

## **Schedules**

## **SCHEDULE - A**

*(See Clauses 2.1 and 8.1)*

### **SITE OF THE PROJECT**

#### **1 The Site**

- 1.1 Site of the Single-Lane Project Highway shall include the land, buildings, structures and road works as described in Annex-I of this Schedule-A.
- 1.2 The dates of handing over the Right of Way to the Contractor are specified in Annex-II of this Schedule-A.
- 1.3 An inventory of the Site including the land, buildings, structures, road works, trees and any other immovable property on, or attached to, the Site shall be prepared jointly by the Authority Representative and the Contractor, and such inventory shall form part of the memorandum referred to in Clause 8.2.1 of this Agreement.
- 1.4 The alignment plans of the Project Highway are specified in Annex-III. In the case of sections where no modification in the existing alignment of the Project Highway is contemplated, the alignment plan has not been provided. Alignment plans have only been given for sections where the existing alignment is proposed to be modified.
- 1.5 The status of the environment clearances obtained or awaited is given in Annex IV.

## Annex - I

(Schedule-A)

### Site

#### 1. Site

The site of the single lane of length is about 43.10 Km consisting of MDR-17 & MDR-20 from Nongstoin town to Wakhaji in the West Khasi Hill District of the state of Meghalaya.

The project road contain complete MDR-17 (25 Kms) from Nongstoin to Laitsawsnai , Thereafter it joins MDR-20 at its chainage at Km 46 and follows up to Km 64 at Wakhaji (18 Kms).

The land, carriageway and structures comprising the Site are described below.

#### 2. Land

The Site of the Project Road comprises of ROW of about 30 m except from Km 10.00 to 16.00 where ROW is 9 m. The existing condition of the road is poor in most of the stretch. The terrain is hilly in the entire stretch.

#### 3. Carriageway

The present carriageway of the Project Road is Single lane with average formation width of 6 m and carriageway width of 3.5 m with earthen shoulders of width 1.25 m on either side for the entire stretch. The type of the existing pavement is flexible.

#### 4. Major Bridges

The Site includes the following major bridges:

| Sl. No. | Existing Chainage (Km) | Type of structure |               |                 | Length (m) | Width (m) | Remarks        |
|---------|------------------------|-------------------|---------------|-----------------|------------|-----------|----------------|
|         |                        | Foundation        | Sub-Structure | Super-Structure |            |           |                |
| 1       | 9.111                  | Open              | RCC Wall Type | Iron            | 89.718     | 4.228     | Poor condition |

#### 5. ROB

The Site includes the following ROB/RUB:

| S. No. | Chainage (km) | Type of structure |                | No. of Spans with span length(m) | Width(m) | ROB/RUB |
|--------|---------------|-------------------|----------------|----------------------------------|----------|---------|
|        |               | Foundation        | superstructure |                                  |          |         |
| NIL    |               |                   |                |                                  |          |         |

#### 6. Grade separators

The Site includes the following grade separators:

| S. No. | Chainage (km) | Type of Structure |                | No. of Spans with span length(m) | Width |
|--------|---------------|-------------------|----------------|----------------------------------|-------|
|        |               | Foundation        | Superstructure |                                  |       |
| NIL    |               |                   |                |                                  |       |

#### 7. Railway level crossings

The Site includes the following underpasses:

| S. No. | Location(km) | Remar |
|--------|--------------|-------|
| NIL    |              |       |

**8. Underpasses (vehicular, non vehicular)**

The Site includes the following underpasses:

| S. No. | Chainage (km) | Type of structure | No. of spans with span length(m) | Width(m) |
|--------|---------------|-------------------|----------------------------------|----------|
| NIL    |               |                   |                                  |          |

**9. Truck Lay byes**

The details of truck lay byes are as follows:

| S. No. | Chainage (km) | Length(m) | Left Hand Side | Right Hand Side |
|--------|---------------|-----------|----------------|-----------------|
| NIL    |               |           |                |                 |

**10. Road side drains**

The details of the roadside drains are as follows:

| S. No. | Locatio |       | Typ               |         |
|--------|---------|-------|-------------------|---------|
|        | From km | to km | Masonry/cc Pucca) | Earthen |
| NIL    |         |       |                   |         |

**11. Minor bridges**

The Site includes the following minor bridges:

| Sl. No | Chainage (Km) | Type of structure |               |                 | No. of Spans with span length (m)(c/c of exp gap) | Width (m) |
|--------|---------------|-------------------|---------------|-----------------|---|-----------|
|        |               | Foundation        | Sub-Structure | Super-Structure |   |           |
| 1      | 2.425         | Open              | RCC Wall      | RCC Solid       | 1 x 13.522  | 6.155     |
| 2      | 9.875         | Open              | RCC Wall      | RCC Solid       | 1 x 12.448  | 5.544     |
| 3      | 15.050        | Open              | RCC Wall      | RCC Solid       | 1x 8.539  | 5.210     |
| 4      | 27.795        | Open              | RCC Wall      | Iron            | 1x 19.376   | 3.863     |
| 5      | 40.137        | Open              | RCC Wall      | RCC Solid       | 1 x 10.345  | 5.019     |
| 6      | 40.516        | Open              | Wooden        | Wooden          | 1 x 8.178   | 4.806     |
| 7      | 41.827        | Open              | RCC Wall      | RCC Solid       | 1 x 11.430  | 4.555     |

**12. Culverts**

The Site has the following culverts:

| Sl. No | EXISTING CULVERT |                   |  |                      |             |         |
|--------|------------------|-------------------|--|----------------------|-------------|---------|
|        | Location (km )   | Type of structure | Span Arrangement and Total vent way (No. x Length(m) | Width of culvert (m) | vent height | Remarks |
| 1      | 0+150            | STONE             | 1 X 1.9  | 6.90                 | 0.800       | POOR    |
| 2      | 0+257            | STONE             | -  | -                    |             | CHOKED  |
| 3      | 0+346            | STONE             | -  | -                    |             | CHOKED  |
| 4      | 0+396            | HP                | 1 X 0.600  | -                    |             | POOR    |
| 5      | 0+444            | HP                | 1 X 1.200  | -                    |             | POOR    |
| 6      | 0+476            | STONE             | -  | -                    |             | POOR    |
| 7      | 0+537            | HP                | 1 X 0.600  | -                    |             | POOR    |

|    |       |       |           |       |       |        |
|----|-------|-------|-----------|-------|-------|--------|
| 8  | 0+637 | STONE | -         | -     |       | CHOKED |
| 9  | 0+700 | STONE | 1 X 2.06  | 6.90  | 0.673 | POOR   |
| 10 | 0+766 | BOX   | 1 X 0.68  | 8.03  | 0.900 | POOR   |
| 11 | 0+841 | STONE | 1 X 2.06  | 6.90  | 0.673 | POOR   |
| 12 | 0+914 | STONE | 1 X 2.83  | 5.17  | 0.499 | POOR   |
| 13 | 0+977 | STONE | 1 X 1.31  | 6.70  | 0.422 | POOR   |
| 14 | 1+146 | STONE | -         | -     |       | CHOKED |
| 15 | 1+282 | STONE | -         | -     |       | CHOKED |
| 16 | 1+345 | STONE | -         | -     |       | CHOKED |
| 17 | 1+500 | STONE | -         | -     |       | CHOKED |
| 18 | 1+575 | STONE | -         | -     |       | CHOKED |
| 19 | 1+580 | STONE | -         | -     |       | CHOKED |
| 20 | 1+624 | STONE | -         | -     |       | CHOKED |
| 21 | 1+710 | STONE | 1 X 0.8   | 11.66 |       | POOR   |
| 22 | 1+759 | STONE | -         | -     | -     | CHOKED |
| 23 | 1+979 | STONE | -         | -     | -     | CHOKED |
| 24 | 2+060 | STONE | -         | -     | -     | CHOKED |
| 25 | 2+125 | STONE | -         | -     | -     | CHOKED |
| 26 | 2+173 | STONE | -         | -     | -     | CHOKED |
| 27 | 2+200 | STONE | -         | -     | -     | CHOKED |
| 28 | 2+283 | STONE | -         | -     | -     | CHOKED |
| 29 | 2+390 | STONE | 1 X 1.885 | 12.46 | 0.800 | POOR   |
| 30 | 2+572 | STONE | -         | -     | -     | CHOKED |
| 31 | 2+645 | SLAB  | 1 X 3.0   | 5.20  | 2.200 | POOR   |
| 32 | 2+760 | HP    | 1 X 1.200 | -     | -     | POOR   |
| 33 | 3+060 | HP    | 1 X 1.200 | -     | -     | POOR   |
| 34 | 3+151 | STONE | -         | -     | -     | CHOKED |
| 35 | 3+290 | SLAB  | 1 X 1.6   | 5.10  | 2.500 | POOR   |
| 36 | 3+413 | HP    | 1 X 0.600 | -     | -     | POOR   |
| 37 | 3+482 | STONE | 1X0.9     | 6.11  | 0.658 | POOR   |
| 38 | 3+650 | STONE | 1X0.6     | 7.00  | 0.800 | POOR   |
| 39 | 3+790 | STONE | 1X0.6     | 7.00  | 0.800 | POOR   |
| 40 | 3+857 | STONE | 1X08      | 7.40  | 0.600 | POOR   |
| 41 | 3+900 | HP    | 1X1600    | -     | -     | POOR   |
| 42 | 4+075 | STONE | 1X0.3     | 7.62  | 0.500 | POOR   |
| 43 | 4+134 | HP    | 1X900     | -     | -     | POOR   |
| 44 | 4+212 | STONE | 1X0.3     | 6.80  | 0.500 | POOR   |
| 45 | 4+336 | STONE | -         | -     | -     | CHOKED |
| 46 | 4+404 | STONE | -         | -     | -     | CHOKED |
| 47 | 4+450 | STONE | -         | -     | -     | CHOKED |

| Sl. No. | EXISTING CULVERT |                   |  |                      |             |         |
|---------|------------------|-------------------|--|----------------------|-------------|---------|
|         | Location (km )   | Type of structure | Span Arrangement and Total vent way (No.x Length(m)) | Width of culvert (m) | vent height | Remarks |
| 48      | 4+507            | HP                | 1X1600   | -                    | -           | POOR    |
| 49      | 4+475            | STONE             | -  | -                    | -           | CHOKED  |
| 50      | 4+726            | STONE             | -  | -                    | -           | CHOKED  |
| 51      | 4+845            | STONE             | -  | -                    | -           | CHOKED  |
| 52      | 4+962            | STONE             | -  | -                    | -           | CHOKED  |
| 53      | 4+971            | STONE             | -  | -                    | -           | CHOKED  |
| 54      | 5+015            | HP                | 1X1200   | -                    | -           | POOR    |
| 55      | 5+090            | HP                | 1X1600   | -                    | -           | POOR    |
| 56      | 5+152            | STONE             | 1X0.5  | 8.40                 | 0.70        | POOR    |
| 57      | 5+195            | STONE             | 1X0.5  | 8.40                 | 0.80        | POOR    |
| 58      | 5+333            | HP                | 2X1200   | -                    | -           | POOR    |
| 59      | 5+472            | HP                | 1X1200   | -                    | -           | POOR    |
| 60      | 5+560            | HP                | 1X900  | -                    | -           | POOR    |
| 61      | 5+868            | HP                | 2X1200   | -                    | -           | POOR    |
| 62      | 5+870            | HP                | 1X1200   | -                    | -           | POOR    |
| 63      | 5+900            | HP                | 1X900  | -                    | -           | POOR    |
| 64      | 5+929            | HP                | 1X900  | -                    | -           | POOR    |
| 65      | 6+064            | HP                | 1x900  | -                    | -           | CHOKED  |
| 66      | 6+142            | SLAB              | 4.47   | 3.95                 | 3.66        | POOR    |
| 67      | 6+343            | HP                | 1X1200   | -                    | -           | POOR    |
| 68      | 6+386            | HP                | 1X1200   | -                    | -           | POOR    |
| 69      | 6+480            | HP                | 1X1200   | -                    | -           | POOR    |
| 70      | 6+604            | HP                | 1X600  | -                    | -           | POOR    |
| 71      | 6+716            | SLAB              | 1X0.8  | 8.30                 | 0.90        | POOR    |
| 72      | 6+744            | HP                | 1X900  | -                    | -           | POOR    |
| 73      | 6+764            | SLAB              | 5.93   | 4.00                 | 3.94        | POOR    |
| 74      | 6+778            | HP                | 1X600  | -                    | -           | POOR    |
| 75      | 6+868            | HP                | 1X1200   | -                    | -           | POOR    |
| 76      | 7+000            | HP                | 1X600  | -                    | -           | POOR    |
| 77      | 7+231            | HP                | 1X600  | -                    | -           | POOR    |
| 78      | 7+336            | HP                | 1X600  | -                    | -           | POOR    |
| 79      | 7+386            | HP                | 1X600  | -                    | -           | POOR    |
| 80      | 7+470            | HP                | 1X900  | -                    | -           | POOR    |
| 81      | 7+612            | HP                | 1X1200   | -                    | -           | POOR    |
| 82      | 7+712            | HP                | 1X1200   | -                    | -           | POOR    |
| 83      | 7+800            | HP                | 1X600  | -                    | -           | POOR    |
| 84      | 7+900            | HP                | 1X1200   | -                    | -           | POOR    |
| 85      | 8+038            | HP                | 1X900  | -                    | -           | POOR    |
| 86      | 8+181            | HP                | 1X600  | -                    | -           | POOR    |
| 87      | 8+425            | HP                | 1X600  | -                    | -           | POOR    |
| 88      | 8+508            | HP                | 1X900  | -                    | -           | POOR    |
| 89      | 8+577            | HP                | 1X900  | -                    | -           | POOR    |
| 90      | 8+612            | HP                | 1X1200   | -                    | -           | POOR    |
| 91      | 8+731            | HP                | 1X900  | -                    | -           | POOR    |
| 92      | 8+757            | BOX               | 1X0.9  | 8.50                 | 0.70        | POOR    |
| 93      | 8+825            | HP                | 1X900  | -                    | -           | POOR    |
| 94      | 8+853            | HP                | 1X900  | -                    | -           | POOR    |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

|    |       |     |       |   |      |        |
|----|-------|-----|-------|---|------|--------|
| 95 | 8+918 | HP  | 1X600 | - | -    | POOR   |
| 96 | 8+975 | BOX | -     | - | 0.50 | CHOKED |
| 97 | 9+011 | HP  | 1X900 | - | -    | POOR   |

| Sl. No | EXISTING CULVERT |                   |  |                      |             |         |
|--------|------------------|-------------------|--|----------------------|-------------|---------|
|        | Location (km )   | Type of structure | Span Arrangement and Total vent way (No.x Length(m)) | Width of culvert (m) | vent height | Remarks |
| 98     | 9+297            | HP                | 1X900  | -                    | -           | POOR    |
| 99     | 9+389            | HP                | 1X900  | -                    | -           | POOR    |
| 100    | 9+475            | HP                | 1X900  | -                    | -           | POOR    |
| 101    | 9+553            | HP                | 1X900  | -                    | -           | POOR    |
| 102    | 9+618            | HP                | 1X900  | -                    | -           | POOR    |
| 103    | 9+800            | HP                | 1X900  | -                    | -           | POOR    |
| 104    | 10+043           | HP                | 1X900  | -                    | -           | POOR    |
| 105    | 10+127           | HP                | 1X900  | -                    | -           | POOR    |
| 106    | 10+175           | HP                | -  | -                    | -           | CHOKED  |
| 107    | 10+455           | HP                | 1X900  | -                    | -           | POOR    |
| 108    | 10+750           | HP                | 1X1200   | -                    | -           | POOR    |
| 109    | 10+969           | HP                | 1X1200   | -                    | -           | POOR    |
| 110    | 11+159           | HP                | 1X900  | -                    | -           | POOR    |
| 111    | 11+300           | HP                | 1X1200   | -                    | -           | POOR    |
| 112    | 11+445           | HP                | 1X1200   | -                    | -           | POOR    |
| 113    | 11+467           | HP                | 1X1200   | -                    | -           | POOR    |
| 114    | 11+570           | HP                | 1X600  | -                    | -           | POOR    |
| 115    | 11+652           | HP                | 1X1200   | -                    | -           | POOR    |
| 116    | 11+781           | HP                | 1X900  | -                    | -           | POOR    |
| 117    | 11+925           | HP                | 1X900  | -                    | -           | POOR    |
| 118    | 12+034           | HP                | 1X900  | -                    | -           | POOR    |
| 119    | 12+185           | HP                | 1X900  | -                    | -           | POOR    |
| 120    | 12+216           | HP                | 1X1200   | -                    | -           | POOR    |
| 121    | 12+313           | HP                | 1X1200   | -                    | -           | POOR    |
| 122    | 12+372           | HP                | 1X1200   | -                    | -           | POOR    |
| 123    | 12+482           | HP                | 1X1200   | -                    | -           | POOR    |
| 124    | 12+757           | HP                | 1X1200   | -                    | -           | POOR    |
| 125    | 13+217           | HP                | 1X900  | -                    | -           | POOR    |
| 126    | 13+382           | HP                | -  | -                    | -           | CHOKED  |
| 127    | 13+456           | HP                | 1X900  | -                    | -           | POOR    |
| 128    | 13+525           | HP                | 1X900  | -                    | -           | POOR    |
| 129    | 13+838           | HP                | 1X1200   | -                    | -           | POOR    |
| 130    | 14+044           | HP                | 1X1200   | -                    | -           | POOR    |
| 131    | 14+270           | HP                | 1X1200   | -                    | -           | POOR    |
| 132    | 14+435           | HP                | 1X1200   | -                    | -           | POOR    |
| 133    | 14+477           | HP                | 1X900  | -                    | -           | POOR    |
| 134    | 14+550           | HP                | 1X900  | -                    | -           | POOR    |
| 135    | 14+555           | HP                | 1X900  | -                    | -           | POOR    |
| 136    | 14+632           | HP                | 1X900  | -                    | -           | POOR    |
| 137    | 14+696           | HP                | 1X1200   | -                    | -           | POOR    |
| 138    | 14+727           | HP                | -  | -                    | -           | CHOKED  |
| 139    | 14+759           | HP                | 1X1200   | -                    | -           | POOR    |
| 140    | 14+862           | HP                | 1X1200   | -                    | -           | POOR    |
| 141    | 14+937           | HP                | 1X900  | -                    | -           | POOR    |
| 142    | 15+186           | HP                | 1X1200   | -                    | -           | POOR    |
| 143    | 15+244           | HP                | 1X900  | -                    | -           | POOR    |
| 144    | 15+291           | HP                | 1X1200   | -                    | -           | POOR    |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE



|     |        |    |        |   |   |        |
|-----|--------|----|--------|---|---|--------|
| 145 | 15+384 | HP | -      | - | - | CHOKED |
| 146 | 1+558  | HP | 1X1200 | - | - | POOR   |
| 147 | 15+694 | HP | 1X1200 | - | - | POOR   |

