



सत्यमेव जयते

GOVERNMENT OF INDIA
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
DEPARTMENT OF ROAD TRANSPORT & HIGHWAYS
TRANSPORT BHAWAN, NEW DELHI – 110001

No. NH-12031/32/2005/Ar.P/E&I/NH-10
To

Dated the 16th September, 2005

The Commissioner (PWD),
Government of Arunachal Pradesh,
ITANAGAR-791111

Sub: Construction of Road from Dirang Dzong to Namthung via Sanglam (19.215 Km) in West Kameng District, Arunachal Pradesh, under centrally sponsored scheme of Economic Importance for the improvement of State Roads.

(Job No. E&I-Ar.P-2005-06- 02)

Sir,

I am directed to convey technical approval and Financial sanction of the President in the estimate for the work mentioned in the subject heading as per the details subject to the condition stipulated attached technical note:

1. Amount as indicated in the estimate sent by the State Govt. of Arunachal Pradesh. Rs. 1015.00 lakh
 2. Amount as modified in the Ministry Rs. 1089.97 lakh
 3. Amount of technical approval Rs. 1089.97 lakh
 4. Amount of financial sanction Rs. 1089.97 lakh
 5. Amount of Central Govt. Share Rs. 544.98 lakh
 6. Amount of State govt. Share Rs. 544.98 lakh
2. This 50% funds to this work is provided by this Ministry under the Centrally Sponsored Schemes of State Roads of Economic Importance Fund and 50% funds for this work amounting to Rs. 544.98 lakh is to be provided by the Government of Arunachal Pradesh.
3. The State Government may accord the technical and financial sanction of the estimate in terms of Guidelines issued by this Ministry vide letter No. NH-17012/9/97-PL dated 14.3.2001.
4. This sanction is further subject to the following conditions:-
- (i) the work should be completed as targeted and indicated in the enclosed technical note.
 - (ii) the existing instructions/guidelines in respect of tenders (pre-qualifications and acceptance) and revised estimate as applicable to National Highway Projects would be applicable to fully financed projects of roads of Economic Importance. The State Governments may follow their own procedure/guidelines in respect of partially financed projects of Economic Importance.
 - (iii) the time limit for awarding of this work is Six months from the date of sanction would be strictly followed as per the instruction communicated to all

State PWDs vide Ministry's letter No. RW/NH-28030/2001-P&M dated 13th July, 2001. If the work is not awarded within the stipulated time, it may lead to de-sanction of the work unless Ministry's prior approval to extension of time limit is obtained.

(iv) the funds would be released in two installments, first in April/May and second in September/October. While the first installment would be released on the basis of requirement to be communicated by the State Government, the second installment would be released on the basis of progress of the work and actual expenditure in the preceding half year and anticipated for the next half year. The release of funds for 50% financed works will be commensurate with the expenditure proposed to be incurred from State's own resources.

(v) the cost of shifting of utilities may be borne by the State Government.

(vi) The tender should be awarded after unencumbered site is available.

5. The stipulation made in Ministry's Circular No. NH-17012/9/97-PL dated 14.3.2001 may be strictly followed.

6. The quarterly progress reports and monthly statement of expenditure of works should be furnished to this Ministry with copy endorsed to Regional Office of the Ministry within one month from the close of the quarter as per proforma (Annexure I, II & III) enclosed with Ministry's letter No. NH-17012/9/97-PL dated 14.3.2001

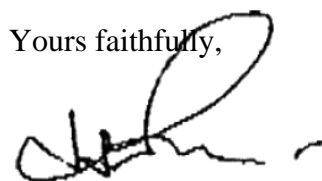
7. The State Government should furnish completion certificate duly vetted by audit after completion of work as per targets.

8. The following physical and financial cumulative targets shall be achieved depending upon the availability of funds:

Financial Year	Physical (%)	Cumulative progress Financial (Rs. In lakh)		State Govt's Share
		Total	Ministry's Share	
2005-2006	10	100.00	50.00	50.00
2006-2007	40	450.00	225.00	225.00
2007-2008	90	1000.00	500.00	500.00
2008-2009	100	1089.97	544.98	544.98

9. The expenditure is debitable under the major Head "3601" Grants-in-aid to State Govt. 04 Grant for Centrally sponsored schemes - 04.105 - Grant from Central Road Fund - 01- Roads of Inter-State and Economic Important - 00.00.31 - Grant-in-aid under the Demand No. '86' is Department of Road Transport & Highways for the year 2005-2006.

