tape.

The in-house standards, work procedures and quality plan prepared with reference to IRC: SP 19-2001, IRC: SP 20; IRC: SP 13 (in respect of surveys for rivers/streams) and current international practices have been followed during the above survey.

3.3 Leveling

Auto level has been used for leveling purposes.

3.4 Cross Section & Detailing

Cross sections were taken at 25/50/100 m interval and at closer interval in curved portion of the existing road. All physical features of the road were recorded.

3.5 Data Processing

All data from topographic survey recorded by total station were downloaded and final alignment, plan, profile were prepared and presented in AutoCAD Format.

3.6 TMB was fixed on R-wall at

3.7 Checklist

Reference pillars given	Yes <input type="checkbox"/>	No <input type="checkbox"/>
TBM with northing-easting given	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Traverse survey carried out	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Cross section and detailing carried out	Yes <input type="checkbox"/>	No <input type="checkbox"/>

4. Soil and Materials Survey

4.1 General

The soil and material investigations were done following the guidelines of IRC: SP: 20-2002 and IRC: SP: 72-2007 and other relevant IS codes. The potential sources of borrow areas for soil and quarry sites will be identified.

4.2 Soil sample collection and Testing

Soil samples will be collected along and around the road alignment at three (3) locations per km, from the adjoining borrow areas, as well as one sample is collected from the existing road. Soil Classification tests like grain size analysis and Atterberg's limit were conducted for all the samples collected. Standard Proctor test and the corresponding 4 day soaked CBR test were conducted either for a minimum of one test per km for soil samples of same group or more tests due to variation of soil type. The following tests were conducted as detailed below:

- Grain size analysis as per IS : 272 (Part 4) – 1985
- Atterberg's limit as per IS : 2720 (Part 5) – 1985
- Standard Proctor density test as per IS : 2720 (Part 7) – 1980
- 4 day soaked CBR test as per IS : 2720 (Part 16) – 1985

4.3 Analysis of Test Results

The laboratory soaked CBR value ranges from% to% The soil laboratory test results will be summarized in Table 4.1

Table 4.1 CBR values for different stretches

Sl.No.	Section	CBR (%)

4.4 Coarse and Fine Aggregates

Information regarding the source of aggregate and sand will be gathered. The stone aggregates shall be procured from Dgnipawa where as the locally available sand shall be used. The source and the lead distance from the quarry to project site will be finalized in discussion with the PIU. The aggregates and sand where available and acceptable shall be used for bituminous work, concrete works, other pavement works.

Figure -3 Quarry Map

4.5 Sub-soil investigation for bridges

4.6 Checklist

Borrow pit suitable

Yes ☐

No ☐

SSI for existing ground

Yes ☐

No ☐

Investigation for coarse/fine aggregate

Yes ☐

No ☐

Quarry map

Yes ☐

No ☐

5. Traffic Survey

5.1 General

In the present scenario of new connectivity/upgradation road, 3 day, 24 hr traffic volume count has been conducted on the already completed or similar type of PMGSY road in the vicinity of the project road. The Classified Volume Count survey has been carried out in accordance with the requirements of the TOR and relevant codes (IRC: SP: 19-2001, IRC: SP: 20, IRC: SP: 72-2007). The surveys have been carried out by trained enumerators manually under the monitoring of Engineering Supervisor.

5.2 Traffic Data and Analysis

The traffic count done was classified into different vehicle category as given below:

- Motorized vehicle comprising of light commercial vehicle, medium commercial vehicle, heavy commercial vehicle, trucks, buses, agricultural tractors with trailers, car, jeep, two wheelers etc.
- Non- motorized vehicles comprising of cycle, rickshaw, cycle van, animal drawn vehicle etc.

The number of laden and un-laden commercial vehicles was recorded during the traffic counts. Traffic volume count for this project road was done during summer season. The seasonal variation 20 % is based on local enquiry.

Average of 3 day traffic data is presented in following tables.

Table 5.1 Average Daily Traffic at R.D 5000 (both ways)

Sl. No.	Type of Vehicle	Day-1	Day-2	Day-3	Average
1	Car, Jeep, Van	717	590	703	670
2	Auto Rickshaw	25	21	25	24
3	Scooters/Motorbikes	201	165	197	188
4	Bus / Minibus	230	104	116	150
5	Trucks	96	52	88	79
6	Tractors with trailer	20	11	18	16
7	Tractor without trailer	68	37	62	56
8	Cycles	125	103	123	117
	Cycle Rickshaw / Hand				
9	Cart	22	18	22	21
10	Horse cart / Bullock Cart	4	3	4	4
11	Pedestrian	412	339	404	385
Total commercial vehicle per day (cvpd)		346	167	222	245
Total motorised vehicle per day		1357	980	1209	1182
Total non-motorised vehicle per day		151	124	149	141

- a) Traffic volume and mix do not vary along the road
 b) Traffic volume and mix vary along the road
 c) Traffic volume and mix will vary along the road in the future
 d) There is a potential for through traffic using the road

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e) % of loaded vehicles

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5.3 Traffic Growth Rate and forecast

Table 5.2 Average Annual Daily Traffic at RD5000 (both ways).

Sl. No.	Type of Vehicle	ADT	AADT	Growth Rate
1	Car, Jeep, Van	670	838	6%
2	Auto Rickshaw	24	30	6%
3	Scooters/Motorbikes	188	235	6%
4	Bus / Minibus	150	188	6%
5	Trucks	79	98	6%
6	Tractors with trailers	16	20	6%
7	Tractors without trailers	56	70	6%
8	Cycles	117	146	6%
9	Cycle Rickshaw / Hand Cart	21	26	6%
10	Horse cart / Bullock Cart	4	5	6%
11	Pedestrian	385	481	6%
Total commercial vehicle per day (cvpd)		245	306	6%
Total motorised vehicle per day		1182	1478	6%
Total non-motorised vehicle per day		141	177	6%

- a) Traffic volume and mix do not vary along the road
 b) Traffic volume and mix vary along the road
 c) Traffic volume and mix will vary along the road in the future
 d) There is a potential for through traffic using the road

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Table 5.3 Average Daily Traffic at RD 7900 (both ways)

Sl. No.	Type of Vehicle	Day-1	Day-2	Day-3	Average
1	Car, Jeep, Van	265	242	266	258
2	Auto Rickshaw	9	11	10	10
3	Scooters/Motorbikes	66	84	73	74
4	Bus / Minibus	85	53	48	62
5	Trucks	36	27	36	33
6	Tractors with trailer	7	6	7	7
7	Tractor without trailer	25	19	25	23
8	Cycles	46	53	50	50
9	Cycle Rickshaw / Hand Cart	8	9	9	9
10	Horse cart / Bullock Cart	1	2	2	2
11	Pedestrian	152	173	166	164
Total commercial vehicle per day (cvpd)		128	86	91	102
Total motorised vehicle per day		493	442	465	467
Total non-motorised vehicle per day		55	64	61	60

5.3 Traffic Growth Rate and forecast

Table 5.2 Average Annual Daily Traffic at R.D.7900 (both ways).