| Sl. No | EXISTING CULVERT |                   |  |                      |             |         |
|--------|------------------|-------------------|--|----------------------|-------------|---------|
|        | Location (km )   | Type of structure | Span Arrangement and Total vent way (No.x Length(m)) | Width of culvert (m) | vent height | Remarks |
| 148    | 15+750           | HP                | 1X1200   | -                    | -           | POOR    |
| 149    | 15+783           | HP                | 1X1200   | -                    | -           | POOR    |
| 150    | 15+825           | HP                | 1X1200   | -                    | -           | POOR    |
| 151    | 15+984           | HP                | -  | -                    | -           | CHOKED  |
| 152    | 16+048           | HP                | 1X1200   | -                    | -           | POOR    |
| 153    | 16+088           | HP                | 1X1200   | -                    | -           | POOR    |
| 154    | 16+230           | HP                | 1X900  | -                    | -           | POOR    |
| 155    | 16+285           | HP                | 1X1200   | -                    | -           | POOR    |
| 156    | 16+591           | HP                | 1X1200   | -                    | -           | POOR    |
| 157    | 16+762           | HP                | 1X1200   | -                    | -           | POOR    |
| 158    | 16+813           | HP                | 1 x  | -                    | -           | POOR    |
| 159    | 16+884           | HP                | 1X1200   | -                    | -           | POOR    |
| 160    | 17+023           | HP                | 1X1200   | -                    | -           | POOR    |
| 161    | 17+108           | HP                | 1X1200   | -                    | -           | POOR    |
| 162    | 17+215           | HP                | 1X1200   | -                    | -           | POOR    |
| 163    | 17+246           | HP                | 1X900  | -                    | -           | POOR    |
| 164    | 17+312           | HP                | -  | -                    | -           | CHOKED  |
| 165    | 17+360           | HP                | 1X900  | -                    | -           | POOR    |
| 166    | 17+405           | HP                | 1X1200   | -                    | -           | POOR    |
| 167    | 17+467           | HP                | 1X900  | -                    | -           | POOR    |
| 168    | 17+537           | HP                | 1X1200   | -                    | -           | POOR    |
| 169    | 17+652           | HP                | 1X1200   | -                    | -           | POOR    |
| 170    | 17+846           | HP                | 1X1200   | -                    | -           | POOR    |
| 171    | 17+905           | HP                | 1X900  | -                    | -           | POOR    |
| 172    | 18+025           | HP                | 1X900  | -                    | -           | POOR    |
| 173    | 18+096           | HP                | 1X1200   | -                    | -           | POOR    |
| 174    | 18+114           | HP                | 1X1200   | -                    | -           | POOR    |
| 175    | 18+339           | HP                | 1X900  | -                    | -           | POOR    |
| 176    | 18+363           | HP                | 1X1200   | -                    | -           | POOR    |
| 177    | 18+421           | HP                | 1X1200   | -                    | -           | POOR    |
| 178    | 18+475           | HP                | 1X1200   | -                    | -           | POOR    |
| 179    | 18+548           | HP                | 1X1200   | -                    | -           | POOR    |
| 180    | 18+614           | HP                | 1X900  | -                    | -           | POOR    |
| 181    | 18+862           | HP                | 1X1200   | -                    | -           | POOR    |
| 182    | 18+923           | HP                | 1X1200   | -                    | -           | POOR    |
| 183    | 19+250           | HP                | 1X1200   | -                    | -           | POOR    |
| 184    | 19+677           | HP                | 1X900  | -                    | -           | POOR    |
| 185    | 19+825           | HP                | 1X900  | -                    | -           | POOR    |
| 186    | 19+944           | HP                | 1X900  | -                    | -           | POOR    |
| 187    | 20+164           | BOX               | -  | -                    | -           | CHOKED  |
| 188    | 20+260           | HP                | 1X900  | -                    | -           | POOR    |
| 189    | 20+616           | STONE             | 1X0.5  | 8.60                 | 0.800       | POOR    |
| 190    | 20+725           | STONE             | 1X0.6  | 5.60                 | 0.400       | POOR    |
| 191    | 20+789           | HP                | 1X1200   | -                    | -           | POOR    |
| 192    | 20+909           | HP                | 1X1200   | -                    | -           | POOR    |
| 193    | 21+219           | HP                | 1X1200   | -                    | -           | POOR    |
| 194    | 21+309           | HP                | 1X1200   | -                    | -           | POOR    |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

|     |        |       |        |      |       |      |
|-----|--------|-------|--------|------|-------|------|
| 195 | 21+788 | STONE | 1X0.6  | 8.60 | 0.800 | POOR |
| 196 | 22+250 | HP    | 1X1200 | -    | -     | POOR |
| 197 | 22+361 | HP    | 2X1600 | -    | -     | POOR |

| Sl. No | EXISTING CULVERT |                   |  |                  |             |         |
|--------|------------------|-------------------|--|------------------|-------------|---------|
|        | Location (km )   | Type of structure | Span Arrangement and Total vent way (No.x Length(m)) | Width of culvert | vent height | Remarks |
| 198    | 22+510           | HP                | 1X1200   | -                | -           | POOR    |
| 199    | 22+632           | STONE             | -  | -                | -           | CHOKED  |
| 200    | 22+823           | STONE             | 1X0.6  | 8.60             | 0.900       | POOR    |
| 201    | 22+923           | HP                | 1X1600   | -                | -           | POOR    |
| 202    | 23+198           | HP                | 1X1200   | -                | -           | POOR    |
| 203    | 23+421           | HP                | 1X1200   | -                | -           | POOR    |
| 204    | 23+679           | HP                | 1X1600   | -                | -           | POOR    |
| 205    | 23+761           | HP                | 1X1600   | -                | -           | POOR    |
| 206    | 23+885           | HP                | 1X1600   | -                | -           | POOR    |
| 207    | 23+946           | STONE             | 1X0.6  | 8.60             | 0.400       | POOR    |
| 208    | 23+994           | STONE             | 1X0.6  | 8.60             | 1.500       | POOR    |
| 209    | 24+190           | STONE             | -  | -                | -           | CHOKED  |
| 210    | 24+800           | HP                | 1X1200   | -                | -           | POOR    |
| 211    | 25+041           | SLAB              | 2X2.4  | 7.30             | 3.200       | POOR    |
| 212    | 25+187           | HP                | 1X900  | -                | -           | POOR    |
| 213    | 25+350           | HP                | 1X900  | -                | -           | POOR    |
| 214    | 25+450           | HP                | 1X1200   | -                | -           | POOR    |
| 215    | 25+753           | HP                | 1X900  | -                | -           | POOR    |
| 216    | 25+900           | HP                | 1X900  | -                | -           | POOR    |
| 217    | 26+111           | BOX               | 1X0.7  | 8.70             | 0.600       | POOR    |
| 218    | 26+170           | SLAB              | 1X0.8  | 8.30             | 1.100       | POOR    |
| 219    | 26+341           | SLAB              | 1X0.8  | 5.60             | 2.600       | POOR    |
| 220    | 26+458           | HP                | 1X1200   | -                | -           | POOR    |
| 221    | 26+566           | HP                | 1X1200   | -                | -           | POOR    |
| 222    | 26+634           | HP                | 1X1200   | -                | -           | POOR    |
| 223    | 26+693           | HP                | 1X600  | -                | -           | POOR    |
| 224    | 26+788           | HP                | 1X900  | -                | -           | POOR    |
| 225    | 26+875           | HP                | 1X900  | -                | -           | POOR    |
| 226    | 26+954           | HP                | 1X600  | -                | -           | POOR    |
| 227    | 26+998           | HP                | 1X900  | -                | -           | POOR    |
| 228    | 27+143           | HP                | 1X1200   | -                | -           | POOR    |
| 229    | 27+225           | HP                | 1X1200   | -                | -           | POOR    |
| 230    | 27+325           | HP                | 1X900  | -                | -           | POOR    |
| 231    | 27+409           | HP                | 1X1200   | -                | -           | POOR    |
| 232    | 27+485           | HP                | 1X600  | -                | -           | POOR    |
| 233    | 27+568           | HP                | 1X900  | -                | -           | POOR    |
| 234    | 27+583           | HP                | 1X1200   | -                | -           | POOR    |
| 235    | 27+636           | HP                | 1X900  | -                | -           | POOR    |
| 236    | 27+656           | HP                | 1X1200   | -                | -           | POOR    |
| 237    | 27+691           | HP                | 1X900  | -                | -           | POOR    |
| 238    | 27+871           | HP                | 1X600  | -                | -           | POOR    |
| 239    | 27+898           | HP                | 1X600  | -                | -           | POOR    |
| 240    | 27+975           | HP                | 1X1200   | -                | -           | POOR    |
| 241    | 28+030           | HP                | 1X600  | -                | -           | POOR    |
| 242    | 28+084           | HP                | 1X600  | -                | -           | POOR    |
| 243    | 28+128           | HP                | 1X600  | -                | -           | POOR    |
| 244    | 28+293           | HP                | 1X1200   | -                | -           | POOR    |
| 245    | 28+352           | HP                | 2X600  | -                | -           | POOR    |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

|     |        |    |       |   |   |      |
|-----|--------|----|-------|---|---|------|
| 246 | 28+439 | HP | 1X900 | - | - | POOR |
| 247 | 28+479 | HP | 1X900 | - | - | POOR |

| Sl. No | EXISTING CULVERT |                   |  |                  |             |         |
|--------|------------------|-------------------|--|------------------|-------------|---------|
|        | Location (km )   | Type of structure | Span Arrangement and Total vent way (No.x Length(m)) | Width of culvert | vent height | Remarks |
| 248    | 28+530           | HP                | 1X900  | -                | -           | POOR    |
| 249    | 28+600           | HP                | 1X600  | -                | -           | POOR    |
| 250    | 28+617           | HP                | 1X900  | -                | -           | POOR    |
| 251    | 28+663           | BOX               | 1X0.7  | 7.90             | 0.900       | POOR    |
| 252    | 28+700           | HP                | 1X600  | -                | -           | POOR    |
| 253    | 28+741           | HP                | 1X900  | -                | -           | POOR    |
| 254    | 28+838           | HP                | 1X600  | -                | -           | POOR    |
| 255    | 28+898           | HP                | 1X900  | -                | -           | POOR    |
| 256    | 28+838           | HP                | 1X900  | -                | -           | POOR    |
| 257    | 29+003           | BOX               | 1X1.5  | 6.74             | 2.500       | POOR    |
| 258    | 29+066           | HP                | 1X900  | -                | -           | POOR    |
| 259    | 29+080           | HP                | 1X600  | -                | -           | POOR    |
| 260    | 29+100           | HP                | 1X600  | -                | -           | POOR    |
| 261    | 29+219           | HP                | 1X1200   | -                | -           | POOR    |
| 262    | 29+288           | HP                | 1X900  | -                | -           | POOR    |
| 263    | 29+405           | BOX               | -  | -                | -           | CHOKED  |
| 264    | 29+456           | HP                | 1X600  | -                | -           | POOR    |
| 265    | 29+512           | HP                | 1X600  | -                | -           | POOR    |
| 266    | 29+539           | HP                | 1X600  | -                | -           | POOR    |
| 267    | 29+609           | HP                | 1X600  | -                | -           | POOR    |
| 268    | 29+650           | HP                | 1X1200   | -                | -           | POOR    |
| 269    | 29+748           | BOX               | -  | -                | -           | CHOKED  |
| 270    | 29+963           | BOX               | -  | -                | -           | CHOKED  |
| 271    | 30+575           | STONE             | -  | -                | -           | CHOKED  |
| 272    | 30+807           | BOX               | 1X6.0  | 9.10             | 1.100       | POOR    |
| 273    | 30+874           | HP                | 1X1200   | -                | -           | POOR    |
| 274    | 30+883           | STONE             | 1X0.5  | 6.30             | 1.200       | POOR    |
| 275    | 31+138           | HP                | 1X1600   | -                | -           | POOR    |
| 276    | 31+287           | STONE             | 1X0.8  | 6.00             | 1.000       | POOR    |
| 277    | 31+323           | STONE             | 1X0.4  | 10.00            | 0.500       | POOR    |
| 278    | 31+416           | HP                | 1X1200   | -                | -           | POOR    |
| 279    | 31+521           | HP                | 1X600  | -                | -           | POOR    |
| 280    | 31+585           | HP                | 1X600  | -                | -           | POOR    |
| 281    | 31+674           | HP                | 1X900  | -                | -           | POOR    |
| 282    | 31+789           | HP                | 1X1200   | -                | -           | POOR    |
| 283    | 31+946           | HP                | 1X1200   | -                | -           | POOR    |
| 284    | 32+203           | HP                | 1X600  | -                | -           | POOR    |
| 285    | 32+251           | HP                | 1X600  | -                | -           | POOR    |
| 286    | 32+350           | HP                | 1X750  | -                | -           | POOR    |
| 287    | 32+434           | HP                | 1X900  | -                | -           | POOR    |
| 288    | 33+202           | STONE             | -  | -                | -           | CHOKED  |
| 289    | 33+556           | STONE             | -  | -                | -           | CHOKED  |
| 290    | 34+256           | STONE             | -  | -                | -           | CHOKED  |
| 291    | 34+433           | STONE             | -  | -                | -           | CHOKED  |
| 292    | 34+538           | STONE             | -  | -                | -           | CHOKED  |
| 293    | 34+888           | STONE             | -  | -                | -           | CHOKED  |
| 294    | 35+096           | STONE             | 1X0.6  | 6.50             | 0.500       | POOR    |
| 295    | 35+238           | STONE             | 1X0.6  | 6.60             | 0.300       | POOR    |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

|     |        |       |       |      |       |      |
|-----|--------|-------|-------|------|-------|------|
| 296 | 35+276 | STONE | 1X0.6 | 6.10 | 0.300 | POOR |
| 297 | 35+365 | STONE | 1X0.6 | 8.00 | 1.000 | POOR |

| Sl. No | EXISTING CULVERT |                   |   |                      |             |         |
|--------|------------------|-------------------|---|----------------------|-------------|---------|
|        | Location (km )   | Type of structure | Span Arrangement and Total vent way (No. x Length(m)) | Width of culvert (m) | vent height | Remarks |
| 298    | 35+549           | STONE             | 1X1.1   | 8.80                 | 0.900       | POOR    |
| 299    | 35+604           | STONE             | 1X1.1   | 9.60                 | 0.700       | POOR    |
| 300    | 35+763           | STONE             | 1X0.6   | 7.80                 | 0.700       | POOR    |
| 301    | 35+944           | STONE             | 1X1.1   | 6.80                 | 1.600       | POOR    |
| 302    | 36+042           | SLAB              | 1X2.4   | 6.60                 | 1.200       | POOR    |
| 303    | 36+157           | STONE             | -   | -                    | -           | CHOKED  |
| 304    | 36+908           | STONE             | 1X0.6   | 7.30                 | 0.700       | POOR    |
| 305    | 37+039           | STONE             | 1X0.9   | 8.40                 | 1.100       | POOR    |
| 306    | 37+192           | STONE             | 1X0.9   | 6.00                 | 1.100       | POOR    |
| 307    | 37+279           | STONE             | 1X0.2   | 8.00                 | 1.000       | POOR    |
| 308    | 37+360           | STONE             | 1X0.4   | 8.80                 | 0.800       | POOR    |
| 309    | 37+448           | STONE             | 1X0.3   | 6.30                 | 1.000       | POOR    |
| 310    | 37+460           | STONE             | 1X0.2   | 8.20                 | 0.700       | POOR    |
| 311    | 37+491           | STONE             | 1X0.5   | 9.60                 | 0.600       | POOR    |
| 312    | 37+564           | STONE             | 1X0.3   | 11.10                | 0.400       | POOR    |
| 313    | 37+623           | STONE             | 1X0.9   | 8.70                 | 0.700       | POOR    |
| 314    | 37+775           | STONE             | 1X0.8   | 12.00                | 0.800       | POOR    |
| 315    | 37+918           | STONE             | -   | -                    | -           | CHOKED  |
| 316    | 37+966           | STONE             | -   | -                    | -           | CHOKED  |
| 317    | 38+051           | STONE             | 1X0.3   | 9.50                 | 0.600       | POOR    |
| 318    | 38+094           | STONE             | 1X0.7   | 8.10                 | 0.500       | POOR    |
| 319    | 38+202           | STONE             | 1X0.6   | 8.00                 | 0.700       | POOR    |
| 320    | 38+585           | STONE             | 1X0.6   | 7.80                 | 1.000       | POOR    |
| 321    | 38+650           | STONE             | -   | -                    | -           | CHOKED  |
| 322    | 38+815           | STONE             | 1X0.7   | 7.40                 | 0.900       | POOR    |
| 323    | 39+818           | STONE             | 1X0.4   | 10.50                | 1.000       | POOR    |
| 324    | 39+975           | STONE             | 1X0.9   | 7.00                 | 0.500       | POOR    |
| 325    | 40+300           | SLAB              | 1X0.5   | 6.50                 | 0.500       | POOR    |
| 326    | 40+632           | HP                | 2X1200  | -                    | -           | POOR    |
| 327    | 40+883           | SLAB              | 1X0.6   | 6.00                 | 0.500       | POOR    |
| 328    | 41+069           | STONE             | 1X0.6   | 6.40                 | 1.000       | POOR    |
| 329    | 41+527           | STONE             | 1X0.6   | 6.10                 | 1.000       | POOR    |
| 330    | 41+597           | STONE             | 1X0.6   | 6.40                 | 1.000       | POOR    |
| 331    | 41+885           | SLAB              | 1X2.2   | 4.70                 | 2.700       | POOR    |
| 332    | 41+948           | SLAB              | 1X1.0   | 8.90                 | 2.100       | POOR    |
| 333    | 42+112           | STONE             | 1X0.6   | 7.90                 | 0.800       | POOR    |
| 334    | 42+188           | STONE             | 1X0.3   | 10.70                | 0.400       | POOR    |
| 335    | 42+271           | STONE             | 1X0.6   | 8.50                 | 1.000       | POOR    |
| 336    | 42+318           | SLAB              | 1X0.9   | 7.40                 | 1.100       | POOR    |
| 337    | 42+419           | SLAB              | 1X0.7   | 10.70                | 0.500       | POOR    |
| 338    | 42+576           | STONE             | -   | -                    | -           | CHOKED  |
| 339    | 42+923           | HP                | 2X1200  | -                    | -           | POOR    |
| 340    | 43+040           | HP                | 1X1200  | -                    | -           | POOR    |



### 13. Major junctions

The details of major junctions are as follows:

| Sl. No. | Location (Km) | Side | At grade/ Separated | Type of Junction |
|---------|---------------|------|---------------------|------------------|
| 1       | 0.000         | RHS  | At Grade            | T                |
| 2       | 20.800        | RHS  | At Grade            | T                |
| 3       | 43.100        | RHS  | At Grade            | T                |

(NH: National Highway, SH: State Highway, MDR: Major District Road)

### 14. Minor junctions

The details of the minor junctions are as follows:

| Sl. | Existing Chainage | Side (Left/ | Typ |
|-----|-------------------|-------------|-----|
| 1   | 2.575             | LHS         | Y   |
| 2   | 4.775             | LHS         | T   |
| 3   | 9.025             | RHS         | Y   |
| 4   | 10.875            | LHS         | Y   |
| 5   | 11.890            | LHS         | T   |
| 6   | 15.065            | RHS         | T   |
| 7   | 19.562            | RHS         | Y   |
| 8   | 19.638            | RHS         | T   |
| 9   | 20.575            | RHS         | T   |
| 10  | 20.787            | RHS         | T   |
| 11  | 24.175            | LHS         | Y   |
| 12  | 25.675            | LHS         | T   |
| 13  | 29.737            | RHS         | T   |
| 14  | 33.813            | RHS         | Y   |
| 15  | 40.215            | RHS         | T   |
| 16  | 42.400            | LHS         | T   |

### 16. BYPASSES

The details of bypasses are noted below:

| S. No. | Name of bypass (town) | Chainage (km)<br>From ---- to | Length (in Km) | Carriageway |      |
|--------|-----------------------|-------------------------------|----------------|-------------|------|
|        |                       |                               |                | Width (m)   | Type |
| NIL    |                       |                               |                |             |      |

### 17. DETAIL OF ANY OTHER STRUCTURES

|     |
|-----|
| NIL |
|-----|

Annex - II  
(Schedule-A)

**Dates for providing Right of Way**

The dates on which the Authority shall provide Right of Way to the Contractor on different stretches of the Site are stated below:

| Sl. No   | From km to km  | Length (km)  | Width (m)                                  | Date of providing                        |
|--|--|--|--|--|
| 1  | 2  | 3  | 4  | 5  |
| (i) Full Right of Way (full width)<br>(a) Stretch  | Km. 0.000 to Km. 43.060<br>(except stretches mentioned in (ii) &(iii) below)   | 34.66  | 30m  | 15 days from Appointed date              |
| (ii) Part Right of Way (part width)<br>(a) Stretch   | Km 10 to Km 16   | 6  | 9 m  | 180 days from appointed date             |
| (iii) Balance Right of Way (width)<br><br>a) Stretch<br>b) Stretch<br><br>c) Stretch<br><br>d) Stretch<br><br>e) Stretch<br><br>f) Stretch | <br>Km 2.396 - Km 4.178<br>Km 13.089 - Km 13.600<br><br>Km 25.923 - Km 26.430<br><br>Km. 19.200 - Km 19.300<br><br>Km. 39.400 - Km 39.700<br><br>Km. 42.300 - Km. 42.500 | <br>1.782<br>0.511<br><br>0.507<br><br>0.100<br><br>0.300<br><br>0.200 | <br>30<br>30<br><br>30<br><br>30<br><br>30 | <br><br><br>180 days from Appointed date |

\* The dates specified herein shall in no case be beyond 180 (one hundred and eighty) days after the Appointed Date.

