



# **NATIONAL HIGHWAYS AUTHORITY OF INDIA**

(Ministry of Shipping, Road Transport & Highways)

Government of India

FOUR LANING OF KUNDAPUR - SURATHKAL SECTION OF NH-17 AND  
MANGLORE – KERALA BORDER ( TOTAL LENGTH 90.08) IN THE STATE  
OF KARNATAKA UNDER NHDP PHASE III ON DESIGN,BUILD,FINANCE,  
OPERATE AND TRANSFER (THE “ DBFOT”) BASIS

between

## **NATIONAL HIGHWAYS AUTHORITY OF INDIA**

G-5&6,sector- 10, Dwarka, New Delhi -110 075

and

## **NAVAYUGA UDUPI TOLLWAYS PRIVATE LIMITED**

1259,Lakshmi Towers, Road No.36,Jubilee Hills,Hyderabad-500033

Andhra Pradesh

9<sup>th</sup> March 2010

VOLUME – I (Part II)

**SCHEDULES TO CONCESSION AGREEMENT**

## **TABLE OF CONTANTS**

| <b><u>S.NO.</u></b> | <b><u>SCHEDULES</u></b> | <b><u>DESCRIPTION</u></b>                                | <b><u>PAGE NO.</u></b> |
|---------------------|-------------------------|--|------------------------|
| 1                   | Schedule - A            | Site of the Four/Six Lane Project Highway                | 140-192                |
| 2                   | Schedule - B            | Development of the Project Highway                       | 193-333                |
| 3                   | Schedule - C            | Project Facilities                                       | 334-341                |
| 4                   | Schedule - D            | Specifications and Standards                             | 342-346                |
| 5                   | Schedule - E            | Applicable Permits                                       | 347                    |
| 6                   | Schedule - F            | Performance Security                                     | 348-350                |
| 7                   | Schedule - G            | Project Completion Schedule                              | 351                    |
| 8                   | Schedule - H            | Drawings   | 352-353                |
| 9                   | Schedule - I            | Tests  | 354-355                |
| 10                  | Schedule - J            | Completion Certificate                                   | 356-357                |
| 11                  | Schedule - K            | Maintenance Requirements                                 | 358-363                |
| 12                  | Schedule - L            | Safety Requirements                                      | 364-367                |
| 13                  | Schedule - M            | Monthly Fee Statement                                    | 368                    |
| 14                  | Schedule - N            | Weekly Traffic Census                                    | 369-370                |
| 15                  | Schedule - O            | Traffic Sampling   | 371                    |
| 16                  | Schedule - P            | Selection of Independent Consultant                      | 372-373                |
| 17                  | Schedule - Q            | Terms of Reference for Independent Consultant            | 374-380                |
| 18                  | Schedule - R            | Fee Notification,Ministry of Road Transport and Highways | 381-398                |
| 19                  | Schedule - S            | Escrow Agreement   | 399-412                |
| 20                  | Schedule - T            | Panel of Chartered Accountants                           | 413-414                |
| 21                  | Schedule - U            | Vesting Certificate                                      | 415                    |
| 22                  | Schedule - V            | Substitution Agreement                                   | 416-425                |
| 23                  | Schedule - W            | State Support Agreement                                  | 426-441                |

**SCHEDULE-A**  
(See Clause 10.1)

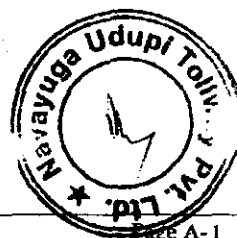
**SITE OF THE FOUR/SIX LANE PROJECT HIGHWAY**

**1 THE SITE**

- 1.1** Site of the Four-Lane Project Highway shall include the land, buildings, structures and road works as described in **Annex-I** of this **Schedule-A**.
- 1.2** 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 Concessionaire and such inventory shall form part of the memorandum referred to in Clause 10.3.1 of the Agreement.
- 1.3** Additional land required for Toll Plazas, [Traffic Aid Posts, Medical Aid Posts and vehicle rescue posts or for] construction of works specified in Change of Scope Order shall be acquired in accordance with the provisions of this Agreement. Upon acquisition, such land shall form part of the Site and vest in the Authority.

**2 ADDITIONAL LAND FOR SIX-LANING**

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140

**Annex – I**  
**(Schedule-A)**  
**Site for Four Laning**

**1.1 The Site**

The project highway aims at developing the existing two lanes to four lanes from existing Chainage Km 283+300 at Kundapura Town, (Design Chainage : Km 283+300) to existing Chainage : Km 358+080 at Surathkal Town (Design Chainage: Km 358+686) for Section- 1 and from existing Chainage Km 375+300 (here onwards referred as Km 1+900) to Km 376+700 (i.e. Nantur circle to Mahaveer circle) and Km 3+700 to Km 17+200 (i.e. Mahaveer circle to Kerala border) for Section-2 of NH- 17 in the State of Karnataka .

Thus the construction package for the project includes developing the existing two lane carriageway to Four lane dual carriageway configurations including strengthening of existing two lanes between existing Chainage Km 283+300 at Kundapura Town, (Design Chainage : Km 283+300) to existing Chainage : Km 358+080 at Surathkal Town (Design Chainage: Km 358+686) for Section- 1 and between existing Chainage Km 375+300 (here onwards referred as Km 1+900) to Km 376+700 (i.e. Nantur circle to Mahaveer circle) and Km 3+700 to Km 17+200 (i.e. Mahaveer circle to Kerala border) for Section-2 of NH- 17 defined as “Project Highway”.

**1.2 Description of the Project Highway**

The project highway is generally 2-lane and the road is passing through the built up areas of towns and villages enroute. Important towns along the alignment are Kundapura , Koteswara , Kumbhashi , Thkkatte , Kota , Saligrama , Yadabettu , Gundmi , Saasthan , Hangarakatta , Uppinakote , Brahnavar , Herur , Puttur , Kotpadi , Kaup , Muloor , Uchila , Padubidri , Mulky , Haleyangadi , Mukka and Surathkal in Section-1 and kallapu, Thokutu, Kolya and Thalapady in Section-2. An index map and location plan of the Project Highway is given at Appendix A-I.

**1.2.1 Referencing System**

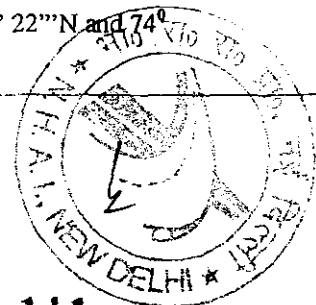
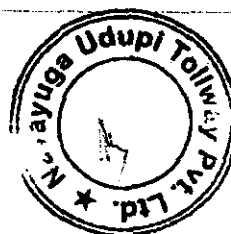
Kilometer stones are existing in entire length of the project highway. It is called the "Existing Chainage". During topography survey with Total Station, observations made are referred to "Design Chainage". The relationship between the "Existing Chainage" and the "Design Chainage" as per field surveys of the location of existing km stones using the Total Station for the "Project Highway" is given at Appendix A-II.

**1.3 Latitudes & Longitudes**

Latitude and longitude of the project corridor lies between 13° 37' 26"N to 12° 59' 22"N and 74° 41' 32"E to 74° 48' 01"E respectively.

**1.4 Terrain**

The project road passes through plain terrain .





**1.5 Traffic**

Traffic count details as per the survey conducted by design consultant during September 2006 for Section-1 and during July 2006 for Section-2 on the project highway are given at **Appendix A-III**

**1.6 Abutting Land Use**

Agriculture is predominant land use along the project highway. Settlements and ribbon developments are observed intermittently along the project highway. The land use in these sections is commercial or residential. The Urban / Built up Settlements along the project highway are given at **Appendix A-IV**.

**1.8 Land**

The Details of existing ROW are at **Appendix A-V**.

**1.9 Road Works**

An inventory of road works and their condition is at **Appendix A-VI**.

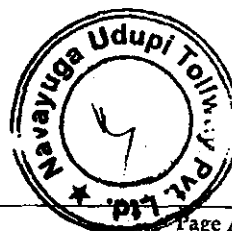
**2.0 Structures**

An inventory of the existing structures is at **Appendix A-VII**.

**2.1 Facilities**

An inventory of the existing facilities is at **Appendix A-VIII**.

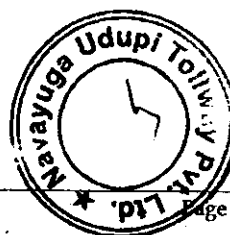
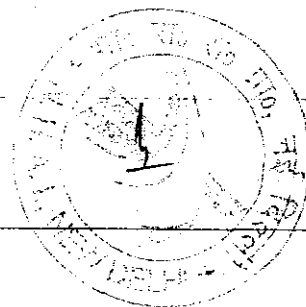
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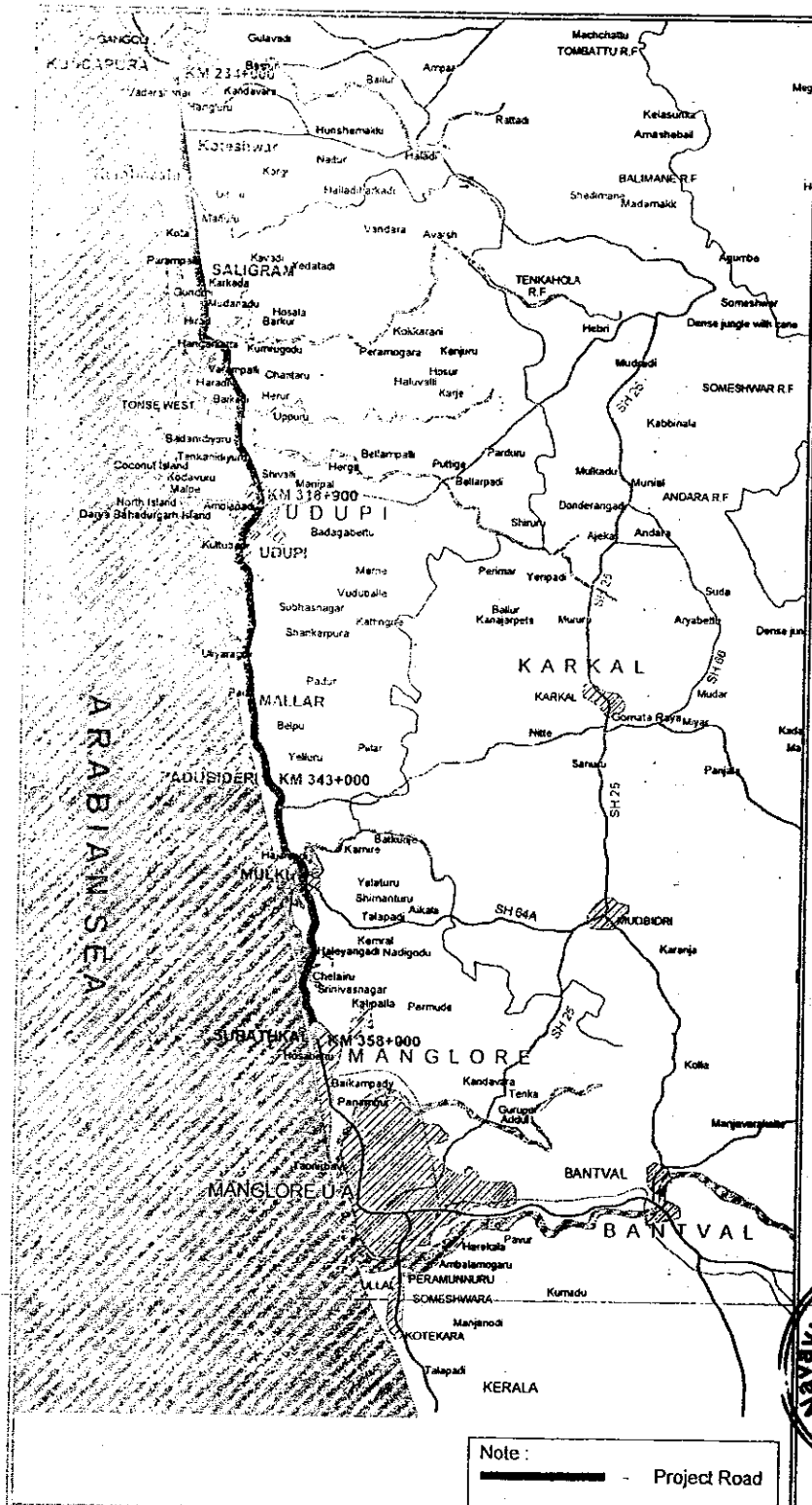
**Annex – II**  
**(Schedule-A)**

**SITE OF THE SIX-LANING**

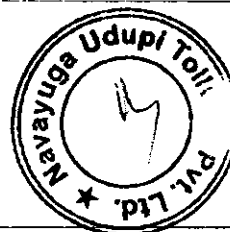
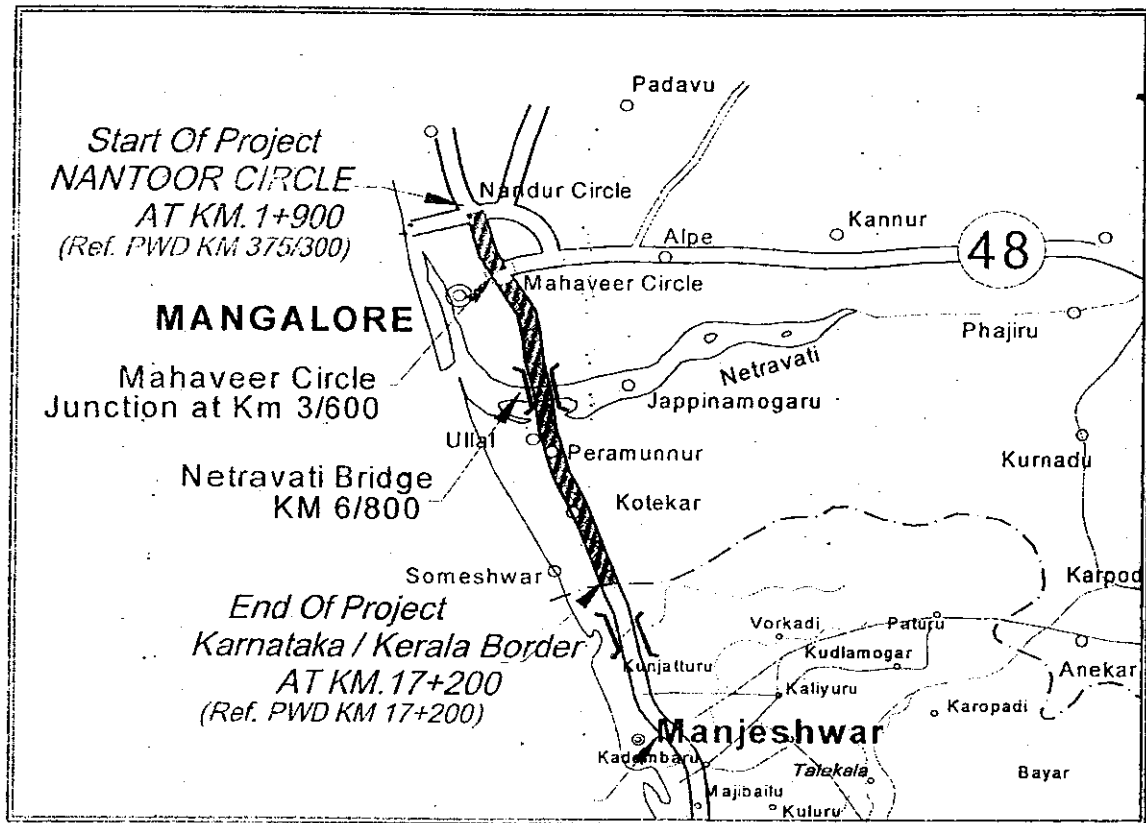
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143

**Appendix A-I****Index map of Project Highway**  
**Section 1- NH 17 portion starts from km283+300 to km 358+080**

Section 2 - NH 17 portion starts from km1+900 to km17+200



145

**Appendix A-II****Design Chainage corresponding to existing chainage****Section 1**

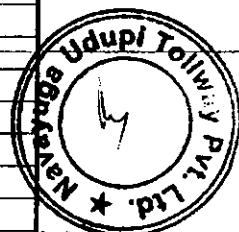
| Existing Chainage (Km) | Design Chainage (Km) | Name of place |
|------------------------|----------------------|---------------|
| 284+000                | 283+898              | Kundapura     |
| 285+000                | 284+911              | Kundapura     |
| 286+000                | 285+957              | Kundapura     |
| 287+000                | 286+992              | Koteshwara    |
| 288+000                | 288+033              | Koteshwara    |
| 289+000                | 289+083              | Kumbhashi     |
| 290+000                | 290+118              | Kumbhashi     |
| 291+000                | 291+087              | Kumbhashi     |
| 292+000                | 292+117              | Thkkatte      |
| 293+000                | 293+116              | Thkkatte      |
| 294+000                | 294+120              | Kota          |
| 295+000                | 295+114              | Kota          |
| 296+000                | 296+115              | Kota          |
| 297+000                | 297+114              | Saligrama     |
| 298+000                | 298+103              | Saligrama     |
| 299+000                | 299+126              | Yadabettu     |
| 300+000                | 300+116              | Gundmi        |
| 301+000                | 301+168              | Saasthan      |
| 302+000                | 302+152              | Saasthan      |
| 303+000                | 303+167              | Hangarakatta  |
| 304+000                | 304+153              | Hangarakatta  |
| 305+000                | 305+134              | Uppinakote    |
| 306+000                | 306+128              | Brahmavar     |
| 307+000                | 307+112              | Brahmavar     |
| 308+000                | 308+058              | Brahmavar     |
| 309+000                | 309+071              | Brahmavar     |
| 310+000                | 310+160              | Herur         |
| 311+000                | 311+146              | Herur         |
| 312+000                | 312+109              | Herur         |
| 313+000                | 313+143              | Puttur        |
| 314+000                | 313+954              | Puttur        |
| 315+000                | 314+979              | Puttur        |
| 316+000                | 315+935              | Puttur        |
| 317+000                | 316+920              | Puttur        |
| 318+000                | 317+907              | Puttur        |
| 319+000                | 318+909              | Puttur        |
| 320+000                | 319+899              | Puttur        |
| 321+000                | 320+846              | Kotpadi       |
| 322+000                | 321+819              | Kotpadi       |
| 323+000                | 322+832              | Kotpadi       |
| 324+000                | 323+819              | Kotpadi       |
| 325+000                | 325+009              | Kotpadi       |
| 326+000                | 326+014              | Kotpadi       |
| 327+000                | 327+002              | Kotpadi       |
| 328+000                | 328+021              | Kotpadi       |

4 Laning of Kundapur - Surathkal and Mangalore -Karnataka/  
Kerala Border sections of NH 17 (Total Length 90.08 Km)  
in the State of Karnataka under NHDP Phase III on BOT Basis

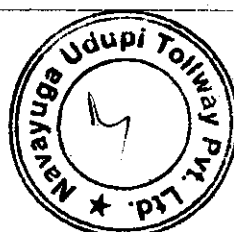
| Existing Chainage (Km) | Design Chainage (Km) | Name of place |
|------------------------|----------------------|---------------|
| 329+000                | 329+012              | Kotpadi       |
| 330+000                | 329+974              | Kotpadi       |
| 331+000                | 331+003              | Kaup          |
| 332+000                | 331+983              | Kaup          |
| 333+000                | 332+979              | Kaup          |
| 334+000                | 333+998              | Muloor        |
| 335+000                | 334+999              | Muloor        |
| 336+000                | 335+989              | Muloor        |
| 337+000                | 336+996              | Uchila        |
| 338+000                | 337+979              | Uchila        |
| 339+000                | 338+962              | Uchila        |
| 340+000                | 339+952              | Padubidri     |
| 341+000                | 340+953              | Padubidri     |
| 341+650                | 341+600              | Padubidri     |
| 342+000                | 341+952              | Padubidri     |
| 343+000                | 343+263              | Padubidri     |
| 344+000                | 344+105              | Padubidri     |
| 344+630                | 344+650              | Padubidri     |
| 345+000                | 345+011              | Padubidri     |
| 346+000                | 346+040              | Mulky         |
| 347+000                | 347+032              | Mulky         |
| 348+000                | 348+009              | Mulky         |
| 348+780                | 348+800              | Mulky         |
| 349+000                | 348+963              | Mulky         |
| 350+000                | 350+436              | Haleyangadi   |
| 350+290                | 350+700              | Haleyangadi   |
| 351+000                | 351+411              | Haleyangadi   |
| 352+000                | 352+395              | Mukka         |
| 353+000                | 353+406              | Mukka         |
| 354+000                | 354+500              | Mukka         |
| 355+000                | 355+515              | Kundapura     |
| 356+000                | 356+603              | Kundapura     |
| 357+000                | 357+586              | Koteshwara    |
| 358+000                | 358+551              | Surathkal     |

## Section 2

| Design Chainage (Km) | Existing Chainage (Km) | Remarks                  |
|----------------------|------------------------|--------------------------|
| 1+900                | 375+300                | Start of Project Stretch |
| 3+700                | 376+700                |                          |
| 4+000                | 4+000                  |                          |
| 5+000                | 5+010                  |                          |
| 6+000                | 6+035                  |                          |
| 7+000                | 7+025                  |                          |
| 8+000                | 8+034                  |                          |
| 9+000                | 9+028                  |                          |
| 10+000               | 10+026                 |                          |
| 11+000               | 11+030                 |                          |
| 12+000               | 12+020                 |                          |



| Design Chainage (Km) | Existing Chainage (Km) | Remarks                |
|----------------------|------------------------|------------------------|
| 13+000               | 13+031                 |                        |
| 14+000               | 14+033                 |                        |
| 15+000               | 15+037                 |                        |
| 16+000               | 16+056                 |                        |
| 17+000               | 17+057                 |                        |
| 17+139               | 17+200                 | End of Project Stretch |



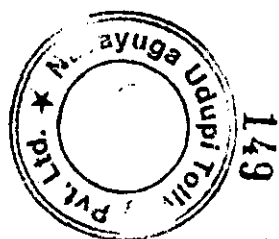
148

**Appendix A-III****Traffic Table****Section 1****Traffic Table**

| Survey Location         | Year of survey | Two – Wheeler | Three - Wheelers | Hard carts | Car / Jeep / Van | Bus  | LCV | 2 Axle Truck | 3 Axle Truck | Mini Bus | MAV | Tractor | Cycle | Total Vehicles | Total PCUs |
|-------------------------|----------------|---------------|------------------|------------|------------------|------|-----|--------------|--------------|----------|-----|---------|-------|----------------|------------|
| Kotteshwara, Km 287+000 | 2006           | 5487          | 1036             | -          | 2810             | 1035 | 508 | 1418         | 830          | 280      | 89  | 4       | 2264  | 15763          | 21429      |
| KinniMulki, Km 323+400  | 2006           | 3648          | 849              | -          | 3013             | 916  | 690 | 1469         | 654          | 279      | 94  | 10      | 115   | 11736          | 18191      |

**Section 2****Traffic Table**

| Location | Year of survey | Two Wheeler | 3 Wheeler | Car/ Jeep | Bus  | 2- Axle | 3- Axle | Mini bus | MAV | Tractor | Pedal cycle | Total vehicles |
|----------|----------------|-------------|-----------|-----------|------|---------|---------|----------|-----|---------|-------------|----------------|
| km 12.45 | 2006           | 3368        | 931       | 3408      | 1212 | 900     | 181     | 95       | 180 | 7       | 55          | 10735          |



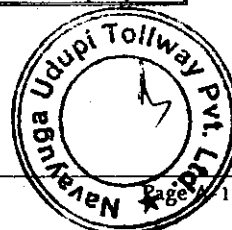


**Appendix A-IV****Urban /Built up Settlements along the Project Highway****Section 1****Location of villages and towns**

| Existing Chainage |         | Left/Right | Name of Town / Village |
|-------------------|---------|------------|------------------------|
| From              | To      |            |                        |
| 283+200           | 287+000 | Both       | Kundapura              |
| 287+000           | 289+000 | Both       | Koteshwara             |
| 289+000           | 291+600 | Both       | Kumbhashi              |
| 291+600           | 293+600 | Both       | Thkkatte               |
| 293+600           | 296+600 | Both       | Kota                   |
| 296+600           | 299+000 | Both       | Saligrama              |
| 299+000           | 299+800 | Both       | Yadabettu              |
| 299+800           | 300+600 | Both       | Gundmi                 |
| 300+600           | 302+400 | Both       | Saasthan               |
| 302+400           | 304+200 | Both       | Hangarakatta           |
| 304+200           | 305+600 | Both       | Uppinakote             |
| 305+600           | 309+200 | Both       | Brahmavar              |
| 309+200           | 312+200 | Both       | Herur                  |
| 312+200           | 320+400 | Both       | Puttur                 |
| 320+400           | 330+400 | Both       | Kotpadi                |
| 330+400           | 334+000 | Both       | Kaup                   |
| 334+000           | 336+600 | Both       | Muloor                 |
| 336+600           | 339+800 | Both       | Uchila                 |
| 339+800           | 347+200 | Both       | Padubidri              |
| 347+200           | 352+600 | Both       | Mulky                  |
| 352+600           | 356+000 | Both       | Haleyangadi            |
| 356+000           | 357+000 | Both       | Mukka                  |
| 357+000           | 358+000 | Both       | Surathkal              |

**Section 2**

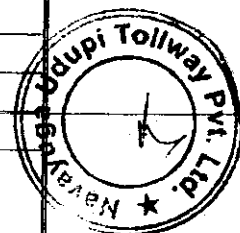
| Sl. No. | Existing Chainage (Km) | Design Chainage (Km) | Left/Right | Major Towns |
|---------|------------------------|----------------------|------------|-------------|
| 1       | 8+400                  | 8+366                | Both       | Kallapu     |
| 2       | 9+200                  | 9+178                | Both       | Thokutu     |
| 3       | 11+000                 | 10+970               | Both       | Kolya       |
| 4       | 15+000                 | 14+970               | Both       | Thalapady   |



150

**Appendix A-V****Existing Right of Way****Section 1**

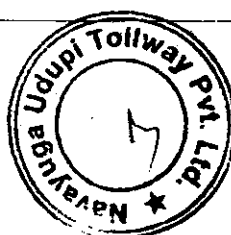
| Sl. No | Existing Chainage (km) |         | Location                             | RoW (m) |
|--------|------------------------|---------|--------------------------------------|---------|
|        | From                   | To      |                                      |         |
| 1      | 283+300                | 290+000 | Kundapura, Koteshwara                | 41      |
| 2      | 290+000                | 291+000 | Kumbhashi                            | 39      |
| 3      | 291+000                | 292+000 | Thkkatte                             | 47      |
| 4      | 292+000                | 293+000 | Kota                                 | 25      |
| 5      | 293+000                | 294+000 | Kota                                 | 41      |
| 6      | 294+000                | 295+000 | Kota                                 | 24      |
| 7      | 295+000                | 296+000 | Kota                                 | 24      |
| 8      | 296+000                | 297+000 | Saligrama                            | 35      |
| 9      | 297+000                | 298+000 | Saligrama                            | 28      |
| 10     | 298+000                | 299+000 | Saligrama                            | 33      |
| 11     | 299+000                | 300+000 | Yadabettu                            | 30      |
| 12     | 300+000                | 301+000 | Gundmi                               | 37      |
| 13     | 301+000                | 302+000 | Saasthan                             | 20      |
| 14     | 302+000                | 303+000 | Hangarakatta                         | 35      |
| 15     | 303+000                | 304+000 | Hangarakatta                         | 40      |
| 16     | 304+000                | 305+000 | Uppinakote                           | 22      |
| 17     | 305+000                | 306+000 | Brahmavar                            | 40      |
| 18     | 306+000                | 307+000 | Brahmavar                            | 47      |
| 19     | 307+000                | 308+000 | Brahmavar                            | 30      |
| 20     | 308+000                | 309+000 | Brahmavar                            | 36      |
| 21     | 309+000                | 315+000 | Herur                                | 38      |
| 22     | 315+000                | 316+000 | Puttur                               | 30      |
| 23     | 316+000                | 318+000 | Puttur                               | 33      |
| 24     | 318+000                | 320+000 | Puttur                               | 27      |
| 25     | 320+000                | 322+000 | Kotpadi                              | 34      |
| 26     | 322+000                | 323+000 | Kotpadi                              | 24      |
| 27     | 323+000                | 324+000 | Kotpadi                              | 36      |
| 28     | 324+000                | 326+000 | Kotpadi                              | 42      |
| 29     | 326+000                | 328+000 | Kotpadi                              | 25      |
| 30     | 328+000                | 334+000 | Kaup                                 | 35      |
| 31     | 334+000                | 338+000 | Muloor, Uchila                       | 28      |
| 32     | 338+000                | 348+000 | Padubidri                            | 35      |
| 33     | 348+000                | 358+686 | Mulky, Haleyangadi, Mukka, Surathkal | 31      |



151

## Section 2

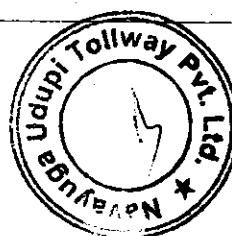
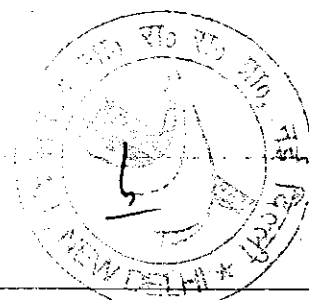
| Sl. No | Existing Chainage (km) |         | Location | RoW (m) |
|--------|------------------------|---------|----------|---------|
|        | From                   | To      |          |         |
| 1      | 375+300                | 376+700 |          | 27      |
| 2      | 376+700                | 4+000   |          | 44      |
| 3      | 4+000                  | 5+010   |          | 42      |
| 4      | 5+010                  | 6+035   |          | 47      |
| 5      | 6+035                  | 6+800   |          | 60      |
| 6      | 6+800                  | 7+800   |          | River   |
| 7      | 7+800                  | 9+028   |          | 53      |
| 8      | 9+028                  | 10+026  |          | 41      |
| 9      | 10+026                 | 11+030  |          | 40      |
| 10     | 11+030                 | 12+020  |          | 32      |
| 11     | 12+020                 | 13+031  |          | 22      |
| 12     | 13+031                 | 14+033  |          | 33      |
| 13     | 14+033                 | 15+037  |          | 29      |
| 14     | 15+037                 | 16+056  |          | 38      |
| 15     | 16+056                 | 17+057  |          | 46      |
| 16     | 17+057                 | 17+200  |          | 13      |



Appendix A-VI

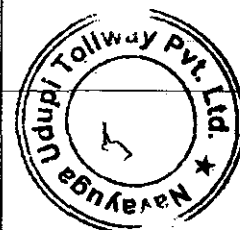
Inventory of Road works

|    |                            |                  |
|----|----------------------------|------------------|
| a. | Existing Carriageway Width | Appendix A-VI(a) |
| b. | Existing Crust             | Appendix A-VI(b) |
| c. | Pavement Roughness         | Appendix A-VI(c) |
| d. | Pavement deflection        | Appendix A-VI(d) |
| e. | Existing Major junctions   | Appendix A-VI(e) |
| f. | Existing Minor junctions   | Appendix A-VI(f) |
| g. | Existing Truck Laybys      | Appendix A-VI(g) |
| h. | Existing Bus bays          | Appendix A-VI(h) |



**Appendix A-VI (a)****Existing Carriageway Width****Section 1**

| Existing Chainage |         | Carriage<br>Way<br>Width | Paved Shoulder |       | Earthen<br>Shoulder |       |
|-------------------|---------|--------------------------|----------------|-------|---------------------|-------|
| From              | To      |                          | Left           | Right | Left                | Right |
| 284+000           | 285+000 | 7                        | 1.5            | 1.5   | 1.5                 | 1.2   |
| 285+000           | 286+000 | 7                        | 1.5            | 1.5   | 1.5                 | 1.5   |
| 286+000           | 287+000 | 6.9                      | 1.5            | 1.5   | 1.3                 | 1.7   |
| 287+000           | 288+000 | 7                        | 1.5            | 1.4   | 1.6                 | 1.6   |
| 288+000           | 289+000 | 6.8                      |                |       | 1.5                 | 1.2   |
| 289+000           | 290+000 | 7                        |                |       | 1.5                 | 1.5   |
| 290+000           | 291+000 | 7.6                      |                |       | 1.3                 | 1.7   |
| 291+000           | 292+000 | 6.9                      |                |       | 1.6                 | 1.6   |
| 292+000           | 293+000 | 6.8                      |                |       | 1.7                 | 1.6   |
| 293+000           | 294+000 | 7                        |                |       | 2                   | 1.7   |
| 294+000           | 295+000 | 6.9                      |                |       | 1.8                 | 1.5   |
| 295+000           | 296+000 | 7                        |                |       | 1.6                 | 1     |
| 296+000           | 297+000 | 7.1                      |                |       | 1.4                 | 1.3   |
| 297+000           | 298+000 | 7                        |                |       | 1.5                 | 1.8   |
| 298+000           | 299+000 | 6.7                      |                |       | 2.1                 | 1     |
| 299+000           | 300+000 | 6.9                      |                |       | 2.2                 | 1.5   |
| 300+000           | 301+000 | 6.8                      |                |       | 1.9                 | 1.5   |
| 301+000           | 302+000 | 6.7                      |                |       | 2                   | 1.7   |
| 302+000           | 303+000 | 7                        |                |       | 1.3                 | 1.2   |
| 303+000           | 304+000 | 6.9                      |                |       | 1.5                 | 1.1   |
| 304+000           | 305+000 | 7.2                      |                |       | 1.4                 | 1.1   |
| 305+000           | 306+000 | 7                        |                |       | 1.4                 | 1.2   |
| 306+000           | 307+000 | 7                        |                |       | 1.4                 | 1.4   |
| 307+000           | 308+000 | 6.9                      |                |       | 1.6                 | 1.3   |
| 308+000           | 309+000 | 6.8                      |                |       | 1.9                 | 1.8   |
| 309+000           | 310+000 | 6.8                      |                |       | 1.4                 | 1.4   |
| 310+000           | 311+000 | 6.9                      |                |       | 1.4                 | 1.3   |
| 311+000           | 312+000 | 7                        |                |       | 1.4                 | 1.5   |
| 312+000           | 313+000 | 6.9                      |                |       | 1.5                 | 1.5   |
| 313+000           | 314+000 | 7                        |                |       | 1.4                 | 1.1   |
| 314+000           | 315+000 | 8.8                      |                |       | 1.3                 | 1.2   |
| 315+000           | 316+000 | 7                        | 1.5            | 1.5   | 1.4                 | 1.3   |
| 316+000           | 317+000 | 7                        | 1.4            | 1.4   | 1.4                 | 1.5   |
| 317+000           | 318+000 | 7                        |                |       | 1.1                 | 1.1   |
| 318+000           | 319+000 | 6.9                      |                |       | 1.5                 | 1.5   |



154

| Existing Chainage |         | Carriage<br>Way<br>Width | Paved Shoulder |       | Earthen<br>Shoulder |       |
|-------------------|---------|--------------------------|----------------|-------|---------------------|-------|
| From              | To      |                          | Left           | Right | Left                | Right |
| 319+000           | 320+000 | 5.8                      | 1.5            | 1.5   | 1.5                 | 1.5   |
| 320+000           | 321+000 | 6.9                      |                |       | 1.5                 | 1.5   |
| 321+000           | 322+000 | 7                        |                |       | 1.3                 | 1.2   |
| 322+000           | 323+000 | 7                        |                |       | 1                   | 1.2   |
| 323+000           | 324+000 | 5.9                      |                |       | 1.3                 | 1.2   |
| 324+000           | 325+000 | 7                        |                |       | 1.7                 | 1.5   |
| 325+000           | 326+000 | 7                        |                |       | 1.7                 | 1.6   |
| 326+000           | 327+000 | 6.9                      |                |       | 1.4                 | 1.4   |
| 327+000           | 328+000 | 7                        |                |       | 1.4                 | 1.4   |
| 328+000           | 329+000 | 7                        |                |       | 1.1                 | 1.1   |
| 329+000           | 330+000 | 6.9                      |                |       | 1.4                 | 1.5   |
| 330+000           | 331+000 | 7                        |                |       | 1.2                 | 1.3   |
| 331+000           | 332+000 | 6.8                      |                |       | 1.3                 | 1.2   |
| 332+000           | 333+000 | 7.1                      |                |       | 1                   | 1     |
| 333+000           | 334+000 | 6.8                      |                |       | 1.3                 | 1.3   |
| 334+000           | 335+000 | 6.9                      |                |       | 1.7                 | 1.6   |
| 335+000           | 336+000 | 6.9                      |                |       | 1.9                 | 1.9   |
| 336+000           | 337+000 | 7                        |                |       | 1.6                 | 1.6   |
| 337+000           | 338+000 | 7                        |                |       | 1.6                 | 1.5   |
| 338+000           | 339+000 | 7.1                      |                |       | 1.8                 | 1.8   |
| 339+000           | 340+000 | 6.9                      |                |       | 1                   | 1     |
| 340+000           | 341+000 | 7                        |                |       | 1.4                 | 1.3   |
| 341+000           | 342+000 | 7.7                      |                |       | 1.4                 | 1.4   |
| 342+000           | 343+000 | 7                        | 1.5            | 1.5   | 1.3                 | 1.3   |
| 343+000           | 344+000 | 7                        | 1.8            | 1.7   | 1.7                 | 1.6   |
| 344+000           | 345+000 | 7                        | 1.8            | 1.7   | 1.9                 | 1.9   |
| 345+000           | 346+000 | 7                        | 1.5            | 1.5   | 1.6                 | 1.6   |
| 346+000           | 347+000 | 7                        | 1.5            | 1.5   | 1.6                 | 1.5   |
| 347+000           | 348+000 | 7                        | 1.6            | 1.6   | 1.8                 | 1.8   |
| 348+000           | 349+000 | 7                        | 2              | 2     | 1.4                 | 1.3   |
| 349+000           | 350+000 | 7                        | 2              | 2     | 1.4                 | 1.4   |
| 350+000           | 351+000 | 7                        | 1.5            | 1.5   | 1.7                 | 1.6   |
| 351+000           | 352+000 | 7                        | 1.4            | 1.3   | 1.9                 | 1.9   |
| 352+000           | 353+000 | 7                        | 1              | 1     | 1.6                 | 1.6   |
| 353+000           | 354+000 | 7                        | 1              | 1     | 1.6                 | 1.5   |
| 354+000           | 355+000 | 7                        | 1              | 1     | 1.3                 | 1.7   |
| 355+000           | 356+000 | 7                        | 1              | 1     | 1.6                 | 1.6   |
| 356+000           | 357+000 | 7                        | 1              | 1     | 1.4                 | 1.4   |



155

| Existing Chainage |         | Carriage<br>Way<br>Width | Paved Shoulder |       | Earthen<br>Shoulder |       |
|-------------------|---------|--------------------------|----------------|-------|---------------------|-------|
| From              | To      |                          | Left           | Right | Left                | Right |
| 357+000           | 358+000 | 7                        | 1.1            | 1.1   | 1.7                 | 1.6   |
| 358+000           | 359+000 | 7                        | 1.5            | 1.5   | 1.9                 | 1.9   |

## Section 2

| Existing Chainage<br>(km) |         | Carriage<br>Way<br>Width | Gravel/<br>Earthen Shoulder | Paved<br>Shoulder |
|---------------------------|---------|--------------------------|-----------------------------|-------------------|
| From                      | To      |                          |                             |                   |
| 375+300                   | 376+700 | 9.5                      | 2.5                         | -                 |
| 376+700                   | 4+000   | 8.6                      | 2.65                        | -                 |
| 4+000                     | 5+010   | 10.8                     | 1.26                        | -                 |
| 5+010                     | 6+035   | 9.7                      | 1.2                         | -                 |
| 6+035                     | 6+800   | 9.28                     | -                           | 1.9               |
| 6+800                     | 7+800   | River                    |                             |                   |
| 7+800                     | 9+028   | 9.3                      | 1                           | -                 |
| 9+028                     | 10+026  | 10.2                     | 2.1                         | -                 |
| 10+026                    | 11+030  | 8                        | 3.1                         | -                 |
| 11+030                    | 12+020  | 7.16                     | 3.5                         | -                 |
| 12+020                    | 13+031  | 7.15                     | 2.5                         | -                 |
| 13+031                    | 14+033  | 7.24                     | 2.7                         | -                 |
| 14+033                    | 15+037  | 7.34                     | 3.2                         | -                 |
| 15+037                    | 16+056  | 7.2                      | 3                           | -                 |
| 16+056                    | 17+057  | 7.28                     | 2.46                        | -                 |
| 17+057                    | 17+200  | 7.7                      | 2                           | -                 |



156

## Appendix A-VI (b)

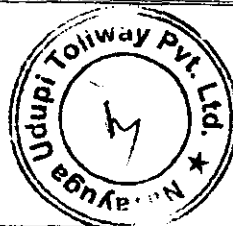
## Existing Crust

## Section 1

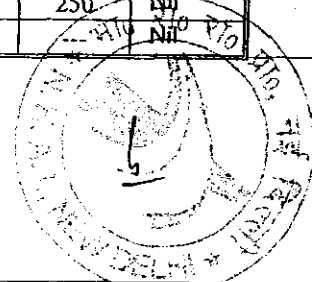
| Existing Chainage |     | Wearing Coat       | DBM | BM  | WMM         | WBM | GSB      | Cement Concret Road |
|-------------------|-----|--------------------|-----|-----|-------------|-----|----------|---------------------|
| From              | To  | Bituminous Surface |     |     | Base Course |     | Sub base |                     |
| 283               | 290 | -                  | -   | 75  | -           | 165 | 260      | Nil                 |
| 290               | 300 | -                  | -   | 100 | -           | 175 | 260      | Nil                 |
| 300               | 308 | -                  | -   | 75  | -           | 175 | 255      | Nil                 |
| 308               | 310 | -                  | -   | 115 | -           | 225 | 280      | Nil                 |
| 310               | 320 | -                  | -   | 90  | -           | 165 | 230      | Nil                 |
| 320               | 322 | -                  | -   | 115 | -           | 225 | 220      | Nil                 |
| 322               | 330 | -                  | -   | 100 | -           | 165 | 340      | Nil                 |
| 330               | 332 | -                  | -   | 85  | -           | 140 | 210      | Nil                 |
| 332               | 334 | -                  | -   | 125 | -           | 175 | 280      | Nil                 |
| 334               | 336 | -                  | -   | 100 | -           | 150 | 260      | Nil                 |
| 336               | 340 | -                  | -   | 75  | -           | 225 | 220      | Nil                 |
| 340               | 344 | -                  | -   | 75  | -           | 150 | 210      | Nil                 |
| 344               | 350 | -                  | -   | 95  | -           | 225 | 270      | Nil                 |
| 350               | 354 | -                  | -   | 90  | -           | 175 | 240      | Nil                 |
| 354               | 358 | -                  | -   | 125 | -           | 225 | 240      | Nil                 |

## Section 2

| Existing Chainage |        | Wearing Coat       | DBM | BM  | WMM         | WBM | GSB      | Cement Concret Road |
|-------------------|--------|--------------------|-----|-----|-------------|-----|----------|---------------------|
| From              | To     | Bituminous Surface |     |     | Base Course |     | Sub base |                     |
| 1+900             | 3+850  |                    |     | 200 | 50          |     | 250      | Nil                 |
| 3+850             | 5+800  |                    |     | 130 | 50          |     | 200      | Nil                 |
| 5+800             | 9+300  |                    |     | 120 | 110         |     | 250      | Nil                 |
| 9+300             | 14+700 |                    |     | 150 | 110         |     | 250      | Nil                 |
| 14+700            | 17+200 |                    |     | 110 | 100         |     |          | Nil                 |



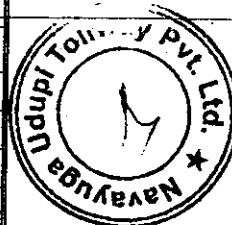
157





**Appendix A-VI (c)****Pavement roughness****Section 1**

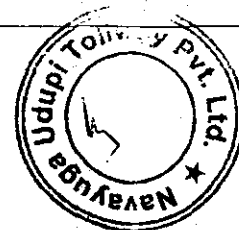
| Start chainage | End chainage | Roughness values (mm) | IRI m/km |
|----------------|--------------|-----------------------|----------|
| 283+000        | 284+000      | 2120                  | 3.9      |
| 284+000        | 285+000      | 2154                  | 4.0      |
| 285+000        | 286+000      | 2080                  | 3.8      |
| 286+000        | 287+000      | 2140                  | 3.9      |
| 287+000        | 288+000      | 1890                  | 3.4      |
| 288+000        | 289+000      | 2347                  | 4.4      |
| 289+000        | 290+000      | 2016                  | 3.7      |
| 290+000        | 291+000      | 2040                  | 3.7      |
| 291+000        | 292+000      | 1784                  | 3.2      |
| 292+000        | 293+000      | 1811                  | 3.3      |
| 293+000        | 294+000      | 1894                  | 3.4      |
| 294+000        | 295+000      | 2414                  | 4.5      |
| 295+000        | 296+000      | 1951                  | 3.5      |
| 296+000        | 297+000      | 1992                  | 3.6      |
| 297+000        | 298+000      | 2277                  | 4.2      |
| 298+000        | 299+000      | 2136                  | 3.9      |
| 299+000        | 300+000      | 2381                  | 4.4      |
| 300+000        | 301+000      | 1932                  | 3.5      |
| 301+000        | 302+000      | 2462                  | 4.6      |
| 302+000        | 303+000      | 3819                  | 7.5      |
| 303+000        | 304+000      | 4216                  | 8.4      |
| 304+000        | 305+000      | 4051                  | 8.0      |
| 305+000        | 306+000      | 3288                  | 6.4      |
| 306+000        | 307+000      | 3169                  | 6.1      |
| 307+000        | 308+000      | 3315                  | 6.4      |
| 308+000        | 309+000      | 1941                  | 3.5      |
| 309+000        | 310+000      | 2167                  | 4.0      |
| 310+000        | 311+000      | 2238                  | 4.1      |
| 311+000        | 312+000      | 2151                  | 4.0      |
| 312+000        | 313+000      | 2263                  | 4.2      |
| 313+000        | 314+000      | 2094                  | 3.8      |



158

| Start chainage | End chainage | Roughness values (mm) | IRI m/km |
|----------------|--------------|-----------------------|----------|
| 314+000        | 315+000      | 2349                  | 4.4      |
| 315+000        | 316+000      | 2415                  | 4.5      |
| 316+000        | 317+000      | 5012                  | 10.2     |
| 317+000        | 318+000      | 4986                  | 10.1     |
| 318+000        | 319+000      | 2621                  | 4.9      |
| 319+000        | 320+000      | 2487                  | 4.7      |
| 320+000        | 321+000      | 2165                  | 4.0      |
| 321+000        | 322+000      | 2721                  | 5.1      |
| 322+000        | 323+000      | 6412                  | 13.4     |
| 323+000        | 324+000      | 3125                  | 6.0      |
| 324+000        | 325+000      | 2845                  | 5.4      |
| 325+000        | 326+000      | 5412                  | 11.1     |
| 326+000        | 327+000      | 2368                  | 4.4      |
| 327+000        | 328+000      | 2681                  | 5.1      |
| 328+000        | 329+000      | 2163                  | 4.0      |
| 329+000        | 330+000      | 2491                  | 4.7      |
| 330+000        | 331+000      | 2243                  | 4.1      |
| 331+000        | 332+000      | 2620                  | 4.9      |
| 332+000        | 333+000      | 2457                  | 4.6      |
| 333+000        | 334+000      | 2615                  | 4.9      |
| 334+000        | 335+000      | 2548                  | 4.8      |
| 335+000        | 336+000      | 2316                  | 4.3      |
| 336+000        | 337+000      | 2784                  | 5.3      |
| 337+000        | 338+000      | 6892                  | 14.6     |
| 338+000        | 339+000      | 2413                  | 4.5      |
| 339+000        | 340+000      | 2136                  | 3.9      |
| 340+000        | 341+000      | 2644                  | 5.0      |
| 341+000        | 342+000      | 2741                  | 5.2      |
| 342+000        | 343+000      | 3215                  | 6.2      |
| 343+000        | 344+000      | 6678                  | 14.1     |
| 344+000        | 345+000      | 4126                  | 8.2      |
| 345+000        | 346+000      | 3856                  | 7.6      |
| 346+000        | 347+000      | 4129                  | 8.2      |
| 347+000        | 348+000      | 2846                  | 5.4      |
| 348+000        | 349+000      | 2644                  | 5.0      |
| 349+000        | 350+000      | 1983                  | 3.6      |
| 350+000        | 351+000      | 2147                  | 3.9      |
| 351+000        | 352+000      | 2257                  | 4.2      |
| 352+000        | 353+000      | 2194                  | 4.0      |
| 353+000        | 354+000      | 1976                  | 3.6      |
| 354+000        | 355+000      | 2346                  | 4.4      |
| 355+000        | 356+000      | 2503                  | 4.7      |

4 Lining of Kundapur – Surathkal and Mangalore-Karnataka/  
Kerala Border sections of NH 17 (Total Length 90.08 Km)  
in the State of Karnataka under NHDP Phase III on BOT Basis

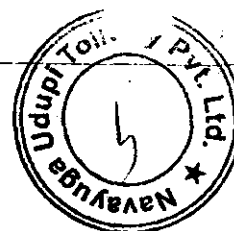


159

| Start chainage | End chainage | Roughness values (mm) | IRI m/km |
|----------------|--------------|-----------------------|----------|
| 356+000        | 357+000      | 2578                  | 4.8      |
| 357+000        | 358+000      | 1893                  | 3.4      |
| 358+000        | 359+000      | 1953                  | 3.7      |

## Section 2

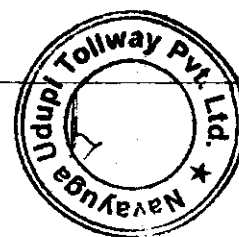
| Chainage                |                         | LEFT CARRIAGEWAY |       |         | RIGHT CARRIAGEWAY |       |         |
|-------------------------|-------------------------|------------------|-------|---------|-------------------|-------|---------|
| From                    | To                      | Roughness values |       |         | Roughness values  |       |         |
|                         |                         | Run 1            | Run 2 | Average | Run 1             | Run 2 | Average |
| NANDOOR CIRCLE(Km 1.90) | MAHAVEER CIRCLE(Km 3.7) | 2.83             | 2.76  | 2.79    | 4.14              | 3.47  | 3.81    |
| MAHAVEER CIRCLE         | KM4                     | 4.07             | 3.86  | 3.96    | 3.46              | 3.46  | 3.46    |
| KM4                     | KM5                     | 3.15             | 3.24  | 3.19    | 2.57              | 2.60  | 2.59    |
| KM5                     | KM6                     | 3.57             | 3.63  | 3.60    | 3.78              | 3.96  | 3.87    |
| KM6                     | KM7                     | 5.39             | 5.48  | 5.44    | 4.87              | 4.49  | 4.68    |
| KM7                     | KM8                     | 4.03             | 3.92  | 3.98    | 4.79              | 4.51  | 4.65    |
| KM8                     | KM9                     | 4.17             | 4.15  | 4.16    | 3.39              | 2.99  | 3.19    |
| KM9                     | KM10                    | 3.92             | 4.32  | 4.12    | 3.91              | 3.45  | 3.68    |
| KM10                    | KM11                    | 2.01             | 1.96  | 1.99    | 2.25              | 2.08  | 2.17    |
| KM11                    | KM12                    | 1.94             | 1.88  | 1.91    | 2.08              | 2.10  | 2.09    |
| KM12                    | KM13                    | 2.04             | 2.13  | 2.09    | 2.20              | 2.29  | 2.24    |
| KM13                    | KM14                    | 2.17             | 2.18  | 2.17    | 2.27              | 2.22  | 2.24    |
| KM14                    | KM15                    | 1.96             | 1.96  | 1.96    | 2.52              | 2.31  | 2.41    |
| KM15                    | KM16                    | 2.10             | 2.20  | 2.15    | 2.55              | 2.57  | 2.56    |
| KM16                    | KM17                    | 2.38             | 2.14  | 2.26    | 2.54              | 2.30  | 2.42    |
| KM17                    | KM18                    | 3.21             | 2.94  | 3.07    | 2.63              | 2.59  | 2.61    |



160

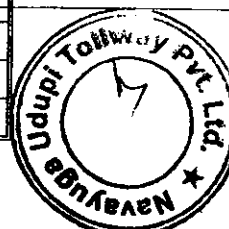
**Appendix A-VI (d)****Pavement Deflection****Section-1**

| Existing Stretch |         | Characteristic Deflection |
|------------------|---------|---------------------------|
| From             | To      |                           |
| 283+000          | 284+000 | 1.636                     |
| 284+000          | 285+000 | 1.652                     |
| 285+000          | 286+000 | 1.517                     |
| 286+000          | 287+000 | 1.560                     |
| 287+000          | 288+000 | 1.232                     |
| 288+000          | 289+000 | 1.442                     |
| 289+000          | 290+000 | 1.675                     |
| 290+000          | 291+000 | 1.134                     |
| 291+000          | 292+000 | 1.589                     |
| 292+000          | 293+000 | 1.592                     |
| 293+000          | 294+000 | 1.889                     |
| 294+000          | 295+000 | 1.443                     |
| 295+000          | 296+000 | 1.686                     |
| 296+000          | 297+000 | 1.449                     |
| 297+000          | 298+000 | 1.638                     |
| 298+000          | 299+000 | 1.615                     |
| 299+000          | 300+000 | 1.691                     |
| 300+000          | 301+000 | 1.635                     |
| 301+000          | 302+000 | 1.388                     |
| 302+000          | 303+000 | 1.772                     |
| 303+000          | 304+000 | 1.667                     |
| 304+000          | 305+000 | 1.692                     |
| 305+000          | 306+000 | 1.699                     |
| 306+000          | 307+000 | 1.590                     |
| 307+000          | 308+000 | 1.548                     |
| 308+000          | 309+000 | 1.418                     |
| 309+000          | 310+000 | 1.337                     |
| 310+000          | 311+000 | 1.570                     |
| 311+000          | 312+000 | 0.949                     |
| 312+000          | 313+000 | 0.973                     |
| 313+000          | 314+000 | 1.215                     |
| 314+000          | 315+000 | 1.107                     |
| 315+000          | 316+000 | 1.096                     |
| 316+000          | 317+000 | 1.241                     |
| 317+000          | 318+000 | 1.368                     |
| 318+000          | 319+000 | 1.373                     |



161

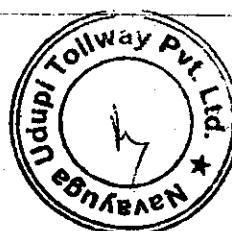
| Existing Stretch |         | Characteristic Deflection |
|------------------|---------|---------------------------|
| From             | To      |                           |
| 319+000          | 320+000 | 1.134                     |
| 320+000          | 321+000 | 1.269                     |
| 321+000          | 322+000 | 1.352                     |
| 322+000          | 323+000 | 1.336                     |
| 323+000          | 324+000 | 1.370                     |
| 324+000          | 325+000 | 1.372                     |
| 325+000          | 326+000 | 1.156                     |
| 326+000          | 327+000 | 1.118                     |
| 327+000          | 328+000 | 1.054                     |
| 328+000          | 329+000 | 0.934                     |
| 329+000          | 330+000 | 1.035                     |
| 330+000          | 331+000 | 1.224                     |
| 331+000          | 332+000 | 1.189                     |
| 332+000          | 333+000 | 1.077                     |
| 333+000          | 334+000 | 1.027                     |
| 334+000          | 335+000 | 0.798                     |
| 335+000          | 336+000 | 1.121                     |
| 336+000          | 337+000 | 1.329                     |
| 337+000          | 338+000 | 1.243                     |
| 338+000          | 339+000 | 1.213                     |
| 339+000          | 340+000 | 1.175                     |
| 340+000          | 341+000 | 1.135                     |
| 341+000          | 342+000 | 1.082                     |
| 342+000          | 343+000 | 1.434                     |
| 343+000          | 344+000 | 1.366                     |
| 344+000          | 345+000 | 1.535                     |
| 345+000          | 346+000 | 1.415                     |
| 346+000          | 347+000 | 1.442                     |
| 347+000          | 348+000 | 1.675                     |
| 348+000          | 349+000 | 1.344                     |
| 349+000          | 350+000 | 1.314                     |
| 350+000          | 351+000 | 1.140                     |
| 351+000          | 352+000 | 1.666                     |
| 352+000          | 353+000 | 1.672                     |
| 353+000          | 354+000 | 1.367                     |
| 354+000          | 355+000 | 1.489                     |
| 355+000          | 356+000 | 1.483                     |
| 356+000          | 357+000 | 1.393                     |
| 357+000          | 358+000 | 1.389                     |
| 358+000          | 359+000 | 1.329                     |



162

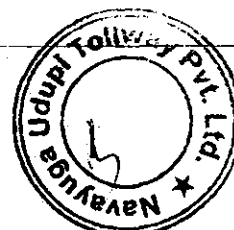
## Section 2

| Stretch                         | Characteristic Deflection (mm) |
|---------------------------------|--------------------------------|
| Nantoor Circle 0.100 (2.30) (L) | 0.978                          |
| 1.100 (R) (376.400)             | 1.261                          |
| After Mahaveer Circle 3.850(L)  | 2.493                          |
| 4.200 ( R )                     | 2.233                          |
| 5.200(L)                        | 2.326                          |
| 6.100( R )                      | 3.312                          |
| 8.200(L)                        | 3.197                          |
| 9.400(L)                        | 2.631                          |
| 10.200( R )                     | 1.222                          |
| 11.400(L)                       | 1.102                          |
| 12.300(L)                       | 0.910                          |
| 13.500( R )                     | 0.485                          |
| 14.600(L)                       | 0.487                          |
| 15.400(L)                       | 1.044                          |
| 16.800( R )                     | 0.765                          |
| 17.300(L)                       | 1.005                          |



**Appendix A-VI (e)****Existing Major Junctions****Section 1**

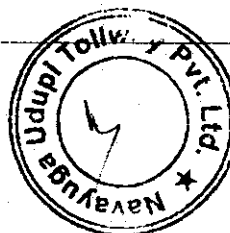
| Sl. No. | Junction               |                       | Location Existing Chainage (km) | Type of junction    |
|---------|------------------------|-----------------------|---------------------------------|---------------------|
|         | LHS                    | RHS                   |                                 |                     |
| 1       |                        | Kundapura             | 284+040                         | Y Junction          |
| 2       | Shivamoga              |                       | 285+070                         | T Junction          |
| 3       | Shimoga                | Koteshwara Town       | 287+620                         | 4 legged (x - type) |
| 4       | To Vinayak Temple      |                       | 290+300                         | 3 legged (Y - type) |
| 5       | Madarti                | Handath               | 296+840                         | 4 legged (+ - type) |
| 6       |                        | To Saligrama          | 297+670                         | 3 legged (Y - type) |
| 7       | Narasimha Swami Temple | Anjaneya Swamy Temple | 298+000                         | 4 legged (+ - type) |
| 8       | Barkur                 |                       | 306+450                         | 3 legged (T - type) |
| 9       | Village                |                       | 315+850                         | 3 legged (y - type) |
| 10      | Udupi                  | Malpai                | 318+970                         | 4 legged (+ - type) |
| 11      | Udupi                  | Ambalapadi Temple     | 320+040                         | 4 legged (+ - type) |
| 12      | Udupi                  | Kannapadi             | 321+500                         | 5 legged (- type)   |
| 13      |                        | Kutapadi              | 322+540                         | 3 legged (y - type) |
| 14      | Shankara Pura          | Bus stand             | 326+050                         | 4 legged (+ - type) |
| 15      | Kaup                   |                       | 331+670                         | 3 legged (T - type) |
| 16      | SH-66                  | SH-66                 | Bypass                          | 4legged             |



164

## Section 2

| Sl. No. | Junction  | Location Existing Chainage (km) | Type of junction     |
|---------|-----------|---------------------------------|----------------------|
| 1       | Nantoor   | 1+900                           | 4 legged ( x - type) |
| 2       | Mahaveer  | 3+700                           | Rotary               |
| 3       | Thekkottu | 9+600                           | 3 legged ( T- type ) |

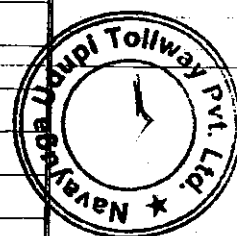


165



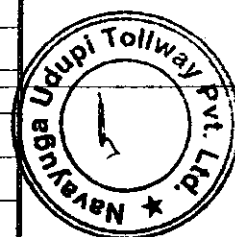
**Appendix A-VI (f)****Existing Minor junctions****Section 1**

| Sl.No | Existing Chainage | Side | Destination                | Type of junction |
|-------|-------------------|------|----------------------------|------------------|
| 1     | 283+960           | RHS  | --                         | T                |
| 2     | 283+982           | LHS  | To Bivivas                 | T                |
| 3     | 284+135           | LHS  | Cross Road                 | T                |
| 4     | 284+208           | LHS  | AKH Road                   | T                |
| 5     | 284+260           | RHS  | --                         | T                |
| 6     | 284+310           | LHS  | To Houses                  | T                |
| 7     | 284+355           | LHS  | --                         | T                |
| 8     | 284+425           | RHS  | To NH Sub Division Office  | T                |
| 9     | 284+485           | RHS  | To Police Station          | T                |
| 10    | 284+510           | LHS  | To Houses                  | T                |
| 11    | 284+690           | RHS  | To Rayyappana Matha        | T                |
| 12    | 285+103           | RHS  | TT Road                    | T                |
| 13    | 285+218           | RHS  | --                         | T                |
| 14    | 285+238           | LHS  | --                         | T                |
| 15    | 285+263           | LHS  | --                         | T                |
| 16    | 285+428           | RHS  | To Houses                  | T                |
| 17    | 285+566           | RHS  | To Brahmagiri              | T                |
| 18    | 285+723           | RHS  | To Brahmagiri              | T                |
| 19    | 285+793           | LHS  | To Hunganallur             | Staggared +      |
|       |                   | RHS  | To Houses                  |                  |
| 20    | 285+983           | RHS  | To Houses                  | T                |
| 21    | 286+090           | RHS  | To Venugopala Swamy Temple | T                |
| 22    | 286+233           | RHS  | To Houses                  | T                |
| 23    | 286+290           | LHS  | --                         | T                |
| 24    | 286+365           | RHS  | To Varnakere               | T                |
| 25    | 286+390           | LHS  | To Gopaladi                | T                |
| 26    | 286+415           | RHS  | To Houses                  | T                |
| 27    | 286+640           | LHS  | --                         | T                |
| 28    | 286+875           | RHS  | --                         | T                |
| 29    | 286+892           | LHS  | To Kundurkere              | T                |
| 30    | 287+105           | RHS  | To Church                  | T                |
| 31    | 287+225           | LHS  | --                         | Y                |
| 32    | 287+285           | RHS  | To Beach                   | T                |

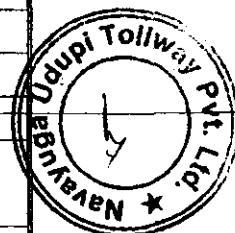
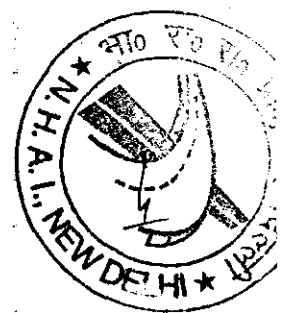


166

| Sl.No | Existing Chainage | Side | Destination             | Type of junction |
|-------|-------------------|------|-------------------------|------------------|
| 33    | 287+345           | RHS  | To koteeswara Town      | Y                |
| 34    | 288+181           | RHS  | To koteeswara Town      | T                |
| 35    | 288+541           | LHS  | To Village              | Y                |
| 36    | 288+831           | LHS  | To Village              | Y                |
| 37    | 288+971           | RHS  | To koteeswara Town      | Y                |
| 38    | 289+211           | LHS  | --                      | Y                |
| 39    | 289+251           | RHS  | --                      | T                |
| 40    | 289+391           | LHS  | --                      | T                |
| 41    | 289+746           | LHS  | --                      | T                |
| 42    | 289+764           | RHS  | To Padugodadi           | T                |
| 43    | 290+611           | RHS  | To Houses               | T                |
| 44    | 290+976           | LHS  | To Vidyagiri            | T                |
| 45    | 291+016           | RHS  | To Beach                | T                |
| 46    | 291+249           | LHS  | To Allugudde            | T                |
| 47    | 291+590           | RHS  | To Houses               | T                |
| 48    | 291+645           | RHS  | To Ragavendra Statue    | T                |
| 49    | 292+005           | RHS  | To Houses               | T                |
| 50    | 292+170           | LHS  | To Nandikeswara Temple  | T                |
| 51    | 292+300           | RHS  | To Village              | T                |
| 52    | 292+385           | LHS  | To Village              | T                |
| 53    | 292+675           | RHS  | --                      | Y                |
| 54    | 292+695           | LHS  | To Village              | T                |
| 55    | 292+800           | LHS  | To Houses               | T                |
| 56    | 293+134           | RHS  | To Houses               | T                |
| 57    | 293+414           | LHS  | To Houses               | T                |
| 58    | 293+694           | RHS  | To Houses               | T                |
| 59    | 294+074           | RHS  | To Houses               | T                |
| 60    | 294+104           | LHS  | To Bobayya Swamy Temple | T                |
| 61    | 294+508           | RHS  | --                      | T                |
| 62    | 294+608           | LHS  | To Houses               | T                |
| 63    | 294+873           | RHS  | To Police Station       | Y                |
| 64    | 295+028           | LHS  | --                      | T                |
| 65    | 295+202           | RHS  | To Kota                 | T                |
| 66    | 295+737           | LHS  | To Houses               | T                |
| 67    | 295+977           | LHS  | To Moodu Giligar        | T                |
| 68    | 296+425           | LHS  | To Houses               | T                |
| 69    | 296+610           | LHS  | --                      | T                |



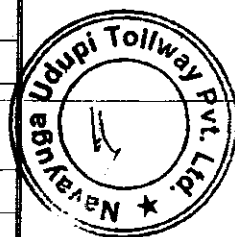
| Sl.No | Existing Chainage | Side | Destination                | Type of junction |
|-------|-------------------|------|----------------------------|------------------|
| 70    | 297+010           | RHS  | --                         | T                |
| 71    | 297+309           | RHS  | To Houses                  | T                |
| 72    | 297+639           | RHS  | --                         | T                |
| 73    | 297+896           | LHS  | To Houses                  | T                |
| 74    | 297+981           | LHS  | --                         | T                |
| 75    | 298+109           | LHS  | To Houses                  | T                |
| 76    | 298+277           | LHS  | --                         | T                |
| 77    | 298+470           | RHS  | To Saligram                | Y                |
| 78    | 298+492           | RHS  | --                         | T                |
| 79    | 298+542           | LHS  | To Kakarda Village         | T                |
| 80    | 298+700           | RHS  | --                         | T                |
| 81    | 298+920           | RHS  | To Field                   | T                |
| 82    | 299+077           | RHS  | To Bhagyavathi Temple      | T                |
| 83    | 299+165           | LHS  | --                         | T                |
| 84    | 299+270           | RHS  | To Houses                  | T                |
| 85    | 299+352           | RHS  | To Village                 | T                |
| 86    | 299+508           | LHS  | To Houses                  | T                |
| 87    | 299+642           | LHS  | To Village                 | T                |
| 88    | 299+760           | RHS  | To Village                 | T                |
| 89    | 299+863           | LHS  | --                         | T                |
| 90    | 299+895           | LHS  | --                         | +                |
|       |                   | RHS  | To Channakesava Temple     |                  |
| 91    | 300+360           | LHS  | To Brammalingeswara Temple | T                |
| 92    | 300+632           | RHS  | To Indra Nagar             | T                |
| 93    | 300+880           | RHS  | To Houses                  | T                |
| 94    | 301+030           | RHS  | To Houses                  | T                |
| 95    | 301+223           | LHS  | To Pandeshwar              | T                |
| 96    | 301+666           | RHS  | To Indra Nagar             | T                |
| 97    | 301+843           | LHS  | To Sastan                  | T                |
| 98    | 301+923           | LHS  | To Houses                  | T                |
| 99    | 302+172           | RHS  | To Temple                  | T                |
| 100   | 302+782           | RHS  | To Houses                  | T                |
| 101   | 302+877           | RHS  | To Irody                   | Y                |
| 102   | 304+738           | LHS  | To Kumbragodu              | Skew +           |
|       |                   | RHS  | To Vinayaka Temple         |                  |
| 103   | 304+808           | RHS  | --                         | Y                |
| 104   | 305+008           | RHS  | To Uppinakote              | Y                |



168

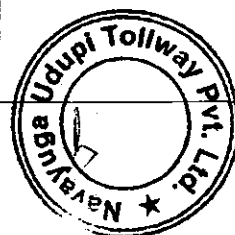
| Sl.No | Existing Chainage | Side | Destination        | Type of junction |
|-------|-------------------|------|--------------------|------------------|
| 105   | 305+409           | RHS  | To Uppinakote      | Y                |
| 106   | 305+539           | RHS  | To Houses          | T                |
| 107   | 306+059           | LHS  | To Colony          | Y                |
| 108   | 307+033           | RHS  | To Houses          | T                |
| 109   | 307+202           | LHS  | To Town            | Y                |
| 110   | 307+327           | LHS  | --                 | Y                |
| 111   | 307+516           | LHS  | To Brahmapara      | +                |
|       |                   | RHS  | To Houses          |                  |
| 112   | 307+617           | RHS  | --                 | T                |
| 113   | 307+717           | RHS  | To Town            | T                |
| 114   | 307+817           | RHS  | To Brahmapara      | T                |
| 115   | 308+263           | LHS  | To Houses          | T                |
| 116   | 308+603           | LHS  | To Houses          | Staggared +      |
|       |                   | RHS  | To Houses          |                  |
| 117   | 308+823           | LHS  | To Houses          | Staggared +      |
|       |                   | RHS  | To Sugar Factory   |                  |
| 118   | 309+003           | RHS  | --                 | T                |
| 119   | 309+386           | RHS  | To Houses          | T                |
| 120   | 309+456           | RHS  | To Houses          | Y                |
| 121   | 309+716           | LHS  | To Nilavaya Gosalu | Skew +           |
|       |                   | RHS  | --                 |                  |
| 122   | 310+165           | LHS  | To Herur Village   | Skew +           |
|       |                   | RHS  | To Houses          |                  |
| 123   | 310+490           | LHS  | To Herur Village   | Y                |
| 124   | 310+790           | RHS  | To Hirebetta       | Y                |
| 125   | 311+581           | LHS  | To Uggalabetta     | Y                |
| 126   | 311+751           | RHS  | To River           | T                |
| 127   | 311+878           | LHS  | To Houses          | T                |
| 128   | 311+911           | RHS  | To Houses          | T                |
| 129   | 312+126           | LHS  | To Houses          | T                |
| 130   | 312+824           | LHS  | To Perdur          | T                |
| 131   | 313+438           | LHS  | To Houses          | T                |
| 132   | 313+498           | LHS  | To Village         | T                |
| 133   | 314+190           | RHS  | To Houses          | T                |
| 134   | 314+250           | LHS  | To Houses          | T                |
| 135   | 314+270           | RHS  | To Houses          | T                |
| 136   | 314+510           | RHS  | To Gopalapura      | T                |

| Sl.No | Existing Chainage | Side | Destination         | Type of junction |
|-------|-------------------|------|---------------------|------------------|
| 137   | 315+054           | RHS  | To Houses           | T                |
| 138   | 315+384           | LHS  | To Nayampalli       | Staggared +      |
|       |                   | RHS  | To Houses           |                  |
| 139   | 315+644           | LHS  | To Nayampalli       | T                |
| 140   | 315+684           | RHS  | To Vasuki Nagar     | T                |
| 141   | 315+734           | RHS  | To Houses           | T                |
| 142   | 316+240           | LHS  | To Houses           | Skew +           |
|       |                   | RHS  | To Subramanya Nagar |                  |
| 143   | 316+710           | LHS  | To Silas school     | T                |
| 144   | 316+770           | RHS  | To Houses           | T                |
| 145   | 316+910           | RHS  | To Houses           | Y                |
| 146   | 317+045           | LHS  | To Houses           | +                |
|       |                   | RHS  | To Houses           |                  |
| 147   | 317+535           | LHS  | To Houses           | Skew +           |
|       |                   | RHS  | To Houses           |                  |
| 148   | 319+074           | LHS  | To Houses           | T                |
| 149   | 319+264           | LHS  | To Sirman Nagar     | T                |
| 150   | 319+554           | RHS  | To Kalikamba Nagar  | T                |
| 151   | 319+674           | LHS  | To Houses           | T                |
| 152   | 319+804           | RHS  | To Santhosh nagar   | T                |
| 153   | 319+944           | RHS  | To Santhosh nagar   | Y                |
| 154   | 320+019           | LHS  | To Gandhi Nagar     | Skew +           |
|       |                   | RHS  | To Sandeep nagar    |                  |
| 155   | 320+249           | LHS  | To Nayarkere        | T                |
| 156   | 320+324           | RHS  | To Houses           | T                |
| 157   | 320+404           | LHS  | To Houses           | T                |
| 158   | 320+684           | LHS  | --                  | T                |
| 159   | 320+891           | LHS  | To Houses           | T                |
| 160   | 320+961           | LHS  | To Houses           | T                |
| 161   | 320+981           | RHS  | Kannapardy 2nd Road | Y                |
| 162   | 321+031           | LHS  | To NGO Colony       | T                |
| 163   | 321+466           | RHS  | To Houses           | T                |
| 164   | 321+511           | LHS  | To Houses           | +                |
|       |                   | RHS  | To Houses           |                  |
| 165   | 321+671           | RHS  | To LEO House        | T                |
| 166   | 322+474           | LHS  | To Houses           | T                |
| 167   | 322+644           | RHS  | To Houses           | Y                |