Sl. No.	Type of Vehicle	ADT	AADT	Growth Rate
1	Car, Jeep, Van	258	322	6%
2	Auto Rickshaw	10	13	6%
3	Scooters/Motorbikes	74	93	6%
4	Bus / Minibus	62	78	6%
5	Trucks	33	41	6%
6	Tractors with trailers	7	8	6%
7	Tractors without trailers	23	29	6%
8	Cycles	50	62	6%
	Cycle Rickshaw / Hand			
9	Cart	9	11	6%
10	Horse cart / Bullock Cart	2	2	6%
11	Pedestrian	164	205	6%
Total commercial vehicle per day (cvpd)		102	127	6%
Total motorised vehicle per day		467	583	6%
Total non-motorised vehicle per day		60	75	6%

6. Hydrological Survey

6.1 General

Hydrological survey is necessary for design of adequate and safe Cross Drainage Structures so that the rain water can pass as per natural slope. Hydrological survey of the proposed road is based on the following observations:

- Rainfall Data
- Catchments Area
- Time of Concentration
- Existing Cross Drainage Structures

6.2 Rainfall Data

Rainfall Data as applicable for the project road were collected with maximum rainfall occurring in the months of Feb, Mar, Apr.

6.3 Catchment Area

The Catchments area is calculated by gathering local information and topographical survey data as it was not possible to calculate from topographical sheets due to their unavailability.

6.4 Time of Concentration

Time of concentration (tc) in hours is calculated from the formula of $(0.87 \times L^3 / H)^{0.385}$, where L is distance from the critical point to the structure site in km and H is the difference in elevation between the critical point and the structure site in meters.

6.5 Existing Cross Drainage Structures

There are 19 number of cross drainage structures along the existing project road as listed below:

(Insert the data in the table below)

Table-6.1 List and condition of existing culverts

Sl.	Chainage (km)	Description of Existing Structure		
		Type	Span/ Dia. (m)	Condition
1				
2				
3				
4				
5				
6				
7				

7. Adopted Geometric Design Standards

7.1 General

The geometric design standards for this project conform to PMGSY guidelines and the guidelines as stated in IRC-SP 20:2002. Recommended design standards vis-à-vis the standards followed for this road are described below.

7.2 Terrain

The classification of terrain was selected from plain/rolling/hilly/steep classification for which following criteria will be applicable.

Terrain classification	Cross slope of the country	
Plain	0-10%	More than 1 in 10
Rolling	10-25%	1 in 10 to 1 in 4

7.3 Design Speed

The proposed design speed along this project road will be selected from the following table:

Road classification	Plain terrain		Rolling terrain	
	Ruling	Min.	Ruling	Min.
Rural Roads (ODR and VR)	50	40	40	35

7.4 Right of Way (ROW)

The requirement of ROW for this road is as follows (as specified in IRC-SP 20:2002):

Road classification	Plain and Rolling Terrain			
	Open Area		Built-up Area	
	Normal	Range	Normal	Range
Rural roads (ODR and VR)	15	15-25	15	15-20

7.5 Roadway Width

Roadway width for this road is given below:

Terrain Classification	Roadway Width (m)
Plain and Rolling	7.5

7.6. Carriageway Width

The width of carriageway for this project road is 3.75m for the entire length.

7.7 Shoulders

It is proposed to have 1.0 m wide shoulder as the case may be on both sides of road.

7.8 Roadway width at cross-drainage structures

The roadway width at culvert locations for this road is 5.5 m.

7.9 Sight Distance

The safe stopping sight distance is applicable in the geometric design. The sight distance values for this road as per IRC recommendations are presented below:

Design Speed (km/hr)	Safe Stopping Sight Distance (m)
30	30

7.10 Radius of Horizontal Curve

According to IRC recommendations/standards, the minimum radius of horizontal curve for this project road is given below:

Terrain Category	Radius of Horizontal Curve (m)	
	Ruling Minimum	Absolute Minimum
Plain	90	60

To minimize extra land arrangement, minimum radius used is 20 m and design speed in these curves are also restricted to 20 km/hr.

7.11 Camber & Super elevation

A camber adopted on this road section is given below. The maximum super elevation is 5.0% for this project road.

Surface type -	High rainfall (Annual rainfall >1000mm)
Thin bituminous road	3.5

7.12 Vertical Alignment

The present road is in plain terrain and vertical alignment has been designed well within ruling gradient.

Generally, minimum gradient of 0.3% for drainage purpose is considered for designing the vertical alignment of this road. Vertical curves are not required when grade change is less than 1%, however a minimum vertical curve is provided to avoid vertical kink.

7.13 Vertical Curves

For satisfactory appearance, the minimum length of vertical curve for different design speed is given in IRC-SP 20:2002. Vertical curves will be designed to provide the visibility at least corresponding to the safe stopping sight distance. Valley curves will be designed for headlight sight distance.

7.14 Side slope

Upgradation of Road From Km 4th of T02 to Madam

Side slope for this rural road where embankment height is less than 3.0m is given in the table below.

Condition	Slope (H:V)
Embankment in silty/sandy/gravel soil	2:1
Embankment in clay or clayey silt or inundated condition	2.5:1 to 3:1
Cutting in silty/sandy/gravelly soil	1:1 to 0.5:1
Cutting in disintegrated rock or conglomerate	0.5:1 to 0.25:1
Cutting in soft rock like shale	0.25:1 to 0.125:1
Cutting in medium rock like sandstone, phyllite	0.083:1 to 0.0625:1
Cutting in hard rock like quartzite, granite	Near vertical

7.15 Extra Widening of Pavement

The Extra Widening of Pavement at Curve as per IRC guideline is given below:

Radius of Curve (m)	Upto 20	21 - 60	Above 60
Extra Widening for 5.5 m wide intermediate lane carriageway, (m)	0.9	0.6	Nil

8. Alignment Design

8.1 General

The basic aim of highway design is to identify technically sound, environment-friendly and economically feasible highway alignment. The ensuing sections deals with obligatory points, which control highway alignment, design of cross-section, highway geometric design & methodology, design of miscellaneous items.

The main components included in the highway design are:

- Cross-sectional elements
- Embankment
- Horizontal alignment
- Vertical profile
- Junctions and/or Interchanges
- Road furniture
- Miscellaneous items

8.2 Horizontal alignment

Table 8.2 – Horizontal Curve details
(Example)

Curve No.	IP Chainage	Radius	LS	Speed	S.E.	Def Angle			Lc	L _{total}	Hand of Curve
		(m)	(m)	(Kmph)		D	M	S	(m)	(m)	
1											
2											
3											
4											
5											
5											
5											
5											

8.4 Design of Junctions

The proposed alignment intersects cross roads and forms junctions. The locations of junctions are given below.

Table 8.4 – List intersections, type and proposed modifications

S.No.	Type of Intersection	Location (km)	Exiting condition	Proposed modification
1				
2				
3				
4				
5				
6				
7				
8				
9				

Design alternatives considered

Chainage		Design alternatives considered					Specify design alternative selected	Justification
From	To	Pavement		Shoulder				
		Flexible	Rigid	Earthen full width	Hard Full width	Hard shoulder 0.875 m each side		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

9.4 Pavement composition

Flexible Pavement

The designed pavement thickness and composition was calculated by referring Figure 4 (Pavement design catalogue) of IRC: SP: 72 – 2007. The ratio between heavy commercial vehicles and medium commercial vehicles as given in Chapter 5 should be maintained as far as possible.