Annex - III  
(Schedule-A)

**Alignment Plans**

The existing alignment of the Project Highway shall be modified in the following sections as per the alignment plan enclosed herewith:

Annex - IV  
(Schedule-A)

**Environment Clearances**

Environment clearances not required for project road as per Guidelines of MOEF vide SO No. 2559 dated 22.08.2013.

SCHEDULE - B  
(See Clause 2.1)

**Development of the Project Road**

**1      Development of the Project Road**

Development of the Project Road shall include design and construction of the Project Highway as described in this Schedule-B and in Schedule-C.

**2      Rehabilitation and augmentation**

Rehabilitation and augmentation shall include Two-Laning and strengthening of the Project Road as described in Annex-I of this Schedule-B and in Schedule-C.

**3      Specifications and Standards**

The Project Road shall be designed and constructed in conformity with the Specifications and Standards specified in Annex-I of Schedule-D.

Annex - I  
(Schedule-B)

**Description of Two Laning**

**1 WIDENING OF THE EXISTING ROAD**

**1.1** The Project Road shall follow the existing alignment unless otherwise specified by the Authority and shown in the alignment plans specified in Annex III of Schedule-A. Geometric deficiencies, if any, in the existing horizontal and vertical profiles shall be corrected as per the prescribed standards for Hilly/Mountainous terrain to the extent land is available.

**1.2 WIDTH OF CARRIAGEWAY**

**1.2.1** Two-Laning without paved shoulders shall be undertaken. Adequate roadway width is the pre-requisite for accommodating the required number of traffic lanes and for operational safety in respect of road structure and road function. As specified in the IRC 73-1980, the paved carriageway shall be 7 (seven) m wide in accordance with the typical cross sections drawings in the Manual/ Enclosed herewith.

Provided that in the built-up areas the width of the carriageway shall be as specified in the following table:

| Sl. No | Location (Design Chainage) |        | Width (m) | Typical cross section (Ref. to Manual) | Side Of Widening |
|--------|----------------------------|--------|-----------|--|------------------|
|        | From(Km )                  | To(Km) |           |  |                  |
| 1      | 0+000                      | 0+100  | 7.0       | Type-II                                | Both             |
| 2      | 0+100                      | 1+300  | 7.0       | Type-I                                 | Right            |
| 3      | 1+300                      | 2+396  | 7.0       | Type-I                                 | Left             |
| 4      | 2+396                      | 4+178  | 7.0       | Type-IV                                | Reconstn.        |
| 5      | 4+178                      | 8+990  | 7.0       | Type-I                                 | Left             |
| 6      | 8+990                      | 9+980  | 7.0       | Type-I                                 | Right            |
| 7      | 9+980                      | 12+185 | 7.0       | Type-I                                 | Left             |
| 8      | 12+185                     | 13+089 | 7.0       | Type-I                                 | Right            |
| 9      | 13+089                     | 13+600 | 7.0       | Type-IV                                | Reconstn.        |
| 10     | 13+600                     | 13+800 | 7.0       | Type-I                                 | Left             |
| 11     | 13+800                     | 14+840 | 7.0       | Type-I                                 | Right            |
| 12     | 14+840                     | 16+168 | 7.0       | Type-I                                 | Left             |
| 13     | 16+168                     | 16+410 | 7.0       | Type-I                                 | Right            |
| 14     | 16+410                     | 17+710 | 7.0       | Type-I                                 | Left             |
| 15     | 17+710                     | 18+057 | 7.0       | Type-I                                 | Right            |
| 16     | 18+057                     | 18+210 | 7.0       | Type-I                                 | Left             |
| 17     | 18+210                     | 19+110 | 7.0       | Type-I                                 | Right            |
| 18     | 19+110                     | 19+315 | 7.0       | Type-III                               | Both             |
| 19     | 19+315                     | 21+120 | 7.0       | Type-I                                 | Left             |
| 20     | 21+120                     | 22+160 | 7.0       | Type-I                                 | Right            |
| 21     | 22+160                     | 22+417 | 7.0       | Type-II                                | Both             |
| 22     | 22+417                     | 23+420 | 7.0       | Type-I                                 | Left             |
| 23     | 23+420                     | 25+015 | 7.0       | Type-I                                 | Right            |
| 24     | 25+015                     | 25+210 | 7.0       | Type-I                                 | Left             |
| 25     | 25+210                     | 25+923 | 7.0       | Type-I                                 | Right            |
| 26     | 25+923                     | 26+430 | 7.0       | Type-IV                                | Reconstn.        |
| 27     | 26+430                     | 29+910 | 7.0       | Type-I                                 | Left             |
| 28     | 29+910                     | 33+990 | 7.0       | Type-I                                 | Right            |
| 29     | 33+990                     | 34+483 | 7.0       | Type-I                                 | Left             |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

|    |        |       |     |         |          |
|----|--------|-------|-----|---------|----------|
| 30 | 34+483 | 37+68 | 7.0 | Type-I  | Right    |
| 31 | 37+680 | 57+99 | 7.0 | Type-IV | Reconstn |

- 1.2.2 Except as otherwise provided in this Agreement, the width of the paved carriageway and cross-sectional features shall conform to paragraph 1.1

## 2 GEOMETRIC DESIGN AND GENERAL FEATURES

### 2.1 General

Geometric design and general features of the Project Road shall be in accordance with Section 2 of the Manual.

### 2.2 Design speed

The design speed should correspond to general topography and adjacent land use. The speed selected for design should also cater to travel needs and habits of nearly all the road users. The present project road is of MDR category & normally designed for speed as per IRC Codal provision for MDR.

| S. No. | Road Classification  | Design Speed, Km/h  |                      |                     |                      |
|--------|----------------------|---------------------|----------------------|---------------------|----------------------|
|        |                      | Rolling Terrain     |                      | Mountainous         |                      |
|        |                      | Ruling Design Speed | Minimum Design Speed | Ruling Design Speed | Minimum Design Speed |
| 1      | National and State   | 80                  | 65                   | 50                  | 40                   |
| 2      | Major District Roads | 65                  | 50                   | 40                  | 30                   |

### 2.3 Improvement of the existing road geometrics

In the following sections, where improvement of the existing road geometrics to the prescribed standards is not possible, the existing road geometrics shall be improved to the extent possible within the given right of way and proper road signs and safety measures shall be provided:

| Sl. No. | Location (Design Chainage) | Type of deficiency | Remarks  |
|---------|----------------------------|--------------------|--|
| 1       | 1.475                      | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend |
| 2       | 2.760                      | hairpin bend       | Curve restricted to Radius=19m due to hairpin bend |
| 3       | 2.900                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |
| 4       | 3.065                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |
| 5       | 3.170                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |
| 6       | 3.310                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |
| 7       | 3.440                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |
| 8       | 3.590                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |
| 9       | 3.610                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |
| 10      | 3.735                      | hairpin bend       | Curve restricted to Radius=14m due to hairpin bend |
| 11      | 3.840                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |
| 12      | 4.570                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |
| 13      | 4.635                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |
| 14      | 6.465                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |
| 15      | 6.660                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |
| 16      | 8.760                      | hairpin bend       | Curve restricted to Radius=19m due to hairpin bend |
| 17      | 9.600                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend |

| Sl. No. | Location (Design Chainage) | Type of deficiency | Remarks  |
|---------|----------------------------|--------------------|--|
| 18      | 9.700                      | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 19      | 13.800                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 20      | 15.617                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 21      | 16.270                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 22      | 17.100                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 23      | 17.285                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 24      | 17.560                     | Curve Deficiency   | Curve restricted to Radius=15m due to limited ROW & S-Curve  |
| 25      | 17.620                     | Curve Deficiency   | Curve restricted to Radius=18m due to limited ROW & S-Curve  |
| 26      | 18.025                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 27      | 18.363                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 28      | 18.460                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 29      | 18.700                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 30      | 18.872                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 31      | 20.275                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 32      | 20.595                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 33      | 20.810                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 34      | 21.315                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 35      | 22.220                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 36      | 22.660                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 37      | 22.785                     | Curve Deficiency   | Curve restricted to Radius=18m due to limited ROW & S-Curve  |
| 38      | 23.300                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 39      | 23.445                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 40      | 24.010                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 41      | 24.125                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 42      | 24.175                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 43      | 24.625                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 44      | 24.820                     | Curve Deficiency   | Curve restricted to Radius=15m due to limited ROW & S-Curve  |
| 45      | 24.860                     | Curve Deficiency   | Curve restricted to Radius=15m due to limited ROW & S-Curve  |
| 46      | 26.910                     | Curve Deficiency   | Curve restricted to Radius=15m due to limited ROW & S-Curve  |
| 47      | 26.940                     | Curve Deficiency   | Curve restricted to Radius=18m due to limited ROW & S-Curve  |
| 48      | 27.105                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 49      | 27.840                     | Curve Deficiency   | Curve restricted to Radius=18m due to limited ROW & existing |
| 50      | 29.100                     | hairpin bend       | Curve restricted to Radius=17m due to hairpin bend           |
| 51      | 29.585                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 52      | 30.285                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 53      | 30.580                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 54      | 32.440                     | Curve Deficiency   | Curve restricted to Radius=15m due to limited ROW & S-Curve  |
| 55      | 32.480                     | Curve Deficiency   | Curve restricted to Radius=15m due to limited ROW & S-Curve  |
| 56      | 33.950                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 57      | 34.200                     | Curve Deficiency   | Curve restricted to Radius=15m due to limited ROW & S-Curve  |
| 58      | 34.235                     | Curve Deficiency   | Curve restricted to Radius=15m due to limited ROW & S-Curve  |
| 59      | 35.340                     | hairpin bend       | Curve restricted to Radius=15m due to hairpin bend           |
| 60      | 37.265                     | Curve Deficiency   | Curve restricted to Radius=15m due to limited ROW & S-Curve  |
| 61      | 37.403                     | Curve Deficiency   | Curve restricted to Radius=15m due to limited ROW & S-Curve  |
| 62      | 37.442                     | hairpin bend       | Curve restricted to Radius=16m due to hairpin bend           |
| 63      | 37.755                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 64      | 37.900                     | hairpin bend       | Curve restricted to Radius=16m due to hairpin bend           |
| 65      | 38.540                     | hairpin bend       | Curve restricted to Radius=18m due to hairpin bend           |
| 66      | 38.626                     | hairpin bend       | Curve restricted to Radius=17m due to hairpin bend           |
| 67      | 39.038                     | hairpin bend       | Curve restricted to Radius=17m due to hairpin bend           |



|    |        |              |  |
|----|--------|--------------|--|
| 68 | 39.140 | hairpin bend | Curve restricted to Radius=17m due to hairpin bend |
|----|--------|--------------|--|

## 2.4 Right of Way

Details of the Right of Way are given in Annex II of Schedule-A.

## 2.5 Type of shoulders

(a) In built-up sections, footpaths/fully paved shoulders shall be provided in the following stretches:

| Sl. No. | Stretch |          | Fully Paved shoulders | Reference to cross section |
|---------|---------|----------|-----------------------|----------------------------|
|         | (from   | To (km ) |                       |                            |
| 1       | 19+130  | 19+272   | 1.5                   | TCS – Type-III             |

## 2.6 Lateral and vertical clearances at underpasses

2.6.1 Lateral and vertical clearances at underpasses and provision of guardrails/crash barriers shall be as per paragraph 2.11 of the Manual.

2.6.2 Lateral clearance: The width of the opening at the underpasses shall be as follows:

| Sl. No. | Location (chainage) | Span/opening (m) | Remarks |
|---------|---------------------|------------------|---------|
| NIL     |                     |                  |         |

## 2.7 Lateral and vertical clearances at overpasses

2.7.1 Lateral and vertical clearances at overpasses shall be as per paragraph 2.12 of the manual.

2.7.2 Lateral clearance: The width of the opening at the overpasses shall be as follows:

| Sl. No. | Location (chainage) | Span/opening (m) | Remarks |
|---------|---------------------|------------------|---------|
| NIL     |                     |                  |         |

## 2.8 Service roads

Service roads shall be constructed at the locations and for the lengths indicated below:

| Sl No. | Location of service road | Right hand side (RHS)/Left hand side (LHS)/ or Both sides | Length (km) of service road |
|--------|--------------------------|---|-----------------------------|
| NIL    |                          |   |                             |

## 2.9 Grade separated structures

2.9.1 Grade separated structures shall be provided as per paragraph 2.14 of the Manual. The requisite particulars are given below:

| Sl. | Location of | Length (m) | Number of spans | Approach | Remark |
|-----|-------------|------------|-----------------|----------|--------|
| NIL |             |            |                 |          |        |

2.9.2 In the case of grade separated structures, the type of structure and the level of the Project Road and the cross roads shall be as follows:

| Sl. No. | Location | Type of structure<br>Length (m) | Cross road at  |              |               | Remarks, if any |
|---------|----------|---------------------------------|----------------|--------------|---------------|-----------------|
|         |          |                                 | Existing Level | Raised Level | Lowered Level |                 |
| NIL     |          |                                 |                |              |               |                 |

### **2.10 Cattle and pedestrian underpass /overpass**

Cattle and pedestrian underpass/ overpass shall be constructed as follows:

| <b>Sl.<br/>No.</b> | <b>Location</b> | <b>Type of crossing</b> |
|--------------------|-----------------|-------------------------|
| <b>NIL</b>         |                 |                         |

## 2.11 Typical cross-sections of the Project Road

From the topographical survey conducted for the project road, four types of typical cross-sections are proposed for the improvement of the project road. The details of typical cross-section are given below in Table.

| Sl. N. | Location (Design Chainage) |        | Width (m) | Typical cross section (Ref. to Manual) |
|--------|----------------------------|--------|-----------|--|
|        | From(Km)                   | To(Km) |           |  |
| 1      | 0+000                      | 0+100  | 7.0       | Type-II                                |
| 2      | 0+100                      | 1+300  | 7.0       | Type-I                                 |
| 3      | 1+300                      | 2+396  | 7.0       | Type-I                                 |
| 4      | 2+396                      | 4+178  | 7.0       | Type-IV                                |
| 5      | 4+178                      | 8+990  | 7.0       | Type-I                                 |
| 6      | 8+990                      | 9+980  | 7.0       | Type-I                                 |
| 7      | 9+980                      | 12+185 | 7.0       | Type-I                                 |
| 8      | 12+185                     | 13+089 | 7.0       | Type-I                                 |
| 9      | 13+089                     | 13+600 | 7.0       | Type-IV                                |
| 10     | 13+600                     | 13+800 | 7.0       | Type-I                                 |
| 11     | 13+800                     | 14+840 | 7.0       | Type-I                                 |
| 12     | 14+840                     | 16+168 | 7.0       | Type-I                                 |
| 13     | 16+168                     | 16+410 | 7.0       | Type-I                                 |
| 14     | 16+410                     | 17+710 | 7.0       | Type-I                                 |
| 15     | 17+710                     | 18+057 | 7.0       | Type-I                                 |
| 16     | 18+057                     | 18+210 | 7.0       | Type-I                                 |
| 17     | 18+210                     | 19+110 | 7.0       | Type-I                                 |
| 18     | 19+110                     | 19+315 | 7.0       | Type-IV                                |
| 19     | 19+315                     | 21+120 | 7.0       | Type-I                                 |
| 20     | 21+120                     | 22+160 | 7.0       | Type-I                                 |
| 21     | 22+160                     | 22+417 | 7.0       | Type-II                                |
| 22     | 22+417                     | 23+420 | 7.0       | Type-I                                 |
| 23     | 23+420                     | 25+015 | 7.0       | Type-I                                 |
| 24     | 25+015                     | 25+210 | 7.0       | Type-I                                 |
| 25     | 25+210                     | 25+923 | 7.0       | Type-I                                 |
| 26     | 25+923                     | 26+430 | 7.0       | Type-IV                                |
| 27     | 26+430                     | 29+910 | 7.0       | Type-I                                 |
| 28     | 29+910                     | 33+990 | 7.0       | Type-I                                 |
| 29     | 33+990                     | 34+483 | 7.0       | Type-I                                 |
| 30     | 34+483                     | 37+680 | 7.0       | Type-I                                 |
| 31     | 37+680                     | 43.060 | 7.0       | Type-IV                                |

**Disclaimer:** The payment type and crust details indicated in the TCS are indicative only. Being on EPC Project, the design of pavement shall be done as per IRC: 37-2012 for 15 years design life.

## 3 INTERSECTIONS AND GRADESEPARATORS

All intersections and grade separators shall be as per Section 3 of the Manual. Existing intersections which are deficient shall be improved to the prescribed standards.

Properly designed intersections shall be provided at the locations and of the types and features given in the tables below:

**(a) At-grade intersections:**

**Major Junction:** Nongstoin – Wahkhaji Road:

| SL No. | Location of intersection | Type of intersection | Other features | Remarks   |
|--------|--------------------------|----------------------|----------------|-----------|
| 1      | 0.000                    | MDR                  | T              | Nongstoin |
| 2      | 20.78                    | MDR                  | Y              |           |
| 3      | 43.10                    | SH                   | T              | Wahkaji   |

**Minor Junction:**

| S.No | Location of intersection | Junction Type | Remark                         |
|------|--------------------------|---------------|--------------------------------|
| 1    | 2+575                    | Y             | Bitumen Road to village        |
| 2    | 4+805                    | T             | Bitumen Road to WEINIA FALLS   |
| 3    | 9+041                    | Y             | Bitumen Road to JAIDON Village |
| 4    | 10+90                    | Y             | Earthen road to PINBAH         |
| 5    | 11+91                    | T             | Earthen road to Nonglwai       |
| 6    | 15+05                    | T             | Bitumen road MARSKOEN          |
| 7    | 19+57                    | Y             | Bitumen road to SCHAME         |
| 8    | 19+65                    | T             | Bitumen road to MAWSYN TIEW    |
| 9    | 20+59                    | T             | Bitumen road WAHAKJI           |
| 10   | 20+81                    | T             | Bitumen road MAUKGRWAT         |
| 11   | 24+19                    | Y             | Earthen road to RANG LANG      |
| 12   | 25+69                    | T             | Earthen road to village        |
| 13   | 29+73                    | T             | Earthen road to MAWTHEWPAH     |
| 14   | 33+81                    | Y             | Moorum road to E.C.L.          |
| 15   | 40+18                    | T             | Earthen road to village        |
| 16   | 42+36                    | T             | Earthen road to                |

**(b) Grade separated intersection with/without ramps**

| Sl. No. | Location | Salient features | Span length | Road to be carried over/under the |
|---------|----------|------------------|-------------|-----------------------------------|
| NIL     |          |                  |             |                                   |

**4 ROAD EMBANKMENT AND CUT SECTION**

**4.1** Widening and improvement of the existing road embankment/cuttings and construction of new road embankment/ cuttings shall conform to the Specifications and Standards given in section 4 of the Manual and the specified cross sectional details. Deficiencies in the plan and profile of the existing road shall be corrected.