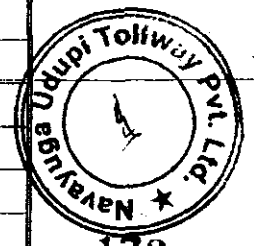
170

| Sl.No | Existing Chainage | Side | Destination               | Type of junction |
|-------|-------------------|------|---------------------------|------------------|
| 168   | 322+724           | RHS  | To Houses                 | Y                |
| 169   | 322+804           | LHS  | To Houses                 | T                |
| 170   | 323+067           | LHS  | To Houses                 | T                |
| 171   | 323+272           | LHS  | To Houses                 | +                |
|       |                   | RHS  | To Houses                 |                  |
| 172   | 323+637           | LHS  | To Houses                 | T                |
| 173   | 323+697           | LHS  | --                        | +                |
|       |                   | RHS  | --                        |                  |
| 174   | 323+943           | LHS  | To Vidyavar               | Skew +           |
|       |                   | RHS  | To Houses                 |                  |
| 175   | 324+713           | LHS  | To Houses                 | Y                |
| 176   | 324+793           | RHS  | To Ennagudde              | T                |
| 177   | 325+404           | RHS  | To Katapadi               | Y                |
| 178   | 326+269           | LHS  | To Houses                 | +                |
|       |                   | RHS  | To Houses                 |                  |
| 179   | 327+247           | RHS  | To Houses                 | Y                |
| 180   | 327+507           | LHS  | To Houses                 | T                |
| 181   | 327+687           | LHS  | To Houses                 | T                |
| 182   | 327+887           | RHS  | To Houses                 | T                |
| 183   | 327+952           | LHS  | To mahalingeshwara Temple | T                |
| 184   | 328+086           | RHS  | --                        | Y                |
| 185   | 328+581           | RHS  | To Pangala                | Y                |
| 186   | 329+037           | RHS  | To Village                | Y                |
| 187   | 329+062           | LHS  | To Village                | T                |
| 188   | 329+999           | LHS  | To Pangala                | Y                |
| 189   | 330+112           | RHS  | To Bava Guttu             | T                |
| 190   | 330+329           | RHS  | --                        | Staggared +      |
|       |                   | LHS  | --                        |                  |
| 191   | 330+394           | RHS  | To Houses                 | T                |
| 192   | 330+329           | LHS  | --                        | Staggared +      |
|       |                   | RHS  | --                        |                  |
| 193   | 330+574           | LHS  | --                        | T                |
| 194   | 330+684           | RHS  | To Houses                 | T                |
| 195   | 330+749           | RHS  | To Houses                 | T                |
| 196   | 330+799           | RHS  | --                        | T                |
| 197   | 330+959           | RHS  | --                        | T                |
| 198   | 331+008           | LHS  | Deviprasad Road           | T                |



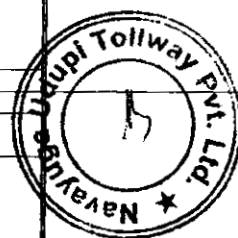
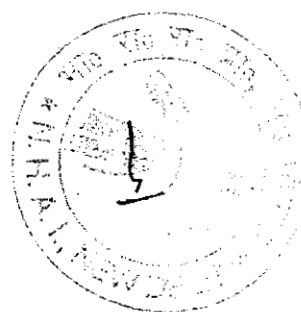
171

| Sl.No | Existing Chainage | Side | Destination                  | Type of junction |
|-------|-------------------|------|------------------------------|------------------|
| 199   | 331+238           | RHS  | To Houses                    | T                |
| 200   | 331+398           | LHS  | To bantakal                  | T                |
| 201   | 331+493           | RHS  | Pollipu Fisheris Road        | T                |
| 202   | 332+258           | LHS  | --                           | T                |
| 203   | 332+318           | RHS  | --                           | T                |
| 204   | 332+443           | LHS  | Police Station Road          | T                |
| 205   | 332+588           | RHS  | To Houses                    | T                |
| 206   | 332+728           | RHS  | Old Mariyamman Road          | Y                |
| 207   | 333+114           | RHS  | To Houses                    | T                |
| 208   | 333+194           | RHS  | To Houses                    | T                |
| 209   | 333+714           | RHS  | To Kaup Light House          | T                |
| 210   | 333+754           | LHS  | To Houses                    | T                |
| 211   | 334+603           | LHS  | To Village                   | T                |
| 212   | 334+863           | RHS  | To Village                   | Y                |
| 213   | 335+214           | RHS  | To Village                   | Y                |
| 214   | 335+604           | RHS  | To Village                   | T                |
| 215   | 335+819           | RHS  | To Darga                     | T                |
| 216   | 336+126           | RHS  | To Houses                    | T                |
| 217   | 336+229           | LHS  | To Houses                    | T                |
| 218   | 336+334           | RHS  | Narayan Guru Road            | T                |
| 219   | 336+669           | RHS  | To Houses                    | T                |
| 220   | 336+729           | RHS  | --                           | Y                |
| 221   | 336+934           | RHS  | --                           | Y                |
| 222   | 336+969           | LHS  | To Bada                      | +                |
|       |                   | RHS  | To mahalingeshwara Temple    |                  |
| 223   | 337+201           | LHS  | To nandikur                  | T                |
| 224   | 337+401           | LHS  | Chuch Road                   | skew +           |
|       |                   | RHS  | To Shankar Matha             |                  |
| 225   | 337+851           | RHS  | To Houses                    | Y                |
| 226   | 338+594           | RHS  | To Village                   | T                |
| 227   | 339+037           | LHS  | Lakshmi Narayana Temple Road | T                |
| 228   | 339+062           | RHS  | To Yarnal village            | T                |
| 229   | 339+207           | LHS  | To Adamaru                   | T                |
| 230   | 340+257           | LHS  | To Houses                    | T                |
| 231   | 340+557           | RHS  | To Bobayya Swamy Temple      | T                |
| 232   | 340+832           | RHS  | --                           | T                |
| 233   | 340+867           | RHS  | To Narayana swamy Mandir     | T                |



172

| Sl.No | Existing Chainage | Side | Destination                 | Type of junction |
|-------|-------------------|------|-----------------------------|------------------|
| 234   | 341+383           | RHS  | --                          | T                |
| 235   | 345+099           | RHS  | --                          | T                |
| 236   | 345+056           | LHS  | To Howpur Matha             | T                |
| 237   | 345+076           | RHS  | To Ganapathy Temple         | 4-Legged         |
|       |                   | LHS  | To Jayamatha Temple         |                  |
| 238   | 345+296           | LHS  | To Houses                   | T                |
| 239   | 345+706           | RHS  | To Yajamadi                 | Y                |
| 240   | 345+896           | LHS  | --                          | T                |
| 241   | 346+430           | LHS  | To Durga Mandir             | Y                |
| 242   | 346+965           | LHS  | To mahalingeshwara Temple   | +                |
|       |                   | RHS  | To Narayana Guru Road       |                  |
| 243   | 347+507           | LHS  | --                          | T                |
| 244   | 347+567           | RHS  | To Habegodi                 | Y                |
| 245   | 347+807           | LHS  | To Aejamadi                 | Y                |
| 246   | 348+849           | LHS  | To Houses                   | +                |
|       |                   | RHS  | To Durga Mandir             |                  |
| 247   | Bypass            | LHS  | To Temple                   | Skew +           |
|       |                   | RHS  | To Houses                   |                  |
| 248   | Bypass            | LHS  | To Houses                   | Skew +           |
|       |                   | RHS  | To Houses                   |                  |
| 249   | 351+303           | LHS  | To Village                  | Skew +           |
|       |                   | RHS  | To Village                  |                  |
| 250   | 351+528           | RHS  | To Kakur                    | Y                |
| 251   | 351+558           | LHS  | To Church                   | Y                |
| 252   | 352+178           | LHS  | To Village                  | Y                |
| 253   | 352+452           | LHS  | To Shrinidhi Spun Pipes     | T                |
| 254   | 352+502           | RHS  | To Santa Village            | Y                |
| 255   | 352+882           | LHS  | To Koland                   | T                |
| 256   | 352+982           | LHS  | To Chandramouleeswar Temple | T                |
| 257   | 353+162           | RHS  | To Houses                   | Y                |
| 258   | 353+993           | LHS  | To Padu Panambur            | +                |
|       |                   | RHS  | To Houses                   |                  |
| 259   | 354+537           | LHS  | To Jumma Masidi             | Y                |
| 260   | 354+967           | LHS  | To Houses                   | T                |
| 261   | 355+217           | LHS  | To College                  | +                |
|       |                   | RHS  | To Haleyangadi              |                  |
| 262   | 355+462           | LHS  | To halayangalli             | T                |



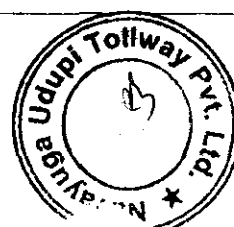
173



| Sl.No | Existing Chainage | Side | Destination | Type of junction |
|-------|-------------------|------|-------------|------------------|
| 263   | 356+162           | RHS  | --          | Y                |
| 264   | 356+222           | LHS  | To Pavanje  | Y                |
| 265   | 356+407           | RHS  | --          | T                |
| 266   | 356+650           | LHS  | --          | T                |
| 267   | 357+030           | RHS  | --          | Y                |
| 268   | 357+500           | LHS  | --          | Y                |
| 269   | 358+014           | RHS  | --          | T                |
| 270   | 358+124           | RHS  | --          | Y                |
| 271   | 358+444           | LHS  | --          | T                |

## Section 2

| Sl.No  | Existing Chainage | Side | Destination | Type of junction |
|--|-------------------|------|-------------|------------------|
| There are 15 minor junctions in the project corridor which leads to intermediate villages. |                   |      |             |                  |



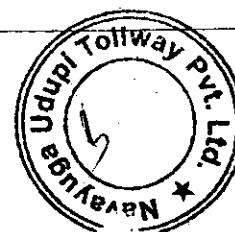
174

**Appendix A-VI (g)****Existing truck laybys****Section 1**

| Sl No | Existing Chainage | Side (Left/Right) | Type of facility |
|-------|-------------------|-------------------|------------------|
| Nil   |                   |                   |                  |

**Section 2**

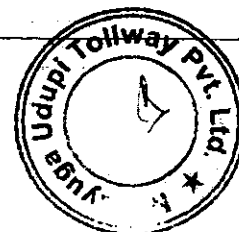
| Sl No | Existing Chainage | Side (Left/Right) | Type of facility |
|-------|-------------------|-------------------|------------------|
| Nil   |                   |                   |                  |



175

**Appendix A-VI (h)****Existing Bus Bays****Section 1**

| Sl No | Existing Chainage | Side (LHS / RHS) | Type of facility |
|-------|-------------------|------------------|------------------|
| 1     | 285+000           | LHS              | -                |
| 2     | 285+800           | LHS              | -                |
| 3     | 289+000           | LHS              | -                |
| 4     | 290+000           | LHS              | -                |
| 5     | 290+000           | RHS              | -                |
| 6     | 295+000           | LHS              | -                |
| 7     | 298+200           | LHS              | -                |
| 8     | 298+200           | RHS              | -                |
| 9     | 300+000           | RHS              | -                |
| 10    | 306+300           | LHS              | -                |
| 11    | 307+100           | LHS              | -                |
| 12    | 307+100           | RHS              | -                |
| 13    | 311+300           | LHS              | -                |
| 14    | 312+600           | LHS              | -                |
| 15    | 314+200           | LHS              | -                |
| 16    | 314+200           | RHS              | -                |
| 17    | 314+600           | LHS              | -                |
| 18    | 315+350           | LHS              | -                |
| 19    | 316+300           | LHS              | -                |
| 20    | 318+900           | LHS              | -                |
| 21    | 318+900           | RHS              | -                |
| 22    | 320+000           | RHS              | -                |
| 23    | 322+500           | LHS              | -                |
| 24    | 324+700           | LHS              | -                |
| 25    | 324+700           | RHS              | -                |
| 26    | 326+750           | LHS              | -                |
| 27    | 330+100           | LHS              | -                |
| 28    | 330+800           | LHS              | -                |
| 29    | 330+800           | RHS              | -                |
| 30    | 331+420           | LHS              | -                |
| 31    | 331+420           | RHS              | -                |
| 32    | 332+800           | LHS              | -                |
| 33    | 335+300           | LHS              | -                |
| 34    | 336+100           | LHS              | -                |
| 35    | 337+000           | LHS              | -                |
| 36    | 337+000           | RHS              | -                |
| 37    | 338+200           | RHS              | -                |
| 38    | 339+100           | LHS              | -                |

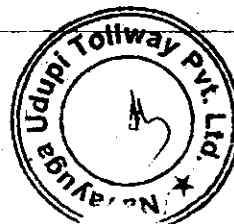
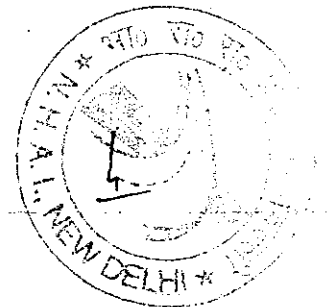


176

| Sl No | Existing Chainage | Side (LHS / RHS) | Type of facility |
|-------|-------------------|------------------|------------------|
| 39    | 340+600           | LHS              | -                |
| 40    | 342+400           | LHS              | -                |
| 41    | 343+100           | LHS              | -                |
| 42    | 345+000           | LHS              | -                |
| 43    | 345+600           | RHS              | -                |
| 44    | 348+800           | LHS              | -                |
| 45    | 348+800           | RHS              | -                |
| 46    | 349+350           | RHS              | -                |
| 47    | 353+300           | LHS              | -                |
| 48    | 354+300           | LHS              | -                |
| 49    | 354+300           | RHS              | -                |
| 50    | 354+800           | LHS              | -                |
| 51    | 355+400           | LHS              | -                |
| 52    | 357+000           | LHS              | -                |
| 53    | 357+400           | RHS              | -                |
| 54    | 357+800           | LHS              | -                |
| 55    | 357+800           | RHS              | -                |
| 56    | 358+180           | LHS              | -                |
| 57    | 359+300           | LHS              | -                |
| 58    | 359+300           | LHS              | -                |
| 59    | 360+600           | RHS              | -                |

## Section 2

| Sl No | Existing Chainage | Side (LHS / RHS) | Type of facility |
|-------|-------------------|------------------|------------------|
| Nil   |                   |                  |                  |

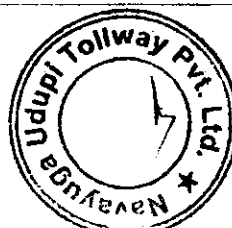


177

**Appendix A-VII**

**Inventory of structures**

|       |                           |                    |
|-------|---------------------------|--------------------|
| (i)   | Major & Minor Bridges     | Appendix A-VII (a) |
| (ii)  | Minor Bridges             | Appendix A-VII (b) |
| (iii) | Culverts                  | Appendix A-VII (c) |
| (iv)  | Grade separated junctions | Appendix A-VII (d) |
| (v)   | ROBs / RUBs               | Appendix A-VII (e) |
| (vi)  | Railway level crossings   | Appendix A-VII (g) |

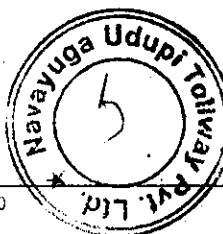


## Appendix A-VII (a)

Existing Major Bridges  
Section 1

| Sl. No | Name of the bridge          | Bridge No | Chainage (km) | Total Width | Span arrangement | Total Length | Type Of structure  |                       |     |                                 |
|--------|-----------------------------|-----------|---------------|-------------|------------------|--------------|--------------------|-----------------------|-----|---------------------------------|
|        |                             |           |               |             |                  |              | Type of Foundation | Type of sub-structure |     | Type of Superstructure          |
|        |                             |           |               |             |                  |              | Abutment           | Pier                  |     |                                 |
| 1      | Mabukala (Seetha River)     | 304/2     | 303+400       | 8.3         | 10X29            | 290          | Well               | SSM                   | SSM | RCC twin cell hollow box girder |
| 2      | Bhadragiri (Madisali River) | 311/1     | 310+300       | 8.2         | 3X29             | 87           | Well               | SSM                   | SSM | RCC twin cell hollow box girder |
| 3      | Kalyanpur (Swarna River)    | 313/5     | 312+980       | 8.2         | 7X29             | 203          | Well               | SSM                   | SSM | RCC twin cell hollow box girder |
| 4      | Udayavar                    | 325/2     | 324+700       | 8.2         | 9X29             | 261          | Well               | SSM                   | SSM | RCC twin cell hollow box girder |
| 5      | Pangala                     | 330/1     | 330+300       | 8.2         | 3X19.9           | 59.55        | Well               | RCC                   | SSM | RCC T Beam                      |
| 6      | Mulky (Shambaki River)      | 349/4     | 348+400       | 8.2         | 6X29             | 174.6        | Well               | SSM                   | SSM | RCC twin cell hollow box girder |
| 7      | Pavanje (Nandini River)     | 356/3     | 355+800       | 8.2         | 5X29.1           | 145.5        | Well               | SSM                   | SSM | RCC twin cell hollow box girder |

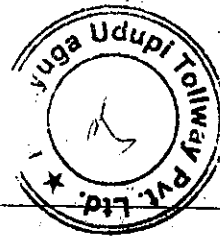
179



## Section 2

| Sl. No | Name of the bridge | Bridge No | Chainage (km) | Total Width | Span arrangement | Total Length | Type Of structure  |  |                                       |
|--------|--------------------|-----------|---------------|-------------|------------------|--------------|--------------------|--|---------------------------------------|
|        |                    |           |               |             |                  |              | Type of Foundation | Substructure                                 | Type of Superstructure                |
| 1      | Netravathy Bridge  | -         | 6+800         | 10.3        | 24 x 33.5        | 804.0        | Well               | Well Foundation with RCC piers and abutment- | PSC 'I' Girder with slab              |
| 2      | Talpady bridge-    | -         | 16+400        | 8.1         | 2x8.4 + 2x25     | 66.8         | Open-              | PCC Abutment + RCC Pier-                     | PSC 'I' Girder with slab + Solid Slab |

180



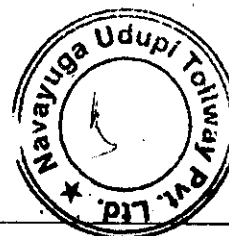
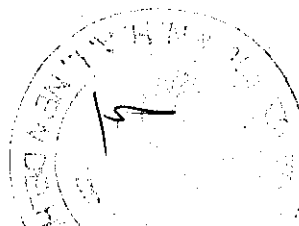
## Existing Minor Bridges

## Appendix A-VII (b)

## Section1

| Sl. No | Name of the bridge | Bridge No | Chainage (km) | Total Width | Span arrangement | Total Length | Type Of structure  |                       |                        |                            |
|--------|--------------------|-----------|---------------|-------------|------------------|--------------|--------------------|-----------------------|------------------------|----------------------------|
|        |                    |           |               |             |                  |              | Type of Foundation | Type of Sub-structure | Type of Superstructure |                            |
|        |                    |           |               |             |                  |              | Abutment           | Pier                  |                        |                            |
| 1      | Canal              | 313/2     | 312+300       | 7.8         | 1X6.7            | 6.7          | Open               | SSM                   | -                      | RCC Slab                   |
| 2      | Nittur             | 319/2     | 318+300       | 8.4         | 6X3.5            | 21           |                    |                       |                        | RCC Cast - in - situ pipes |
| 3      | Canal              |           | 327+120       | 7.8         | 1X8              | 8            | Open               | SSM                   | -                      | RCC Slab                   |
| 4      | Padubidri          | 342/2     | 341+950       | 8.2         | 1X18.6+2X5.1     | 28.8         | Open               | RCC                   | RCC                    | RCC Slab                   |
| 5      | Hejamadi           | 347/1     | 346+250       | 8.5         | 1X7              | 7            | Open               | SSM                   | -                      | RCC Slab                   |
| 6      | Canal              | 347/3     | 346+650       | 11.2        | 3X2.85           | 9.1          | Open               | RCC                   | RCC                    | Box structure              |
| 7      | Canal              | 353/4     | 352+850       | 8.2         | 1X13.5           | 13.5         | Open               | RCC                   | -                      | RCC T Beam                 |

181





## Section 2

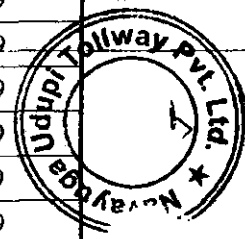
| Sl. No | Name of the bridge | Bridge No. | Chainage (km) | Total Width | Total Length | Span arrangement | Foundation | Type Of structure   | Type of Superstructure                |
|--------|--------------------|------------|---------------|-------------|--------------|------------------|------------|---------------------|---------------------------------------|
| 1      | Natural Stream     | -          | 5+500         | 8.0         | 8.0          | 1x8              | Open       | RR Abutment         | Box                                   |
| 2      | Natural Stream     | -          | 6+200         | 8.0         | 8.0          | 1x8              | Open       | RR Abutment         | Box                                   |
| 3      | Natural Stream     | -          | 14+800        | 8.0         |              | 2 x5 + 1x25      | Open       | Solid Wall type RCC | PSC 'I' Girder with slab + Solid Slab |

182



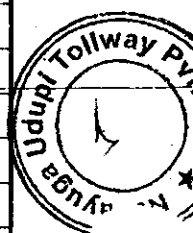
**Appendix A-VII (c)****Culverts****Section 1****1. List of Pipe Culverts**

| Sl. No. | Chainage (km) | Culvert. No. | No of rows | Dia. of pipe(mm) |
|---------|---------------|--------------|------------|------------------|
| 1       | 285+585       | 286/1        | 1          | 0.9              |
| 2       | 286+610       | 287/1        | 1          | 0.9              |
| 3       | 287+700       | 288/2        | 1          | 0.6              |
| 4       | 287+900       | 288/4        | 1          | 0.9              |
| 5       | 288+350       | 289/2        | 1          | 0.9              |
| 6       | 288+630       | 289/3        | 1          | 0.9              |
| 7       | 289+100       | 290/1        | 1          | 0.9              |
| 8       | 293+100       | 294/1        | 1          | 0.9              |
| 9       | 293+600       | 294/2        | 1          | 0.9              |
| 10      | 295+800       | 296/2        | 1          | 0.9              |
| 11      | 297+100       | 298/1        | 2          | 0.9              |
| 12      | 302+300       | 303/1        | 1          | 0.9              |
| 13      | 302+950       | 303/3        | 1          | 0.9              |
| 14      | 303+100       | 304/1        | 1          | 0.9              |
| 15      | 304+180       | 305/1        | 1          | 0.9              |
| 16      | 305+720       | 306/1        | 1          | 0.9              |
| 17      | 308+150       | 309/1        | 2          | 0.9              |
| 18      | 308+650       | 309/2        | 1          | 0.6              |
| 19      | 309+750       | 310/3        | 1          | 0.9              |
| 20      | 310+760       | 311/2        | 1          | 0.9              |
| 21      | 310+900       | 311/3        | 1          | 0.9              |
| 22      | 311+300       | 312/1        | 1          | 0.9              |
| 23      | 312+050       | 313/1        | 1          | 0.9              |
| 24      | 312+200       | 313/2        | 1          | 0.9              |
| 25      | 312+920       | 313/4        | 1          | 0.9              |
| 26      | 313+450       | 314/2        | 2          | 0.9              |
| 27      | 316+400       | 317/1        | 1          | 0.9              |
| 28      | 316+800       | 317/2        | 1          | 0.9              |
| 29      | 318+650       | 319/3        | 1          | 0.9              |



| Sl. No. | Chainage (km) | Culvert. No. | No of rows | Dia. of pipe(mm) |
|---------|---------------|--------------|------------|------------------|
| 30      | 318+900       | 319/4        | 1          | 0.9              |
| 31      | 319+600       | 320/1        | 1          | 0.9              |
| 32      | 319+700       | 320/2        | 1          | 0.9              |
| 33      | 319+920       | 320/4        | 1          | 0.6              |
| 34      | 320+950       | 321/2        | 2          | 0.9              |
| 35      | 321+350       | 322/2        | 1          | 0.9              |
| 36      | 321+890       | 322/3        | 1          | 0.9              |
| 37      | 321+970       | 322/4        | 1          | 0.6              |
| 38      | 322+350       | 323/2        | 2          | 0.9              |
| 39      | 323+050       | 324/1        | 1          | 0.9              |
| 40      | 323+720       | 324/2        | 1          | 0.6              |
| 41      | 323+870       | 324/3        | 1          | 0.6              |
| 42      | 325+040       | 326/1        | 1          | 0.9              |
| 43      | 327+220       | 328/2        | 1          | 0.6              |
| 44      | 328+850       | 329/3        | 1          | 0.6              |
| 45      | 328+930       | 329/4        | 1          | 0.6              |
| 46      | 330+700       | 331/1        | 1          | 0.9              |
| 47      | 331+200       | 332/1        | 1          | 0.9              |
| 48      | 331+900       | 332/2        | 1          | 0.9              |
| 49      | 332+160       | 333/2        | 1          | 0.9              |
| 50      | 336+900       | 337/3        | 1          | 0.9              |
| 51      | 337+650       | 338/2        | 1          | 0.9              |
| 52      | 337+998       |              | 1          | 0.9              |
| 53      | 338+050       | 339/1        | 1          | 0.6              |
| 54      | 339+300       | 340/1        | 1          | 0.6              |
| 55      | 339+900       | 340/2        | 1          | 0.6              |
| 56      | 341+830       | 342/1        | 1          | 0.9              |
| 57      | 343+700       | 344/2        | 2          | 0.6              |
| 58      | 343+750       | 344/3        | 2          | 0.6              |
| 59      | 343+980       | 344/4        | 1          | 0.9              |
| 60      | 344+200       | 345/1        | 2          | 0.9              |
| 61      | 344+450       | 345/2        | 1          | 0.6              |
| 62      | 344+650       | 345/3        | 1          | 0.6              |
| 63      | 344+860       | 345/4        | 1          | 0.9              |
| 64      | 345+950       | 346/2        | 1          | 0.6              |

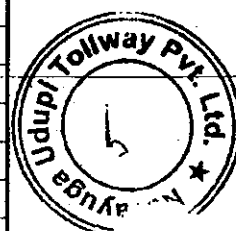
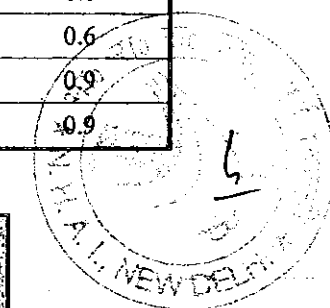
184



| Sl. No. | Chainage (km) | Culvert. No. | No of rows | Dia. of pipe(mm) |
|---------|---------------|--------------|------------|------------------|
| 65      | 346+500       | 347/2        | 1          | 0.9              |
| 66      | 347+250       | 348/1        | 1          | 0.9              |
| 67      | 347+400       | 348/2        | 1          | 0.9              |
| 68      | 348+050       | 349/1        | 1          | 0.9              |
| 69      | 348+100       | 349/2        | 1          | 0.9              |
| 70      | 348+300       | 349/3        | 1          | 0.9              |
| 71      | 348+700       |              | 1          | 0.9              |
| 72      | 348+800       | 349/5        | 1          | 0.9              |
| 73      | 349+100       | 350/1        | 2          | 0.9              |
| 74      | 350+350       | 351/1        | 1          | 0.6              |
| 75      | 350+400       | 351/2        | 1          | 0.6              |
| 76      | 350+410       | 351/3        | 1          | 0.9              |
| 77      | 350+995       | 351/4        | 1          | 0.9              |
| 78      | 352+200       | 353/1        | 1          | 0.9              |
| 79      | 352+700       | 353/3        | 1          | 0.9              |
| 80      | 353+800       | 354/1        | 1          | 0.9              |
| 81      | 353+900       | 354/2        | 1          | 0.9              |
| 82      | 353+930       | 354/3        | 2          | 0.9              |
| 83      | 354+500       | 355/1        | 1          | 0.9              |
| 84      | 354+700       | 355/2        | 1          | 1.2              |
| 85      | 354+820       | 355/3        | 1          | 1.2              |
| 86      | 354+950       | 355/4        | 1          | 0.6              |
| 87      | 354+980       | 355/5        | 1          | 0.6              |
| 88      | 355+100       | 356/1        | 1          | 0.9              |
| 89      | 356+100       | 357/1        | 1          | 0.9              |

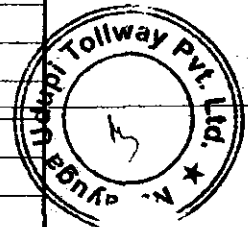
## 2. List of Slab / Box Culverts

| Sl. No. | Chainage (km) | Culvert. No. | Size (BxH)(m) | Width(m) | Type      |
|---------|---------------|--------------|---------------|----------|-----------|
| 1       | 283+500       | 284/2        | 0.9x0.9       | 11.6     | Slab      |
| 2       | 283+700       | 284/3        | 0.9x0.9       | 11.6     | Slab      |
| 3       | 284+230       | 285/1        | 0.9x0.9       | 11.6     | Slab      |
| 4       | 284+925       | 285/2        | 0.9x0.9       | 11.6     | Slab      |
| 5       | 287+550       | 288/1        | 0.9x0.4       | 11.3     | Slab      |
| 6       | 287+830       | 288/3        | 1x0.9         | 26.6     | Skew slab |
| 7       | 288+050       | 289/1        | 0.7x0.7       | 12.1     | Slab      |
| 8       | 288+980       | 289/4        | 0.9x0.7       | 11.6     | Slab      |



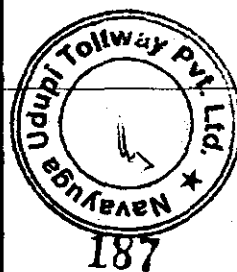
185

| Sl. No. | Chainage (km) | Culvert. No. | Size (BxH)(m)                    | Width(m) | Type |
|---------|---------------|--------------|----------------------------------|----------|------|
| 9       | 289+500       | 290/2        | 3x1                              | 11.7     | Slab |
| 10      | 289+800       | 290/3        | 0.9x0.9                          | 11.7     | Slab |
| 11      | 290+050       | 291/1        | 2.5x2                            | 11.8     | Slab |
| 12      | 290+900       | 291/2        | 0.9x0.5                          | 11.6     | Slab |
| 13      | 291+200       | 292/1        | 0.9x0.6                          | 11.6     | Slab |
| 14      | 291+750       | 292/2        | 0.9x0.9                          | 11.6     | Slab |
| 15      | 291+920       | 292/3        | 0.9x0.7                          | 11.6     | Slab |
| 16      | 292+270       | 293/1        | 0.9x0.4                          | 11.4     | Box  |
| 17      | 292+450       | 293/2        | 0.9x0.3                          | 11.2     | Slab |
| 18      | 292+600       | 293/3        | 0.9x0.7                          | 11.2     | Slab |
| 19      | 293+720       | 294/3        | 0.9x0.9 on LHS<br>0.9x1.6 on RHS | 11.2     | Slab |
| 20      | 293+960       | 294/4        | 0.9x0.45                         | 11.4     | Slab |
| 21      | 294+070       | 295/1        | 0.9x0.4                          | 11.2     | Slab |
| 22      | 294+300       | 295/2        | 0.9x0.5                          | 11.0     | Slab |
| 23      | 294+600       | 295/3        | 0.9x0.2                          | 11.3     | Slab |
| 24      | 295+150       | 296/1        | 0.9x0.2                          | 11.4     | Slab |
| 25      | 295+900       | 296/3        | 0.9x0.2                          | 11.0     | Slab |
| 26      | 296+500       | 297/1        | 0.9x0.15                         | 11.2     | Slab |
| 27      | 297+470       | 298/2        | 0.9x0.4                          | 11.3     | Slab |
| 28      | 298+100       | 299/1        | 0.9x0.7                          | 11.2     | slab |
| 29      | 298+650       | 299/2        | 0.9x0.4                          | 11.2     | Slab |
| 30      | 299+150       | 300/1        | 0.9x0.9                          | 11.5     | Slab |
| 31      | 299+280       | 300/2        | 0.9x0.5                          | 11.4     | Slab |
| 32      | 299+650       | 300/3        | 0.9x0.4                          | 11.2     | Slab |
| 33      | 299+900       | 300/4        | 0.9x0.9                          | 10.8     | Slab |
| 34      | 301+010       | 302/1        | 0.9x0.9                          | 11.0     | Slab |
| 35      | 301+250       | 302/2        | 0.9x0.2                          | 11.0     | Slab |
| 36      | 301+800       | 302/3        | 0.9x0.5                          | 11.4     | Box  |
| 37      | 302+530       | 303/2        | 0.9x0.6                          | 11.0     | Slab |
| 38      | 304+300       | 305/2        | 1.2x0.5                          | 11.3     | Slab |
| 39      | 304+380       | 305/3        | 1.2x0.2                          | 11.4     | Slab |
| 40      | 304+480       | 305/4        | 1.2x0.6                          | 11.2     | Slab |
| 41      | 304+650       | 305/5        | 0.9x0.9                          | 11.4     | Slab |
| 42      | 304+950       | 305/6        | 0.9x0.9                          | 11.3     | Slab |
| 43      | 306+015       | 307/1        | 3.7x3.7                          | 10.9     | Box  |
| 44      | 306+960       | 307/2        | 3.7x2.5                          | 11.2     | Slab |
| 45      | 307+650       | 308/1        | 2.4x0.7                          | 11.2     | Slab |
| 46      | 309+130       | 310/1        | 1.5x2.55                         | 11.2     | Slab |
| 47      | 309+300       | 310/2        | 0.9x0.6                          | 11.4     | Slab |
| 48      | 311+600       | 312/2        | 1.5x3.4                          | 11.3     | Slab |



186

| Sl. No. | Chainage (km) | Culvert. No. | Size (BxH)(m) | Width(m) | Type                 |
|---------|---------------|--------------|---------------|----------|----------------------|
| 49      | 312+800       | 313/3        | 1.5x3.4       | 11.0     | Slab                 |
| 50      | 313+150       | 314/1        | 0.9x2.4       | 11.3     | Slab                 |
| 51      | 315+500       | 316/1        | 0.9x0.7       | 11.3     | Slab                 |
| 52      | 315+900       | 316/2        | 1.2 x0.7      | 11.6     | Slab                 |
| 53      | 317+900       | 318/1        | 3x 1.5        | 11.6     | Slab                 |
| 54      | 320+170       | 321/1        | 2.4x2.5       | 11.3     | Slab                 |
| 55      | 321+100       | 322/1        | 4.5x2.6       | 11.2     | Slab                 |
| 56      | 322+080       |              | 4x4           | 11.4     | Slab                 |
| 57      | 322+250       | 323/1        | 1.5x2.8       | 11.6     | Skew slab            |
| 58      | 322+440       | 323/3        | 3.5x3.5       | 18.8     | Slab                 |
| 59      | 324+200       | 325/1        | 4.5x2.6       | 11.0     | slab                 |
| 60      | 324+970       | 325/3        | 0.9x3.4       | 10.8     | Slab                 |
| 61      | 325+550       | 326/2        | 4x4.2         | 11.4     | slab                 |
| 62      | 327+300       | 328/3        | 1.2x1.3       | 11.0     | Slab                 |
| 63      | 327+400       | 328/4        | 1.2x1.6       | 11.4     | Slab                 |
| 64      | 327+850       | 328/5        | 0.9x0.5       | 11.2     | Slab                 |
| 65      | 328+100       | 329/1        | 0.9x0.2       | 11.6     | Slab                 |
| 66      | 328+650       | 329/2        | 4x2.9         | 11.6     | Slab                 |
| 67      | 333+060       | 334/1        | 1.2x1.3       | 11.4     | Slab                 |
| 68      | 333+500       | 334/2        | 0.9x0.9       | 11.6     | Slab                 |
| 69      | 333+900       | 334/3        | 0.9x0.5       | 11.8     | Slab                 |
| 70      | 335+250       | 336/1        | 0.9x0.2       | 11.2     | Slab                 |
| 71      | 336+500       | 337/1        | 0.9x0.2       | 11.4     | Slab                 |
| 72      | 336+750       | 337/2        | 0.9x0.5       | 11.2     | Slab                 |
| 73      | 338+400       | 339/2        | 0.7x0.5       | 11.3     | Slab                 |
| 74      | 338+790       | 339/3        | 0.9x0.7       | 11.8     | Slab                 |
| 75      | 342+970       | 343/1        | 0.9x0.6       | 11.6     | Slab                 |
| 76      | 343+600       | 344/1        | 1.2x1.1       | 11.4     | Slab                 |
| 77      | 344+920       | 345/5        | 0.9x0.9       | 11.4     | Slab                 |
| 78      | 345+840       | 346/1        | 0.9x0.2       | 11.8     | Slab                 |
| 79      | 347+850       | 348/3        | 1.2x0.2       | 14.5     | Slab                 |
| 80      | 348+850       | 349/6        | 0.9x0.9       | 11.7     | Slab                 |
| 81      | 348+900       | 349/7        | 3.5x1.6       | 11.8     | Slab                 |
| 82      | 349+870       | 350/2        | 1.2x1.2       | 26.0     | Skew slab<br>culvert |
| 83      | 349+980       | 350/3        | 1.5x2.4       | 10.8     | Slab                 |
| 84      | 351+300       | 352/1        | 3x2           | 11.3     | Slab                 |
| 85      | 352+300       | 353/2        | 1.2x1.2       | 11.4     | Slab                 |
| 86      | 352+900       | 353/4        | 1x1           |          | Slab                 |



| Sl. No. | Chainage (km) | Culvert. No. | Size (BxH)(m) | Width(m) | Type |
|---------|---------------|--------------|---------------|----------|------|
| 87      | 352+960       | 353/5        | 1x1           |          | Slab |
| 88      | 355+200       | 356/2        | 0.9x0.4       | 11.4     | Slab |
| 89      | 356+150       | 357/2        | 0.9x0.2       | 11.2     | Slab |
| 90      | 356+250       | 357/3        | 0.9x0.3       | 11.2     | Slab |

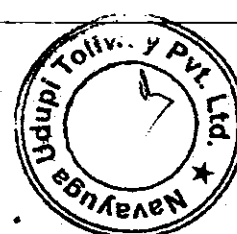
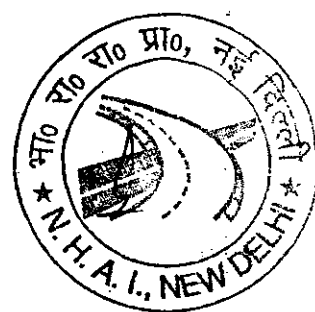
## Section 2

## 1. List of Pipe Culverts

| Sl. No. | Chainage (km) | Culvert. No. | No of vents | Dia. of vent |
|---------|---------------|--------------|-------------|--------------|
| 1       | 3.64          | 4/1          | 1           | 1.05         |
| 2       | 3.82          | 4/2          | 1           | 0.6          |
| 3       | 3.96          | 4/3          | 2           | 1            |
| 4       | 3.97          | 4/4          | 1           | 0.6          |
| 5       | 4.1           | 5/1          | 2           | 1.1          |
| 6       | 4.23          | 5/2          | 1           | 1.05         |
| 7       | 4.63          | 5/3          | 2           | 1            |
| 8       | 5.32          | 6/1          | 1           | 1.2          |
| 9       | 5.425         | 6/2          | 1           | 0.6          |
| 10      | 5.58          | 6/4          | 1           | 1            |
| 11      | 5.94          | 6/5          | 2           | 1            |
| 12      | 6.47          | 7/2          | 3           | 1.1          |
| 13      | 8.26          | 9/1          | 2           | 1.1          |
| 14      | 8.87          | 9/2          | 2           | 1.1          |
| 15      | 9.05          | 10/1         | 1           | 1.1          |
| 16      | 9.14          | 10/2         | 1           | 1.1          |
| 17      | 16.17         | 17/1         | 1           | 0.9          |
| 18      | 16.4          | 17/2         | 1           | 1.1          |
| 19      | 11            | 11/2         | 1           | 0.15         |

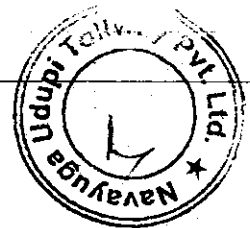
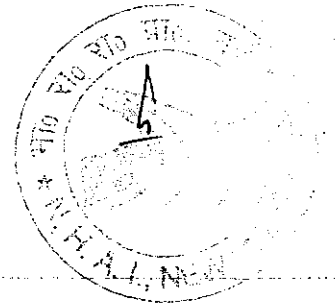
## 2. List of Slab / Box Culverts

| Sl. No. | Chainage | Culvert no. | No of vents | width | Type             |
|---------|----------|-------------|-------------|-------|------------------|
| 1       | 9.6      | 10/3        | 1           | 1.8   | RCC Slab Culvert |
| 2       | 9.87     | 10/4        | 1           | 0.9   | RCC Slab Culvert |
| 3       | 10.2     | 11/1        | 1           | 1.7   | RCC Slab Culvert |
| 5       | 11.05    | 12/1        | 1           | 1.4   | RCC Slab Culvert |
| 6       | 12.04    | 13/1        | 1           | 2.4   | RCC Slab Culvert |
| 7       | 12.84    | 13/2        | 1           | 0.9   | RCC Slab Culvert |



188

| Sl. No. | Chainage | Culvert no. | No of vents | width | Type             |
|---------|----------|-------------|-------------|-------|------------------|
| 8       | 12.96    | 13/3        | 1           | 0.9   | RCC Slab Culvert |
| 9       | 13.29    | 14/1        | 1           | 1     | RCC Slab Culvert |
| 10      | 13.4     | 14/2        | 1           | 0.9   | RCC Slab Culvert |
| 11      | 14.08    | 15/1        | 1           | 0.9   | RCC Slab Culvert |
| 12      | 14.25    | 15/2        | 1           | 0.9   | RCC Slab Culvert |
| 13      | 14.3     | 15/3        | 1           | 0.9   | RCC Slab Culvert |
| 14      | 14.45    | 15/4        | 1           | 0.9   | RCC Slab Culvert |
| 15      | 14.5     | 15/5        | 1           | 0.9   | RCC Slab Culvert |
| 16      | 15.38    | 16/1        | 1           | 0.9   | RCC Slab Culvert |
| 17      | 15.72    | 16/2        | 1           | 0.9   | RCC Slab Culvert |



189

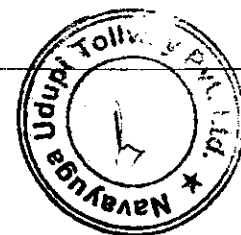


**Appendix A-VII (d)****Grade separated junctions****Section 1**

| SI No | Name of Junction | Chainage (from -to) (km) | Width | Span arrangement & Total Length | Type of structure |               |                 |
|-------|------------------|--------------------------|-------|---------------------------------|-------------------|---------------|-----------------|
|       |                  |                          |       |                                 | Foundation        | Sub-structure | Super-structure |
| Nil   |                  |                          |       |                                 |                   |               |                 |

**Section 2**

| Sl.No | Name of Junction | Chainage (from -to) (km) | Width | Span arrangement & Total Length | Type of structure |               |                 |
|-------|------------------|--------------------------|-------|---------------------------------|-------------------|---------------|-----------------|
|       |                  |                          |       |                                 | Foundation        | Sub-structure | Super-structure |
| Nil   |                  |                          |       |                                 |                   |               |                 |



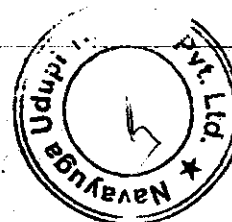
190

Appendix A-VII (e)**ROBs / RUBs****Section 1**

| Sl No | Chainage | ROB/RUB | Width | Span arrangement & Total Length | Type of structure |               |                 | Clear height available |
|-------|----------|---------|-------|---------------------------------|-------------------|---------------|-----------------|------------------------|
|       |          |         |       |                                 | Foundation        | Sub-structure | Super-Structure |                        |
| Nil   |          |         |       |                                 |                   |               |                 |                        |

**Section 2**

| Section 2 |          |         |       |                                 |                   |               |                 |                        |
|-----------|----------|---------|-------|---------------------------------|-------------------|---------------|-----------------|------------------------|
| Sl No     | Chainage | ROB/RUB | Width | Span arrangement & Total Length | Type of structure |               |                 | Clear height available |
|           |          |         |       |                                 | Foundation        | Sub-structure | Super-Structure |                        |
| Nil       |          |         |       |                                 |                   |               |                 |                        |



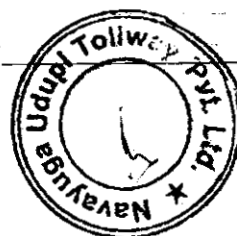
191

**Appendix A-VII (f)****Railway level crossings****Section I**

| SI No | Chainage | Railway Chainage/No | Width (metres) |
|-------|----------|---------------------|----------------|
| Nil   |          |                     |                |

**Section II**

| SI No | Chainage | Remark  | Width (metres) |
|-------|----------|---|----------------|
| 1     | 5/000    | Railway level crossing is present for broad gauge line from Mangalore – Sakleshpur- | 10.3           |



**SCHEDULE - B**  
(See Clause 2.1)

**DEVELOPMENT OF THE PROJECT HIGHWAY**

**1. DEVELOPMENT OF THE PROJECT HIGHWAY**

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

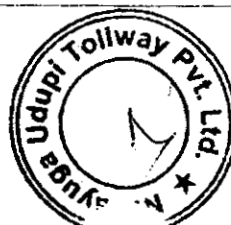
**2. FOUR-LANING**

**2.1** Four-Laning shall include construction of the Four-Lane Project highway as described in **Annex-I** of this **Schedule-B** and **Annex-I** of **Schedule-C**.

**2.2** Four Laning shall be undertaken and completed by the Concessionaire in conformity with the Specifications and Standards set forth in **Annex-I** of **Schedule-D**.

**3 [SIX-LANING]**

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Annex – I  
(Schedule – B)

**Description of Four – Laning**

**1. Width of Carriageway**

The paved carriageway shall be 17.5 meters wide excluding the median and edge strip near median:

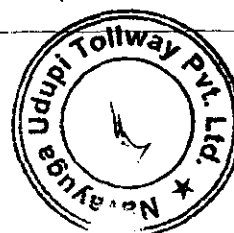
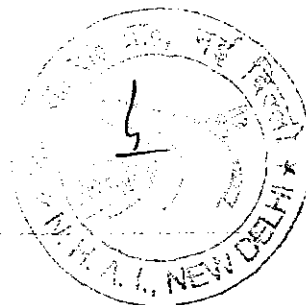
Except as otherwise provided in this Agreement, the width of the paved carriageway shall conform to clause 1.1 above.

**2. Project Facilities**

Project facilities shall be constructed in conformity with Annex-I of Schedule-C.

**3. Specifications and Standards**

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



**4. Other Features of four laning****4.1 Cross Sections**

The Project Highway shall be widened to Four lane dual configuration with paved shoulder with or without Service Roads. A typical cross section alongwith different types of cross section required to be developed in different segments of the project highway are indicated in Appendix BI.

**4.2 Alignment Plan and Longitudinal Section**

An alignment plan and vertical profile of project highway is given at Appendix BII in soft copy. The minimum FRL given in enclosed drawing shall have to be achieved by Concessionaire.

**4.3 Bypasses & Realignment**

There are 2 bypasses and 5 realignments in Section 1 and 2 realignments in Section 2 the of project highway. The details of bypasses and realignments to be provided are given at Appendix BIII.

**4.4 Service Road**

Service Roads shall be provided in lengths indicated in Appendix –BIV.

**4.5 Proposed Right of Way**

The details of the Proposed ROW are given in Appendix B V.

**4.6 At Grade Intersection**

At grade intersections shall be provided at the intersection of service roads and all intersecting roads at locations specified in Appendix -B VI for major intersections and in Appendix BVII for minor intersections.

**4.7 Grade Separated Intersections**

The grade separated intersections shall be provided as given in Appendix BVIII.

**4.8 Underpasses**

Vehicular underpass shall be provided at location given at Appendix -BIX

Pedestrian /cattle underpass shall be provided at location given at Appendix –BX.

**4.9 Major bridges**

Major bridges as listed in Appendix BXI shall be provided, widened, reconstructed, or extended

195



**4.10 Minor bridges**

Minor bridges as listed in Appendix BXII shall be provided, widened, reconstructed, or extended.

**4.11 Culverts**

Culverts shall be provided, widened, reconstructed, or extended as listed in Appendix BXIII

**4.12 ROB/RUB**

No ROB/RUBs provided in Section 1 and I ROB is provide in Section 2 , the details are given at Appendix BXIV. Following points shall be taken care of:

- i). The proposed span arrangements of the ROB's are tentative and subject to change as per availability of railway boundaries/ requirement of the railways.
- ii). ROB shall be designed, constructed and maintained as per the requirements of Railway authorities. The construction plans shall be prepared in consultation with the concerned railway authority.
- iii). The ROB's shall be constructed and maintained by the concessionaire under supervision of the Railways.
- iv). All expenditure related to construction, maintenance and supervision of ROB (except P&E charges) shall be borne by the Concessionaire.
- v). During construction, the existing level crossings shall be widened to 12 metres or two separate level crossings of 7 metres each shall be provided

**4.13 Entry /exit ramps**

No Entry /exit ramps are provided.

**4.14 Slope protection**

The side slope shall be protected by using suitable slope protection measures wherever required along the present highway.

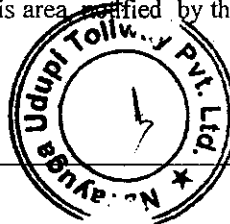
**4.15 Utilities**

Provision of accommodating utilities shall be made both over as well as underground wherever required.

**4.16 Rainwater Harvesting**

As per Ministry of Environment and Forests Notification, New Delhi dated 14.01.1997 (as amended on 13.01.1998, 05.01.1999 & 6.11.2000), the construction of Rain water, Harvesting structure is mandatory in and around Water Crisis area notified by the Central Ground Water Board.

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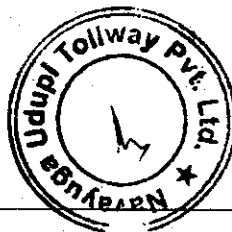


196

ANNEX – II  
(Schedule – B)  
Description of (Six – Laning)

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197



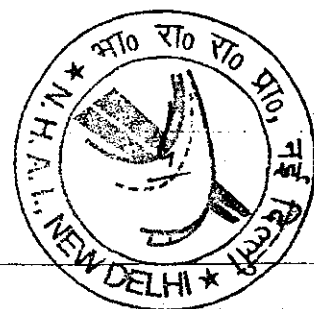
## Appendix BI

1. Typical Cross Sections
2. Cross Section Type along the Project Corridor

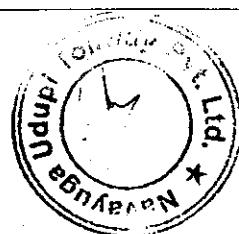
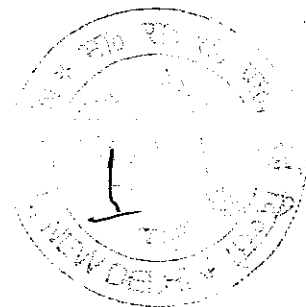
## Section 1 NH 17 – From km 283+300 to km 350+290

|       |  |
|-------|--|
| CS-01 | Concentric widening & Strengthening of existing 2 lane pavement with 4.5m median in open area                    |
| CS-02 | Eccentric widening (LHS/RHS) with 4.5m median & strengthening of existing 2 lane pavement in open area           |
| CS-03 | New 4 lane with 4.5m median for new construction in open area  |
| CS-04 | Concentric widening with 4.5m median & strengthening of existing pavement with 5.5m service road                 |
| CS-05 | Eccentric widening (LHS/RHS) with 4.5m median & strengthening of existing 2 lane pavement with 5.5m service road |
| CS-06 | New four lane with 4.5m median for new construction with 7m service road   |
| CS-07 | Concentric widening with 1.2m median & strengthening of existing 2 Lane pavement with 5.5m service road          |
| CS-08 | Eccentric widening (LHS/RHS) with 1.2m median & strengthening of existing 2 Lane pavement with 5.5m service road |
| CS-09 | Typical cross section at underpass approach with combined earthen & reinforced earthen embankment                |
| CS-10 | Typical cross section at underpass approach in heavy builtup area  |
| CS-11 | Typical cross section of overpass (cross road above) approach with service road                                  |

| Sl No | Design Chainage (Km) |        | Length (m) | Type of Cross Section |
|-------|----------------------|--------|------------|-----------------------|
|       | From                 | To     |            |                       |
| 1     | 283300               | 283500 | 200        | CS-07                 |
| 2     | 283500               | 283950 | 450        | CS-10                 |
| 3     | 283950               | 284250 | 300        | CS-10                 |
| 4     | 284250               | 284690 | 440        | CS-07                 |
| 5     | 284690               | 284990 | 300        | CS-07                 |
| 6     | 284990               | 285290 | 300        | CS-07                 |
| 7     | 285290               | 287250 | 1960       | CS-07                 |
| 8     | 287250               | 287440 | 190        | CS-08                 |
| 9     | 287440               | 287690 | 250        | CS-07                 |
| 10    | 287690               | 287880 | 190        | CS-08                 |
| 11    | 287880               | 288000 | 120        | CS-07                 |
| 12    | 288000               | 288700 | 700        | CS-01                 |
| 13    | 288700               | 288820 | 120        | CS-02                 |



| Sl No | Design Chainage (Km) |        | Length (m) | Type of Cross Section |
|-------|----------------------|--------|------------|-----------------------|
|       | From                 | To     |            |                       |
| 14    | 288820               | 288960 | 140        | CS-01                 |
| 15    | 288960               | 289180 | 220        | CS-02                 |
| 16    | 289180               | 292500 | 3320       | CS-01                 |
| 17    | 292500               | 293500 | 1000       | CS-02                 |
| 18    | 293500               | 293900 | 400        | CS-08                 |
| 19    | 293900               | 295300 | 1400       | CS-07                 |
| 20    | 295300               | 295500 | 200        | CS-08                 |
| 21    | 295500               | 295780 | 280        | CS-02                 |
| 22    | 295780               | 297700 | 1920       | CS-02                 |
| 23    | 297700               | 297900 | 200        | CS-03                 |
| 24    | 297900               | 298100 | 200        | CS-03                 |
| 25    | 298100               | 298250 | 150        | CS-01                 |
| 26    | 298250               | 298450 | 200        | CS-03                 |
| 27    | 298450               | 298730 | 280        | CS-01                 |
| 28    | 298730               | 298930 | 200        | CS-02                 |
| 29    | 298930               | 299020 | 90         | CS-01                 |
| 30    | 299020               | 300030 | 1010       | CS-02                 |
| 31    | 300030               | 302000 | 1970       | CS-01                 |
| 32    | 302000               | 302570 | 570        | CS-02                 |
| 33    | 302570               | 302900 | 330        | CS-03                 |
| 34    | 302900               | 303100 | 200        | CS-02                 |
| 35    | 303100               | 304420 | 1320       | CS-02                 |
| 36    | 304420               | 304560 | 140        | CS-02                 |
| 37    | 304560               | 304900 | 340        | CS-03                 |
| 38    | 304900               | 305140 | 240        | CS-02                 |
| 39    | 305140               | 305900 | 760        | CS-02                 |
| 40    | 305900               | 306000 | 100        | CS-05                 |
| 41    | 306000               | 306130 | 130        | CS-04                 |
| 42    | 306130               | 306240 | 110        | CS-05                 |
| 43    | 306240               | 306500 | 260        | CS-06                 |
| 44    | 306500               | 306600 | 100        | CS-04                 |
| 45    | 306600               | 306840 | 240        | CS-05                 |
| 46    | 306840               | 307080 | 240        | CS-04                 |
| 47    | 307080               | 307500 | 420        | CS-06                 |
| 48    | 307500               | 307600 | 100        | CS-05                 |
| 49    | 307600               | 307770 | 170        | CS-02                 |
| 50    | 307770               | 308200 | 430        | CS-01                 |



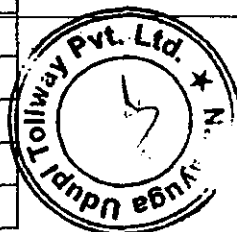
199

| Sl No | Design Chainage (Km) |        | Length (m) | Type of Cross Section |
|-------|----------------------|--------|------------|-----------------------|
|       | From                 | To     |            |                       |
| 51    | 308200               | 309000 | 800        | CS-02                 |
| 52    | 309000               | 309120 | 120        | CS-01                 |
| 53    | 309120               | 309300 | 180        | CS-02                 |
| 54    | 309300               | 309510 | 210        | CS-03                 |
| 55    | 309510               | 310100 | 590        | CS-02                 |
| 56    | 310100               | 310220 | 120        | CS-01                 |
| 57    | 310220               | 310700 | 480        | CS-02                 |
| 58    | 310700               | 310900 | 200        | CS-02                 |
| 59    | 310900               | 312580 | 1680       | CS-02                 |
| 60    | 312580               | 312900 | 320        | CS-03                 |
| 61    | 312900               | 313300 | 400        | CS-02                 |
| 62    | 313300               | 313900 | 600        | CS-03                 |
| 63    | 313900               | 314000 | 100        | CS-03                 |
| 64    | 314000               | 314100 | 100        | CS-06                 |
| 65    | 314100               | 314200 | 100        | CS-05                 |
| 66    | 314200               | 314500 | 300        | CS-04                 |
| 67    | 314500               | 314830 | 330        | CS-05                 |
| 68    | 314830               | 315000 | 170        | CS-05                 |
| 69    | 315000               | 315100 | 100        | CS-02                 |
| 70    | 315100               | 315780 | 680        | CS-01                 |
| 71    | 315780               | 315950 | 170        | CS-03                 |
| 72    | 315950               | 318600 | 2650       | CS-01                 |
| 73    | 318600               | 318900 | 300        | CS-03                 |
| 74    | 318900               | 319200 | 300        | CS-03                 |
| 75    | 319200               | 321050 | 1850       | CS-04                 |
| 76    | 321050               | 321350 | 300        | CS-11                 |
| 78    | 321350               | 321650 | 300        | CS-11                 |
| 77    | 321650               | 322260 | 610        | CS-01                 |
| 79    | 322260               | 322500 | 240        | CS-02                 |
| 80    | 322500               | 324100 | 1600       | CS-01                 |
| 81    | 324100               | 325800 | 1700       | CS-02                 |
| 82    | 325800               | 325930 | 130        | CS-05                 |
| 83    | 325930               | 326640 | 710        | CS-04                 |
| 84    | 326640               | 326800 | 160        | CS-05                 |
| 85    | 326800               | 329170 | 2370       | CS-02                 |
| 86    | 329170               | 329300 | 130        | CS-01                 |
| 87    | 329300               | 329700 | 400        | CS-03                 |



200

| Sl No | Design Chainage (Km) |        | Length (m) | Type of Cross Section |
|-------|----------------------|--------|------------|-----------------------|
|       | From                 | To     |            |                       |
| 88    | 329700               | 330500 | 800        | CS-02                 |
| 89    | 330500               | 330620 | 120        | CS-03                 |
| 90    | 330620               | 331300 | 680        | CS-01                 |
| 91    | 331300               | 331560 | 260        | CS-04                 |
| 92    | 331560               | 331870 | 310        | CS-05                 |
| 93    | 331870               | 332000 | 130        | CS-05                 |
| 94    | 332000               | 332200 | 200        | CS-05                 |
| 95    | 332200               | 332400 | 200        | CS-04                 |
| 96    | 332400               | 332650 | 250        | CS-01                 |
| 97    | 332650               | 332820 | 170        | CS-02                 |
| 98    | 332820               | 334870 | 2050       | CS-02                 |
| 99    | 334870               | 336300 | 1430       | CS-02                 |
| 100   | 336300               | 336450 | 150        | CS-02                 |
| 101   | 336450               | 336700 | 250        | CS-02                 |
| 102   | 336700               | 336900 | 200        | CS-02                 |
| 103   | 336900               | 338500 | 1600       | CS-01                 |
| 104   | 338500               | 338700 | 200        | CS-02                 |
| 105   | 338700               | 338930 | 230        | CS-02                 |
| 106   | 338930               | 339200 | 270        | CS-02                 |
| 107   | 339200               | 339950 | 750        | CS-03                 |
| 107   | 339950               | 340750 | 800        | CS-02                 |
| 108   | 340750               | 341100 | 350        | CS-01                 |
| 109   | 341100               | 341200 | 100        | CS-02                 |
| 110   | 341200               | 341600 | 400        | CS-02                 |
| 111   | 341600               | 342800 | 1200       | CS-03                 |
| 112   | 342800               | 343100 | 300        | CS-09                 |
| 113   | 343100               | 343400 | 300        | CS-09                 |
| 114   | 343400               | 344650 | 1250       | CS-03                 |
| 115   | 344650               | 344960 | 310        | CS-02                 |
| 116   | 344960               | 345120 | 160        | CS-02                 |
| 117   | 345120               | 345350 | 230        | CS-02                 |
| 118   | 345350               | 345500 | 150        | CS-02                 |
| 119   | 345500               | 345650 | 150        | CS-02                 |
| 120   | 345650               | 347740 | 2090       | CS-02                 |
| 121   | 347740               | 348800 | 1060       | CS-02                 |
| 122   | 348800               | 350700 | 1900       | CS-03                 |
| 123   | 350700               | 352100 | 1400       | CS-02                 |

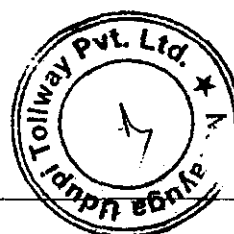


201

| Sl No | Design Chainage (Km) |        | Length (m) | Type of Cross Section |
|-------|----------------------|--------|------------|-----------------------|
|       | From                 | To     |            |                       |
| 124   | 352100               | 352270 | 170        | CS-02                 |
| 125   | 352270               | 352420 | 150        | CS-02                 |
| 126   | 352420               | 352530 | 110        | CS-01                 |
| 127   | 352530               | 355100 | 2570       | CS-02                 |
| 128   | 355100               | 355200 | 100        | CS-02                 |
| 129   | 355200               | 355800 | 600        | CS-02                 |
| 130   | 355800               | 355940 | 140        | CS-02                 |
| 131   | 355940               | 356850 | 910        | CS-02                 |
| 132   | 356850               | 357000 | 150        | CS-02                 |
| 133   | 357000               | 357140 | 140        | CS-02                 |
| 134   | 357140               | 357340 | 200        | CS-02                 |
| 135   | 357340               | 357550 | 210        | CS-02                 |
| 136   | 357550               | 357700 | 150        | CS-05                 |
| 137   | 357700               | 357830 | 130        | CS-04                 |
| 138   | 357830               | 358686 | 856        | CS-05                 |
|       | Total                |        | 75386      |                       |

## Section - 2 NH 17 -From km 1+900 to km 17+200

|       |  |
|-------|--|
| CS-01 | Concentric Widening and strengthening of existing two lane Pavement with median width as 4.5m/1.5m based on availability of land with approval of ICE  |
| CS-02 | Concentric Widening and strengthening of existing two lane Pavement with median width as 4.5m/1.5m based on availability of land with approval of ICE  |
| CS-03 | New Construction in the Rural Area without Service Roads with 4.5m median width  |
| CS-04 | Concentric Widening and strengthening of existing two lane Pavement with Provision of 5.5m Service roads on either side with median width as 4.5m/1.5m based on availability of land with approval ICE   |
| CS-05 | Eccentric Widening and Strengthening of existing two lane Pavement with Provision of 5.5m service roads on either side with median width as 4.5m/1.5m based on availability of land with approval of ICE |
| CS-06 | Typical cross section in Approaches to underpasses with service roads  |
| CS-07 | Typical cross section in Approaches to Flyover with service roads  |
| CS-08 | Typical cross section in Embankment height more than 3m  |



202

| Design Chainage (Km) |        | Length (km) | Land Use | TCS Type |
|----------------------|--------|-------------|----------|----------|
| From                 | To     |             |          |          |
| 1+870                | 2+400  | 0.53        | Urban    | 1        |
| 2+400                | 2+700  | 0.3         | Urban    | 2        |
| 2+700                | 3+200  | 0.5         | Urban    | 1        |
| 3+200                | 3+900  | 0.7         | Flyover  | 7        |
| 3+900                | 4+800  | 0.9         | Urban    | 4        |
| 4+800                | 4+985  | 0.185       | Rural    | 2        |
| 4+985                | 5+225  | 0.24        | Rural    | 3        |
| 5+225                | 6+420  | 1.195       | Rural    | 2        |
| 6+420                | 6+550  | 0.13        | Rural    | 3        |
| 6+550                | 8+000  | 1.45        | Rural    | 2        |
| 8+000                | 9+100  | 1.1         | Rural    | 2        |
| 9+100                | 10+200 | 1.1         | Flyover  | 7        |
| 10+200               | 11+450 | 1.25        | Rural    | 1        |
| 11+450               | 12+000 | 0.55        | Urban    | 5        |
| 12+000               | 12+700 | 0.7         | Rural    | 2        |
| 12+700               | 13+500 | 0.8         | Urban    | 5        |
| 13+500               | 14+000 | 0.5         | Rural    | 2        |
| 14+000               | 14+700 | 0.7         | Rural    | 1        |
| 14+700               | 15+200 | 0.5         | Rural    | 2        |
| 15+200               | 15+800 | 0.6         | Urban    | 5        |
| 15+800               | 16+200 | 0.4         | Rural    | 2        |
| 16+200               | 16+500 | 0.3         | Rural    | 2        |
| 16+500               | 16+800 | 0.3         | Rural    | 3        |
| 16+800               | 17+200 | 0.4         | Rural    | 2        |

3. Typical Cross Sections of High Embankments (Approaches to Grade Separator's / Underpasses / Bridges / ROB's)

| Sl No | Design Chainage (Km) From | C/s Type* |
|-------|---------------------------|-----------|
|       | Included in above table   |           |

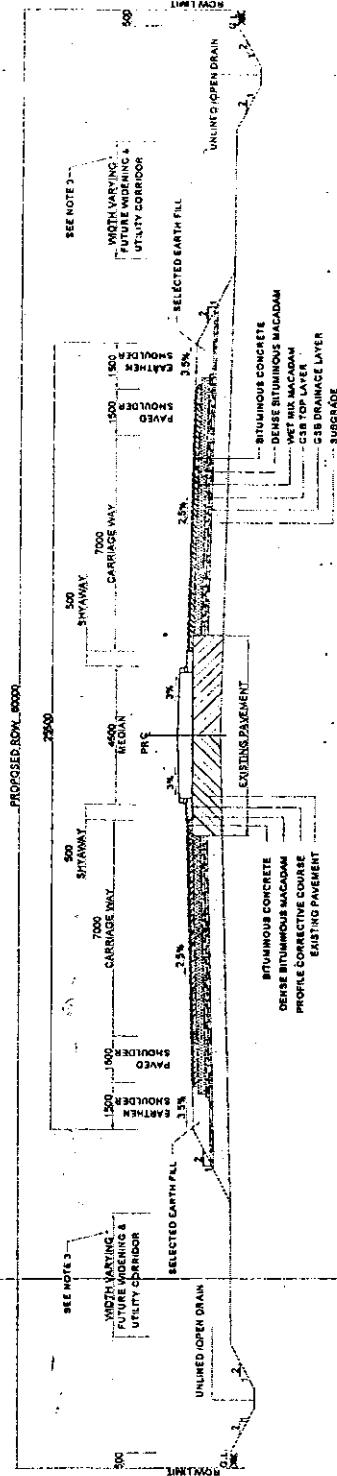
\* Type of Cross Section are given below



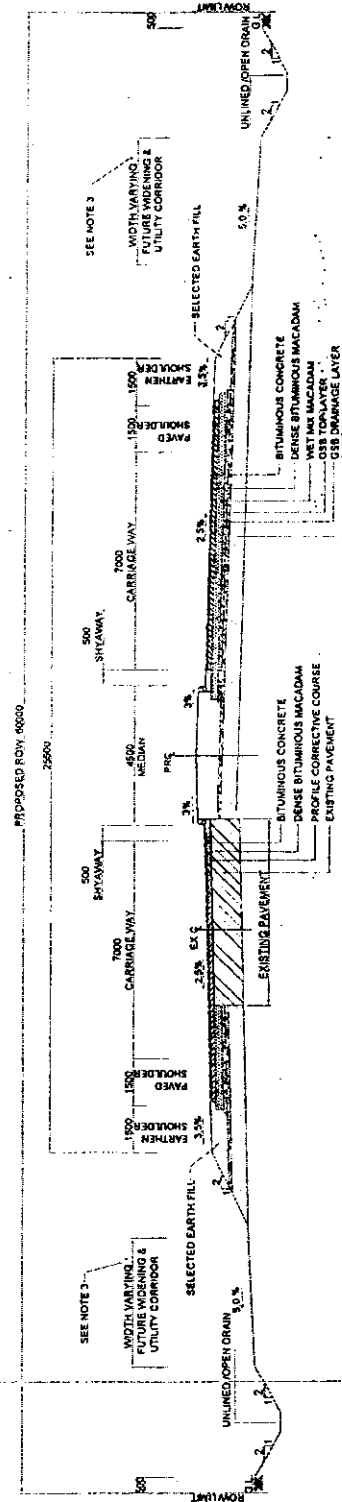
203



Typical Cross Section for Section 1

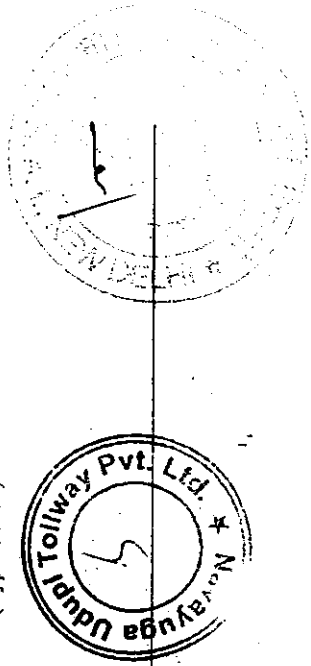


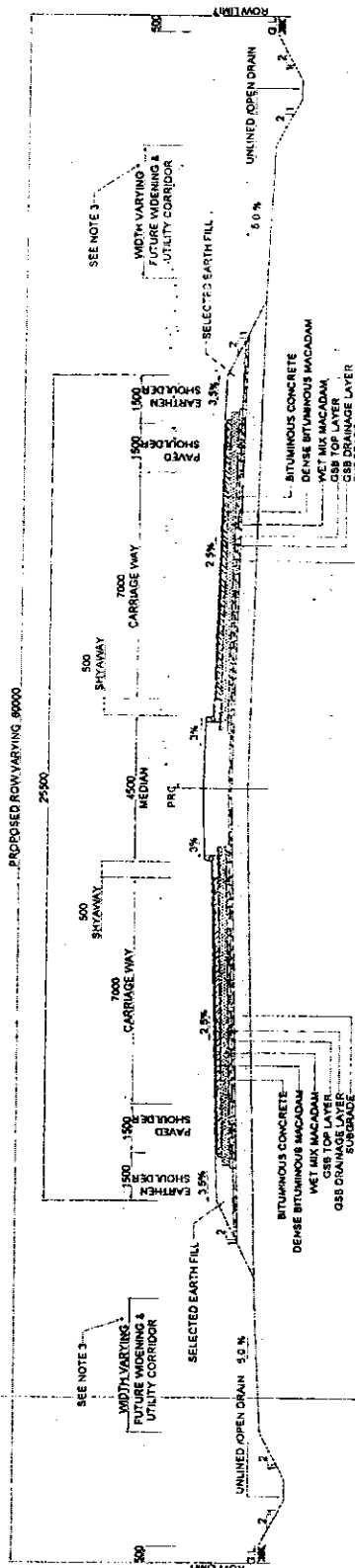
Typical Geometric Section of Widening in Rural Area without Service Roads (Type CS-01)