The pavement layers provided are given below:

Top Layer	Premix Carpet with Type B Seal Coat	50+20+6 mm
Base Layer	WBM Grading III & WBM Grading II	200 mm
Sub – Base Layer	Granular Sub-base Grading II	150 mm
Total thickness		426 mm

9. Pavement Design

9.1 General

Considering the subgrade strength, projected traffic and the design life, the pavement design for low volume PMGSY roads was carried out as per guidelines of IRC: SP: 72 – 2007, or IRC SP:77 "Design of Gravel Road" and IRC SP:62-2004 "Cement Concrete roads". In built up area for hygienic and safety reasons, C.C. pavement was used with a hard shoulder and drain appropriate line drain.

9.2 Pavement Design Approach

9.2.1 Design Life

A design life of 10 years was considered for the purpose of pavement design of flexible and granular pavements.

9.2.2 Design Traffic

The average annual daily traffic (AADT) for the opening year as well as the total commercial vehicle per day (CVPD) was presented in Table 5.2.

9.2.3 Determination of ESAL applications

Only commercial vehicles with a gross laden weight of 3 tonnes or more are considered. The design traffic was considered in terms of cumulative number of standard axles to be carried during the design life of the road. The numbers of commercial vehicles of different axle loads are converted to number of standard axle repetitions by a multiplier called the Vehicle Damage Factor (VDF). An indicative VDF value was considered as the traffic volume of rural road does not warrant axle load survey.

For calculating the VDF, the following categories of vehicles was considered as suggested in paragraph 3.4.4 of IRC: SP: 72 – 2007.

- Laden heavy/medium commercial vehicles
- Un-laden /partially loaded heavy/medium commercial vehicles
- Over loaded heavy/medium commercial vehicles

Indicative VDF values considered 10% of laden MCV and 10% laden HCV as overloaded & given below:

Vehicle type	Laden	Un-laden /Partially laden
HCV	2.86	0.31
MCV	0.34	0.02

Lane distribution factor (L) for Single lane road = 1.0. Cumulative ESAL application = $T_o \times 4811 \times L$, where T_o = ESAL application per day. The Cumulative ESAL application for the project road as per paragraph 3.5 of IRC: SP: 72 – 2007 is presented in B&C form.

9.2.4 Subgrade CBR

The subgrade CBR range of Nomograph attached was considered and the traffic falls in the T 7 category.

9.3 Design Alternatives

14.1.4 Delineators and Object Markers

Roadway delineators are intended to mark the edges of the roadway to guide drivers on the alignment ahead. Object markers are used to indicate hazards and obstructions within the vehicle flow path, for example, channelising islands close to the intersections.

Delineators and object markers are provided in accordance with the provisions of IRC: 79-1981. They are driving aids and should not be regarded as substitutes for warning signs, road markings or barriers.

14.1.5 Guard Posts, Crash Barriers and Speed Breakers

Guard posts are proposed on embankments of height more than 1.5m and bridge approaches. The spacing of guard post shall be 10.0m c/c in these areas. Typical Guard post consists of pre-cast (M20) CC post of size 200mm x 200mm and a height of 600mm above ground level. They are encased in M15 cement concrete to a depth of 450mm below ground level. Guard posts are painted with alternate black and white reflective paint of 150mm wide bands. Table 14.2 gives the details of guard posts, crash barrier and speed breakers. A layout of a typical speed breaker is given below.

Table 14.2

Details of guard posts, crash barrier and speed breakers

Sl.	Name of Road	Chainage (km)	Guard post (nos.)	Crash Barrier (m)	Speed breakers (nos)
			NA	—	—

14.2 Temporary traffic control

The road under consideration has to be widened alongwith the bridges and culvert. The list below provides the c/d structures to be widened/reconstructed and temporary traffic control measures to be implemented.

Table 14.3 gives the section-wise details of temporary traffic control measures to be adopted.

Table 14.3

Details of temporary traffic control measures to be adopted

Sl.	Name of Road	Chainage (km)	Temporary traffic control measures to be adopted			

14.3 Checklist for Road Safety Measures

{Insert description of road safety issues identified during design and provide details of mitigation measures adopted. Examples of mitigation measures that may be required are:

SI

Road Safety Checklist

- a A minimum 100 mm thickness of pavement GSB layer constructed to the full roadway width.
- b The upper layer of all shoulders of sub \square base quality compacted to a minimum thickness of 100 mm.
- c Shoulder side slopes are not be steeper than 2H:1V unless stone pitching of the slope is provided.
- d Speed breakers as per NRRDA circular comply with the requirements of IRC:99 \square 1988 for general traffic.
- e Speed breakers placed at the threshold of a habitation and at regular intervals (150 \square 200 m) through the habitation.
- f Within densely populated habitations, a cement concrete (CC) pavement or V-shaped side drain is constructed to the full width of the available roadway.
- g Within habitations, wherever deep side drains are constructed either within or adjacent to the roadway, is covered by slabs laid level with the adjacent pavement and capable of being manually removed.
- h In habitations where child playing areas border the road, a low profile wall, raised kerb or similar form of boundary marking (depending on the site conditions), is constructed to create a physical boundary and act as a deterrent to the random movement of a child onto the road.
- i On roads where, because of the lack of dry land in the general area, the shoulder will be continually occupied and only intermittently available for traffic, speed breakers are installed at regular intervals, not more than 300 m apart, for the entire length of the road.
- j The drawings show all obstructions in the proposed road shoulder with a note that the obstruction is to be removed.
- k If a shoulder obstruction cannot be removed, hazard markers are installed to mark the Obstruction
- l Hazard markers are installed at all pipe culvert headwalls.
- M Hazard markers are installed at each end of all box culverts, river crossing causeways and similar CD structures.
- N Hazard markers are installed at any discontinuity in the shoulder.
- O Directional sight boards are installed on all sharp curves and bends.
- P Speed breakers are provided at sharp curves and bends where the curve design speed is less than 40 km/h in plain and rolling terrain, and less than 25 km/h in mountainous and steep terrain.
- Q Speed breakers are provided and directional sight boards installed at sites where reverse horizontal curves are closely spaced and speed reduction is required.
- R At a main road intersection, signs and pavement markings for STOP control on the PMGSY village road are installed, side road warning signs on the main road and intersection warning signs on the village road are installed, and speed breakers on the PMGSY village road are provided as given in the figures (refer IRC 99-1988).

15. Specification

15.1 General

The "Specification for Rural Roads" published by IRC on behalf of the Ministry of Rural Development, Govt. of India has been followed.

15.2 Construction Equipment

Construction by manual means and simple tools has been considered for the project as per the guideline of NRRDA. For handling of bulk materials like spreading of aggregates in sub-base & base courses by mix-in-place method, use of motor grader & tractor-towed rotavator has been allowed in line with the schedule of rate for PMGSY work. Compaction of all items shall be done by ordinary smooth wheeled roller if the thickness of the compacted layer does not exceed 100 mm. It is also considered that, hot mix plant of medium type & capacity with separate dryer arrangement for aggregate shall be used for bituminous surfacing work that can be easily shifted. A self-propelled or towed bitumen pressure sprayer shall be used for spraying the materials in narrow strips with a pressure hand sprayer. Now the the vibratory rollers are also being used for rapid progress.