**4.2 Raising of the existing road**

The existing road shall be raised in the following sections:

| Sl. No. | Section<br>(from km to km) | Length | Extent of raising<br>[Top of finished road] level] |
|---------|----------------------------|--------|--|
| NIL     |                            |        |  |

## 5 PAVEMENT DESIGN

Pavement design shall be carried out in accordance with Section 5 of the Manual. Minimum crust thickness of pavement shall be as per the following components.

### 5.1 Type of pavement

| S.No | Type of Pavement                         | Pavement Thickness (in mm)<br>(As per IRC 37:2001) |
|------|--|--|
| 1    | <b>Wearing Course</b>                    |  |
|      | (a) Bituminous Concrete (BC)             | 40 mm  |
|      | (b) Dense Bituminous Macadam (DBM)       | 100 mm   |
| 2    | <b>Base : Wet Mix Macadam (WMM)</b>      | 250 mm   |
| 3    | <b>Sub-base: Granular Sub base (GSB)</b> | 230 mm   |
|      | <b>Total</b>                             | <b>620 mm</b>                                      |

**Disclaimer:** *The payment type and crust details indicated in the TCS are indicative only. Being on EPC Project, the design of pavement shall be done as per IRC: 37-2012 for 15 years design life.*

### 5.2 Design requirements

The following parameters are required for designing of new pavement

| Parameters                                      | Value considered for design of new pavement |
|---|---|
| Design Life (Years)                             | 15 Years                                    |
| Traffic Loading in Million Standard Axles (MSA) | 20 MSA                                      |

#### 5.2.1 Design Period and strategy

Flexible pavement for new pavement or for widening and strengthening of the existing pavement shall be designed for a minimum design period of 15 years. Stage construction shall not be permitted.

#### 5.2.2 Design Traffic

Notwithstanding anything to the contrary contained in this Agreement or the Manual, the Contractor shall design the pavement for design traffic of 20 million standard axles.

### 5.3 Reconstruction of stretches

The following stretches of the existing road shall be reconstructed. These shall be designed as new pavement.

| Sl. No | Location (Design Chainage) |        | Width (m) | Typical cross section (Ref. to Manual) |
|--------|----------------------------|--------|-----------|--|
|        | From(Km)                   | To(Km) |           |  |
|        |                            |        |           |  |
| 1      | 2+396                      | 4+178  | 7.0       | Type-IV                                |
| 2      | 13+089                     | 13+600 | 7.0       | Type-IV                                |
| 3      | 25+923                     | 26+430 | 7.0       | Type-IV                                |
| 4      | 37+680                     | 43.060 | 7.0       | Type-IV                                |
| NIL    |                            |        |           |  |

## 6 ROADSIDE DRAINAGE

Lined Drain of Trapezoidal Shape with 0.3m bottom width and 0.6 m top width and the height is 0.5m proposed along the entire section. RCC Covered drains are proposed in the following stretches.

| Sl. No. | Stretch   |          | Reference to cross section |
|---------|-----------|----------|----------------------------|
|         | (from km) | To (km ) |                            |
| 1       | 19+130    | 19+272   | TCS – Type-III             |

## 7 DESIGN OF STRUCTURES

### 7.1 General

7.1.1 All bridges, culverts and structures shall be designed and constructed in accordance with section 7 of the Manual and shall conform to the cross-sectional features and other details specified therein.

7.1.2 Width of the carriageway of new bridges and structures shall be as follows:

| Sl No. | Bridge at km | Width of carriageway and cross- sectional features |
|--------|--------------|--|
| 1      | 2+425        | 7.5  |
| 2      | 9+121        | 7.5  |
| 3      | 9+890        | 7.5  |
| 4      | 15+041       | 7.5  |
| 5      | 27+814       | 7.5  |
| 6      | 40+106       | 7.5  |
| 7      | 40+520       | 7.5  |
| 8      | 41+782       | 7.5  |

7.1.3 The above structures shall be provided with footpaths.

7.1.4 All bridges shall be high-level bridges.

7.1.5 The following structures shall be designed to carry utility services specified in table below:

| Sl. No. | Bridge at km | Utility service to be carried |
|---------|--------------|-------------------------------|
| 1       | 2+425        | W.P & OFC                     |
| 2       | 9+121        | Elec. Line, W.P & OFC         |
| 3       | 9+875        | W.P & OFC                     |
| 4       | 15+050       | Elec. Line, W.P & OFC         |
| 5       | 27+795       | W.P & OFC                     |
| 6       | 40+137       | W.P & OFC                     |
| 7       | 40+516       | W.P & OFC                     |
| 8       | 41+827       | W.P & OFC                     |

7.1.6 Cross-section of the new culverts and bridges at deck level for the Project Road shall conform to the typical cross-sections given in section 7 of the Manual.

### 7.2 Culverts

7.2.1 Overall width of all culverts shall be equal to the roadway width of the approaches.

7.2.2 Reconstruction of existing culverts:

The existing culverts at the following locations shall be re-constructed as new Culverts:

| Sl.No | Existing Chainage | Proposed Chainage | Prop. Span    | Proposed Type of structures | Prop. Width | Improvement Proposal |
|-------|-------------------|-------------------|---------------|-----------------------------|-------------|----------------------|
| 1     | 0+150             | 0+150             | 1 X 2.0 X 2.0 | RCC BOX                     | 12          | Reconstruction       |
| 2     | 0+257             | 0+255             | 1 X 2.0 X 2.0 | RCC BOX                     | 12          | Reconstruction       |
| 3     | 0+346             | 0+344             | 1 X 2.0 X 2.0 | RCC BOX                     | 12          | Reconstruction       |
| 4     | 0+396             | 0+394             | 1 X 1.5 X 1.5 | RCC BOX                     | 12          | Reconstruction       |
| 5     | 0+444             | 0+443             | 1 X 2.0 X 2.0 | RCC BOX                     | 12          | Reconstruction       |
| 6     | 0+476             | 0+476             | 1 X 2.0 X 2.0 | RCC BOX                     | 12          | Reconstruction       |
| 7     | 0+537             | 0+537             | 1 X 1.5 X 1.5 | RCC BOX                     | 12          | Reconstruction       |
| 8     | 0+637             | 0+637             | 1 X 2.0 X 2.0 | RCC BOX                     | 12          | Reconstruction       |
| 9     | 0+700             | 0+696             | 1 X 2.0 X 2.0 | RCC BOX                     | 12          | Reconstruction       |
| 10    | 0+766             | 0+764             | 1 X 1.5 X 1.5 | RCC BOX                     | 12          | Reconstruction       |
| 11    | 0+841             | 0+840             | 1 X 2.0 X 2.0 | RCC BOX                     | 12          | Reconstruction       |
| 12    | 0+914             | 0+911             | 1 X 3.0 X 3.0 | RCC BOX                     | 12          | Reconstruction       |
| 13    | 0+977             | 0+974             | 1 X 1.5 X 1.5 | RCC BOX                     | 12          | Reconstruction       |
| 14    | 1+146             | 1+146             | 1 X 1.5 X 1.5 | RCC BOX                     | 12          | Reconstruction       |
| 15    | 1+282             | 1+282             | 1 X 1.5 X 1.5 | RCC BOX                     | 12          | Reconstruction       |
| 16    | 1+375             | 1+371             | 1 X 1.5 X 1.5 | RCC BOX                     | 12          | Reconstruction       |
| 17    | 1+500             | 1+496             | 1 X 1.5 X 1.5 | RCC BOX                     | 12          | Reconstruction       |
| 18    | 1+575             | 1+573             | 1 X 1.5 X 1.5 | RCC BOX                     | 12          | Reconstruction       |
| 19    | 1+580             | 1+580             | 1 X 1.5 X 1.5 | RCC BOX                     | 12          | Reconstruction       |
| 20    | 1+624             | 1+621             | 1 X 1.5 X 1.5 | RCC BOX                     | 12          | Reconstruction       |
| 21    | 1+710             | 1+708             | 1 X 1.5 X 1.5 | RCC BOX                     | 12          | Reconstruction       |
| 22    | 1+759             | 1+759             | 1x1.5x1.5     | RCC BOX                     | 12          | Reconstruction       |
| 23    | 1+979             | 1+985             | 1x1.5x1.5     | RCC BOX                     | 12          | Reconstruction       |
| 24    | 2+060             | 2+067             | 1x1.5x1.5     | RCC BOX                     | 12          | Reconstruction       |
| 25    | 2+125             | 2+124             | 1x1.5x1.5     | RCC BOX                     | 12          | Reconstruction       |
| 26    | 2+173             | 2+171             | 1x1.5x1.5     | RCC BOX                     | 12          | Reconstruction       |
| 27    | 2+200             | 2+197             | 1x1.5x1.5     | RCC BOX                     | 12          | Reconstruction       |



| Sl.No | Existing Chainage | Proposed Chainage | Prop. Span | Proposed Type of structures | Prop. Width | Improvement Proposal |
|-------|-------------------|-------------------|------------|-----------------------------|-------------|----------------------|
| 28    | 2+283             | 2+276             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 29    | 2+390             | 2+387             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 30    | 2+572             | 2+572             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 31    | 2+645             | 2+645             | 1 x 3 x 3  | RCC BOX                     | 12          | Reconstruction       |
| 32    | 2+760             | 2+759             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 33    | 3+060             | 3+084             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 34    | 3+151             | 3+276             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 35    | 3+290             | 3+309             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 36    | 3+413             | 3+439             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 37    | 3+482             | 3+504             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 38    | 3+650             | 3+676             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 39    | 3+790             | 3+812             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 40    | 3+857             | 3+878             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 41    | 3+900             | 3+921             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 42    | 4+075             | 4+101             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 43    | 4+134             | 4+158             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 44    | 4+212             | 4+235             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 45    | 4+336             | 4+359             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 46    | 4+404             | 4+426             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 47    | 4+450             | 4+470             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 48    | 4+507             | 4+526             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 49    | 4+475             | 4+595             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 50    | 4+726             | 4+747             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 51    | 4+845             | 4+866             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 52    | 4+962             | 4+983             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 53    | 4+971             | 4+991             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 54    | 5+015             | 5+035             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 55    | 5+090             | 5+110             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 56    | 5+152             | 5+176             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 57    | 5+195             | 5+218             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 58    | 5+333             | 5+357             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 59    | 5+472             | 5+496             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 60    | 5+560             | 5+584             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 61    | 5+868             | 5+888             | 2x 2 x 2   | RCC BOX                     | 12          | Reconstruction       |
| 62    | 5+870             | 5+890             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 63    | 5+900             | 5+919             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 64    | 5+929             | 5+953             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 65    | 6+064             | 6+084             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 66    | 6+142             | 6+162             | 2 x 3 x 3  | RCC BOX                     | 12          | Reconstruction       |
| 67    | 6+343             | 6+363             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 68    | 6+386             | 6+405             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 69    | 6+480             | 6+497             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 70    | 6+604             | 6+620             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 71    | 6+716             | 6+727             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 72    | 6+744             | 6+755             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 73    | 6+764             | 6+775             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 74    | 6+778             | 6+791             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 75    | 6+868             | 6+883             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 76    | 7+000             | 7+0175            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 77    | 7+231             | 7+242             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100  
[Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

| Sl.No | Existing Chainage | Proposed Chainage | Prop. Span | Proposed Type of structures | Prop. Width | Improvement Proposal |
|-------|-------------------|-------------------|------------|-----------------------------|-------------|----------------------|
| 78    | 7+336             | 7+347             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 79    | 7+386             | 7+399             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 80    | 7+470             | 7+483             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 81    | 7+612             | 7+623             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 82    | 7+712             | 7+723             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 83    | 7+800             | 7+812             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 84    | 7+900             | 7+911             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 85    | 8+038             | 8+050             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 86    | 8+181             | 8+191             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 87    | 8+425             | 8+438             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 88    | 8+508             | 8+514             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 89    | 8+577             | 8+564             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 90    | 8+612             | 8+619             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 91    | 8+731             | 8+734             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 92    | 8+757             | 8+761             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 93    | 8+825             | 8+835             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 94    | 8+853             | 8+862             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 95    | 8+918             | 8+926             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 96    | 8+975             | 8+983             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 97    | 9+011             | 9+021             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 98    | 9+297             | 9+310             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 99    | 9+389             | 9+407             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 100   | 9+475             | 9+498             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 101   | 9+553             | 9+576             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 102   | 9+618             | 9+640             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 103   | 9+800             | 9+818             | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 104   | 10+043            | 10+062            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 105   | 10+127            | 10+146            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 106   | 10+175            | 10+191            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 107   | 10+455            | 10+455            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 108   | 10+750            | 10+75             | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 109   | 10+969            | 10+984            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 110   | 11+159            | 11+177            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 111   | 11+300            | 11+322            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 112   | 11+445            | 11+465            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 113   | 11+467            | 11+483            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 114   | 11+570            | 11+588            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 115   | 11+652            | 11+672            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 116   | 11+781            | 11+802            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 117   | 11+925            | 11+943            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 118   | 12+034            | 12+052            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 119   | 12+185            | 12+202            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 120   | 12+216            | 12+233            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 121   | 12+313            | 12+332            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 122   | 12+372            | 12+392            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 123   | 12+482            | 12+497            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 124   | 12+757            | 12+767            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 125   | 13+217            | 13+225            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 126   | 13+382            | 13+385            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 127   | 13+456            | 13+459            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100  
[Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

| Sl.No | Existing Chainage | Proposed Chainage | Prop. Span | Proposed Type of structures | Prop. Width | Improvement Proposal |
|-------|-------------------|-------------------|------------|-----------------------------|-------------|----------------------|
| 128   | 13+525            | 13+524            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 129   | 13+838            | 13+837            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 130   | 14+044            | 14+042            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 131   | 14+270            | 14+268            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 132   | 14+435            | 14+424            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 133   | 14+477            | 14+470            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 134   | 14+550            | 14+542            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 135   | 14+555            | 14+548            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 136   | 14+632            | 14+623            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 137   | 14+696            | 14+686            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 138   | 14+727            | 14+717            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 139   | 14+759            | 14+749            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 140   | 14+862            | 14+856            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 141   | 14+937            | 14+929            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 142   | 15+186            | 15+178            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 143   | 15+244            | 15+236            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 144   | 15+291            | 15+282            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 145   | 15+384            | 15+375            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 146   | 15+558            | 15+562            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 147   | 15+694            | 15+697            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 148   | 15+750            | 15+755            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 149   | 15+783            | 15+769            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 150   | 15+825            | 15+838            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 151   | 15+984            | 16+000            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 152   | 16+048            | 16+062            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 153   | 16+088            | 16+102            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 154   | 16+230            | 16+243            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 155   | 16+285            | 16+296            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 156   | 16+591            | 16+608            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 157   | 16+762            | 16+782            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 158   | 16+813            | 16+831            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 159   | 16+884            | 16+897            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 160   | 17+023            | 17+034            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 161   | 17+108            | 17+120            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 162   | 17+215            | 17+228            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 163   | 17+246            | 17+225            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 164   | 17+312            | 17+326            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 165   | 17+360            | 17+369            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 166   | 17+405            | 17+414            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 167   | 17+467            | 17+478            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 168   | 17+537            | 17+546            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 169   | 17+652            | 17+666            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 170   | 17+846            | 17+849            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 171   | 17+905            | 17+908            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 172   | 18+025            | 18+024            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 173   | 18+096            | 18+102            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 174   | 18+114            | 18+122            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 175   | 18+339            | 18+349            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 176   | 18+363            | 18+379            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 177   | 18+421            | 18+436            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100  
[Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

| Sl.No | Existing Chainage | Proposed Chainage | Prop. Span | Proposed Type of structures | Prop. Width | Improvement Proposal |
|-------|-------------------|-------------------|------------|-----------------------------|-------------|----------------------|
| 178   | 18+475            | 18+487            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 179   | 18+548            | 18+559            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 180   | 18+614            | 18+623            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 181   | 18+862            | 18+872            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 182   | 18+923            | 18+934            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 183   | 19+250            | 19+261            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 184   | 19+677            | 19+692            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 185   | 19+825            | 19+838            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 186   | 19+944            | 19+953            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 187   | 20+164            | 20+176            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 188   | 20+260            | 20+275            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 189   | 20+616            | 20+636            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 190   | 20+725            | 20+745            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 191   | 20+789            | 20+811            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 192   | 20+909            | 20+929            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 193   | 21+219            | 21+232            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 194   | 21+309            | 21+316            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 195   | 21+788            | 21+800            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 196   | 22+250            | 22+263            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 197   | 22+361            | 22+375            | 2 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 198   | 22+510            | 22+524            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 199   | 22+632            | 22+642            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 200   | 22+823            | 22+830            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 201   | 22+923            | 22+938            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 202   | 23+198            | 23+220            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 203   | 23+421            | 23+438            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 204   | 23+679            | 23+694            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 205   | 23+761            | 23+775            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 206   | 23+885            | 23+895            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 207   | 23+946            | 23+956            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 208   | 23+994            | 24+005            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 209   | 24+190            | 24+204            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 210   | 24+800            | 24+809            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 211   | 25+041            | 25+056            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 212   | 25+187            | 25+202            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 213   | 25+350            | 25+364            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 214   | 25+450            | 25+473            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 215   | 25+753            | 25+778            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 216   | 25+900            | 25+921            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 217   | 26+111            | 26+136            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 218   | 26+170            | 26+200            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 219   | 26+341            | 26+368            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 220   | 26+458            | 26+488            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 221   | 26+566            | 26+595            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 222   | 26+634            | 26+661            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 223   | 26+693            | 26+723            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 224   | 26+788            | 26+816            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 225   | 26+875            | 26+905            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 226   | 26+954            | 27+978            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 227   | 26+998            | 27+022            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100  
[Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE



| Sl.No | Existing Chainage | Proposed Chainage | Prop. Span | Proposed Type of structures | Prop. Width | Improvement Proposal |
|-------|-------------------|-------------------|------------|-----------------------------|-------------|----------------------|
| 228   | 27+143            | 27+165            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 229   | 27+225            | 27+248            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 230   | 27+325            | 27+343            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 231   | 27+409            | 27+429            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 232   | 27+485            | 27+503            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 233   | 27+568            | 27+584            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 234   | 27+583            | 27+598            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 235   | 27+636            | 27+651            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 236   | 27+656            | 27+672            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 237   | 27+691            | 27+707            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 238   | 27+871            | 27+887            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 239   | 27+898            | 27+912            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 240   | 27+975            | 27+991            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 241   | 28+030            | 28+046            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 242   | 28+084            | 28+101            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 243   | 28+128            | 28+145            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 244   | 28+293            | 28+304            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 245   | 28+352            | 28+362            | 1 x 3 x 3  | RCC BOX                     | 12          | Reconstruction       |
| 246   | 28+439            | 28+451            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 247   | 28+479            | 28+491            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 248   | 28+530            | 28+541            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 249   | 28+600            | 28+610            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 250   | 28+617            | 28+626            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 251   | 28+663            | 28+670            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 252   | 28+700            | 28+714            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 253   | 28+741            | 28+754            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 254   | 28+838            | 28+849            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 255   | 28+898            | 28+902            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 256   | 28+838            | 28+981            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 257   | 29+003            | 29+009            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 258   | 29+066            | 29+073            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 259   | 29+080            | 29+089            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 260   | 29+100            | 29+111            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 261   | 29+219            | 29+228            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 262   | 29+288            | 29+300            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 263   | 29+405            | 29+416            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 264   | 29+456            | 29+466            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 265   | 29+512            | 29+523            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 266   | 29+539            | 29+550            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 267   | 29+609            | 29+616            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 268   | 29+650            | 29+656            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 269   | 29+748            | 29+751            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 270   | 29+963            | 29+965            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 271   | 30+575            | 30+580            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 272   | 30+807            | 30+805            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 273   | 30+874            | 30+876            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 274   | 30+883            | 30+884            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 275   | 31+138            | 31+131            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 276   | 31+287            | 31+290            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 277   | 31+323            | 31+325            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100  
[Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