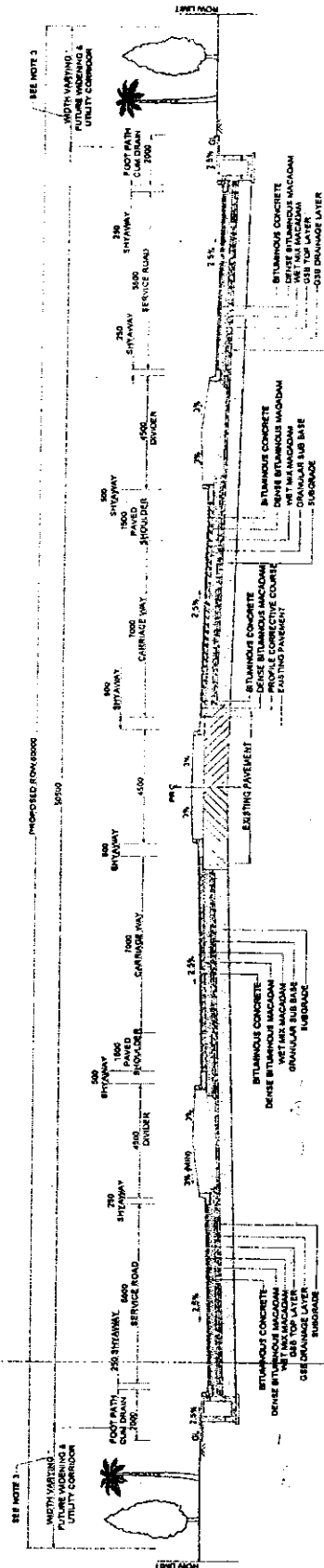
Typical Geometric Section of Eccentric Widening in Rural Area without Service Roads (Type CS-02)

204



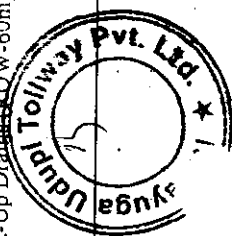


Typical Geometric Section of New Construction in the Rural Area without Service Roads (Type CS-03)

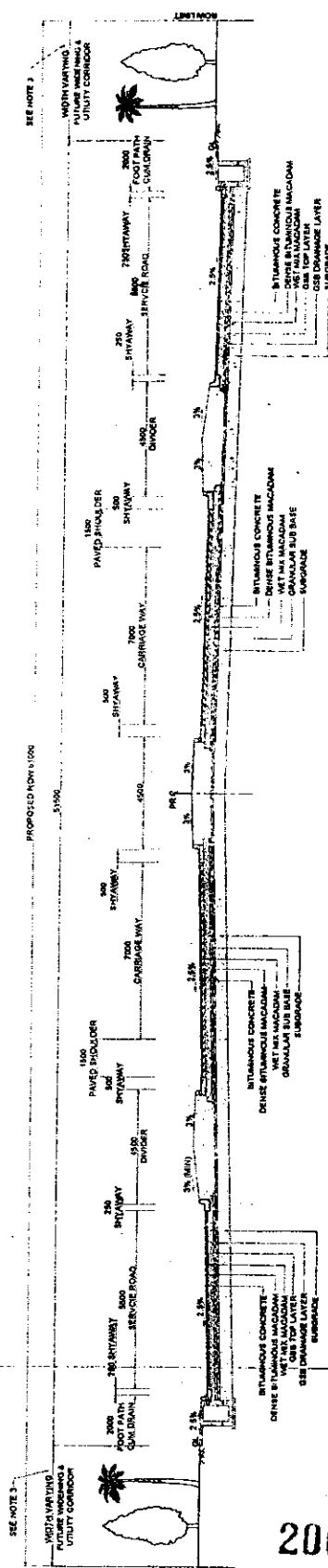
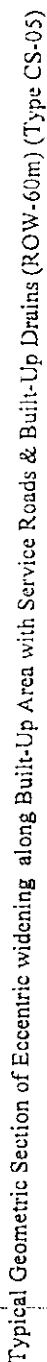


Typical Geometric Section of Concentric widening along Built-Up Area with Service Roads & Built-Up Drains (ROW-60m) (Type CS-04)

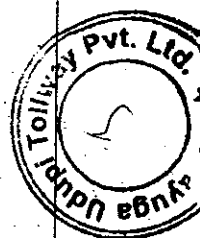
205

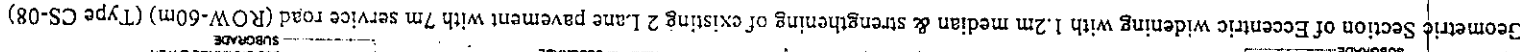
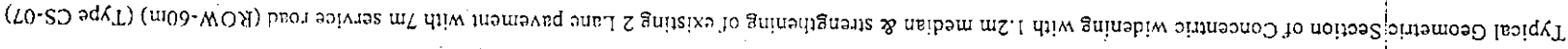






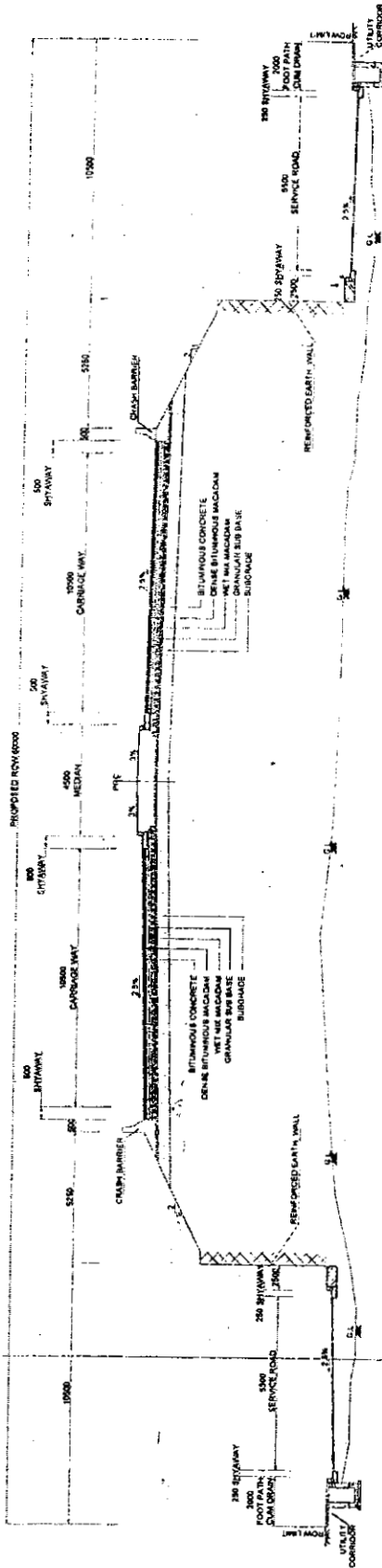
Typical Geometric Section of New Construction along Built-Up Area with Service Roads (ROW-60m) (Type CS-06)



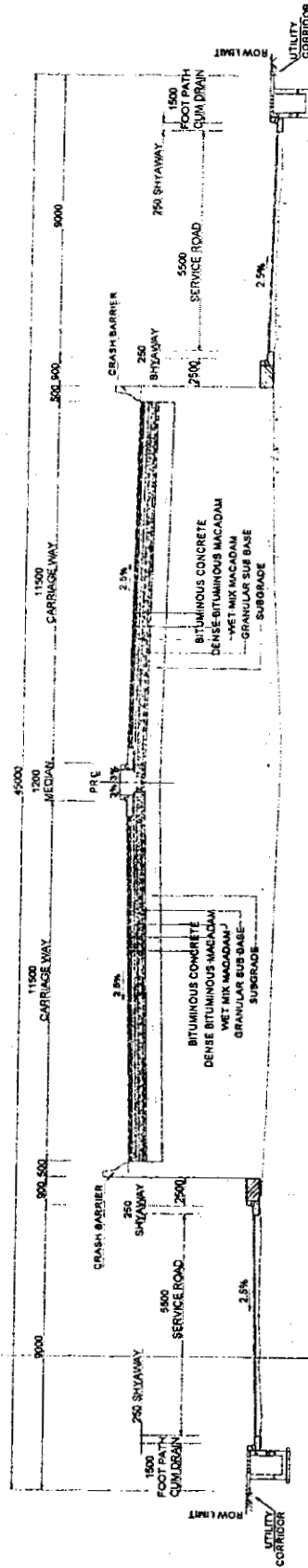


Page B-15

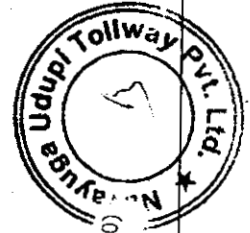


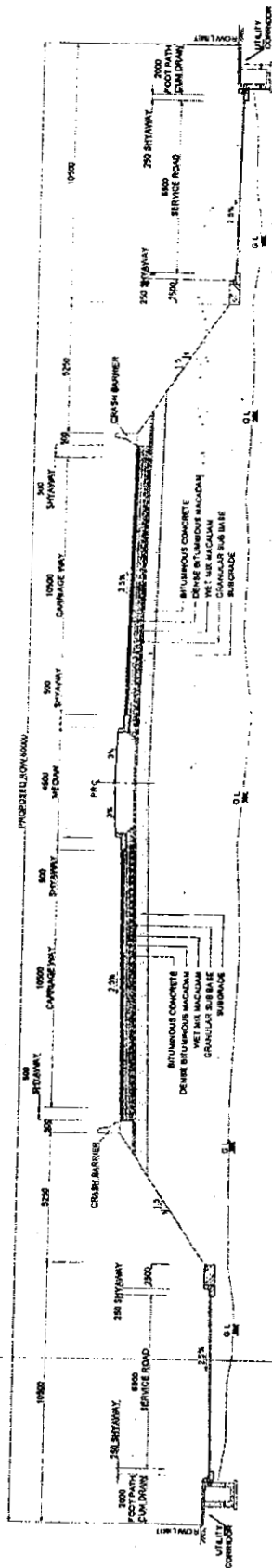


Typical Cross Section of at underpass approach with combined earthen and reinforced earthen walls (ROW-60m)-(Type CS-09)

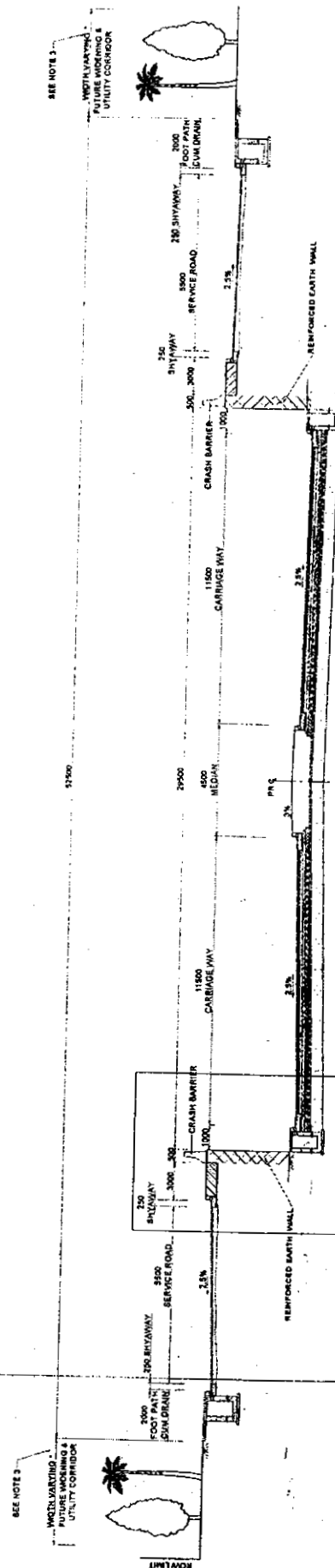


Typical Cross Section of at underpass approach in heavy built-up area (ROW-45m)-(Type CS-10)

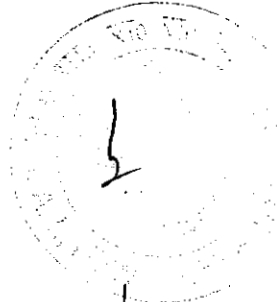





Typical Cross Section of Cattle cum Pedestrian Pass Approach with Service Roads (ROW-60m)



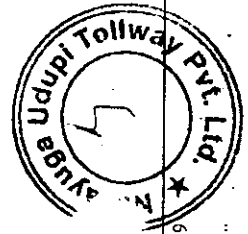
Typical Cross Section of Overpass Approach with Service Roads (ROW-60m) Type CS-11



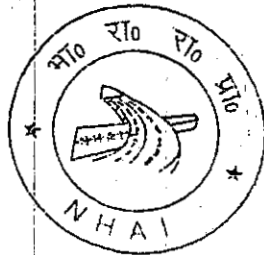
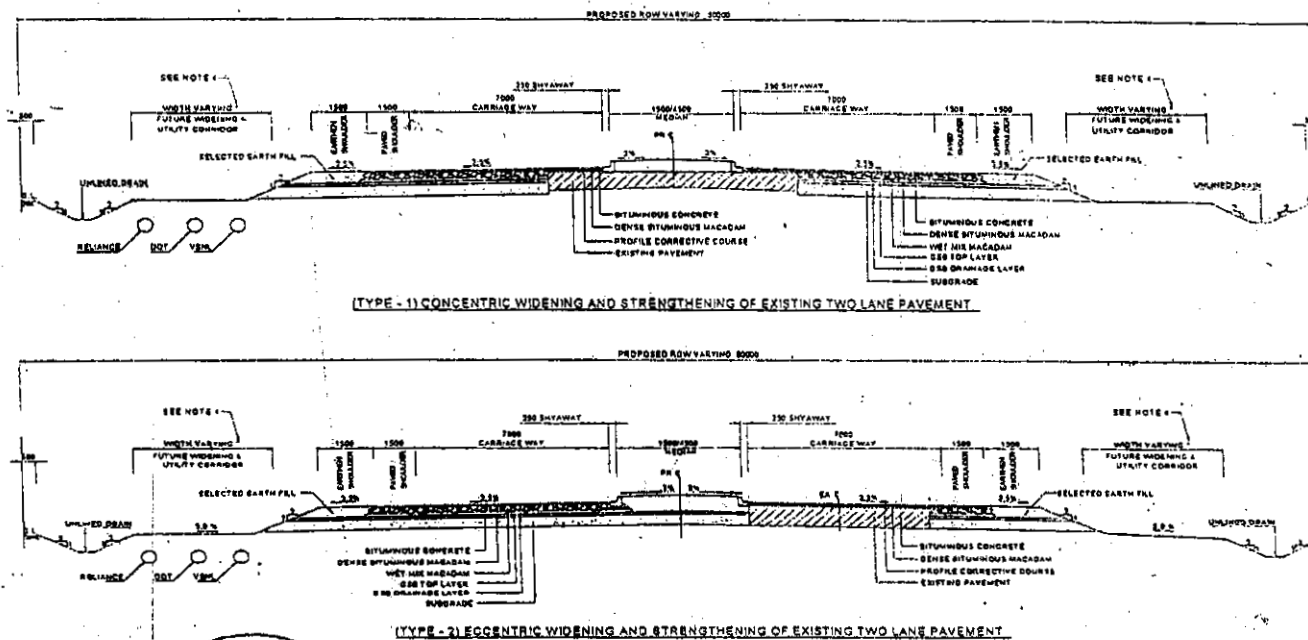


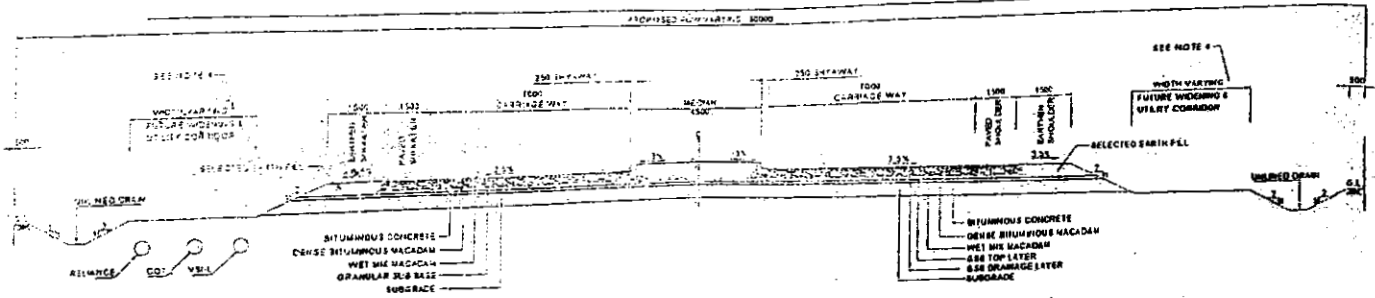
4 Laning of Kundapur - Surathkal and Mangalore -Karnataka/  
Kerala Border sections of NH 17 (Total Length 90.08 Km)  
in the State of Karnataka under NHDP Phase III on BOT Basis

Page B-19

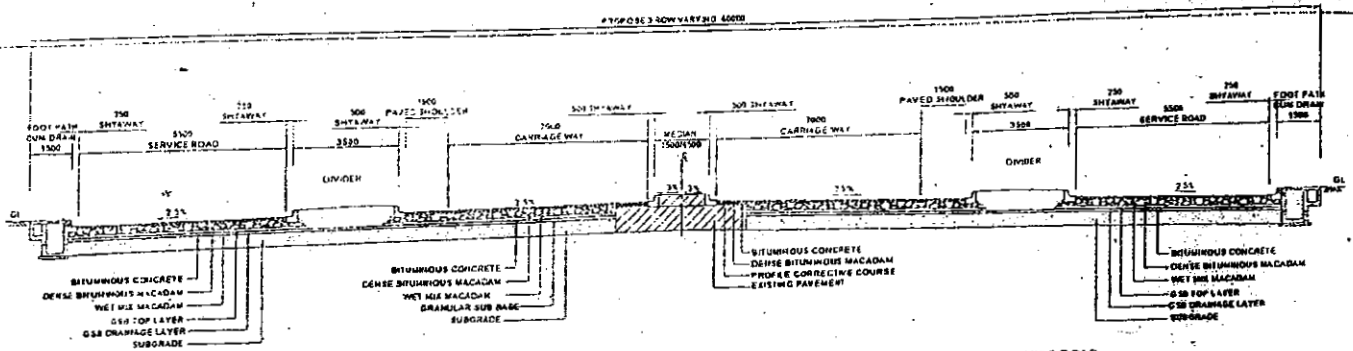


## Typical Cross Section for Section 2

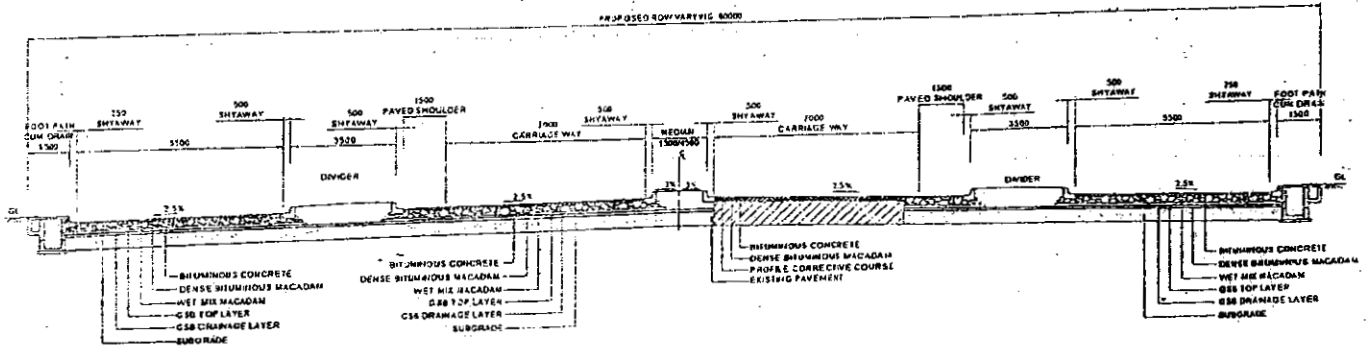




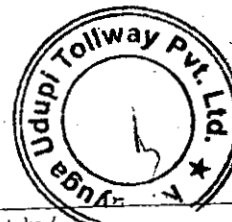
(TYPE - 3) NEW FOUR LANE FOR REALIGNED PORTIONS



(TYPE - 4) CONCENTRIC WIDENING AND STRENGTHENING OF EXISTING TWO LANE PAVEMENT WITH 5.5M SERVICE ROAD

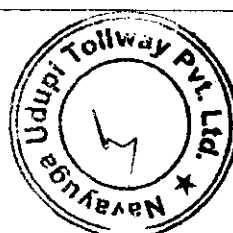
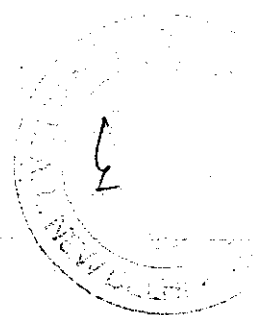


(TYPE - 5) ECCENTRIC WIDENING AND STRENGTHENING OF EXISTING TWO LANE PAVEMENT WITH 5.5M SERVICE ROAD



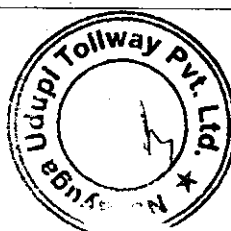


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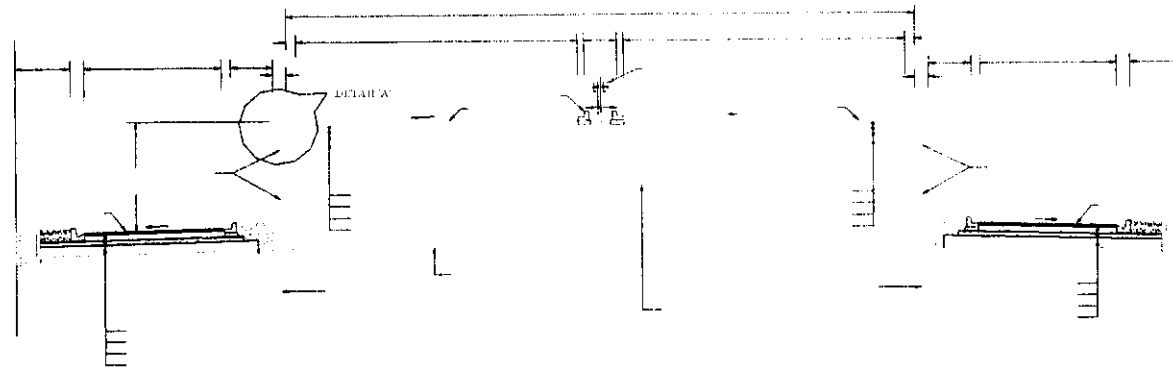


214

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215



TYPICAL CROSS SECTION OF A FOUR LANE HIGHWAY  
WITH A CENTRAL MEDIAN

(in m)



DETAIL - I

216



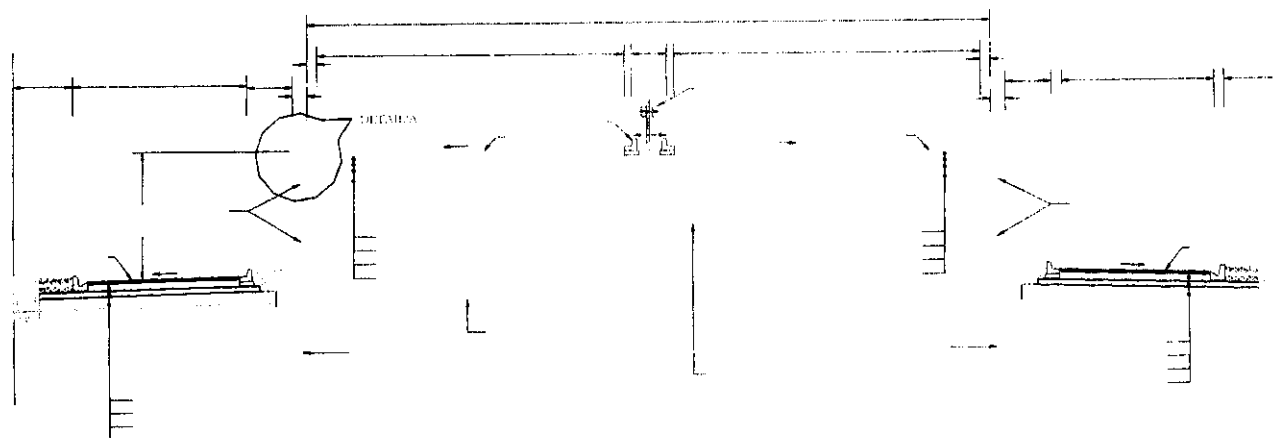


FIGURE 1  
TYPICAL CROSS SECTION OF 4 LANE HIGHWAY WITH MEDIAN

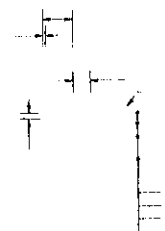
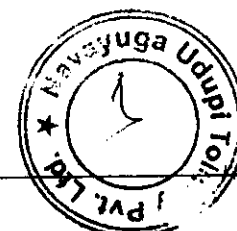
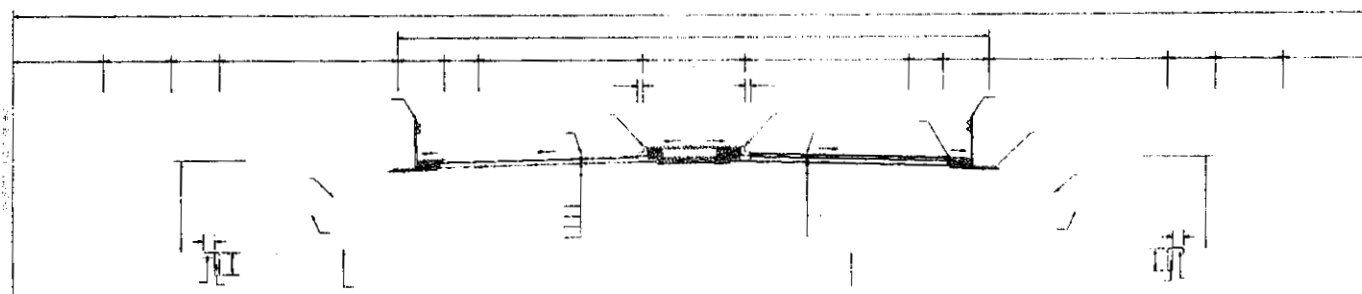


FIGURE 2  
TYPICAL CROSS SECTION OF 4 LANE HIGHWAY WITH MEDIAN

217

7





TYPICAL CROSS SECTION OF BRIDGE WITH 4 LANE  
Figure-01

218

5



**Appendix-BII**

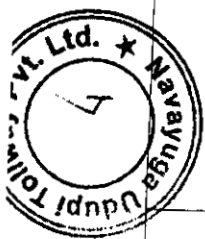
Alignment Plan and Longitudinal Section are enclosed in digital form in CD marked as Appendix BII

1

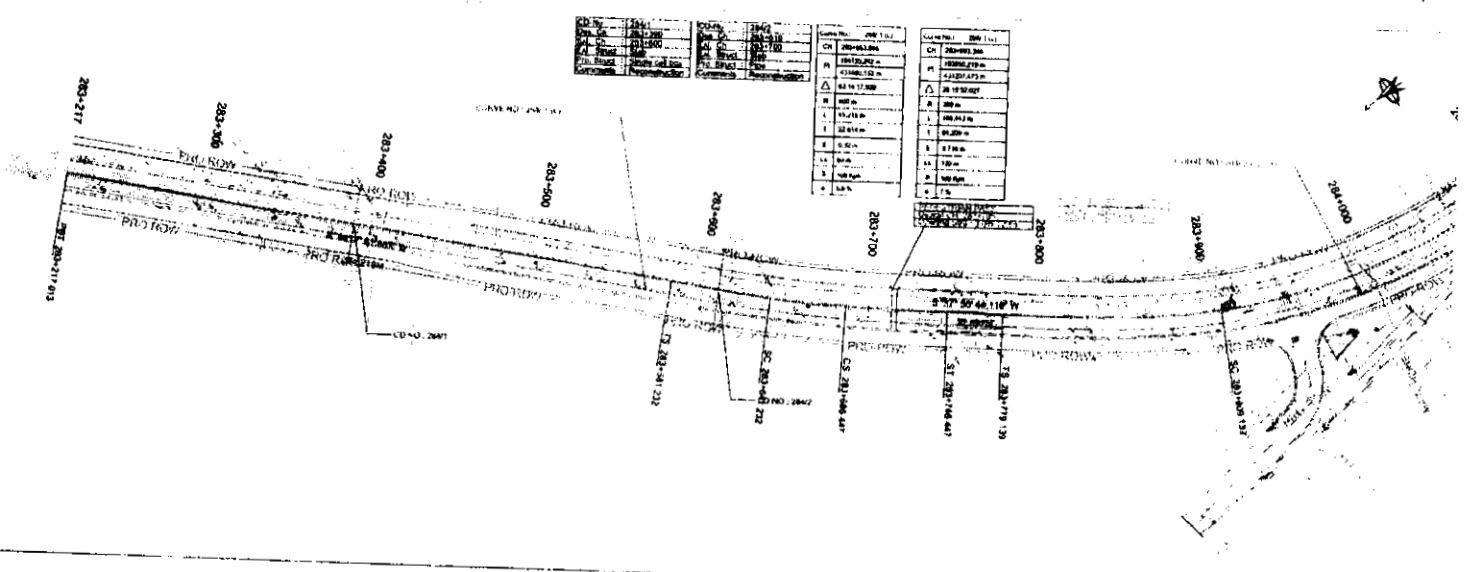


KUNDAPUR

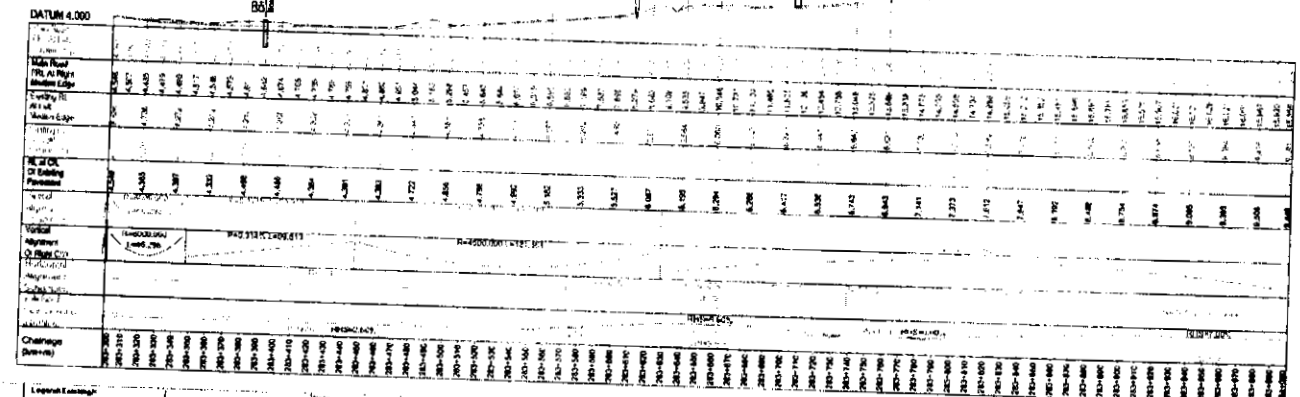
SURATKAL



220



| Station | Ch   | Left | Right | Center |
|---------|------|------|-------|--------|
| 283+217 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+230 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+240 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+250 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+260 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+270 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+280 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+290 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+300 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+310 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+320 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+330 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+340 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+350 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+360 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+370 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+380 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+390 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+400 | 1.00 | 1.00 | 1.00  | 1.00   |



| Station | Ch   | Left | Right | Center |
|---------|------|------|-------|--------|
| 283+217 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+230 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+240 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+250 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+260 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+270 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+280 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+290 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+300 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+310 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+320 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+330 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+340 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+350 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+360 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+370 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+380 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+390 | 1.00 | 1.00 | 1.00  | 1.00   |
| 283+400 | 1.00 | 1.00 | 1.00  | 1.00   |

| Legend | Symbol | Description        |
|--------|--------|--------------------|
| CH     | —      | Centerline         |
| LA     | —      | Left Shoulder      |
| RA     | —      | Right Shoulder     |
| SR     | —      | Service Road       |
| PR     | —      | Proposed Road      |
| PO     | —      | Proposed Overpass  |
| PU     | —      | Proposed Underpass |
| PL     | —      | Proposed Lane      |
| PS     | —      | Proposed Shoulder  |
| PR     | —      | Proposed Road      |
| PO     | —      | Proposed Overpass  |
| PU     | —      | Proposed Underpass |
| PL     | —      | Proposed Lane      |
| PS     | —      | Proposed Shoulder  |

NATIONAL HIGHWAYS AUTHORITY OF INDIA

Project: KUNDAPUR SURATKAL

Scale: 1:1000

Date: JUN-2008

Sheet No: 0807004

Project No: KS-1D-23-001

Scale: 1:1000

Date: JUN-2008

Sheet No: 0807004

Project No: KS-1D-23-001

Scale: 1:1000

Date: JUN-2008

Sheet No: 0807004

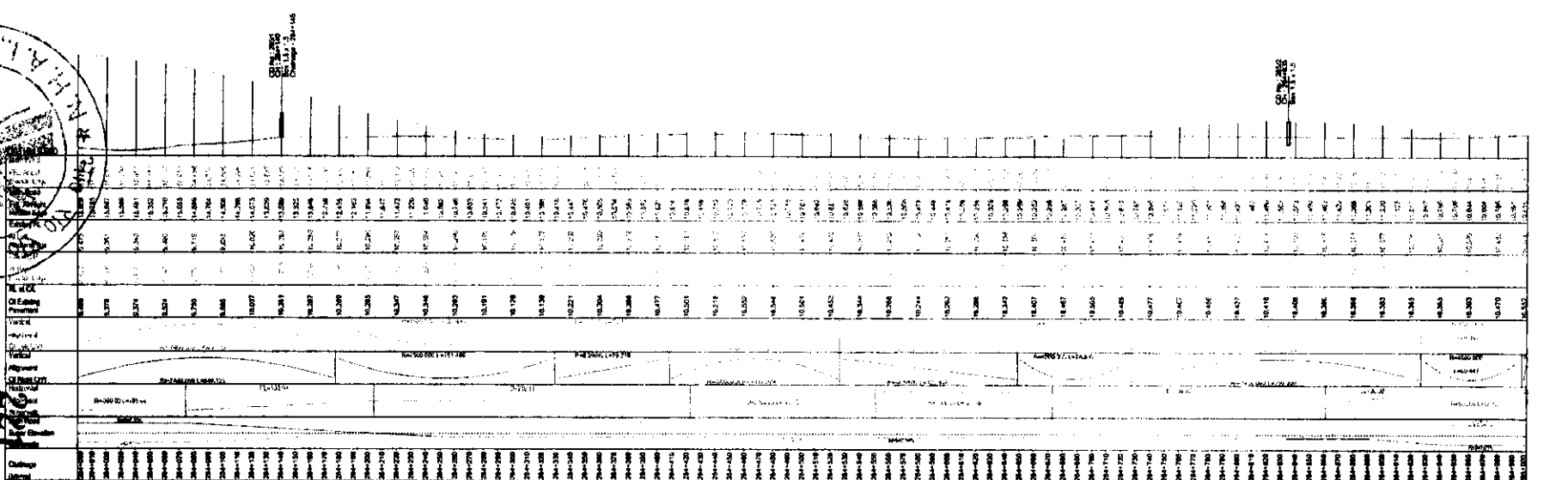
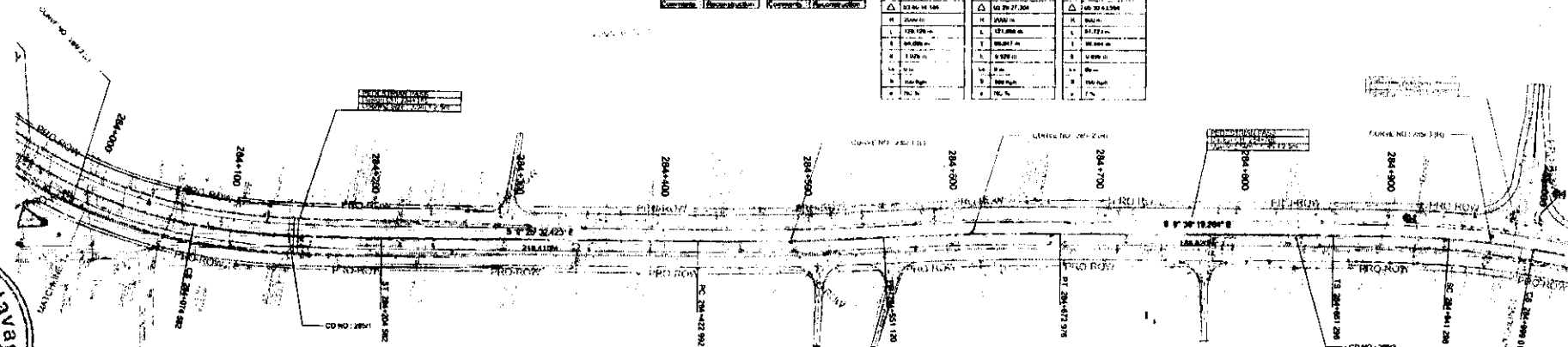
Project No: KS-1D-23-001


|              |                 |              |                 |
|--------------|-----------------|--------------|-----------------|
| Code         | 2051            | Code         | 2052            |
| Dom. Ch      | 204+140         | Dom. Ch      | 204+135         |
| Ext. Ch      | 204+220         | Ext. Ch      | 204+220         |
| Ext. Street  | Blvd            | Ext. Street  | Blvd            |
| Proj. Street | Strada 1111     | Proj. Street | Strada 1111     |
| Comments     | Access location | Comments     | Access location |

| Course No. |               | Date |  |
|------------|---------------|------|--|
| CN         | 204 + 887 JTB |      |  |
| IN         | 1960000 002   |      |  |
|            | 4300 10.007   |      |  |
| $\Delta$   | 013.00 10.100 |      |  |
| IT         | 25000 01      |      |  |
| L          | 1200 1200     |      |  |
| S          | 100.000 00    |      |  |
| E          | 1 000 00      |      |  |
| N          | 10 00         |      |  |
| P          | 10 00         |      |  |
| R          | 10 00         |      |  |
| T          | 10 00         |      |  |
| V          | 10 00         |      |  |
| X          | 10 00         |      |  |
| Z          | 10 00         |      |  |
| a          | 10 00         |      |  |
| b          | 10 00         |      |  |
| c          | 10 00         |      |  |
| d          | 10 00         |      |  |
| e          | 10 00         |      |  |
| f          | 10 00         |      |  |
| g          | 10 00         |      |  |
| h          | 10 00         |      |  |
| i          | 10 00         |      |  |
| j          | 10 00         |      |  |
| k          | 10 00         |      |  |
| l          | 10 00         |      |  |
| m          | 10 00         |      |  |
| n          | 10 00         |      |  |
| o          | 10 00         |      |  |
| p          | 10 00         |      |  |
| q          | 10 00         |      |  |
| r          | 10 00         |      |  |
| s          | 10 00         |      |  |
| t          | 10 00         |      |  |
| u          | 10 00         |      |  |
| v          | 10 00         |      |  |
| w          | 10 00         |      |  |
| x          | 10 00         |      |  |
| y          | 10 00         |      |  |
| z          | 10 00         |      |  |

| Code | Value                             |
|------|-----------------------------------|
| CM   | 204 1612.007                      |
| M    | 1046205.003 cm<br>4.333603.000 cm |
| A    | 50 270 27.304                     |
| H    | 20000 116                         |
| L    | 137.0000 cm                       |
| Y    | 200.000 7 cm                      |
| R    | 6 920 111                         |
| Lo   | 10 cm                             |
| Si   | 900 High                          |
| o    | 76. %                             |

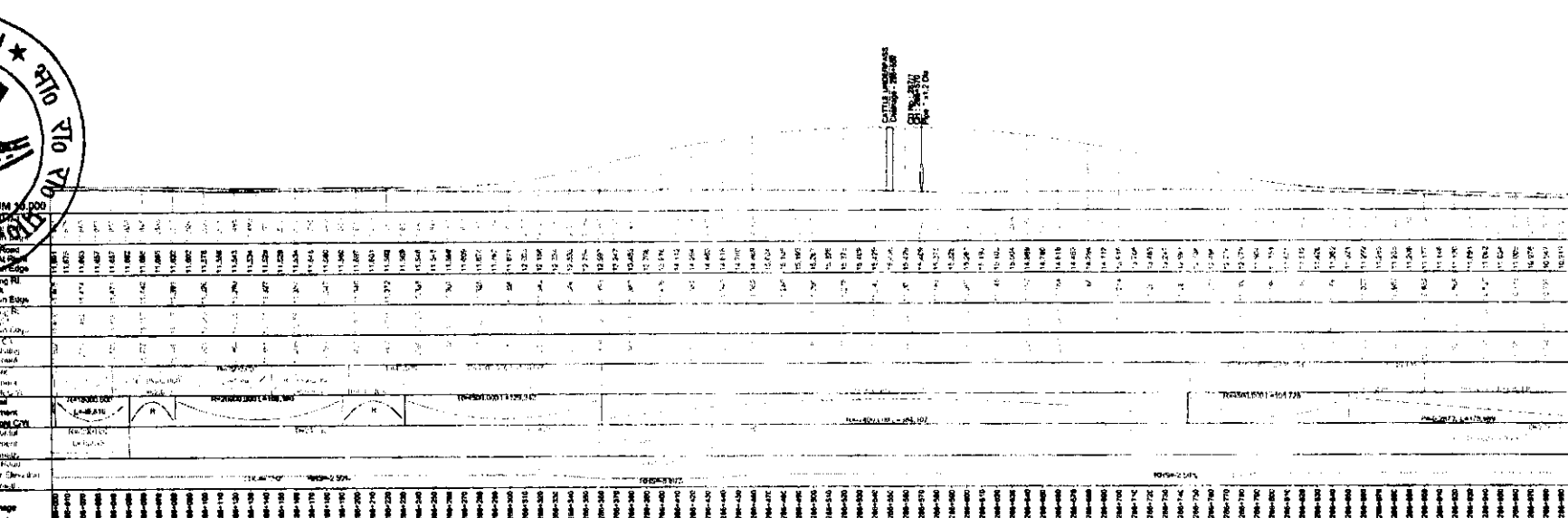
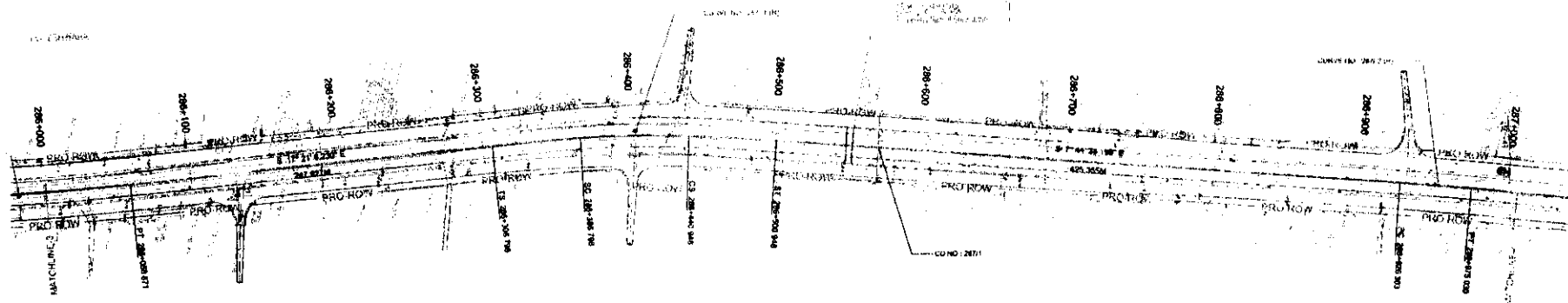
|           |                                  |
|-----------|----------------------------------|
| Group No. | 2002 (16)                        |
| Ch        | 2001-SPU 100                     |
| YS        | 1000000.0000 m<br>4.0000000000 m |
| A         | 100.00 4.1000                    |
| K         | 10000 m                          |
| L         | 10.000 m                         |
| M         | 100.000 m                        |
| N         | 10000 m                          |
| O         | 10000 m                          |
| P         | 10000 m                          |
| Q         | 10000 m                          |
| R         | 10000 m                          |
| S         | 10000 m                          |
| T         | 10000 m                          |
| U         | 10000 m                          |
| V         | 10000 m                          |
| W         | 10000 m                          |
| X         | 10000 m                          |
| Y         | 10000 m                          |
| Z         | 10000 m                          |



|   |  |  |  |                     |  |  |  |
|---|--|--|--|---------------------|--|--|--|
| <p><b>Centre Line</b><br/>Median<br/>Proposed Carriage Way<br/>Paved Shoulder<br/>Divide<br/>Gravelled Shoulder<br/>Service Road<br/>Footpath cum Drain<br/>Proposed Road</p> | <p><b>Bridge</b><br/>PPS Culvert<br/>RCC Culvert</p> | <p><b>Lighting</b><br/>Transformer<br/>Electrical Pole<br/>Pavement Stone<br/>Road Pump<br/>Name Stone<br/>Light Pole<br/>Road Line Stone<br/>Gate</p> | <p><b>Optical Fibre Cable</b><br/>Telephone Pole<br/>Wire<br/>Cable<br/>Culvert<br/>Utility<br/>Earthing Rod of Hot<br/>Pole</p> | <p><b>Notes</b></p> | <p><b>Client</b><br/><br/><b>NATIONAL HIGHWAYS<br/>AUTHORITY OF INDIA</b></p> | <p><b>Drawn</b><br/>AS<br/>MS<br/>AJT<br/>MS</p> <p><b>Scale</b><br/>1:1000<br/>1:1000</p> | <p><b>Date</b><br/>JUN-2008</p> <p><b>Project No</b><br/>060704</p> <p><b>Drawing No</b><br/>KS-1D-23-001</p> <p><b>Sheet No</b><br/>2 OF 76</p> <p><b>Rev</b><br/>FDR</p> |
|---|--|--|--|---------------------|--|--|--|





[illegible]

**Leandro C. S. Lima**




**CENTRE LINE  
MEDIAN  
PROPOSED CAMPADEWAY  
PAVED SHOULDER  
DRAIN  
EARTHEN SHOULDER  
SERVICE ROAD  
FOOTPATH CUM DRAIN**

**==** **GRADE**  
**==** **PIPE DIA. (IN)**  
**==** **SOIL CLASS. (V)**

**Loganville, Ala. (high)**

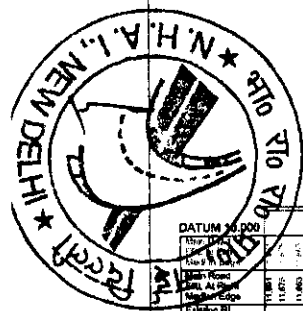
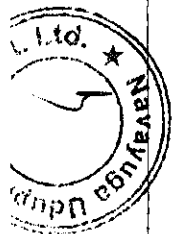
|    |                       |
|----|-----------------------|
| 44 | TRANSFORMER           |
| 45 | ELECTRICAL POLE       |
| 46 | FUEL OILS STORAGE     |
| 47 | HAND PUMP             |
| 48 | WATER SUPPLY          |
| 49 | LIGHT POLE            |
| 50 | NAILING NAILS & FURN. |
| 51 | DAIRY                 |

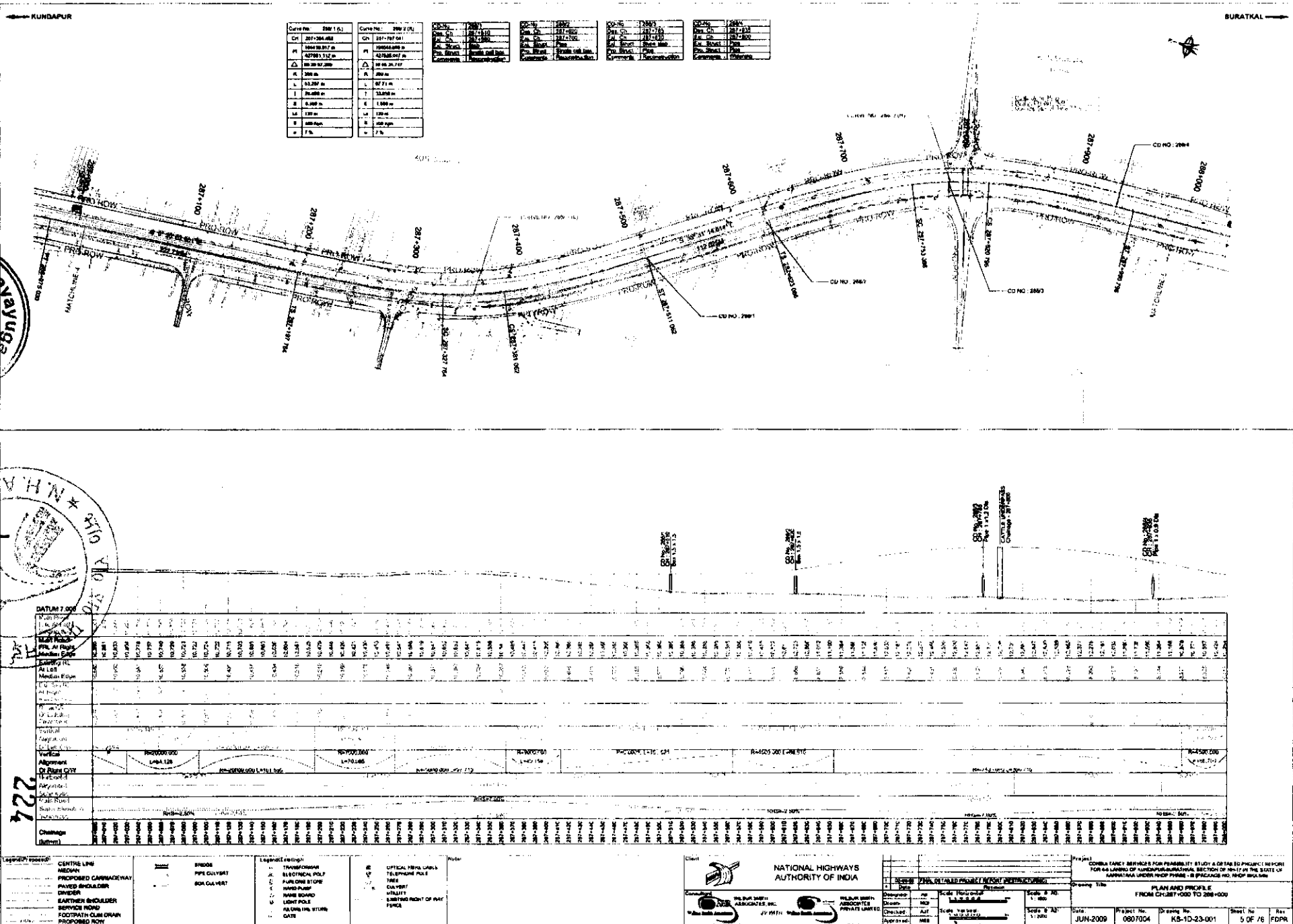
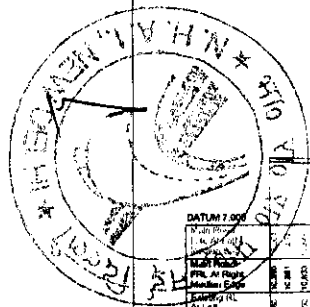
OPTICAL FIBER CABLE  
TELEPHONE MULT  
TRUNK  
SUSPENDED  
WIRABILITY  
EASING POINT OF VIEW  
FIBER

|  |   |
|--|---|
|  <b>NATIONAL HIGHWAYS<br/>AUTHORITY OF INDIA</b>  |   |
| <b>Consultant</b><br> <b>WILLIAM MATH ASSOCIATES, INC.</b><br>William Math Associates<br>200 WEST |  <b>WILLIAM MATH ASSOCIATES<br/>PRIVATE LIMITED</b><br>William Math Associates |

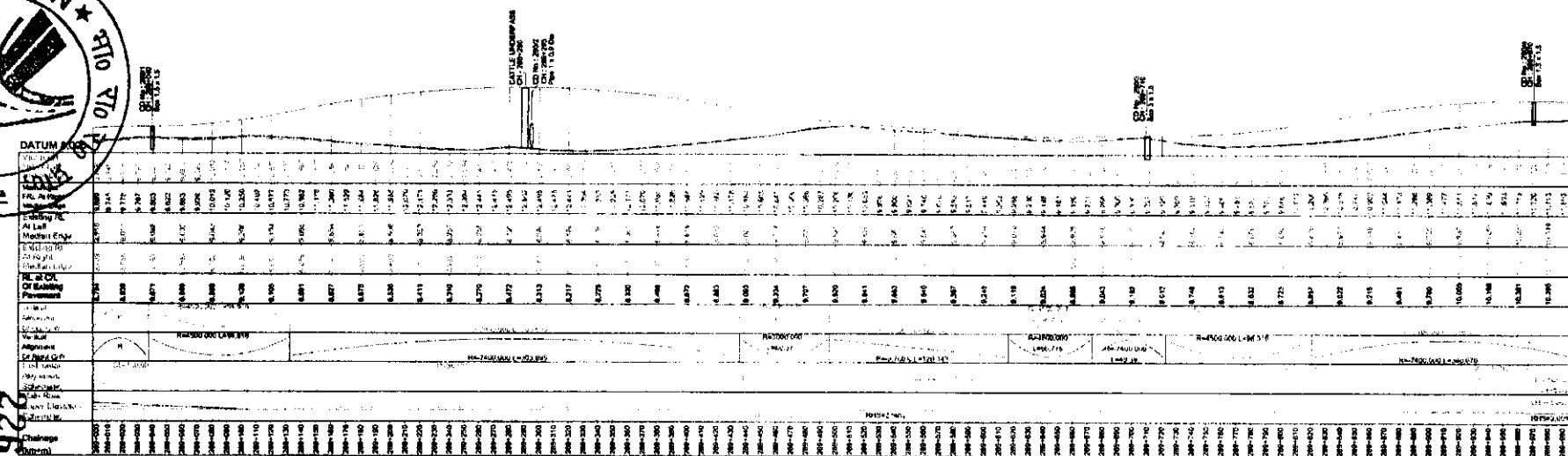
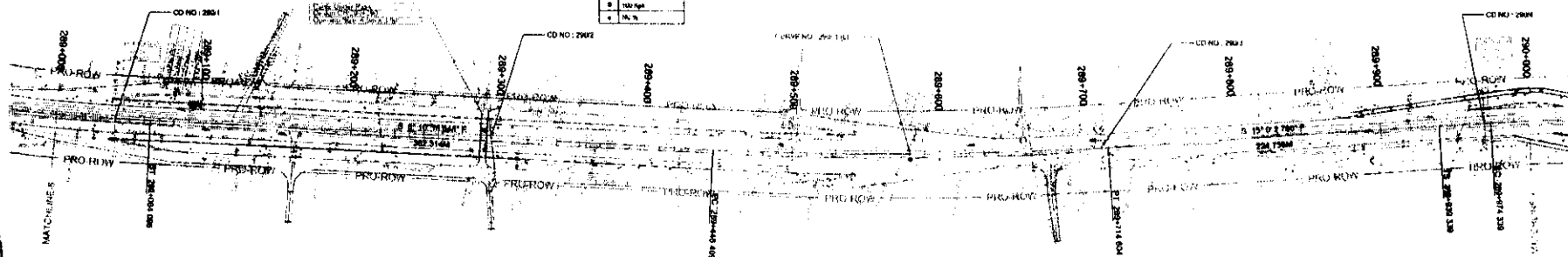
|             |    |   |            |
|-------------|----|---|------------|
| Scale of    |    | Pipes, Dealers, Project, Import, Distribution |            |
| Date        |    | Region  |            |
| Designed by | As | Scale Horizontal                              | Scale 1 A1 |
| Drawn by    | As | 1:1000  | 1:1000     |
| Checked by  | As | Scale Vertical                                | Scale 1 A2 |
| Approved by | As | 1:1000  | 1:1000     |

| Date     | Project No. | Drawing No.  | Sheet No. | Notes |
|----------|-------------|--------------|-----------|-------|
| JUN-2009 | 0607004     | KS-1D-23-001 | 4 OF 76   | ENR-9 |










**CENTRE LINE  
REOPIN  
PROPOSED CARBAGEWAY  
PAVED SHOULDER  
DIVIDER  
EARTHEN SHOULDER  
SERVICE ROAD  
FOOTPATH CUM DRAIN  
PROPOSED SIGN**

|   |               |
|---|---------------|
|  | BRIDGE        |
|  | PIPE CULTIVAT |
|  | BOX CULTIVAT  |


| Logarithmic ratings |                 |
|---------------------|-----------------|
| 10                  | TRANSFORMER     |
| 9                   | ELECTRICAL      |
| 8                   | FURNACE         |
| 7                   | HAND PUMP       |
| 6                   | WATER BOILER    |
| 5                   | LIGHT POLLUTION |
| 4                   | ALUMINUM        |
| 3                   | GATE            |

|   |
|---|
| OPTION FIBRE CABLE<br>TELEPHONE POLE<br>TREE<br>GALVANIZ<br>UTILITY<br>SUNBATH ROOF OF TRAY<br>FRANCE |
|---|

\_\_\_\_\_



NATIONAL HIGHWAYS  
AUTHORITY OF INDIA

|         |      |   |            |
|---------|------|---|------------|
| Date    |      | Revision  |            |
| Design  | MS   | Scale Horizontal  | Scale 1/20 |
| Drawn   | MS   |  | 1:1000     |
| Checked | Full | Scale Vertical  | Scale 1/20 |
|         |      | 1:1000  | 1:1000     |

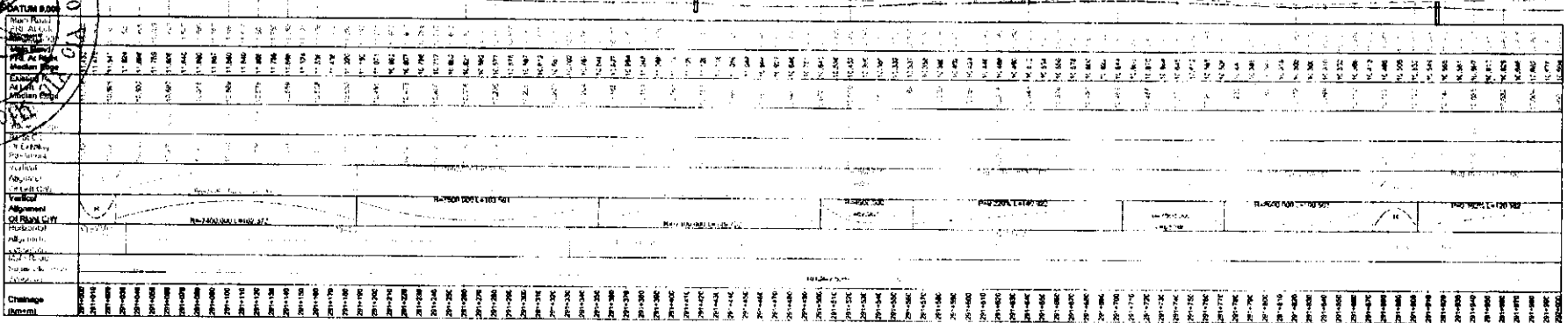
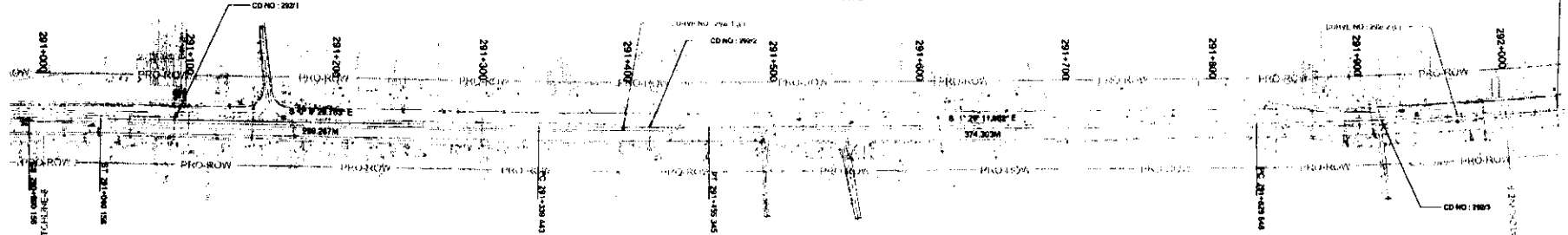
|  |             |   |           |     |
|--|-------------|---|-----------|-----|
| <p>Project<br/>         COMBINATION SERVICES FOR FEASIBILITY STUDY &amp; DETAILED PROJECT REPORT<br/>         FOR THE LAYOUT OF A NEW INDUSTRIAL SECTION OF HWY 1 IN THE STATE OF<br/>         KARNATAKA UNDER HDP Project - III (PHASE) RD. HDP INDULOK</p> |             |   |           |     |
| <p>Drawing Title</p>   |             | <p>PLAN AND PROFILE<br/>         FROM CH:280+000 TO 290+000</p> |           |     |
| Date   | Project No. | Drawing No.   | Sheet No. | No. |
| 11.04.2008   | HW 1/000    | 45-20-000   | 01        | 01  |



KUNDAPUR

SURATKAL

| Curve No. | 200 1.0      | Curve No. | 200 2.0      | Curve No. | 200 3.0      | Curve No. | 200 4.0      | Curve No. | 200 5.0      |
|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|
| CH        | 291-107.367  | CH        | 291-107.367  | CH        | 291-107.367  | CH        | 291-107.367  | CH        | 291-107.367  |
| PI        | 199834.283 m | PI        | 199834.283 m | PI        | 199834.283 m | PI        | 199834.283 m | PI        | 199834.283 m |
| Δ         | 42000.774 m  | Δ         | 42000.774 m  | Δ         | 42000.774 m  | Δ         | 42000.774 m  | Δ         | 42000.774 m  |
| R         | 1000 m       | R         | 1000 m       | R         | 1000 m       | R         | 1000 m       | R         | 1000 m       |
| L         | 175.800 m    | L         | 175.800 m    | L         | 175.800 m    | L         | 175.800 m    | L         | 175.800 m    |
| E         | 97.000 m     | E         | 97.000 m     | E         | 97.000 m     | E         | 97.000 m     | E         | 97.000 m     |
| F         | 8.200 m      | F         | 8.200 m      | F         | 8.200 m      | F         | 8.200 m      | F         | 8.200 m      |
| G         | 0 m          | G         | 0 m          | G         | 0 m          | G         | 0 m          | G         | 0 m          |
| H         | 0 m          | H         | 0 m          | H         | 0 m          | H         | 0 m          | H         | 0 m          |
| I         | 0 m          | I         | 0 m          | I         | 0 m          | I         | 0 m          | I         | 0 m          |
| J         | 0 m          | J         | 0 m          | J         | 0 m          | J         | 0 m          | J         | 0 m          |
| K         | 0 m          | K         | 0 m          | K         | 0 m          | K         | 0 m          | K         | 0 m          |
| L         | 0 m          | L         | 0 m          | L         | 0 m          | L         | 0 m          | L         | 0 m          |
| M         | 0 m          | M         | 0 m          | M         | 0 m          | M         | 0 m          | M         | 0 m          |
| N         | 0 m          | N         | 0 m          | N         | 0 m          | N         | 0 m          | N         | 0 m          |
| O         | 0 m          | O         | 0 m          | O         | 0 m          | O         | 0 m          | O         | 0 m          |
| P         | 0 m          | P         | 0 m          | P         | 0 m          | P         | 0 m          | P         | 0 m          |
| Q         | 0 m          | Q         | 0 m          | Q         | 0 m          | Q         | 0 m          | Q         | 0 m          |
| R         | 0 m          | R         | 0 m          | R         | 0 m          | R         | 0 m          | R         | 0 m          |
| S         | 0 m          | S         | 0 m          | S         | 0 m          | S         | 0 m          | S         | 0 m          |
| T         | 0 m          | T         | 0 m          | T         | 0 m          | T         | 0 m          | T         | 0 m          |
| U         | 0 m          | U         | 0 m          | U         | 0 m          | U         | 0 m          | U         | 0 m          |
| V         | 0 m          | V         | 0 m          | V         | 0 m          | V         | 0 m          | V         | 0 m          |
| W         | 0 m          | W         | 0 m          | W         | 0 m          | W         | 0 m          | W         | 0 m          |
| X         | 0 m          | X         | 0 m          | X         | 0 m          | X         | 0 m          | X         | 0 m          |
| Y         | 0 m          | Y         | 0 m          | Y         | 0 m          | Y         | 0 m          | Y         | 0 m          |
| Z         | 0 m          | Z         | 0 m          | Z         | 0 m          | Z         | 0 m          | Z         | 0 m          |



| Legend             | Symbol | Description        |
|--------------------|--------|--------------------|
| Center Line        | —      | Center Line        |
| Median             | —      | Median             |
| Proposed Camber    | —      | Proposed Camber    |
| Proposed Shoulder  | —      | Proposed Shoulder  |
| Divide             | —      | Divide             |
| Earthed Shoulder   | —      | Earthed Shoulder   |
| Service Road       | —      | Service Road       |
| Footpath/Gum Drain | —      | Footpath/Gum Drain |
| Proposed ROW       | —      | Proposed ROW       |

**NATIONAL HIGHWAYS AUTHORITY OF INDIA**

Project No. 0007004

Drawing No. K5-1D-23-001

Date JUN-2009

Scale 1:1000

Sheet No. 9 OF 16

Project Name: KUNDAPUR SURATKAL

Drawing Title: PLAN AND PROFILE FROM CH-281+000 TO 292+000

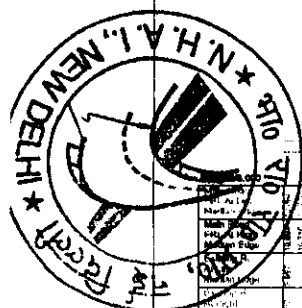
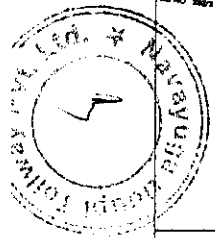
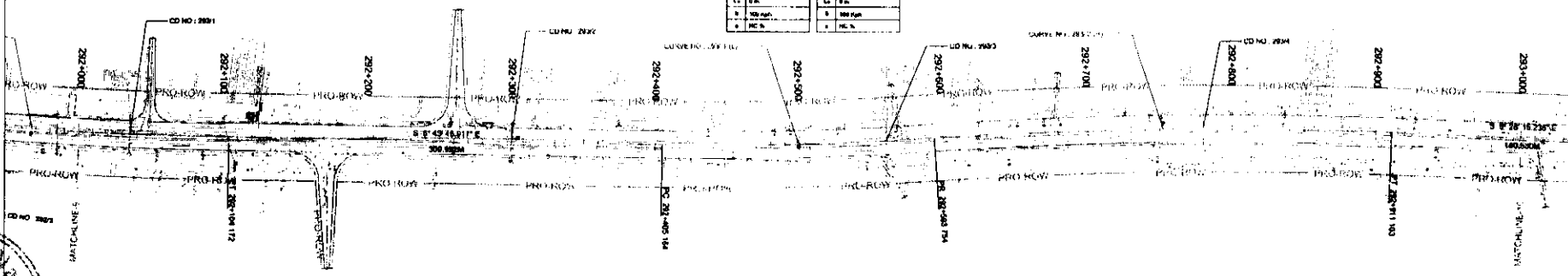
SURATKAL



| Curve No. | 250' (7.62m) | Curve No. | 250' (7.62m) |
|-----------|--------------|-----------|--------------|
| CA        | 250+00.00    | CB        | 250+00.00    |
| CB        | 250+00.00    | CC        | 250+00.00    |
| CC        | 250+00.00    | CD        | 250+00.00    |
| CD        | 250+00.00    | CE        | 250+00.00    |
| CE        | 250+00.00    | CF        | 250+00.00    |
| CF        | 250+00.00    | CG        | 250+00.00    |
| CG        | 250+00.00    | CH        | 250+00.00    |
| CH        | 250+00.00    | CI        | 250+00.00    |
| CI        | 250+00.00    | CJ        | 250+00.00    |
| CJ        | 250+00.00    | CK        | 250+00.00    |
| CK        | 250+00.00    | CL        | 250+00.00    |
| CL        | 250+00.00    | CM        | 250+00.00    |
| CM        | 250+00.00    | CN        | 250+00.00    |
| CN        | 250+00.00    | CO        | 250+00.00    |
| CO        | 250+00.00    | CP        | 250+00.00    |
| CP        | 250+00.00    | CQ        | 250+00.00    |
| CQ        | 250+00.00    | CR        | 250+00.00    |
| CR        | 250+00.00    | CS        | 250+00.00    |
| CS        | 250+00.00    | CT        | 250+00.00    |
| CT        | 250+00.00    | CU        | 250+00.00    |
| CU        | 250+00.00    | CV        | 250+00.00    |
| CV        | 250+00.00    | CW        | 250+00.00    |
| CW        | 250+00.00    | CX        | 250+00.00    |
| CX        | 250+00.00    | CY        | 250+00.00    |
| CY        | 250+00.00    | CZ        | 250+00.00    |

| Curve No. | 250' (7.62m) | Curve No. | 250' (7.62m) |
|-----------|--------------|-----------|--------------|
| CA        | 250+00.00    | CB        | 250+00.00    |
| CB        | 250+00.00    | CC        | 250+00.00    |
| CC        | 250+00.00    | CD        | 250+00.00    |
| CD        | 250+00.00    | CE        | 250+00.00    |
| CE        | 250+00.00    | CF        | 250+00.00    |
| CF        | 250+00.00    | CG        | 250+00.00    |
| CG        | 250+00.00    | CH        | 250+00.00    |
| CH        | 250+00.00    | CI        | 250+00.00    |
| CI        | 250+00.00    | CJ        | 250+00.00    |
| CJ        | 250+00.00    | CK        | 250+00.00    |
| CK        | 250+00.00    | CL        | 250+00.00    |
| CL        | 250+00.00    | CM        | 250+00.00    |
| CM        | 250+00.00    | CN        | 250+00.00    |
| CN        | 250+00.00    | CO        | 250+00.00    |
| CO        | 250+00.00    | CP        | 250+00.00    |
| CP        | 250+00.00    | CQ        | 250+00.00    |
| CQ        | 250+00.00    | CR        | 250+00.00    |
| CR        | 250+00.00    | CS        | 250+00.00    |
| CS        | 250+00.00    | CT        | 250+00.00    |
| CT        | 250+00.00    | CU        | 250+00.00    |
| CU        | 250+00.00    | CV        | 250+00.00    |
| CV        | 250+00.00    | CW        | 250+00.00    |
| CW        | 250+00.00    | CX        | 250+00.00    |
| CX        | 250+00.00    | CY        | 250+00.00    |
| CY        | 250+00.00    | CZ        | 250+00.00    |

KUNDAPUR



| Station      | 250+00 | 250+05 | 250+10 | 250+15 | 250+20 | 250+25 | 250+30 | 250+35 | 250+40 | 250+45 | 250+50 | 250+55 | 250+60 | 250+65 | 250+70 | 250+75 | 250+80 | 250+85 | 250+90 | 250+95 | 250+00 |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Right of Way | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  |
| Center Line  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  |
| Left of Way  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  |
| Right of Way | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  |
| Center Line  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  |
| Left of Way  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  | 10.00  |