For structural works, concrete shall be mixed in a mechanical mixer fitted with water measuring device.

The excavation shall be done manually or mechanically using suitable medium size excavators.

15.3 Construction Methods

15.3.1 Preparation for Earthwork

After setting out existing ground shall be scarified to a minimum depth of 150 mm and leveled manually and compacted with ordinary roller to receive the first layer of earthwork. In filling area, existing embankment will be generally widened on both sides as per the alignment plan. Continuous horizontal bench, each at least 300 mm wide, shall be cut on the existing slopes for bonding with the fresh embankment/ subgrade material as per CI 301.7.

15.3.2 Embankment work

Material from borrow pits will be used for embankment construction as well as the approved material deposited at site from roadway cutting and excavation of drain & foundation may be used. Layer of the earth shall be laid in not more than 25 cm (loose) thick layers & compacted each layer of the soil up to 30 cm below the subgrade level at OMC to meet 97% of Standard Proctor Density.

Material for embankment and sub-grade shall satisfy the requirements of Table 300-1 and 300-2 as per the Specification for Rural Roads.

15.3.3 Sub-grade

Material from borrow pits will be used for construction of top 30 cm as sub-grade. Soil in these sections is quite good for road construction. Top 30 cm upto the subgrade level and shoulder at OMC to meet 100 % of Standard Proctor Density by proper control of moisture and by required compaction with a smooth wheeled roller.

15.3.4 Sub-base

Sub base material in the form of stone aggregates and sand as available in the area to be used in GSB Grade II layer.

15.3.5 Base

Stone aggregates will be used in base course. 63 mm to 45 mm size (Grading 2) aggregate as been proposed for the bottom layer and 53 mm to 22.4 mm (Grading 3) size has been proposed for the top layer.

15.3.6 Shoulder

Earthen shoulder shall be constructed in layers and compacted to 100% of Proctor's Density. First layer of shoulder shall be laid after the sub-base layer is laid. Thereafter earth layer shall be laid with base layer of pavement and compacted.

15.3.7 Surfacing

Slow setting bitumen emulsion will be applied as primer on water bound layer. Emulsion shall be sprayed on surface with pressure distributor. Rapid setting bituminous emulsion shall be used for Tack coat.

Premixed carpet and mixed with equivalent viscosity grade bitumen shall be laid as surfacing course. 6 mm thick Type B seal coat is considered for sealing of the premixed carpet.

15.3.8 Structural Works

Following grades of concrete are proposed for Structural works and comply with MORD and IRC specifications:

- Concrete in superstructure of slab culvert – M-25(RCC)
- Concrete in abutment cap, dirt wall of slab culverts – M-25/ M-15 (RCC)
- Concrete below abutment, return wall, headwall – M-15 (RCC)

{Insert any other new specification adopted like hard shoulders and rigid pavement.}

16. Environmental Issues

16.1 Alignment

The proposed road has planned to be designed considering the impact on environment. Proposed road alignment follows existing pathway to the maximum extent so that huge land acquisition is not necessary for construction of the project road. Proposed road, when completed, will be an addition to the aesthetics of this rural area.

16.2 Environmental Sensitive Area (National Park, Wild Life Sanctuary, Protected /Reserve Forest, Wet land etc.)

The alignment will be finalise avoiding the environmental sensitive area such as National Park, Wild Life Sanctuary, Protected /Reserve Forest, Wet land etc. It is also necessary to maintain the minimum distance of 500 m of the project road from environmental sensitive area.

16.3 Construction Camp

Construction camps will be established away from forest area/water body. The minimum facilities such as water supply, sanitation, storm water drainage, solid waste management and first aid box will be provided during the construction period of the project. Necessary provision for rehabilitation or restoration after the completion of construction phase will be done.

16.4 Permit / Clearance required prior to commencing of civil work

- No objection Certificate- This will be taken by PIU from SPCB.
- Forest Department- If the project road passing thorough forest land and acquisition of the same is involved and it will be taken by PIU from Forest Department
- Consent to establish (CFE) and Consent to Operate (CFO) - This is required for Plant Hot Mix Plant, WMM Plant, Batching Plant required for the project and the same will be taken by the Contractor from SPCB.
- Lease from Mines & Geology- This will be taken by the Contractor for new Stone Quarry required for the project.

16.5 Borrow area

The filling soil will have to be procured from borrow pit. Borrow area will be so excavated that the lands can reused as agricultural field. The depth of borrow pit shall not exceed 450 mm (150 mm top soil included). The top soil shall be stripped and stacked and shall be spread back on the land. As far as possible the borrow pits shall not be dug close to the road embankment. The Redevelopment of borrow area will be done before closure of the same and it will be as per agreement between landowner and the Contractor.

16.6 Erosion Control

Turfing of the embankment slopes and earthen shoulder to prevent erosion of slopes of the embankment, rain cuts and erosion of shoulder is being suggested.

16.7 Drainage

Suitable cross drainage structures have been provided on the basis of hydrological survey of the area. So, there will be no obstruction to the natural drainage of the area. Road side drainage is also duly considered in a manner so that surface water is led to the low points and is drained through the CD structures.

16.8 Use of Material

Cut back bitumen is not proposed in the project to avoid contamination with Kerosene. Bitumen emulsion is proposed for primer coat and tack coat.

17. Analysis of Rates

17.1 General

Rates for various item of works of the project have been derived from the "Schedule of Rates 2013 for Road works, Culvert works & Carriage etc. of JKRRDA

17.2 Basic Rate of Material

The basic rates for stone materials & river bed materials have been taken from SOR 2013 of JKRRDA

For bituminous materials, basic rate at (location) for equivalent viscosity grade bitumen and for emulsion the basic rate of (location) has been considered as suggested in from SOR 2013 of JKRRDA

Basic rate of other materials like coarse & fine sand, cement are as per the latest from SOR 2013 of JKRRDA

Basic rate of steel materials at sub-divisional office has been considered in analysis after adding cost of carriage, loading & unloading.

17.3 Lead for Materials

For stone aggregates and sand, lead from source to work site is calculated from the district map and block level map of core network and finalizing the same in discussion with PIU. The supply of different materials to worksite is by road. Lead for bituminous & steel materials are similarly obtained using SOR.

18. Cost Estimate

18.1 General

Cost Estimate of project has been arrived on the following basis

- Selection of Items of work
- Estimation of item wise quantities
- Analysis of Rates

18.2 Estimation of Quantities

All the relevant road and structure work Items will be identified as per survey, design and drawings. Following major item of works considered are given below:

- Site clearance, dismantling and earthwork
- Pavement works (GSB, WBM, Bituminous layers)
- Cross drainage structure works
- Drainage and protective works
- Utility relocation
- Road safety and furniture
- Maintenance works

Quantity of earthwork will be derived from the proposed cross section drawings. Volume of cut and fill will be obtained directly using the design package software. Quantity derived from software will be manually verified. There are same stretches of the road in cut section. The details are provided chainage wise in Table-18.1 of total cut and fill volume. The soil obtained from roadway excavation shall be used for construction of embankment and shall be paid as per item no.4. All other quantities will be computed from the drawings of finished road, miscellaneous drawings & drawings of CD Structures.