Yours faithfully,

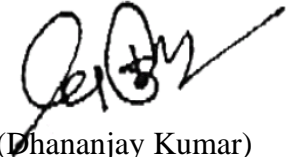


(H.K. Roy)

Under Secretary to the Govt. of India

Copy forwarded for information to:

1. The Chief Engineer (Roads), Arunachal Pradesh. (a copy of the approved estimate enclosed).
2. Regional Officer, Ministry of Shipping, Road Transport & Highways (Department of Road Transport and Highways), Rajgarh Road, Guwahati-781 003.
3. Accountant General, Government of Arunachal Pradesh, Itanagar.
4. The Regional Pay and Accounts Officer (NH), M/o Shipping, Road Transport & Highways, Department of Road Transport & Highways, Hrishikeshayan, Hriday Ranjan Path, 6th Byelane (W) R.G. Baruah Road, Guwahati.
5. Pay & Accounts Officer (NH), Ministry of Shipping, Road Transport & Highways, Department of Road Transport & Highways, Jamnagar House, IDA Building, New Delhi.
6. The Principal Director of Audit, Economic & Services Ministries, A.G.C.R. Building, New Delhi – 110 002.



(Dhananjay Kumar)
Section Officer
Telephone No. 237174

P.S. to Minister, Shipping, Road Transport & Highways.
Chief Engineer(P-10) / SE(PL) / SE(Mon) / EESG(P-10) / EE(P-10)-II/
Finance Wing / W&A Section/ Guard File.

Sd/-
(Dhananjay Kumar)
Section Officer
Telephone No. 237174

**GOVERNMENT OF INDIA
MINISTRY OF ROAD TRANSPORT & HIGHWAYS
(DEPARTMENT OF ROAD TRANSPORT & HIGHWAYS)**

No. NH-12031/32/2005/Ar.P/E&I/NH-10

Dated the 16th September, 2005

TECHNICAL NOTE

1. Name of work : Construction of Road from Dirang Dzong to Namthung via Sanglam (19.215 Km) in West Kameng District, Arunachal Pradesh under centrally sponsored scheme of Economic Importance for the improvement of State Roads

(Job No. E&I-Ar.P/2005-06-02)

2. State : Arunachal Pradesh

3. Estimated cost (Rs. In lakhs)	As forwarded by State PWD	As modified in the Ministry	Ministry's share
	1015.00	1089.97	544.98

4. Length (Km) : 19.215 19.215

5. Cost per km (Rs. In lakhs) : 52.82 56.73

6. Reference : Letter No. SPWD/W-5/2001 (Pt) dated 07.05.2005 from Commissioner (PWD), Govt. of Arunachal Pradesh, Itanagar – 791 111.

COMMENTS

1. **Scope of Work:**

- 1.1. Formation cutting in an aggregating length of 5960 m from Ch. 4/740 to 11/340 (excluding the reach from Ch. 10/330 to 10/970).
- 1.2. Widening of the existing road (from Ch. 0/0 to 4/740 and from Ch. 11/340 to 19/215) so as to have a formation width of 5.95m, in aggregating length of 6615m.
- 1.3. Construction of new crust in entire length of 19215m except the reach from Ch. 1/260 to 2/440.
- 1.4. Construction of 75 RCC slab culverts having a span of 1.0m/2.0m and overall width of 6.0m.
- 1.5. Construction of Retaining/breast walls aggregating to a length of 1275m.
- 1.6. PCC Road side drains in an aggregate length of 1000m, Earthen Road side drains in an aggregate length of 16883m.
- 1.7. Miscellaneous items like road sign boards and km stones etc.

2. **Provisions:**

2.1 **Land:**

It is reported by the State PWD that ROW of 15 m is available free from all encumbrances.

2.2 Alignment:

Only sketchy drawings have been enclosed in the name of alignment plan which do not show any requisite details and thus serve no purpose. Therefore, it is difficult to ascertain whether the existing alignment conforms to relevant IRC Standards for ODR in hilly terrain. The detailed alignment plan may be prepared as per plate 2/clause 17.4.3. of IRC SP:19-2001 and showing all requisite details like formation/c carriageway width, ROW limits, existing structures, design details of horizontal curves etc. *The horizontal curves shall be designed for ruling design speed of 30 km/h as per guidelines contained in IRC:38-1988, showing the design data including the speed for which the curves are designed on the drawing to ensure that the horizontal profile conforms to relevant IRC guidelines.*

