

SUMMARY OF THE PROPOSALS

Name of Work –The National Highway Division, Aurangabad Bihar has decided to improvement Two Laning with Paved Shoulder for Existing portion (CH: 40+460 (Design CH-38+650) to CH: 46+860 (Design CH: 45+050)) of NH-219 of Mohania -Bhabhua -Chainpur -UP Border in Bihar on EPC Mode.

In view of present Traffic Scenario, it has been decided for widening and strengthening of existing portion from (CH: 40+460 (Design CH-38+650) to CH: 46+860 (Design CH: 45+050)) of NH-219.

The road passes through important township, Villages /habitations or the Built-up sections Chand village, Majhwan village, Sahabazpur village, Jigna village, and Jigna village.

The total length of the project road is 6.4 km from Km Ch. 38.650 to Km Ch. 45.050 is passing under the administrative boundary of Kaimur Forest Division, Bihar. Improvement of Project Highway as per the applicable IRC codes needs to be widened.

There is no reserve forest near the project road, however, the road has been designated as notified protected forest by Govt. of Bihar attached as Annexure-II. Proposal involves felling of trees from the existing plantation which is notified as protected Forest and approx. 8.0 Ha. Forest land will be affected.

- I. **Total length:** - The total length of the project road is 6.4 km from Km Ch. 38.650 to Km Ch. 45.050 of NH-219 has been proposed.
- II. **Existing Carriage way (including width):** - Green Field alignment & Existing portion carriageway 5.5 m.
- III. **Proposed Carriage way (including width):** - 7.0 m carriageway + 2 x 1.5 m paved shoulder + 2 x 1 m earthen shoulder in open area.
- IV. **Existing/ Available Row:** - 10 to 22 m.
- V. **Total 14 Nos. of Culverts** of different types has been found in the project section in existing portion from Km 40.460 to Km 46.860.
- VI. **The total number of minor roads Jn. (5Nos.)** are meeting NH-219 at different locations throughout the project section from design Ch. 38.650 to 45.050. These minor junctions comprise of adjoining feeder roads and village roads connected with NH-219 at different locations.
- VII. **Proposed Crust Thickness –**
Overlay on existing portion - 200 mm GSB, 250 mm WMM, 95 mm DBM, 40 mm BC
Widening portion- 200 mm GSB, 250 mm WMM, 95 mm DBM, 40 mm BC
- VIII. **CBR of Subgrade:** - Since the present case is widening of highway in terms of paved shoulder & strengthening of existing pavement. The widening of existing Pavement shall be carried out based on the CBR data obtained after field and lab. As per test results, the Sub grade soils along the existing alignment are showing similar character and are mostly Light Yellowish Grey with Brownish Patches Silty Fine Sand / Light Yellowish Grey Clayey Sandy Silt with some percentage of clay. 4 days soaked CBR values ranging between 2.6 to 6.13 and recommended CBR for existing Sub-Grade soil is 6% for design of pavement and widening section as per IRC 37:2018 better Sub grade soil is to be laid to improve the CBR up to 8% and so for widening portion 8% CBR has been adopted for design purpose.

- IX. **Design Traffic:** - Design Traffic for Project Section has been taken as 915 commercial Vehicles per day in both direction and Average vehicle damage factor of 5 has been adopted as per clause 4.4.6 of IRC: 37-2018. The data adopted is projected for the design life of road as per clause 4.6 of IRC: 37
- X. **Design Thickness of Pavement Layers:** Based upon design CBR values obtained from soil tests of existing sub-grade soil and Borrow pits and design traffic in msa, the thickness of component layers of the pavement (paved shoulder) was obtained from the corresponding thickness design chart in IRC: 37 – 2018.
- XI. **. Pavement Design: -**
- (i) Widening portion: - Widening of existing stretch from (CH: 40+460 (Deisgn CH-38+650) to CH: 46+860 (Deisgn CH: 45+050)).
- (ii) The National Highway Division, Aurangabad Bihar has decided to improvement Two Laning with Paved Shoulder for Existing portion (CH: 40+460 (Design CH-38+650) to CH: 46+860 (Design CH: 45+050)) of NH-219 of Mohania -Bhabhua -Chainpur -UP Border in Bihar on EPC Mode

Design of Flexible Pavement Widening / Paved Shouldering

Based on the Traffic data, Existing Road Crust data, Pavement Condition Data, CBR test result and Axle Load test data, Road Section Wise design of pavement have been carried out.