Earth work Table attached.

18.3 Abstract of Cost

Unit rates will be derived by using the "Schedule of Rates for Road Works, Culvert works and Carriage etc. SOR 2013 of JKRRDA The abstract of Cost estimate is given in the Table below.

Details of cost in Format F6 & Format F7

18.4 Maintenance

Cost of Annual Maintenance for five years after completion of project will be estimated as per the PMGSY Guidelines. Different activities of ordinary repairs are done as and when.

Cost of 5 year Routine Maintenance Works in Format F6

19. Construction Program

19.1 General

Construction of program will be devised after the project is approved by competent authority.

19.2 Realistic duration

24 months

Upgradation of Road From Km 4th of T02 to Madam

Question	Yes	No	N/a
1. Are there any flood prone areas on the road?			
If yes:			
1.1 Are locations specified and inspected?			
1.2. Is high flood level specified for each stretch?			
1.3 Are locations specified and inspected?			
2. Are there any locations on the road where irrigations ducts need to be provided?			
If yes:			
2.1 Are locations specified and inspected?			
3. Can the road be used as a shortcut by through traffic?			
4. Does the road lead to any quarries, mining areas, brick kilns, logging areas, tourist attractions etc.?			
5. Are there plans to build new schools, hospitals, temples etc			
6. Is there potential for double connectivity?			
If yes on any of 3-6:			
6.1 Is information on location, size and nature of additional traffic generators and specific routes obtained?			
7. Is there a need for deviations from existing track?			
If yes:			
7.1 Were the proposals for deviation shown on site and explained to the community?			
7.2 Is the land availability checked?			
7.3 If there is a need for donation, were the owners consulted regarding their agreement to donate the land?			
8. Is there a need for speed breakers?			
If yes:			
8.1 Is location and rational for speed breakers identified?			
8.2 Is rationale verified and checked on site?			
8.3 Are alternative or additional locations discussed?			
9. Are all existing intersections checked with the community on site?			
9.1 Is the use of intersecting roads identified (e.g. school children, farm machinery, etc)?			
10. Are proposed culvert locations verified with the community?			
10.1 Is there a need for additional culverts?			
10.2 If yes, are locations identified?			
m			
11.1 If yes, are locations identified?			

For DPR consultant	For PIU	For PIC
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On the Project Proposals under PMGSY.

Year: 2019 -20

2. Names of the Members of the STA involved in the Technical Scrutiny.
3. Whether Pre-DPR meeting was held with SRRDA and DPIUs.
4. Summary of the Project proposals scrutinized indicating district wise and road wise details of length and cost. The summary includes the no. of Packages and total value.
5. Whether schedule for scrutiny was fixed in advance (give details) and difficulty in adhering to schedule.
6. Actual scrutiny process and time taken for scrutiny (Please indicate the dates).
7. Interaction of the Engineers of the Executing Agencies with the STAs.
8. Major deficiencies observed during scrutiny with details.
9. Reliability of data obtained through investigations and used in the design/estimation.
10. Compliance of the provisions/instructions given in the guidelines/ circulars/ operations manual/ IRC codes etc. In the preparation of DPRs including Environmental/RR/Road safety aspects etc.
11. Levels of response from the Senior Engineers of the Executing agencies for the suggestions given by the STAs for revision/ modifications in the DPRs.
12. If DPRs outsourced, perceived level of competence of outsourced consultants and suggestions.
13. Overall comments and Impressions of the STAs, if any, on the process of the preparation of DPRs and their technical scrutiny.

Name of the Coordinator STA.

PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)

CERTIFICATE OF GROUND VERIFICATION FROM EXECUTIVE ENGINEER / HEAD PIU

1. a) Certified that the Land width for the road is likely to be available as certified by panchayats after duly compensated.
2. Certified that the DPR has been checked at site by

On date 24/1
AE
 Assistant Executive Engineer
 PMGSY (JKRRDA) Block
 PMGSY Division II
 (DPR wise summary in format F9-B)

26 EE

26 SE
 Executive Engineer
 Head of PIU
 PMGSY (JKRRDA) Division
 BARAMULLA

FORMAT F-9B

List of DPRS VERIFIED On GROUND:

S.No.	DPRs seen on ground by	DPR Nos	% of total number
1	AEE	1	100
2	EE	1	100
3	SE	1	100

26
 Head of PIU
 Executive Engineer
 PMGSY (JKRRDA) Division
 BARAMULLA

Community Consultation Checklist – Engineering

Question	Yes	No	N/a
1. Are there any flood prone areas on the road?			
If yes:			
1.1 Are locations specified and inspected?			
1.2. Is high flood level specified for each stretch?			
1.3 Are locations specified and inspected?			
2. Are there any locations on the road where irrigations ducts need to be provided?			
If yes:			
2.1 Are locations specified and inspected?			
3. Can the road be used as a shortcut by through traffic?			
4. Does the road lead to any quarries, mining areas, brick kilns, logging areas, tourist attractions etc.?			
5. Are there plans to build new schools, hospitals, temples etc			
6. Is there potential for double connectivity?			
If yes on any of 3-6:			
6.1 Is information on location, size and nature of additional traffic generators and specific routes obtained?			
7. Is there a need for deviations from existing track?			
If yes:			
7.1 Were the proposals for deviation shown on site and explained to the community?			
7.2 Is the land availability checked?			
7.3 If there is a need for donation, were the owners consulted regarding their agreement to donate the land?			
8. Is there a need for speed breakers?			
If yes:			
8.1 Is location and rationale for speed breakers identified?			
8.2 Is rationale verified and checked on site?			
8.3 Are alternative or additional locations discussed?			
9. Are all existing intersections checked with the community on site?			
9.1 Is the use of intersecting roads identified (e.g. school children, farm machinery, etc)?			
10. Are proposed culvert locations verified with the community?			
10.1 Is there a need for additional culverts?			
10.2 If yes, are locations identified?			
m			
11.1 If yes, are locations identified?			