229

|                      |        |              |        |                            |          |
|----------------------|--------|--------------|--------|----------------------------|----------|
| <b>Legend</b>        |        | <b>Scale</b> |        | <b>Project Information</b> |          |
| CENTER LINE          | 1:1000 | Scale        | 1:1000 | Project No.                | 0807004  |
| PROPOSED CARRIAGEWAY | 1:1000 | Scale        | 1:1000 | Sheet No.                  | 10 OF 78 |
| PAVED SHOULDER       | 1:1000 | Scale        | 1:1000 | Rev.                       |          |
| DRAIN                | 1:1000 | Scale        | 1:1000 |                            |          |
| EARTHEN SHOULDER     | 1:1000 | Scale        | 1:1000 |                            |          |
| SERVICE ROAD         | 1:1000 | Scale        | 1:1000 |                            |          |
| FOOTPATH             | 1:1000 | Scale        | 1:1000 |                            |          |
| PROPOSED ROW         | 1:1000 | Scale        | 1:1000 |                            |          |

|               |        |              |        |                            |          |
|---------------|--------|--------------|--------|----------------------------|----------|
| <b>Legend</b> |        | <b>Scale</b> |        | <b>Project Information</b> |          |
| BRIDGE        | 1:1000 | Scale        | 1:1000 | Project No.                | 0807004  |
| Pipe Culvert  | 1:1000 | Scale        | 1:1000 | Sheet No.                  | 10 OF 78 |
| Box Culvert   | 1:1000 | Scale        | 1:1000 | Rev.                       |          |

|                 |        |              |        |                            |          |
|-----------------|--------|--------------|--------|----------------------------|----------|
| <b>Legend</b>   |        | <b>Scale</b> |        | <b>Project Information</b> |          |
| TRANSFORMER     | 1:1000 | Scale        | 1:1000 | Project No.                | 0807004  |
| ELECTRICAL POLE | 1:1000 | Scale        | 1:1000 | Sheet No.                  | 10 OF 78 |
| PHONE POLE      | 1:1000 | Scale        | 1:1000 | Rev.                       |          |
| WIND PUMP       | 1:1000 | Scale        | 1:1000 |                            |          |
| NAME BOARD      | 1:1000 | Scale        | 1:1000 |                            |          |
| LIGHT POLE      | 1:1000 | Scale        | 1:1000 |                            |          |
| PAVING MACHINE  | 1:1000 | Scale        | 1:1000 |                            |          |
| GATE            | 1:1000 | Scale        | 1:1000 |                            |          |

|                       |        |              |        |                            |          |
|-----------------------|--------|--------------|--------|----------------------------|----------|
| <b>Legend</b>         |        | <b>Scale</b> |        | <b>Project Information</b> |          |
| OPTIONAL PIPE CULVERT | 1:1000 | Scale        | 1:1000 | Project No.                | 0807004  |
| TELEPHONE POLE        | 1:1000 | Scale        | 1:1000 | Sheet No.                  | 10 OF 78 |
| WIND PUMP             | 1:1000 | Scale        | 1:1000 | Rev.                       |          |
| NAME BOARD            | 1:1000 | Scale        | 1:1000 |                            |          |
| LIGHT POLE            | 1:1000 | Scale        | 1:1000 |                            |          |
| PAVING MACHINE        | 1:1000 | Scale        | 1:1000 |                            |          |
| GATE                  | 1:1000 | Scale        | 1:1000 |                            |          |

|                 |        |              |        |                            |          |
|-----------------|--------|--------------|--------|----------------------------|----------|
| <b>Legend</b>   |        | <b>Scale</b> |        | <b>Project Information</b> |          |
| TRANSFORMER     | 1:1000 | Scale        | 1:1000 | Project No.                | 0807004  |
| ELECTRICAL POLE | 1:1000 | Scale        | 1:1000 | Sheet No.                  | 10 OF 78 |
| PHONE POLE      | 1:1000 | Scale        | 1:1000 | Rev.                       |          |
| WIND PUMP       | 1:1000 | Scale        | 1:1000 |                            |          |
| NAME BOARD      | 1:1000 | Scale        | 1:1000 |                            |          |
| LIGHT POLE      | 1:1000 | Scale        | 1:1000 |                            |          |
| PAVING MACHINE  | 1:1000 | Scale        | 1:1000 |                            |          |
| GATE            | 1:1000 | Scale        | 1:1000 |                            |          |

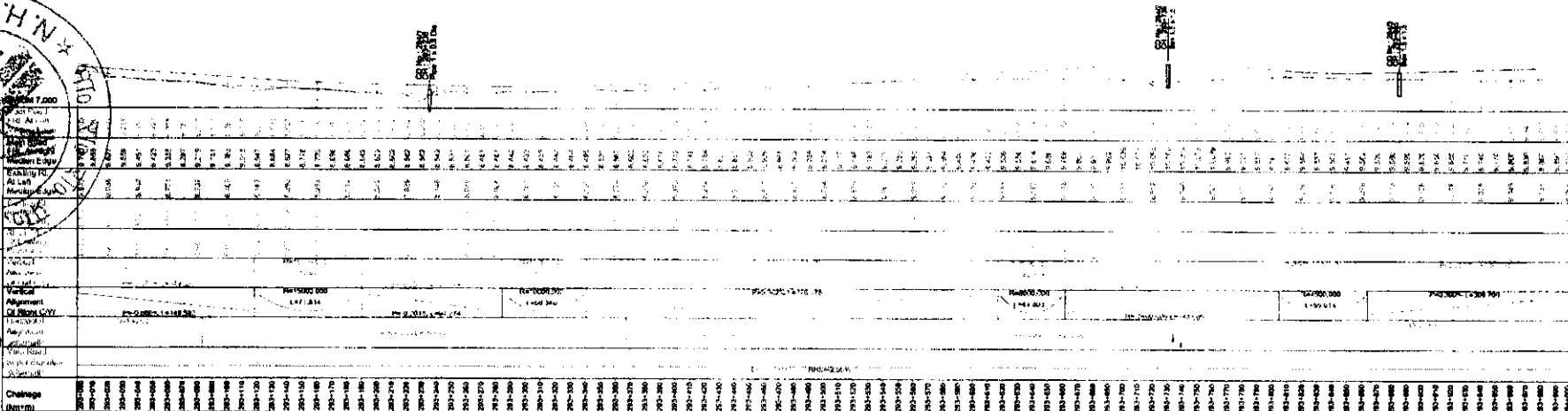
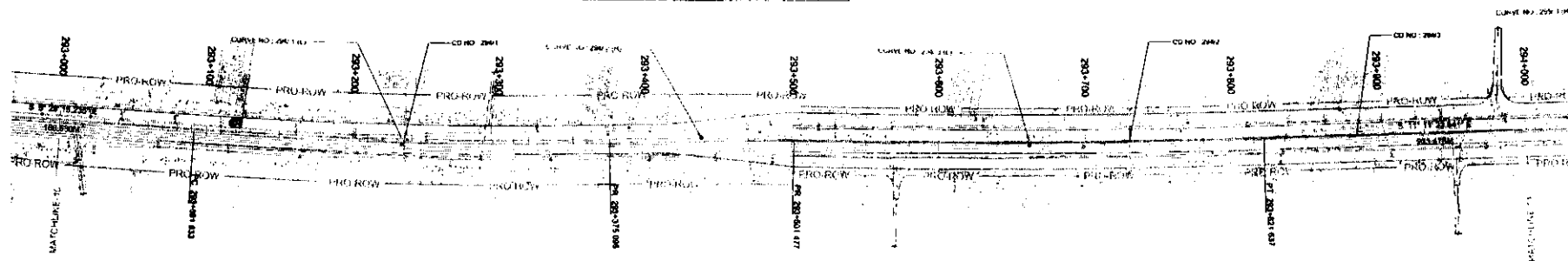


| Case No. 2000-2-02 |                | Case No. 2000-2-03 |                | Case No. 2000-2-04 |                |
|--------------------|----------------|--------------------|----------------|--------------------|----------------|
| CH                 | 2000-2-02-01   | CH                 | 2000-2-03-01   | CH                 | 2000-2-04-01   |
| 1                  | 100-100-1000 m | 1                  | 100-100-1000 m | 1                  | 100-100-1000 m |
| 2                  | 4200-1700-2 m  | 2                  | 100-1700-2 m   | 2                  | 4200-1700-2 m  |
| 3                  | 05-06-11-201   | 3                  | 05-06-11-201   | 3                  | 05-06-11-201   |
| 4                  | 2000 m         | 4                  | 2000 m         | 4                  | 2000 m         |
| 5                  | 2000-0002 m    | 5                  | 2000-0002 m    | 5                  | 2000-0002 m    |
| 6                  | 141-1024 m     | 6                  | 141-1024 m     | 6                  | 141-1024 m     |
| 7                  | 3-941 m        | 7                  | 3-941 m        | 7                  | 3-941 m        |
| 8                  | 0 m            | 8                  | 0 m            | 8                  | 0 m            |
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| 10                 | 100 %          | 10                 | 100 %          | 10                 | 100 %          |

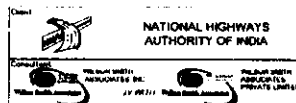
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| DATE     | Page   |
| Jan. 20  | 12-22  |
| SA. Ch   | 12-100 |
| SA. Stud | 12     |
| SA. Stud | 12     |
| Comments | 12-100 |

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| CD-99  | 10/22 |
| CD-100 | 10/22 |

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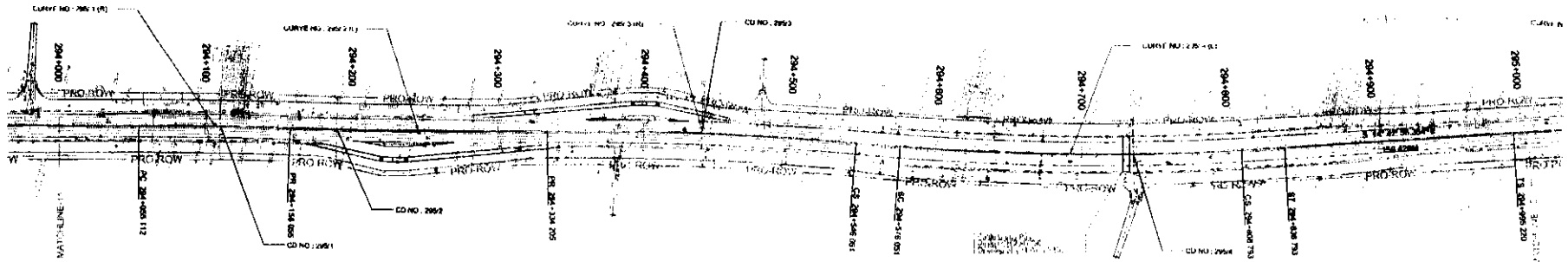


| Equipment             | Item         | Quantity | Unit | Remarks |
|-----------------------|--------------|----------|------|---------|
| CENTRE LINE           | INCHES       |          |      |         |
| MEDIAN                | PIPE GALVANT |          |      |         |
| PREPARED CARRIAGE WAY | MAN CULVERT  |          |      |         |
| PAVED INCHLODER       |              |          |      |         |
| DRAIN                 |              |          |      |         |
| EARTHEN INCHLODER     |              |          |      |         |
| SEWER ROAD            |              |          |      |         |
| FOOTPATH CURB DRAIN   |              |          |      |         |
| POSTHOLE              |              |          |      |         |

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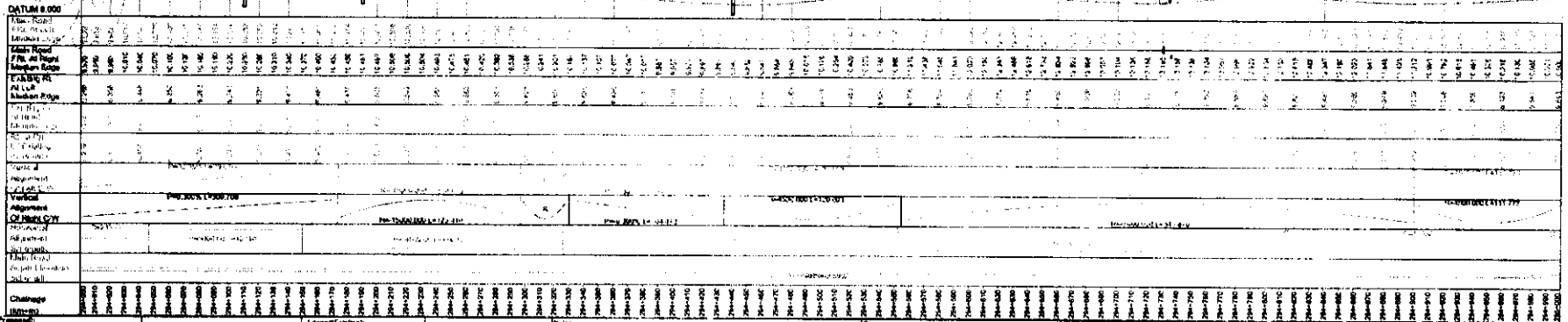
KURDAPUR

SURATKAL



| Curve No. | 200+100      | Curve No. | 200+200      | Curve No. | 200+300      | Curve No. | 200+400      |
|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|
| Ch        | 200+100.000  | Ch        | 200+200.000  | Ch        | 200+300.000  | Ch        | 200+400.000  |
| PI        | 200+100.000  | PI        | 200+200.000  | PI        | 200+300.000  | PI        | 200+400.000  |
| Δ         | 61.87 31.478 | Δ         | 61.87 31.478 | Δ         | 61.87 31.478 | Δ         | 61.87 31.478 |
| R         | 2000 m       | R         | 2000 m       | R         | 2000 m       | R         | 2000 m       |
| L         | 100.000 m    | L         | 100.000 m    | L         | 100.000 m    | L         | 100.000 m    |
| T         | 31.477 m     | T         | 31.477 m     | T         | 31.477 m     | T         | 31.477 m     |
| E         | 0.442 m      | E         | 0.442 m      | E         | 0.442 m      | E         | 0.442 m      |
| LA        | 0 m          | LA        | 0 m          | LA        | 0 m          | LA        | 0 m          |
| S         | 100 m        | S         | 100 m        | S         | 100 m        | S         | 100 m        |
| Δ         | 90°          | Δ         | 90°          | Δ         | 90°          | Δ         | 90°          |

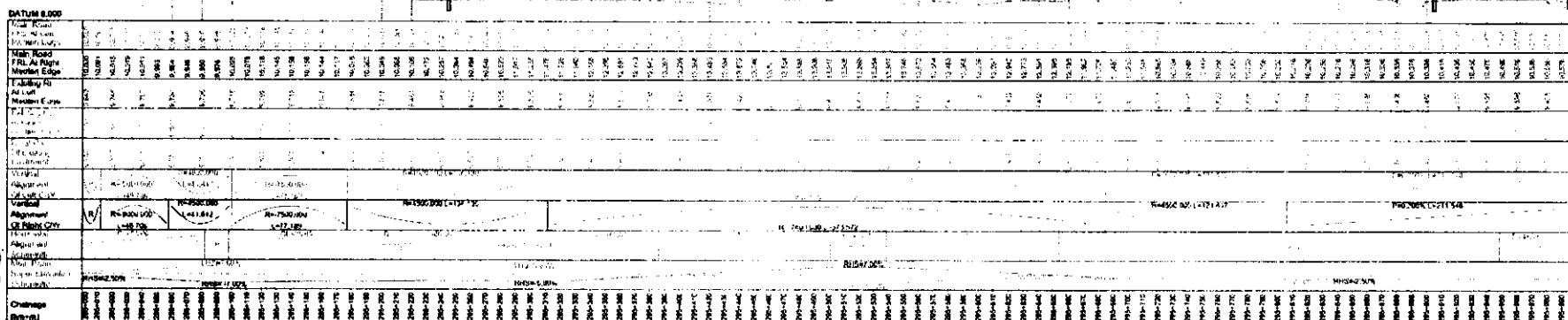
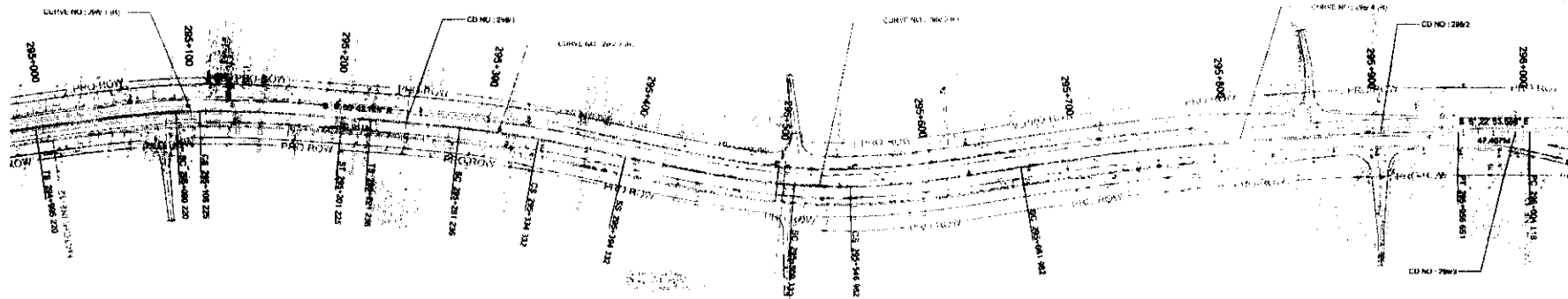
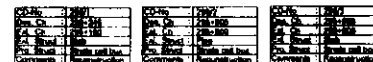
| Curve No. | 200+500      | Curve No. | 200+600      | Curve No. | 200+700      | Curve No. | 200+800      |
|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|
| Ch        | 200+500.000  | Ch        | 200+600.000  | Ch        | 200+700.000  | Ch        | 200+800.000  |
| PI        | 200+500.000  | PI        | 200+600.000  | PI        | 200+700.000  | PI        | 200+800.000  |
| Δ         | 61.87 31.478 | Δ         | 61.87 31.478 | Δ         | 61.87 31.478 | Δ         | 61.87 31.478 |
| R         | 2000 m       | R         | 2000 m       | R         | 2000 m       | R         | 2000 m       |
| L         | 100.000 m    | L         | 100.000 m    | L         | 100.000 m    | L         | 100.000 m    |
| T         | 31.477 m     | T         | 31.477 m     | T         | 31.477 m     | T         | 31.477 m     |
| E         | 0.442 m      | E         | 0.442 m      | E         | 0.442 m      | E         | 0.442 m      |
| LA        | 0 m          | LA        | 0 m          | LA        | 0 m          | LA        | 0 m          |
| S         | 100 m        | S         | 100 m        | S         | 100 m        | S         | 100 m        |
| Δ         | 90°          | Δ         | 90°          | Δ         | 90°          | Δ         | 90°          |



231

| Legend            | Notes             | Scale | Project                              | Sheet No.    |
|-------------------|-------------------|-------|--------------------------------------|--------------|
| CENTRE LINE       | PROPOSED CAMPAIGN | 1:100 | NATIONAL HIGHWAYS AUTHORITY OF INDIA | 12 OF 78     |
| PROPOSED SHOULDER | PROPOSED SHOULDER | 1:100 | PROJECT NO. 060/004                  | KS-1D-23-001 |
| PROPOSED SHOULDER | PROPOSED SHOULDER | 1:100 | DATE: JUN-2008                       | 12 OF 78     |
| PROPOSED SHOULDER | PROPOSED SHOULDER | 1:100 | PROJECT NO. 060/004                  | KS-1D-23-001 |
| PROPOSED SHOULDER | PROPOSED SHOULDER | 1:100 | DATE: JUN-2008                       | 12 OF 78     |

**SUNATKAL** ~~XXXXXXXXXX~~

[illegible]

232

**Legend: proposed**

**CENTRE LINE**

**MEDIAN**

**PROPOSED CANALWAY**

**PAYED SHOULDER**

**DIVIDER**

**EARTHEN SHOULDER**

**SERVICE ROAD**

**FOOTPATH GUM DRAIN**

**POUNCEBORN**



|   |                     |
|---|---------------------|
|  | <b>BRIDON</b>       |
|  | <b>PINE CULVERT</b> |
|  | <b>BOX CULVERT</b>  |


**Logistics (Shipping):**

- W1 TRANSPORTATION
- 24 ELECTRICAL POLE
- 10 FUEL OIL BARGE
- 4 WARD PUMP
- 20 FRAME BOARD
- 10 LIGHT POLE
- 10 POLYMER PIPE STOP
- 10 GATE

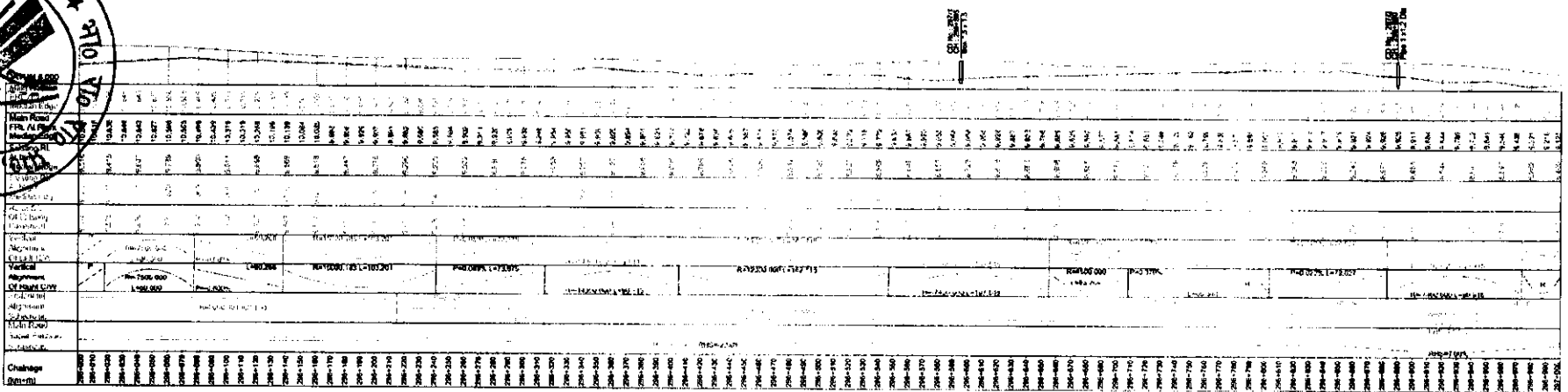
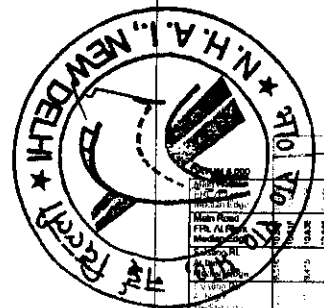
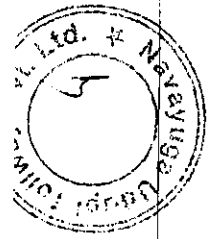
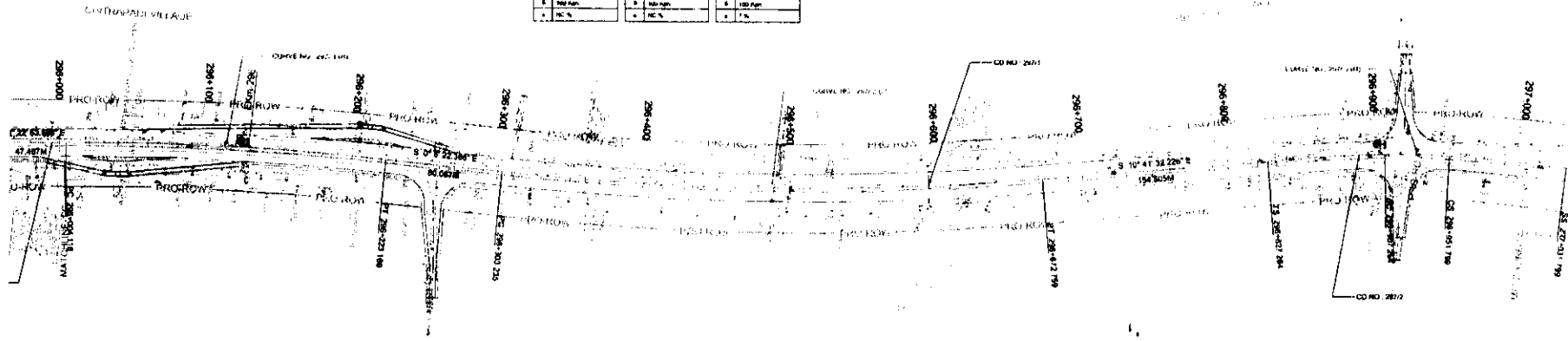
OPTICAL FIBRE CABLE  
TELEPHONE POLE  
TREE  
CLAVERT  
UTILITY  
EXISTING POINT OF MEET  
FENCE

**Issue 2**

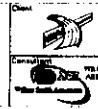

**NATIONAL HIGHWAYS AUTHORITY OF INDIA**  
 Constable  **THE HIGHWAY DEVELOPMENT & MAINTENANCE CORPORATION**  
 20, P. O. Box 110, New Delhi-110 001

|               |     |   |         |
|---------------|-----|---|---------|
| Date          |     | Hydrogen  |         |
| Dissolved     | All | Scale Horizontal  | Scale 4 |
| Gas           | 0.5 |  | 1,000   |
| Concentration | 0.5 | Scale Vertical  | Scale 4 |
| Observed      | All | 1.00 - 1.00 - 1.00  | 1,000   |

|               |  |                    |            |
|---------------|--|--------------------|------------|
| Project       | CONCRETE PAVEMENT SERVICES FOR FEASIBILITY STUDY IN LIFT AND SLAB PROJECT REPORT FOR 6.6 LAMING OF KUNDAPUNJABATHAL SECTION OF NH-17 IN THE STATE OF KARNATAKA UNDER ANDH PRADEH - B (PACKAGE NO. 1) REF NO. 504 |                    |            |
| Drawing Title | PLAN AND PROFILE<br>FROM CH:295+000 TO 296+000   |                    |            |
| Date          | Project No.  | Drawing No.        | Sheet No.  |
| 18.04.2008    | 08/2008  | 102 AND 103 OF 104 | 102 OF 104 |

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|                  |  |              |                                       |                           |  |   |
|------------------|--|--------------|---------------------------------------|---------------------------|--|---|
| <b>Landscape</b> | CENTRE LINE<br>MEDIUM<br>UNIMODIFIED CARPARKS MAT<br>PAVED SHOULDER<br>DIVIDER<br>BARRIER SHOULDER<br>SERVICE ROAD<br>FOOTPATH CURB DRAIN<br>PROPPOSED ROW | <b>Notes</b> | BROWNE<br>PPG CHARTER<br>WON CULTURE? | <b>Landscape settings</b> | TRANSFORMING<br>ELECTRICAL POLE<br>FLYING STONE<br>HARD PLANT<br>STONE BOUNDARY<br>LIGHT POLE<br>TALLNESS IN LIVING<br>QUALITY | <b>IS</b><br>TEMPORARY POLE<br>TREE<br>CALCULATE<br>UTILITY<br>SHEDDING RIGHT OF WAY<br>FENCE |
|------------------|--|--------------|---------------------------------------|---------------------------|--|---|



NATIONAL HIGHWAYS  
AUTHORITY OF INDIA



WILBUR SMITH  
ASSOCIATES  
PRIVATE LIMITED

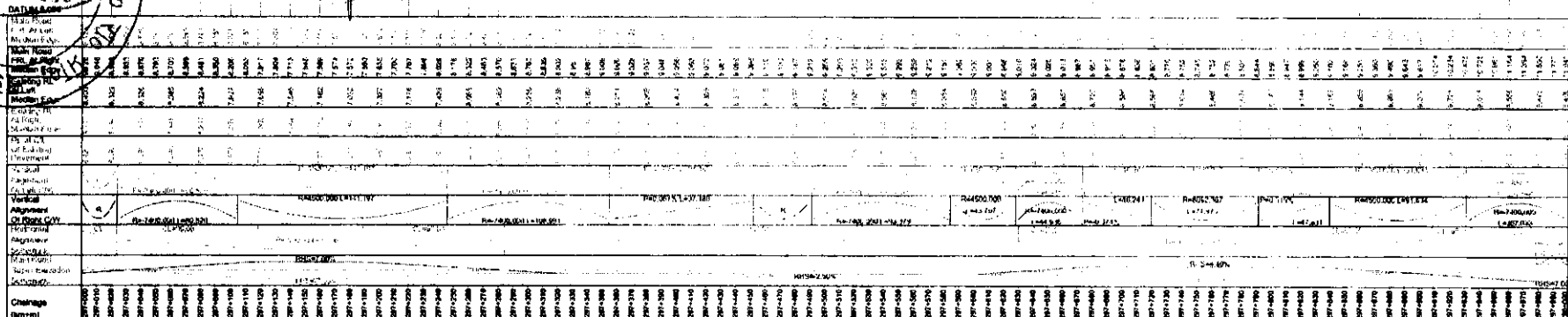
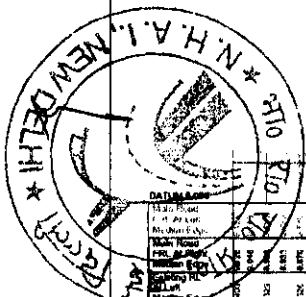
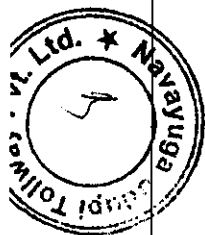
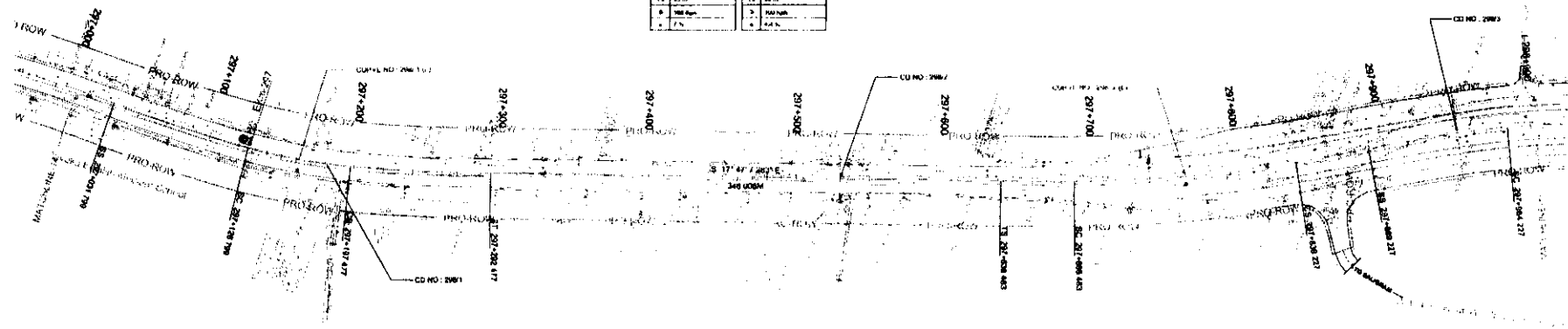
| Name |                 | Address       |                  | Phone    |          |
|------|-----------------|---------------|------------------|----------|----------|
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| 2    | Mr. J. H. Smith | 1234 Main St. | Springfield, Mo. | 555-1234 | 555-1234 |
| 3    | Mr. J. H. Smith | 1234 Main St. | Springfield, Mo. | 555-1234 | 555-1234 |
| 4    | Mr. J. H. Smith | 1234 Main St. | Springfield, Mo. | 555-1234 | 555-1234 |
| 5    | Mr. J. H. Smith | 1234 Main St. | Springfield, Mo. | 555-1234 | 555-1234 |
| 6    | Mr. J. H. Smith | 1234 Main St. | Springfield, Mo. | 555-1234 | 555-1234 |
| 7    | Mr. J. H. Smith | 1234 Main St. | Springfield, Mo. | 555-1234 | 555-1234 |
| 8    | Mr. J. H. Smith | 1234 Main St. | Springfield, Mo. | 555-1234 | 555-1234 |
| 9    | Mr. J. H. Smith | 1234 Main St. | Springfield, Mo. | 555-1234 | 555-1234 |
| 10   | Mr. J. H. Smith | 1234 Main St. | Springfield, Mo. | 555-1234 | 555-1234 |

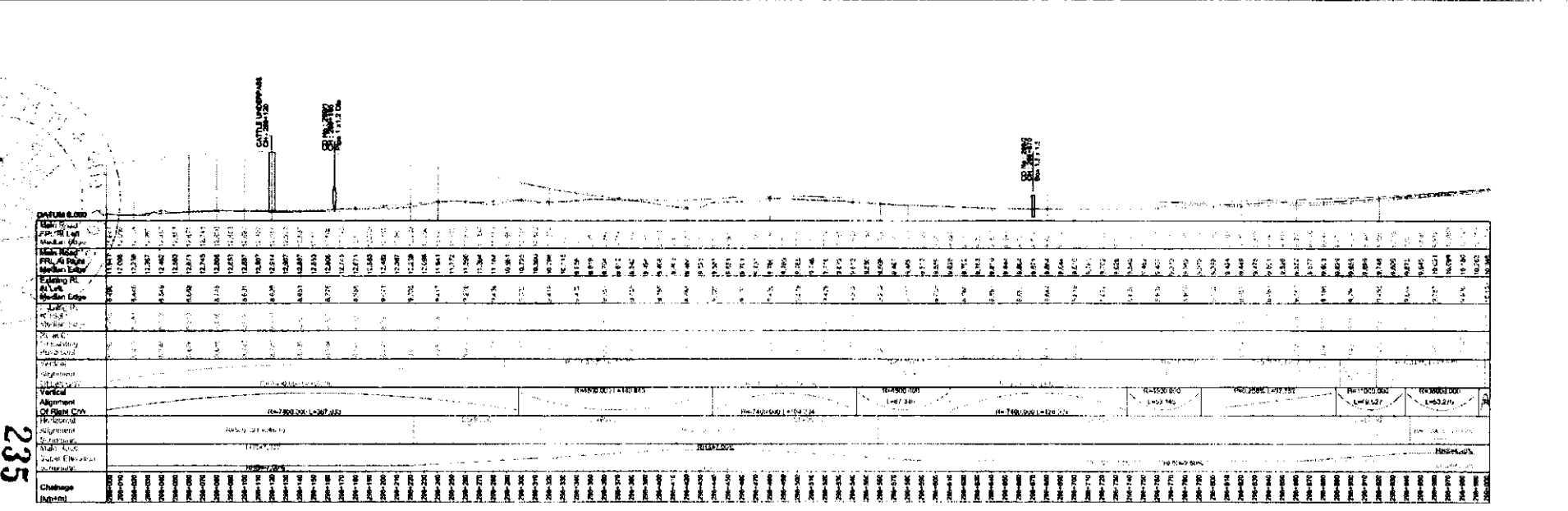
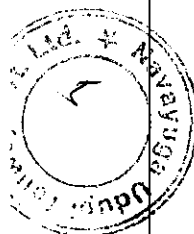
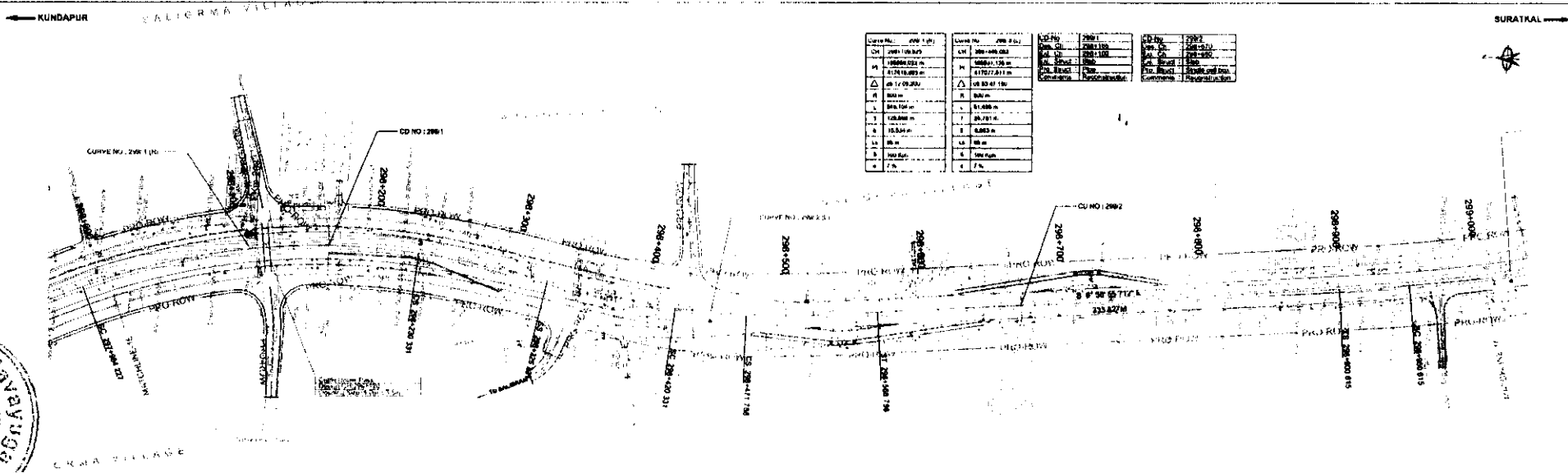
CONFER WITH PHYSICS FOR FEASIBILITY STUDY & CATALOGUE OF RESEARCH  
FOR A LAMPING OF ALUMINUM SULFATE. SECTION OF 19-17 IN THE STATE OF  
KANSAS UNDER HIND PAPER - B (PACKAGE NO. HIND 102.50)

PLAN AND PROFILE  
FROM CH:296+000 TO 297+000

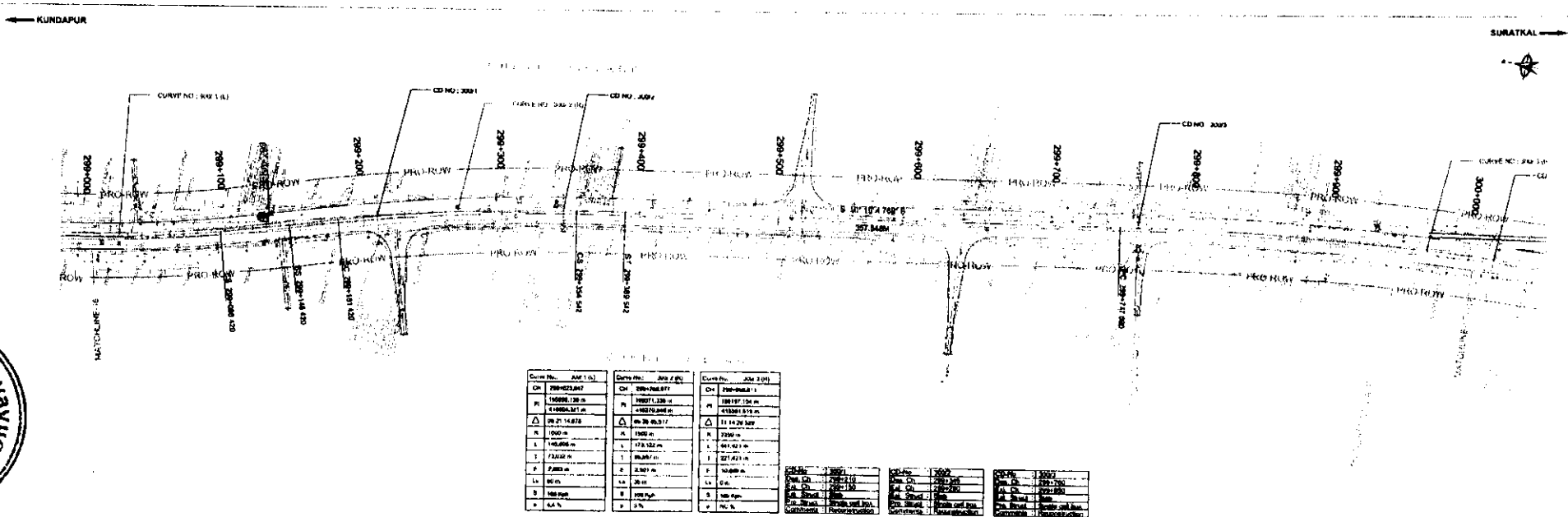
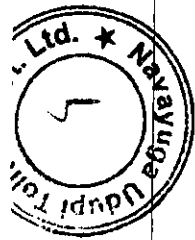
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| Date:<br>JUN-2009 | Project No.<br>0807004 | Drawing No.<br>KS-1D-23-001 | Sheet No.<br>14 OF 76 | Rev.<br>F00A |
|-------------------|------------------------|-----------------------------|-----------------------|--------------|

| Code | Unit | Value   | Code | Unit | Value   | Code | Unit | Value   | Code | Unit | Value   |
|------|------|---------|------|------|---------|------|------|---------|------|------|---------|
| 1    | mm   | 1000.00 | 14   | mm   | 1000.00 | 27   | mm   | 1000.00 | 40   | mm   | 1000.00 |
| 2    | mm   | 1000.00 | 15   | mm   | 1000.00 | 28   | mm   | 1000.00 | 41   | mm   | 1000.00 |
| 3    | mm   | 1000.00 | 16   | mm   | 1000.00 | 29   | mm   | 1000.00 | 42   | mm   | 1000.00 |
| 4    | mm   | 1000.00 | 17   | mm   | 1000.00 | 30   | mm   | 1000.00 | 43   | mm   | 1000.00 |
| 5    | mm   | 1000.00 | 18   | mm   | 1000.00 | 31   | mm   | 1000.00 | 44   | mm   | 1000.00 |
| 6    | mm   | 1000.00 | 19   | mm   | 1000.00 | 32   | mm   | 1000.00 | 45   | mm   | 1000.00 |
| 7    | mm   | 1000.00 | 20   | mm   | 1000.00 | 33   | mm   | 1000.00 | 46   | mm   | 1000.00 |
| 8    | mm   | 1000.00 | 21   | mm   | 1000.00 | 34   | mm   | 1000.00 | 47   | mm   | 1000.00 |
| 9    | mm   | 1000.00 | 22   | mm   | 1000.00 | 35   | mm   | 1000.00 | 48   | mm   | 1000.00 |
| 10   | mm   | 1000.00 | 23   | mm   | 1000.00 | 36   | mm   | 1000.00 | 49   | mm   | 1000.00 |
| 11   | mm   | 1000.00 | 24   | mm   | 1000.00 | 37   | mm   | 1000.00 | 50   | mm   | 1000.00 |
| 12   | mm   | 1000.00 | 25   | mm   | 1000.00 | 38   | mm   | 1000.00 | 51   | mm   | 1000.00 |
| 13   | mm   | 1000.00 | 26   | mm   | 1000.00 | 39   | mm   | 1000.00 | 52   | mm   | 1000.00 |

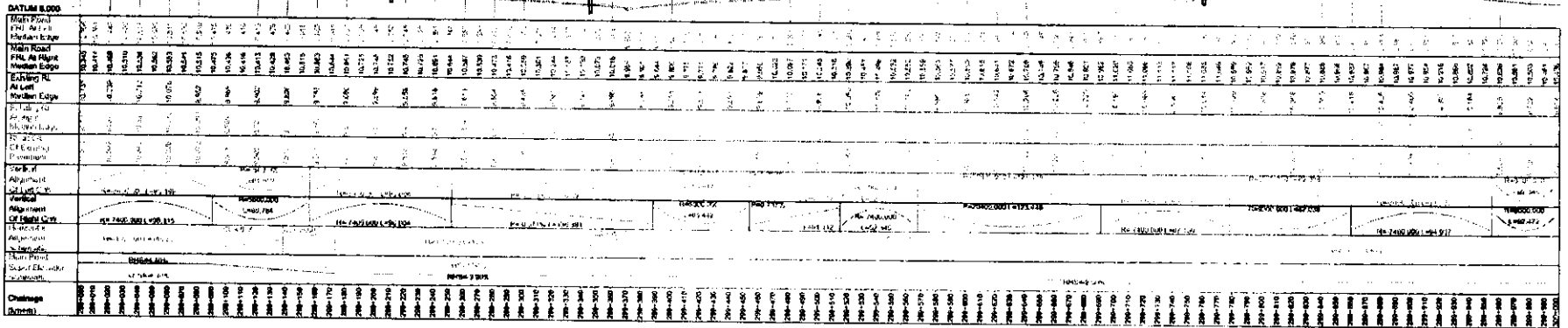
[illegible]



|   |  |   |  |  |  |   |  |  |  |
|---|--|---|--|--|--|---|--|--|--|
| <b>Legend/Remarks:</b><br>CENTRE LINE<br>MEDIAN<br>PROPOSED CARRIAGEWAY<br>PAVED SHOULDER<br>DIVIDER<br>EARTHEN SHOULDER<br>SERVICE ROAD<br>FOOTPATH/CLAM DRAIN<br>PROPOSED ROW |  | <b>ANDRA:</b><br>PPM DRAINAGE<br>BOX DRAINAGE |  | <b>LEGEND/NOTES:</b><br>1. TRANSFORMER<br>2. ELECTRICITY POLE<br>3. PAULING STONE<br>4. PAVING PUMP<br>5. UTILITY<br>6. LIGHT POLE<br>7. ALLIANCE THE STATION<br>8. GATE |  | <b>NOTE:</b><br>1. OFFICIAL PAVEMENT<br>2. TO BE SPREAD PAVEMENT<br>3. DRAINAGE<br>4. UTILITY<br>5. EXISTING RIGHT OF WAY<br>6. FENCE |  | <b>NATIONAL HIGHWAYS</b><br><b>AUTHORITY OF INDIA</b><br>PROJECT NO. 060/7004<br>DRAWING NO. KS-1D-23-001<br>SHEET NO. 18 OF 76<br>DATE JUN-2009 |  |
|---|--|---|--|--|--|---|--|--|--|



| Curve No. | AM 1 (S) | Curve No. | AM 2 (S) | Curve No. | AM 3 (S) |
|-----------|----------|-----------|----------|-----------|----------|
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| 4         | 1000.00  | 5         | 1000.00  | 6         | 1000.00  |
| 5         | 1000.00  | 6         | 1000.00  | 7         | 1000.00  |
| 6         | 1000.00  | 7         | 1000.00  | 8         | 1000.00  |
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| 9         | 1000.00  | 10        | 1000.00  | 11        | 1000.00  |
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| 21        | 1000.00  | 22        | 1000.00  | 23        | 1000.00  |
| 22        | 1000.00  | 23        | 1000.00  | 24        | 1000.00  |
| 23        | 1000.00  | 24        | 1000.00  | 25        | 1000.00  |
| 24        | 1000.00  | 25        | 1000.00  | 26        | 1000.00  |
| 25        | 1000.00  | 26        | 1000.00  | 27        | 1000.00  |
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| 93        | 1000.00  | 94        | 1000.00  | 95        | 1000.00  |
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| 96        | 1000.00  | 97        | 1000.00  | 98        | 1000.00  |
| 97        | 1000.00  | 98        | 1000.00  | 99        | 1000.00  |
| 98        | 1000.00  | 99        | 1000.00  | 100       | 1000.00  |



236

Legend/Proposed:

- CENTRE LINE
- PROPOSED CARRIAGEWAY
- PAVED SHOULDER
- DITCH
- BARREN SHOULDER
- SERVICE ROAD
- FOOTPATH CUM DRAIN
- PROPOSED ROW

Legend/Existing:

- TRANSFORMATION
- ELECTRICAL POLE
- PURPOSE STONE
- WATER PUMP
- RAILWAY BOARD
- LIGHT POLE
- ALUMINUM STONE
- GATE

Legend/Existing:

- UPPER FINE CABLE
- TELEPHONE POLE
- TRAIL
- RAILWAY
- UTILITY
- STARTING POINT OF ROAD
- PERCE

Scale:

1:1000

Project:

NATIONAL HIGHWAYS AUTHORITY OF INDIA

Drawn:

1:1000

Checked:

1:1000

Approved:

1:1000

Project:

CUMULATIVE SURVEY FOR FEASIBILITY STUDY & DESIGN PROJECT 1 TO PLAN FOR 44 LKMS OF KUNDAPUR-SURATKAL IN SECTION OF ROAD ON THE STATE OF KARNATAKA UNDER R&P PHASE - B (PROPOSED NO. R&P INCLUDE)

Drawn:

1:1000

Checked:

1:1000

Approved:

1:1000

Project:

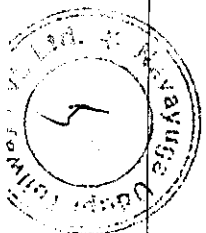
17 OF 76

Page:

17 OF 76

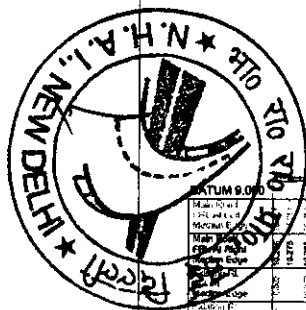
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17 OF 76

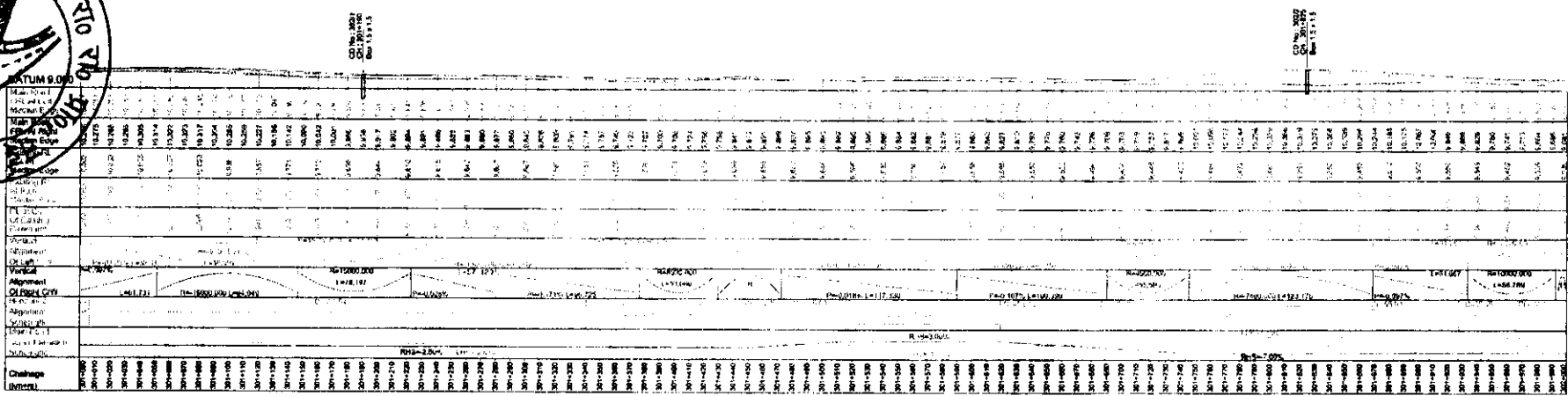
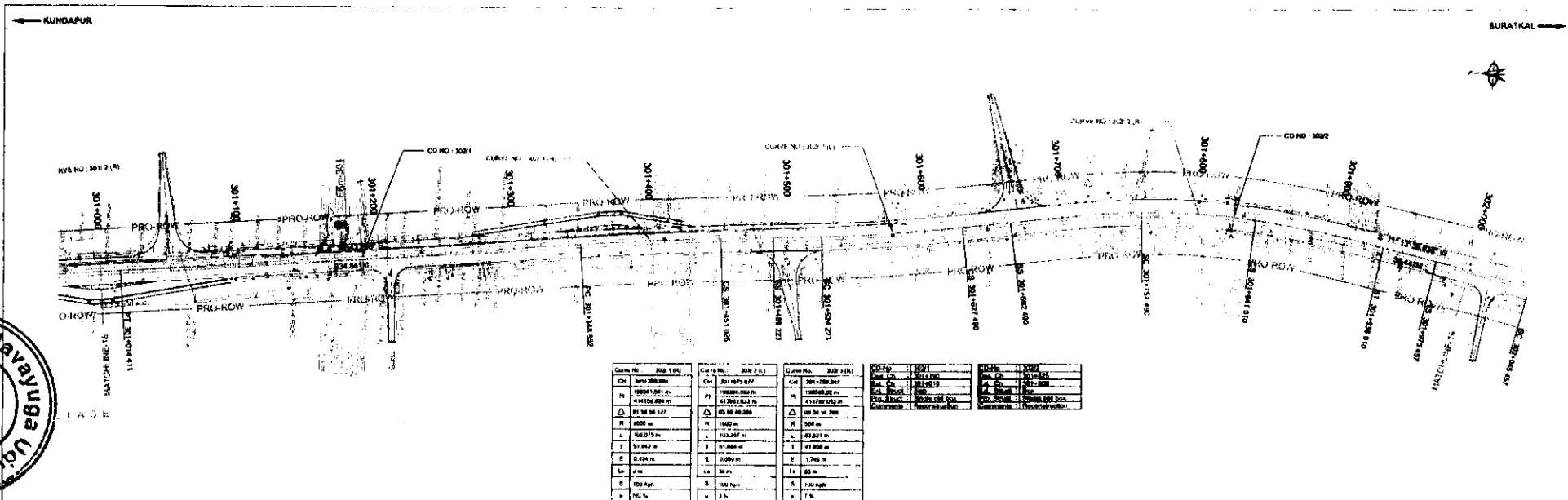


|   |   |   |  |                     |  |   |
|---|---|---|--|---------------------|--|---|
| <p><b>Legend - General</b></p> <p>CENTRE LINE<br/>MEDIAN<br/>PROPOSED CARRIAGEWAY<br/>PAVED SHOULDER<br/>DIVIDER<br/>EARTHEN SHOULDER<br/>SERVICE ROAD<br/>FOOTPATH CANAL DRAIN<br/>PROPOSED FLOW</p> | <p><b>SPECIAL</b></p> <p>PIPE CULVERT<br/>BOX CULVERT</p> | <p><b>Legend - Wiring</b></p> <p>TRANSFORMATION<br/>ELECTRICAL POLE<br/>PULMONS STONE<br/>LIGHT PUMP<br/>POWER BOARD<br/>BATTERY POINT OF WAY<br/>FENCE</p> | <p><b>OPTICAL FIBRE CABLE</b><br/>TELEPHONE POLE<br/>TREE<br/>CABLEST<br/>UTILITY<br/>BATTERY POINT OF WAY<br/>FENCE</p> | <p><b>Notes</b></p> | <p><b>PROJECT</b></p> <p><b>NATIONAL HIGHWAYS<br/>AUTHORITY OF INDIA</b></p> <p><b>PROJECT NO.</b> 000704<br/><b>SECTION NO.</b> KS-10-23-001<br/><b>DATE</b> JUN-2008</p> | <p><b>Project</b></p> <p>COMBIA INDIAN SERVICES FOR FEASIBILITY STUDY &amp; DESIGN PROJECT IN N.H. FOR A LENGTH OF KILLOMETER/THIRU SECTION OF N.H. IN THE STATE OF KARNATAKA UNDER N.H.P. FUND. - II (PACKAGE NO. 1049) IN VOLUME</p> <p><b>PLAN AND PROFILE</b><br/>FROM CH/300+000 TO 301+000</p> <p><b>Drawing Title</b></p> <p><b>Scale</b> 1:1000<br/><b>Scale</b> 1:2000</p> <p><b>Date</b> JUN-2008<br/><b>Project No.</b> 000704<br/><b>Section No.</b> KS-10-23-001<br/><b>Sheet No.</b> 18 OF 18</p> |
|---|---|---|--|---------------------|--|---|



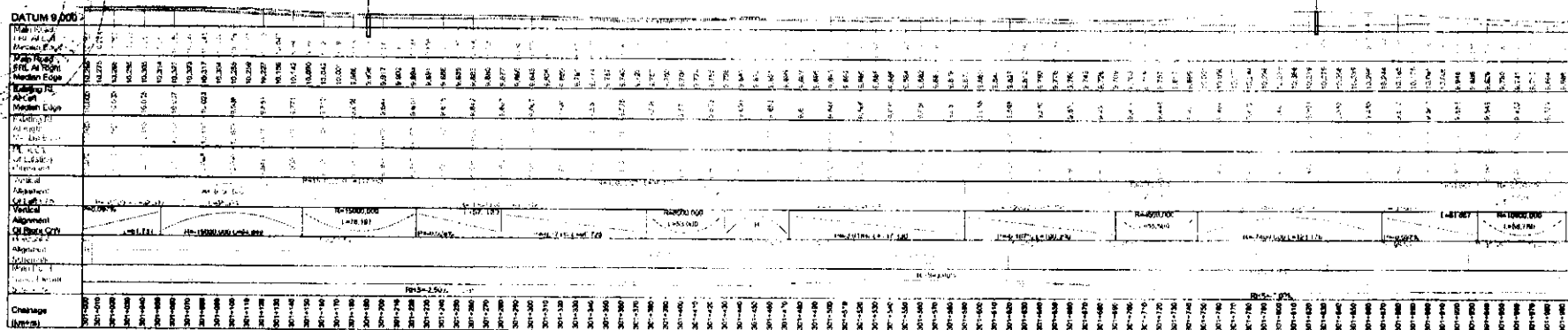
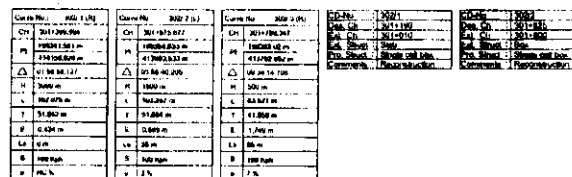


238

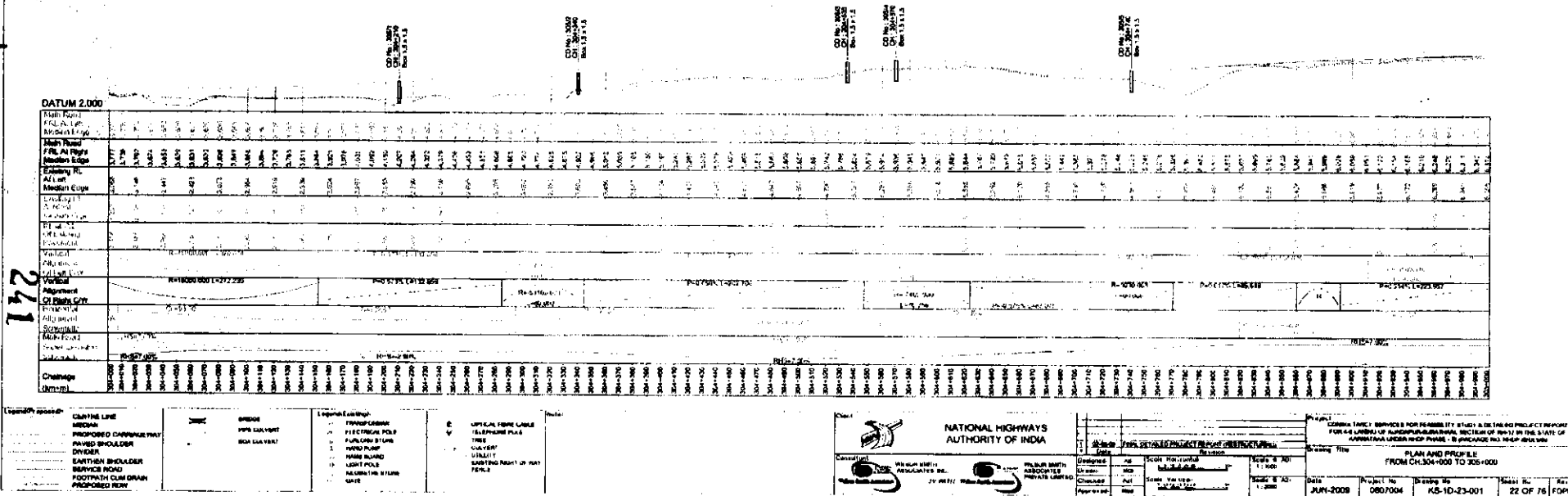
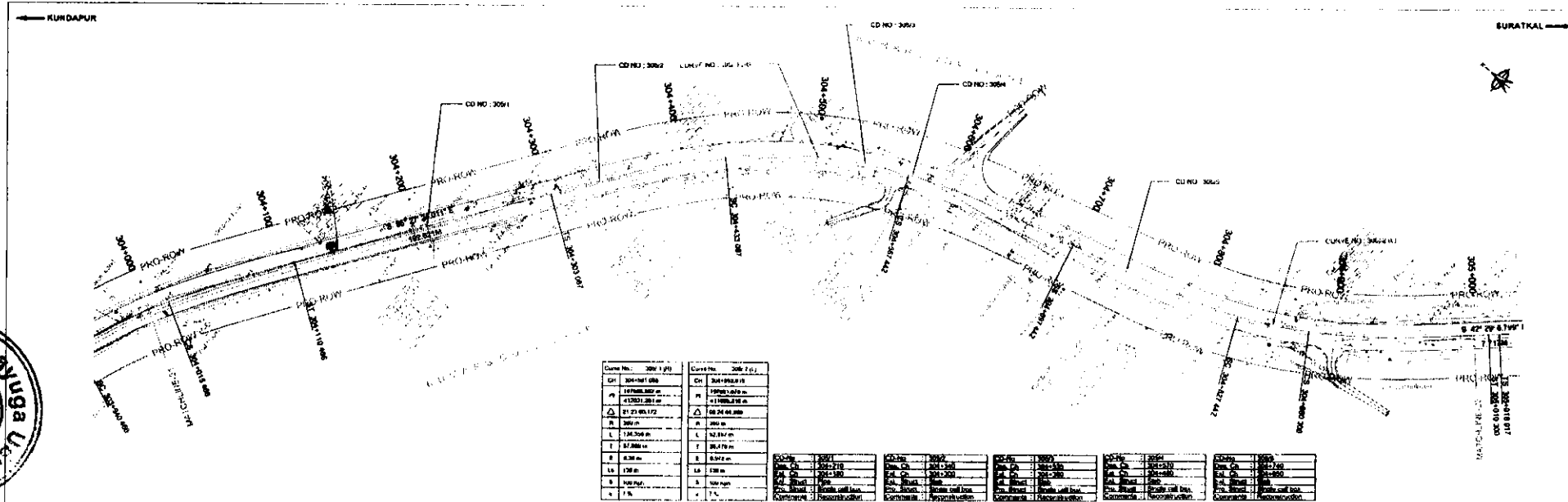


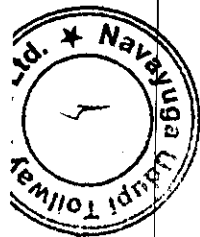
|   |   |   |   |
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| <b>Legend of symbols:</b><br>CENTRE LINE<br>MEDIAN<br>PROPOSED CARRIAGEWAY<br>PAVED SHOULDER<br>DIVIDER<br>EASTERN SHOULDER<br>SERVICE ROAD<br>FOOTPATH CUM DRAIN<br>PROPOSED ROW | <b>Legend of symbols:</b><br>BRIDGE<br>PIPE CULVERT<br>BOX CULVERT<br>TRANSFORMER<br>TELEPHONE POLE<br>FUELING STATION<br>HAND PUMP<br>NAME PLATE<br>LIGHT POLE<br>NO. OF THE STONE<br>GATE | <b>Legend of symbols:</b><br>OPTICAL FIBRE CABLES<br>TELEPHONE PILES<br>TREE<br>CULVERT<br>UTILITY<br>EASTING RIGHT OF WAY<br>FENCE | <b>Chart</b><br>NATIONAL HIGHWAYS<br>AUTHORITY OF INDIA<br>DRAWING NO. 100/2000<br>PROJECT NO. 007004<br>SHEET NO. 18 OF 76 |
|---|---|---|---|





240

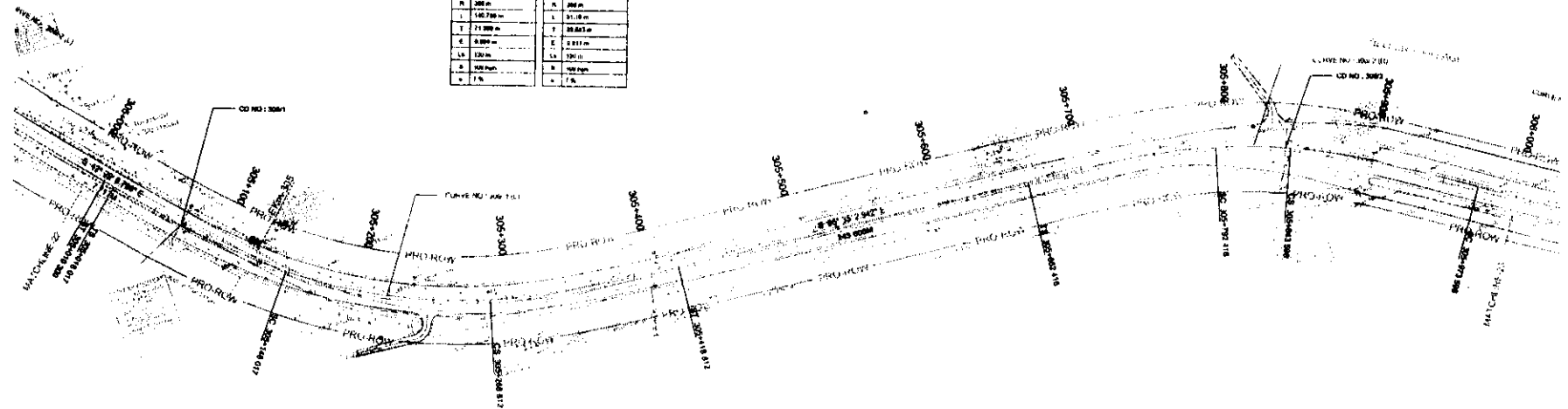




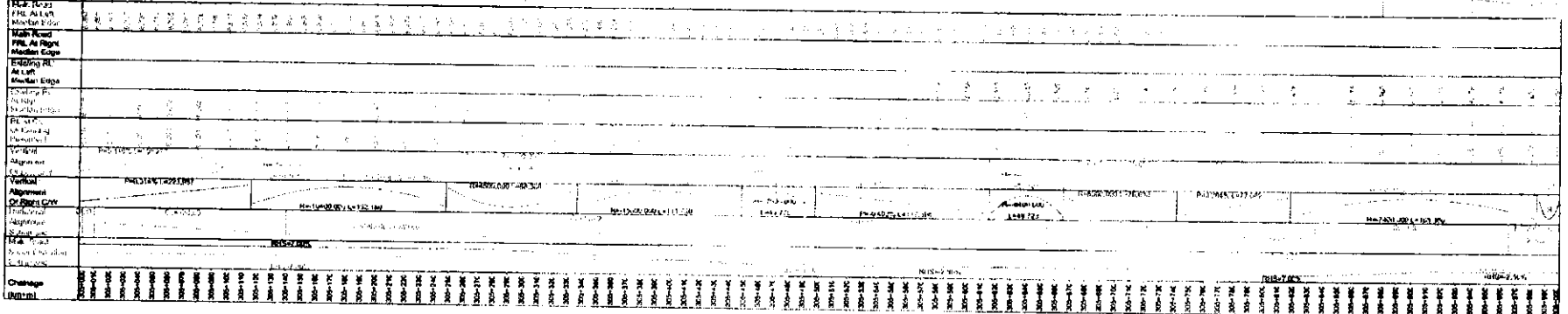
KUNDAPUR

SURATKAL

| Curve No. | Start (S) | End (E) | Length (L) | Radius (R) | Grade (%) |
|-----------|-----------|---------|------------|------------|-----------|
| 1         | 306+000   | 306+100 | 100        | 1000       | 1.0       |
| 2         | 306+100   | 306+200 | 100        | 1000       | 1.0       |
| 3         | 306+200   | 306+300 | 100        | 1000       | 1.0       |
| 4         | 306+300   | 306+400 | 100        | 1000       | 1.0       |
| 5         | 306+400   | 306+500 | 100        | 1000       | 1.0       |
| 6         | 306+500   | 306+600 | 100        | 1000       | 1.0       |
| 7         | 306+600   | 306+700 | 100        | 1000       | 1.0       |
| 8         | 306+700   | 306+800 | 100        | 1000       | 1.0       |
| 9         | 306+800   | 306+900 | 100        | 1000       | 1.0       |
| 10        | 306+900   | 307+000 | 100        | 1000       | 1.0       |



DATUM 3.000



Legend

- Center Line
- Proposed Carriageway
- Proposed Shoulder
- Existing Shoulder
- Proposed Footpath
- Proposed Drain
- Proposed Bridge
- Proposed Culvert
- Proposed Water Pump
- Proposed Light Pole
- Proposed Gate

Legend

- Proposed Bridge
- Proposed Culvert
- Proposed Water Pump
- Proposed Light Pole
- Proposed Gate

Legend

- Proposed Bridge
- Proposed Culvert
- Proposed Water Pump
- Proposed Light Pole
- Proposed Gate

Note

1. The road is to be constructed as a two-lane road with a 10m wide shoulder on the left and a 5m wide shoulder on the right.

2. The road is to be constructed as a two-lane road with a 10m wide shoulder on the left and a 5m wide shoulder on the right.

3. The road is to be constructed as a two-lane road with a 10m wide shoulder on the left and a 5m wide shoulder on the right.

4. The road is to be constructed as a two-lane road with a 10m wide shoulder on the left and a 5m wide shoulder on the right.

5. The road is to be constructed as a two-lane road with a 10m wide shoulder on the left and a 5m wide shoulder on the right.

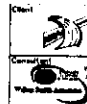
6. The road is to be constructed as a two-lane road with a 10m wide shoulder on the left and a 5m wide shoulder on the right.

7. The road is to be constructed as a two-lane road with a 10m wide shoulder on the left and a 5m wide shoulder on the right.

8. The road is to be constructed as a two-lane road with a 10m wide shoulder on the left and a 5m wide shoulder on the right.

9. The road is to be constructed as a two-lane road with a 10m wide shoulder on the left and a 5m wide shoulder on the right.

10. The road is to be constructed as a two-lane road with a 10m wide shoulder on the left and a 5m wide shoulder on the right.



NATIONAL HIGHWAYS  
AUTHORITY OF INDIA

Project No. 080/004

Project Name

Project Location

Project Scale

Project Date

Project Drawing No.

Project Sheet No.

Project Rev.

Project Date

Project Drawing No.

Project Sheet No.

Project Rev.

Project Date

Project Drawing No.

Project Sheet No.

Project Rev.

Project Date

Project Drawing No.

Project Sheet No.

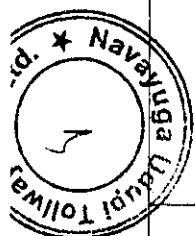
Project Rev.

Project Date

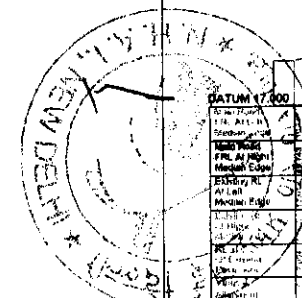
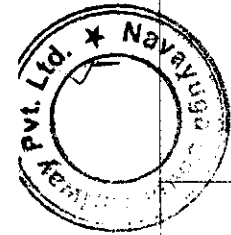
Project Drawing No.

Project Sheet No.

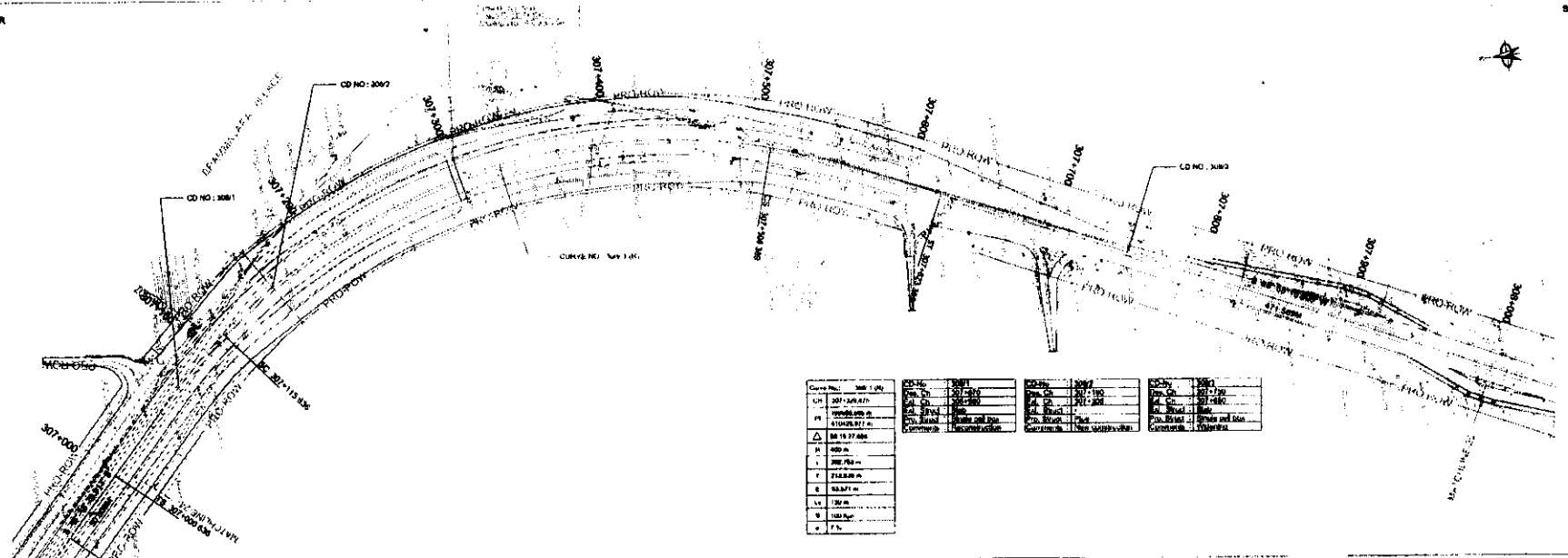
Project Rev.