2.2.2 Similarly, the enclosed L-section are deficient with respect to details like reduced levels of ground/existing/proposed road, depth of cutting/filling, gradients, designs details of vertical curves, super-elevation, design HFL, pavement design details etc. as per plate 2/clause 17.4.3. of IRC SP:19-2001. It is, however, noted from the details given in estimate that the proposed gradient in the stretches from Ch. 4/500 to 4/740 (gradient = 1 in 8), Ch. 17/000 to 18/000 (1 in 9) and Ch. 18/440 to 18/900 do not conform the relevant IRC guidelines contained in clause 10.2 of IRC:SP:73-1980. *The vertical curves shall be designed for a ruling design speed of 30 Km/h as per guidelines contained in IRC:SP:23-1983, showing the design data on the drawing to ensure that the vertical profile conforms to relevant IRC guidelines.*

2.2.3 The horizontal and vertical alignment drawn on the same sheet should be properly coordinated for better aesthetics as per guidelines vide clause 11 of IRC:73-1980.

2.2.4 Typical cross-section, enclosed with estimate does not show the camber. It is suggested that camber for pavement and side shoulders shall be adopted as 2.5% and 3.5% (minimum), respectively as per clause 6.6 of IRC:SP:19-2001.

2.2.5 Detailed alignment plan, L-section and cross-section after incorporating above modifications may be re-drawn showing all requisite details as per plate 2/3 or clause 17.4.3 of IRC- SP:19-2001 and enclose the same with the estimate to ensure that the alignment conforms to relevant IRC standards for ODR in hilly terrain. The same may be approved by State Chief Engineer (PWD) before commencement of the work. A set of finally approved drawings may be sent to Ministry for reference and record.

2.3 Earthwork:-

2.3.1 It is noted that the side slopes in hill cutting have been adopted as per Clause 7.4.1 of IRC-SP:48-1998. However, the payment shall be made as per the actual soil strata met with during the execution.

2.3.2 Further, it is noted from details given in the estimate that about 10% of the total quantity of earthwork obtained from excavation of hill cutting is hard rock, therefore the necessary credit may have to be given to the estimate for the useful stone material to be obtained out of hill cutting. However, the earthwork quantity as proposed by State PWD has been retained for estimate purpose.

2.4 Pavement:-

2.4.1 It is noted that in the reach from Ch. 1/260 to 2/440, the crust has already been constructed and one layer each of WBM Gr. I and WBM Gr. II has already been laid in the road section from Ch. 2/440 to 4/710. State PWD has proposed a crust thickness of 175 mm only, which has been modified to 270 mm with the following crust composition.

Sl. No.	Stretch (Ch.)	Crust composition	Compacted thickness (in mm)		Remarks
			As per PWD	As allowed In Ministry	
i.	0/0 to 1/260 & 4/710 to 19/215	WBM Gr.-I	100	100	In full carriageway width of 3.75m with 10% extra provision for passing places & curves
ii.		WBM Gr.-II	75	75	
iii.	0/0 to 1/260 & 2/440 to 19/215	WBM Gr. – III@	75	75	
iv.		PC with seal coat	25	20	

@ WBM Gr. III layer will be provided in 17894m length (i.e. from Ch. 0/0 to 1/260 & 2/440 to 19/215) against a length of 2270m (from Ch. 2/440 to 4/710) only as proposed by State PWD.

2.4.2 10% extra provision for passing place and curves has been provided in the estimate, which has been allowed from estimate proposed. The passing place shall be provided as per guidelines vide clause 6.11 of IRC:48-1998.

2.4.3 No provisions for prime coat and tack coat have been included in the estimate. The same has now been included as per clauses 502/503, respectively, of the Ministry's specifications for Road and Bridge works (4th Revision–August 2001). A combined rate of Rs. 30/- per sq.m for prime and tack coats has been provided in the estimate.

2.4.4 The bitumen for prime coat and tack coat shall be emulsion, complying with clauses 502/503 respectively of the Ministry's specifications for Road and Bridge Works (4th Revision–August 2001). The quantity of bitumen in prime coat & tack coat shall conform to the Ministry's specifications in this regard.

2.4.5 20 mm thick PC shall be provided complying with clause 511 of the Ministry's specifications for Road and Bridge Works (4th Revision–August 2001), in place of proposed 25mm thick PC layer. Further, seal coat type 'A' shall be provided complying with clause 513 of the Ministry's specifications.