For DPR consultant	For PIU	For PIC
--------------------	---------	---------

Pradhan Mantri Gram Sadak Yojana (PMGSY)

Summary Sheet

F1

Name of the Block	Total No. of Habitations	Unconnected Habitations			Package No. JK
		>1000	500-999	250-500	
TANGMARG		5	0	0	

Type of Work	No. of Roads	Total Length of Road (Km)	No. of new CD Structures	Estimated Cost			No. of new villages connected
				Pavement From F-5	CD Str. From F-6	Total 5+6	
1	2	3	4	5	6	7	8
UPGRADATION	1	2.500	11	368.22	79.25	447.47	10
				277.10	38.62	315.72	4

The DPR is Technically Scrutinized for Rs 450.40 lacs (excluding 5 yrs maintenance & renewal cost)

Total Cost of Work: Rs. 447.47 lacs
 Misc. Cost: Rs. 2.93 lacs
 Total Cost of Project: Rs. 450.40 lacs
 5 yr. Maintenance Cost: Rs. 44.75 lacs
 Renewal cost: Rs. 44.61 lacs
 Grand Total: Rs. 539.75 lacs

31.7.7

320.65

38.40

390.82 lacs

Assistant Executive Engineer
 PMGSY, SD-Pattan
 Assistant Executive Engineer
 PMGSY (JKRRDA) Bld
 Sub Division Head

Dr. Mohammad Shafi Mir
 Professor
 Civil Engineering Department
 National Institute of Technology (NIT) Srinagar
 Hazratbal Srinagar, J&K - 190006

Executive Engineer
 PMGSY, Division Baramulla
 Executive Engineer
 PMGSY (JKRRDA) Division BARAMULLA

Pradhan Mantri Gram Sadak Yojana (PMGSY)

Details of Existing Roads

Package No: JK03-

Block: Tangmarg

District: Baramulla

S.No.	Name of Road	Road length (Km)	Road Connecting	Facilities accessed (Use A/B/C/D)	Traffic/ day			Existing Road Details				Bituminous Layers			
					Total Motorised	Total Truck/ Tractors	Land Width (m)	Road Width (m)	Embankment formation		WMM Layers		Type	Width (m)	Thickness (mm)
									Height (m)	Width (m)	Height (m)	Thickness (mm)			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Upgradation of Road From Km4th of T02 to Madam	2.5		A	1008	244	10	3.0			GIII	0.075			

Assistant Executive Engineer
PMGSY, SO-Pattan
PMGSY (JKRRDA) Bld
Sub Division Jlad

Executive Engineer
PMGSY, Division Baramulla
Executive Engineer
PMGSY (JKRRDA) Div
BARAMULLA

Pradhan Mantri Gram Sadak Yojana (PMGSY)

Block: Tangmarg

S.N o.	Name of Road	New Const./ Upgrd N/U)	Road length (Km)	Existing CD Structures by Type						Details		Proposed CD Structures by Type										Total Cost of Proposed CD Str. (incl. c/o conc. Drains & stone pitched drain) (Cost in Lacs)
				H.P Culvert			Slab Culvert		M. Bridge		H.P Culvert No.	Dia. mm	Slab Culvert{			M. Bridge		Drain				
				No.	Dia. mm	No.	L m	No.	L m	No.			L m	No.	L m							
																No.	L m	No.	L m	No.	L m	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
											3	1000										
											5	500										
											3	750										
1	Name of Road: Upgradation of Km 4th of T02 to Madam	U	2.500	2	1000	1	2.0			-			1	5	0	0	900		79.25 68.62			
																	300	300	79.25			

68-132

Assistant Executive Engineer
PMGSY Sub-Division
PMGSY (JKRRDA) Btla
Sub Division Head

Executive Engineer
PMGSY, Division Baramulla
42 Executive Engineer
PMGSY (Kashmir Division)
BARAMULLA

(For Individual Road Works)
To be filled by PIU.

1. Location :- State: J&K

Districd :- BARAMULLA

Block :- TANGMARG

2. Package No:-

Name of Road: Upgradation of Km 4th of T02 to Madam

4. Total Length (Km) :- 2.500 In Built up area -

0.75Km

In Open Area -

1.750 Km

5. Estimated Cost lacs :-

-458.40-

320.65

Upgradation

Item	Average Cost :		Cost per Km. Lakhs
Pavement	229.1	388.22	147.29
Rigid Pavement		0.00	0.00
CD works	38.62	79.25	34.70
Others		2.93	1.17
Total	320.65	458.40	180.16
			120.23

6. Type of proposal:-

-If the proposed road is a New connectivity No

- Is the road a part of core network

If Yes Through Routed Link Route No.

- Name of the unconnected Target Habitation (s) (to be crosschecked with CN-6)

- Population sub served by the proposed road.

- Does the Proposed Road lead up to the Habitation for which it is supposed to provide connectivity (In other words are you sure that the road is not being made partially?)

T - 0 or

8685

YES

- Does the proposed Road connect the unconnected Habitation to

a) Another habitation having All- weather road.

b) Directly to an All weather road.

If (b) indicate the nature of road to which the proposed road leads.

(A) (B)

- If the proposal is for up gradation

- Is the road a part of the core network

- Is it associated Through Route or Not

- PCI value

- Age of the road

- Is it certified that there are no other unconnected Eligible Habitations in the

district.

7. a) Whether the Proposed Road has the desired carriage way

width, Roadway width and Road Land Width (RLW)

b) Indicates the actual widths of the following for the proposed

road

a) Carriageway

b) Roadway

c) Road Land Width

YES
YES
YES

45 Years

YES

In the Built Up Area (m)

5.5 (RD 0 to RD 2500)

7.50

10.00

5.50

7.50

10.00

INDEX MAP (not to scale) : Attach

Page No

5

3. Base year traffic volume

Month & Year of Traffic Volume Count =

Days	Cars, Jeeps, Vans, Trucks, Motorbikes, Two Wheelers	Motorbikes Two Wheelers	Light Commercial Vehicle	Trucks						Agricultural Tractors Trailers			Buses			Cycles	Cycle Rickshaw	Animal Drawn Vehicle		
				L	U	OL	L	U	OL	L	U	OL	L	U	OL			SWC	Num. Tyred	
Day 1	717	201	230	48	48				10	10		230			125			4		
Day 2	590	165	104	26	26				5.5	5.5		104			103			3		
Day 3	703	197	116	44	44				9	9		116			123			4		
Average	670	188	158	39	39				8	8		150			117			4		
Average Annual daily Traffic																		1560.7	Total	1373

ADT in the year of Traffic Count

1252

Growth rate adopted (%) =

6

Design Life = 10

10

Number of Harvesting Seasons =

2

No. of Days in Each Harvesting Season (t) =

75

Value of (n) assumed =

1

Average Annual daily Traffic

1560.7

Base Year Traffic AADT (T)

1753.6

HCV

78

LCV

316

cumulative ESAL

578449.5

traffic category =

776

Total

1373

9 Subgrade CBR (for Different Sections) =

Challenge	0-2000	2000-40000	40000-5200
CBR %	CBR(Avg)=5	CBR(Avg)=5	CBR(Avg)=5

10. Cost Details

A. General Costs

Cost of Preparation of DPR/Survey etc

B. Pavement Components	Description of layer	Thickness in mm	Quantity	Cost lacs.	Cost/ km (lacs)
Clearing and Grubbing/striping /Cutting of trees(hect)	Loosening of Existing Track(subgrade prep.) (Cum)	300MM	2652.157.10	1.16	0.46
			5166	1.84	0.65
			5473.20	6.86	2.75
Earth Work - in Excavation/ Cutting (cum)	Earthwork- in Filling (Embankment)(cum)	450MM	950.15	3.74	1.50
			2652.157.10	14.34	5.72
			3399.30	2.04	0.85
Shoulders : Earthen (cum)	Excavation for roadway in cutting.....	300MM	3052.157.10	53.47	21.39
			4566.00	12.59	5.02
			0.075MM	31.78	12.77
Soil + Aggregate Mix	Hard(cum)	300/150	104.31	29.35	10.99
			4566.00		
Granular Sub base	Shoulders : Earthen (cum)	300/150	104.31	29.35	10.99
			4566.00		
Soil + Aggregate Mix	Hard(cum)	300/150	104.31	29.35	10.99
			4566.00		
WBMM Gr -I-I (cum)	Excavation for roadway in cutting.....	300/150	104.31	29.35	10.99
			4566.00		

WBMM

C.Bamboos Layers																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				</
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Name of Road: Upgradation of Km 4th of T02 to Madam

J. Five Year Routine Maintenance

Year					Cost	Cost/km
I	II	III	IV	V		
0.5					22.1.6	0.89 0.64
1.00					4.5 3.2	4.79 1.2.2
1.50					5.7 4.8	2.68 1.9.1
2.00					8.9 6.4	2.58 2.54
3.00					13.4 9.5	5.37 3.81
Total					44.75 31.77	17.90 12.2

Latest Circulars of NRRDA.