| Sl.No | Existing Chainage | Proposed Chainage | Prop. Span | Proposed Type of structures | Prop. Width | Improvement Proposal |
|-------|-------------------|-------------------|------------|-----------------------------|-------------|----------------------|
| 278   | 31+416            | 31+421            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 279   | 31+521            | 31+525            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 280   | 31+585            | 31+589            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 281   | 31+674            | 31+676            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 282   | 31+789            | 31+790            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 283   | 31+946            | 31+945            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 284   | 32+203            | 32+205            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 285   | 32+251            | 32+252            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 286   | 32+350            | 32+350            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 287   | 32+434            | 32+431            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 288   | 33+202            | 33+208            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 289   | 33+556            | 33+558            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 290   | 34+256            | 34+242            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 291   | 34+433            | 34+419            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 292   | 34+538            | 34+526            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 293   | 34+888            | 34+886            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 294   | 35+096            | 35+093            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 295   | 35+238            | 35+231            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 296   | 35+276            | 35+269            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 297   | 35+365            | 35+356            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 298   | 35+549            | 35+537            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 299   | 35+604            | 35+596            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 300   | 35+763            | 35+748            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 301   | 35+944            | 35+926            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 302   | 36+042            | 36+023            | 1 x 3 x 3  | RCC BOX                     | 12          | Reconstruction       |
| 303   | 36+157            | 36+143            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 304   | 36+908            | 36+891            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 305   | 37+039            | 37+022            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 306   | 37+192            | 37+178            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 307   | 37+279            | 37+265            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 308   | 37+360            | 37+346            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 309   | 37+448            | 37+430            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 310   | 37+460            | 37+444            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 311   | 37+491            | 37+478            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 312   | 37+564            | 37+550            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 313   | 37+623            | 37+606            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 314   | 37+775            | 37+756            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 315   | 37+918            | 37+906            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 316   | 37+966            | 38+954            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 317   | 38+051            | 38+039            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 318   | 38+094            | 38+081            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 319   | 38+202            | 38+189            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 320   | 38+585            | 38+563            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 321   | 38+650            | 38+626            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 322   | 38+815            | 38+788            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 323   | 39+818            | 39+794            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 324   | 39+975            | 39+943            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 325   | 40+300            | 40+269            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 326   | 40+632            | 40+596            | 2 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 327   | 40+883            | 40+839            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100  
[Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

| Sl.No | Existing Chainage | Proposed Chainage | Prop. Span | Proposed Type of structures | Prop. Width | Improvement Proposal |
|-------|-------------------|-------------------|------------|-----------------------------|-------------|----------------------|
| 328   | 41+069            | 41+030            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 329   | 41+527            | 41+480            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 330   | 41+597            | 41+549            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 331   | 41+885            | 41+840            | 1 x 3 x 3  | RCC BOX                     | 12          | Reconstruction       |
| 332   | 41+948            | 41+906            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 333   | 42+112            | 42+065            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 334   | 42+188            | 42+141            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 335   | 42+271            | 42+223            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 336   | 42+318            | 42+272            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 337   | 42+419            | 42+375            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 338   | 42+576            | 42+532            | 1x1.5x1.5  | RCC BOX                     | 12          | Reconstruction       |
| 339   | 42+923            | 42+875            | 2 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |
| 340   | 43+040            | 43+991            | 1 x 2 x 2  | RCC BOX                     | 12          | Reconstruction       |

### 7.2.3 Widening of existing culverts

All existing culverts which are not to be reconstructed shall be widened to the roadway width of the Project Road as per the typical cross section given in section 7 of the Manual. Repairs and strengthening of existing structures where required shall be carried out.

| Sl. No. | Culvert location | Type, span, height and width of existing culvert | Repairs to be carried out [specify] |
|---------|------------------|--|-------------------------------------|
| NIL     |                  |  |                                     |

7.2.4 Additional new culverts shall be constructed as per particulars given in the table below:

| S.No. | Proposed Chainag | Proposed Type of structure | Span      | Width of New culverts | Proposal | Remark      |
|-------|------------------|----------------------------|-----------|-----------------------|----------|-------------|
| 1     | 3+391            | RCC BOX                    | 1x1.5x1.5 | 12                    | New      | New Culvert |
| 2     | 3+660            | RCC BOX                    | 1x1.5x1.5 | 12                    | New      | New Culvert |
| 3     | 3+700            | RCC BOX                    | 1x1.5x1.5 | 12                    | New      | New Culvert |
| 4     | 3+991            | RCC BOX                    | 1x1.5x1.5 | 12                    | New      | New Culvert |
| 5     | 4+183            | RCC BOX                    | 1x1.5x1.5 | 12                    | New      | New Culvert |
| 6     | 4+386            | RCC BOX                    | 1x1.5x1.5 | 12                    | New      | New Culvert |
| 7     | 4+460            | RCC BOX                    | 1x1.5x1.5 | 12                    | New      | New Culvert |
| 8     | 4+563            | RCC BOX                    | 1x1.5x1.5 | 12                    | New      | New Culvert |

| S.No. | Proposed Chainag | Proposed Type of structure | Span      | Width of New | Proposal         | Remark      |
|-------|------------------|----------------------------|-----------|--------------|------------------|-------------|
| 9     | 4+754            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 10    | 4+864            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 11    | 5+016            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 12    | 5+200            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 13    | 5+330            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 14    | 5+748            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 15    | 5+948            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 16    | 6+132            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 17    | 6+370            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 18    | 6+725            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 19    | 6+845            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 20    | 6+993            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 21    | 7+192            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 22    | 7+296            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 23    | 7+430            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 24    | 7+675            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |
| 25    | 8+079            | RCC BOX                    | 1x1.5x1.5 | 12           | New Construction | New Culvert |

7.2.5 Repairs/replacements of railing/parapets, flooring and protection works of the existing culverts shall be undertaken as follows:

| Sl. No. | Location at km | Type of repair required |
|---------|----------------|-------------------------|
| NIL     |                |                         |

7.2.6 Floor protection works shall be as specified in the relevant IRC Codes and Specifications.

### 7.3 Bridges

#### 7.3.1 Existing bridges to be re-constructed/widened

| Sl. No. | Bridge location(km) | Salient details of existing bridge | Type | Span Arrangement | Remarks       |
|---------|---------------------|------------------------------------|------|------------------|---------------|
| 1       | 2+425               | 1 x 13.5                           | RCC  | 1 x 14.0         | reconstructed |
| 2       | 9+111               | 1 x                                | RCC  | 3 x 30.0         | reconstructed |
| 3       | 9+875               | 1 x 12.4                           | RCC  | 1 x 14.0         | reconstructed |
| 4       | 15+050              | 1 x 8.5                            | RCC  | 1 x 10.0         | reconstructed |
| 5       | 27+795              | 1 x 19.3                           | RCC  | 1 x 20.0         | reconstructed |
| 6       | 40+137              | 1 x 10.3                           | RCC  | 1 x 12.0         | reconstructed |
| 7       | 40+516              | 1 x 8.1                            | RCC  | 1 x 10.0         | reconstructed |
| 8       | 41+827              | 1 x 11.4                           | RCC  | 1 x 12.0         | reconstructed |

\* GADs  
Attached

(ii) The following narrow bridges shall be widened:

| Sl. No. | Location (km) | Existing width (m) | Extent of widening (m) | Cross-section at deck level for widening |
|---------|---------------|--------------------|------------------------|--|
| NIL     |               |                    |                        |  |

#### 7.3.2 Additional new bridges



New bridges at the following locations on the Project Road shall be constructed. GADs for the new bridges are attached in the drawings folder.

| Sl. No. | Location at km | Remar |
|---------|----------------|-------|
| NIL     |                |       |

3.3 The railings of existing bridges shall be replaced by crash barriers at the following locations:

| Sl. No. | Location at km | Remar |
|---------|----------------|-------|
| NIL     |                |       |

7.3.4 Repairs/replacements of railing/parapets of the existing bridges shall be undertaken as follows:

| Sl. No. | Location at km | Remar |
|---------|----------------|-------|
| NIL     |                |       |

#### 7.3.5 Drainage system for bridge decks

An effective drainage system for bridge decks shall be provided as specified in paragraph 7.21 of the Manual

#### 7.3.6 Structures in marine environment

|     |  |  |
|-----|--|--|
| NIL |  |  |
|-----|--|--|

#### 7.4. Rail-road bridges

7.4.1 Design, construction and detailing of ROB/RUB shall be as specified in section 7 of the Manual.

|     |  |  |
|-----|--|--|
| NIL |  |  |
|-----|--|--|

#### 7.4.2 Road over-bridges

Road over-bridges (road over rail) shall be provided at the following level crossings, as per GAD drawings attached:

| Sl. No. | Location of Level crossing (chainage km) | Length of bridge (m) |
|---------|--|----------------------|
| NIL     |  |                      |

#### 7.4.3 Road under-bridges

Road under bridges (road under railway line) shall be provided at the following level crossings, as per GAD drawings attached:

| Sl. No. | Location of Level crossing (chainage km) | Number and length of span (m) |
|---------|--|-------------------------------|
| NIL     |  |                               |

#### 7.5 Grade separated structures

The grade separated structures shall be provided at the locations and of

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the type and length specified in paragraphs 2.9 and 3 of this Annex-I.

## 7.6 Repairs and strengthening of bridges and structures

The existing bridges and structures to be repaired/ strengthened, and the nature and extent of repairs /strengthening required are given below:

### A. Bridges

| Sl. No. | Location of bridge (km) | Nature and extent of repairs /strengthening to be carried out |
|---------|-------------------------|---|
| NIL     |                         |   |

### B. ROB / RUB

| Sl. No. | Location of ROB/RUB (km) | Nature and extent of repairs /strengthening to be carried out |
|---------|--------------------------|---|
| NIL     |                          |   |

### C. Overpasses/Underpasses and other structures

| Sl. No. | Location | Nature and extent of repairs /strengthening to be |
|---------|----------|---|
| NIL     |          |   |

## 7.7 List of Major Bridges and Structures

The following is the list of the Major Bridges and Structures:

| Sl. | Location |
|-----|----------|
| 1   | 9+121    |

## 8 TRAFFIC CONTROL DEVICES AND ROAD SAFETY WORKS

8.1 Traffic control devices and road safety works shall be provided in accordance with Section 9 of the Manual.

8.2 Specifications of the reflective sheeting shall as per latest MORT&H Specifications.

## 9 ROADSIDE FURNITURE

9.1 Roadside furniture shall be provided in accordance with the provisions of Section 11 of the Manual.

9.2 Overhead traffic signs: location and size

1. At Design Ch. 20+800 (Junction with Rd. leading towards Mawkrywat)

## 10 COMPULSORY AFFORESTATION

The number of trees which are required to be planted by the Contractor as compensatory Afforestation shall be thrice that of the trees to be cut.

## 11 HAZARDOUS LOCATIONS

The safety barriers shall also be provided at the following hazardous locations:

| Sl. No. | Location stretch from (km) to | LHS/RHS |
|---------|-------------------------------|---------|
| NIL     |                               |         |

## **12 SPECIAL REQUIREMENTS FOR HILL ROADS**

1. Retaining wall of 4.0m Ht. in Existing Nongstoin – Wahkhaji Rd. beyond design chainage 1+725 – 2611m of total length.

## **13 CHANGE OF SCOPE**

The length of Structures and bridges specified hereinabove shall be treated as an approximate assessment. The actual lengths as required on the basis of detailed investigations shall be determined by the Contractor in accordance with the Specifications and Standards. Any variations in the lengths specified in this Schedule-B shall not constitute a Change of Scope, save and except any variations in the length arising out of a Change of Scope expressly undertaken in accordance with the provisions of Article 13.

SCHEDULE - C  
(See Clause 2.1)

**PROJECT FACILITIES**

**1 Project Facilities**

The Contractor shall construct the Project Facilities in accordance with the provisions of this Agreement. Such Project Facilities shall include:

- (a) Roadside furniture;
- (b) Pedestrian facilities;
- (c) tree plantation;
- (d) Truck lay-byes;
- (e) bus-bays and bus shelters;
- (f) rest areas; and
- (g) Others to be specified

**2 Description of Project Facilities**

- (a) Roadside furniture shall include Ordinary Km. Stone, 5<sup>th</sup> Km. stone, hectometer stone, boundary pillars, sign boards, pavement markings etc. and shall be as per relevant IRC codes and conforming to MORT&H Specifications.
- (b) Pedestrian facilities (Footpath): to be given in Nongstoin-Wahkhaji road.

| Sl. No. | Stretch |          | Reference to cross section |
|---------|---------|----------|----------------------------|
|         | (from   | To (km ) |                            |
| 1       | 19+130  | 19+272   | TCS – Type-III             |

- (c) Tree plantation shall be done in urban areas as per directions of Engineer-in-Charge
- (d) Truck lay byes – **NIL**
- (e) Bus Bays/ Bus shelters

| S. No. | Locatio  |                |
|--------|----------|----------------|
|        | Existing | Village / Town |
| 1      | 0+000    | Nongstoin      |
| 2      | 10+000   | Kynron         |

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| S. No. | Location          |                  |
|--------|-------------------|------------------|
|        | Existing Chainage | Village / Town   |
| 3      | 18+200            | Umsaitshriew     |
| 4      | 21+100            | Laitjynrai       |
| 5      | 24+900            | Nongba Rangblang |
| 6      | 34+600            | Marium           |
| 7      | 39+600            | Umdulun          |
| 8      | 42+600            | Wahkaji          |

(f) Rest Areas - NIL

SCHEDULE - D  
(See Clause 2.1)

**SPECIFICATIONS AND  
STANDARDS**

**1 Construction**

The Contractor shall comply with the Specifications and Standards set forth in Annex-I of this Schedule-D for construction of the Project Road.

**2 Design Standards**

The Project Road including Project Facilities shall conform to design requirements set out in the following documents:

[Manual of Specifications and Standards for Two-Laning of Roads (IRC: SP: 73- 2007), referred to herein as the Manual & and MORTH Specifications for Road and Bridge Works]

Annex - I  
(Schedule-D)

**Specifications and Standards for  
Construction**

**1 Specifications and Standards**

All Materials, works and construction operations shall conform to the Manual of Specifications and Standards for Two-Laning of Highways (IRC:SP:73-2007), referred to as the Manual, and MORTH Specifications for Road and Bridge Works. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

**2 Deviations from the Specifications and Standards**

- 2.1 The terms “Concessionaire”, “Independent Engineer” and “Concession Agreement” used in the Manual shall be deemed to be substituted by the terms “Contractor”, “Authority's Engineer” and “Agreement” respectively.

## **SCHEDULE - E**

**(See Clauses 2.1 and 14.2)**

### **MAINTENANCE REQUIREMENTS**

#### **1 Maintenance Requirements**

- 1.1 The Contractor shall, at all times maintain the Project Highway in accordance with the provisions of this Agreement, Applicable Laws and Applicable Permits.
- 1.2 The Contractor shall repair or rectify any Defect or deficiency set forth in Paragraph 2 of this Schedule-E within the time limit specified therein and any failure in this behalf shall constitute non-fulfillment of the Maintenance obligations by the Contractor. Upon occurrence of any breach hereunder, the Authority shall be entitled to effect reduction in monthly lump sum payment as set forth in Clause 14.6 of this Agreement, without prejudice to the rights of the Authority under this Agreement, including Termination thereof.
- 1.3 All Materials, works and construction operations shall conform to the MORTH Specifications for Road and Bridge Works, and the relevant IRC publications. Where the specifications for a work are not given, Good Industry Practice shall be adopted.

#### **2 Repair/rectification of Defects and deficiencies**

The obligations of the Contractor in respect of Maintenance Requirements shall include repair and rectification of the Defects and deficiencies specified in Annex - I of this Schedule-E within the time limit set forth therein.

#### **3 Other Defects and deficiencies**

In respect of any Defect or deficiency not specified in Annex - I of this Schedule-E, the Authority's Engineer may, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards, and any deviation or deterioration beyond the permissible limit shall be repaired or rectified by the Contractor within the time limit specified by the Authority's Engineer.

#### **4 Extension of time limit**

Notwithstanding anything to the contrary specified in this Schedule-E, if the nature and extent of any Defect or deficiency justifies more time for its repair or rectification than the time specified herein, the Contractor shall be entitled to additional time in conformity with Good Industry Practice. Such additional time shall be determined by the Authority's Engineer and conveyed to the Contractor and the Authority with reasons thereof.

#### **5 Emergency repairs/restoration**

Notwithstanding anything to the contrary contained in this Schedule-E, if any Defect, deficiency or deterioration in the Project Highway poses a hazard to



safety or risk of damage to property, the Contractor shall promptly take all reasonable measures for eliminating or minimizing such danger.

**6 Daily inspection by the Contractor**

The Contractor shall, through its engineer, undertake a daily visual inspection of the Project Highway and maintain a record thereof in a register to be kept in such form and manner as the Authority's Engineer may specify. Such record shall be kept in safe custody of the Contractor and shall be open to inspection by the Authority and the Authority's Engineer at any time during office hours.

**7. Pre-monsoon inspection / Post-monsoon inspection**

The Contractor shall carry out a detailed pre-monsoon inspection of all bridges, culverts and drainage system before 1st June every year in accordance with the guidelines contained in IRC: SP 35. Report of this inspection together with details of proposed maintenance works as required on the basis of this inspection shall be sent to the Authority's Engineer before the 10th June every year. The Contractor shall complete the required repairs before the onset of the monsoon and send to the Authority's Engineer a compliance report. Post monsoon inspection shall be done by the 30th September and the inspection report together with details of any damages observed and proposed action to remedy the same shall be sent to the Authority's Engineer.

**8. Repairs on account of natural calamities**

All damages occurring to the Project Highway on account of a Force Majeure Event or default or neglect of the Authority shall be undertaken by the Authority at its own cost. The Authority may instruct the Contractor to undertake the repairs at the rates agreed between the Parties.