243

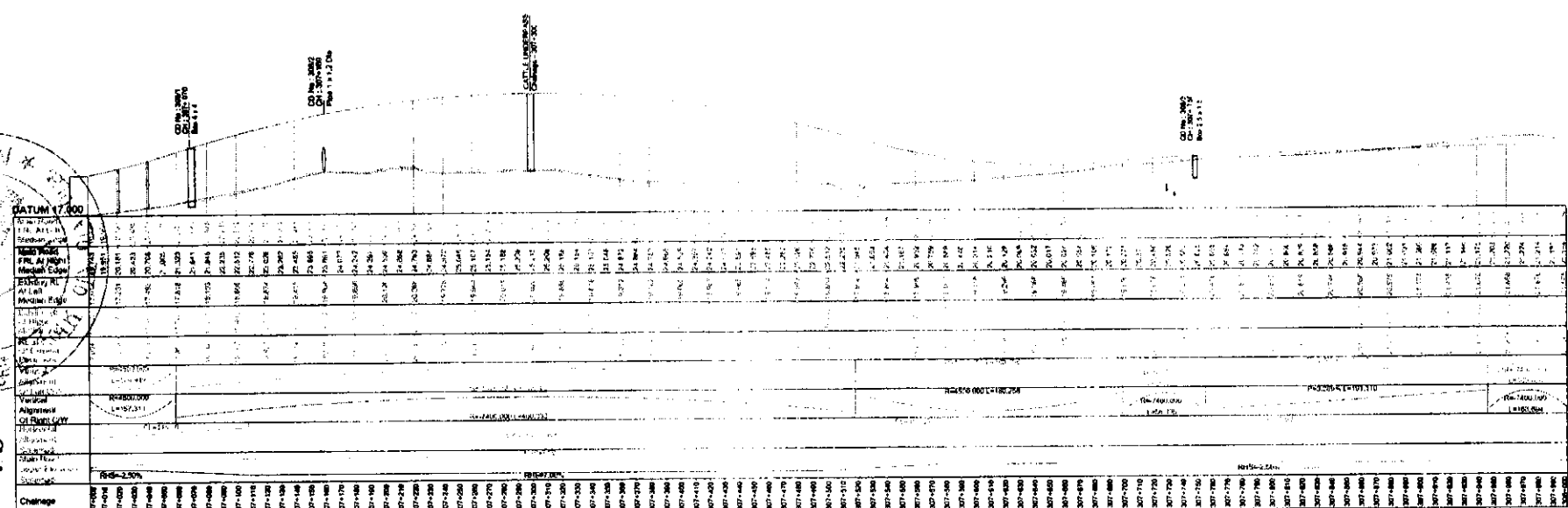
|  |   |  |  |   |  |
|--|---|--|--|---|--|
| <b>Legend: Symbols</b><br>CENTRE LINE<br>ARROW<br>PROPOSED CARRIAGEWAY<br>PAVED SHOULDER<br>DIVIDER<br>EXISTING SHOULDER<br>SERVICE ROAD<br>FOOTPATH/DRIVEWAY<br>PROPOSED POLE | <b>Legend: Abbreviations</b><br>MDSB<br>PMA CULVERT<br>PMA CULVERT      | <b>Legend: Abbreviations</b><br>T. TRANSFORMER<br>E. ELECTRICAL POLE<br>S. PUMP CUM STORE<br>P. PUMP<br>Q. QUANTITY<br>L. LIGHT POLE<br>N. NATIONAL HIGHWAY<br>G. GATE | <b>Notes:</b><br>1. OPTICAL FIBRE CABLE TELEPHONE PILE<br>2. PMA CULVERT<br>3. EXISTING RIGHT OF WAY FENCE | <b>Client:</b><br> <b>NATIONAL HIGHWAYS AUTHORITY OF INDIA</b> | <b>Project:</b><br>TECHNICAL SERVICES & FOR FEASIBILITY STUDY & DETAILED PROJECT REPORT FOR 4th LANE OF KANDANUR-BATHALU SECTION OF NH-7 IN THE STATE OF KARNATAKA UNDER NHDP PHASE - II (PACKAGE NO. NHDP 003/04) |
| <b>Contract No.</b><br><b>Project No.</b><br><b>Section No.</b><br><b>Sheet No.</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b> | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>                                    | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>   | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  |
| <b>Contract No.</b><br><b>Project No.</b><br><b>Section No.</b><br><b>Sheet No.</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b> | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>                                    | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>   | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  |
| <b>Contract No.</b><br><b>Project No.</b><br><b>Section No.</b><br><b>Sheet No.</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b> | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>                                    | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>   | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  |
| <b>Contract No.</b><br><b>Project No.</b><br><b>Section No.</b><br><b>Sheet No.</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b> | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>                                    | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>   | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  |
| <b>Contract No.</b><br><b>Project No.</b><br><b>Section No.</b><br><b>Sheet No.</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b> | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>                                    | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>   | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  |
| <b>Contract No.</b><br><b>Project No.</b><br><b>Section No.</b><br><b>Sheet No.</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b> | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>                                    | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>   | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  |
| <b>Contract No.</b><br><b>Project No.</b><br><b>Section No.</b><br><b>Sheet No.</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b> | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>                                    | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>   | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  |
| <b>Contract No.</b><br><b>Project No.</b><br><b>Section No.</b><br><b>Sheet No.</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b> | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>                                    | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>   | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  |
| <b>Contract No.</b><br><b>Project No.</b><br><b>Section No.</b><br><b>Sheet No.</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b> | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>                                    | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>   | <b>Scale:</b><br><b>Horizontal</b><br><b>Vertical</b><br><b>Profile</b>  |



244



| Curve No. | Stationing         | Radius (m) | Length (m) | Chord (m) | Offset (m) | Area (sq. m) | Volume (cu. m) |
|-----------|--------------------|------------|------------|-----------|------------|--------------|----------------|
| 1         | 307+000 to 307+100 | 1000       | 100        | 100       | 10         | 1000         | 1000           |
| 2         | 307+100 to 307+200 | 1000       | 100        | 100       | 10         | 1000         | 1000           |
| 3         | 307+200 to 307+300 | 1000       | 100        | 100       | 10         | 1000         | 1000           |
| 4         | 307+300 to 307+400 | 1000       | 100        | 100       | 10         | 1000         | 1000           |
| 5         | 307+400 to 307+500 | 1000       | 100        | 100       | 10         | 1000         | 1000           |
| 6         | 307+500 to 307+600 | 1000       | 100        | 100       | 10         | 1000         | 1000           |
| 7         | 307+600 to 307+700 | 1000       | 100        | 100       | 10         | 1000         | 1000           |
| 8         | 307+700 to 307+800 | 1000       | 100        | 100       | 10         | 1000         | 1000           |
| 9         | 307+800 to 307+900 | 1000       | 100        | 100       | 10         | 1000         | 1000           |
| 10        | 307+900 to 308+000 | 1000       | 100        | 100       | 10         | 1000         | 1000           |



| Stationing | Elevation | Grade | Width | Area | Volume |
|------------|-----------|-------|-------|------|--------|
| 307+000    | 17.000    | 0.00% | 10.00 | 1000 | 1000   |
| 307+100    | 17.000    | 0.00% | 10.00 | 1000 | 1000   |
| 307+200    | 17.000    | 0.00% | 10.00 | 1000 | 1000   |
| 307+300    | 17.000    | 0.00% | 10.00 | 1000 | 1000   |
| 307+400    | 17.000    | 0.00% | 10.00 | 1000 | 1000   |
| 307+500    | 17.000    | 0.00% | 10.00 | 1000 | 1000   |
| 307+600    | 17.000    | 0.00% | 10.00 | 1000 | 1000   |
| 307+700    | 17.000    | 0.00% | 10.00 | 1000 | 1000   |
| 307+800    | 17.000    | 0.00% | 10.00 | 1000 | 1000   |
| 307+900    | 17.000    | 0.00% | 10.00 | 1000 | 1000   |
| 308+000    | 17.000    | 0.00% | 10.00 | 1000 | 1000   |

**NATIONAL HIGHWAYS AUTHORITY OF INDIA**

Project: SURATHAL ROAD PROJECT

Scale: 1:1000

Sheet No: 25 OF 78

Project No: 0807004

Sheet No: KS-10-23-001

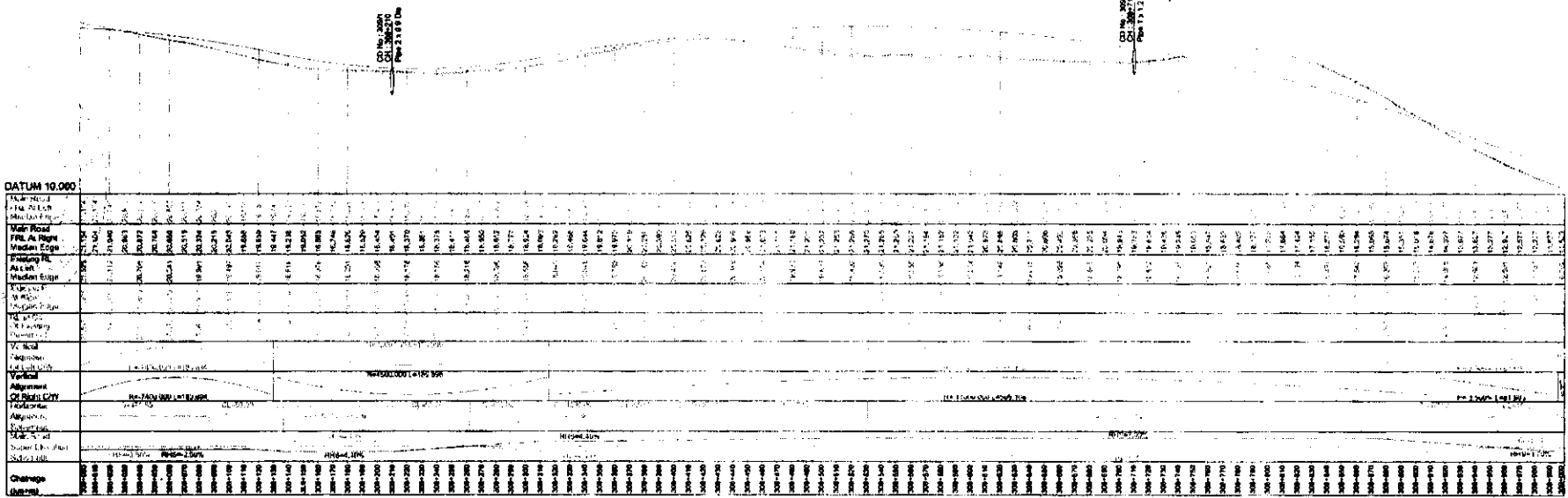
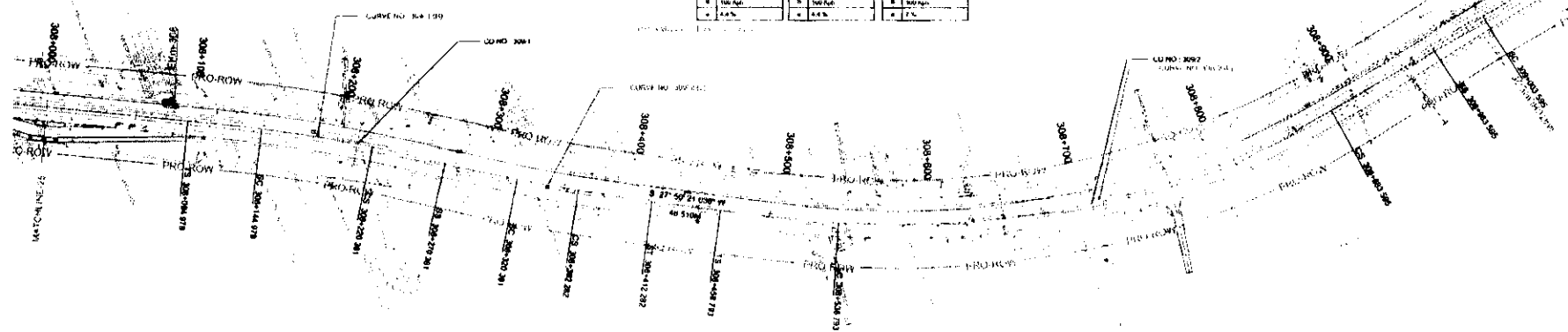
Date: JUN-2008

Project No: 0807004

Sheet No: 25 OF 78

Project No: 0807004

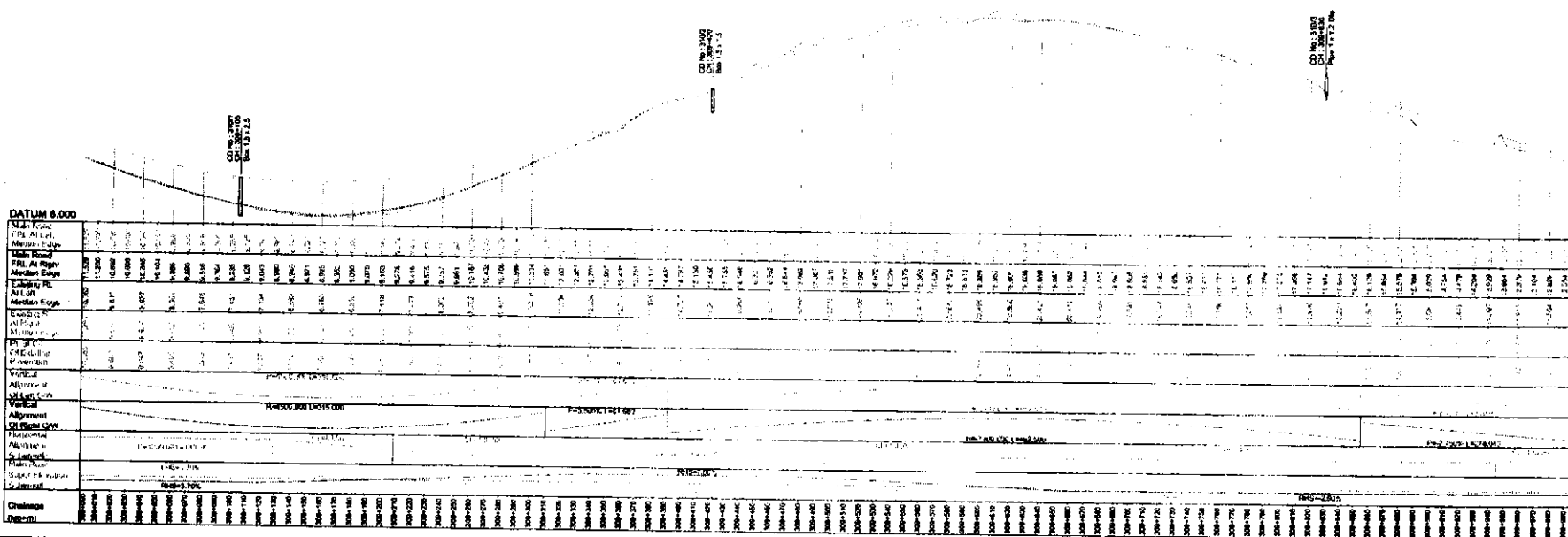
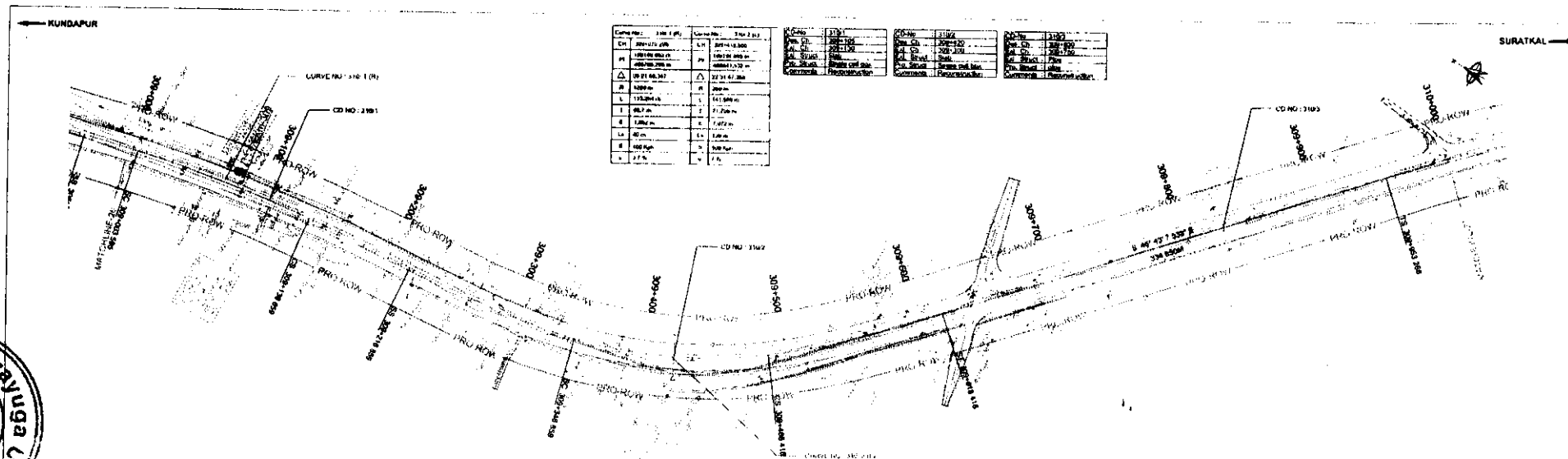
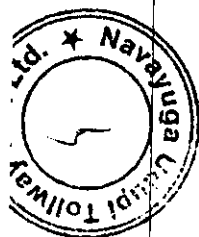
Sheet No: 25 OF 78




























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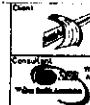
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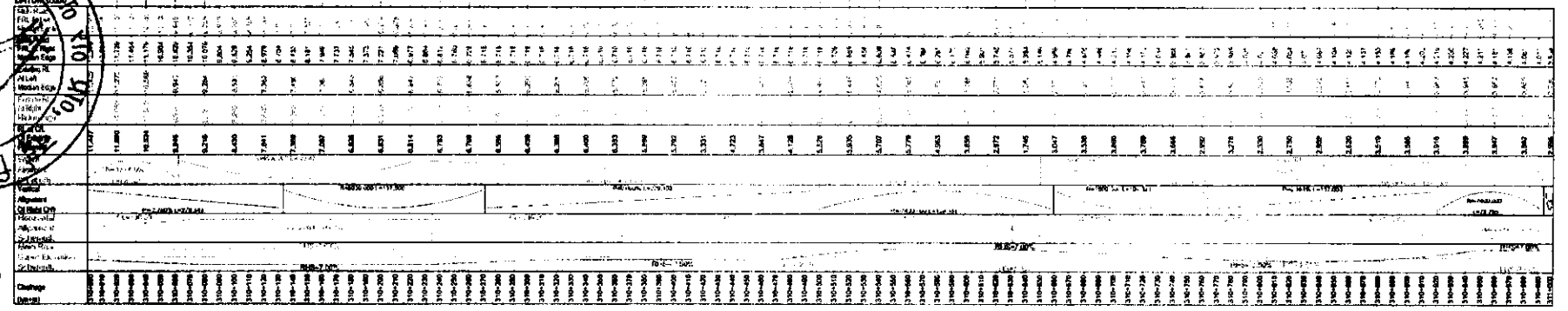
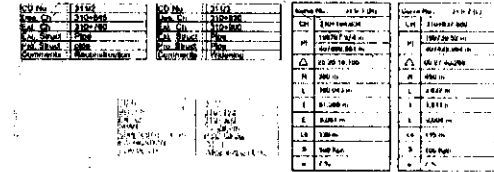


| Legend: symbols      |   | Legend: shingles  |   |
|----------------------|---|-------------------|---|
| CENTRE LINE          |  | BRIDGE            |  |
| WEDDIN               |  | PIPE CULVERT      |  |
| PROPOSED CARRIAGEWAY |  | BOX CULVERT       |  |
| PAVED SHOULDER       |  |                   |   |
| DIVIDER              |  |                   |   |
| GATHER SHOULDER      |  |                   |   |
| GRAVEL ROAD          |  |                   |   |
| FOOTPATH (DRAIN)     |  |                   |   |
| PROPOSED ROW         |  |                   |   |
|                      |   | THRESHOLD         |  |
|                      |   | ELECTRICAL POLE   |  |
|                      |   | PURE CURB STONE   |  |
|                      |   | MANHOLE           |  |
|                      |   | MANHOLE           |  |
|                      |   | LIGHT POLE        |  |
|                      |   | WALKING PIS STONE |  |
|                      |   | DATE              |  |
|                      |   |                   |  |
|                      |   |                   |  |
|                      |   |                   |  |
|                      |   |                   |  |
|                      |   |                   |  |
|                      |   |                   |  |
|                      |   |                   |  |

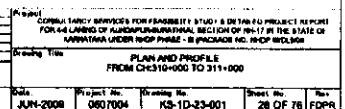


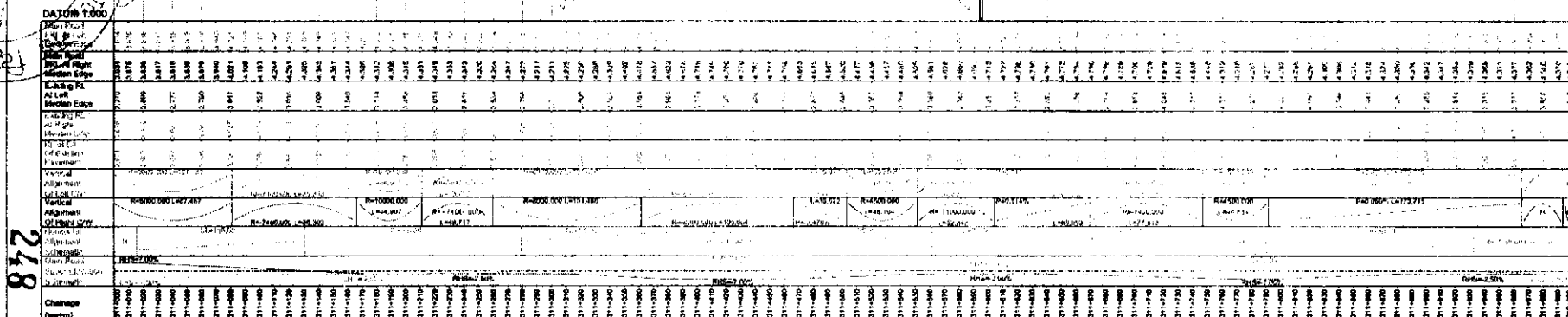
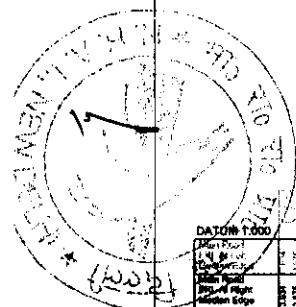
NATIONAL HIGHWAYS  
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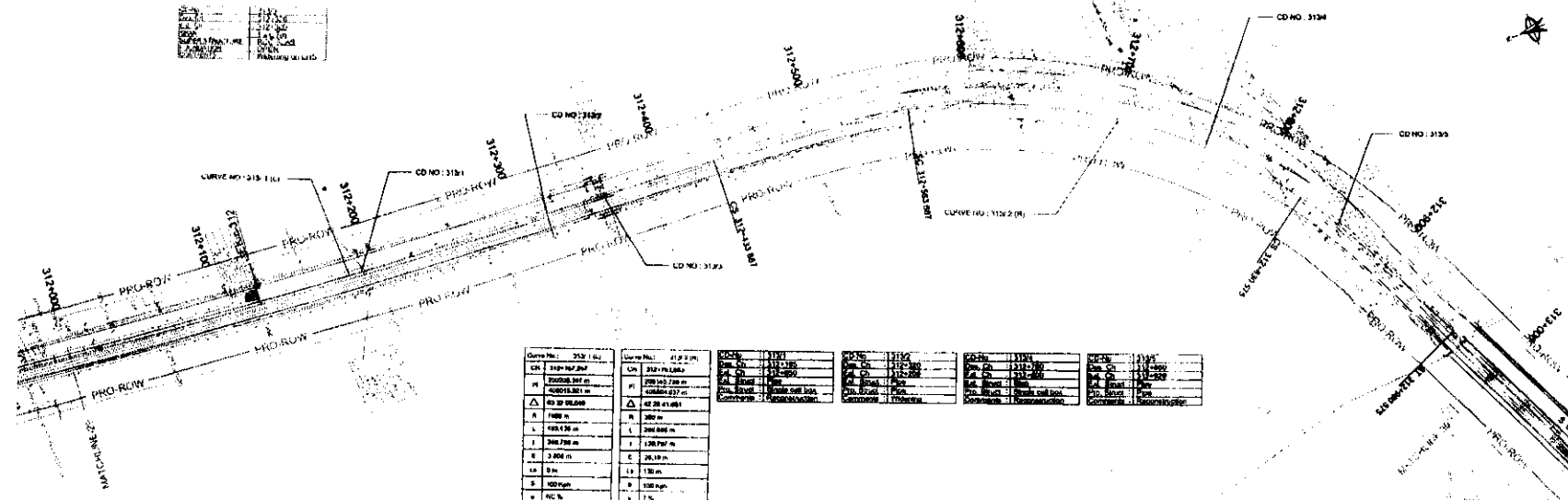
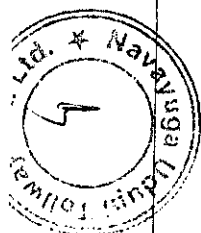
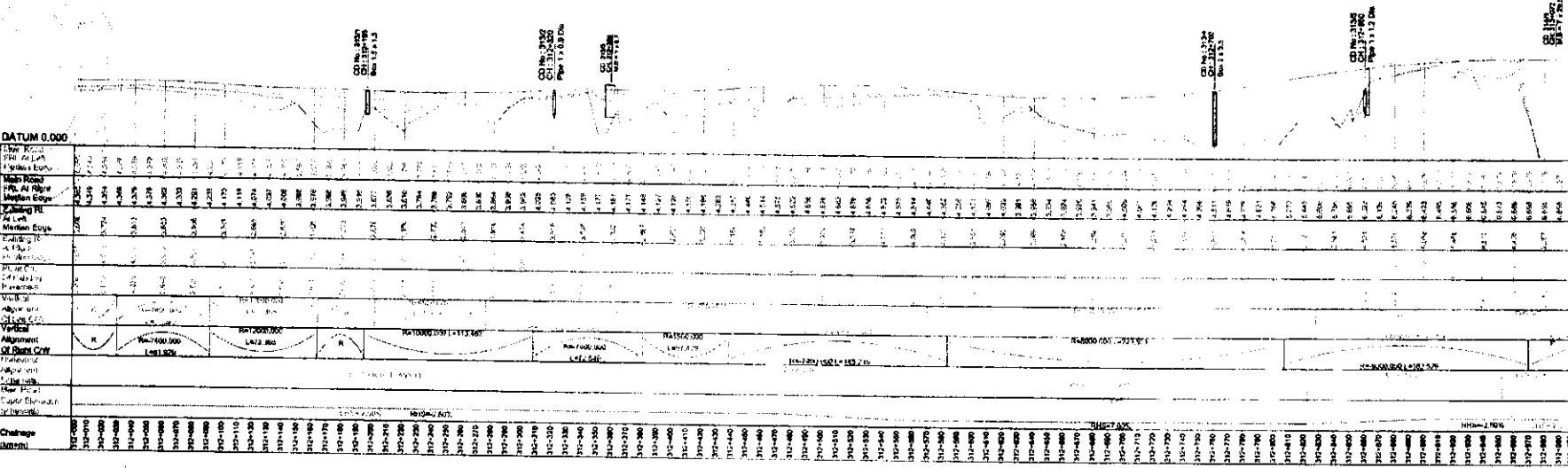
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| Designation: <u>ASG</u> <u>Scale Horizontal</u> <u>Scale 8 AD</u><br>Drawing No: <u>1000</u><br>Checked: <u>ASG</u> <u>Scale Vertical</u> <u>Scale 8 AD</u><br>Date: <u>12/12/2009</u> <u>1:2000</u> |  | Project: <u>CONDOMINIUM SERVICES FOR PLUMBING, ELECTRICAL AND GAS PIPING PROJECTS REPORT FOR 40 UNITS OF ALDEBARAN APARTMENT SECTION OF PH-17 IN THE STATE OF KARNATAKA UNDER AGRICULTURAL HOLDING - SUBPROJECT NO. RD/2005/06</u><br>Drawing Title: <u>PLAN AND PROFILE FROM CH-309+00 TO 310+00</u><br>Date: <u>JUN-2009</u> <u>Project No.</u> <u>KS-16-23-001</u> <u>Sheet No.</u> <u>27 OF 76</u> <u>FOR</u> |  |
|--|--|---|--|



**Note**





[illegible]

**EXPRESS SPEEDS**

**CENTRE LINE  
MIDIAN  
PROPOSED CARRIAGEWAY  
PAVED SHOULDER  
DIVIDER  
EARTHEN SHOULDER  
SERVICE ROAD  
FOOTPATH CUM DRAIN  
PROPOSED ROW**

**BROOKS**

**HIGH COUNTRY**

**OUR COUNTRY**

|   |                 |   |                      |
|---|-----------------|---|----------------------|
| 1 | TRANSFORMER     | 2 | OPTICAL FIBER CABLE  |
| 2 | ELECTRICAL PORE | 3 | TELEPHONE PORE       |
| 3 | PURIFICATION    | 4 | TRAIL                |
| 4 | WIND PUMP       | 5 | DAYLIGHT             |
| 5 | WIND SLOPE      | 6 | VISIBILITY           |
| 6 | WIND LIGHT      | 7 | WINDING RIGHT OF WAY |
| 7 | WINDING PORE    | 8 | FENCE                |
| 8 | WIND            |   |                      |

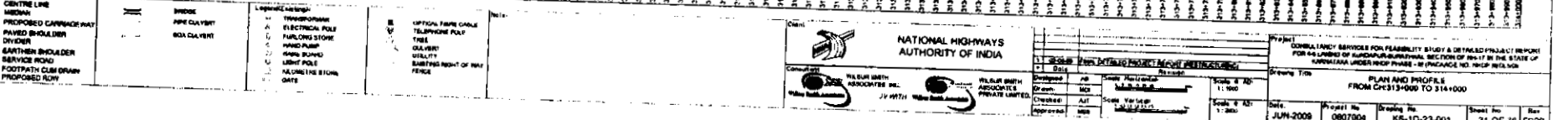


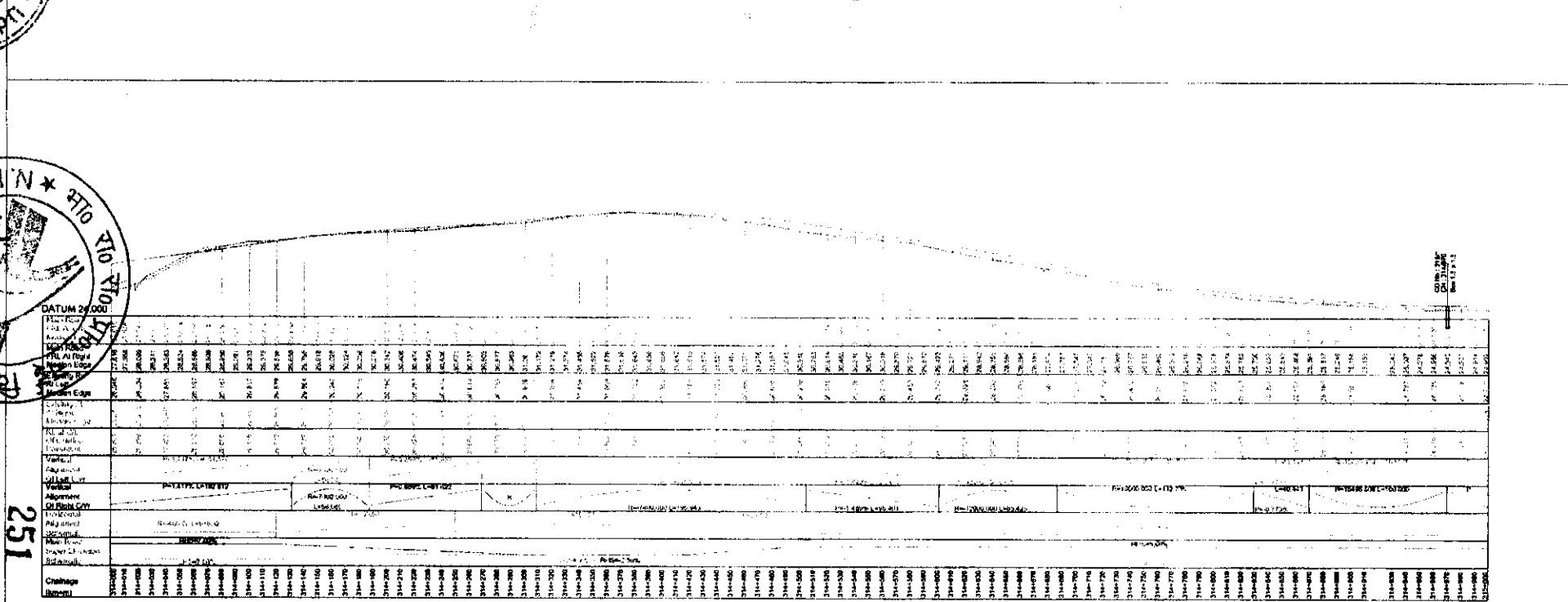
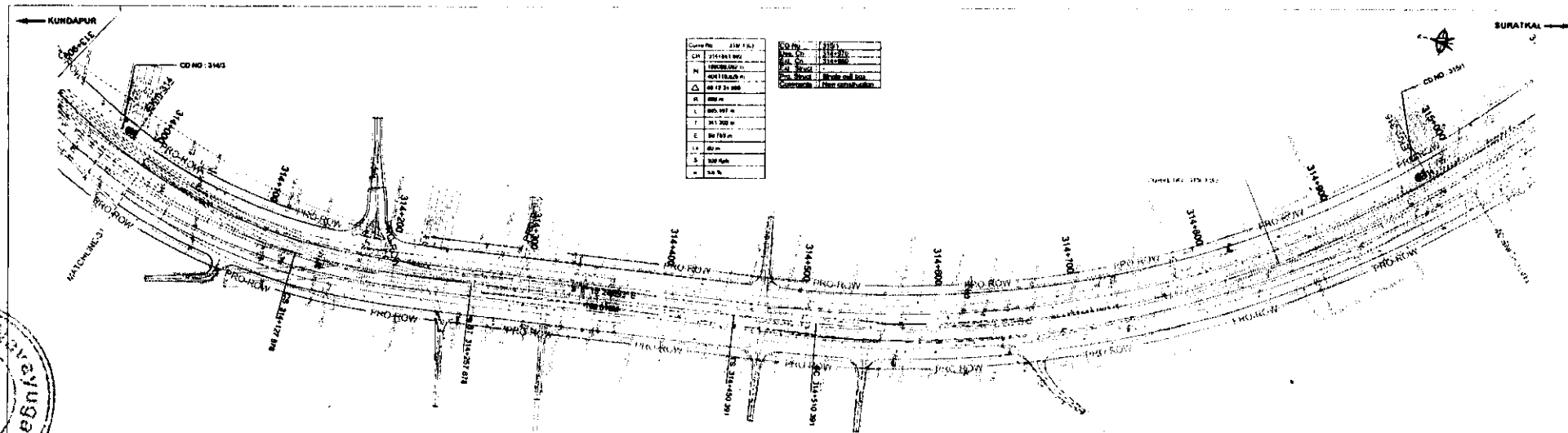
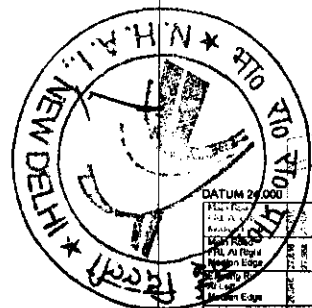
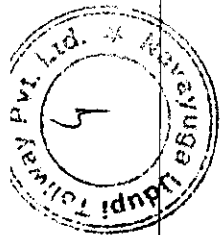
**NATIONAL HIGHWAYS:  
AUTHORITY OF INDIA**

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**CONTRACT NO. 60-1-17**

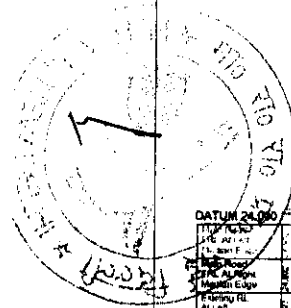
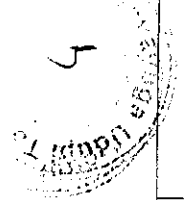
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| Date          | Project No | Drawing No                                     | Sheet No | No |



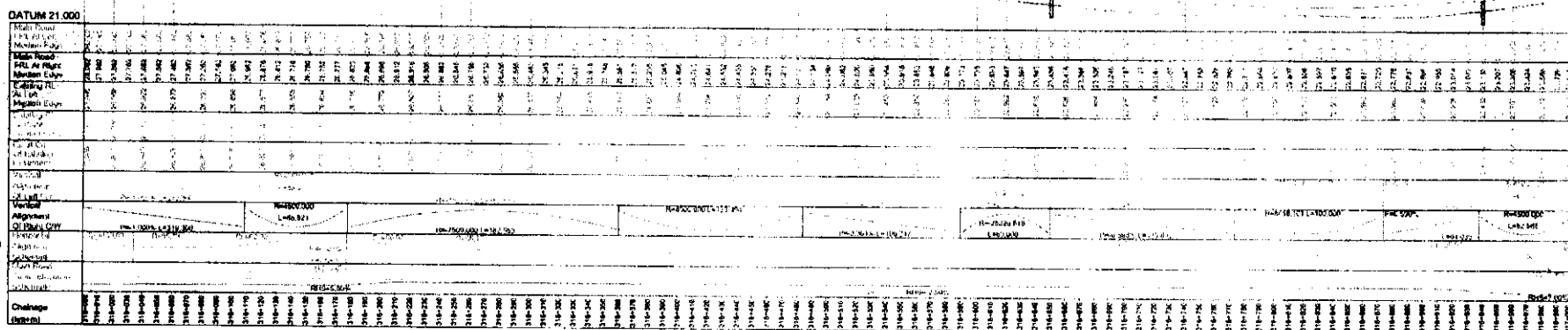
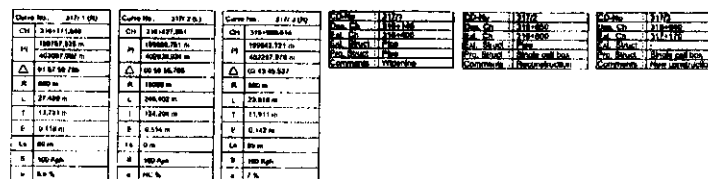


|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
| <p><b>Legend:</b></p> <p>--- CENTRE LINE</p> <p>--- PROPOSED CARRIAGE WAY</p> <p>--- PAVED SHOULDER</p> <p>--- EARTHEN SHOULDER</p> <p>--- SERVICE ROAD</p> <p>--- FOOTPATH</p> <p>--- DRAIN</p> | <p><b>Notes:</b></p> <p>1. ALL DIMENSIONS ARE IN METERS.</p> <p>2. THE PROPOSED GRADE IS BASED ON THE EXISTING GROUND.</p> <p>3. THE PROPOSED GRADE IS BASED ON THE EXISTING GROUND.</p> | <p><b>Legend:</b></p> <p>--- TRANSMISSION</p> <p>--- TELEPHONE</p> <p>--- POWER</p> <p>--- WATER</p> <p>--- GAS</p> <p>--- OIL</p> <p>--- FUEL</p> <p>--- LUBRICANTS</p> | <p><b>Legend:</b></p> <p>--- OFFICIAL</p> <p>--- TELEPHONE</p> <p>--- POWER</p> <p>--- WATER</p> <p>--- GAS</p> <p>--- OIL</p> <p>--- FUEL</p> <p>--- LUBRICANTS</p> | <p><b>Legend:</b></p> <p>--- OFFICIAL</p> <p>--- TELEPHONE</p> <p>--- POWER</p> <p>--- WATER</p> <p>--- GAS</p> <p>--- OIL</p> <p>--- FUEL</p> <p>--- LUBRICANTS</p> | <p><b>Legend:</b></p> <p>--- OFFICIAL</p> <p>--- TELEPHONE</p> <p>--- POWER</p> <p>--- WATER</p> <p>--- GAS</p> <p>--- OIL</p> <p>--- FUEL</p> <p>--- LUBRICANTS</p> | <p><b>Legend:</b></p> <p>--- OFFICIAL</p> <p>--- TELEPHONE</p> <p>--- POWER</p> <p>--- WATER</p> <p>--- GAS</p> <p>--- OIL</p> <p>--- FUEL</p> <p>--- LUBRICANTS</p> | <p><b>Legend:</b></p> <p>--- OFFICIAL</p> <p>--- TELEPHONE</p> <p>--- POWER</p> <p>--- WATER</p> <p>--- GAS</p> <p>--- OIL</p> <p>--- FUEL</p> <p>--- LUBRICANTS</p> | <p><b>Legend:</b></p> <p>--- OFFICIAL</p> <p>--- TELEPHONE</p> <p>--- POWER</p> <p>--- WATER</p> <p>--- GAS</p> <p>--- OIL</p> <p>--- FUEL</p> <p>--- LUBRICANTS</p> | <p><b>Legend:</b></p> <p>--- OFFICIAL</p> <p>--- TELEPHONE</p> <p>--- POWER</p> <p>--- WATER</p> <p>--- GAS</p> <p>--- OIL</p> <p>--- FUEL</p> <p>--- LUBRICANTS</p> |
|--|--|--|--|--|--|--|--|--|--|

|  |  |  |                                    |
|--|--|--|------------------------------------|
| <p><b>NATIONAL HIGHWAYS AUTHORITY OF INDIA</b></p>           |  | <p><b>PROJECT TITLE:</b> PLAN AND PROFILE FROM CH 314+000 TO 315+000</p> |                                    |
| <p><b>DESIGNED BY:</b> M. V. NAGARAJ &amp; CO. PVT. LTD.</p> | <p><b>SCALE:</b> HORIZONTAL 1:1000, VERTICAL 1:100</p> | <p><b>DATE:</b> JUN-2009</p>   | <p><b>PROJECT NO.:</b> 0807004</p> |
| <p><b>APPROVED BY:</b> M. V. NAGARAJ &amp; CO. PVT. LTD.</p> | <p><b>SCALE:</b> HORIZONTAL 1:1000, VERTICAL 1:100</p> | <p><b>DATE:</b> JUN-2009</p>   | <p><b>PROJECT NO.:</b> 0807004</p> |
| <p><b>APPROVED BY:</b> M. V. NAGARAJ &amp; CO. PVT. LTD.</p> | <p><b>SCALE:</b> HORIZONTAL 1:1000, VERTICAL 1:100</p> | <p><b>DATE:</b> JUN-2009</p>   | <p><b>PROJECT NO.:</b> 0807004</p> |



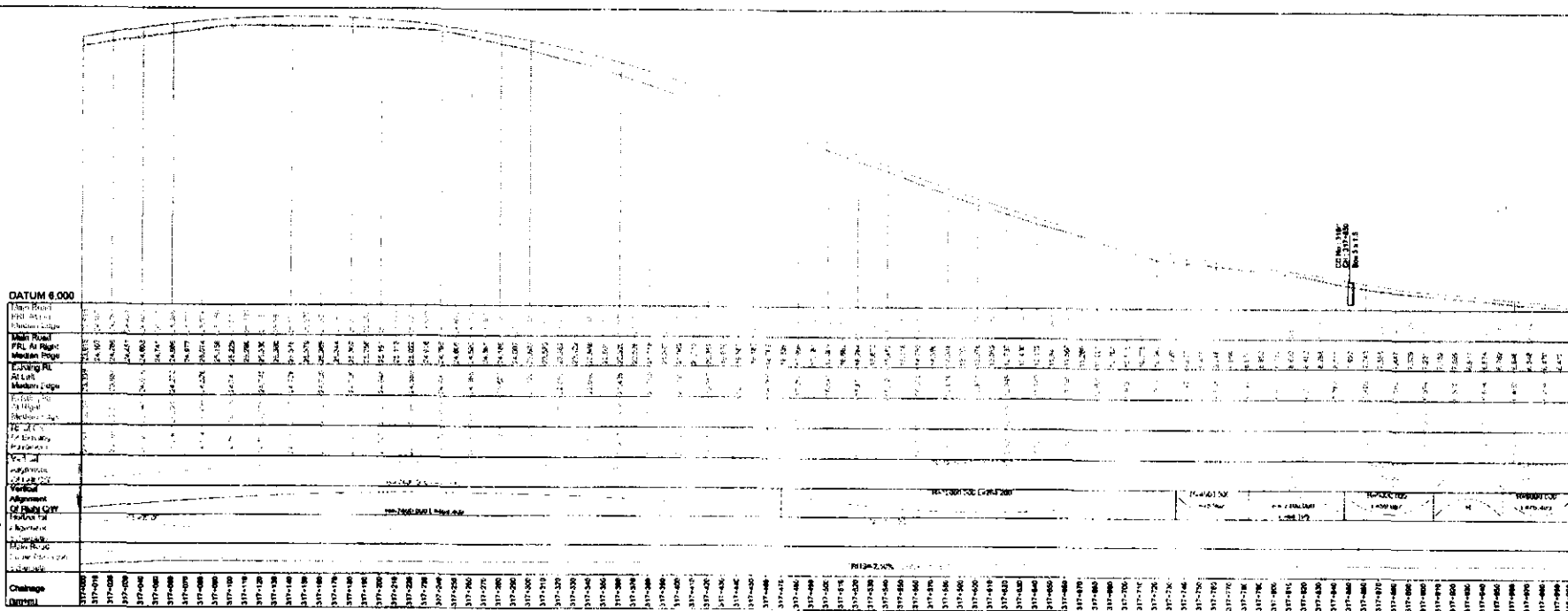
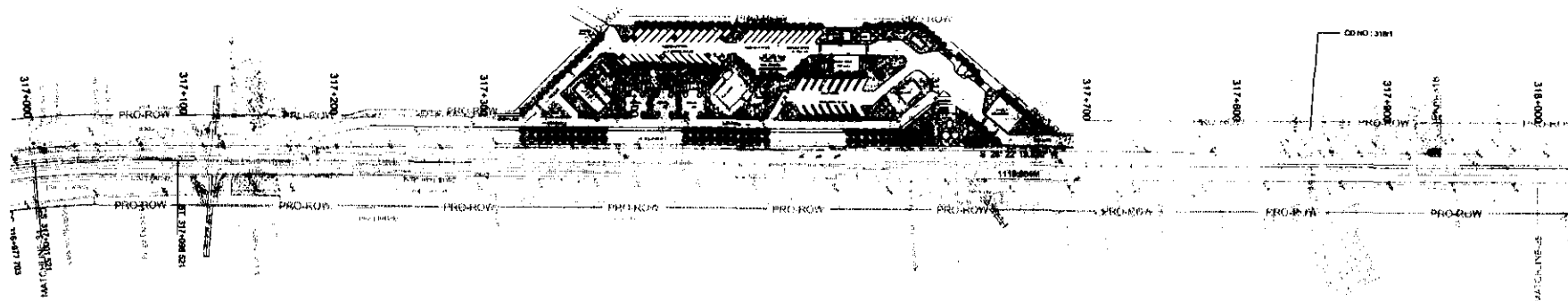
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|---|--|---|--|---|--|--|
| <p>CONTR. LINE<br/>ASSESS<br/>PROPOSED CARRIAGE WAY<br/>PAVED SHOULDER<br/>DIVIDER<br/>EARTHED SHOULDER<br/>SERVICE ROAD<br/>FOOTPATH CLIN DRAIN<br/>PROPOSED ROW</p> | <p>SHEDS<br/>PPE CUM VEST<br/>BOX CUM VEST</p> | <p>Legend as per:-<br/>1. ELECTRICAL POLE<br/>2. FARMING STONE<br/>3. POWER POLE<br/>4. UTM<br/>5. LIGHT POLE<br/>6. FARMING STONE<br/>DATE</p> | <p>Notes<br/>1. OPTICAL FIBRE CABLE<br/>2. TELEPHONE PILE<br/>3. TREE<br/>4. GUY WIRE<br/>5. UTILITY<br/>6. EXISTING ROW OF ROAD<br/>7. EXISTING ROW OF ROAD</p> | <p>Project<br/>NATIONAL HIGHWAYS<br/>AUTHORITY OF INDIA</p> | <p>Project<br/>COMBINATION SERVICES FOR FEASIBILITY STUDY AND DESIGN PROJECT FOR HIGHWAY OF 4 LANE SECTION OF ROAD IN THE STATE OF KARNATAKA UNDER THE PROJECT - 2019/2020 AND 2021/2022</p> | <p>Project<br/>PLAN AND PROFILE<br/>FROM CH-318+000 TO 318+000</p> |
|---|--|---|--|---|--|--|



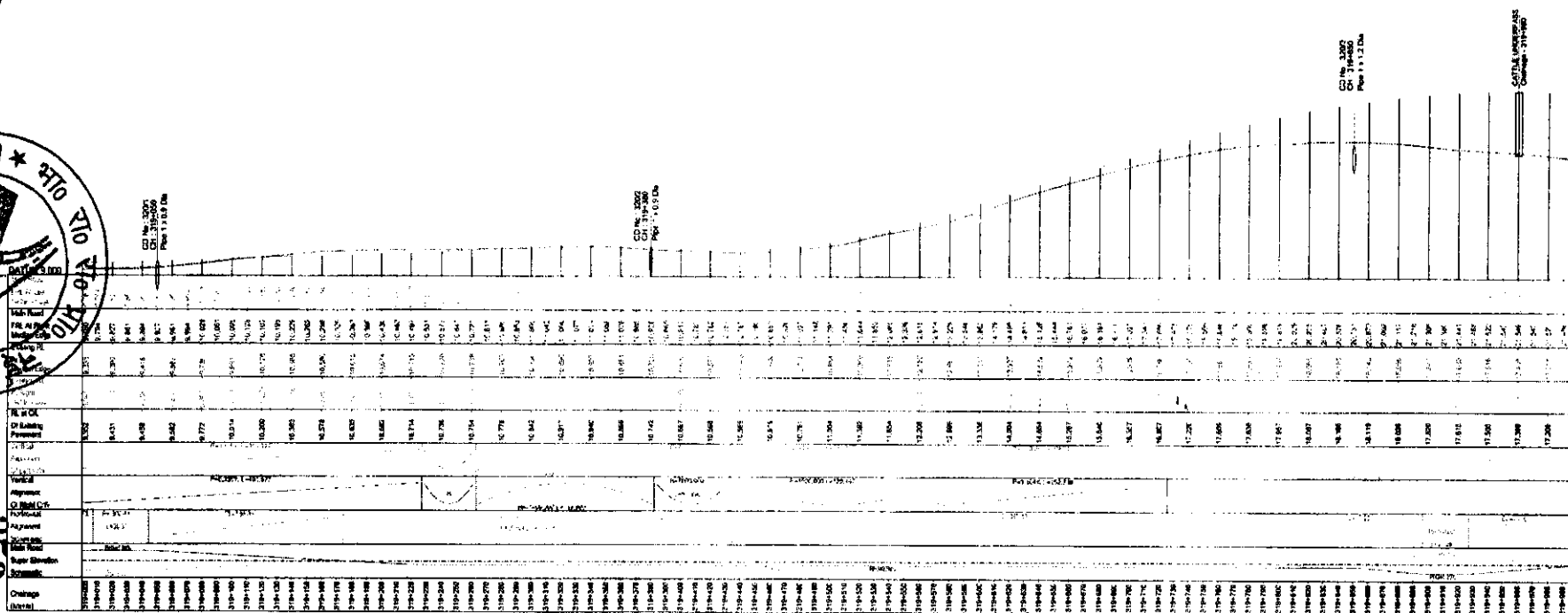
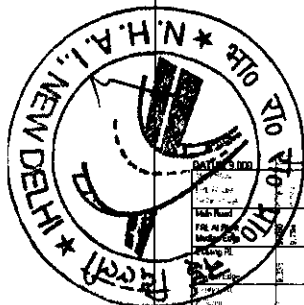
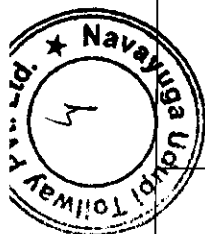
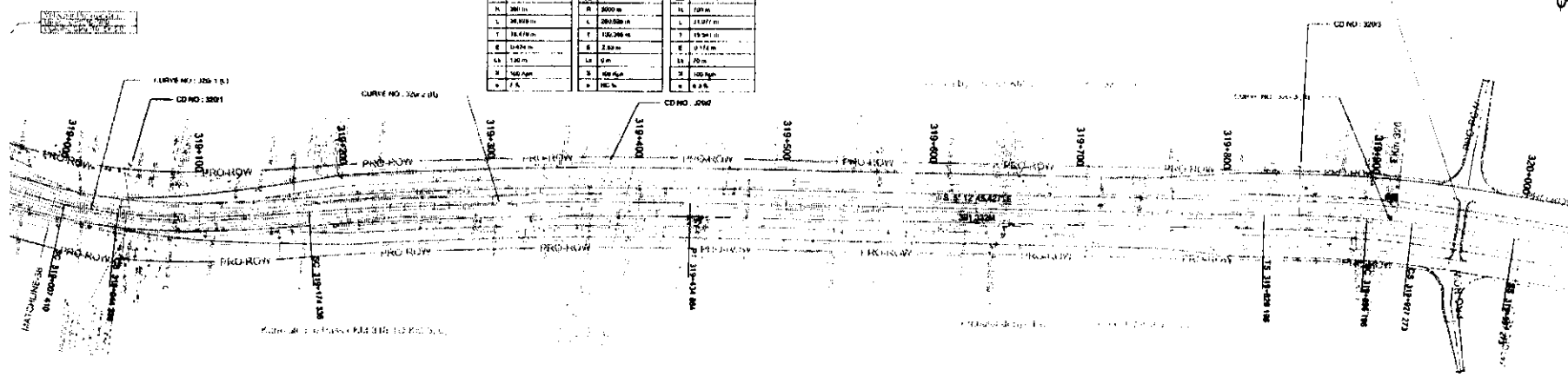
253



|            |                |
|------------|----------------|
| CD No.     | 3741           |
| Lab. Ch.   | 312-890        |
| Ext. Ch.   | 312-890        |
| Ext. Lines | 2              |
| Mr. Ward   | State and Soc. |
| Comments   | Working        |

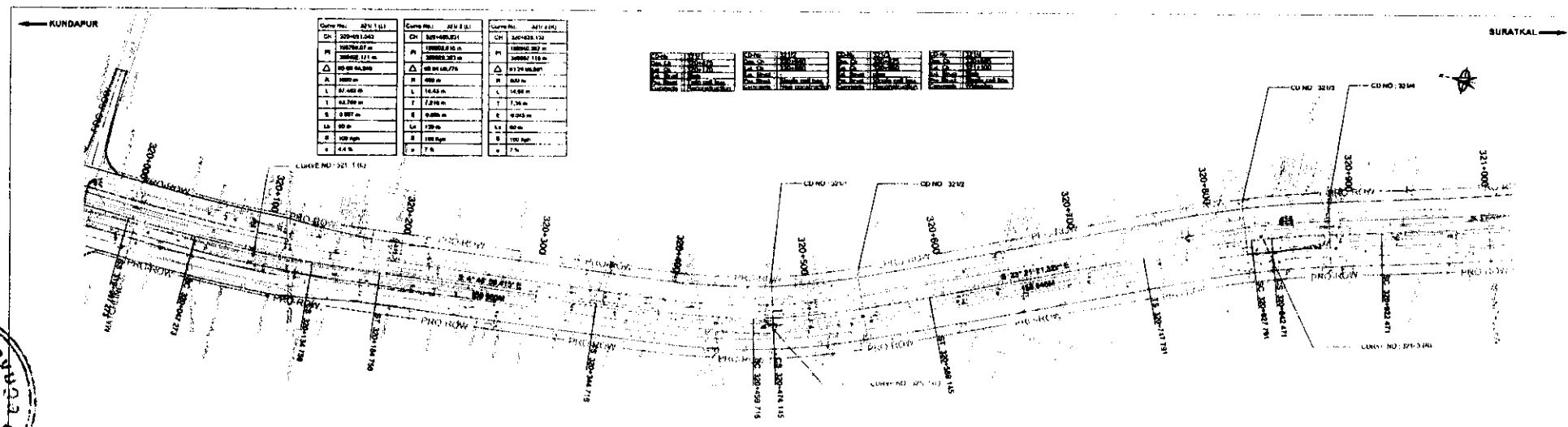
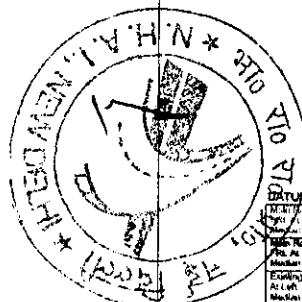
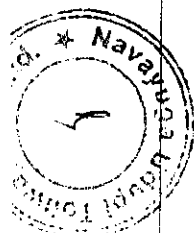
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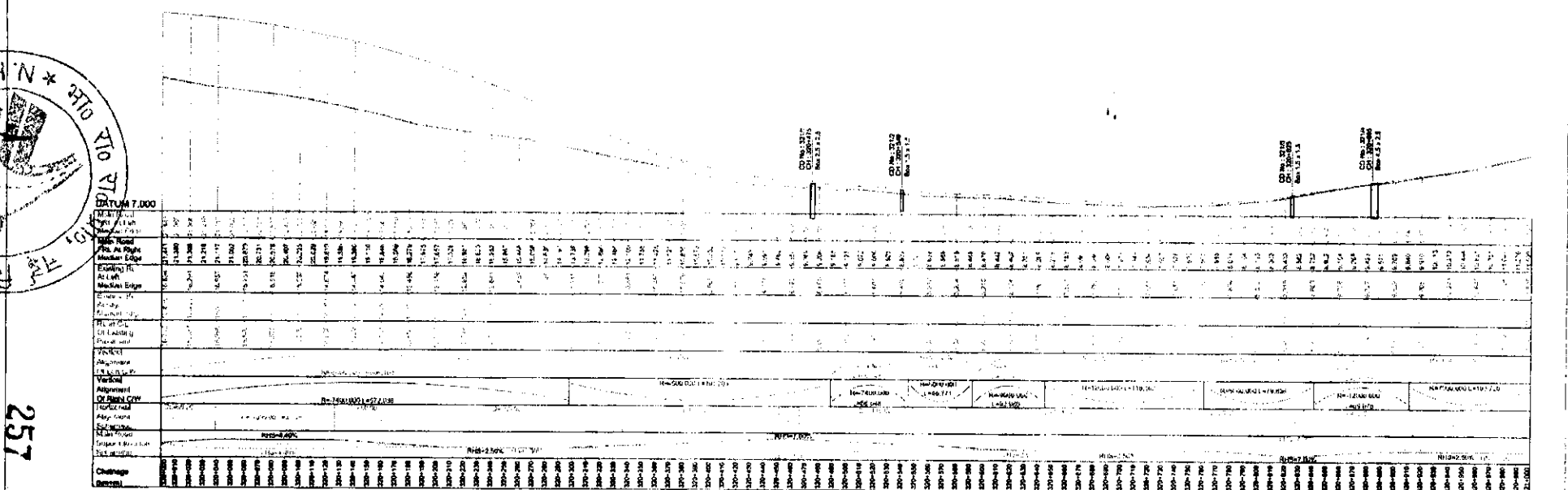
256

|  |                                       |   |   |   |   |   |  |  |                  |                             |                       |             |
|--|---------------------------------------|---|---|---|---|---|--|--|------------------|-----------------------------|-----------------------|-------------|
| CENTRE LINE<br>MEDIAN<br>PROPOSED CARRIAGEWAY<br>PAVED SHOULDER<br>DIVIDER<br>UNPAVED SHOULDER<br>SURFACE ROAD<br>FOOTPATH CURB ORDN<br>PROPOSED ROW | BRIDGE<br>PIPE CULVERT<br>BOX CULVERT | LEGEND'S SYMBOLS<br>ELECTRICAL POLE<br>PUMP OR STORE<br>WIND PUMP<br>WATER RESERVOIR<br>LIGHT POLE<br>ALONG THE STONE<br>GATE | OTHER MARKS<br>TELEPHONE POLE<br>TREE<br>CUMBER<br>WINDMILL<br>LAMP POST OR TRAFFIC<br>SIGNAL | NATIONAL HIGHWAYS<br>AUTHORITY OF INDIA |  | PLAN AND PROFILE<br>FROM CHS19+000 TO 320+000 | CONSTRUCTION DETAILS<br>(To be filled by the contractor) | DRAWING TITLE<br>PLAN AND PROFILE<br>FROM CHS19+000 TO 320+000 | DATE<br>JUN-2008 | PROJECT NO.<br>NH-10-23-001 | SHEET NO.<br>31 OF 78 | REV.<br>FOR |
|  |                                       |   |   |   |   |   |  |  |                  |                             |                       |             |



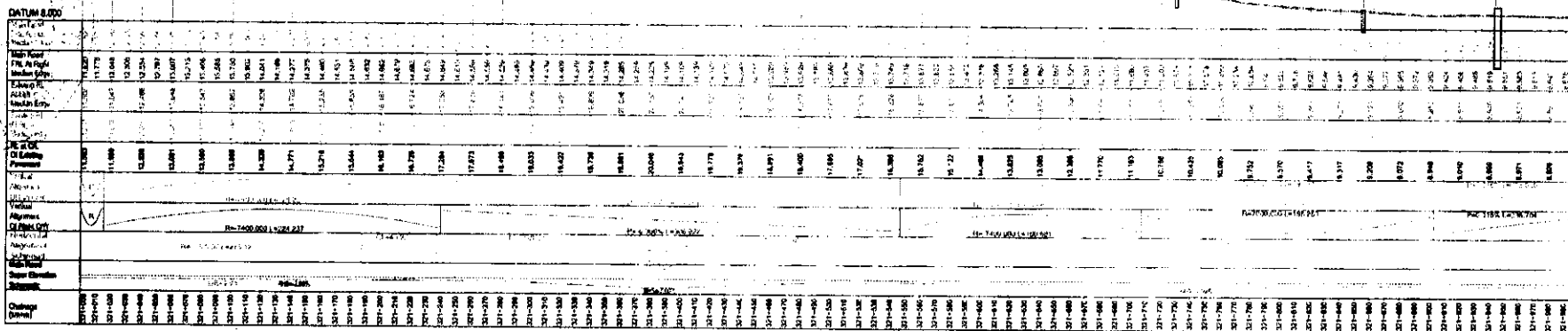
| Curve No. | 201.1 (S)  | Curve No. | 201.2 (S)  | Curve No. | 201.3 (S)  |
|-----------|------------|-----------|------------|-----------|------------|
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |

| Curve No. | 201.1 (S)  | Curve No. | 201.2 (S)  | Curve No. | 201.3 (S)  |
|-----------|------------|-----------|------------|-----------|------------|
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |
| Ch        | 200+100.00 | Ch        | 200+100.00 | Ch        | 200+100.00 |



|               |                    |               |                             |                          |                          |                       |                              |
|---------------|--------------------|---------------|-----------------------------|--------------------------|--------------------------|-----------------------|------------------------------|
| <b>Legend</b> | <b>Centre Line</b> | <b>Median</b> | <b>Proposed Carriageway</b> | <b>Proposed Shoulder</b> | <b>Proposed Footpath</b> | <b>Proposed Drain</b> | <b>Proposed Right of Way</b> |
| <b>Legend</b> | <b>Centre Line</b> | <b>Median</b> | <b>Proposed Carriageway</b> | <b>Proposed Shoulder</b> | <b>Proposed Footpath</b> | <b>Proposed Drain</b> | <b>Proposed Right of Way</b> |
| <b>Legend</b> | <b>Centre Line</b> | <b>Median</b> | <b>Proposed Carriageway</b> | <b>Proposed Shoulder</b> | <b>Proposed Footpath</b> | <b>Proposed Drain</b> | <b>Proposed Right of Way</b> |
| <b>Legend</b> | <b>Centre Line</b> | <b>Median</b> | <b>Proposed Carriageway</b> | <b>Proposed Shoulder</b> | <b>Proposed Footpath</b> | <b>Proposed Drain</b> | <b>Proposed Right of Way</b> |
| <b>Legend</b> | <b>Centre Line</b> | <b>Median</b> | <b>Proposed Carriageway</b> | <b>Proposed Shoulder</b> | <b>Proposed Footpath</b> | <b>Proposed Drain</b> | <b>Proposed Right of Way</b> |
| <b>Legend</b> | <b>Centre Line</b> | <b>Median</b> | <b>Proposed Carriageway</b> | <b>Proposed Shoulder</b> | <b>Proposed Footpath</b> | <b>Proposed Drain</b> | <b>Proposed Right of Way</b> |
| <b>Legend</b> | <b>Centre Line</b> | <b>Median</b> | <b>Proposed Carriageway</b> | <b>Proposed Shoulder</b> | <b>Proposed Footpath</b> | <b>Proposed Drain</b> | <b>Proposed Right of Way</b> |
| <b>Legend</b> | <b>Centre Line</b> | <b>Median</b> | <b>Proposed Carriageway</b> | <b>Proposed Shoulder</b> | <b>Proposed Footpath</b> | <b>Proposed Drain</b> | <b>Proposed Right of Way</b> |
| <b>Legend</b> | <b>Centre Line</b> | <b>Median</b> | <b>Proposed Carriageway</b> | <b>Proposed Shoulder</b> | <b>Proposed Footpath</b> | <b>Proposed Drain</b> | <b>Proposed Right of Way</b> |
| <b>Legend</b> | <b>Centre Line</b> | <b>Median</b> | <b>Proposed Carriageway</b> | <b>Proposed Shoulder</b> | <b>Proposed Footpath</b> | <b>Proposed Drain</b> | <b>Proposed Right of Way</b> |

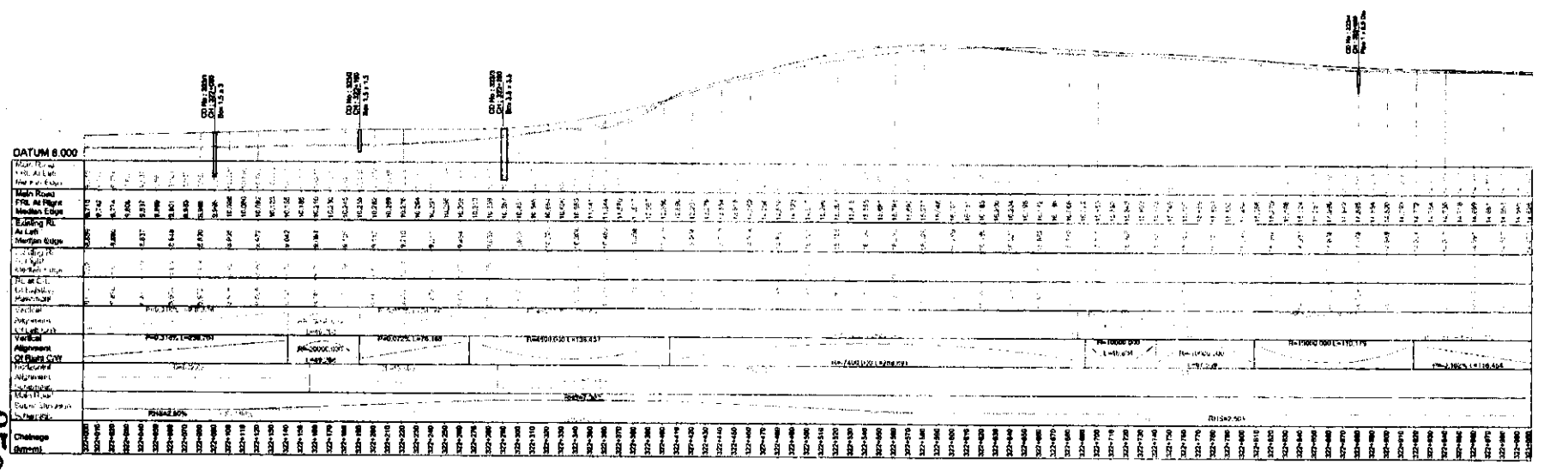
|                    |   |
|--------------------|---|
| <b>Client</b>      | <b>NATIONAL HIGHWAYS AUTHORITY OF INDIA</b>           |
| <b>Project</b>     | <b>CONSTRUCTION OF ROAD FROM KUNDAPUR TO SURATKAL</b> |
| <b>Section</b>     | <b>SECTION OF ROAD FROM KUNDAPUR TO SURATKAL</b>      |
| <b>Scale</b>       | <b>1:1000</b>   |
| <b>Date</b>        | <b>JUN-2009</b>                                       |
| <b>Drawn by</b>    | <b>KS-10-23-001</b>                                   |
| <b>Checked by</b>  | <b>KS-10-23-001</b>                                   |
| <b>Approved by</b> | <b>KS-10-23-001</b>                                   |

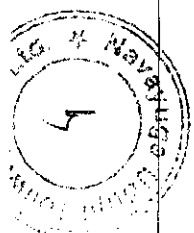


PROPERTY STUDY & CRITICAL POINT ANALYSIS  
TYPICAL SECTION OF 20-17 SHEET  
NO. 10 (PACKAGE NO. 10-000000)

Q PROFILE  
000 TO 322+000

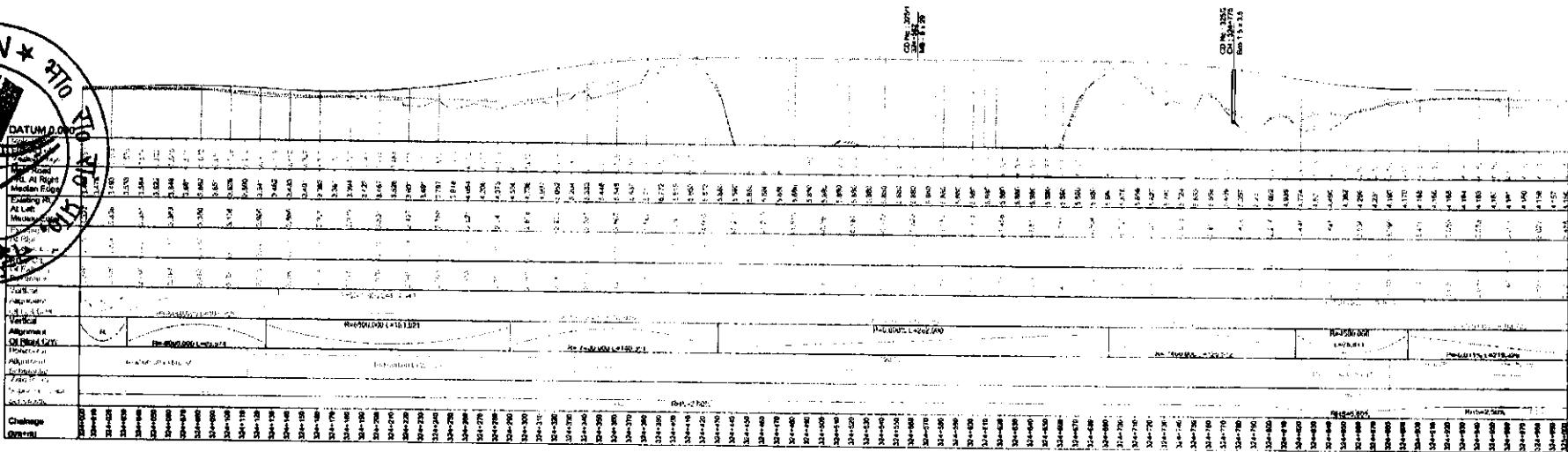
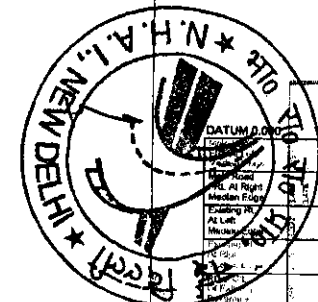
| No. | Sheet No. |
|-----|-----------|
|-----|-----------|

[illegible]



260

|                           |   |  |              |  |  |
|---------------------------|---|--|--------------|--|--|
| <p>Legend (continued)</p> | <p>TRANSFORMER<br/>ELECTRICAL POLE<br/>FLUORESCENT LIGHT<br/>HAND PUMP<br/>WATER TOWER<br/>LIGHT POLE<br/>ADDITIONAL RETURN<br/>CABLE</p> | <p>OPTICAL FIBRE CABLE<br/>TELEPHONE POLE<br/>FIRE<br/>COURT<br/>UTILITY<br/>RAILROAD RIGHT OF WAY<br/>FENCE</p> | <p>Notes</p> | <p>Project</p> <p><b>NATIONAL HIGHWAYS<br/>AUTHORITY OF INDIA</b></p> <p>Scale</p> <p>Horizontal</p> <p>Vertical</p> <p>Scale of HZ<br/>1:1000</p> <p>Scale of VZ<br/>1:200</p> <p>Date</p> <p>Project No.</p> <p>Drawing No.</p> <p>Sheet No.</p> <p>Rev.</p> | <p>CONSTRUCTION SERVICES FOR PREPARING STUDY AND DESIGN PROJECT REPORT FOR LAYING OF KUNDURUMATHUR SECTION OF NH-17 IN THE STATE OF KARNATAKA UNDER ROAD FUND - II (BIDDING AND WORK) - BIDDING</p> <p>PLAN AND PROFILE<br/>FROM CH-325+000 TO 324+000</p> |
|---------------------------|---|--|--------------|--|--|

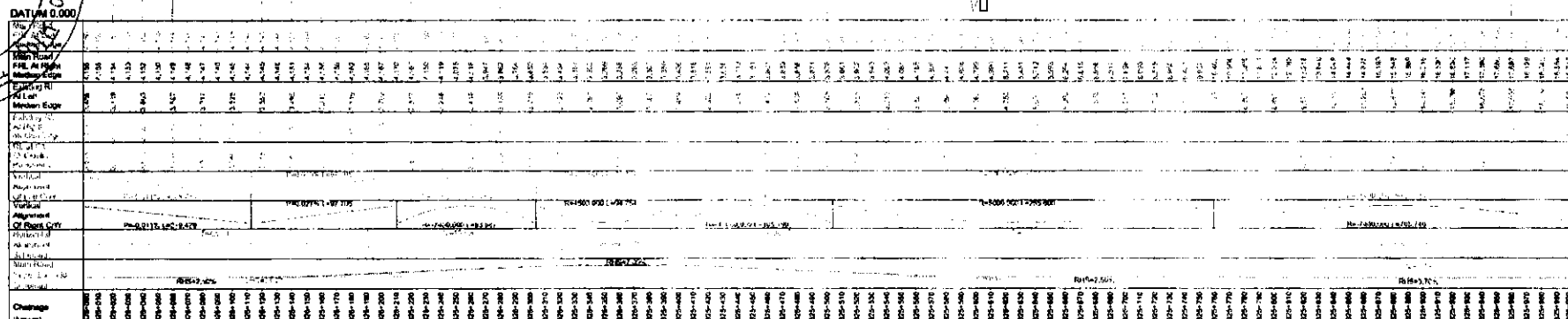
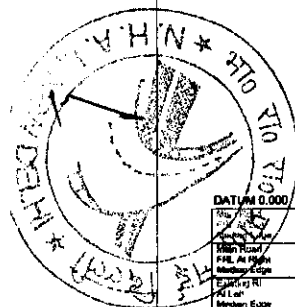
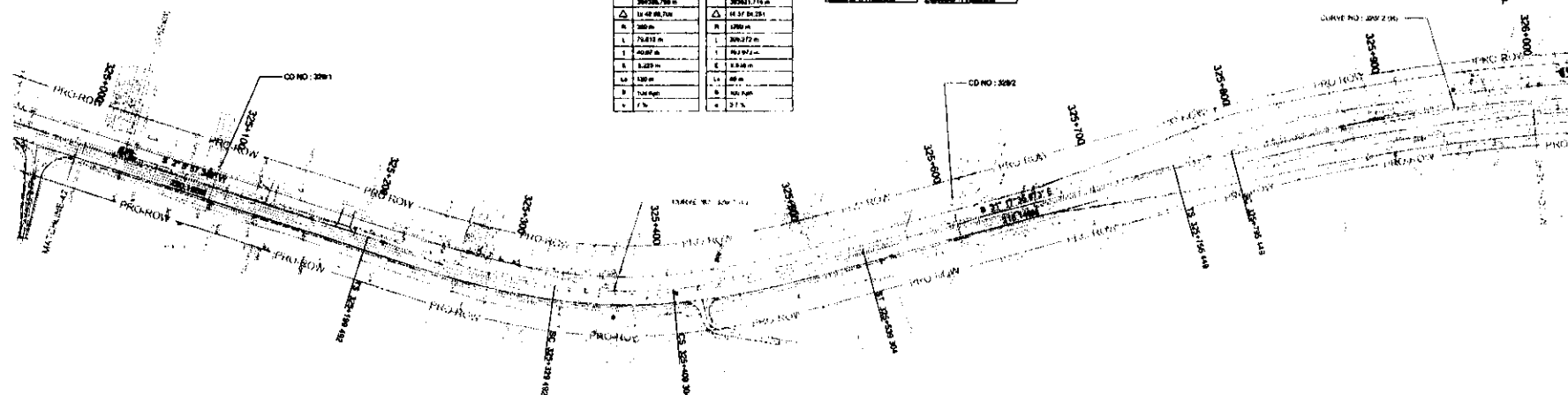


The image shows the logo of the National Highways Authority of India (NHAI) at the top, which consists of a stylized 'N' and 'H' intertwined. Below it, the text 'NATIONAL HIGHWAYS AUTHORITY OF INDIA' is written. At the bottom, there are two logos for Wilbur Smith Associates. The left logo is for 'Wilbur Smith Associates, Inc.' and the right logo is for 'Wilbur Smith Associates Private Limited'. Both logos feature a stylized 'W' and 'S' intertwined.