YES

11. Whether the road has Geometrics as per Rural Roads Manual RRM /

12. Whether C.D. works / Protection works are provided as per RRM /

YES

13. Whether the Cost estimates are as per standard data analysis and S.S.R.

YES

14. Sources and the Lead distances of Materials are as under

Material	Source	Lead Distance	Material	Source	Lead Distance
Earth	Local		Cement	Shrai	14
C-Aggregate	Shrai	14	Emulsion	Kunzar	14
Sand	Khudwani	28	Bitumen	Kunzar	14
			Steel	Shrai	14

Certified that information provided is true

Prepared By

(Name) L. S. ANAND

Assistant Executive Engineer

PMGSY (JKRRDA) Bld

Sub Division Head

Checked By Y. (JKRRDA) Dinal

M. G. S. BARAMULLA

Counter Signatures of

Co-ordinator STA :

Dr. Mohammad Shafi Mir

Professor

Civil Engineering Department

National Institute of Technology (NIT) Srinagar

Hazratbal Srinagar, J&K - 190006

Name of Road :

15 Is the Proposed Road entered on the OMMS :

(Data entries to be verified by STA before Clicking the Proposa
I)

Yes/ No

Yes / No

16 If the Proposal is for new connectivity

Have you satisfied yourself that the proposed road is a part of Core Network

Is the unconnected habitation (s) part of list of unconnected Habitations as per CN-6

Does the Proposal ensure full connectivity to Target Habitation

a) If No, the name of Unconnected Habitation up to which it is connected

b) If such Unconnected Habitation eligible Under PMGSY

Are you satisfied with the following

Engineering Surveys (L section, X section must be verified)
Soil Material Investigation (CBR, Density, LL, PI, Gradation to be verified)

Traffic Surveys / Estimation
Hydraulic Studies

(Calculation for structures with more than 2 Vents to be verified from topo sheet. Location and requirement of all CD structures to be verified from L section)

18 In case , Traffic is projected beyond T 4 Category are you satisfied with the reason given by PIU

19 In case, sub grade CBR is less than 3; has Soil Stabilisation etc. been proposed

(If not, specific Reasons given by PIU)

20 Is the design of the following elements as per Rural Roads Manul / Circulars of NRRDA:

Alignment & Geometrics
Location and type of CD works and
Side drains
Integration for Cross and longitudinal Drainage
Protection Works

21 Is the design of flexible Pavement as per IRC SP- 72- 2007 and design of Rigid Pavement as per IRC SP-62- 2004 .

22 Does the Estimation Conform to Standard Rate Analysis and SSR generated for the current Phase

23 Does the proposal have provisions for
PMGSY Logo Sign Boards and Information Board
Km/Hm Stones
Guard Stones (where necessary)
Traffic Sign Boards (as necessary)

Yes

Yes

Yes

Yes/ No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

Yes / No

24. Specific Remarks, if any, by STA

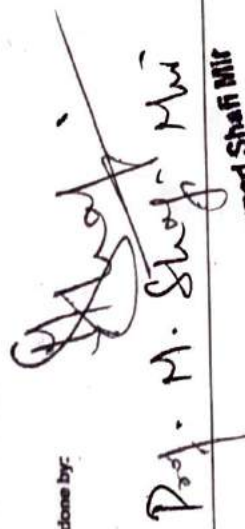
(Specific remarks of STA about the overall project are necessary on each DPR)

The DPR is for upgradation of 2.50 km long road to a carriageway width of 5.5 m & includes improvement in pavement structure, drainage & slope stability aspects.

Certified that the Design and Estimation for the Proposed Road work are based on the data and SSR provided by PIU Engineers. The Proposal after final Correction is entered on the OMMS. The Proposal may be considered for clearance.

Technical Scrutiny at STA done by:

Signature
Name
Date
Date


Prof. M. Shafi Mir

Signature
Name
Date

Co-ordinator STA:



Dr. Mohammad Shafi Mir

Professor
Department
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Hazratbal Srinagar, J&K

PROFORMA-B

PRADHAN MANTRI GRAM SADAK YOJNA

PHASE:- X STAGE U

PACKAGE SUMMARY- PACKAGE NO: JK01

S.NO	NAME OF BLOCK	NAME OF ROAD	TYPE OF PROPOSAL	PROPOSED LENGTH KM	COST OF PAVEMENT		NO. OF CD WORKS		COST OF CD WORKS		MISC COST		TOTAL ESTIMATED COST		AVERAGE COST PER KM	
					LACS	NOS	LACS	NOS	LACS	NOS	LACS	NOS	LACS	NOS	LACS	NOS
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Tangmang	Km 4th of Tuz, Baramulla	U	2.50	2771.10	09	388.22	45	79.25	38.62	2.93	450.40	320.65	128.16	128.16	128.16

Total Estimated Cost

468.40-lacs 320.65

Maintenance Cost for five Years + 10% Cont

44.75-lacs 48.65031.77

N= New Construction

Grand total

496.15 LACS 549.058 350.42

Prepared by

Signature
Name IRFAN AH SANDAY
Designation A-EE

Coordinator
for STA

Checked by

Signature
Name PMGSY (JKRRDA) District
Designation P M G S Y (B A R A M U L L A)

Scrutinized by

Signature
Name PMGSY (JKRRDA) District
Designation Baramulla

Technical Scrutiny done by

Signature
Name

Coordinator STA

Signature
Name

Tech. Scrutiny by:

Signature
Name

Dr. J. H. S. Mir

Dr. Mohammad Shah Mir
Professor

Civil Engineering Department
National Institute of Technology (NIT) Srinagar
Hazratbal Srinagar, J&K - 190606