2.5 C.D. Works:

2.5.1 Construction of 55 RCC slab culverts having a span of 1.0m and 20 RCC slab culverts having a span of 2.0 m have been proposed in addition to 19 culverts already existing at various locations. However, the necessity of these additional culverts has not been supported with hydraulic details. It is, however, presumed that State Chief Engineer has satisfied himself about the necessity, location and efficacy of waterways of the proposed RCC slab culverts. Therefore, the provision has been allowed in the estimate.

2.5.2 The overall width of proposed RCC culverts is adopted as 5.05 m, which has been modified to 6.0 m, equal to the width of approach road as per IRC guidelines. To account for this change, the cost of the proposed culverts has been enhanced by 10% on lump sum basis.

2.5.3 The working drawings for all culverts may be prepared by State PWD based on IRC:SP:20-2002 in conjunction with IRC:13-2004 and approved by the State Chief Engineer at his end before taking up the work.

2.6 Protection works:

Construction of retaining walls with heights of 3.0m and 4.0m, aggregating to length of 775 and 350m, respectively at different locations in the reach from Ch. 0/0 to 19/215 has been proposed by State PWD for the protection of formation, as per site condition. Further, the construction of 3.80m high breast wall aggregating to a length of 150m is also proposed in the estimate. However, the cross-sections of the road at the beginning/mid/end points of the proposed location of retaining walls have not been furnished for proper appreciation of the provisions made in the estimate. Nevertheless, the provision has been retained keeping in view necessity of such type of protection works in hilly region. However, the necessity, location, length/height of the proposed protection works may be reviewed as per site condition.

2.6.2 The stability of these protection works may be ascertained keeping in view the guidelines contained in clause 9.2/9.3 of IRC-SP:48-1998. Based on the above, working drawings for the same may be prepared and approved by the competent authority before commencement of the work.

2.7 Miscellaneous provisions:

2.7.1 PCC/Earthen Road side drains:

State PWD has proposed lined (PCC) side drains in a length of 9200m. However, in the absence of any supporting details, the provision of lined side drains at this stage, when the newly constructed uphill slope is not stabilized and prone to sliding or other damages, is not advisable. Moreover, the road may have to be widened to two lane in near future. However, a lump-sum provision of 500 m length lined side drains has been allowed, which will be provided in urban stretches besides other stretches as per site condition. The proposed trapezoidal kuchcha drain with top width 600mm, bottom width 300mm & depth 450mm in an aggregating length of 17383m has been retained in the estimate as proposed by the State PWD.

2.7.2 Road Sign Boards:

It is noted that no provision for road sign boards has been included in the scope of the work, which is mandatory as per Ministry's policy for the safety and convenience of road users. A detailed proposal for the same may be prepared after finalizing the location/type etc. of the signboard as per site condition conforming to IRC:67-2001 and the same may be approved by competent authority. All signboards shall be with retro-reflective sheeting as per Ministry's specifications. A lump-sum provision of Rs. 10 lakhs has been made in the estimate for this purpose.

2.7.3 Km Stone:

The provision for km stones as proposed has been allowed. However, these shall be provided as per Clause 804 of Ministry's Specifications in conjunction with IRC:8-1980.

2.7.4 T&P and Site Office:

Separate provision made in the estimate for T&P site office has been deleted. In case the provision for the site office is considered necessary, the cost of the same may be met out of the contingencies of the estimate provided separately.

3. Rates & leads:

The Rates and lead has been approved by competent authority as communicated by Chief Engineer (WZ).

4. Cost of work:

4.1 The various centage (e.g. 2.80% contingency, 1% quality control and 1.5% work charge establishment) have now been provided in the estimate as per Ministry's norms.

4.2 The estimate in the light of above comments works out to **Rs. 1089.97 lakhs** with Ministry's share of **Rs. 544.98 lakhs**.

5. Targets for the work:

The following physical and financial cumulative targets may be achieved depending upon availability of funds:-

Year	Physical Phasing	Financial progress (Rs. in Lakhs)	Ministry's Share (Rs. In Lakhs)
2005-2006	10	100.00	50.00
2006-2007	40	450.00	225.00
2007-2008	90	1000.00	500.00
2008-2009	100	1089.97	544.98

6.0 TENDER:-

6.1 Tender shall be invited and accepted strictly as per Ministry's guidelines as detained in the Ministry's circular No. RW/NH/11026/2/99 US (DI) dated 13.1.2000 & RW/NH/11024/3/99 US (DI) dated 9.3.2000.