[illegible]

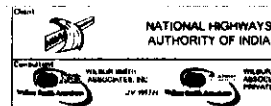


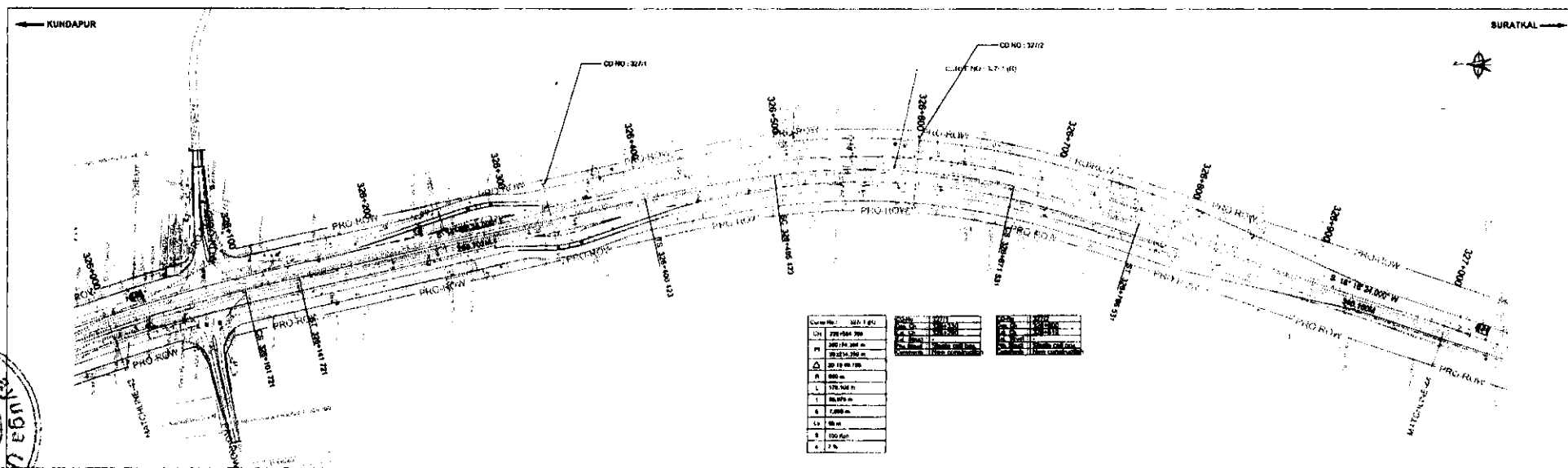
| Course No. | 2007-2008     | Course No. | 2008-2009     |
|------------|---------------|------------|---------------|
| Civ        | 2201-2008-101 | Civ        | 2201-2008-102 |
| Ph         | 20072008-101  | Ph         | 20072008-102  |
|            | 20072008-100  |            | 20072008-100  |
| $\Delta$   | 1x 42 48,700  | $\Delta$   | 1x 37 48,251  |
| R          | 2000          | R          | 1990          |
| L          | 75,815 m      | L          | 200-172 m     |
| 1          | 40,881 m      | 1          | 40,974 m      |
| B          | 3,229 m       | B          | 3,230 m       |
| L6         | 1,320 m       | L6         | 600 m         |
| N          | 7,041 m       | N          | 7,041 m       |
| E          | 1 m           | E          | 3.7 m         |

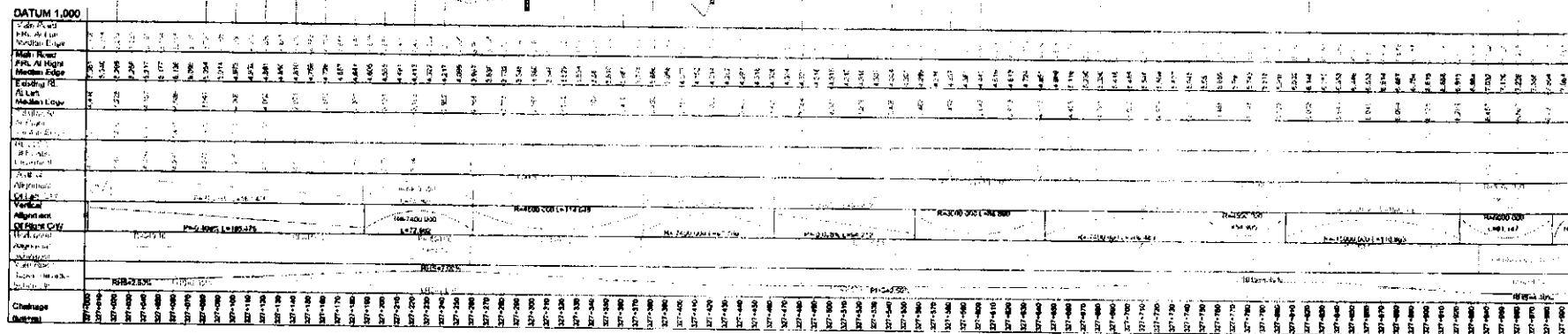
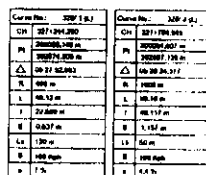


|   |  |  |  |  |
|---|--|--|--|--|
| <p>1. CENTRE LINE<br/>MIDSPAN</p> <p>2. PROPOSED CARRIAGEWAY</p> <p>3. PAVED SHOULDER</p> <p>4. OVERLAY</p> <p>5. EARTHEN SHOULDER</p> <p>6. EXISTING ROAD</p> <p>7. FOOTPATH CUM DRAIN</p> |  | <p>OVERLAY</p> <p>PIPE CULVERT</p> <p>RAIN CULVERT</p> | <p>1. TRANSFORMER</p> <p>2. ELECTRICAL POLE</p> <p>3. FURNISH STOP</p> <p>4. ROAD PUMP</p> <p>5. ROAD BRIDGE</p> <p>6. LIGHT POLE</p> <p>7. RECREATION STATION</p> <p>DATE</p> | <p>8. OPTICAL FIBRE CABLE</p> <p>9. TELEPHONE POLE</p> <p>10. TREE</p> <p>11. WALL/VERT</p> <p>12. UTILITY P</p> <p>13. EXISTING RIGHT OF WAY</p> <p>14. FENCE</p> |
|---|--|--|--|--|

No 1

[illegible]





264

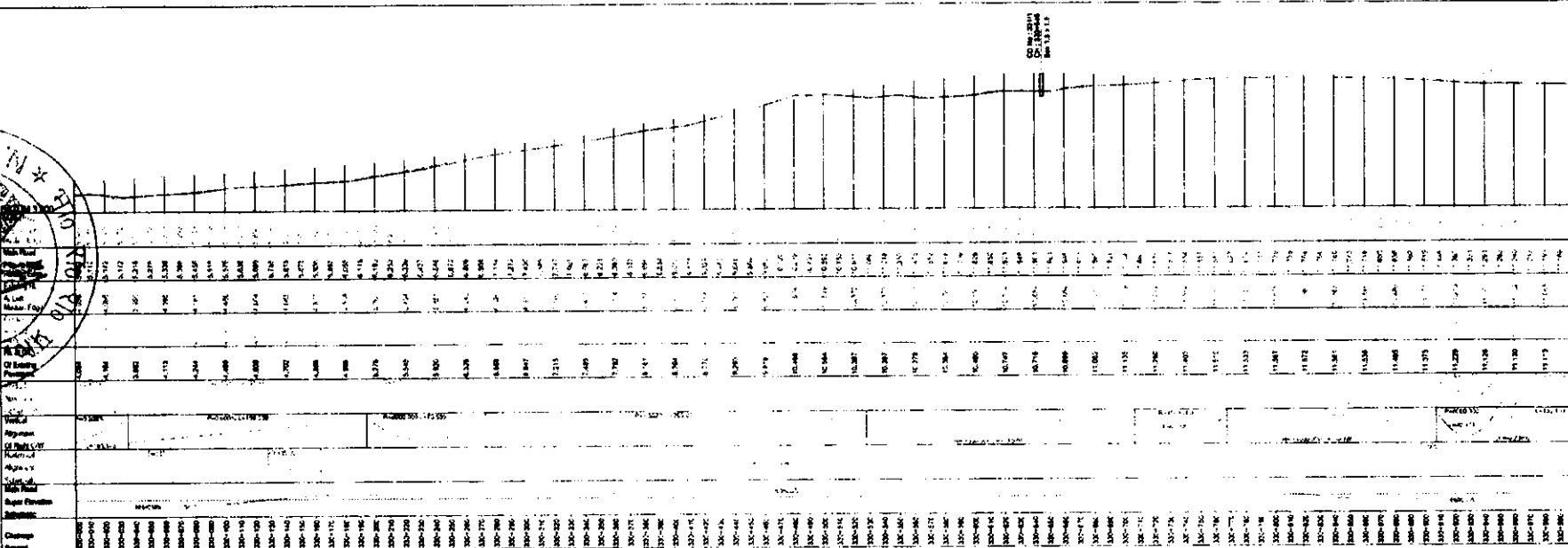
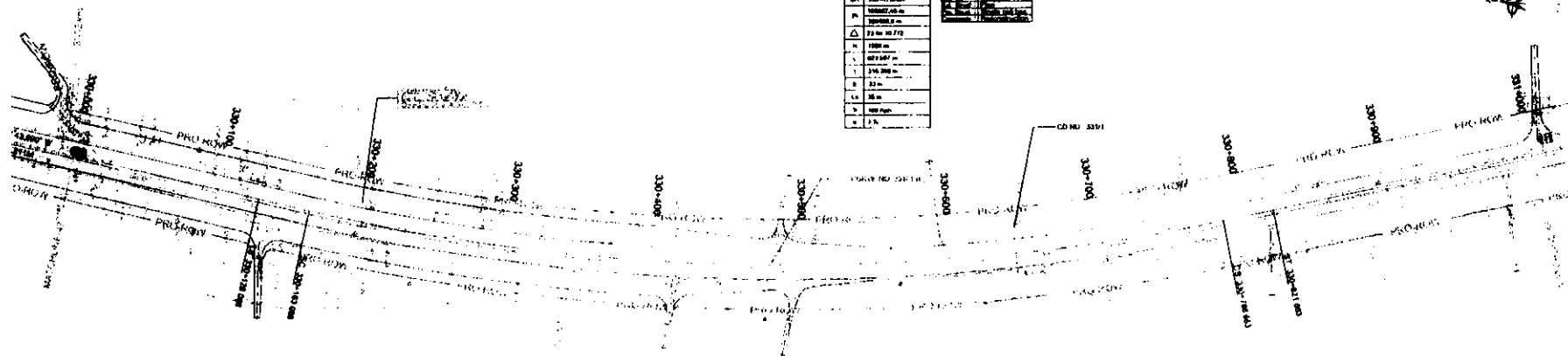
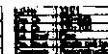
|                    |   |  |   |  |  |
|--------------------|---|--|---|--|--|
| Legend (continued) | <p>CENTRE LINE</p> <p>WEDGEM</p> <p>PROPOSED CARRIAGEWAY</p> <p>PAVED SHOULDER</p> <p>DRAIN</p> <p>EARTHEN SHOULDER</p> <p>SEWER</p> <p>FOOTPATH OR GRASS</p> <p>PROPOSED ROW</p> |  | <p>WEDGE</p> <p>PIPE CULVERT</p> <p>BOX CULVERT</p> | <p>Legend (continued)</p> <p>TRANSVERSE DRAIN</p> <p>PICTURAL POLE</p> <p>PURLINS STONE</p> <p>WIND PUMP</p> <p>WIND ROAD</p> <p>LIGHT POLE</p> <p>FLUENTIAL STONE</p> <p>GATE</p> | <p>OPTIONAL FENCE LABLE</p> <p>TO JOINTING POLE</p> <p>FENCE</p> <p>CULVERT</p> <p>WIND ROAD</p> <p>WINDING POINT OF ROAD</p> <p>FENCE</p> |
|--------------------|---|--|---|--|--|

[illegible]





|               |                                |
|---------------|--------------------------------|
| Cut-out Poles | 33M x 6.1                      |
| Gps           | 330-478.920                    |
| Pn            | 1000000.000 m<br>1000000.000 m |
| $\Delta$      | 7.5 dm 101.772                 |
| Hc            | 10000 m                        |
| s             | 027.507 m                      |
| t             | 3.56.200 m                     |
| R             | 2.3 m                          |
| Ls            | 20 m                           |
| T             | 1000 Pages                     |
| m             | 3.5%                           |




**CENTRE LINE  
MOPED  
PROPOSED CARRIAGE WAY  
PAVED SHOULDER  
DIVIDER  
BARTON SHOULDER  
SERVICE ROAD  
FOOTPATH CUM GRASS  
PROPOSED ROW**


**QUESTIONS**  
**PPPS ON VENT**  
**SCA C&D VENT**

[illegible]

23

UPPER PENNSYLVANIA  
TELEPHONE PLAN  
1966  
CART  
UTILITY  
EASTERN NIGHT OF MAY  
FENCE

**Chaper**  


**Corbuto**  


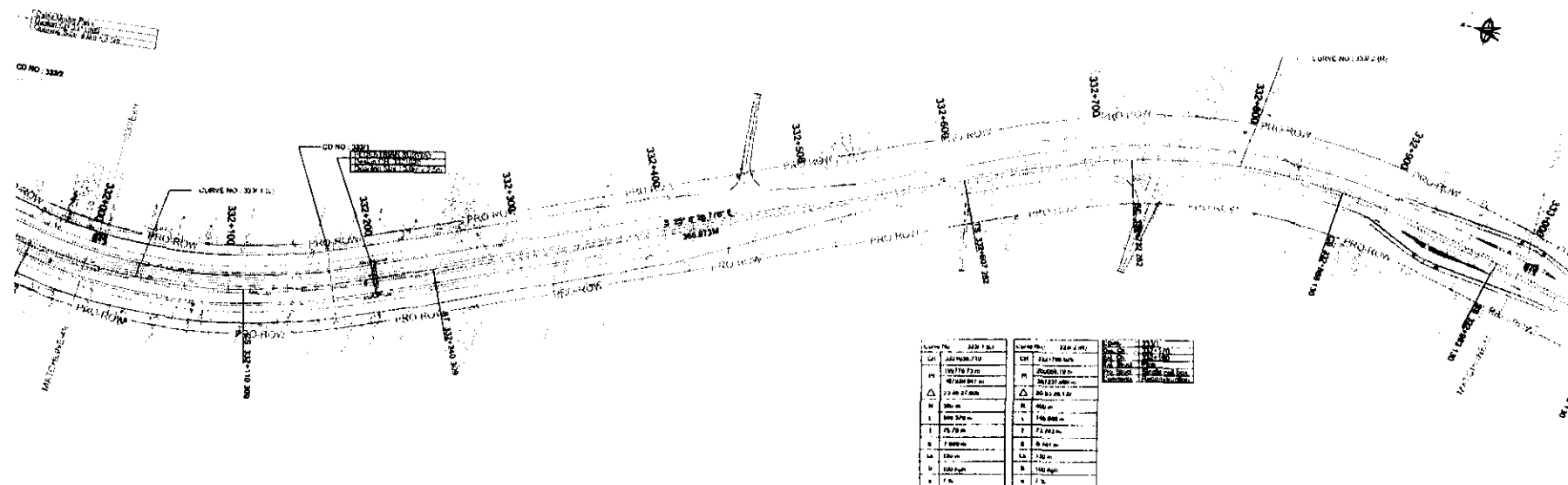
NATIONAL HIGHWAYS  
AUTHORITY OF INDIA

|   |             |  |
|---|-------------|--|
| 1 | 08-08-02    |  |
| 2 | Date        |  |
| 3 | Latitude    |  |
| 4 | Orbits      |  |
| 5 | Finished    |  |
| 6 | Appr Orbits |  |

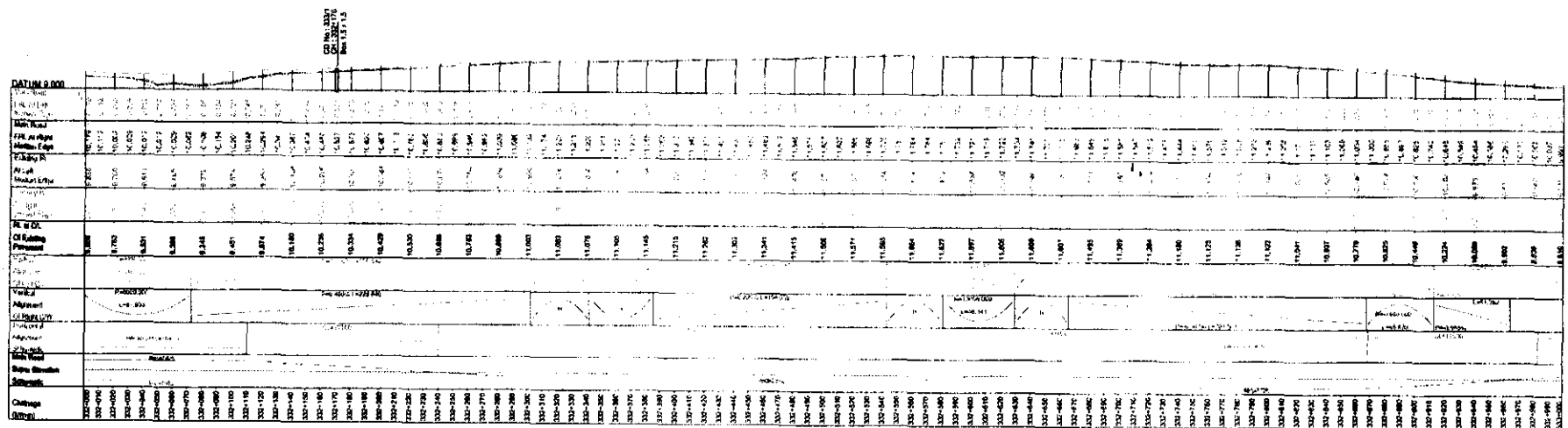
Scale: 1/2 inch = 1 foot  
Scale: 1/2 inch = 1 foot

|  |                 |                   |                     |                 |
|--|-----------------|-------------------|---------------------|-----------------|
| <p>Complex NAME: SERVICES FOR PARASITIC STUDY - 6/27/83 FROM L.H. POWELL<br/>         TO: 48 LARVALS OF NON-PARASITIC SECTION OF 1961 IN THE STATE OF<br/>         ARIZONA UNDER REEF PRIDE - 6/27/83 FROM L.H. POWELL</p> |                 |                   |                     |                 |
| <p>PLAN AND PROFILE<br/>         FROM CH-330-00 TO 331-000</p>   |                 |                   |                     |                 |
| <p>Drawing Title</p>   | <p>Date</p>     | <p>Project No</p> | <p>Drawing No</p>   | <p>Sheet No</p> |
| <p></p>  | <p>JUN-2009</p> | <p>0807004</p>    | <p>KB-1D-23-001</p> | <p>48 OF 16</p> |





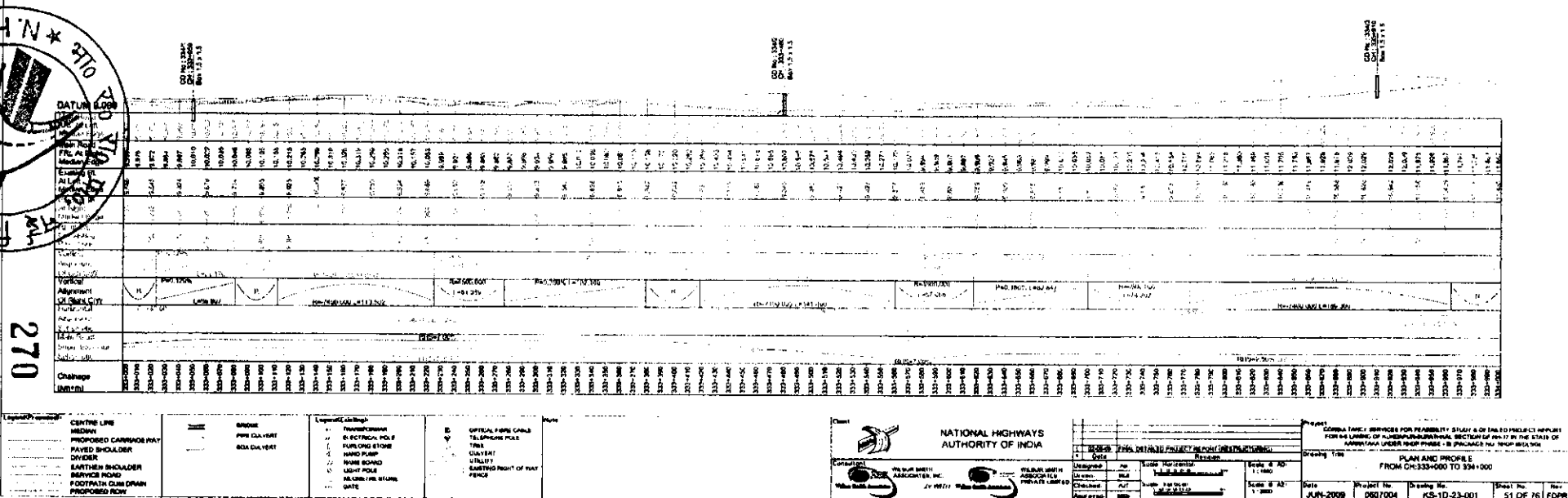
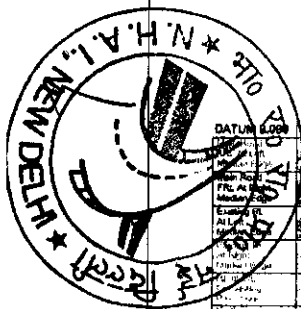
| Location     | Altitude | Latitude | Longitude | Time     |
|--------------|----------|----------|-----------|----------|
| 1. 10000 ft  | 10000 ft | 10000 ft | 10000 ft  | 10000 ft |
| 2. 10000 ft  | 10000 ft | 10000 ft | 10000 ft  | 10000 ft |
| 3. 10000 ft  | 10000 ft | 10000 ft | 10000 ft  | 10000 ft |
| 4. 10000 ft  | 10000 ft | 10000 ft | 10000 ft  | 10000 ft |
| 5. 10000 ft  | 10000 ft | 10000 ft | 10000 ft  | 10000 ft |
| 6. 10000 ft  | 10000 ft | 10000 ft | 10000 ft  | 10000 ft |
| 7. 10000 ft  | 10000 ft | 10000 ft | 10000 ft  | 10000 ft |
| 8. 10000 ft  | 10000 ft | 10000 ft | 10000 ft  | 10000 ft |
| 9. 10000 ft  | 10000 ft | 10000 ft | 10000 ft  | 10000 ft |
| 10. 10000 ft | 10000 ft | 10000 ft | 10000 ft  | 10000 ft |

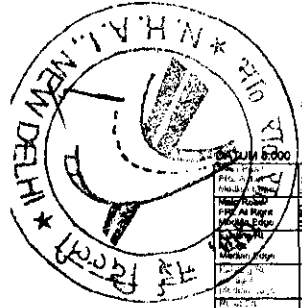


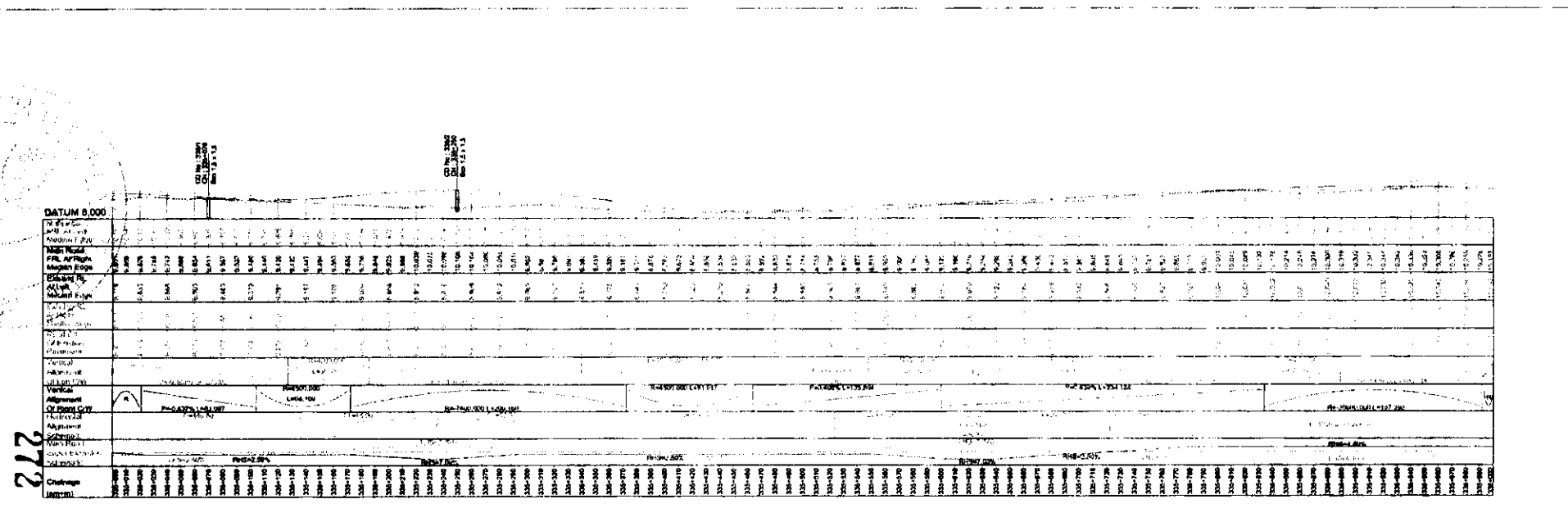
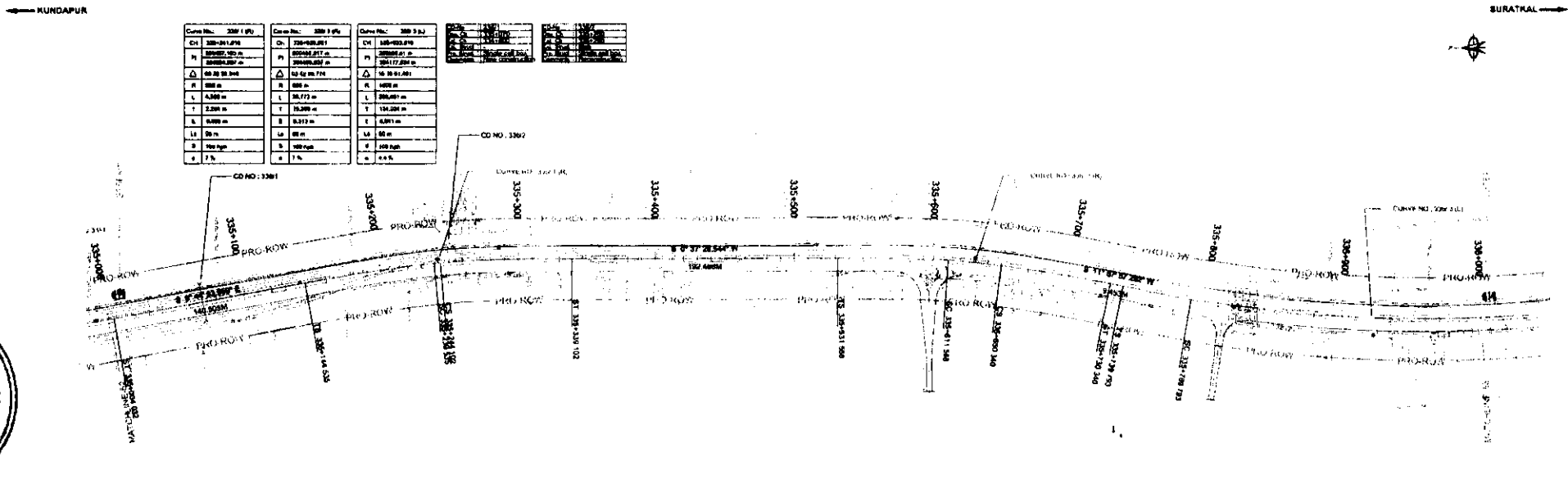
269

|  |  |
|--|--|
| CONTRACT LINE<br>MATERIAL<br>PROPOSED CARRIAGEWAY<br>PAVED SHOULDER<br>DIVIDER<br>BARRIER SHOULDER<br>SERVICE ROAD<br>FOOTPATH CLASS DIVIN<br>PROPOSED ROW | WHEN<br>PIPE DAYLIGHT<br>CULVERT<br>E<br>1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12<br>13<br>14<br>15<br>16<br>17<br>18<br>19<br>20<br>21<br>22<br>23<br>24<br>25<br>26<br>27<br>28<br>29<br>30<br>31<br>32<br>33<br>34<br>35<br>36<br>37<br>38<br>39<br>40<br>41<br>42<br>43<br>44<br>45<br>46<br>47<br>48<br>49<br>50<br>51<br>52<br>53<br>54<br>55<br>56<br>57<br>58<br>59<br>60<br>61<br>62<br>63<br>64<br>65<br>66<br>67<br>68<br>69<br>70<br>71<br>72<br>73<br>74<br>75<br>76<br>77<br>78<br>79<br>80<br>81<br>82<br>83<br>84<br>85<br>86<br>87<br>88<br>89<br>90<br>91<br>92<br>93<br>94<br>95<br>96<br>97<br>98<br>99<br>100<br>101<br>102<br>103<br>104<br>105<br>106<br>107<br>108<br>109<br>110<br>111<br>112<br>113<br>114<br>115<br>116<br>117<br>118<br>119<br>120<br>121<br>122<br>123<br>124<br>125<br>126<br>127<br>128<br>129<br>130<br>131<br>132<br>133<br>134<br>135<br>136<br>137<br>138<br>139<br>140<br>141<br>142<br>143<br>144<br>145<br>146<br>147<br>148<br>149<br>150<br>151<br>152<br>153<br>154<br>155<br>156<br>157<br>158<br>159<br>160<br>161<br>162<br>163<br>164<br>165<br>166<br>167<br>168<br>169<br>170<br>171<br>172<br>173<br>174<br>175<br>176<br>177<br>178<br>179<br>180<br>181<br>182<br>183<br>184<br>185<br>186<br>187<br>188<br>189<br>190<br>191<br>192<br>193<br>194<br>195<br>196<br>197<br>198<br>199<br>200<br>201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209<br>210<br>211<br>212<br>213<br>214<br>215<br>216<br>217<br>218<br>219<br>220<br>221<br>222<br>223<br>224<br>225<br>226<br>227<br>228<br>229<br>230<br>231<br>232<br>233<br>234<br>235<br>236<br>237<br>238<br>239<br>240<br>241<br>242<br>243<br>244<br>245<br>246<br>247<br>248<br>249<br>250<br>251<br>252<br>253<br>254<br>255<br>256<br>257<br>258<br>259<br>260<br>261<br>262<br>263<br>264<br>265<br>266<br>267<br>268<br>269<br>270<br>271<br>272<br>273<br>274<br>275<br>276<br>277<br>278<br>279<br>280<br>281<br>282<br>283<br>284<br>285<br>286<br>287<br>288<br>289<br>290<br>291<br>292<br>293<br>294<br>295<br>296<br>297<br>298<br>299<br>300<br>301<br>302<br>303<br>304<br>305<br>306<br>307<br>308<br>309<br>310<br>311<br>312<br>313<br>314<br>315<br>316<br>317<br>318<br>319<br>320<br>321<br>322<br>323<br>324<br>325<br>326<br>327<br>328<br>329<br>330<br>331<br>332<br>333<br>334<br>335<br>336<br>337<br>338<br>339<br>340<br>341<br>342<br>343<br>344<br>345<br>346<br>347<br>348<br>349<br>350<br>351<br>352<br>353<br>354<br>355<br>356<br>357<br>358<br>359<br>360<br>361<br>362<br>363<br>364<br>365<br>366<br>367<br>368<br>369<br>370<br>371<br>372<br>373<br>374<br>375<br>376<br>377<br>378<br>379<br>380<br>381<br>382<br>383<br>384<br>385<br>386<br>387<br>388<br>389<br>390<br>391<br>392<br>393<br>394<br>395<br>396<br>397<br>398<br>399<br>400<br>401<br>402<br>403<br>404<br>405<br>406<br>407<br>408<br>409<br>410<br>411<br>412<br>413<br>414<br>415<br>416<br>417<br>418<br>419<br>420<br>421<br>422<br>423<br>424<br>425<br>426<br>427<br>428<br>429<br>430<br>431<br>432<br>433<br>434<br>435<br>436<br>437<br>438<br>439<br>440<br>441<br>442<br>443<br>444<br>445<br>446<br>447<br>448<br>449<br>450<br>451<br>452<br>453<br>454<br>455<br>456<br>457<br>458<br>459<br>460<br>461<br>462<br>463<br>464<br>465<br>466<br>467<br>468<br>469<br>470<br>471<br>472<br>473<br>474<br>475<br>476<br>477<br>478<br>479<br>480<br>481<br>482<br>483<br>484<br>485<br>486<br>487<br>488<br>489<br>490<br>491<br>492<br>493<br>494<br>495<br>496<br>497<br>498<br>499<br>500<br>501<br>502<br>503<br>504<br>505<br>506<br>507<br>508<br>509<br>510<br>511<br>51 |
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Legend:

- CENTRE LINE
- PROPOSED CARRIAGEWAY
- PAVED SHOULDER
- DRAIN
- EARTHEN SHOULDER
- SERVICE ROAD
- FOOTPATH CUM DRAIN
- PROPOSED ROW

Legend:

- TRANSFORMER
- ELECTRICAL POLE
- PUMPING STATION
- WIND PUMP
- RAILROAD
- LIGHT POLE
- ALLIANCE STATION
- GATE

Legend:

- OPTICAL FIBRE CABLE
- TELEPHONE POLE
- WATER
- SEWER
- UTILITY
- EXISTING RIGHT OF WAY
- POLE

Client: NATIONAL HIGHWAYS AUTHORITY OF INDIA

Project: KUNDAPUR SURATHAL ROAD PROJECT

Scale: 1:1000

Date: JUN-2008

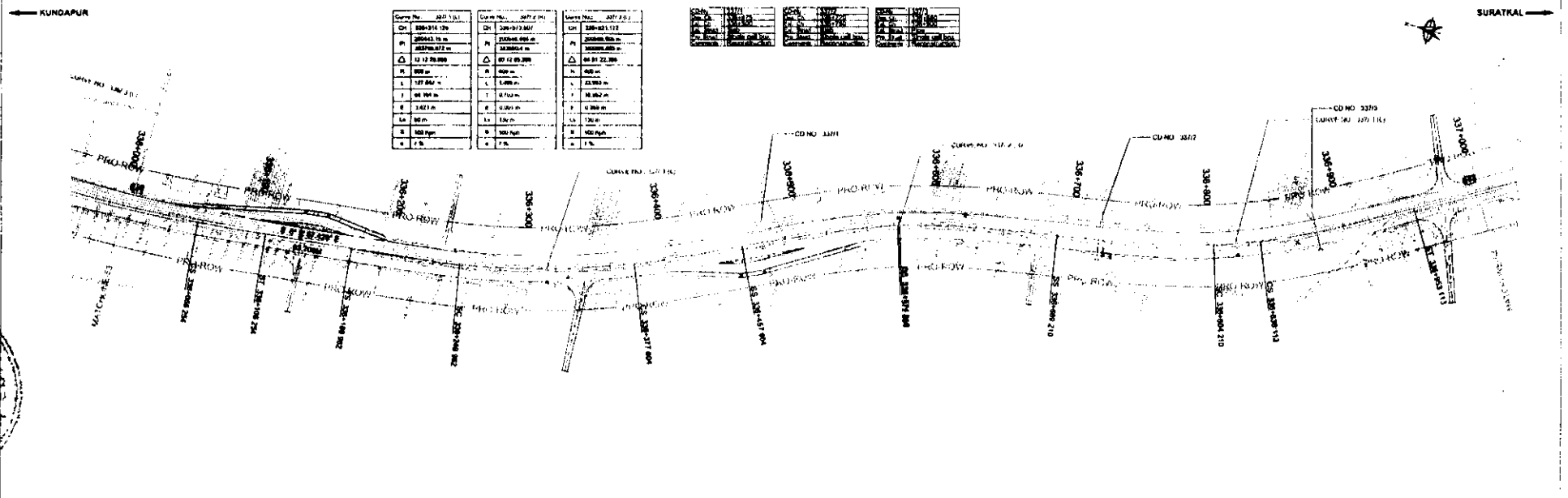
Project No: 0807004

Sheet No: 53 OF 78

Page: 53 OF 78

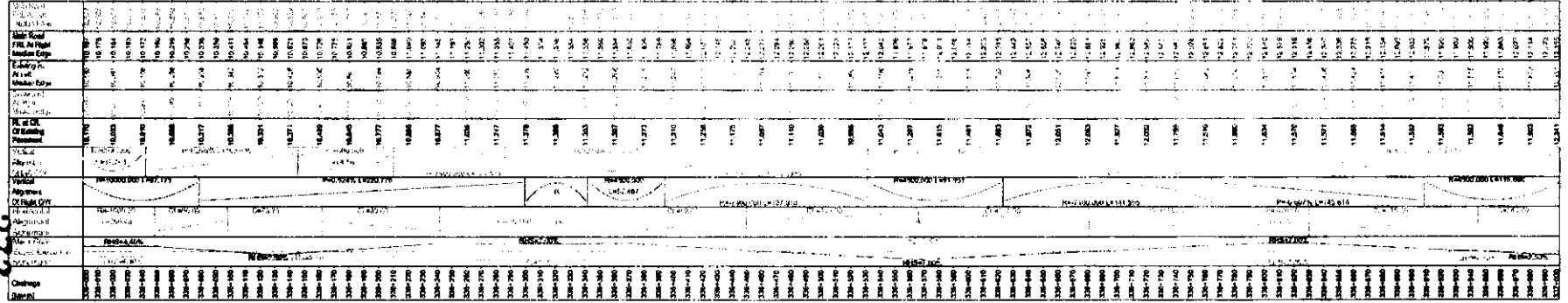


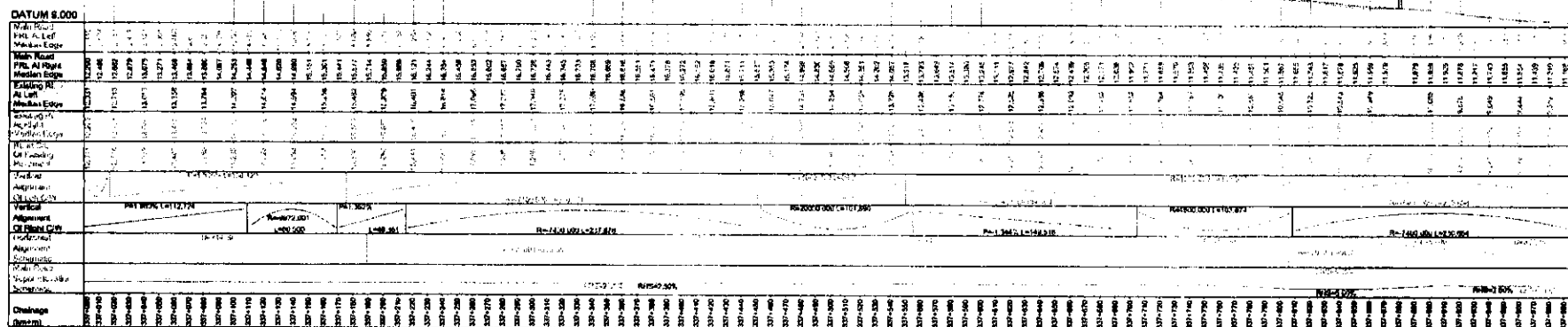
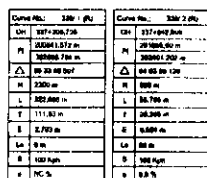
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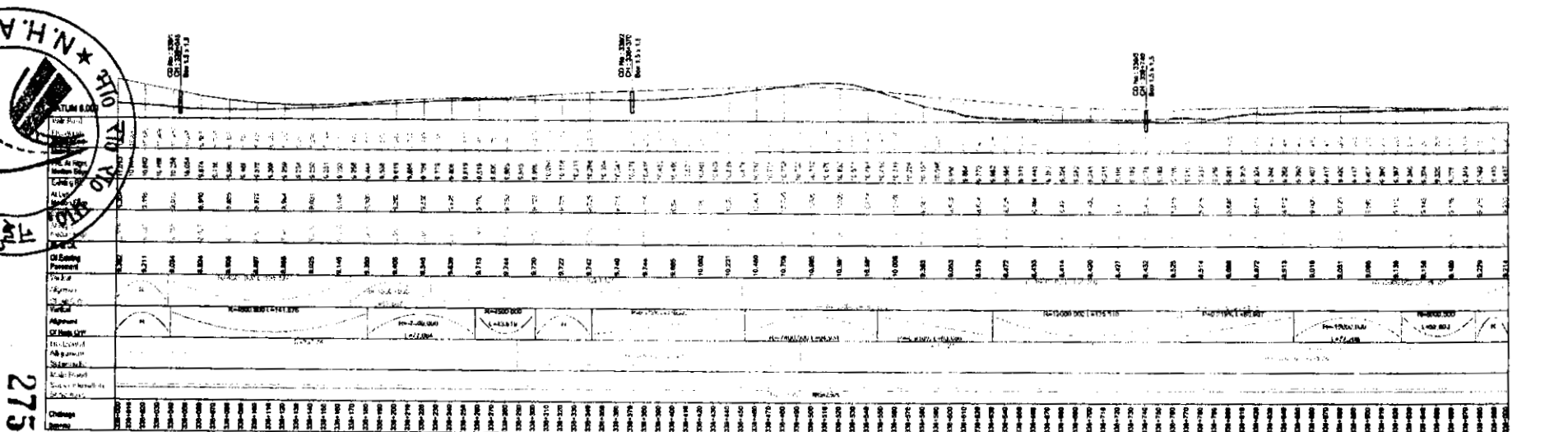
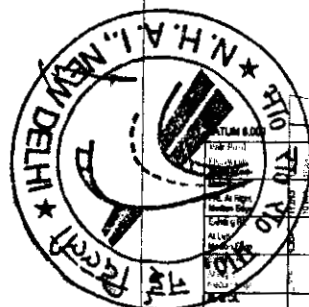


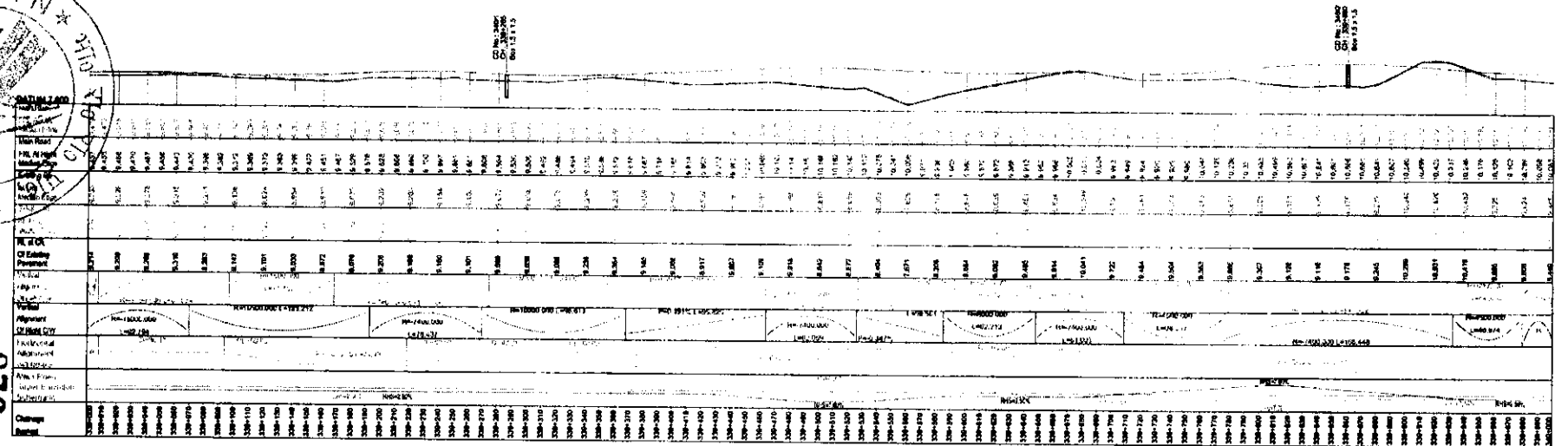
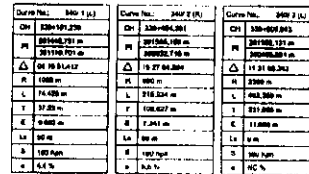
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| CH        | 338+514.129  | CH        | 338+517.307  | CH        | 338+521.112  |
| PI        | 338+515.129  | PI        | 338+520.307  | PI        | 338+524.112  |
| Δ         | 12.12.20.000 | Δ         | 27.42.20.000 | Δ         | 66.81.22.000 |
| R         | 800 m        | R         | 400 m        | R         | 400 m        |
| L         | 127.84 m     | L         | 1.000 m      | L         | 25.993 m     |
| T         | 66.764 m     | T         | 0.707 m      | T         | 10.362 m     |
| E         | 3.423 m      | E         | 0.180 m      | E         | 0.360 m      |
| LA        | 66 m         | LA        | 1.00 m       | LA        | 1.00 m       |
| S         | 100 m        | S         | 100 m        | S         | 100 m        |
| e         | 2.5%         | e         | 2.5%         | e         | 2.5%         |

DATUM 9.000





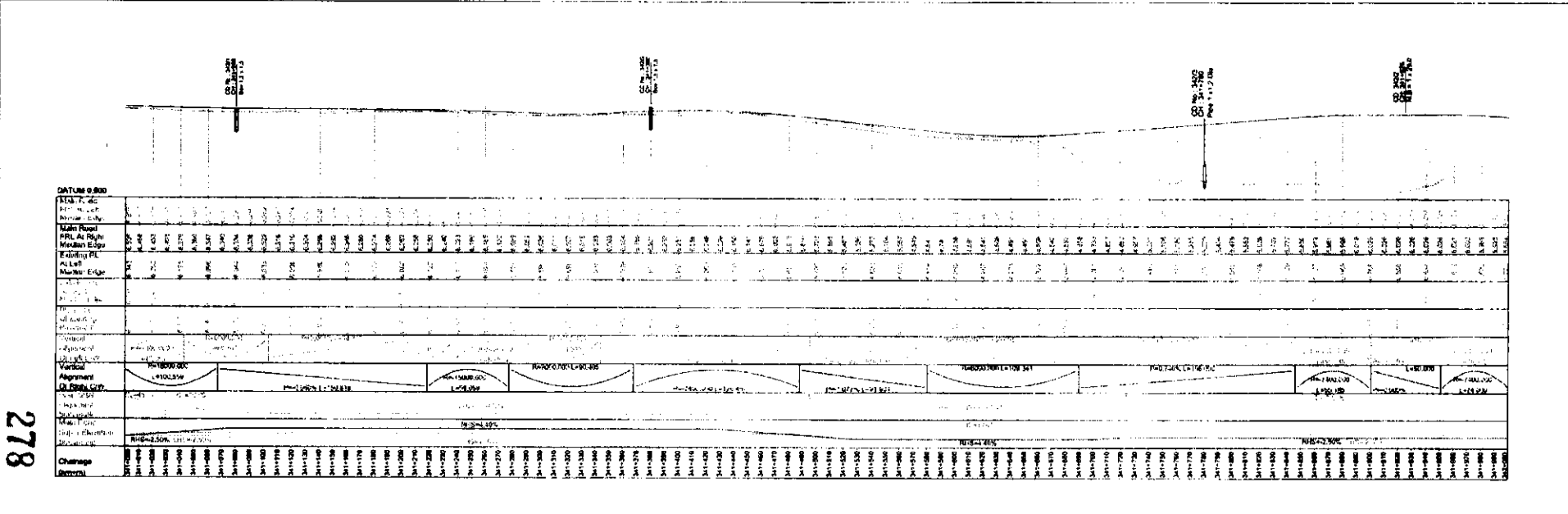
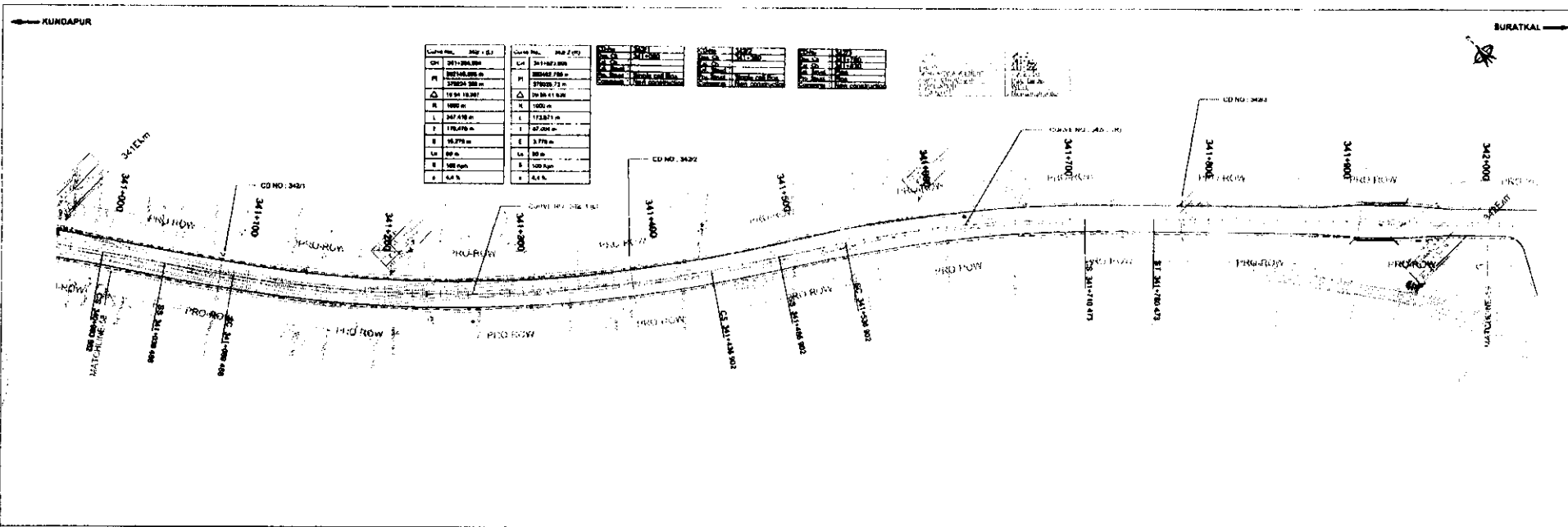
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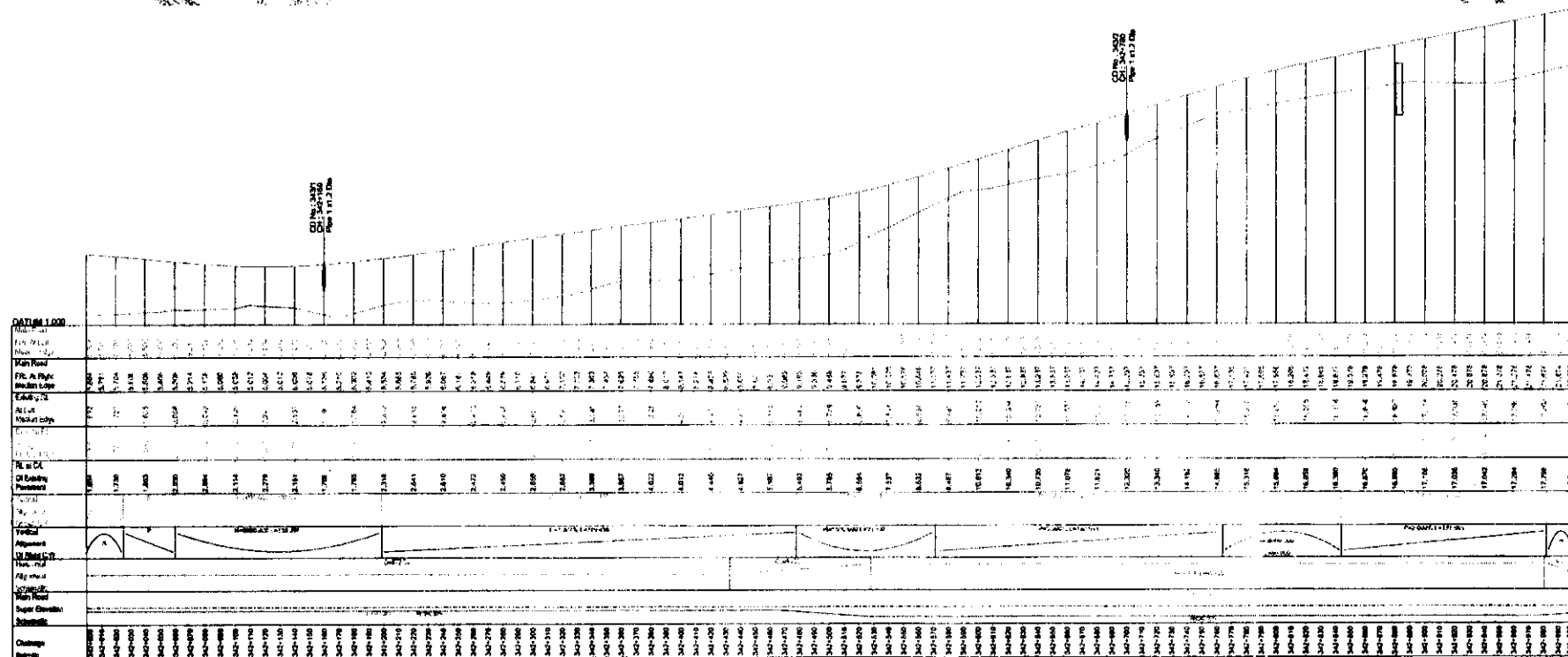
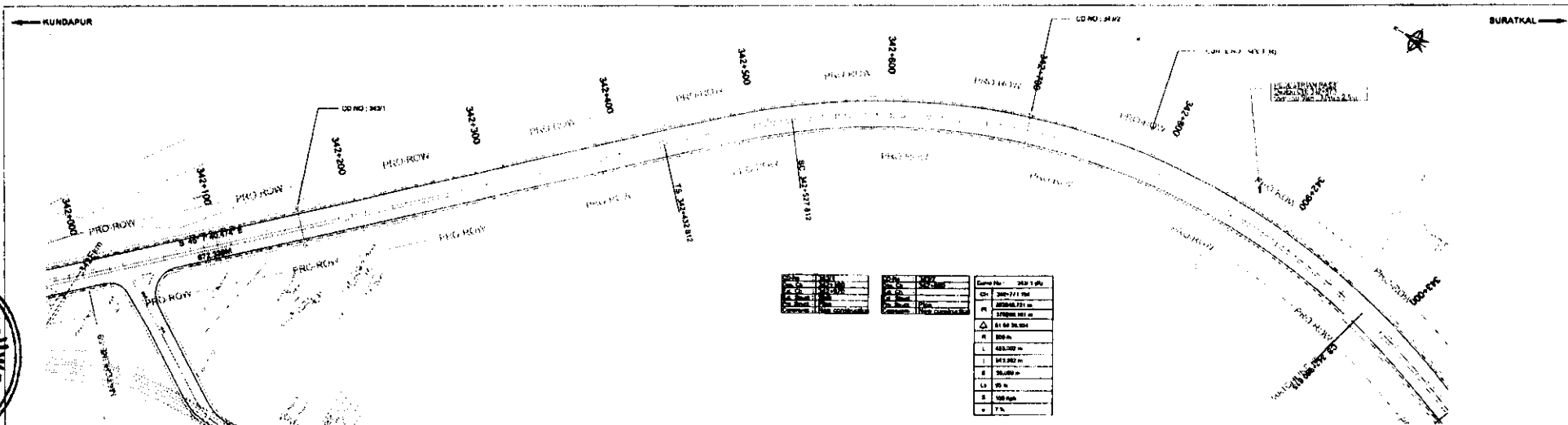


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| 23.004 | 541 |
|--------|-----|



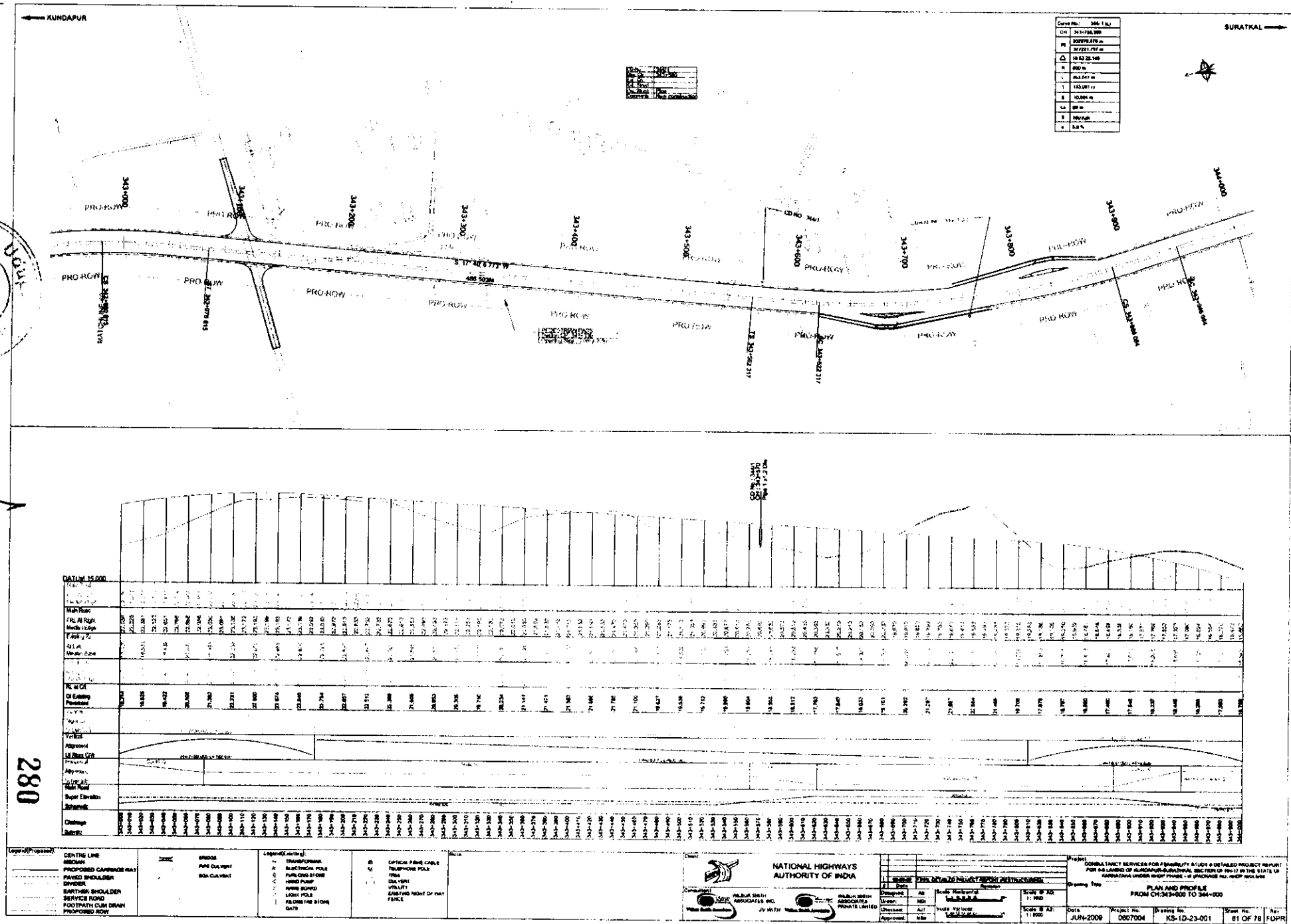


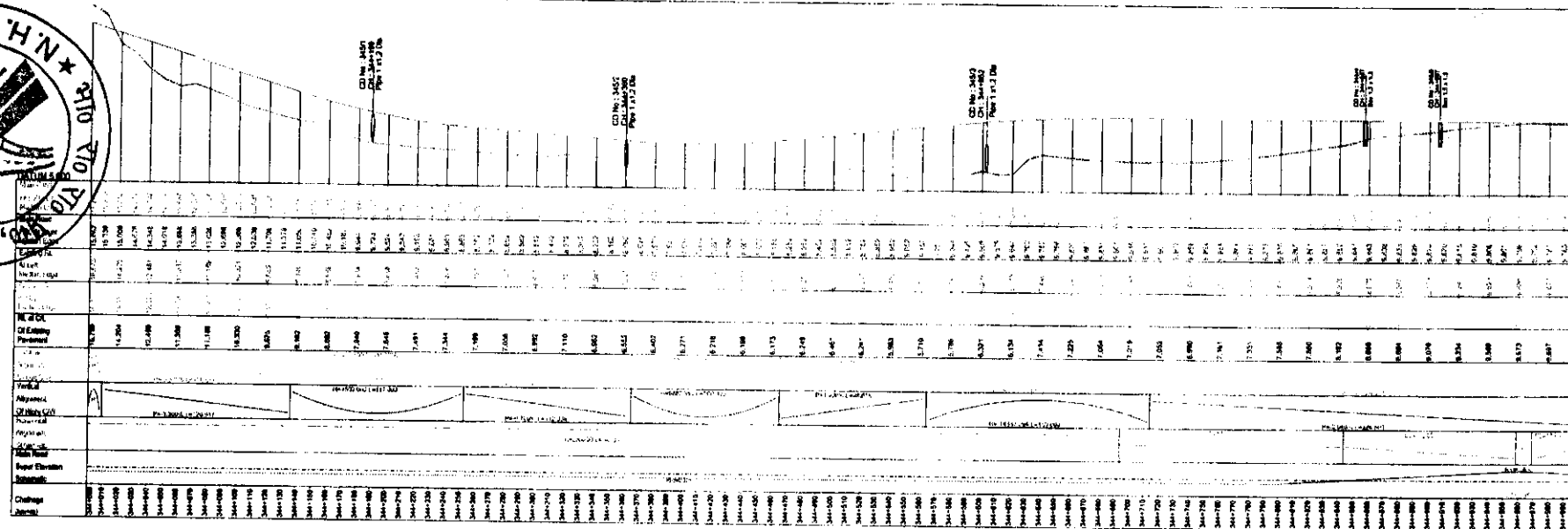
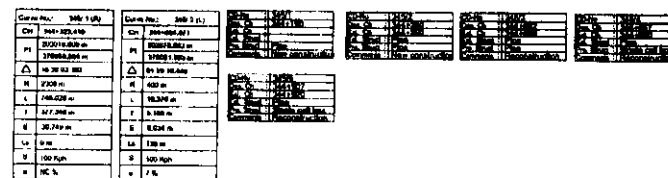




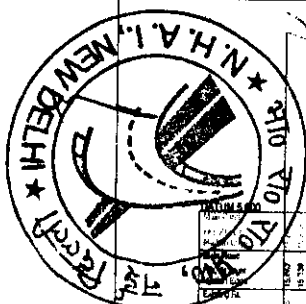
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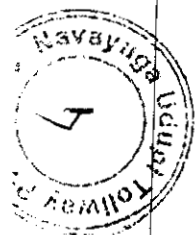
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|--|---|--|--|---------------|---------------------------|
| <p>(Legend/Proposed)</p> <p>CENTRE LINE<br/>MEDIUM<br/>PROPOSED CARRIAGEWAY<br/>PAVED SHOULDER<br/>DITCHES<br/>BARTHER SHOULDER<br/>SERVICE ROAD<br/>FOOTPATH OR DRAIN<br/>PROPOSED ROAD</p> | <p>SPRINKLER<br/>PIPE CULVERT<br/>BOX CULVERT</p> | <p>(Legend/Existing)</p> <p>TRANSPARENCY<br/>ELECTRICAL POLE<br/>PUMP AND STORAGE<br/>WATER PUMP<br/>UTILITY<br/>LIGHT POLE<br/>NO. OF LANE IN EACH DIRECTION<br/>DATE</p> | <p>OPTICAL FIBRE CABLE<br/>TELEPHONE POLE<br/>CULVERT<br/>WIRE BOARD<br/>EASTING NORTH OF THAT<br/>FENCE</p> | <p>Notes:</p> | <p>Sheet No. 1 of 100</p> |
|--|---|--|--|---------------|---------------------------|



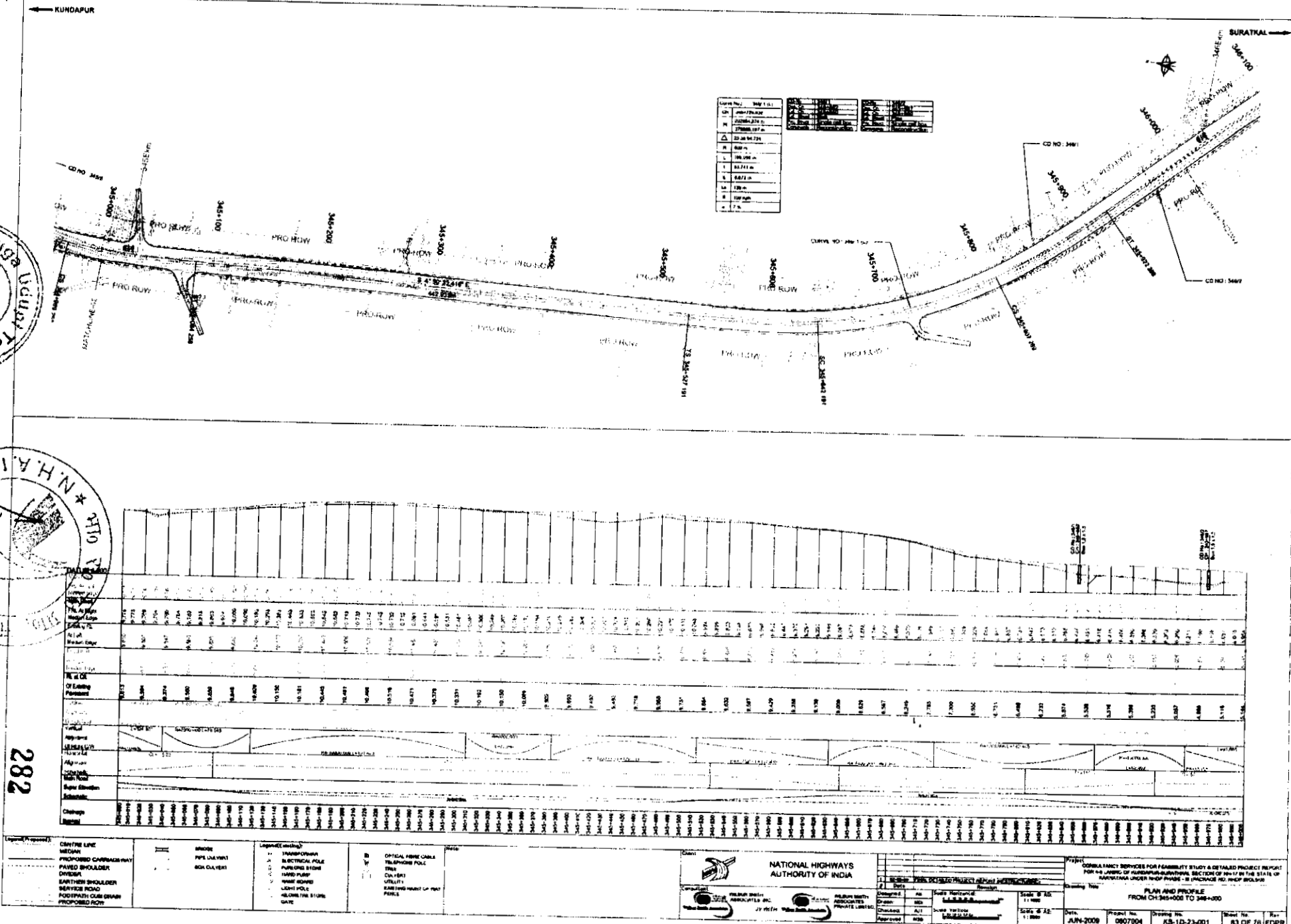


281

[illegible]