**Annex - I****(Schedule -E)****Repair/rectification of Defects and deficiencies**

The Contractor shall repair and rectify the Defects and deficiencies specified in this Annex-I of Schedule-E within the time limit set forth in the table below.

| <b>Nature of deficiency</b> |   | <b>Time limit for repair/ratification</b>   |
|-----------------------------|---|---|
| <b>Roads</b>                |   |   |
| <b>a</b>                    | <b>Carriageway and paved shoulders</b>  |   |
| I                           | Breach or blockade  | Temporary restoration of traffic within 24hours; permanent restoration within 15 (fifteen) days |
| II                          | Roughness value exceeding 2,200 mm in a stretch of 1 km (as measured by a calibrated bump integrator)                               | 120 (one hundred and twenty) days   |
| III                         | Pot holes   | 24 hours  |
| IV                          | Any cracks in road surface  | 15(fifteen) days  |
| V                           | Any depressions, rutting exceeding 10 mm in road surface  | 30 (thirty) days  |
| VI                          | Bleeding/skidding   | 7 (seven) days  |
| VII                         | Any other defects distress on road  | 15(fifteen) days  |
| VIII                        | Damage to pavement edges  | 15(fifteen) days  |
| IX                          | Removal of debris, dead animals   | 6 hours   |
| <b>b</b>                    | <b>Granular earth shoulders, side slopes, drains and culverts</b>   |   |
| I                           | Variation by more than 1 % in the prescribed slope of camber/cross fall (shall not be less than the camber on the main carriageway) | 7 (seven) days  |
| II                          | Edge drop at shoulders exceeding 40mm   | 7 (seven) days  |
| III                         | Variation by more than 15% in the prescribed slopes   | 30 (thirty) days  |
| IV                          | Rain cuts/gullies in slope  | 7 (seven) days  |
| V                           | Damage to or silting of culverts and side drains  | 7 (seven) days  |
| VI                          | Desilting of drains in urban/semi-urban areas   | 24 hours  |
| VII                         | Railing, parapets, crash barriers   | 7 (seven) days (restore immediately if causing safety hazard.                                   |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

| Nature of deficiency |  | Time limit for repair/ratification   |
|----------------------|--|--------------------------------------|
|                      |  |                                      |
| <b>c</b>             | <b>Road side furniture including road sign and pavement marking</b>  |                                      |
| I                    | Damage to shape or position, poor visibility or loss of retro-reflectivity   | 48 hours                             |
| II                   | Painting of km stone, railing, parapets/crash barrier  | As and when required /once in a year |
| III                  | Damaged/missing road signs requiring replacement   | 7 (seven) days                       |
| IV                   | Damage to road mark ups  | 7 (seven) days                       |
| <b>d</b>             | <b>Road lighting</b>   |                                      |
| I                    | Any major failure of the system  | 24 hours                             |
| II                   | Faults or minor failures   | 8 hours                              |
| <b>e</b>             | <b>Trees and plantation</b>  |                                      |
| I                    | Obstruction in a minimum head-room of 5 m above carriageway or obstruction in visibility of road signs   | 24 hours                             |
| II                   | Removal of fallen trees from carriageway   | 4 hours                              |
| III                  | Deterioration in health of trees and bushes  | Timely watering and treatment        |
| IV                   | Trees and bushes requiring replacement   | 30 (thirty) days                     |
| V                    | Removal of vegetation affecting sight line and road structures   | 15 (fifteen) days                    |
| <b>f</b>             | <b>Rest Area</b>   |                                      |
| I                    | Cleaning of toilets  | Every 4 hours                        |
| II                   | Defects in electrical, water and sanitary installations  | 24 hours                             |
| <b>g</b>             | <b>Toll Plazas</b>   |                                      |
| <b>h</b>             | <b>Other project facilities and approach roads</b>   |                                      |
| I                    | Damage in approach roads, pedestrian facilities, truck lay-byes, bus-bays, bus -shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and service roads | 15 (fifteen) days                    |
| II                   | Damaged vehicles or debris on the road   | 4 hours                              |
| III                  | Malfunctioning crane   | 4 hours                              |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

| Nature of deficiency |  | Time limit for repair/ratification  |
|----------------------|--|---|
|                      |  |   |
| <b>BRIDGES</b>       |  |   |
| <b>a</b>             | <b>Superstructures</b>   |   |
| I                    | Any damage, cracks, scaling<br><br>Temporary measures<br>Permanent measures                | within 48 hours<br>within 15 (fifteen) days or as specified by the Authority's Engineer |
| <b>b</b>             | <b>Foundation</b>  |   |
| I                    | Scouring and/or cavitation   | 15 (fifteen) days   |
| <b>c</b>             | <b>Piers, abutments, return walls and wing walls</b>                                       |   |
| I                    | Cracks and damages including settlement and tilting, spalling, scaling                     | 30 (thirty) days  |
| <b>d</b>             | <b>Bearing (metallic) of bridges</b>   |   |
| I                    | Deformation, damages, tilting or shifting of bearings                                      | 14 (fifteen) days<br>Greasing of metallic bearings once in a year                       |
| <b>e</b>             | <b>Joints</b>  |   |
| I                    | Malfunctioning of joints   | 15 (fifteen) days   |
| <b>f</b>             | <b>Other items</b>   |   |
| I                    | Deforming of pads in elastomeric bearings  | 7 (seven) days  |
| II                   | Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes | 3 (three) days  |
| III                  | Damage or deterioration in kerbs, parapets, handrails and crash barriers                   | 3 (three) days<br>(immediately within 24 hours if posing danger to safety)              |
| IV                   | Rain cuts or erosion of banks on the side slopes of approaches                             | 7 (seven) days  |
| V                    | Damage to wearing coat   | 15 (fifteen) days   |
| VI                   | Damage or deterioration in Approach slabs, pitching, apron, toes, floor or guide bunds     | 30 (thirty) days  |
| VII                  | Growth of vegetation affecting the Structure or obstructing the waterway                   | 15 (fifteen) days   |
| <b>g</b>             | <b>Hill Roads</b>  |   |
| I                    | Damage to retaining wall/breast wall   | 7 (seven) days  |
| II                   | Landslides requiring clearance   | 12 hours  |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

| Nature of deficiency |                          | Time limit for repair/ratification |
|----------------------|--------------------------|------------------------------------|
| III                  | Snow requiring clearance | 24 hours                           |

Note: Where necessary, the Authority may modify the time limit for repair/rectification, or add to the nature of Defect or deficiency before issuing the bidding document, with the approval of the competent authority.

## **SCHEDULE - F**

**(See Clause 3.1.7(a))**

### **APPLICABLE PERMITS**

#### **1 Applicable Permits**

1.1 The Contractor shall obtain, as required under the Applicable Laws, the following Applicable Permits:

- (a) Permission of the State Government for extraction of boulders from quarry;
- (b) Permission of Village Panchayats and Pollution Control Board for installation of crushers;
- (c) License for use of explosives;
- (d) Permission of the State Government for drawing water from river/reservoir;
- (e) License from inspector of factories or other competent Authority for setting up batching plant;
- (f) Clearance of Pollution Control Board for setting up batching plant;
- (g) Clearance of Village Panchayats and Pollution Control Board for setting up asphalt plant;
- (h) Permission of Village Panchayats and State Government for borrow earth; and
- (i) Any other permits or clearances required under Applicable Laws.

1.2 Applicable Permits, as required, relating to environmental protection and conservation shall have been procured by the Authority in accordance with the provisions of this Agreement.

## SCHEDULE - G

(See Clauses 7.1.1, 7.5.3 and 19.2)

### FORM OF BANK GUARANTEE

#### Annex-I

(See Clause 7.1.1)

#### Performance Security

The Managing Director,  
National Highways & Infrastructural Development Corporation Ltd.  
PTI Building, 3<sup>rd</sup> Floor,  
4, Parliament Street  
New Delhi - 110001

WHEREAS:

\_\_\_\_\_ [name and address of contractor] (hereinafter called the "Contractor") and National Highways & Infrastructure Development Corporation Limited, (hereinafter called the "Authority") have entered into an agreement (hereinafter called the "Agreement") for the construction of **"Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section (Design chainage Km. 0.00 to Km. 43.060) in the state of Meghalaya under SARDP-NE on EPC mode"** subject to and in accordance with the provisions of the Agreement

- (B) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period and Maintenance Period} (as defined in the Agreement) in a sum of Rs..... cr. (Rupees ..... crore) (the "Guarantee Amount").
- (C) We, ..... through our branch at ..... (the "Bank") have agreed to furnish this bank guarantee (hereinafter called the "Guarantee") by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor's obligations during the {Construction Period/ Defects Liability Period and Maintenance Period} under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of General Manager in the National Highways Authority of India, that the Contractor has committed default in the due and faithful performance of all or

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfillment and/ or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfillment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
8. The Guarantee shall cease to be in force and effect on .....<sup>\$</sup>. Unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.



9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
  10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
  11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
  12. Notwithstanding anything contained herein before, our liability under this Bank Guarantee is restricted to Rs. \_\_\_\_\_ (Rs. \_\_\_\_\_ in words) and the bank guarantee shall remain valid till \_\_\_\_\_. Unless a claim or a demand in writing is served upon us on or before \_\_\_\_\_ all our liability under this Bank Guarantee shall cease.
- § Insert date being 2 (two) years from the date of issuance of this Guarantee (in accordance with Clause 7.2 of the Agreement).
13. This guarantee shall also be operatable at our..... Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.
  14. Bank Guarantee has been sent to authority's bank through SFMS gateway as per the details below:-

| No | Particulars                  | Details   |
|----|------------------------------|---|
|    | Name of the Beneficiary      | National Highways and Infrastructure Development Corporation Limited                  |
|    | Beneficiary Bank Account No. | 90621010002659  |
|    | Beneficiary Bank Branch      | IFSC SYNB0009062  |
|    | Beneficiary Bank Branch Name | Transport Bhawan, New Delhi   |
|    | Beneficiary Bank Address     | Syndicate Bank, Transport Bhawan, 1 <sup>st</sup> Parliament street, New Delhi-110001 |

Signed and sealed this ..... day of ....., 20..... at .....  
SIGNED , SEALED AND DELIVERED

For and on behalf of the bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

Notes:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

**Annex – II**  
**(Schedule - G)**  
**(See Clause 7.5.3)**

**Form for Guarantee for Withdrawal of Retention Money**

The Managing Director,  
National Highways & Infrastructural Development Corporation Ltd.  
PTI Building, 3<sup>rd</sup> Floor,  
4, Parliament Street

New Delhi - 110001

WHEREAS:

[name and address of contractor] (hereinafter called the “Contractor”) has executed an agreement (hereinafter called the “Agreement”) with the National Highways and Infrastructure Development Corporation Ltd., (hereinafter called the “Authority”) for the **“Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE”** subject to and in accordance with the provisions of the Agreement.

- (A) In accordance with Clause 7.5.3 of the Agreement, the Contractor may withdraw the retention money (hereinafter called the “Retention Money”) after furnishing to the Authority a bank guarantee for an amount equal to the proposed withdrawal.
- (B) We, ..... through our branch at ..... (the “Bank”) have agreed to furnish this bank guarantee (hereinafter called the “Guarantee”) for the amount of Rs. ----- - cr. (Rs.-----crore) (the “Guarantee Amount”).

NOW, THEREFORE, the Bank hereby unconditionally and irrevocably guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.
2. A letter from the Authority, under the hand of an officer not below the rank of General Manager in the National Highways & Infrastructure Development Corporation Limited, that the Contractor has committed default in the due and faithful performance of all or any of its obligations for under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final, and binding on the Bank, notwithstanding any differences between the

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Retention Money and any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Retention Money.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.
8. The Guarantee shall cease to be in force and effect 90 (ninety) days after the date of the Completion Certificate specified in Clause 12.4 of the Agreement.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time

when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. Notwithstanding anything contained herein before, our liability under this Bank Guarantee is restricted to Rs. \_\_\_\_\_ (Rs. \_\_\_\_\_ in words) and the bank guarantee shall remain valid till \_\_\_\_\_. Unless a claim or a demand in writing is served upon us on or before \_\_\_\_\_ all our liability under this Bank Guarantee shall cease.
13. This guarantee shall also be operatable at our..... Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment thereunder claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.
14. Bank Guarantee has been sent to authority's bank through SFMS gateway as per the details below:-

| No | Particulars                  | Details   |
|----|------------------------------|---|
|    | Name of the Beneficiary      | National Highways and Infrastructure Development Corporation Limited                  |
|    | Beneficiary Bank Account No. | 90621010002659  |
|    | Beneficiary Bank Branch      | IFSC SYNB0009062  |
|    | Beneficiary Bank Branch Name | Transport Bhawan, New Delhi   |
|    | Beneficiary Bank Address     | Syndicate Bank, Transport Bhawan, 1 <sup>st</sup> Parliament street, New Delhi-110001 |

Signed and sealed this ..... day of ....., 20..... at .....  
SIGNED , SEALED AND DELIVERED

For and on behalf of the bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

Notes:

- (i) The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

**Annex – III  
(Schedule - G)  
(See Clause 19.2)**

**Form for Guarantee for Advance Payment**

The Managing Director,  
National Highways & Infrastructural Development Corporation Ltd.  
PTI Building, 3<sup>rd</sup> Floor,  
4, Parliament Street  
New Delhi - 110001

WHEREAS:

[name and address of contractor] (hereinafter called the “Contractor”) has executed an agreement (hereinafter called the “Agreement”) with the National Highways and Infrastructure Corporation Ltd., (hereinafter called the “Authority”) for the **“Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE”**, subject to and in accordance with the provisions of the Agreement

- (A) In accordance with Clause 19.2 of the Agreement, the Authority shall make to the Contractor an interest free advance payment (herein after called “ Advance Payment”) equal to 10% (ten per cent) of the Contract Price; and that the Advance Payment shall be made in three installments subject to the Contractor furnishing an irrevocable and unconditional guarantee by a scheduled bank for an amount equivalent to 110% (one hundred and ten percent) of such installment to remain effective till the complete and full repayment of the installment of the Advance Payment as security for compliance with its obligations in accordance with the Agreement. The amount of {first/second/third} installment of the Advance Payment is Rs. --- --- cr. (Rupees ----- crore) and the amount of this Guarantee is Rs. ----- cr. (Rupees ----- crore) (the “Guarantee Amount”) <sup>\$</sup> .
- (C) We, ..... through our branch at ..... (the “Bank”) have agreed to furnish this bank guarantee (hereinafter called the “Guarantee” ) for the Guarantee Amount.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful repayment on time of the aforesaid instalment of the Advance Payment under and in

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<sup>\$</sup> *The Guarantee Amount should be equivalent to 110% of the value of the applicable instalment.*

accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of General Manager in the National Highways & Infrastructure Development Corporation Limited, that the Contractor has committed default in the due and faithful performance of all or any of its obligations for the repayment of the instalment of the Advance Payment under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Authority and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other authority or body, or by the discharge of the Contractor for any reason whatsoever.
3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Advance Payment or to extend the time or period of its repayment or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Advance Payment.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and



the Bank shall be relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect on \*\*\*\*\*.<sup>\$</sup> Unless a demand or claim under this Guarantee is made in writing on or before the aforesaid date, the Bank shall be discharged from its liabilities hereunder.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This Guarantee shall come into force with immediate effect and shall remain in force and effect up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.
12. Notwithstanding anything contained herein before, our liability under this Bank Guarantee is restricted to Rs. \_\_\_\_\_ (Rs. \_\_\_\_\_ in words) and the bank guarantee shall remain valid till \_\_\_\_\_. Unless a claim or a demand in writing is served upon us on or before \_\_\_\_\_ all our liability under this Bank Guarantee shall cease.

<sup>\$</sup> Insert a date being 90 (ninety) days after the end of one year from the date of payment of the Advance payment to the Contractor (in accordance with Clause 19.2 of the Agreement).

13. This guarantee shall also be operatable at our..... Branch at New Delhi, from whom, confirmation regarding the issue of this guarantee or extension / renewal thereof shall be made available on demand. In the contingency of this guarantee being invoked and payment there under claimed, the said branch shall accept such invocation letter and make payment of amounts so demanded under the said invocation.
14. Bank Guarantee has been sent to authority's bank through SFMS gateway as per the details below:-

| Sl. No | Particulars                  | Details  |
|--------|------------------------------|--|
| 1      | Name of the Beneficiary      | National Highways and Infrastructure Development Corporation Limited |
| 2      | Beneficiary Bank Account No. | 90621010002659   |
| 3      | Beneficiary Bank Branch      | IFSC SYNB0009062   |
| 4      | Beneficiary Bank Branch Name | Transport Bhawan, New Delhi  |
| 5      | Beneficiary Bank Address     | Syndicate Bank, Transport  |

|  |  |  |
|--|--|--|
|  |  | Bhawan, 1 <sup>st</sup> Parliament street,<br>New Delhi-110001 |
|--|--|--|

Signed and sealed this ..... day of ....., 20..... at .....  
SIGNED , SEALED AND DELIVERED

For and on behalf of the bank by:

(Signature)

(Name)

(Designation)

(Code Number)

(Address)

Notes:

- i. The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- ii. The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

## Schedule-H

SCHEDULE - H  
(See Clauses 10.1.4 and 19.3)

### Contract Price Weightages

1.1 The Contract Price for this Agreement is Rs. \*\*\*\*\*

1.2 Proportions of the Contract Price for different stages of Construction of the Project Highway shall be as specified below:

| Item  | Weightage in percentage to the Contract Price | Stage for Payment  | Percentage weightage |
|---|---|--|----------------------|
| 1   | 2   | 3  | 4                    |
| Road works including culverts, minor bridges, underpasses, overpasses, approaches to ROB/RUB/ Major Bridges/ Structures (but excluding service roads) | [80.52%]                                      | <b>A- Widening and strengthening of existing road</b>  |                      |
|   |   | (1) Earthwork up to top of the sub-grade   | [3.78%]              |
|   |   | (2) Granular work (sub-base, base, shoulders)  | [10.97%]             |
|   |   | (3) Dense Bituminous Macadam (DBM)   | [5.60%]              |
|   |   | (4) Bituminous Concrete  | [2.54]               |
|   |   | (5) Widening and repair of culverts  | [0.00%]              |
|   |   | (6) Widening and repair of minor bridges   | [0.00%]              |
|   |   | <b>B- New 2-lane realignment/bypass</b>  |                      |
|   |   | (1) Earthwork up to top of the sub-grade   | [6.65%]              |
|   |   | (2) Granular work (sub-base, base, shoulders)  | [21.60%]             |
|   |   | (3) Dense Bituminous Macadam (DBM)   | [18.98%]             |
|   |   | (4) Bituminous Concrete  | [???                 |
|   |   | (5) CC Pavement  | [0.00%]              |
|   |   | <b>C- New culverts, minor bridges, underpasses, overpasses on existing road, realignments, bypasses:</b> |                      |
|   |   | (1) Culverts   | [19.70%]             |
|   |   | (2) Minor bridges  | [10.18%]             |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

|  |          |  |   |
|--|----------|--|---|
|  |          | (3)Cattle/Pedestrian underpasses<br>(4) Pedestrian overpasses<br>(5) Grade separated structures<br>(a) Underpasses<br>(b) Overpass | [0.00%]<br>[0.00%]<br>[0.00%]<br>[0.00%]<br>[0.00%] |
| Major Bridge works and ROB/RUB                   | [4.72%]  | <b>A- Widening and repairs of Major Bridges</b>  |   |
|  |          | (1) Foundation   | [0.00%]   |
|  |          | (2) Sub-structure  | [0.00%]   |
|  |          | (3) Super-structure (including crash barriers etc. complete)   | [0.00%]   |
|  |          | (4) Approaches (excluding Retaining wall)  | [0.00%]   |
|  |          | (5) Retaining Wall.  | [0.00%]   |
|  |          | <b>B- Widening and repair of</b>   |   |
|  |          | (a) <b>ROB</b>   | [0.00%]   |
|  |          | (b) <b>RUB</b>   | [0.00%]   |
|  |          | <b>C- New Major Bridges</b>  |   |
|  |          | (1) Foundation   | [10.94%]  |
|  |          | (2) Sub-structure  | [56.18%]  |
|  |          | (3) Super-structure (including crash barriers etc. complete)   | [32.86%]  |
|  |          | (4) Approaches (excluding Retaining Wall)  | [0.00%]   |
|  |          | (5) Retaining Wall   | [0.00%]   |
|  |          | (6) Protection works   | [0.02%]   |
|  |          | <b>D- New rail-road bridges</b>  |   |
|  |          | (a)ROB   | [0.00%]   |
| Structures (elevated sections, reinforced earth) | [0.00%]  | (1) Foundation   | [0.00%]   |
|  |          | (2) Sub-structure  | [0.00%]   |
|  |          | (3) Super-structure (including crash barriers etc. complete)   | [0.00%]   |
| Other works                                      | [14.76%] | (i) Service roads  | [0.00%]   |
|  |          | (ii) Toll Plaza  | [0.00%]   |
|  |          | (iii) Road side drains   | [5.73%]   |
|  |          | (iv) Road signs, markings, km stones, safety devices etc.  | [19.34%]  |
|  |          | (v) Project facilities- Bus shelter/Bus bays   | [3.20%]   |

|  |  |  |          |
|--|--|--|----------|
|  |  | (vi) Repairs to bridges/structures                                     |          |
|  |  | a) Providing wearing coat  | [0.00%]  |
|  |  | b) Replacement of bearings, joints                                     | [0.00%]  |
|  |  | c) Providing crash barriers  | [0.00%]  |
|  |  | d) Other items   | [0.00%]  |
|  |  | (vii) Road side plantation   | [0.00%]  |
|  |  | (viii) Protection works  | [0.00%]  |
|  |  | (ix) Site clearance  | [1.96%]  |
|  |  | (x) Safety and traffic management during construction                  | [10.27%] |
|  |  | (xi) Junctions   | [10.27%] |
|  |  | (xii) Retaining Wall/ Breast Wall                                      | [49.23%] |
|  |  | (xiii) Miscellaneous items- Vehicle, Phone, Photographs, Lighting etc. | [0.00%]  |

Procedure for estimating the value of work done.