S.No.	Items	Unit	Qty.	
1	a) Clearing and grubbing.	Hect	2.64128	0.44
	b) Cutting of Trees:	Nos.	175	0.26
	i) 300 - 600 mm Girth	Nos.	90	0.21
	ii) 600 - 900 mm Girth	Nos.	50	0.25
	iii) 900 - 1800 mm Girth			1.16
2	Earth Work:			
	a) Excavation for Roadway Cutting in soil.	Cum	5166.30	6.86
	b) Ordinary rock	Cum	0.00	0.00
	c) Excavation for roadway in hard rock (requiring blasting)	Cum	5473.20	3.74
	e) Embankment filling (available at site).	Rm	1525	0.28
	f) Unlined surface drain.			10.88
3	Cross Drainage			
	a) 1000mm dia. Single Row	Nos.	23	5.33
	b) 750mm dia Single Row	Nos.	3	6.51
	b) 750mm dia Single Row	Nos.	53	11.28
	f) 5.0 mtr span slab culvert	Nos.	0	23.53
				46.65
4	Protection Works			
	a) 2.5 Mtr. Height R/Wall	Rm	450	84.99
	b) B/Wall	Rm	270	28.86
	e) PCC Edge/Wall.	Rm	250	8.99
		Rm	900	72.84
5	PCC Side Drain.			32.60
6	Pavement			
	a) Excavation for roadway	cum	3332.4	2.04
			3359.40	1.63

b) Subgrade Preparation	2652	Cum	1.84 1.63
d) Granular Sub-Base	3252	cum	42.55 53.97 128.83
e) WMM	1048.31	Cum	31.78 22.35
f) Priming Coat	13840	Sqm	9.48 8.15
g) Tack Coat	13840	Sqm	2.68 2.30
h) 50mm Bituminous Macadam	1692	Cum	62.07 53.33
i) 20mm OGPC	13840	Sqm	31.72 22.25
j) Seal coat	14350	Sqm	12.89 11.40
k) Shoulders.	950	Cum	14.31 10.88
			222.28 186.24
7 Road Furniture			0.12 11.06 147.47
		Total	447.47 430.33
Add for c/o Project Preparation, Documentation, survey, Soil investigation etc.			2.93
Total Cost of construction			320.85
5 yrs Routine Maintenance Cost @10%. 124			31.72 300.
Add Cost of Renewal Coat after 6 year of completion			38.40
Total Cost of Project			44.61
			390.82 442.65

Assistant Executive Engineer
PMGSY Sub-Division-Parthapur
PMGSY (KRRDA) Block
Sub Division Mand

Executive Engineer
PMGSY, Division Baramulla
Executive Engineer
PMGSY (KRRDA) Division
BARAMULLA

CARRIAGE CHART
Pradhan Mantri Gram Sadak Yojana (PMGSY)
Name of Road: Upgradation of Km 4th of T02 to Madam

Road Length: 2.50 km

District: Baramulla
Block: Tangmarg

District: Baramulla									
Block: Tangmarg									
		Source	Qty in %	Per Unit	Density(T/Cum)	Mileage(KM)	Rate	Unit	Amount(Rs)
1	M-10 (1:3:6)	Shrai	0.93	CUM	1.8	14	5.12	T.KM	119.99
		Hanjiwera	0.46	CUM	1.6	28	5.12	T.KM	105.51
		Kunzer	0.2304	T		14	5.12	T.KM	16.52
			0.93	CUM			61.47	CUM	57.17
			0.46	CUM			37.3	CUM	17.16
			0.2304	T			254.48	T	58.63
									374.98
2	R.R. MASONRY (1:5)	Shrai	1.000	CUM	2.2	14	5.12	T.KM	157.70
		Hanjiwera	1.000	CUM	1.6	28	5.12	T.KM	229.38
		Kunzer	1.000	T		14	5.12	T.KM	71.68
			1.1	CUM			110.41	CUM	121.45
			0.38	CUM			37.3	CUM	14.17
			0.9648	T			254.48	T	245.52
									839.90
3	R.R. MASONRY DRY	Shrai	1.1	CUM	2.2	14	5.12	T.KM	173.47
			1.1	CUM			110.41	CUM	121.45
									294.92
			0.91	CUM	1.8	14	5.12	T.KM	117.41
			0.46	CUM	1.6	28	5.12	T.KM	105.51
			0.2592	T		14	5.12	T.KM	18.58
			0.91	CUM			61.47	CUM	55.94
4	M-15 (1:2.5:5)		0.46	CUM			37.3	CUM	17.16
			0.2592	T			254.48	T	65.96
		Shrai	0.91	CUM	1.8	14	5.12	T.KM	117.41
		Hanjiwera	0.46	CUM	1.6	28	5.12	T.KM	105.51
		Kunzer	0.2592	T		14	5.12	T.KM	18.58
			0.91	CUM			61.47	CUM	55.94
			0.46	CUM			37.3	CUM	17.16
	0.2592	T			254.48	T	65.96		

[illegible]

Pradhan Mantri Gram Sadak Yojana (PMGSY)

Detailed Estimate For Cutting of Trees

Name of Road: Upgradation of Ranbirpora Ranipora Sonach Road

District: Anantnag Baramulla

Block: Tangmarg

Road Length: 2.50 km

S.No.	Description of Items	Unit	Qty.	Rate in Rs.	Carriage/ Loading/ unloading	Net Rate in Rs.	Amount in Lacs.
1	Clearing & grubbing road land including uprooting wld vegetation , grass, bushes ,shrubs, saplings & trees of girth up to 300mm , removal of stumps of such trees cut earlier & disposal of unserviceable materials up to a lead of 1000M including removal & disposal of top organic soil not exceeding 150mm In thickness as per technical specifications clause 201 (In area of non thorny jungle).By Mechanical means(Item No 2.2(11)A, Page No 04 of SOR)	Hect	2500x2.5x2/10 000	35258.63	0	35258.63	0.44
2	Cutting of trees, including cutting of trunks, branches and removal of stumps & roots, refilling, compaction of backfilling and stacking of serviceable material by manual means with all lifts as per Technical Specification Clause 201.Lead upto 100 M (Item No 2.3, Page No 4 of SOR)						
a	300 - 600 mm Girth	Nos	175	149.1	0.00	149.1	0.26
b	600-900mm girth	Nos	90	233.61	0.00	233.61	0.21
c	900-1800mm girth	Nos	50	500.06	0.00	500.06	0.25
	TOTAL						1.16

Assistant Executive Engineer

PMGSY, Sub Division-Pattan

Assistant Executive Engineer

PMGSY (JKRRDA) Bta

Sub Division Jind

Executive Engineer

PMGSY, Division Baramulla

Executive Engineer

PMGSY (JKRRDA) Division
BARAMULLA

Detailed Estimate For Earthwork

Name of Road: Upgradation of Km 4th of T02 to Madam							
District: Anantnag Baramulla Block: Shangus Tangmarg							
S.No.	Description of Items	No.	L(m)	B(m)	D(m)	Unit	Qty.
1	Excavation in Soil in hilly areas by mechanical means including cutting and trimming of side slopes and disposing of excavated earth with a lift upto 1.5m and a lead upto 20m as per technical specification clause 1603.1						
5	Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of Tables 300.1 and 300.2 as per Technical Specification Clause 301.5						
6	Construction of unlined surface drain of average cross sectional area 0.4 sqm to specified lines, grades, levels and dimensions Excavated material to be used in embankment with a lift upto 3m and lead of 50m (average lead 25 m) as per technical specifications clause 307. Mechanical means.						
	In Soil					Rm	1525
							18.22
							0.28
	TOTAL						10.88

Road Length: 2.50 km

Assistant Executive Engineer
PMGSY, Division Baramulla
Sub Division Mad

Executive Engineer
PMGSY, Division Anantnag