Widening of existing stretch from (CH: 40+460 (Deisgn CH-38+650) to CH: 46+860 (Deisgn CH: 45+050)).

Design Life: The design life has been adopted as 20 years as recommended by IRC-37, vide clause 4.3.1. Similarly, the design of overlay has been done for 20 years period as per guidelines of IRC 81. After 20 years period, further strengthening layer making up the short falls in pavement thickness along with a profile corrective course after evaluation of structural strength by non-destruction test, will be provided.

Sub Grade: Since the present case is widening of highway in terms of paved shoulder & strengthening of existing pavement. The widening of existing Pavement shall be carried out based on the CBR data obtained after field and lab. As per test results, the Sub grade soils along the existing alignment are showing similar character and are mostly Light Yellowish Grey with Brownish Patches Silty Fine Sand / Light Yellowish Grey Clayey Sandy Silt with some percentage of clay. 4 days soaked CBR values ranging between 2.6 to 6.13 and recommended CBR for existing Sub-Grade soil is 6% for design of pavement and widening section as per IRC 37:2018 better Sub grade soil is to be laid to improve the CBR up to 8% and so for widening portion 8% CBR has been adopted for design purpose.

- **Design Traffic:** Design Traffic for Project Section has been taken as 915 commercial Vehicles per day in both direction and Average vehicle damage factor of 5 has been adopted as per clause 4.4.6 of IRC: 37-2018. The data adopted is projected for the design life of road as per clause 4.6 of IRC: 37

Design Thickness of Pavement Layers: Based upon design CBR values obtained from soil tests of existing sub-grade soil and Borrow pits and design traffic in msa, the thickness of component

layers of the pavement (paved shoulder) was obtained from the corresponding thickness design chart in IRC: 37 – 2018.

Design of Flexible Pavement Widening / Paved Shouldering in Project section

Recommended Crust Thickness and overlay for adoption under proposed widening and strengthening work of NH-219 from Km Ch. 38.650 to Km Ch. 45.050: -

Overlay on existing portion - 200 mm GSB, 250 mm WMM, 95 mm DBM, 40 mm BC

Widening portion- 200 mm GSB, 250 mm WMM, 95 mm DBM, 40 mm BC

As per outcome of Design of Flexible Pavement for Paved shoulder as per IRC 37-2018 and Strengthening Overlay design as per IRC 81, the proposed Crust Composition for adoption.

Government of India has decided to upgrade the project stretch for better connectivity to people in order to improve the condition of the road transport network of the state and contribute to its economy development.

The project road section traverse through built-up area but avenue plantation of existing road has been declared as Notified Protected Forest by the Government of Bihar under the Forest (Conservation) Act. 1980. Therefore Forest Clearance to be accorded from Ministry of Environment Forest & Climate change, Government of India for felling of trees under Notified Protected Forest Land.

There is no reserve forest near the project road, however, the road has been designated as notified protected forest by Govt. of Bihar attached as Annexure-II. Proposal involves felling of trees from the existing plantation which is notified as protected Forest and approx. 8.0 Ha. Forest land will be affected.

The project will not generate directly employment opportunities to people but it can arise opportunity of employment in the future construction work of project road will be awarded to employment in the future. Contractor will hire some skilled and non-skilled persons as per the requirement of construction work.

Total Cost of the project is **36.60 Crore**. Alignment has been designed carefully for the requirement of forest area.

Date: - 10.01.2022

Place: - Aurangabad


Executive Engineer
N.H. Division Aurangabad

Executive Engineer
N.H. Division, Aurangabad