Road works including approaches to minor bridges, Major Bridges and Structures (excluding service roads).

Procedure for estimating the value of road work done shall be as follow:

Table 1.3.1

| Stage of Payment                              | Percentage - weightage | Payment Procedure   |
|---|------------------------|---|
| <b>A- Widening and strengthening</b>          |                        | Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in a length of not less than 10 (ten) percent of the total length. @ |
| (1) Earthwork up to top of the sub-grade      | [6.65%]                |   |
| (2) Granular work (sub-base, base, shoulders) | [21.60%]               |   |
| (3) Dense Bituminous Macadam(DBM)             | [18.98%]               |   |

| Stage of Payment   | Percentage - weightage | Payment Procedure  |
|--|------------------------|--|
| (4) Bituminous Concrete (BC)   |                        |  |
| (5) Widening and repair of culverts  | [0.00%]                | Cost of ten completed culverts shall be determined pro rata with respect to the total number of culverts. Payment shall be made on the completion of ten culverts.                       |
| (6) Widening and repair of minor bridges   | [0.00%]                | Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length of the minor bridges. Payment shall be made on the completion of a minor bridge. |
| <b>B- New 2-lane realignment, bypass</b>   |                        |  |
| (1) Earthwork up to top of the sub-grade   | [3.78%]                | Unit of measurement is linear length. Payment of each stage shall be made on pro rata basis on completion of a stage in full length or 5 (five) km length.                               |
| (2) Granular work (sub-base, base, shoulders)  | [10.97%]               |  |
| (3) Dense Bituminous Macadam (DBM)   | [5.60%]                |  |
| (4) Bituminous Concrete (BC)   | [2.54%]                |  |
| (5) CC Pavement  | [0.00%]                |  |
| <b>C- New culverts, minor bridges, underpasses, overpasses on existing road, realignments, bypasses:</b> |                        |  |
| (1) Culverts   | [19.70%]               | Cost of each culvert shall be determined on pro rata basis with respect to the total number of culverts. Payment shall be made on the completion of five culverts.                       |
| (2) Minor bridges  | [10.18%]               | Cost of each minor bridge shall be determined on pro rata basis with respect to the total linear length of the minor bridges. Payment shall be made on the completion of a minor bridge  |
| (3) Cattle/Pedestrian  | [0.00%]                | Cost of each cattle/pedestrian underpass shall be determined on pro rata basis with respect to the total number of cattle/pedestrian underpasses.  |

Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE

| Stage of Payment               | Percentage - weightage | Payment Procedure  |
|--------------------------------|------------------------|--|
| underpasses                    |                        | Payment shall be made on the completion of the number of cattle/pedestrian underpasses specified below:<br>Total no.<br>Stage for Payment: (i) 1 to 5 - on completion of all, (ii) 6 or more - on completion of five |
|                                |                        | Same as for (3) above  |
| (4) Pedestrian Overpasses      | [0.00%]                | Same as for (3) above  |
| (5) Grade separated structures | [0.00%]                | Same as for (3) above  |
| (a) Underpasses                | [0.00%]                |  |
| (b) Overpasses                 | [0.00%]                |  |

@. For example, if the total length of bituminous work to be done is 100 km, the cost per km of bituminous work shall be determined as follows:

$$\text{Cost per km} = P \times \text{weightage for road work} \times \text{weightage for bituminous work} \times (1/L)$$

Where P= Contract Price

L = Total length in km

Similarly, the rates per km for stages (1), (2) and (4) above shall be worked out.

### 1.3.2 Major Bridge works and ROB/RUB.

Procedure for estimating the value of Major Bridge works and of ROB/RUB shall be as stated in table 1.3.2:

Table 1.3.2

| Stage of Payment   | Weightage | Payment Procedure  |
|--|-----------|--|
| <b>A- Widening and repairs of Major Bridges</b>  |           |  |
| Foundation: On completion of the foundation work including foundations for wing and return walls                             | [0.00%]   | Cost of each Major Bridge (widening and repairs) shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridges (widening and repairs). Payment shall be made on completion of each stage of a Major Bridge as per |
| Sub-structure: On completion of abutments, piers up to the abutment/pier cap, wing walls, return walls, guide bunds, if any. | [0.00%]   |  |

| Stage of Payment   | Weightage                      | Payment Procedure   |
|--|--------------------------------|---|
| Super-structure: On completion of the super structure in all respects including hand rails/crash barriers, tests on completion etc., complete in all respects.<br>Approaches: On completion of approaches (excluding retaining wall if any), filter media etc. and complete in all respects & fit for use. | [0.00%]<br>[0.00%]<br>[0.00% ] | the weightage given in this table.  |
| Retaining Wall: On completion of Retaining Wall if any in all respects.  |                                |   |
| <b>B- Widening and repairs of</b><br>(a) ROB<br>(b) RUB<br>1. Foundation: On completion of the foundation work including foundations for wing and return walls   | [0%]<br><br>[0%]               | Cost of each ROB/RUB (widening and repairs) shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUB (widening and repairs). Payment shall be made on completion of each stage of ROB/RUB as per the weightage given in this table. |
| 2. Sub-structure: On completion of abutments, piers up to the abutment/pier cap, wing walls, return walls, guide bunds, if any.  | [0%]                           |   |
| 3. Super-structure: On completion of the super structure in all respects including hand rails/crash barriers, tests on completion etc., complete in all respects.  |                                |   |
| 4. Approaches: On completion of approaches (excluding reinforced earth wall if any), filter media etc. and complete in all respects & fit for use.   |                                | Cost of each Major Bridge shall be determined on pro rata basis with respect to the total linear length (m) of the Major Bridges.   |
| 5. Reinforced Earth Wall: On completion of Reinforced Earth Wall if any in all respects.   |                                | Payment shall be made on completion of each stage of a Major Bridge as per the weightage given in this table  |
| <b>C. New Major Bridges</b><br>1. Foundation: On completion of the foundation work   |                                |   |



| Stage of Payment  | Weightage | Payment Procedure  |
|---|-----------|--|
| including foundations for wing and return walls   | [10.94%]  | Cost of each ROB/RUB shall be determined on pro rata basis with respect to the total linear length (m) of the ROB/RUB. Payment shall be made on completion of each stage of ROB/RUB as per the weightage given in this table.. |
| 2. Sub-structure: On completion of abutments, piers up to the abutment/pier cap   | [56.18%]  |  |
| 3. Super-structure: On completion of the super structure in all respects including hand rails/crash barriers, tests on completion etc., complete in all respects. | [32.86%]  |  |
| 4. Approaches: On completion of approaches (excluding retaining wall if any), filter media etc. and complete in all respects & fit for use.                       | [0%]      |  |
| 5. Retaining Wall: On completion of Retaining Wall if any in all respects.  |           |  |
| <b>3. New Rail-road bridges</b>   | [0%]      |  |
| (a) ROB   |           |  |
| (b) RUB   |           |  |
| 1. Foundation: On completion of the foundation work including foundations for wing and return walls   | [0%]      |  |
| 2. Sub-structure: On completion of abutments, piers up to the abutment/pier cap, wing walls, return walls, guide bunds, if any.                                   | [0%]      |  |
| 3. Super-structure: On completion of the super structure in all respects including hand rails/crash barriers, tests on completion etc., complete in all respects. | [0%]      |  |
| 4. Approaches: On completion of approaches (excluding reinforced earth wall if any), filter media etc. and complete in all respects & fit for use.                | [0%]      |  |
| 5. Reinforced Earth Wall: On  |           |  |

| Stage of Payment  | Weightage | Payment Procedure |
|---|-----------|-------------------|
| completion of Reinforced Earth Wall if any in all respects. | [0.00%]   |                   |
|   | [0.00%]   |                   |
|   | [0.00%]   |                   |

### 1.3.3 Structures

Procedure for estimating the value of structure work shall be as stated in table 1.3.3:

Table 1.3.3

| Stage of payment   | Weightage | Payment procedure  |
|--|-----------|--|
| (1) Foundation: On completion of the foundation works including foundations for wing and return walls  | [0.00%]   | Cost of each structure shall be determined on pro rata basis in respect to the total linear length (m) of all the structures. Payment shall be made on completion of each stage of a structure as per the weightage given in this table. |
| (2) Sub-structure: On completion of abutments, piers up to the abutment/pier cap, wing walls, return walls if any.   | [0.00%]   |  |
| (3) Super-structure: On completion of the Structure along with super structure, including hand rails/crash barriers, tests on completion etc., elevated structure complete in all respects | [0.00%]   |  |

|   |         |  |
|---|---------|--|
| and fit for use.  |         |  |
| (4) Approaches: On completion of approaches (excluding Reinforced earth wall if any), filter media etc. and complete in all respects & fit for use. | [0.00%] |  |
| (5) Reinforced earth work   | [0.00%] | Payment shall be made on pro rata basis on completion of 25 (twenty five) percent of total area. |

#### 1.3.4 Other works.

Procedure for estimating the value of other works done shall be as stated in table 1.3.4.

Table 1.3.4

| Stage of Payment  | Weightage | Payment Procedure  |
|---|-----------|--|
| (i) Service roads   | [0.00%]   | Unit of measurement is linear length in km. Cost per km shall be determined on pro rata basis with respect to the total length of the service roads. Payment shall be made for completed service road in a length of not less than 20 (twenty) percent of the total length of service roads. |
| (ii) Toll plaza   | [0.00%]   | Unit of measurement is each completed toll plaza. Payment of each toll plaza shall be made on pro rata basis with respect to the total of all toll plazas.   |
| (iii) Road side drains                                    | [5.73%]   | Unit of measurement is linear length in km.  |
| (iv) Road signs, markings, km stones, safety devices, ... | [19.34%]  | Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10 % (ten per cent) of the total length.   |

| Stage of Payment   | Weightage                                | Payment Procedure   |
|--|--|---|
| (v) Project Facilities<br><br>a) Bus bays<br>b) Truck lay-byes<br>c) Rest areas<br>d) others   | [3.20%]<br>[0.00%]<br>[0.00%]<br>[**]    | Payment shall be made on pro rata basis for completed facilities.   |
| (vi) Repairs to existing bridges/structures<br><br>a) Providing wearing coat<br>b) Replacement of bearing, joints<br>c) Providing crash barriers<br>d) Other items | [0.00%]<br>[0.00%]<br>[0.00%]<br>[0.10%] | Payment shall be made for completed items.  |
| (vii) Roadside plantation  | [0.00%]                                  | Unit of measurement is linear length. Payment shall be made on pro rata basis on completion of a stage in a length of not less than 10% (ten per cent) of the total length. |
| (viii) Protection works  | [0.00%]                                  |   |
| (ix) Safety and traffic management during construction   | [10.27%]                                 | Payment shall be made on prorata basis every six months.  |

## 2. Procedure for payment for Maintenance

2.1 The cost for maintenance shall be as stated in Clause 14.1.1.

2.2 Payment for Maintenance shall be made in quarterly instalments in accordance with the provisions of Clause 19.7.

## **Schedule-I**

(See Clause 10.2)

### **DRAWINGS**

#### **1. Drawings**

In compliance of the obligations set forth in Clause 10.2 of this Agreement, the Contractor shall furnish to the Authority's Engineer, free of cost, all Drawings listed in Annex-I of this Schedule-I.

#### **2. Additional Drawings**

If the Authority's Engineer determines that for discharging its duties and functions under this Agreement, it requires any drawings other than those listed in Annex-I, it may by notice require the Contractor to prepare and furnish such drawings forthwith. Upon receiving a requisition to this effect, the Contractor shall promptly prepare and furnish such drawings to the Authority's Engineer, as if such drawings formed part of Annex-I of this Schedule-I

## **Annex-I**

(Schedule-I)

### **List of Drawings**

Note: The Authority shall describe in this Annex – I all the Drawings that the Contractor is required to furnish under Clause 10.2.

1. All the Drawings that the Contractor is required to furnish under Clause 10.2 Specifying the Drawings for Two-Laning with earthen shoulders are as under:

- Horizontal and Vertical Alignment with details of reference pillars. Horizontal Intersection Point, Vertical Intersection Points, elements of curves, and sight distances.
- Cross-section at 50m interval along the alignment within ROW
- Typical Cross-section with details of pavement structures
- Detailed drawings of individual Bridges/ Structures/ROB
- Detailed drawings for individual culverts
- Detailed layout drawings for intersections and interchanges
- Drawings for Road sign, Markings, Bus bays, Parking areas
- Street lighting
- Landscaping & Tree Plantation
- Vehicle rescue post
- Traffic Management drawings for safety in construction zones
- Detailed drawings of road side furniture and safety structures
- Detailed drawings of guide bunds and protection works
- Detailed drawings of Drainage including RCC covered drains and Chute drains.

## **SCHEDULE - J**

**(See Clause 10.3.2)**

### **PROJECT COMPLETION SCHEDULE**

#### **1 Project Completion Schedule**

During Construction period, the Contractor shall comply with the requirements set forth in this Schedule-J for each of the Project Milestones and the Scheduled Completion Date. Within 15 (fifteen) days of the date of each Project Milestone, the Contractor shall notify the Authority of such compliance along with necessary particulars thereof.

#### **2 Project Milestone-I**

2.1 Project Milestone-I shall occur on the date falling on the 180<sup>th</sup> (one hundred and eightieth) day from the Appointed Date (the “Project Milestone-I”).

2.2 Prior to the occurrence of Project Milestone-I, the Contractor shall have commenced construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 10% (ten per cent) of the Contract Price.

#### **3 Project Milestone-II**

3.1 Project Milestone-II shall occur on the date falling on the 365<sup>th</sup> (Three hundred and Sixty fifth) day from the Appointed Date (the “Project Milestone-II”).

3.2 Prior to the occurrence of Project Milestone-II, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 30% (Thirty per cent) of the Contract Price.

#### **4 Project Milestone-III**

4.1 Project Milestone-III shall occur on the date falling on the 650<sup>th</sup> (Six hundred and fiftieth) day from the Appointed Date (the “Project Milestone- III”).

4.2 Prior to the occurrence of Project Milestone-III, the Contractor shall have continued with construction of the Project Highway and submitted to the Authority duly and validly prepared Stage Payment Statements for an amount not less than 60% (Sixty per cent) of the Contract Price.

#### **5 Scheduled Completion Date**

5.1 The Scheduled Completion Date shall occur on the 910<sup>th</sup> (Nine Hundred and tenth ) day from the Appointed Date.

5.2 On or before the Scheduled Completion Date, the Contractor shall have completed construction in accordance with this Agreement.

#### **6 Extension of time**

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Completion Date, as the case may be, under and in accordance with the provisions of this Agreement, the Project Completion Schedule shall be deemed to have been amended accordingly.



## **SCHEDULE – K**

**(See Clause 12.1.2)**

### **Tests on Completion**

#### **1 Schedule for Tests**

- 1.1 The Contractor shall, no later than 30 (thirty) days prior to the likely completion of construction, notify the Authority's Engineer and the Authority of its intent to subject the Project Highway to Tests, and no later than 10 (ten) days prior to the actual date of Tests, furnish to the Authority's Engineer and the Authority detailed inventory and particulars of all works and equipment forming part of Works.
- 1.2 The Contractor shall notify the Authority's Engineer of its readiness to subject the Project Highway to Tests at any time after 10 (ten) days from the date of such notice, and upon receipt of such notice, the Authority's Engineer shall, in consultation with the Contractor, determine the date and time for each Test and notify the same to the Authority who may designate its representative to witness the Tests. The Authority's Engineer shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 12 and this Schedule-K.

#### **2 Tests**

- 2.1 Visual and physical test: The Authority's Engineer shall conduct a visual and physical check of construction to determine that all works and equipment forming part thereof conform to the provisions of this Agreement. The physical tests shall include all the tests required for quality control or as decided in consultation with the Authority's Engineer at the time of physical tests as per relevant IRC code Manual .
- 2.2 Riding quality test: Riding quality of each lane of the carriageway shall be checked with the help of a calibrated bump integrator and the maximum permissible roughness for purposes of this Test shall be 2,000 (two thousand) mm for each kilometer.
- 2.3 Tests for bridges: All major and minor bridges shall be subjected to the rebound hammer and ultrasonic pulse velocity tests, to be conducted in accordance with the procedure described in Special Report No. 17: 1996 of the IRC Highway Research Board on Non destructive Testing Techniques, at two spots in every span, to be chosen at random by the Authority's Engineer. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.
- 2.4 Other tests: The Authority's Engineer may require the Contractor to carry out or cause to be carried additional tests, in accordance with Good Industry Practice, for determining the compliance of the Project Highway with Specifications and Standards.
- 2.5 Environmental audit: The Authority's Engineer shall carry out a check to determine conformity of the Project Highway with the environmental requirements set forth in Applicable Laws and Applicable Permits.
- 2.6 Safety Audit: The Authority's Engineer shall carry out, or cause to be carried out, a safety audit to determine conformity of the Project Highway with the safety

requirements and Good Industry Practice.

**3 Agency for conducting Tests**

All Tests set forth in this Schedule-K shall be conducted by the Authority's Engineer or such other agency or person as it may specify in consultation with the Authority.

**4 Completion Certificate**

Upon successful completion of Tests, the Authority's Engineer shall issue the Completion Certificate in accordance with the provisions of Article 12.

## SCHEDULE - L

(See Clause 12.2 and 12.4)

### PROVISIONAL CERTIFICATE

- 1 I, ..... (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated ..... (the "Agreement"), for **"Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE"** on Engineering, Procurement and Construction (EPC) basis through ..... (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been undertaken to determine compliance of the Project Highway with the provisions of the Agreement.
- 2 Works that are incomplete on account of Time Extension have been specified in the Punch List appended hereto, and the Contractor has agreed and accepted that it shall complete all such works in the time and manner set forth in the Agreement. In addition, certain minor works are incomplete and these are not likely to cause material inconvenience to the Users of the Project Highway or affect their safety. The Contractor has agreed and accepted that as a condition of this Provisional Certificate, it shall complete such minor works within 30 (thirty) days hereof. These minor works have also been specified in the aforesaid Punch List.
- 3 In view of the foregoing, I am satisfied that the **"Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE"**, can be safely and reliably placed in service of the Users thereof, and in terms of the Agreement, the Project Highway is hereby provisionally declared fit for entry into operation on this the ..... day of ..... 20.....