282



**NATIONAL HIGHWAYS AUTHORITY OF INDIA**

PREPARED BY: **PRESTON BROTHERS ASSOCIATES INC.**  
CHECKED BY: **PRESTON BROTHERS ASSOCIATES INC.**  
APPROVED BY: **PRESTON BROTHERS ASSOCIATES INC.**

Project No. **0907904**  
Drawing No. **KS-1D-23-001**  
Sheet No. **83 OF 78**

Scale of Plan: **1:1000**  
Scale of Profile: **1:1000**

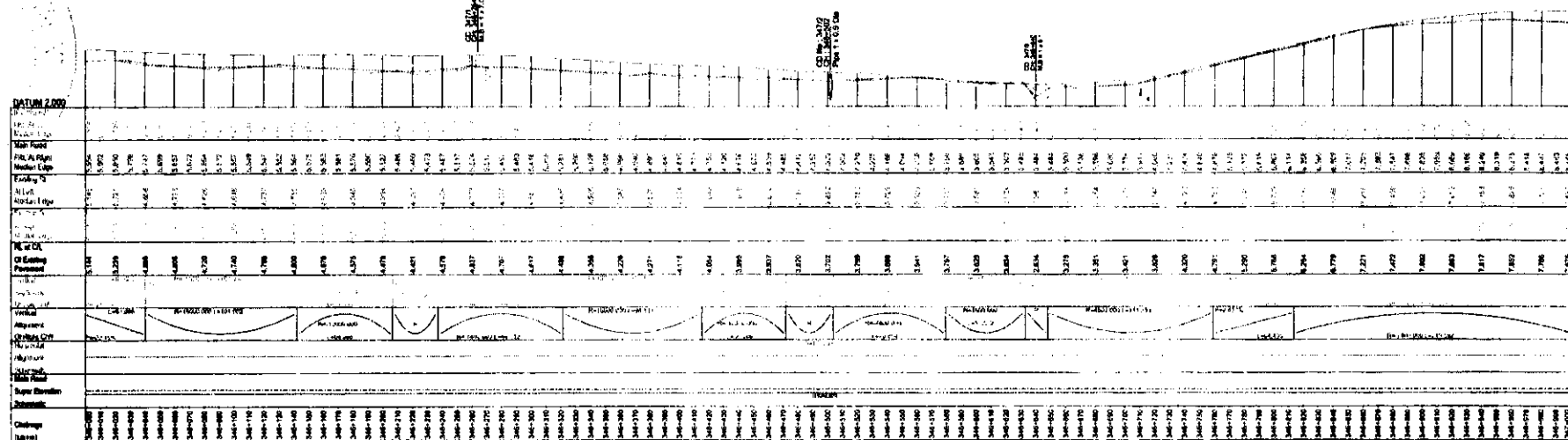
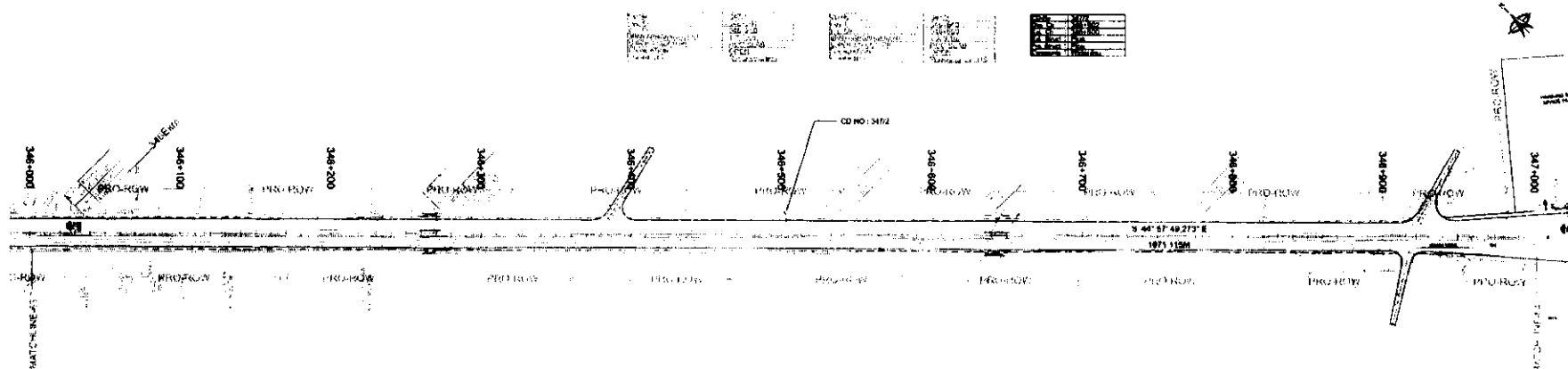
Date: **JUN-2008**

CONTRACT NO. **KS-1D-23-001**

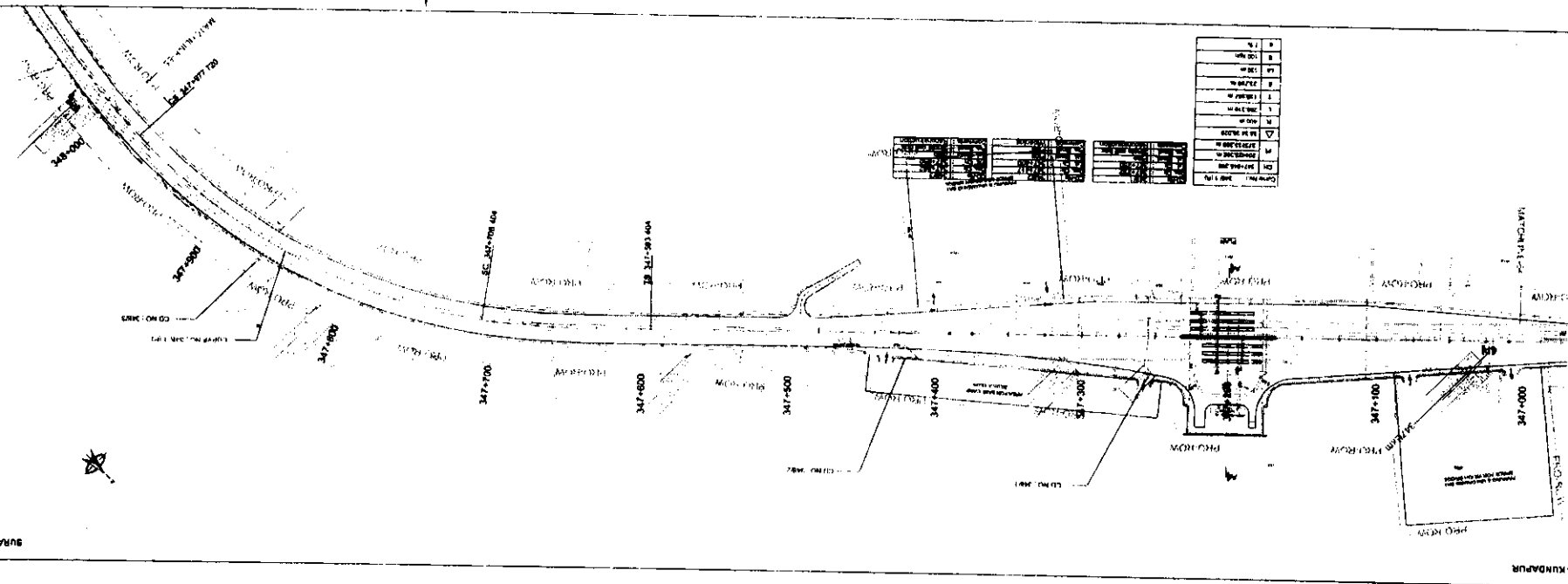
SECTION OF **KS-1D-23-001**

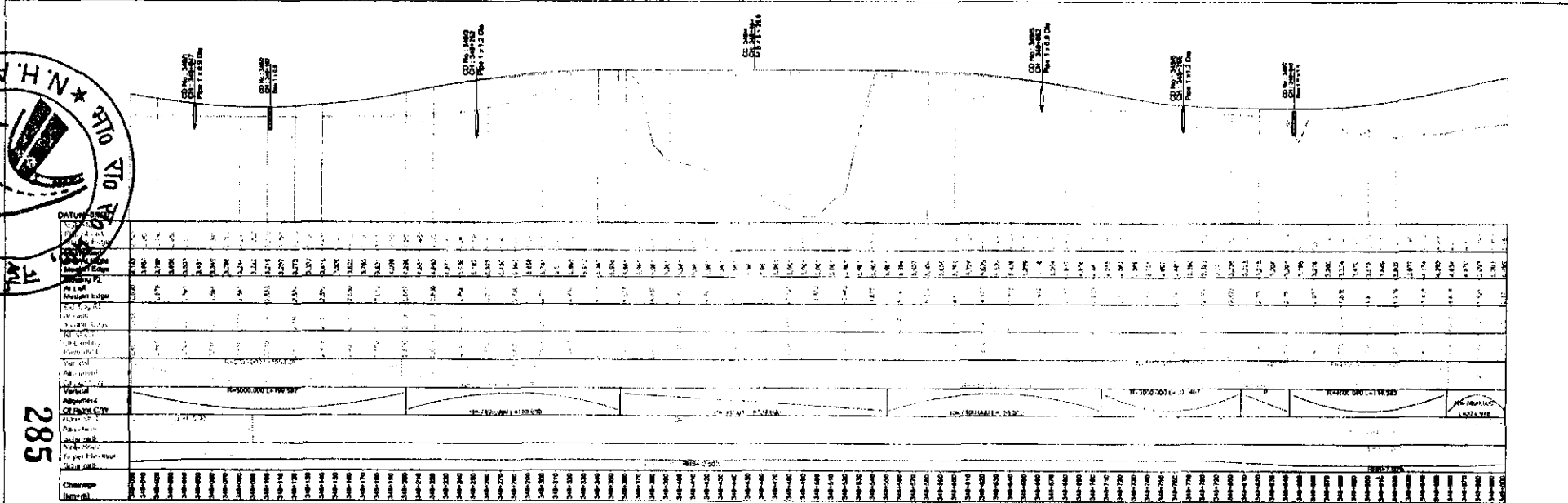
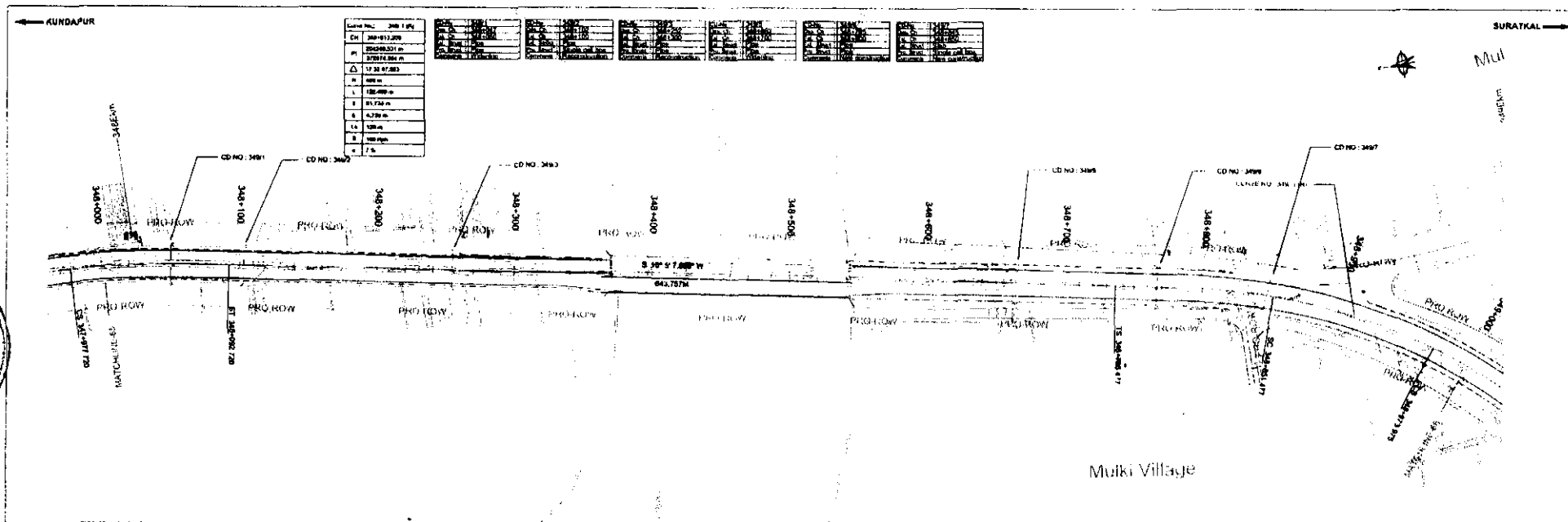
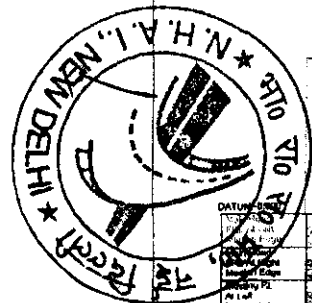
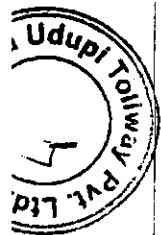
PLAN AND PROFILE

FROM CH 345+000 TO 349+000




283

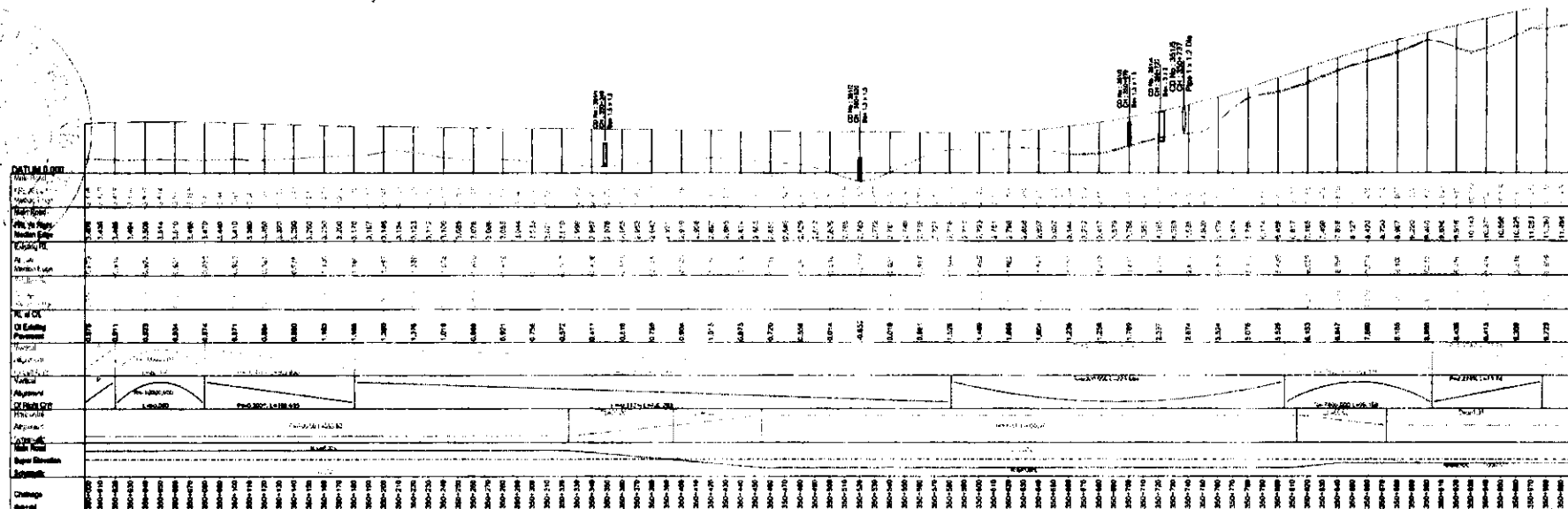
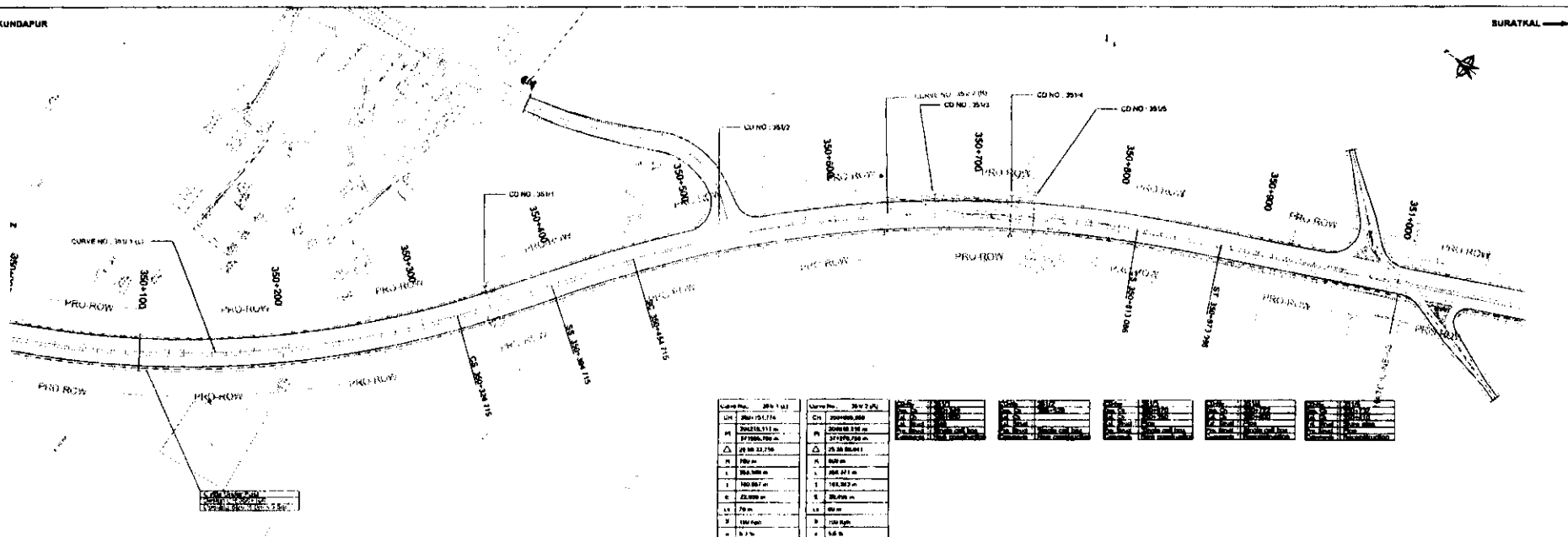




|  |  |   |   |  |
|--|--|---|---|--|
| <b>Legend (Proposed):</b><br>CENTER LINE<br>MEDIAN<br>PROPOSED CHANGEBAR<br>PAVED SHOULDER<br>DIVIDER<br>BARRIER SHOULDER<br>SERVICE ROAD<br>FOOTPATH OR DRAIN<br>PROPOSED ROW | <b>Legend (Existing):</b><br>TRANSFORMER<br>ELECTRICAL POLE<br>PAVING STONE<br>ROAD PUMP<br>ROAD SIGN<br>LIGHT POLE<br>ALONGSIDE STONE<br>GATE | <b>Legend (Other):</b><br>OPTICAL FIBRE CABLE<br>TELEPHONE POLE<br>TREE<br>CULTIVAT<br>UTILITY<br>BARRING HEIGHT OF WAY<br>POLE | <b>Notes:</b><br>1. ALL DIMENSIONS ARE IN METERS.<br>2. THE PROPOSED GRADE IS BASED ON THE EXISTING GROUND.<br>3. THE CLEARANCE IS BASED ON THE PROPOSED GRADE. | <b>Project Information:</b><br>Project No. 0807004<br>Drawing No. K3-1D-23-001<br>Date: JUN-2009<br>Scale: 1:1000<br>Project Name: K3-1D-23-001<br>Drawing Title: PLAN AND PROFILE FROM CH348+000 TO 348+800 |
|--|--|---|---|--|







|                |                         |                      |                |                 |                        |              |                    |              |
|----------------|-------------------------|----------------------|----------------|-----------------|------------------------|--------------|--------------------|--------------|
| CENTRE LINE    | MEDIUM                  | PROPOSED CARRIAGEWAY | PAVED SHOULDER | DRAINAGE        | SOUTH BOUND            | SERVICE ROAD | FOOTPATH CUM DRAIN | PROPOSED ROW |
| SPRINKLER      | PPE CULVERT             | SON CULVERT          | TRANSFORMER    | ELECTRICAL POLE | PUMP/STORAGE           | WATER PUMP   | WATER BOUND        | LIGHT POLE   |
| OPTIONAL FENCE | OPTIONAL TELEPHONE POLE | TREE                 | CULVERT        | UTILITY         | BARRIER HEIGHT OF THIS | FENCE        | DATE               | DATE         |





**NATIONAL HIGHWAYS AUTHORITY OF INDIA**


**PROJECT**  
CONVULSION STUDY FOR FEASIBILITY STUDY & DETAILED PROJECT REPORT FOR 66 LKMS OF KARNATAKA NATIONAL HIGHWAY SECTION 66-17 IN THE STATE OF KARNATAKA UNDER ROAD NO. 10 (BANGALORE - MYSURU)


**SECTION 66-17 (KARNATAKA NATIONAL HIGHWAY SECTION 66-17)**

**PLAN AND PROFILE FROM CH-100+000 TO 351+000**

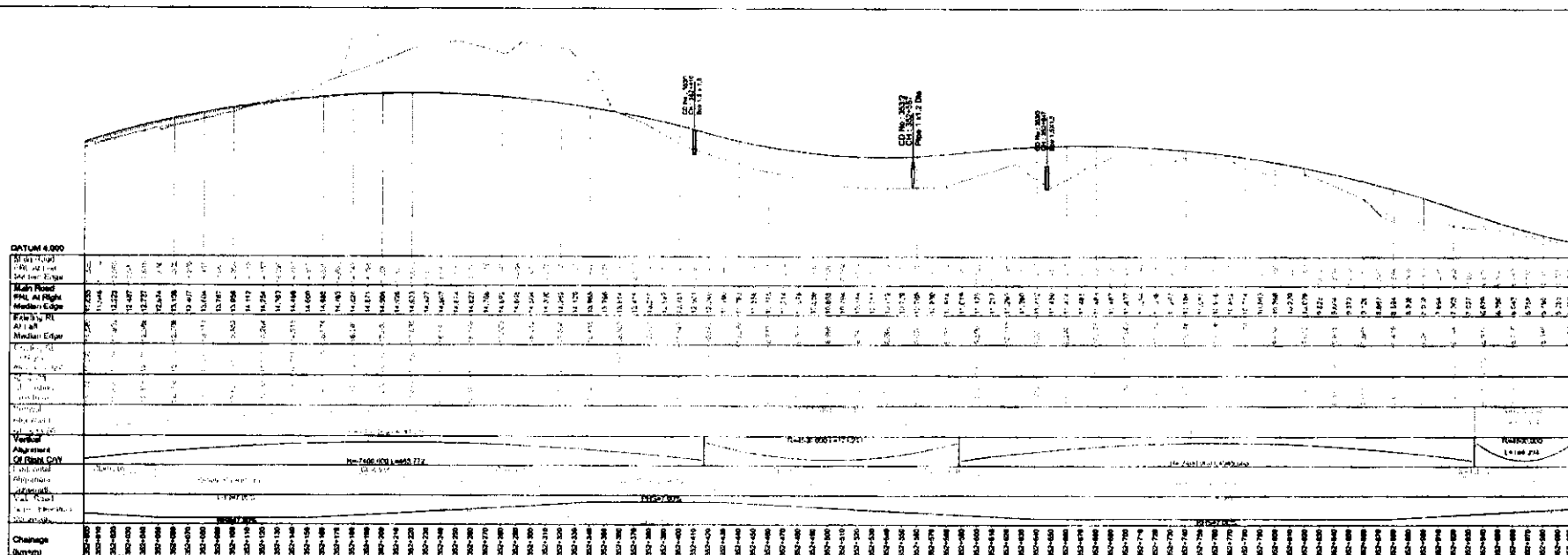
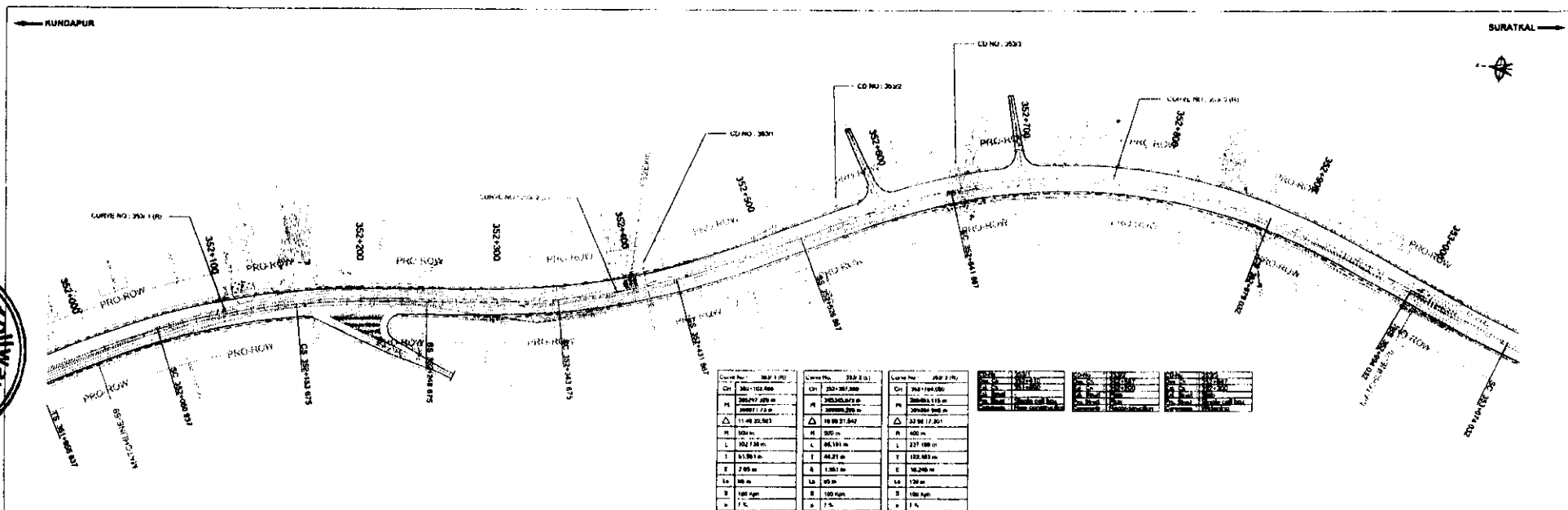
**Checked by:**  **M. S. Srinivas**  
MANAGER (S&D) & C.E.

**Checked by:**  **J. V. Srinivas**  
MANAGER (S&D) & C.E.

**Checked by:**  **M. S. Srinivas**  
MANAGER (S&D) & C.E.

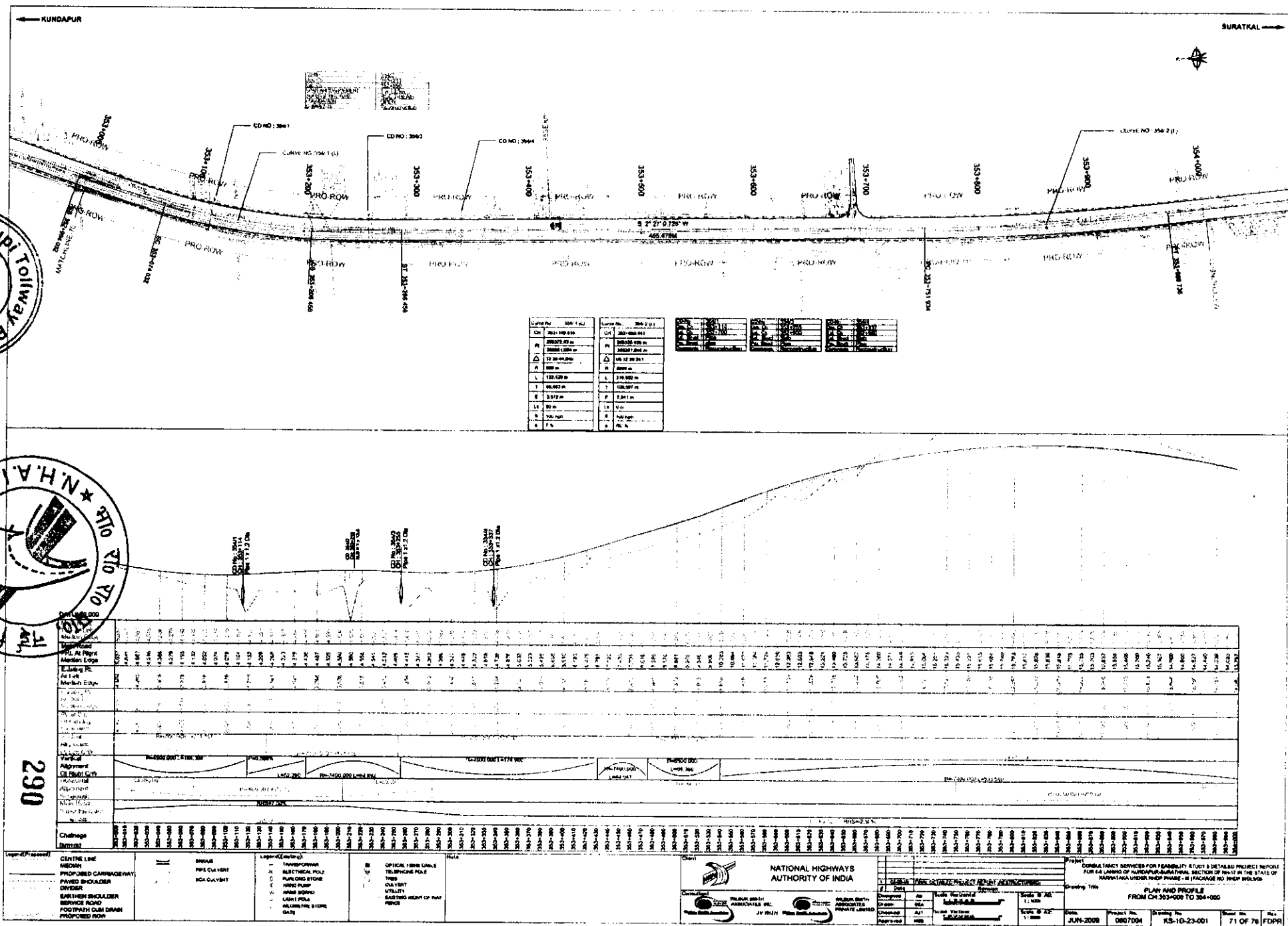
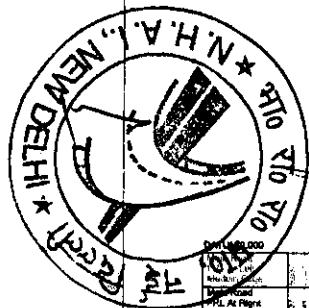
**Checked by:**  **J. V. Srinivas**  
MANAGER (S&D) & C.E.

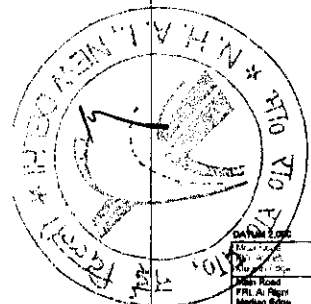
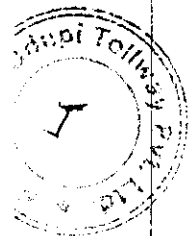
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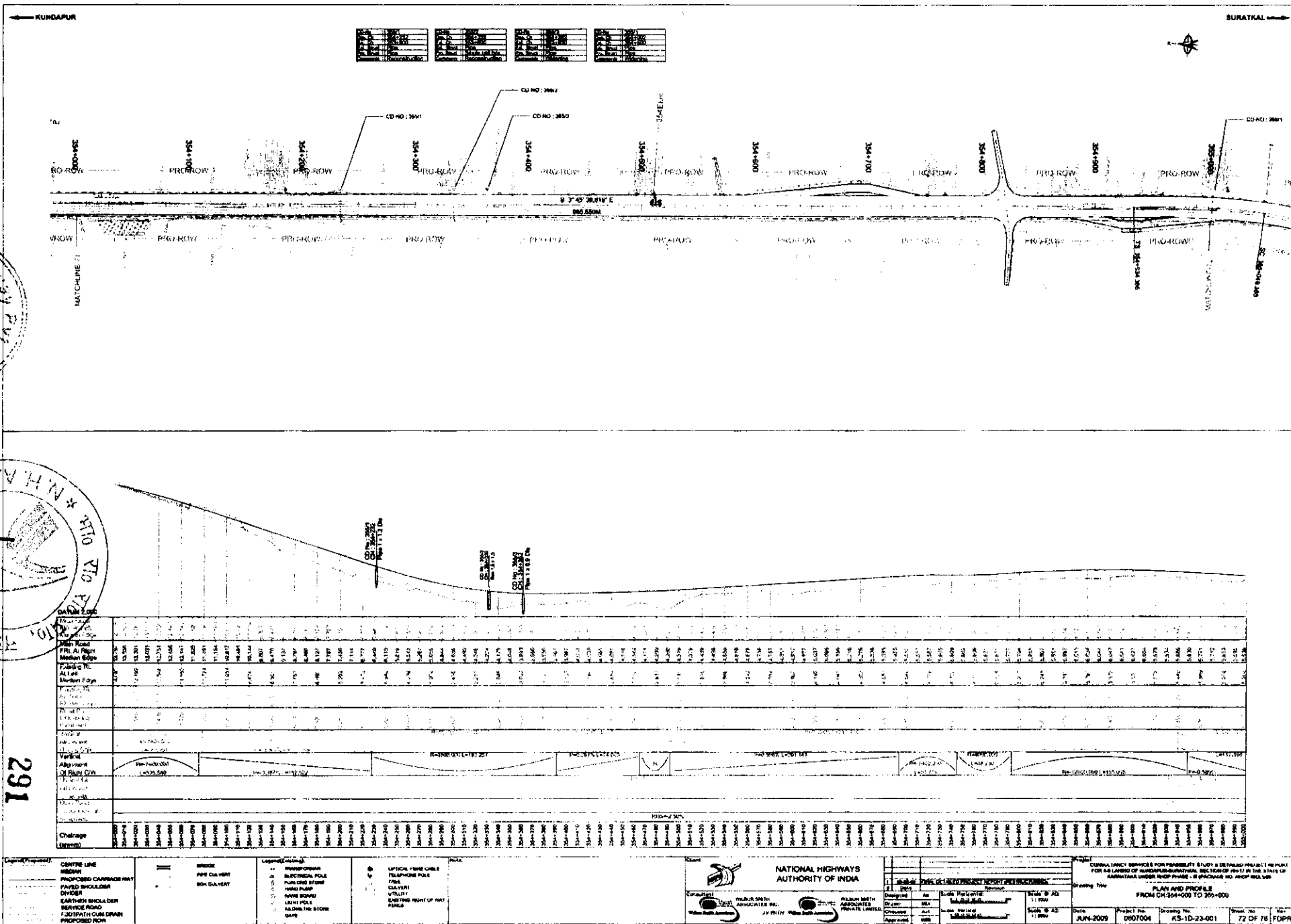
289

|  |  |   |  |              |   |   |
|--|--|---|--|--------------|---|---|
| <p>Centre Line<br/>Median<br/>Proposed Carriageway<br/>Paved Shoulder<br/>Camber<br/>Earthed Shoulder<br/>Surface Road<br/>Footpath/Cycle Lanes<br/>Proposed Row</p> | <p>ASPHALT<br/>PIPE CULVERT<br/>RAIL CULVERT</p> | <p>Legend (Continued)</p> <p>Transmission<br/>A. ELECTRICAL POLE<br/>P. PAVEMENT STONE<br/>F. FIBRE POLE<br/>R. RAIL BOARD<br/>L. LAMP<br/>H. HIGHWAY LIGHT<br/>S. STREET LIGHT</p> | <p>OPTIONAL POWER CABLE<br/>TELEPHONE POLE<br/>FIBRE<br/>CABLE<br/>UTILITY<br/>EARTHING MOUNT OF PLY<br/>FENCE</p> | <p>Notes</p> | <p>Client</p> <p> NATIONAL HIGHWAYS AUTHORITY OF INDIA</p> <p>Contractor<br/>M/s. VSRM INFRASTRUCTURE PVT. LTD.<br/>M/s. VSRM INFRASTRUCTURE PVT. LTD.</p> | <p>Project</p> <p>CONTRA FAMILY SERVICES FOR FEASIBILITY STUDY &amp; DETAILED PROJECT REPORT FOR LAYING OF KUDAPURAM-BATHALAHAL SECTION OF NH-17 IN THE STATE OF KARNATAKA UNDER NH&amp;P Scheme - B (UPGRADE) RD GROUP AREA-04</p> <p>Drawing Title</p> <p>PLAN AND PROFILE<br/>FROM CH-362-000 TO 363-000</p> |
|--|--|---|--|--------------|---|---|





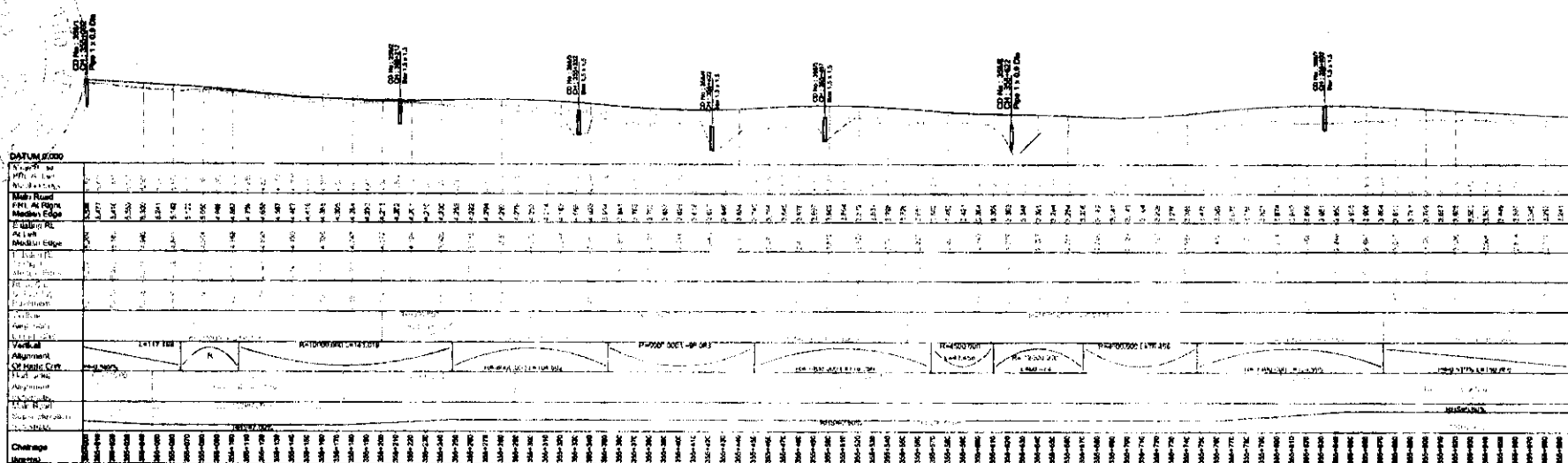
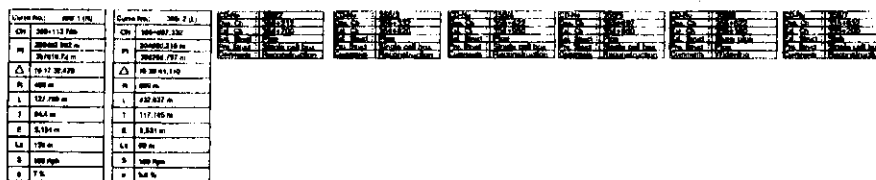
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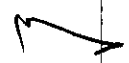
**NATIONAL HIGHWAYS AUTHORITY OF INDIA**




**Project No:** NH-10-23-001

**Sheet No:** 72 OF 78

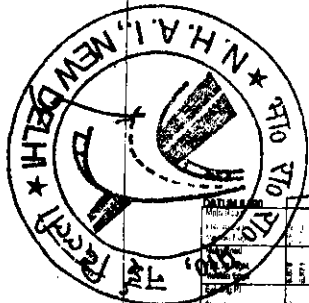
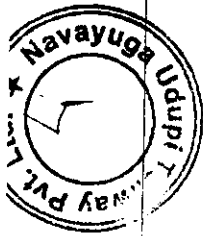


| Strategic Area | Measure |
|----------------|---------|
| 7.2.05.2a      | 50%     |

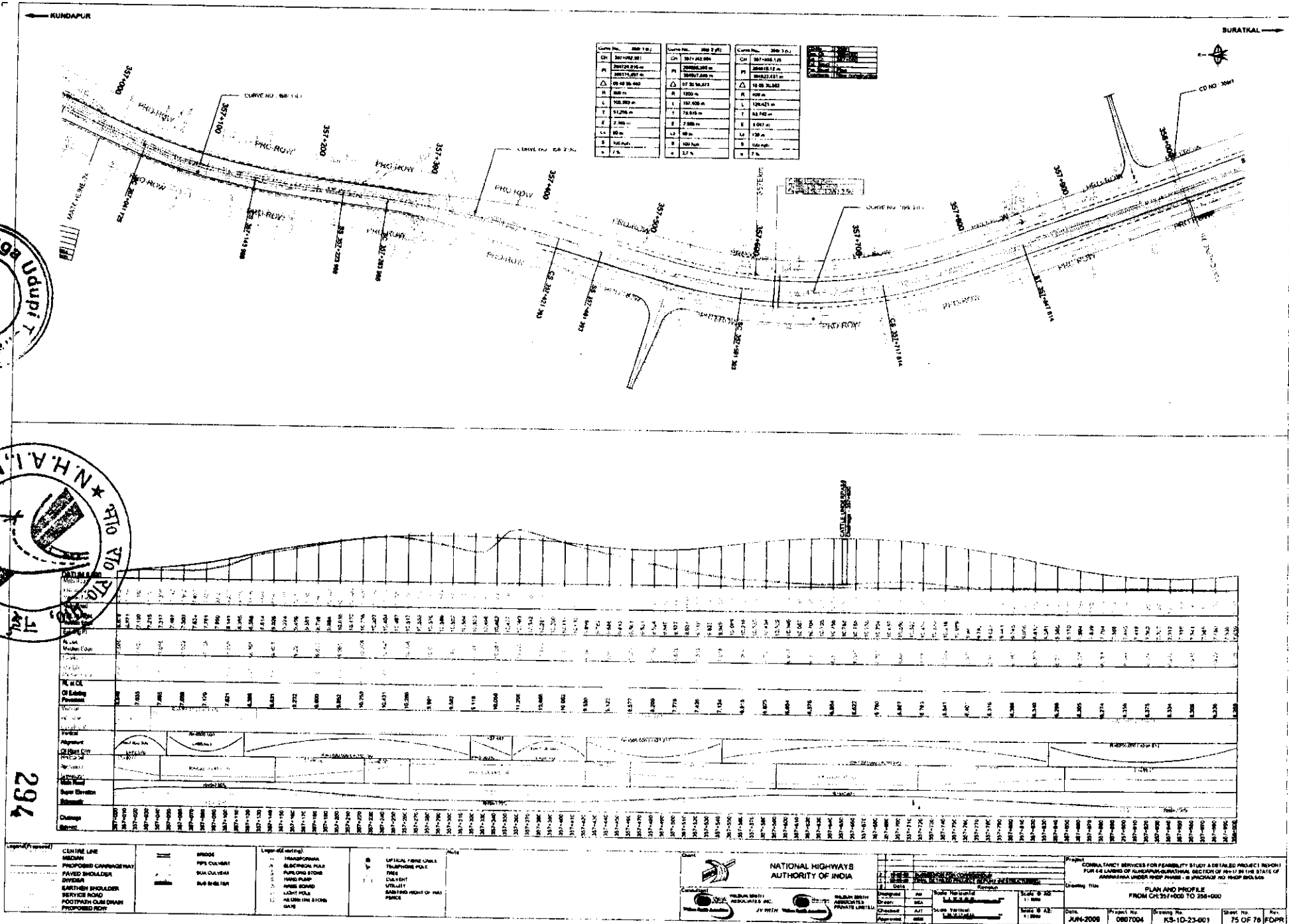


|   |   |   |   |   |   |
|---|---|---|---|---|---|
| <p>Logbook (continued)</p> <p>CENTRE LINE<br/>MEDIUM<br/>PROPOSED CARRIAGE WAY<br/>PAVED SHOULDER<br/>DRAINAGE<br/>PAVED SHOULDER<br/>SERVICE ROAD<br/>FOOTPATH/CLIM DRAIN<br/>PROPOSED ROP</p> | <p>BRIDGE<br/>PIPE CULVERT<br/>BULK CULVERT</p> | <p>Logbook (continued)</p> <p>TRANSFORMATION<br/>ELECTRICITY POLE<br/>PAVING STONE<br/>POWER PUMP<br/>SEWER PIPING<br/>LIGHT POLE<br/>PAVING STONE<br/>RAIL</p> | <p>OPTICAL FIBRE CABLE<br/>ELECTRICITY POLE<br/>PAVING STONE<br/>POWER PUMP<br/>SEWER PIPING<br/>LIGHT POLE<br/>PAVING STONE<br/>RAIL</p> | <p>Client</p> <p> NATIONAL HIGHWAYS AUTHORITY OF INDIA</p> <p>Consultant</p> <p> MWH CONSULTANTS<br/>ASSOCIATES, INC.<br/>7000 W. 10th Ave.<br/>Suite 100<br/>Denver, CO 80202<br/>USA<br/>Tel: +1 303 733 1000<br/>Fax: +1 303 733 1001<br/>Email: mwh@usa.com</p> <p> TISHMAN DESIGN PRIVATE LIMITED<br/>7000 W. 10th Ave.<br/>Suite 100<br/>Denver, CO 80202<br/>USA<br/>Tel: +1 303 733 1000<br/>Fax: +1 303 733 1001<br/>Email: tishman@usa.com</p> | <p>Project</p> <p>CONDUCTING SURVEY SERVICES FOR FEASIBILITY STUDY &amp; DESIGN PROJECT REPORT FOR 4.0 KILOMETERS OF NATIONAL HIGHWAY SECTION OF SH-1 IN THE STATE OF KARNATAKA UNDER PHASE - II (PACKAGE NO. SHCP 001/02)</p> <p>Drawing Title</p> <p>PLAN AND PROFILE<br/>FROM CH-359+000 TO 361+000</p> <p>Scale</p> <p>Horizontal: 1:1000<br/>Vertical: 1:1000</p> <p>Date</p> <p>Project No.</p> <p>Drawing No.</p> <p>Sheet No.</p> <p>74 OF 76</p> |
|---|---|---|---|---|---|





294



## Appendix-BIII

## Details of Bypasses/Realignment

1. Bypasses

## Section 1

| Name of Bypass   | Existing Chainage (km) |         | Design Chainage (km) |         | Length (km) |
|------------------|------------------------|---------|----------------------|---------|-------------|
|                  | From                   | To      | From                 | To      |             |
| Padubidri Bypass | 341+650                | 344+630 | 341+600              | 344+650 | 3.05        |
| Mulki Bypass     | 348+780                | 350+290 | 348+800              | 350+700 | 1.90        |

## Section 2

| Name of Bypass | Existing Chainage (km) |    | Design Chainage (km) |    | Length (km) |
|----------------|------------------------|----|----------------------|----|-------------|
|                | From                   | To | From                 | To |             |
| Nil            |                        |    |                      |    |             |

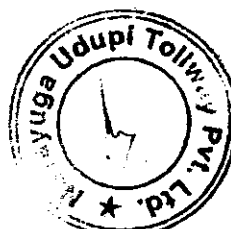
2. Realignments

## Section 1

| Existing Chainage (km) |         | Design Chainage (km) |         | Length (km)<br>From |
|------------------------|---------|----------------------|---------|---------------------|
| From                   | To      | From                 | To      |                     |
| 297+593                | 297+997 | 297+700              | 298+100 | 0.4                 |
| 298+144                | 298+339 | 298+250              | 298+450 | 0.2                 |
| 304+415                | 304+761 | 304+560              | 304+900 | 0.34                |
| 313+194                | 314+045 | 313+300              | 314+000 | 0.7                 |
| 330+511                | 330+628 | 330+500              | 330+620 | 0.12                |

## Section 2

| Existing Chainage (km) |       | Design Chainage (km) |       | Length (km)<br>From |
|------------------------|-------|----------------------|-------|---------------------|
| From                   | To    | From                 | To    |                     |
| 4+975                  | 5+220 | 4+985                | 5+225 | 0.34                |
| 6+424                  | 6+662 | 6+420                | 6+555 | 0.135               |



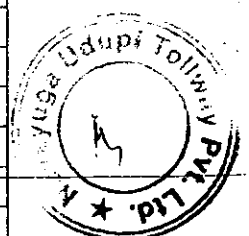
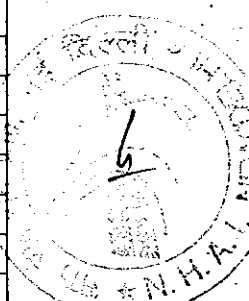
295

## Appendix BIV

## Details of Service Roads

## Service Roads for Section 1

| Sl. No. | Existing Chainage (Km) |         | Design Chainage (Km) |         | Length (m) | Width (m) | Side | C/s Type |
|---------|------------------------|---------|----------------------|---------|------------|-----------|------|----------|
|         | From                   | To      | From                 | To      |            |           |      |          |
| 1       | 283+300                | 283+552 | 283+300              | 283+450 | 150        | 5.5       | Both | CS-07    |
| 2       | 283+552                | 284+052 | 283+450              | 283+950 | 500        | 5.5       | Both | CS-10    |
| 3       | 284+052                | 284+350 | 283+950              | 284+250 | 300        | 5.5       | Both | CS-10    |
| 4       | 284+350                | 284+790 | 284+250              | 284+690 | 440        | 5.5       | Both | CS-07    |
| 5       | 284+790                | 285+090 | 284+690              | 284+990 | 300        | 5.5       | Both | CS-07    |
| 6       | 285+090                | 285+410 | 284+990              | 285+290 | 300        | 5.5       | Both | CS-07    |
| 7       | 285+410                | 287+250 | 285+290              | 287+250 | 1960       | 5.5       | Both | CS-07    |
| 8       | 287+250                | 287+440 | 287+250              | 287+440 | 190        | 5.5       | Both | CS-08    |
| 9       | 287+440                | 287+690 | 287+440              | 287+690 | 250        | 5.5       | Both | CS-07    |
| 10      | 287+690                | 287+880 | 287+690              | 287+880 | 190        | 5.5       | Both | CS-08    |
| 11      | 287+880                | 288+040 | 287+880              | 288+000 | 120        | 5.5       | Both | CS-07    |
| 12      | 288+040                | 289+080 | 289+080              | 289+180 | 100        | 5.5       | Both | CS-02    |
| 13      | 289+080                | 289+400 | 289+180              | 289+500 | 320        | 5.5       | Both | CS-01    |
| 14      | 293+480                | 293+880 | 293+500              | 293+900 | 400        | 5.5       | Both | CS-08    |
| 15      | 293+880                | 295+180 | 293+900              | 295+300 | 1400       | 5.5       | Both | CS-07    |
| 16      | 295+180                | 295+380 | 295+300              | 295+500 | 200        | 5.5       | Both | CS-08    |
| 17      | 297+680                | 297+780 | 297+800              | 297+900 | 100        | 5.5       | Both | CS-03    |
| 18      | 297+780                | 297+990 | 297+900              | 298+100 | 200        | 5.5       | Both | CS-03    |
| 19      | 297+990                | 298+140 | 298+100              | 298+250 | 150        | 5.5       | Both | CS-01    |
| 20      | 298+140                | 298+270 | 298+250              | 298+380 | 130        | 5.5       | Both | CS-03    |
| 21      | 305+780                | 305+880 | 305+900              | 306+000 | 100        | 5.5       | Both | CS-06    |
| 22      | 305+880                | 306+010 | 306+000              | 306+130 | 130        | 5.5       | Both | CS-04    |
| 23      | 306+010                | 306+120 | 306+130              | 306+240 | 110        | 5.5       | Both | CS-06    |
| 24      | 306+120                | 306+380 | 306+240              | 306+500 | 260        | 5.5       | Both | CS-06    |
| 25      | 306+380                | 306+480 | 306+500              | 306+600 | 100        | 5.5       | Both | CS-04    |
| 26      | 306+480                | 306+720 | 306+600              | 306+840 | 240        | 5.5       | Both | CS-06    |
| 27      | 306+720                | 306+960 | 306+840              | 307+080 | 240        | 5.5       | Both | CS-04    |
| 28      | 306+960                | 307+400 | 307+080              | 307+500 | 420        | 5.5       | Both | CS-06    |
| 29      | 307+400                | 307+500 | 307+500              | 307+600 | 100        | 5.5       | Both | CS-06    |
| 30      | 314+020                | 314+120 | 314+000              | 314+100 | 100        | 5.5       | Both | CS-06    |
| 31      | 314+120                | 314+220 | 314+100              | 314+200 | 100        | 5.5       | Both | CS-05    |
| 32      | 314+220                | 314+520 | 314+200              | 314+500 | 300        | 5.5       | Both | CS-04    |
| 33      | 314+520                | 314+850 | 314+500              | 314+830 | 330        | 5.5       | Both | CS-06    |
| 34      | 314+850                | 315+020 | 314+830              | 315+000 | 170        | 5.5       | Both | CS-05    |
| 35      | 319+270                | 321+190 | 319+200              | 321+050 | 1850       | 5.5       | Both | CS-04    |



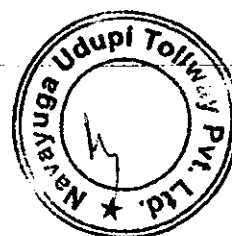
| Sl. No. | Existing Chainage (Km) |         | Design Chainage (Km) |         | Length (m) | Width (m) | Side | C/s Type |
|---------|------------------------|---------|----------------------|---------|------------|-----------|------|----------|
|         | From                   | To      | From                 | To      |            |           |      |          |
| 36      | 321+190                | 321+490 | 321+050              | 321+350 | 300        | 5.5       | Both | CS-11    |
| 37      | 321+490                | 321+790 | 321+350              | 321+650 | 300        | 5.5       | Both | CS-11    |
| 38      | 325+770                | 325+900 | 325+800              | 325+930 | 130        | 5.5       | Both | CS-06    |
| 39      | 325+900                | 326+610 | 325+930              | 326+640 | 710        | 5.5       | Both | CS-04    |
| 40      | 326+610                | 326+770 | 326+640              | 326+800 | 160        | 5.5       | Both | CS-06    |
| 41      | 329+870                | 330+400 | 329+900              | 330+400 | 500        | 5.5       | Both | CS-03    |
| 42      | 331+290                | 331+550 | 331+300              | 331+560 | 260        | 5.5       | Both | CS-04    |
| 43      | 331+550                | 331+860 | 331+560              | 331+870 | 310        | 5.5       | Both | CS-05    |
| 44      | 331+860                | 332+000 | 331+870              | 332+000 | 130        | 5.5       | Both | CS-06    |
| 45      | 332+000                | 332+200 | 332+000              | 332+200 | 200        | 5.5       | Both | CS-05    |
| 46      | 332+200                | 332+400 | 332+200              | 332+400 | 200        | 5.5       | Both | CS-04    |
| 47      | 349+020                | 349+630 | 349+020              | 349+630 | 610        | 5.5       | Both | CS-03    |
| 48      | 356+845                | 356+925 | 357+470              | 357+550 | 80         | 5.5       | Both | CS-03    |
| 49      | 356+925                | 357+075 | 357+550              | 357+700 | 150        | 5.5       | Both | CS-06    |
| 50      | 357+075                | 357+205 | 357+700              | 357+830 | 130        | 5.5       | Both | CS-04    |
| 51      | 357+205                | 358+061 | 357+830              | 358+686 | 856        | 5.5       | Both | CS-06    |
| 52      |                        |         |                      |         |            |           |      |          |
| 53      |                        |         |                      |         |            |           |      |          |

The Total length of Service road is 34.56 Kms.

#### Service Roads for Section 2

| Sl. No. | Design Chainage (Km) |        | Side | Length (km) | Width (m) | Location                       |
|---------|----------------------|--------|------|-------------|-----------|--------------------------------|
|         | From                 | To     |      |             |           |                                |
| 1       | 3+200                | 4+800  | Both | 1.6         | 5.5       | Pumpwell/Mahaveer Circle       |
| 2       | 9+100                | 10+200 | Both | 1.1         | 5.5       | Ullala Village; Thokhodu Block |
| 3       | 11+450               | 12+000 | Both | 0.55        | 5.5       | Kotekara                       |
| 4       | 12+700               | 13+500 | Both | 0.8         | 5.5       | Talapaddy Town                 |
| 5       | 15+200               | 15+800 | Both | 0.6         | 5.5       | Near Talapaddy Bridge          |

The Total Length of Service road is 9.3kms



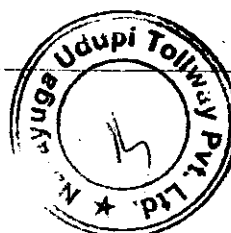
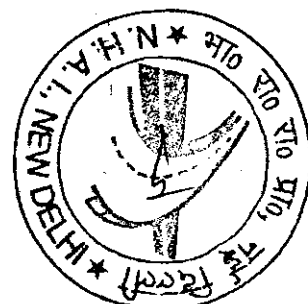
## Appendix BV.

Details of Proposed ROW  
Section 1

| Sl No | Design Chainage |         | Proposed ROW (m). |
|-------|-----------------|---------|-------------------|
|       | From            | To      |                   |
| 1     | 283+000         | 288+000 | 45                |
| 2     | 288+000         | 293+500 | 60                |
| 3     | 293+500         | 295+500 | 45                |
| 4     | 295+500         | 358+686 | 60                |

## Section 2

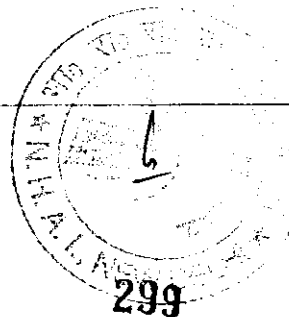
| Sl No | Design Chainage (Km) |        | Proposed ROW (m) |
|-------|----------------------|--------|------------------|
|       | From                 | To     |                  |
| 1     | 1+900                | 2+445  | 60               |
| 2     | 2+445                | 2+915  | 60               |
| 3     | 2+915                | 4+540  | 60               |
| 4     | 4+540                | 4+985  | 60               |
| 5     | 4+985                | 5+225  | 60               |
| 6     | 5+225                | 5+805  | 60               |
| 7     | 5+805                | 6+420  | 60               |
| 8     | 6+420                | 6+555  | 60               |
| 9     | 6+555                | 8+050  | 60               |
| 10    | 8+050                | 9+005  | 60               |
| 11    | 9+005                | 9+500  | 60               |
| 12    | 9+500                | 9+850  | 60               |
| 13    | 9+850                | 12+890 | 60               |
| 14    | 12+89                | 13+470 | 60               |
| 15    | 13+470               | 14+350 | 60               |
| 16    | 14+350               | 14+730 | 60               |
| 17    | 14+730               | 14+980 | 60               |
| 18    | 14+980               | 15+700 | 60               |
| 19    | 15+700               | 18+100 | 60               |



## Appendix BVI

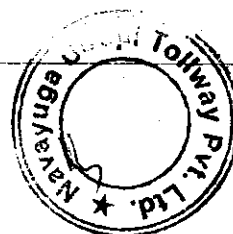
Major Intersections  
Section 1

| Sl. No. | Existing Chainage (km) | Design Chainage (km) | Category of Road | Type of junction    | Remarks  |
|---------|------------------------|----------------------|------------------|---------------------|--|
| 1       | 284+080                | 284+000              | B.T Road         | Y Junction          | at km 284.310, 284.335 and 284.350 cross roads. At km 284+700; L/s temple in ROW |
| 2       | 285+070                | 284+990              | B.T Road         | T Junction          | —  |
| 3       | 287+620                | 287+800              | B.T Road         | 4 legged (x - type) | cross road   |
| 4       | 290+300                | 290+510              | B.T Road         | 3 legged (Y - type) | —  |
| 5       | 296+840                | 296+920              | B.T Road         | 4 legged (+ - type) | —  |
| 6       | 297+670                | 297+810              | B.T Road         | 3 legged (Y - type) | Y junction   |
| 7       | 298+000                | 298+120              | B.T Road         | 4 legged (+ - type) | —  |
| 8       | 306+450                | 306+580              | B.T Road         | 3 legged (T- type)  | —  |
| 9       | 314+200                | 314+200              | B.T Road         | 3 legged(y -type)   | Y junction   |
| 10      | 315+850                | 315+820              | B.T Road         | 3 legged (y- type)  | —  |
| 11      | 318+970                | 318+900              | B.T Road         | 4 legged (+ - type) | T junction   |
| 12      | 320+040                | 319+960              | B.T Road         | 4 legged (+ - type) | —  |
| 13      | 321+500                | 321+350              | B.T Road         | 5 legged (- type)   | —  |
| 14      | 322+540                | 322+380              | B.T Road         | 3 legged (y- type)  | Y junction   |
| 15      | 326+050                | 326+070              | B.T Road         | 4 legged (+ - type) | X junction   |
| 16      | 331+670                | 331+680              | B.T Road         | 3 legged (T- type)  | L/s Mosque at 331+650 And Y - Junction   |
| 17      | 342+020                | 341+985              | B.T Road         | 3 legged (T- type)  | —  |
| 18      | 343+100                | 343+100              | B.T Road         | 4 Legged(+Type)     | —  |
| 19      | 344+500                | 344+530              | B.T Road         | 3 legged (T- type)  | —  |
| 20      | 348+910                | 348+945              | B.T Road         | 3 legged (T- type)  | —  |
| 21      | 350+140                | 350+520              | B.T Road         | 3 legged (Y type)   | —  |



## Section 2

| Sl. No. | Existing Chainage (km) | Design Chainage (km) | Category of Road | Type of junction    | Remarks                       |
|---------|------------------------|----------------------|------------------|---------------------|-------------------------------|
| 1       | 1+900                  | 1+900                | National Highway | 4 legged (x - type) | Atgrade improvement suggested |
| 2       | 3+700                  | 3+700                | National Highway | Rotary              | Flyover proposed              |
| 3       | 9+600                  | -                    | -                | 3 legged (T-type)   | Flyover proposed              |



## Appendix BVII

## Minor Junctions

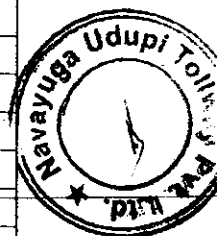
## Section 1

## Minor Junctions

| Sl.No | Existing Chainage | Design Chainage | Side | Carriageway Width (m) | Category |
|-------|-------------------|-----------------|------|-----------------------|----------|
| 1     | 283-950           | 284+040         | RHS  | 3.40                  | BT       |
| 2     | 283-982           | 284+062         | LHS  | 3.80                  | BT       |
| 3     | 284+135           | 284+215         | LHS  | 2.86                  | BT       |
| 4     | 284+208           | 284+288         | LHS  | 4.34                  | BT       |
| 5     | 284+260           | 284+340         | RHS  | 4.25                  | BT       |
| 6     | 284+310           | 284+390         | LHS  | 3.31                  | BT       |
| 7     | 284+355           | 284+435         | LHS  | 2.85                  | BT       |
| 8     | 284+425           | 284+505         | RHS  | 3.75                  | BT       |
| 9     | 284+485           | 284+565         | RHS  | 3.15                  | BT       |
| 10    | 284+510           | 284+590         | LHS  | 2.50                  | BT       |
| 11    | 284+690           | 284+770         | RHS  | 3.56                  | BT       |
| 12    | 285+103           | 285+185         | RHS  | 3.95                  | BT       |
| 13    | 285+218           | 285+300         | RHS  | 3.45                  | BT       |
| 14    | 285+238           | 285+320         | LHS  | 2.75                  | BT       |
| 15    | 285+263           | 285+345         | LHS  | 3.00                  | BT       |
| 16    | 285+428           | 285+510         | RHS  | 3.16                  | BT       |
| 17    | 285+566           | 285+648         | RHS  | 2.35                  | BT       |
| 18    | 285+723           | 285+805         | RHS  | 2.60                  | BT       |
| 19    | 285+793           | 285+875         | LHS  | 3.10                  | BT       |
|       |                   |                 | RHS  | 3.50                  | BT       |
| 20    | 285+983           | 286+023         | RHS  | 3.00                  | BT       |
| 21    | 286+090           | 286+130         | RHS  | 2.78                  | BT       |
| 22    | 286+233           | 286+273         | RHS  | 2.50                  | BT       |
| 23    | 286+290           | 286+330         | LHS  | 3.50                  | BT       |
| 24    | 286+365           | 286+405         | RHS  | 2.50                  | BT       |
| 25    | 286+390           | 286+430         | LHS  | 3.16                  | BT       |
| 26    | 286+415           | 286+455         | RHS  | 2.95                  | BT       |
| 27    | 286+640           | 286+680         | LHS  | 2.80                  | BT       |
| 28    | 286+875           | 286+915         | RHS  | 2.56                  | BT       |
| 29    | 286+892           | 286+932         | LHS  | 3.15                  | BT       |
| 30    | 287+105           | 287+105         | RHS  | 2.86                  | BT       |
| 31    | 287+225           | 287+225         | LHS  | 2.62                  | BT       |
| 32    | 287+285           | 287+285         | RHS  | 3.42                  | BT       |
| 33    | 287+345           | 287+345         | RHS  | 6.42                  | BT       |
| 34    | 288+181           | 288+140         | RHS  | 2.50                  | BT       |
| 35    | 288+541           | 288+500         | LHS  | 3.38                  | BT       |
| 36    | 288+831           | 288+790         | LHS  | 2.95                  | BT       |
| 37    | 288+971           | 288+930         | RHS  | 4.40                  | BT       |
| 38    | 289+211           | 289+120         | LHS  | 3.50                  | BT       |



| Sl.No | Existing Chainage | Design Chainage | Side | Carriageway Width (m) | Category |
|-------|-------------------|-----------------|------|-----------------------|----------|
| 39    | 239+251           | 289+160         | RHS  | 3.80                  | BT       |
| 40    | 239+391           | 289+300         | LHS  | 3.75                  | BT       |
| 41    | 239+746           | 289+655         | LHS  | 2.80                  | BT       |
| 42    | 239+764           | 289+673         | RHS  | 3.33                  | BT       |
| 43    | 290+611           | 290+485         | RHS  | 2.20                  | BT       |
| 44    | 291+176           | 290+850         | LHS  | 4.68                  | BT       |
| 45    | 291+016           | 290+890         | RHS  | 4.90                  | BT       |
| 46    | 291+249           | 291+154         | LHS  | 2.94                  | BT       |
| 47    | 291+590           | 291+495         | RHS  | 1.95                  | BT       |
| 48    | 291+645           | 291+550         | RHS  | 2.19                  | BT       |
| 49    | 292+005           | 291+910         | RHS  | 3.50                  | BT       |
| 50    | 292+170           | 292+045         | LHS  | 2.68                  | BT       |
| 51    | 292+300           | 292+175         | RHS  | 3.22                  | BT       |
| 52    | 292+385           | 292+260         | LHS  | 5.00                  | BT       |
| 53    | 292+675           | 292+550         | RHS  | 3.27                  | BT       |
| 54    | 292+695           | 292+570         | LHS  | 3.00                  | BT       |
| 55    | 292+800           | 292+675         | LHS  | 3.69                  | BT       |
| 56    | 293+134           | 293+010         | RHS  | 3.90                  | BT       |
| 57    | 293+411           | 293+290         | LHS  | 3.15                  | BT       |
| 58    | 293+694           | 293+570         | RHS  | 2.75                  | BT       |
| 59    | 294+074           | 293+950         | RHS  | 3.75                  | BT       |
| 60    | 294+104           | 293+980         | LHS  | 2.90                  | BT       |
| 61    | 294+508           | 294+380         | RHS  | 2.76                  | BT       |
| 62    | 294+608           | 294+480         | LHS  | 3.20                  | BT       |
| 63    | 294+873           | 294+745         | RHS  | 3.27                  | BT       |
| 64    | 295+028           | 294+900         | LHS  | 3.00                  | BT       |
| 65    | 295+202           | 295+080         | RHS  | 4.10                  | BT       |
| 66    | 295+737           | 295+615         | LHS  | 4.50                  | BT       |
| 67    | 295+977           | 295+855         | LHS  | 3.00                  | BT       |
| 68    | 296+425           | 296+305         | LHS  | 2.43                  | BT       |
| 69    | 296+610           | 296+490         | LHS  | 2.60                  | BT       |
| 70    | 297+010           | 296+890         | RHS  | 3.50                  | BT       |
| 71    | 297+309           | 297+190         | RHS  | 3.00                  | BT       |
| 72    | 297+659           | 297+540         | RHS  | 2.91                  | BT       |
| 73    | 297+896           | 297+777         | LHS  | 3.70                  | BT       |
| 74    | 297+981           | 297+862         | LHS  | 2.73                  | BT       |
| 75    | 298+109           | 297+990         | LHS  | 3.00                  | BT       |
| 76    | 298+277           | 298+170         | LHS  | 4.70                  | BT       |
| 77    | 298+470           | 298+363         | RHS  | 5.64                  | BT       |
| 78    | 298+492           | 298+385         | RHS  | 2.92                  | BT       |
| 79    | 298+542           | 298+435         | LHS  | 3.63                  | BT       |
| 80    | 298+700           | 298+593         | RHS  | 3.54                  | BT       |
| 81    | 298+920           | 298+813         | RHS  | 1.75                  | BT       |

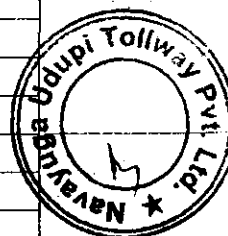


| Sl.No | Existing Chainage | Design Chainage | Side | Carriageway Width (m) | Category |
|-------|-------------------|-----------------|------|-----------------------|----------|
| 82    | 299+077           | 298+970         | RHS  | 3.10                  | BT       |
| 83    | 299+165           | 299+035         | LHS  | 2.80                  | BT       |
| 84    | 299+270           | 299+140         | RHS  | 3.86                  | BT       |
| 85    | 299+352           | 299+222         | RHS  | 2.94                  | BT       |
| 86    | 299+508           | 299+378         | LHS  | 1.83                  | BT       |
| 87    | 299+642           | 299+512         | LHS  | 2.66                  | BT       |
| 88    | 299+760           | 299+630         | RHS  | 2.88                  | BT       |
| 89    | 299+863           | 299+733         | LHS  | 3.50                  | BT       |
| 90    | 299+895           | 299+765         | LHS  | 2.72                  | BT       |
|       |                   |                 | RHS  | 2.52                  | BT       |
| 91    | 300+360           | 300+240         | LHS  | 3.45                  | BT       |
| 92    | 300+632           | 300+512         | RHS  | 2.95                  | BT       |
| 93    | 300+880           | 300+760         | RHS  | 2.93                  | BT       |
| 94    | 301+030           | 300+910         | RHS  | 2.80                  | BT       |
| 95    | 301+223           | 301+050         | LHS  | 3.20                  | BT       |
| 96    | 301+666           | 301+493         | RHS  | 2.99                  | BT       |
| 97    | 301+843           | 301+670         | LHS  | 2.75                  | BT       |
| 98    | 301+923           | 301+750         | LHS  | 2.39                  | BT       |
| 99    | 302+172           | 302+015         | RHS  | 3.10                  | BT       |
| 100   | 302+782           | 302+625         | RHS  | 2.90                  | BT       |
| 101   | 302+877           | 302+720         | RHS  | 3.08                  | BT       |
| 102   | 304+738           | 304+580         | LHS  | 6.40                  | BT       |
|       |                   |                 | RHS  | 3.47                  | BT       |
| 103   | 304+808           | 304+650         | RHS  | 2.25                  | BT       |
| 104   | 305+008           | 304+850         | RHS  | 5.12                  | BT       |
| 105   | 305+409           | 305+270         | RHS  | 3.50                  | BT       |
| 106   | 305+539           | 305+400         | RHS  | 2.50                  | BT       |
| 107   | 306+059           | 305+920         | LHS  | 2.87                  | BT       |
| 108   | 307+033           | 306+900         | RHS  | 2.80                  | BT       |
| 109   | 307+202           | 307+085         | LHS  | 3.20                  | BT       |
| 110   | 307+327           | 307+210         | LHS  | 4.40                  | BT       |
| 111   | 307+516           | 307+399         | LHS  | 5.30                  | BT       |
|       |                   |                 | RHS  | 3.60                  | BT       |
| 112   | 307+617           | 307+500         | RHS  | 3.00                  | BT       |
| 113   | 307+717           | 307+600         | RHS  | 3.59                  | BT       |
| 114   | 307+817           | 307+700         | RHS  | 3.84                  | BT       |
| 115   | 308+263           | 308+200         | LHS  | 3.50                  | BT       |
| 116   | 308+603           | 308+540         | LHS  | 2.30                  | BT       |
|       |                   |                 | RHS  | 3.50                  | BT       |
| 117   | 308+823           | 308+760         | LHS  | 3.20                  | BT       |
|       |                   |                 | RHS  | 3.12                  | BT       |
| 118   | 309+003           | 308+940         | RHS  | 2.60                  | BT       |
| 119   | 309+386           | 309+310         | RHS  | 2.90                  | BT       |