6.2 The work shall be awarded, as per guidelines issues vide letter No. NH-15015/29/2001-PL dated 5.7.2001 and circular No. NH-12037/49/01/NER/NH-10 dated 16/7/2001.

6.3 The tenders for the work will be called strictly as per Ministry's Standard Bidding Document issued vide letter No. 12037/49/01/NER/NH-10 dated 16.07.2001.

6.4 In accordance with the order contained in the Ministry's circular letter No. RW/NH-11026/2/99-US (P) dated 13.1.2000, if the cost of tender exceeds 5% of the sanctioned cost, the work shall be got de-sanctioned and fresh estimate be got sanctioned from this Ministry.

- 6.5 The contractor should possess all required machinery such as hot mix plant, Paver finisher, road roller, wheel barrows, bitumen boiler, sprayer etc. and should be able to procure all required materials including bitumen, to execute the work as per Ministry's specifications.
- 6.6 The state PWD will intimate this Ministry and Ministry's Regional officer at Guwahati about the award of contract/commencement of work immediately as per instruction contained in this Ministry letter No. RW/NH-11060/1/98-(DO-I) dated 5.11.1998.

7. GENERAL CONDITIONS:

- 7.1 No work beyond the scope of the sanctioned estimate leading either to increase in the scope of the work or change in specifications should be undertaken without prior written approval of the Ministry. In this connection this Ministry's letter No. RW/NHIII/Coord/32/84 dated 19.5.84 refers.
- 7.2 The work may be executed as per Ministry's "Specifications for Road and Bridge Works" (4th Revision–August 2001) and instructions issued by this Ministry from time to time. Deviation in specifications for any work should be got approved from the Ministry before adopting the same.
- 7.3 Provisions for quality control @1% has been allowed. The work is to be carried out in accordance with the "Hand Book of Quality Control for construction of Roads and Runways (Second Revision) – IRC SP:11-1998", observing strict quality control instructions contained in Ministry's letter No. NHIII/P/I/83 dated 19.4.84 and permanent records maintained thereof.
- 7.4 Central Government machinery if available in the area shall be used in the work as spelt out in this Ministry's letter No. RW-14(1)/83-RMP dated 7.6.1988. In case of no availability of the Central Government machinery in the area, the work will be allotted to such contractors only who possesses the required machinery or produces proof of procuring or hiring the same to the satisfaction of the Chief Engineer.
- 7.5 Neither the work nor any item of work shall be split into small parts for awarding the work to a number of contractors. In case any splitting is essential due to the specific prevailing conditions, it should be done only after prior approval of this Ministry. In this regard instructions issued in the Ministry's letter No. NHIII/P/75/78 dated 4.8.84 refers.
- 7.6 Bitumen used for the work shall be heated in boilers only and not on open fire. Spraying of bitumen wherever necessary should be done only with the mechanical sprayers and premixing of bitumen and stone aggregates should be done only in the proper mechanical mixer/hot mix plant and Paver-finisher conforming to Ministry's specifications.
- 7.7 The selection of grade of bitumen to be used in the work shall be as per guidelines used vide Ministry's circular No. RW/NH-33044/3/98-S&R dated 04.11.1999. No bitumen should be used which is having a softening point of less than 45⁰ Celsius as per Ministry's direction issued vide letter No. RW/NH-35074/7/2001-S&R dated 3.4.2001.

- 7.8** Collection of material on the roadside should be so planned that it commensurate with the physical progress of work and the collected material should not cause any hindrance to the traffic.
- 7.9** During the course of execution of work, traffic may be regulated in accordance with the guidelines contained in Ministry's letter No. RW/NH/33038/1/87-NH-Std. dated 8-10-87. The display boards on development activities of the work shall be made as per guidelines vide Ministry's letter No. RW/NH-33044/10/2000-S&R dated 17.7.2001.
- 7.10** Roughness measurements as an aid to more effective monitoring of road construction and maintenance operation will be taken before start and after completion of work as per guidelines circulated to the State PWD in Ministry's letter No. RW/NH-33044/10/2000-S&R dated 22.05.2000 and the same reported to the Ministry.
- 7.11** The display boards on development activities of the work shall be made as per guidelines issued vide Ministry's letter No. RW/NH-33044/10/2000-S&R dated 12.08.2002.
- 7.12** Submission of monthly progress report as desired by vide Ministry's letter No. RW/NH-33044/10/2002-S&R (R) dated 26.05.03 may be ensured.



(T.T. NEGI)

Executive Engineer

For Director General (Road Development) & Special Secretary