ACCEPTED, SIGNED, SEALED  
And DELIVERED  
For and on behalf of  
CONTRACTOR by:  
by:

SIGNED, SEALED and  
DELIVERED  
For and on behalf of  
AUTHORITY ENGINEER

## COMPLETION CERTIFICATE

- 1 I, ..... (Name of the Authority's Engineer), acting as the Authority's Engineer, under and in accordance with the Agreement dated ..... (the "Agreement"), for **"Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE"** on Engineering, Procurement and Construction (EPC) basis through ..... (Name of Contractor), hereby certify that the Tests in accordance with Article 12 of the Agreement have been successfully undertaken to determine compliance of the Project Highway with the provisions of the Agreement, and I am satisfied that the Project Highway can be safely and reliably placed in service of the Users thereof.
- 2 It is certified that, in terms of the aforesaid Agreement, all works forming part of Project Highway have been completed, and the Project Highway is hereby declared fit for entry into operation on this the ..... day of ..... 20.....

SIGNED, SEALED AND  
DELIVERED For and on behalf of the Authority's Engineer by:

(Signature)

(Name)

(Designation)

(Address)

## SCHEDULE - M

(See Clauses 14.6, 15.2 and 19.7)

### PAYMENT REDUCTION FOR NON-COMPLIANCE

#### 1. Payment reduction for non-compliance with the Maintenance Requirements

- 1.1 Monthly lump sum payments for maintenance shall be reduced in the case of non-compliance with the Maintenance Requirements set forth in Schedule-E.
- 1.2 Any deduction made on account of non-compliance with the Maintenance Requirements shall not be paid even after compliance subsequently. The deductions shall continue to be made every month until compliance is done.
- 1.3 The Authority's Engineer shall calculate the amount of payment reduction on the basis of weightage in percentage assigned to non-conforming items as given in Paragraph 2.

#### 2. Percentage reductions in lump sum payments

- 2.1 The following percentages shall govern the payment reduction:

| SI No    | Item/Defect/Deficiency  | Percentage (%) |
|----------|---|----------------|
| <b>a</b> | <b>Carriageway/Pavement</b>   |                |
| I        | Potholes, cracks, other surface defects   | 15             |
| II       | Repair of edges, rutting  | 5              |
| <b>b</b> | <b>Road, Embankment, Cuttings, Shoulders</b>  |                |
| I        | Edge drop, inadequate crossfall, undulations, settlement, potholes, ponding, obstructions   | 10             |
| II       | Deficient slopes, raincuts, disturbed pitching, vegetation growth, pruning of trees   | 5              |
| <b>c</b> | <b>Bridges and Culverts</b>   |                |
| I        | Desilting, Cleaning, vegetation, growth, damaged pitching, flooring, parapets, wearing course, footpaths, any damage to foundations | 20             |
| II       | Any Defects in superstructures, bearings and sub-structures   | 10             |
| III      | Painting, repairs/replacement kerbs, railings, parapets, guideposts/crash barriers.   | 5              |
| <b>d</b> | <b>Roadside drains</b>  |                |
| I        | Cleaning and repair of drains   | 5              |
| <b>e</b> | <b>Road Furniture</b>   |                |
| I        | Cleaning, painting, replacement of road signs, delineators, road markings, 200 m/km/5th km stones.                                  | 5              |
| <b>f</b> | <b>Miscellaneous Items</b>  |                |
| I        | Removal of dead animals, broken down/accident vehicles, fallen trees, road blockades or malfunctioning of mobile crane              | 10             |
| II       | Any other Defects in accordance with paragraph 1.   | 5              |
| <b>g</b> | <b>Defects in Other Project Facilities</b>  | 5              |

The amount to be deducted from monthly lump-sum payment for non compliance of particular item shall be calculated as under:

$$R = P/100 \times M \times L1/L$$

Where P = Percentage of particular item/Defect/deficiency for deduction

M = Monthly lump-sum payment in accordance with the Bid

L1 = Non-complying Length

L = Total length of the road

R = Reduction (the amount to be deducted for non-compliance for a particular item/Defect/deficiency)

The total amount of reduction shall be arrived at by summation of reductions for such items/Defects/deficiency or non-compliance.

For any Defect in a part of one kilometre, the non-conforming length shall be taken as one kilometre.

## **SCHEDULE - N**

**(See Clause 18.1.1)**

### **SELECTION OF AUTHORITY'S ENGINEER**

#### **1 Selection of Authority's Engineer**

- 1.1 The provisions of the Model Request for Proposal for Selection of Technical Consultants, issued by the Ministry of Finance in May 2009, or any substitute thereof shall apply for selection of an experienced firm to discharge the functions and duties of an Authority's Engineer.
- 1.2 In the event of termination of the Technical Consultants appointed in accordance with the provisions of Paragraph 1.1, the Authority shall appoint another firm of Technical Consultants forthwith and may engage a government-owned entity in accordance with the provisions of Paragraph 3 of this Schedule -N.

#### **2 Terms of Reference**

The Terms of Reference for the Authority's Engineer (the "TOR") shall substantially conform with Annex 1 to this Schedule N.

#### **3 Appointment of Government entity as Authority's Engineer**

Notwithstanding anything to the contrary contained in this Schedule, the Authority may in its discretion appoint a government-owned entity as the Authority's Engineer; provided that such entity shall be a body corporate having as one of its primary functions the provision of consulting, advisory and supervisory services for engineering projects; provided further that a government-owned entity which is owned or controlled by the Authority shall not be eligible for appointment as Authority's Engineer.

## TERMS OF REFERENCE FOR AUTHORITY'S ENGINEER

### 1 Scope

- 1.1 These Terms of Reference (the “TOR”) for the Authority’s Engineer are being specified pursuant to the EPC Agreement dated ..... (the “Agreement”), which has been entered into between the National Highways and Infrastructure Development Corporation Ltd. (the “Authority”) and ..... (the “Contractor”) for the **“Rehabilitation and upgradation to two lane with earthen shoulder of Nongstoin-Wahkhaji road section from existing km 0.00 to km 43.100 [Design chainage Km. 0.00 to Km. 43.060] (design length 43.060 km) in the state of Meghalaya under SARDP-NE”**, on Engineering, Procurement, Construction (EPC) basis, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.
- 1.2 The TOR shall apply to construction and maintenance of the Project Highway.

### 2 Definitions and interpretation

- 2.1 The words and expressions beginning with or in capital letters and not defined herein but defined in the Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Agreement.
- 2.2 References to Articles, Clauses and Schedules in this TOR shall, except where the context otherwise requires, be deemed to be references to the Articles, Clauses and Schedules of the Agreement, and references to Paragraphs shall be deemed to be references to Paragraphs of this TOR.
- 2.3 The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Agreement shall apply, mutatis mutandis, to this TOR.

### 3. General

- 3.1 The Authority’s Engineer shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.
- 3.2 The Authority’s Engineer shall perform the duties and exercise the authority in accordance with the provisions of this Agreement, but subject to obtaining prior written approval of the Authority before determining:
- (a) any Time Extension;
  - (b) any additional cost to be paid by the Authority to the Contractor;
  - (c) the Termination Payment; or
  - (d) any other matter which is not specified in (a), (b) or (c) above and which creates an obligation or liability on either Party for a sum exceeding Rs. 5,000,000 (Rs. fifty lakh).
- 3.3 The Authority’s Engineer shall submit regular periodic reports, at least once every month, to the Authority in respect of its duties and functions under this Agreement. Such reports shall be submitted by the Authority’s Engineer within 10 (ten) days of



the beginning of every month.

- 3.4 The Authority's Engineer shall inform the Contractor of any delegation of its duties and responsibilities to its suitably qualified and experienced personnel; provided, however, that it shall not delegate the authority to refer any matter for the Authority's prior approval in accordance with the provisions of Clause 18.2.
- 3.5 The Authority's Engineer shall aid and advise the Authority on any proposal for Change of Scope under Article 13.
- 3.6 In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Authority's Engineer shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

#### **4 Construction Period**

- 4.1 During the Construction Period, the Authority's Engineer shall review the Drawings furnished by the Contractor along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys, and the recommendations of the Safety Consultant in accordance with the provisions of Clause 10.1.6. The Authority's Engineer shall complete such review and send its observations to the Authority and the Contractor within 15 (fifteen) days of receipt of such Drawings; provided, however that in case of a Major Bridge or Structure, the aforesaid period of 15 (fifteen) days may be extended upto 30 (thirty) days. In particular, such comments shall specify the conformity or otherwise of such Drawings with the Scope of the Project and Specifications and Standards.
- 4.2 The Authority's Engineer shall review any revised Drawings sent to it by the Contractor and furnish its comments within 10 (ten) days of receiving such Drawings.
- 4.3 The Authority's Engineer shall review the Quality Assurance Plan submitted by the Contractor and shall convey its comments to the Contractor within a period of 21 (twenty-one) days stating the modifications, if any, required thereto.
- 4.4 The Authority's Engineer shall complete the review of the methodology proposed to be adopted by the Contractor for executing the Works, and convey its comments to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.
- 4.5 The Authority's Engineer shall grant written approval to the Contractor, where necessary, for interruption and diversion of the flow of traffic in the existing lane(s) of the Project Highway for purposes of maintenance during the Construction Period in accordance with the provisions of Clause 10.4.
- 4.6 The Authority's Engineer shall review the monthly progress report furnished by the Contractor and send its comments thereon to the Authority and the Contractor within 7 (seven) days of receipt of such report.
- 4.7 The Authority's Engineer shall inspect the Construction Works and the Project Highway and shall submit a monthly Inspection Report bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. In particular, the Authority's Engineer shall include in its Inspection Report, the compliance of the recommendations made by the Safety Consultant.

- 4.8 The Authority's Engineer shall conduct the pre-construction review of manufacturer's test reports and standard samples of manufactured Materials, and such other Materials as the Authority's Engineer may require.
- 4.9 For determining that the Works conform to Specifications and Standards, the Authority's Engineer shall require the Contractor to carry out, or cause to be carried out, tests at such time and frequency and in such manner as specified in the Agreement and in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 4.9, the tests specified in the IRC Special Publication-11 (Handbook of Quality Control for Construction of Roads and Runways) and the Specifications for Road and Bridge Works issued by MORTH (the "Quality Control Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance.
- 4.10 The Authority's Engineer shall test check at least 20 (twenty) percent of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
- 4.11 The timing of tests referred to in Paragraph 4.9, and the criteria for acceptance/rejection of their results shall be determined by the Authority's Engineer in accordance with the Quality Control Manuals. The tests shall be undertaken on a random sample basis and shall be in addition to, and independent of, the tests that may be carried out by the Contractor for its own quality assurance in accordance with Good Industry Practice.
- 4.12 In the event that results of any tests conducted under Clause 11.10 establish any Defects or deficiencies in the Works, the Authority's Engineer shall require the Contractor to carry out remedial measures.
- 4.13 The Authority's Engineer may instruct the Contractor to execute any work which is urgently required for the safety of the Project Highway, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 21.6 shall apply.
- 4.14 In the event that the Contractor fails to achieve any of the Project Milestones, the Authority's Engineer shall undertake a review of the progress of construction and identify potential delays, if any. If the Authority's Engineer shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Contractor to indicate within 15 (fifteen) days the steps proposed to be taken to expedite progress, and the period within which the Project Completion Date shall be achieved. Upon receipt of a report from the Contractor, the Authority's Engineer shall review the same and send its comments to the Authority and the Contractor forthwith.
- 4.15 The Authority's Engineer shall obtain from the Contractor a copy of all the Contractor's quality control records and documents before the Completion Certificate is issued pursuant to Clause 12.4.
- 4.16 Authority's Engineer may recommend to the Authority suspension of the whole or part of the Works if the work threatens the safety of the Users and pedestrians. After the Contractor has carried out remedial measure, the Authority's Engineer shall inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked.
- 4.17 In the event that the Contractor carries out any remedial measures to secure the safety of suspended works and Users, and requires the Authority's Engineer to

inspect such works, the Authority's Engineer shall inspect the suspended works within 3 (three) days of receiving such notice, and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.

- 4.18 The Authority's Engineer shall carry out, or cause to be carried out, all the Tests specified in Schedule-K and issue a Completion Certificate or Provisional Certificate, as the case may be. For carrying out its functions under this Paragraph 4.18 and all matters incidental thereto, the Authority's Engineer shall act under and in accordance with the provisions of Article 12 and Schedule-K.

## **5. Maintenance Period**

- 5.1 The Authority's Engineer shall aid and advise the Contractor in the preparation of its monthly Maintenance Programme and for this purpose carry out a joint monthly inspection with the Contractor.
- 5.2 The Authority's Engineer shall undertake regular inspections, at least once every month, to evaluate compliance with the Maintenance Requirements and submit a Maintenance Inspection Report to the Authority and the Contractor.
- 5.3 The Authority's Engineer shall specify the tests, if any, that the Contractor shall carry out, or cause to be carried out, for the purpose of determining that the Project Highway is in conformity with the Maintenance Requirements. It shall monitor and review the results of such tests and the remedial measures, if any, taken by the Contractor in this behalf.
- 5.4 In respect of any defect or deficiency referred to in Paragraph 3 of Schedule-E, the Authority's Engineer shall, in conformity with Good Industry Practice, specify the permissible limit of deviation or deterioration with reference to the Specifications and Standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.
- 5.5 The Authority's Engineer shall examine the request of the Contractor for closure of any lane(s) of the Project Highway for undertaking maintenance/repair thereof, and shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Contractor. Upon expiry of the permitted period of closure, the Authority's Engineer shall monitor the reopening of such lane(s), and in case of delay, determine the Damages payable by the Contractor to the Authority under Clause 14.5.

## **6 Determination of costs and time**

- 6.1 The Authority's Engineer shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.
- 6.2 The Authority's Engineer shall determine the period of Time Extension that is required to be determined by it under the Agreement.
- 6.3 The Authority's Engineer shall consult each Party in every case of determination in accordance with the provisions of Clause 18.5.

## **7. Payments**

- 7.1 The Authority's Engineer shall withhold payments for the affected works for which the Contractor fails to revise and resubmit the Drawings to the Authority's Engineer in accordance with the provisions of Clause 10.2.4 (d).

## **7.2 Authority's Engineer shall -**

- (a) within 10 (ten) days of receipt of the Stage Payment Statement from the Contractor pursuant to Clause 19.4, determine the amount due to the Contractor and recommend the release of 90 (ninety) percent of the amount so determined as part payment, pending issue of the Interim Payment Certificate; and
  - (b) within 15 (fifteen) days of the receipt of the Stage Payment Statement referred to in Clause 19.4, deliver to the Authority and the Contractor an Interim Payment Certificate certifying the amount due and payable to the Contractor, after adjustments in accordance with the provisions of Clause 19.10.
- 7.3 The Authority's Engineer shall, within 15 (fifteen) days of receipt of the Monthly Maintenance Statement from the Contractor pursuant to Clause 19.6, verify the Contractor's monthly statement and certify the amount to be paid to the Contractor in accordance with the provisions of the Agreement.
- 7.4 The Authority's Engineer shall certify final payment within 30 (thirty) days of the receipt of the final payment statement of Maintenance in accordance with the provisions of Clause 19.16.

## **8. Other duties and functions**

The Authority's Engineer shall perform all other duties and functions as specified in the Agreement.

## **9 Miscellaneous**

- 9.1 A copy of all communications, comments, instructions, Drawings or Documents sent by the Authority's Engineer to the Contractor pursuant to this TOR, and a copy of all the test results with comments of the Authority's Engineer thereon, shall be furnished by the Authority's Engineer to the Authority forthwith.
- 9.2 The Authority's Engineer shall retain at least one copy each of all Drawings and Documents received by it, including 'as-built' Drawings, and keep them in its safe custody.
- 9.3 Within 90 (ninety) days of the Project Completion Date, the Authority's Engineer shall obtain a complete set of as-built Drawings, in 2 (two) hard copies and in micro film form or in such other medium as may be acceptable to the Authority, reflecting the Project Highway as actually designed, engineered and constructed, including an as-built survey illustrating the layout of the Project Highway and setback lines, if any, of the buildings and structures forming part of Project Facilities; and shall hand them over to the Authority against receipt thereof.
- 9.4 The Authority's Engineer, if called upon by the Authority or the Contractor or both, shall mediate and assist the Parties in arriving at an amicable settlement of any Dispute between the Parties.
- 9.5 The Authority's Engineer shall inform the Authority and the Contractor of any event of Contractor's Default within one week of its occurrence.

**SCHEDULE - O**  
**(See Clauses 19.4.1, 19.6.1, and 19.8.1)**  
**Forms of Payment Statements**

**1. Stage Payment Statement for Works**

The Stage Payment Statement for Works shall state:

- (a) The estimated amount for the Works executed in accordance with Clause 19.3.1 subsequent to the last claim;
- (b) Amounts reflecting adjustments in price for the aforesaid claim;
- (c) The estimated amount of each Change of Scope Order executed subsequent to the last claim
- (d) Amounts reflecting adjustment in price, if any, for (c) above in accordance with the provisions of Clause 13.2.3 (a);
- (e) Total of (a), (b), (c) and (d) above;
- (f) Deductions:
  - (i) Any amount to be deducted in accordance with the provisions of the Agreement except taxes;
  - (ii) Any amount towards deduction of taxes; and
  - (iii) Total of (i) and (ii) above.
- (g) Net claim: (e) – (f) (iii);
- (h) The amounts received by the Contractor up to the last claim:
  - (i) For the Works executed (excluding Change of Scope orders);
  - (ii) For Change of Scope Orders, and
  - (iii) Taxes deducted

**2. Monthly Maintenance Payment Statement**

The monthly Statement for Maintenance Payment shall state:

- (a) the monthly payment admissible in accordance with the provisions of the Agreement;
- (b) the deductions for maintenance work not done;
- (c) net payment for maintenance due, (a) minus (b);
- (d) amounts reflecting adjustments in price under Clause 19.12; and
- (e) amount towards deduction of taxes

**3. Contractor's claim for Damages**

Note: The Contractor shall submit its claims in a form acceptable to the Authority.

**SCHEDULE - P**  
**(See Clause 20.1)**

**INSURANCE**

**1. Insurance during Construction Period**

1.1 The Contractor shall effect and maintain at its own cost, from the Appointed Date till the date of issue of the Completion Certificate, the following insurances for any loss or damage occurring on account of Non Political Event of Force Majeure, malicious act, accidental damage, explosion, fire and terrorism:

(a) Insurance of Works, Plant and Materials and an additional sum of 15 (fifteen) per cent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature; and

(b) Insurance for the Contractor's equipment and Documents brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site.

1.2 The insurance under paragraph 1.1 (a) and (b) above shall cover the Authority and the Contractor against all loss or damage from any cause arising under paragraph 1.1 other than risks which are not insurable at commercial terms.

**2. Insurance for Contractor's Defects Liability**

The Contractor shall effect and maintain insurance cover for the Works from the date of issue of the Completion Certificate until the end of the Defects Liability Period for any loss or damage for which the Contractor is liable and which arises from a cause occurring prior to the issue of the Completion Certificate. The Contractor shall also maintain other insurances for maximum sums as may be required under the Applicable Laws and in accordance with Good Industry Practice.

**3. Insurance against injury to persons and damage to property**

3.1 The Contractor shall insure against its liability for any loss, damage, death or bodily injury, or damage to any property (except things insured under Paragraphs 1 and 2 of this Schedule or to any person (except persons insured under Clause 20.9), which may arise out of the Contractor's performance of this Agreement. This insurance shall be for a limit per occurrence of not less than the amount stated below with no limit on the number of occurrences. The insurance cover shall be not less than Contract Value.

3.2 The insurance shall be extended to cover liability for all loss and damage to the Authority's property arising out of the Contractor's performance of this Agreement excluding:

(a) The Authority's right to have the construction works executed on, over, under, in or through any land, and to occupy this land for the Works; and

(b) Damage which is an unavoidable result of the Contractor's obligations to execute the Works.

**4. Insurance to be in joint names**

The insurance under paragraphs 1 to 3 above shall be in the joint names of the Contractor and the Authority.