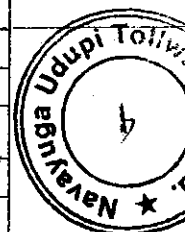


| Sl.No | Existing Chainage | Design Chainage | Side | Carriageway Width (m) | Category |
|-------|-------------------|-----------------|------|-----------------------|----------|
| 120   | 309+456           | 309+380         | RHS  | 2.84                  | BT       |
| 121   | 309+716           | 309+640         | LHS  | 3.30                  | BT       |
|       |                   |                 | RHS  | 3.10                  | BT       |
| 122   | 310+165           | 310+000         | LHS  | 3.10                  | BT       |
|       |                   |                 | RHS  | 3.60                  | BT       |
| 123   | 310+490           | 310+325         | LHS  | 3.70                  | BT       |
| 124   | 310+790           | 310+625         | RHS  | 2.07                  | BT       |
| 125   | 311+581           | 311+430         | LHS  | 3.42                  | BT       |
| 126   | 311+751           | 311+600         | RHS  | 2.89                  | BT       |
| 127   | 311+878           | 311+727         | LHS  | 3.54                  | BT       |
| 128   | 311+911           | 311+760         | RHS  | 2.88                  | BT       |
| 129   | 312+126           | 311+975         | LHS  | 3.57                  | BT       |
| 130   | 312+824           | 312+710         | LHS  | 5.20                  | BT       |
| 131   | 313+438           | 313+290         | LHS  | 5.14                  | BT       |
| 132   | 313+498           | 313+350         | LHS  | 3.60                  | BT       |
| 133   | 314+190           | 314+230         | RHS  | 3.54                  | BT       |
| 134   | 314+250           | 314+290         | LHS  | 2.95                  | BT       |
| 135   | 314+270           | 314+310         | RHS  | 3.70                  | BT       |
| 136   | 314+510           | 314+550         | RHS  | 3.58                  | BT       |
| 137   | 315+054           | 315+070         | RHS  | 3.28                  | BT       |
| 138   | 315+384           | 315+400         | LHS  | 3.50                  | BT       |
|       |                   |                 | RHS  | 3.00                  | BT       |
| 139   | 315+644           | 315+660         | LHS  | 2.80                  | BT       |
| 140   | 315+684           | 315+700         | RHS  | 2.90                  | BT       |
| 141   | 315+734           | 315+750         | RHS  | 3.61                  | BT       |
| 142   | 316+240           | 316+300         | LHS  | 3.68                  | BT       |
|       |                   |                 | RHS  | 2.26                  | BT       |
| 143   | 316+710           | 316+770         | LHS  | 4.20                  | BT       |
| 144   | 316+770           | 316+830         | RHS  | 4.46                  | BT       |
| 145   | 316+910           | 316+970         | RHS  | 2.67                  | BT       |
| 146   | 317+045           | 317+120         | LHS  | 4.00                  | BT       |
|       |                   |                 | RHS  | 4.20                  | BT       |
| 147   | 317+535           | 317+610         | LHS  | 3.10                  | BT       |
|       |                   |                 | RHS  | 3.00                  | BT       |
| 148   | 319+074           | 319+160         | LHS  | 2.50                  | BT       |
| 149   | 319+264           | 319+350         | LHS  | 4.45                  | BT       |
| 150   | 319+554           | 319+640         | RHS  | 3.46                  | BT       |
| 151   | 319+674           | 319+760         | LHS  | 6.10                  | BT       |
| 152   | 319+804           | 319+890         | RHS  | 3.45                  | BT       |
| 153   | 319+944           | 320+040         | RHS  | 3.00                  | BT       |
| 154   | 320+019           | 320+115         | LHS  | 2.10                  | BT       |
|       |                   |                 | RHS  | 3.17                  | BT       |
| 155   | 320+249           | 320+345         | LHS  | 3.64                  | BT       |

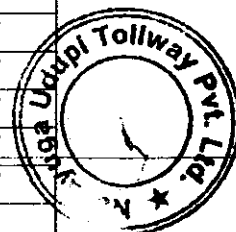
| Sl.No | Existing Chainage | Design Chainage | Side | Carriageway Width (m) | Category |
|-------|-------------------|-----------------|------|-----------------------|----------|
| 156   | 320-324           | 320-420         | RHS  | 2.48                  | BT       |
| 157   | 320-404           | 320+500         | LHS  | 2.00                  | BT       |
| 158   | 320+684           | 320+780         | LHS  | 2.38                  | BT       |
| 159   | 320+891           | 321+040         | LHS  | 2.27                  | BT       |
| 160   | 320+961           | 321+110         | LHS  | 2.54                  | BT       |
| 161   | 320-931           | 321+130         | RHS  | 3.30                  | BT       |
| 162   | 321+031           | 321+180         | LHS  | 2.90                  | BT       |
| 163   | 321+466           | 321+615         | RHS  | 2.37                  | BT       |
| 164   | 321+511           | 321+660         | LHS  | 2.30                  | BT       |
|       |                   |                 | RHS  | 2.50                  | BT       |
| 165   | 321+671           | 321+820         | RHS  | 6.28                  | BT       |
| 166   | 322+474           | 322+650         | LHS  | 3.20                  | BT       |
| 167   | 322+644           | 322+820         | RHS  | 2.50                  | BT       |
| 168   | 322+724           | 322+900         | RHS  | 2.35                  | BT       |
| 169   | 322+804           | 322+980         | LHS  | 2.82                  | BT       |
| 170   | 323+067           | 323+230         | LHS  | 2.50                  | BT       |
| 171   | 323+272           | 323+435         | LHS  | 3.60                  | BT       |
|       |                   |                 | RHS  | 1.79                  | BT       |
| 172   | 323+637           | 323+800         | LHS  | 3.25                  | BT       |
| 173   | 323+697           | 323+860         | LHS  | 2.92                  | BT       |
|       |                   |                 | RHS  | 2.75                  | BT       |
| 174   | 323+943           | 324+120         | LHS  | 3.50                  | BT       |
|       |                   |                 | RHS  | 4.50                  | BT       |
| 175   | 324+713           | 324+890         | LHS  | 3.24                  | BT       |
| 176   | 324+793           | 324+970         | RHS  | 3.30                  | BT       |
| 177   | 325+404           | 325+390         | RHS  | 3.73                  | BT       |
| 178   | 326+269           | 326+250         | LHS  | 3.20                  | BT       |
|       |                   |                 | RHS  | 3.40                  | BT       |
| 179   | 327+247           | 327+240         | RHS  | 3.60                  | BT       |
| 180   | 327+507           | 327+500         | LHS  | 4.40                  | BT       |
| 181   | 327-687           | 327+680         | LHS  | 2.30                  | BT       |
| 182   | 327+887           | 327+880         | RHS  | 2.40                  | BT       |
| 183   | 327+952           | 327+945         | LHS  | 3.60                  | BT       |
| 184   | 328+086           | 328+060         | RHS  | 2.40                  | BT       |
| 185   | 328+581           | 328+555         | RHS  | 3.60                  | BT       |
| 186   | 329+037           | 329+020         | RHS  | 3.30                  | BT       |
| 187   | 329+062           | 329+045         | LHS  | 3.51                  | BT       |
| 188   | 329+999           | 330+020         | LHS  | 3.50                  | BT       |
| 189   | 330+112           | 330+133         | RHS  | 3.18                  | BT       |
| 190   | 330+329           | 330+350         | RHS  | 2.18                  | BT       |
|       |                   |                 | LHS  | 2.79                  | BT       |
| 191   | 330+394           | 330+415         | RHS  | 2.67                  | BT       |



| Sl.No | Existing Chainage | Design Chainage | Side | Carriageway Width (m) | Category |
|-------|-------------------|-----------------|------|-----------------------|----------|
| 192   | 330+329           | 330+350         | LHS  | 4.30                  | BT       |
|       |                   |                 | RHS  | 2.90                  | BT       |
| 193   | 330+574           | 330+595         | LHS  | 4.00                  | BT       |
| 194   | 330+684           | 330+705         | RHS  | 2.34                  | BT       |
| 195   | 330+749           | 330+770         | RHS  | 2.55                  | BT       |
| 196   | 330+799           | 330+820         | RHS  | 2.58                  | BT       |
| 197   | 330+959           | 330+980         | RHS  | 2.94                  | BT       |
| 198   | 331+008           | 331+000         | LHS  | 3.20                  | BT       |
| 199   | 331+238           | 331+230         | RHS  | 1.93                  | BT       |
| 200   | 331+398           | 331+390         | LHS  | 3.77                  | BT       |
| 201   | 331+493           | 331+485         | RHS  | 3.54                  | BT       |
| 202   | 332+258           | 332+270         | LHS  | 4.32                  | BT       |
| 203   | 332+318           | 332+330         | RHS  | 3.75                  | BT       |
| 204   | 332+443           | 332+455         | LHS  | 3.42                  | BT       |
| 205   | 332+588           | 332+600         | RHS  | 3.89                  | BT       |
| 206   | 332+728           | 332+740         | RHS  | 3.50                  | BT       |
| 207   | 333+114           | 333+130         | RHS  | 2.94                  | BT       |
| 208   | 333+194           | 333+210         | RHS  | 2.94                  | BT       |
| 209   | 333+714           | 333+730         | RHS  | 4.30                  | BT       |
| 210   | 333+754           | 333+770         | LHS  | 3.20                  | BT       |
| 211   | 334+603           | 334+600         | LHS  | 3.50                  | BT       |
| 212   | 334+863           | 334+860         | RHS  | 3                     | BT       |
| 213   | 335+214           | 335+210         | RHS  | 2.4                   | BT       |
| 214   | 335+604           | 335+600         | RHS  | 3.26                  | BT       |
| 215   | 335+819           | 335+815         | RHS  | 3.4                   | BT       |
| 216   | 336+126           | 336+132         | RHS  | 2.5                   | BT       |
| 217   | 336+229           | 336+235         | LHS  | 3.15                  | BT       |
| 218   | 336+334           | 336+340         | RHS  | 3.11                  | BT       |
| 219   | 336+669           | 336+675         | RHS  | 3.8                   | BT       |
| 220   | 336+729           | 336+735         | RHS  | 2.5                   | BT       |
| 221   | 336+934           | 336+940         | RHS  | 3.3                   | BT       |
| 222   | 336+969           | 336+975         | LHS  | 2.7                   | BT       |
|       |                   |                 | RHS  | 2.7                   | BT       |
| 223   | 337+201           | 337+200         | LHS  | 4.1                   | BT       |
| 224   | 337+401           | 337+400         | LHS  | 3.5                   | BT       |
|       |                   |                 | RHS  | 3.1                   | BT       |
| 225   | 337+851           | 337+850         | RHS  | 3.5                   | BT       |
| 226   | 338+594           | 338+610         | RHS  | 4.35                  | BT       |
| 227   | 339+037           | 339+070         | LHS  | 4.42                  | BT       |
| 228   | 339+062           | 339+095         | RHS  | 1.96                  | BT       |
| 229   | 339+207           | 339+240         | LHS  | 3.72                  | BT       |



| Sl.No | Existing Chainage | Design Chainage | Side | Carriageway Width (m) | Category |
|-------|-------------------|-----------------|------|-----------------------|----------|
| 230   | 340+257           | 340+300         | LHS  | 2.6                   | BT       |
| 231   | 340+557           | 340+600         | RHS  | 4.6                   | BT       |
| 232   | 340+832           | 340+875         | RHS  | 3.89                  | BT       |
| 233   | 340+867           | 340+910         | RHS  | 3.1                   | BT       |
| 234   | 341+383           | 341+425         | RHS  | 3.5                   | BT       |
| 235   | 345+099           | 344+990         | RHS  | 4.7                   | BT       |
| 236   | 345+056           | 345+040         | LHS  | 3.8                   | BT       |
| 237   | 345+076           | 345+060         | RHS  | 4.3                   | BT       |
|       |                   |                 | LHS  | 3.5                   | BT       |
| 238   | 345+296           | 345+280         | LHS  | 2.2                   | BT       |
| 239   | 345+706           | 345+690         | RHS  | 4.4                   | BT       |
| 240   | 345+896           | 345+880         | LHS  | 2.3                   | BT       |
| 241   | 346+430           | 346+385         | LHS  | 3.5                   | BT       |
| 242   | 346+965           | 346+920         | LHS  | 3.5                   | BT       |
|       |                   |                 | RHS  | 4.8                   | BT       |
| 243   | 347+507           | 347+470         | LHS  | 2.8                   | BT       |
| 244   | 347+567           | 347+530         | RHS  | 5.34                  | BT       |
| 245   | 347+807           | 347+770         | LHS  | 2.8                   | BT       |
| 246   | 348+849           | 348+830         | LHS  | 3.6                   | BT       |
|       |                   |                 | RHS  | 4.4                   | BT       |
| 247   | Bypass            | 349+135         | LHS  | 2.9                   | BT       |
|       |                   |                 | RHS  | 2.8                   | BT       |
| 248   | Bypass            | 349+560         | LHS  | 2.6                   | BT       |
|       |                   |                 | RHS  | 2.6                   | BT       |
| 249   | 351+303           | 350+950         | LHS  | 3.3                   | BT       |
|       |                   |                 | RHS  | 2.79                  | BT       |
| 250   | 351+528           | 351+170         | RHS  | 3.2                   | BT       |
| 251   | 351+558           | 351+200         | LHS  | 5.5                   | BT       |
| 252   | 352+178           | 351+820         | LHS  | 6.4                   | BT       |
| 253   | 352+452           | 352+110         | LHS  | 6.9                   | BT       |
| 254   | 352+502           | 352+160         | RHS  | 2.6                   | BT       |
| 255   | 352+882           | 352+540         | LHS  | 4.4                   | BT       |
| 256   | 352+982           | 352+640         | LHS  | 4.1                   | BT       |
| 257   | 353+162           | 352+820         | RHS  | 2                     | BT       |
| 258   | 353+993           | 353+640         | LHS  | 3.6                   | BT       |
|       |                   |                 | RHS  | 4                     | BT       |
| 259   | 354+537           | 354+090         | LHS  | 2.9                   | BT       |
| 260   | 354+967           | 354+520         | LHS  | 3                     | BT       |
| 261   | 355+217           | 354+770         | LHS  | 4.5                   | BT       |
|       |                   |                 | RHS  | 5.89                  | BT       |
| 262   | 355+462           | 355+000         | LHS  | 4.5                   | BT       |
| 263   | 356+162           | 355+700         | RHS  | 4.1                   | BT       |
| 264   | 356+222           | 355+760         | LHS  | 3                     | BT       |



| Sl.No | Existing Chainage | Design Chainage | Side | Carriageway Width (m) | Category |
|-------|-------------------|-----------------|------|-----------------------|----------|
| 265   | 356+407           | 355+945         | RHS  | 2.6                   | BT       |
| 266   | 356+650           | 356+100         | LHS  | 3                     | BT       |
| 267   | 357+030           | 356+480         | RHS  | 2.4                   | BT       |
| 268   | 357+500           | 356+950         | LHS  | 2.5                   | BT       |
| 269   | 358+014           | 357+480         | RHS  | 4.5                   | BT       |
| 270   | 358+124           | 357+590         | RHS  | 3.5                   | BT       |
| 271   | 358+444           | 357+910         | LHS  | 2.5                   | BT       |

**Section 2**

| Sl.No                                      | Existing Chainage | Design Chainage | Side | Carriageway Width (m) | Category |
|--|-------------------|-----------------|------|-----------------------|----------|
| Existing 15 minor junctions to be improved |                   |                 |      |                       |          |



## Appendix BVIII

## Details of Proposed Grade Separated Intersections

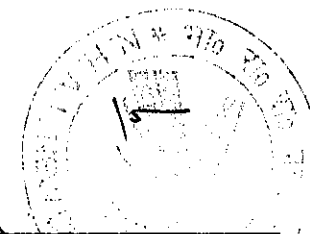
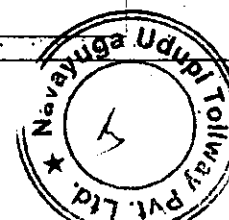
## Section 1

| Sl. No. | Location | Existing Chainage (Km) | Design Chainage (Km) | Name of Intersecting Road | Proposed Structural Configuration | Proposed Structure Type | Proposed Span Arrangement | Total Width of the structure |
|---------|----------|------------------------|----------------------|---------------------------|-----------------------------------|-------------------------|---------------------------|------------------------------|
| Nil     |          |                        |                      |                           |                                   |                         |                           |                              |

## Section 2

## Location for Proposed Flyovers

| Sl. No. | Location                        | Existing Chainage (Km) | Design Chainage (Km) | Name of Intersecting Road | Proposed Structural Configuration  | Proposed Structure Type | Proposed Span Arrangement | Total Width of the structure |
|---------|---------------------------------|------------------------|----------------------|---------------------------|--|-------------------------|---------------------------|------------------------------|
| 1       | Mahaveer Circle/Pumpwell circle | 376+700                | 3+700                | NH-48                     | Pile Foundation with PSC post tensioned I girder – RCC cast in situ deck | Flyover                 | 1 x 30.5 m                | 2x9.9m                       |
| 2       | Thekottu                        | 9+600                  | 9+572                | -                         | Pile Foundation with PSC post tensioned I girder – RCC                   | Flyover                 | 1 x 30.5 m                | 2x9.9m                       |

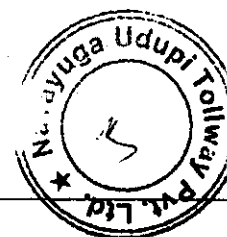




| Sl. No. | Location | Existing Chainage (Km) | Design Chainage (Km) | Name of Intersecting Road | Proposed Structural Configuration | Proposed Structure Type | Proposed Span Arrangement | Total Width of the structure |
|---------|----------|------------------------|----------------------|---------------------------|-----------------------------------|-------------------------|---------------------------|------------------------------|
|         |          |                        |                      |                           | cast in situ deck                 |                         |                           |                              |

310

4 Laning of Kundapur - Surathkal and Mangalore -Karnataka/  
Kerala Border sections of NH 17 (Total Length 90.08 Km)  
in the State of Karnataka under NHDP Phase III on BOT Basis



## Appendix BIX

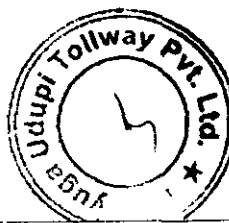
## Details of Proposed Vehicular Underpasses

## For Section 1

| Sl. No. | Existing Chainage (Km) | Design Chainage (Km) | Name of Intersecting Roads | Proposed Structure Configuration | Proposed Structure Type | Proposed Span Arrangement | Total Width of the structure |
|---------|------------------------|----------------------|----------------------------|----------------------------------|-------------------------|---------------------------|------------------------------|
| 1       | 284+040                | 284+000              | Loin's Club road           | New Four lane                    | Vehicular Underpass     | 10.5 x 5                  | 27.5                         |
| 2       | 321+500                | 321+350              | Uduppi                     | New Four lane                    | Overpass                | 2x12 x 5                  | 27.5                         |
| 3       | 357+957                | 358+250              | Near NIT                   | New Four lane                    | Vehicular Underpass     | 10.5 x 5                  | 13.75                        |

## For Section 2

| Sl. No. | Existing Chainage (Km) | Design Chainage (Km) | Name of Intersecting Roads | Proposed Structure Configuration | Proposed Structure Type | Proposed Span Arrangement | Total Width of the structure |
|---------|------------------------|----------------------|----------------------------|----------------------------------|-------------------------|---------------------------|------------------------------|
| Nil     |                        |                      |                            |                                  |                         |                           |                              |

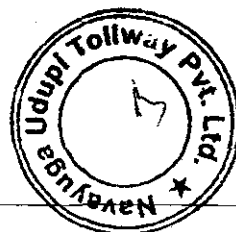


## Appendix BX

## Details of Proposed Pedestrian/Cattle Underpasses

## For Section 1

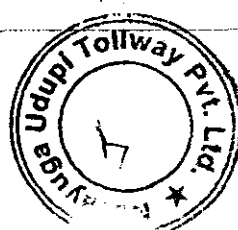
| Sl. No.                     | Existing Chainage (Km) | Design Chainage (Km) | Name of Intersecting Roads                 | Proposed Structure Configuration | Proposed Structure Type | Proposed Span Arrangement | Total Width of the structure |
|-----------------------------|------------------------|----------------------|--|----------------------------------|-------------------------|---------------------------|------------------------------|
| <b>Cattle Underpass-</b>    |                        |                      |  |                                  |                         |                           |                              |
| 1                           | 286+580                | 286+550              | -  | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 2                           | 287+750                | 287+800              | Koteswara Town - Shimoga                   | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 3                           | 289+190                | 289+290              | -  | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 4                           | 294+610                | 294+730              | To Police Station                          | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 5                           | 295+380                | 295+500              | To Kota Village                            | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 6                           | 298+000                | 298+120              | Saligram Old Road - Narasimha Swami Temple | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 7                           | 307+200                | 307+300              | Brahmavara Village                         | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 8                           | 320+050                | 319+960              | To Udupi                                   | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 9                           | Bypassed               | 349+140              | -  | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 10                          | 357+020                | 357+620              | -  | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| <b>Pedestrian Underpass</b> |                        |                      |  |                                  |                         |                           |                              |
| 11                          | 283+820                | 283+705              | -  | New Four Lane                    | Pedestrian Pass         | 3.0mx2.5m                 | 27.5                         |
| 12                          | 284+240                | 284+145              | -  | New Four Lane                    | Pedestrian Pass         | 3.0mx2.5m                 | 27.5                         |
| 13                          | 284+850                | 284+765              | Rayappana Matha                            | New Four Lane                    | Pedestrian Pass         | 3.0mx2.5m                 | 27.5                         |
| 14                          | 285+280                | 285+195              | TT Road                                    | New Four Lane                    | Pedestrian Pass         | 3.0mx2.5m                 | 27.5                         |
| 15                          | 332+200                | 332+200              | -  | New Four Lane                    | Pedestrian Pass         | 3.0mx2.5m                 | 22.5                         |
| 16                          | Bypassed               | 342+883              | -  | New Four Lane                    | Pedestrian Pass         | 3.0mx2.5m                 | 27.5                         |
| 17                          | Bypassed               | 343+340              | -  | New Four Lane                    | Pedestrian Pass         | 3.0mx2.5m                 | 27.5                         |



312

## For Section 2

| Sl. No.                     | Existing Chainage (Km) | Design Chainage (Km) | Name of Intersecting Roads | Proposed Structure Configuration | Proposed Structure Type | Proposed Span Arrangement | Total Width of the structure |
|-----------------------------|------------------------|----------------------|----------------------------|----------------------------------|-------------------------|---------------------------|------------------------------|
| <b>Pedestrian Underpass</b> |                        |                      |                            |                                  |                         |                           |                              |
| 1                           | 14+500                 | 14+500               | Uchilla                    | New Four Lane                    | Pedestrian Underpass    | 3.0mx2.5m                 | 27.5                         |
| 2                           | 16+900                 | 16+900               | Thalappady                 | New Four Lane                    | Pedestrian Underpass    | 3.0mx2.5m                 | 27.5                         |



313

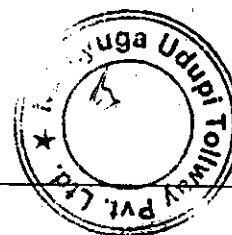
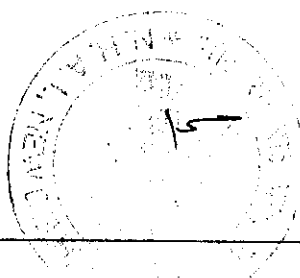
## Details of new Major Bridges and Rehabilitation/Repair/widening Scheme for Existing Major Bridges

## Appendix BXI

A. Construction of new Major Bridges For Section I

| Sl. No | Name of the bridge | Bridge No | Existing Chainage (km) | Design Chainage (km) | Type of crossing | Proposed structural configuration | Proposed Structural type | Proposed Span arrangement | Total width of structure |
|--------|--------------------|-----------|------------------------|----------------------|------------------|-----------------------------------|--------------------------|---------------------------|--------------------------|
| 1      | Pangala            | 330/1     | 330+300                | 329+467              | Normal           | 6 lane                            | T-Beam Bridge            | 3x20                      | 12X2                     |

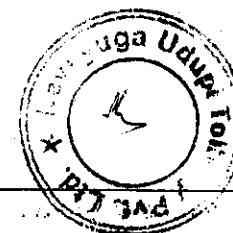
314



B. Rehabilitation/Repair/widening of existing Major bridges For Section I

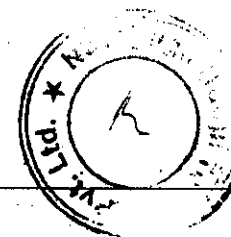
| Sl. No | Name of the bridge | Bridge No | Chainage (km) | Width | Span Arrangement | Type Of structure |              |      |                | Details of Rehabilitation                      | Details of Repair | Details of widening   |
|--------|--------------------|-----------|---------------|-------|------------------|-------------------|--------------|------|----------------|--|-------------------|---|
|        |                    |           |               |       |                  | Foundation        | Substructure |      | Superstructure |  |                   |   |
|        |                    |           |               |       |                  |                   | Abutment     | Pier |                |  |                   |   |
| 1      | Mabukala           | 304/2     | 303+467       | 12X2  | 10 x 29          | Well              | RCC          | RCC  | PSC I Girder   | Retain the existing bridge with minor repairs. |                   | Additional bridge with 12m total width and footway on one side, suitable for 3 lane upgradation |
| 2      | Bhadragiri         | 311/1     | 310+453       | 12X2  | 3 x 29           | Well              | RCC          | RCC  | PSC I Girder   | Retain the existing bridge with minor repairs. |                   | Additional bridge with 12m total width and footway on one side, suitable for 3 lane upgradation |

315



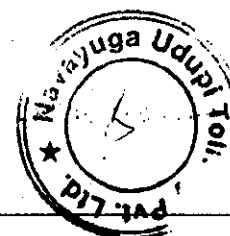
| Sl. No | Name of the bridge | Bridge No | Chainage (km) | Width | Span Arrangement | Type Of structure |              |      |                | Details of Rehabilitation                      | Details of Repair | Details of widening  |
|--------|--------------------|-----------|---------------|-------|------------------|-------------------|--------------|------|----------------|--|-------------------|--|
|        |                    |           |               |       |                  | Foundation        | Substructure |      | Superstructure |  |                   |  |
|        |                    |           |               |       |                  |                   | Abutment     | Pier |                |  |                   |  |
| 3      | Kalyanpur          | 313/5     | 313+072       | 12X2  | 7 x 29           | Well              | RCC          | RCC  | PSC I Girder   | Retain the existing bridge with minor repairs. |                   | Additional bridge with 12m total width and footway on one side, suitable for 3 lane upgradation                              |
| 4      | Udayavar           | 325/2     | 324+562       | 12X2  | 9 x 29           | Well              | RCC          | RCC  | PSC I Girder   | Retain the existing bridge with minor repairs. |                   | Existing bridge is retained. Additional bridge with 12m total width and footway on one side, suitable for 3 lane upgradation |

316



| Sl. No | Name of the bridge | Bridge No | Chainage (km) | Width | Span Arrangement | Type Of structure |              |      |                | Details of Rehabilitation                      | Details of Repair | Details of widening   |
|--------|--------------------|-----------|---------------|-------|------------------|-------------------|--------------|------|----------------|--|-------------------|---|
|        |                    |           |               |       |                  | Foundation        | Substructure |      | Superstructure |  |                   |   |
|        |                    |           |               |       |                  |                   | Abutment     | Pier |                |  |                   |   |
| 5      | Mulky              | 349/4     | 348+454       | 12X2  | 6 x 29           | Well              | SSM          | SSM  | PSC I Girder   | Retain the existing bridge with minor repairs. |                   | Additional bridge with 12m total width and footway on one side, suitable for 3 lane upgradation |
| 6      | Pavanje            | 356/3     | 356+407       | 12X2  | 5 x 29           | Well              | RCC          | RCC  | PSC I Girder   | Retain the existing bridge with minor repairs. |                   | Additional bridge with 12m total width and footway on one side, suitable for 3 lane upgradation |

317





**A. Construction of Major Bridge For Section 2**

| Sl. No | Name of the bridge | Bridge No | Design Chainage (km) | Width | Span Arrangement | Type of Structures |   |           |                                       |
|--------|--------------------|-----------|----------------------|-------|------------------|--------------------|---|-----------|---------------------------------------|
|        |                    |           |                      |       |                  | Foundation         | Abutment                                      | Pier      | Superstructure                        |
| 1      | Netravathy Bridge  |           | 6+165                | 13.1  | 24 x 33.5        | Well               | Well foundation with R C C Piers and abutment | RCC Piers | PSC 'I' Girder with slab              |
| 2      | Talpady Bridge     |           | 16+344               | 12    | 2 x 35m          | open               | RCC abutment + RCC Pier                       | RCC Piers | PSC 'I' Girder with slab + solid Slab |

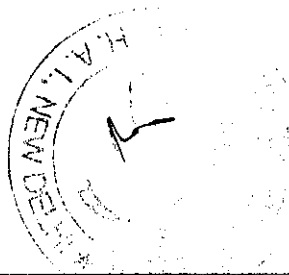
**B. Rehabilitation/Repair/widening of existing Major bridges For Section 2**

| Sl. No | Name of the bridge | Bridge No | Design Chainage<br>(km) | Width | Span Arrangement | Type Of structure |              |      | Details of<br>Rehabilitation | Details of Repair | Details of widening |                |
|--------|--------------------|-----------|-------------------------|-------|------------------|-------------------|--------------|------|------------------------------|-------------------|---------------------|----------------|
|        |                    |           |                         |       |                  | Foundation        | Substructure |      |                              |                   |                     | Superstructure |
|        |                    |           |                         |       |                  |                   | Abutment     | Pier |                              |                   |                     |                |

318

|   |                   |  |        |       |           |      |   |  |                                       |  |  |   |
|---|-------------------|--|--------|-------|-----------|------|---|--|---------------------------------------|--|--|---|
| 1 | Netravathy Bridge |  | 6+165  | 10.3m | 24 x 33.5 | Well | Well foundation with RCC piers and abutment |  | PSC 'I' Girder with slab              |  |  | Retain the existing bridge with repairs required as per site conditions with the approval of IC |
| 2 | Talpady Bridge    |  | 16+344 | 8.0m  | 2 x 35m   | Open | PCC abutment + RCC Pier                     |  | PSC 'I' Girder with slab + Solid Slab |  |  | Retain the existing bridge with repairs required as per site conditions with the approval of IC |

\* The proposed span arrangement is tentative and the same shall be finalized in consultation with Irrigation Authority & IC. Any change in span arrangement shall not be treated as change in scope of work.



## Appendix BXII

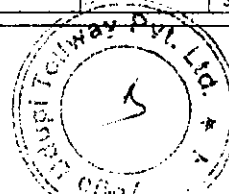
## Details of new Minor Bridges and Rehabilitation/Repair /widening Scheme for Existing Minor Bridges

A. Construction of New Minor Bridges for Section 1

| Sl. No | Bridge No | Existing Chainage (km) | Design Chainage (km) | Type of crossing | Proposed structural configuration | Proposed Structural type | Proposed Span arrangement | Total width of structure |
|--------|-----------|------------------------|----------------------|------------------|-----------------------------------|--------------------------|---------------------------|--------------------------|
| 1      | 342/2     | 341+950                | 341+926 (Bypassed)   | Normal           | 6 lane                            | PSC I Girder             | 1x29                      | 2x12                     |

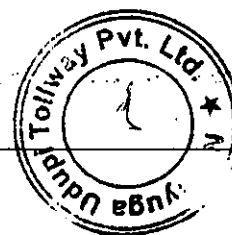
B. Rehabilitation/Repair/Widening of Existing Minor Bridges For Section 1

| Sl. No | Name of the bridge | Bridge No | Chainage (km) | Width | Span Arrangement | Foundation | Type Of structure |      |                | Details of Rehabilitation   | Details of Repair | Details of widening |
|--------|--------------------|-----------|---------------|-------|------------------|------------|-------------------|------|----------------|---|-------------------|---------------------|
|        |                    |           |               |       |                  |            | Substructure      |      | Superstructure |   |                   |                     |
|        |                    |           |               |       |                  |            | Abutment          | Pier |                |   |                   |                     |
| 1      | Canal              | 313/2     | 312+358       | 12X2  | 1 x 6.7          | Open       | RCC               | -    | RCC Slab       | Existing bridge to be reconstructed to 3 lane bridge with footway on either side, suitable for 6 lane up gradation (12m +3.5m median gap+12m) |                   |                     |
| 2      | Nittur             | 319/2     | 318+190       | 12X2  | 3 x 9.5          | Open       | RCC               | RCC  | RCC slab       | Existing bridge to be reconstructed to 3 lane bridge with footway on either side, suitable for 6 lane up                                      |                   |                     |



| Sl. No | Name of the bridge | Bridge No | Chainage (km) | Width | Span Arrangement | Type Of structure |              |      |                | Details of Rehabilitation   | Details of Repair | Details of widening |
|--------|--------------------|-----------|---------------|-------|------------------|-------------------|--------------|------|----------------|---|-------------------|---------------------|
|        |                    |           |               |       |                  | Foundation        | Substructure |      | Superstructure |   |                   |                     |
|        |                    |           |               |       |                  |                   | Abutment     | Pier |                |   |                   |                     |
|        |                    |           |               |       |                  |                   |              |      |                | gradation (12m +3.5m median gap+12m)  |                   |                     |
| 3      | Cana;              | 328/1     | 327+149       | 12X2  | 1 x 8            | Open              | RCC          | -    | RCC Slab       | Existing bridge to be reconstructed to 6 lane bridge with footway on either side, suitable for 6 lane up gradation(12m +3.5m median gap+12m)                          |                   |                     |
| 4      | Hejamadi           | 347/1     | 346+264       | 12X2  | 1 x 7            | Open              | RCC          | -    | RCC Slab       | Existing bridge to be reconstructed to 6 lane bridge with footway on either side - suitable for 3 lane up gradation (12m +3.5m median gap+12m)                        |                   |                     |
| 5      | Canal              | 347/3     | 346+640       | 12X2  | 1 x 9.1          | Open              | RCC          | -    | RCC Slab       | Additional bridge with 12m total width and footway on one side, suitable for 3 lane upgradation (Existing bridge is retained and shall be widened to standard 2 lane) |                   |                     |
| 6      | Canal              | 353/4     | 353+213       | 12X2  | 1 x 13.5         | Open              | RCC          | -    | T-Beam Bridge  | Retain the existing bridge with minor repairs. Additional bridge with 12m total width and footway on one side, suitable for 3 lane upgradation                        |                   |                     |

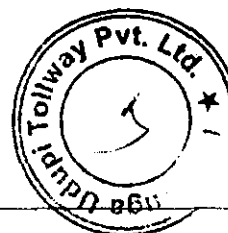
321



**Construction of Minor Bridges for Section 2****C. New and Rehabilitation/Repair/Widening of Existing Minor Bridges For Section 2**

| Sl. No | Name of the bridge | Bridge No | Proposed Chainage (km) | Width | Span Arrangement | Type Of structure |                     |      |                                       | Details of widening  |
|--------|--------------------|-----------|------------------------|-------|------------------|-------------------|---------------------|------|---------------------------------------|--|
|        |                    |           |                        |       |                  | Foundation        | Substructure        |      | Superstructure                        |  |
|        |                    |           |                        |       |                  |                   | Abutment            | Pier |                                       |  |
| 1      | -                  |           | 5+490                  | 12    | 1 x 8            | Open              | RR Abutment         |      | Box                                   | Widening of existing structure with Cell Box structure. Additional bridge with 12m total width and footway on one side, suitable for 3 lane upgradation  |
| 2      | -                  |           | 6+165                  | 12    | 1 x 8            | Open              | RR Abutment         |      | Box                                   | Widening of existing structure with Cell Box structure. Additional bridge with 12m total width and footway on one side, suitable for 3 lane upgradation  |
| 3      | -                  |           | 14+767                 | 12    | 2 x 5 + 1 x 25   | Open              | Solid wall type RCC |      | PSC 'I' Girder with slab + Solid Slab | PSC 'I' Girder with deck slab, Circular pier for intermediate Span & RCC deck slab with Wall type abutment for End Span. Additional bridge with 12m total width and footway on one side, suitable for 3 lane upgradation |

\* The proposed span arrangement is tentative and the same shall be finalized in consultation with Irrigation Authority & IC. Any change in span arrangement shall not be treated as change in scope of work.



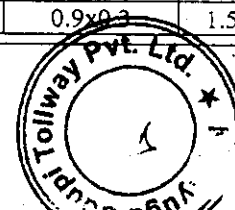
## Appendix BXIII

## Section I

## Reconstruction Scheme for Culverts

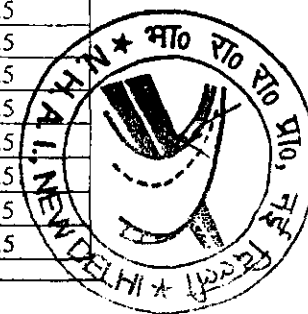
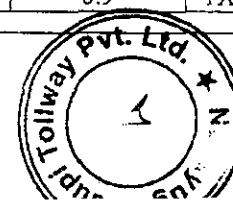
| Sl. No. | Existing CD No. | Existing Chainage | Design Chainage | Type of Structure |           | Recommendation | Span Arrangement |                    | Proposed total width (m) |
|---------|-----------------|-------------------|-----------------|-------------------|-----------|----------------|------------------|--------------------|--------------------------|
|         |                 |                   |                 | Existing          | Proposed  |                | Existing (m)     | Proposed $L_s$ (m) |                          |
| 1       | 284/2           | 283+500           | 283+390         | Slab              | Slab      | Reconstruction | 0.9x0.9          | 1.5 x 1.5          | 41.2                     |
| 2       | 284/3           | 283+700           | 283+610         | Slab              | Slab      | Reconstruction | 0.9x0.9          | 1x1.2              | 45                       |
| 3       | 285/1           | 284+230           | 284+140         | Slab              | Slab      | Reconstruction | 0.9x0.9          | 1.5 x 1.5          | 45                       |
| 4       | 285/2           | 284+925           | 284+835         | Slab              | Slab      | Reconstruction | 0.9x0.9          | 1.5 x 1.5          | 41.2                     |
| 5       | 286/1           | 285+585           | 285+500         | Pipe              | Pipe      | Reconstruction | 0.9x1            | 1.5 x 1.5          | 41.2                     |
| 6       | 287/1           | 286+610           | 286+570         | Pipe              | Pipe      | Reconstruction | 0.9x1            | 1x1.2              | 41.2                     |
| 7       | 288/1           | 287+550           | 287+510         | Slab              | Slab      | Reconstruction | 0.9x0.4          | 1.5 x 1.5          | 41.2                     |
| 8       | 288/2           | 287+700           | 287+620         | Pipe              | Pipe      | Reconstruction | 0.6x1            | 1.5 x 1.5          | 41.2                     |
| 9       | 288/3           | 287+830           | 287+785         | Skew slab         | Skew slab | Reconstruction | 1x0.9            | 1x1.2              | 41.2                     |
| 10      | 288/4           | 287+900           | 287+935         | Pipe              | Pipe      | Widening       | 0.9x1            | 1 x 0.9 Dia        | 41.2                     |
| 11      | 289/1           | 288+050           | 288+110         | Slab              | Slab      | Reconstruction | 0.7x0.7          | 1.5 x 1.5          | 26.5                     |
| 12      | 289/2           | 288+350           | 288+475         | Pipe              | Pipe      | Reconstruction | 0.9x1            | 1.5 x 1.5          | 26.5                     |
| 13      | 289/3           | 288+630           | 288+825         | Pipe              | Pipe      | Reconstruction | 0.9x1            | 1.5 x 1.5          | 26.5                     |
| 14      | 289/4           | 288+980           | 289+040         | Slab              | Slab      | Reconstruction | 0.9x0.7          | 1.5 x 1.5          | 26.5                     |
| 15      | 290/1           | 289+100           | 289+295         | Pipe              | Pipe      | Widening       | 0.9x1            | 1 x 0.9 Dia        | 26.5                     |
| 16      | 290/2           | 289+500           | 289+710         | Slab              | Slab      | Widening       | 3x1              | 3 x 1.5            | 26.5                     |
| 17      | 290/3           | 289+800           | 289+970         | Slab              | Slab      | Reconstruction | 0.9x0.9          | 1.5 x 1.5          | 26.5                     |
| 18      | 291/1           | 290+050           | 290+230         | Slab              | Slab      | Reconstruction | 2.5x2            | 2.5 x 2            | 26.5                     |
| 19      | 291/2           | 290+900           | 291+090         | Slab              | Slab      | Reconstruction | 0.9x0.5          | 1.5 x 1.5          | 26.5                     |
| 20      | 292/1           | 291+200           | 291+415         | Slab              | Slab      | Reconstruction | 0.9x0.6          | 1.5 x 1.5          | 26.5                     |
| 21      | 292/2           | 291+750           | 291+915         | Slab              | Slab      | Reconstruction | 0.9x0.9          | 1.5 x 1.5          | 26.5                     |
| 22      | 292/3           | 291+920           | 292+035         | Slab              | Slab      | Reconstruction | 0.9x0.7          | 1.5 x 1.5          | 26.5                     |
| 23      | 293/1           | 292+270           | 292+300         | Box               | Box       | Reconstruction | 0.9x0.4          | 1.5 x 1.5          | 26.5                     |
| 24      | 293/2           | 292+450           | 292+560         | Slab              | Slab      | Reconstruction | 0.9x0.9          | 1.5 x 1.5          | 26.5                     |

323  
4 Laning of Kundapur - Surathkal and Mangalore -Karnataka/  
Kerala Border Sections of NH 17 (Total Length 90.08 Km)  
in the State of Karnataka under NHDP Phase III on BOT Basis



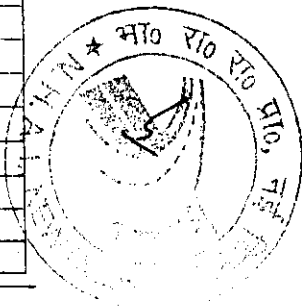
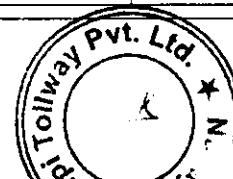
| Sl. No. | Existing CD No. | Existing Chainage | Design Chainage | Type of Structure |          | Recommendation | Span Arrangement              |              | Proposed total width (m) |
|---------|-----------------|-------------------|-----------------|-------------------|----------|----------------|-------------------------------|--------------|--------------------------|
|         |                 |                   |                 | Existing          | Proposed |                | Existing (m)                  | Proposed (m) |                          |
| 25      | 293/3           | 292+600           | 292+780         | Slab              | Slab     | Reconstruction | 0.9x0.7                       | 1.5 x 1.5    | 26.5                     |
| 26      | 294/1           | 293+100           | 293+235         | Pipe              | Pipe     | Widening       | 0.9x1                         | 1 x 0.9 Dia  | 26.5                     |
| 27      | 294/2           | 293+600           | 293+730         | Pipe              | Pipe     | Reconstruction | 0.9x1                         | 1.5 x 1.5    | 41.2                     |
| 28      | 294/3           | 293+720           | 293+885         | Slab              | Slab     | Reconstruction | 0.9x0.9 on LHS 0.9x1.6 on RHS | 1.5 x 1.5    | 41.2                     |
| 29      | 294/4           | 293+960           | 294+110         | Slab              | Slab     | Reconstruction | 0.9x0.45                      | 1.5 x 1.5    | 41.2                     |
| 30      | 295/1           | 294+070           | 294+190         | Slab              | Slab     | Reconstruction | 0.9x0.4                       | 1.5 x 1.5    | 41.2                     |
| 31      | 295/2           | 294+300           | 294+440         | Slab              | Slab     | Reconstruction | 0.9x0.5                       | 1.5 x 1.5    | 41.2                     |
| 32      | 295/3           | 294+600           | 294+735         | Slab              | Slab     | Reconstruction | 0.9x0.2                       | 1x1.2        | 41.2                     |
| 33      | 296/1           | 295+150           | 295+245         | Slab              | Slab     | Reconstruction | 0.9x0.2                       | 1.5 x 1.5    | 41.2                     |
| 34      | 296/2           | 295+800           | 295+905         | Pipe              | Pipe     | Reconstruction | 0.9x1                         | 1.5 x 1.5    | 26.5                     |
| 35      | 296/3           | 295+900           | 295+995         | Slab              | Slab     | Reconstruction | 0.9x0.2                       | 1.5 x 1.5    | 26.5                     |
| 36      | 297/1           | 296+500           | 296+595         | Slab              | Slab     | Reconstruction | 0.9x0.15                      | 1.5 x 1.5    | 26.5                     |
| 37      | 298/1           | 297+100           | 297+180         | Pipe              | Pipe     | Widening       | 0.9x2                         | 2 x 0.9 Dia  | 26.5                     |
| 38      | 298/2           | 297+470           | 297+530         | Slab              | Slab     | Reconstruction | 0.9x0.4                       | 1.5 x 1.5    | 26.5                     |
| 39      | 299/1           | 298+100           | 298+165         | slab              | slab     | Reconstruction | 0.9x0.7                       | 1x1.2        | 26.5                     |
| 40      | 299/2           | 298+650           | 298+670         | Slab              | Slab     | Reconstruction | 0.9x0.4                       | 1.5 x 1.5    | 26.5                     |
| 41      | 300/1           | 299+150           | 299+210         | Slab              | Slab     | Reconstruction | 0.9x0.9                       | 1.5 x 1.5    | 26.5                     |
| 42      | 300/2           | 299+280           | 299+345         | Slab              | Slab     | Reconstruction | 0.9x0.5                       | 1.5 x 1.5    | 26.5                     |
| 43      | 300/3           | 299+650           | 299+760         | Slab              | Slab     | Reconstruction | 0.9x0.4                       | 1.5 x 1.5    | 26.5                     |
| 44      | 300/4           | 299+900           | 300+010         | Slab              | Slab     | Reconstruction | 0.9x0.9                       | 1.5 x 1.5    | 26.5                     |
| 45      | 302/1           | 301+010           | 301+190         | Slab              | Slab     | Reconstruction | 0.9x0.9                       | 1.5 x 1.5    | 26.5                     |
| 46      | 302/3           | 301+800           | 301+825         | Box               | Box      | Reconstruction | 0.9x0.5                       | 1.5 x 1.5    | 26.5                     |
| 47      | 303/1           | 302+300           | 302+365         | Pipe              | Pipe     | Reconstruction | 0.9                           | 1.5 x 1.5    | 26.5                     |
| 48      | 303/2           | 302+530           | 302+620         | Slab              | Slab     | Reconstruction | 0.9x0.6                       | 1.5 x 1.5    | 26.5                     |
| 49      | 303/3           | 302+950           | 303+010         | Pipe              | Pipe     | Widening       | 0.9                           | 1 x 0.9 Dia  | 26.5                     |
| 50      | 304/1           | 303+100           | 303+250         | Pipe              | Pipe     | Reconstruction | 0.9                           | 1X1.2 Dia    | 26.5                     |

4 Lining of Kundapur - Surathkal and Mangalore -Karnataka/  
Kerala Border Sections of NH 17 (Total Length 90.08 Km)  
in the State of Karnataka under NHDP Phase III on BOT Basis



| Sl. No. | Existing CD No. | Existing Chainage | Design Chainage | Type of Structure |          | Recommendation | Span Arrangement |              | Proposed total width (m) |
|---------|-----------------|-------------------|-----------------|-------------------|----------|----------------|------------------|--------------|--------------------------|
|         |                 |                   |                 | Existing          | Proposed |                | Existing (m)     | Proposed (m) |                          |
| 51      | 305/1           | 304+180           | 304+210         | Pipe              | Pipe     | Reconstruction | 0.9              | 1.5 x 1.5    | 26.5                     |
| 52      | 305/2           | 304+300           | 304+340         | Slab              | Slab     | Reconstruction | 1.2x0.5          | 1.5 x 1.5    | 26.5                     |
| 53      | 305/3           | 304+380           | 304+535         | Slab              | Slab     | Reconstruction | 1.2x0.2          | 1.5 x 1.5    | 26.5                     |
| 54      | 305/4           | 304+480           | 304+570         | Slab              | Slab     | Reconstruction | 1.2x0.6          | 1.5 x 1.5    | 26.5                     |
| 55      | 305/5           | 304+650           | 304+740         | Slab              | Slab     | Reconstruction | 0.9x0.9          | 1.5 x 1.5    | 26.5                     |
| 56      | 305/6           | 304+950           | 305+070         | Slab              | Slab     | Reconstruction | 0.9x0.9          | 1.5 x 1.5    | 26.5                     |
| 57      | 306/1           | 305+720           | 305+840         | Pipe              | Pipe     | Reconstruction | 0.9              | 1.5 x 1.5    | 26.5                     |
| 58      | 307/1           | 306+015           | 306+125         | Box               | Box      | Reconstruction | 3.7x3.7          | 1.5 x 1.5    | 51.5                     |
| 59      | 307/2           | 306+960           | 307+070         | Slab              | Slab     | Reconstruction | 3.7x2.5          | 4x4          | 51.5                     |
| 60      | 308/1           | 307+650           | 307+750         | Slab              | Slab     | Widening       | 2.4x0.7          | 2.5 x 1.5    | 26.5                     |
| 61      | 309/1           | 308+150           | 308+210         | Pipe              | Pipe     | Widening       | 0.9              | 2 x 0.9 Dia  | 26.5                     |
| 62      | 309/2           | 308+650           | 308+710         | Pipe              | Pipe     | Reconstruction | 0.6              | 1x1.2        | 26.5                     |
| 63      | 310/1           | 309+130           | 309+105         | Slab              | Slab     | Reconstruction | 1.5x2.55         | 1.5 x 2.5    | 26.5                     |
| 64      | 310/2           | 309+300           | 309+420         | Slab              | Slab     | Reconstruction | 0.9x0.6          | 1.5 x 1.5    | 26.5                     |
| 65      | 310/3           | 309+750           | 309+830         | Pipe              | Pipe     | Reconstruction | 0.9              | 1x1.2        | 26.5                     |
| 66      | 311/2           | 310+760           | 310+645         | Pipe              | Pipe     | Reconstruction | 0.9              | 1x1.2        | 26.5                     |
| 67      | 311/3           | 310+900           | 310+930         | Pipe              | Pipe     | Widening       | 0.9              | 1 x 0.9 Dia  | 26.5                     |
| 68      | 312/1           | 311+300           | 311+315         | Pipe              | Pipe     | Widening       | 0.9              | 1 x 0.9 Dia  | 26.5                     |
| 69      | 312/2           | 311+600           | 311+595         | Slab              | Slab     | Reconstruction | 1.5x3.4          | 2 x 3.5      | 26.5                     |
| 70      | 313/1           | 312+050           | 312+195         | Pipe              | Pipe     | Reconstruction | 0.9              | 1.5 x 1.5    | 26.5                     |
| 71      | 313/2           | 312+200           | 312+320         | Pipe              | Pipe     | Widening       | 0.9              | 1 x 0.9 Dia  | 26.5                     |
| 72      | 313/3           | 312+800           | 312+760         | Slab              | Slab     | Reconstruction | 1.5x3.4          | 2 x 3.5      | 26.5                     |
| 73      | 313/4           | 312+920           | 312+860         | Pipe              | Pipe     | Reconstruction | 0.9              | 1x1.2        | 26.5                     |
| 74      | 316/1           | 315+500           | 315+320         | Slab              | Slab     | Reconstruction | 0.9x0.7          | 1.5 x 1.5    | 26.5                     |
| 75      | 316/2           | 315+900           | 315+880         | Slab              | Slab     | Reconstruction | 1.2 x 0.7        | 1.5 x 1.5    | 26.5                     |
| 76      | 317/1           | 316+400           | 316+145         | Pipe              | Pipe     | Widening       | 0.9              | 1 x 0.9 Dia  | 26.5                     |
| 77      | 317/2           | 316+800           | 316+650         | Pipe              | Pipe     | Reconstruction | 0.9              | 1.5 x 1.5    | 26.5                     |
| 78      | 318/1           | 317+900           | 317+850         | Slab              | Slab     | Widening       | 3x 1.5           | 3 x 1.5      | 26.5                     |

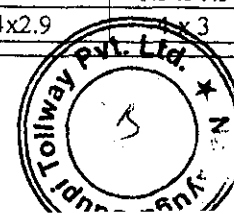
4 Laning of Kundapur - Surathkal and Mangalore -Karnataka/  
Kerala Border Sections of NH 17 (Total Length 90.08 Km)  
in the State of Karnataka under NHDP Phase III on BOT Basis





| Sl. No. | Existing CD No. | Existing Chainage | Design Chainage | Type of Structure |           | Recommendation | Span Arrangement |              | Proposed total width (m) |
|---------|-----------------|-------------------|-----------------|-------------------|-----------|----------------|------------------|--------------|--------------------------|
|         |                 |                   |                 | Existing          | Proposed  |                | Existing (m)     | Proposed (m) |                          |
| 79      | 319/3           | 318+650           | 318+585         | Pipe              | Pipe      | Reconstruction | 0.9              | 1 x 1.2      | 26.5                     |
| 80      | 319/4           | 318+900           | 318+760         | Pipe              | Pipe      | Reconstruction | 0.9              | 1.5 x 1.5    | 60                       |
| 81      | 320/1           | 319+125           | 319+050         | Pipe              | Pipe      | Widening       | 0.9              | 1 x 0.9 Dia  | 60                       |
| 82      | 320/2           | 319+700           | 319+380         | Pipe              | Pipe      | Widening       | 0.9              | 1 x 0.9 Dia  | 51.5                     |
| 83      | 320/4           | 319+920           | 319+850         | Pipe              | Pipe      | Reconstruction | 0.6              | 1x1.2        | 51.5                     |
| 84      | 321/1           | 320+170           | 320+475         | Slab              | Slab      | Reconstruction | 2.4x2.5          | 2.5 x 2.5    | 51.5                     |
| 85      | 321/2           | 320+950           | 320+825         | pipe              | pipe      | Reconstruction | 0.9              | 1.5 x 1.5    | 51.5                     |
| 86      | 322/1           | 321+100           | 320+885         | Slab              | Slab      | Widening       | 4.5x2.6          | 4.5 x 2.5    | 51.5                     |
| 87      | 322/2           | 321+350           | 321+080         | Skew pipe         | Skew pipe | Widening       | 0.9              | 1 x 0.9 Dia  | 52.5                     |
| 88      | 322/3           | 321+890           | 321+730         | Pipe              | Pipe      | Reconstruction | 0.9              | 1.5 x 1.5    | 26.5                     |
| 89      | 322/4           | 321+970           | 321+855         | Pipe              | Pipe      | Reconstruction | 0.6              | 1.5 x 1.5    | 26.5                     |
| 90      |                 | 322+080           | 321+945         | Slab              | Slab      | Reconstruction | 4x4              | 4 x 4        | 26.5                     |
| 91      | 323/1           | 322+250           | 322+090         | Skew slab         | Skew slab | Reconstruction | 1.5x2.8          | 1.5 x 3      | 26.5                     |
| 92      | 323/2           | 322+350           | 322+190         | Pipe              | Pipe      | Reconstruction | 0.9              | 1.5 x 1.5    | 26.5                     |
| 93      | 323/3           | 322+440           | 322+290         | Slab              | Slab      | Reconstruction | 3.5x3.5          | 3.5 x 3.5    | 26.5                     |
| 94      | 324/1           | 323+050           | 322+880         | pipe              | pipe      | Widening       | 0.9              | 1 x 0.9 Dia  | 26.5                     |
| 95      | 324/2           | 323+720           | 323+560         | pipe              | pipe      | Reconstruction | 0.6              | 1 x 1.2 Dia  | 26.5                     |
| 96      | 324/3           | 323+870           | 323+680         | Pipe              | Pipe      | Reconstruction | 0.6              | 1.5 x 1.5    | 26.5                     |
| 97      | 325/1           | 324+200           | 323+985         | slab              | slab      | Widening       | 4.5x2.6          | 4.5 x 2.6    | 26.5                     |
| 98      | 325/3           | 324+970           | 324+775         | Slab              | Slab      | Reconstruction | 0.9x3.4          | 2 x 3.5      | 26.5                     |
| 99      | 326/1           | 325+040           | 325+090         | pipe              | pipe      | Widening       | 0.9              | 1 x 0.9 Dia  | 26.5                     |
| 100     | 326/2           | 325+550           | 325+605         | slab              | slab      | Widening       | 4x4.2            | 4 x 4.2      | 26.5                     |
| 101     | 328/2           | 327+220           | 327+210         | Pipe              | Pipe      | Reconstruction | 0.6              | 1.5 x 1.5    | 26.5                     |
| 102     | 328/3           | 327+300           | 327+295         | Slab              | Slab      | Widening       | 1.2x1.3          | 1.5 x 1.5    | 26.5                     |
| 103     | 328/4           | 327+400           | 327+420         | Slab              | Slab      | Widening       | 1.2x1.6          | 1.5 x 1.5    | 26.5                     |
| 104     | 328/5           | 327+850           | 327+880         | Slab              | Slab      | Reconstruction | 0.9x0.5          | 1.5 x 1.5    | 26.5                     |
| 105     | 329/1           | 328+100           | 328+105         | Slab              | Slab      | Reconstruction | 0.9x0.2          | 1.5 x 1.5    | 26.5                     |
| 106     | 329/2           | 328+650           | 328+640         | Slab              | Slab      | Widening       | 4x2.9            | 4 x 3        | 26.5                     |

326 Laning of Kundapur - Surathkal and Mangalore -Karnataka/  
Kerala Border Sections of NH 17 (Total Length 90.08 Km)  
in the State of Karnataka under NHDP Phase III on BOT Basis



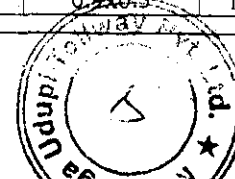
| Sl. No. | Existing CD No. | Existing Chainage | Design Chainage | Type of Structure |          | Recommendation | Span Arrangement |              | Proposed total width (m) |
|---------|-----------------|-------------------|-----------------|-------------------|----------|----------------|------------------|--------------|--------------------------|
|         |                 |                   |                 | Existing          | Proposed |                | Existing (m)     | Proposed (m) |                          |
| 107     | 329/3           | 328+850           | 328+900         | Pipe              | Pipe     | Reconstruction | 0.6              | 1.5 x 1.5    | 26.5                     |
| 108     | 329/4           | 328+930           | 328+980         | Pipe              | Pipe     | Reconstruction | 0.6              | 1.5 x 1.5    | 26.5                     |
| 109     | 331/1           | 330+700           | 330+645         | Pipe              | Pipe     | Reconstruction | 0.9              | 1.5 x 1.5    | 26.5                     |
| 110     | 332/1           | 331+200           | 331+170         | Pipe              | Pipe     | Widening       | 0.9              | 1 x 0.9 Dia  | 26.5                     |
| 111     | 332/2           | 331+900           | 331+890         | Pipe              | Pipe     | Reconstruction | 0.9              | 1x1.2        | 50.5                     |
| 112     | 333/2           | 332+160           | 332+170         | Pipe              | Pipe     | Reconstruction | 0.9              | 1.5 x 1.5    | 26.5                     |
| 113     | 334/1           | 333+060           | 333+050         | Slab              | Slab     | Widening       | 1.2x1.3          | 1.5 x 1.5    | 26.5                     |
| 114     | 334/2           | 333+500           | 333+480         | Slab              | Slab     | Reconstruction | 0.9x0.9          | 1.5 x 1.5    | 26.5                     |
| 115     | 334/3           | 333+900           | 333+910         | Slab              | Slab     | Reconstruction | 0.9x0.5          | 1.5 x 1.5    | 26.5                     |
| 116     | 336/1           | 335+250           | 335+250         | Slab              | Slab     | Reconstruction | 0.9x0.2          | 1.5 x 1.5    | 26.5                     |
| 117     | 337/1           | 336+500           | 336+475         | Slab              | Slab     | Reconstruction | 0.9x0.2          | 1.5 x 1.5    | 26.5                     |
| 118     | 337/2           | 336+750           | 336+720         | Slab              | Slab     | Reconstruction | 0.9x0.5          | 1.5 x 1.5    | 26.5                     |
| 119     | 337/3           | 336+900           | 336+880         | Pipe              | Pipe     | Reconstruction | 0.9              | 1.5 x 1.5    | 26.5                     |
| 120     | 338/2           | 337+650           | 337+600         | Pipe              | Pipe     | Widening       | 0.9              | 1 x 0.9 Dia  | 26.5                     |
| 121     |                 | 337+998           | 337+880         | Pipe              | Pipe     | Reconstruction | 0.9              | 1.5 x 1.5    | 26.5                     |
| 122     | 339/1           | 338+050           | 338+045         | Pipe              | Pipe     | Reconstruction | 0.6              | 1.5 x 1.5    | 26.5                     |
| 123     | 339/2           | 338+400           | 338+370         | Slab              | Slab     | Reconstruction | 0.7x0.5          | 1.5 x 1.5    | 26.5                     |
| 124     | 339/3           | 338+790           | 338+740         | Slab              | Slab     | Reconstruction | 0.9x0.7          | 1.5 x 1.5    | 26.5                     |
| 125     | 340/2           | 339+900           | 339+860         | Pipe              | Pipe     | Reconstruction | 0.6              | 1.5 x 1.5    | 26.5                     |
| 126     | 345/3           | 344+650           | 344+662         | Pipe              | Pipe     | Reconstruction | 0.6              | 1x1.2        | 26.5                     |
| 127     | 345/4           | 344+860           | 344+857         | Pipe              | Box      | Reconstruction | 0.9              | 1.5 x 1.5    | 26.5                     |
| 128     | 345/5           | 344+920           | 344+907         | Slab              | Box      | Reconstruction | 0.9x0.9          | 1.5 x 1.5    | 26.5                     |
| 129     | 346/1           | 345+840           | 345+852         | Slab              | Box      | Reconstruction | 0.9x0.2          | 1.5 x 1.5    | 26.5                     |
| 130     | 346/2           | 345+950           | 345+967         | Pipe              | Box      | Reconstruction | 0.6              | 1.5 x 1.5    | 26.5                     |
| 131     | 347/2           | 346+500           | 346+502         | Pipe              | Pipe     | Widening       | 0.9              | 1 x 0.9 Dia  | 26.5                     |
| 132     | 348/1           | 347+250           | 347+252         | Pipe              | Box      | Reconstruction | 0.9              | 1.5 x 1.5    | 26.5                     |
| 133     | 348/2           | 347+400           | 347+417         | Pipe              | Pipe     | Widening       | 0.9              | 1 x 0.9 Dia  | 26.5                     |
| 134     | 348/3           | 347+850           | 347+862         | Slab              | Box      | Reconstruction | 1.2x0.2          | 1.5 x 1.5    | 26.5                     |

327 34 Laning of Kundapur - Surathkal and Mangalore -Karnataka/  
Kerala Border Sections of NH 17 (Total Length 90.08 Km)  
in the State of Karnataka under NHDP Phase III on BOT Basis



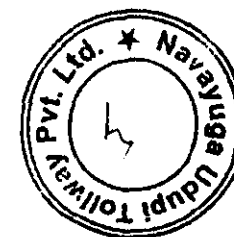
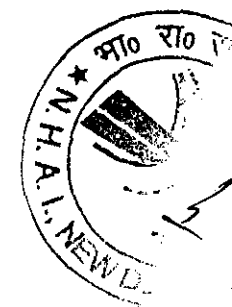
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Page B-61



## Proposed New Culverts

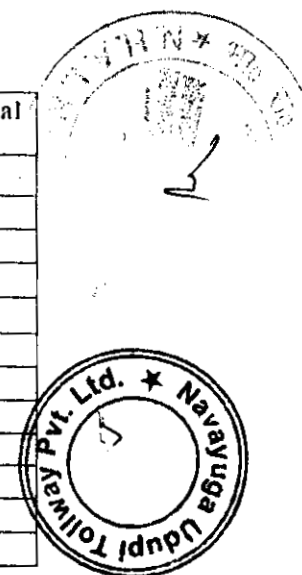
| Sl No. | Design Chainage/ Location | Design Chainage | Proposed Structure | Proposed size arrangement | Proposed total width (m) |
|--------|---------------------------|-----------------|--------------------|---------------------------|--------------------------|
| 1      | Kota                      | 296+890         | Pipe               | 1x1.2                     | 26.5                     |
| 2      | Kota                      | 297+950         | Pipe               | 1x1.2                     | 26.5                     |
| 3      | Uppinakote                | 306+860         | Single cell box    | 1.5 x 1.5                 | 51.5                     |
| 4      | Brahnavar                 | 307+160         | Pipe               | 1x1.2                     | 51.5                     |
| 5      | Herur                     | 313+630         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 6      | Herur                     | 313+970         | Pipe               | 1x1.2                     | 26.5                     |
| 7      | Herur                     | 314+970         | Single cell box    | 1.5 x 1.5                 | 51.5                     |
| 8      | Puttur                    | 316+940         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 9      | Puttur                    | 320+540         | Single cell box    | 1.5 x 1.5                 | 51.5                     |
| 10     | Kotpadi                   | 326+330         | Single cell box    | 1.5 x 1.5                 | 51.5                     |
| 11     | Kotpadi                   | 326+600         | Single cell box    | 1.5 x 1.5                 | 51.5                     |
| 12     | Kaup                      | 334+220         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 13     | Kaup                      | 334+310         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 14     | Kaup                      | 335+070         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 15     | Uchila                    | 339+285         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 16     | Uchila                    | 340+010         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 17     | Uchila                    | 340+180         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 18     | Uchila                    | 340+410         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 19     | Uchila                    | 341+080         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 20     | Uchila                    | 341+380         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 21     | Uchila                    | 341+780         | Pipe               | 1x1.2                     | 26.5                     |
| 22     | Uchila                    | 342+160         | Pipe               | 1x1.2                     | 26.5                     |
| 23     | Uchila                    | 342+700         | Pipe               | 1x1.2                     | 26.5                     |
| 24     | Padudidri                 | 343+570         | Pipe               | 1x1.2                     | 26.5                     |
| 25     | Padudidri                 | 344+190         | Pipe               | 1x1.2                     | 26.5                     |
| 26     | Padudidri                 | 344+360         | Pipe               | 1x1.2                     | 26.5                     |
| 27     | Padudidri                 | 348+845         | Single cell box    | 1.5 x 1.5                 | 26.5                     |



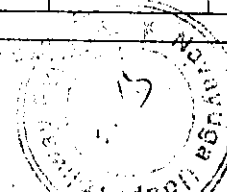
| Sl No. | Design Chainage/ Location | Design Chainage | Proposed Structure | Proposed size arrangement | Proposed total width (m) |
|--------|---------------------------|-----------------|--------------------|---------------------------|--------------------------|
| 28     | Padudidri                 | 349+200         | Pipe               | 1 x 1.2 Dia               | 26.5                     |
| 29     | Padudidri                 | 349+380         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 30     | Mulki                     | 349+700         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 31     | Mulki                     | 349+915         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 32     | Mulki                     | 350+349         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 33     | Mulki                     | 350+520         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 34     | Mulki                     | 350+670         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 35     | Mulki                     | 352+410         | Single cell box    | 1.5 x 1.5                 | 26.5                     |
| 36     | Mukka                     | 358+000         | Pipe               | 1x1.2                     | 51.5                     |

**Section2****Reconstruction Scheme for Culverts**

| Sl. No. | Existing CD No. | Existing Chainage | Design Chainage | Type of Structure |              | Recommendation | Span Arrangement |              | Proposed total width (m) |
|---------|-----------------|-------------------|-----------------|-------------------|--------------|----------------|------------------|--------------|--------------------------|
|         |                 |                   |                 | Existing          | Proposed     |                | Existing (m)     | Proposed (m) |                          |
| 1       |                 | 3.64              |                 | Pipe Culvert      | Pipe Culvert | Widening       |                  |              | 12                       |
| 2       |                 | 3.82              |                 | Pipe Culvert      | Pipe Culvert | Widening       |                  |              | 12                       |
| 3       |                 | 3.96              |                 | Pipe Culvert      | Pipe Culvert | Widening       |                  |              | 12                       |
| 4       |                 | 3.97              |                 | Pipe Culvert      | Pipe Culvert | Widening       |                  |              | 12                       |
| 5       |                 | 4.1               |                 | Pipe Culvert      | Pipe Culvert | Widening       |                  |              | 12                       |
| 6       |                 | 4.23              |                 | Pipe Culvert      | Pipe Culvert | Widening       |                  |              | 12                       |
| 7       |                 | 4.63              |                 | Pipe Culvert      | Pipe Culvert | Widening       |                  |              | 12                       |
| 8       |                 | 5.32              |                 | Pipe Culvert      | Pipe Culvert | Widening       |                  |              | 12                       |
| 9       |                 | 5.425             |                 | Pipe Culvert      | Pipe Culvert | Widening       |                  |              | 12                       |
| 10      |                 | 5.58              |                 | Pipe Culvert      | Pipe Culvert | Widening       |                  |              | 12                       |
| 11      |                 | 5.94              |                 | Pipe Culvert      | Pipe Culvert | Widening       |                  |              | 12                       |



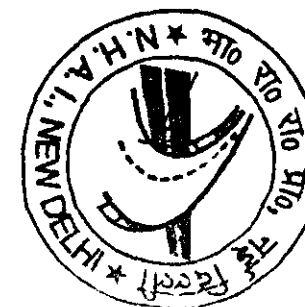
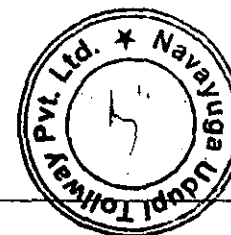
| Sl. No. | Existing CD No. | Existing Chainage | Design Chainage | Type of Structure  |                    | Recommendation | Span Arrangement |              | Proposed total width (m) |
|---------|-----------------|-------------------|-----------------|--------------------|--------------------|----------------|------------------|--------------|--------------------------|
|         |                 |                   |                 | Existing           | Proposed           |                | Existing (m)     | Proposed (m) |                          |
| 12      |                 | 6.47              |                 | Pipe Culvert       | Pipe Culvert       | Widening       |                  |              | 12                       |
| 13      |                 | 8.26              |                 | Pipe Culvert       | Pipe Culvert       | Widening       |                  |              | 12                       |
| 14      |                 | 8.87              |                 | Pipe Culvert       | Pipe Culvert       | Widening       |                  |              | 12                       |
| 15      |                 | 9.05              |                 | Pipe Culvert       | Pipe Culvert       | Widening       |                  |              | 12                       |
| 16      |                 | 9.14              |                 | Pipe Culvert       | Pipe Culvert       | Widening       |                  |              | 12                       |
| 17      |                 | 9.6               |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |
| 18      |                 | 9.87              |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |
| 19      |                 | 10.2              |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |
| 20      |                 | 11                |                 | G. I. Pipe Culvert | G. I. Pipe Culvert | Widening       |                  |              | 12                       |
| 21      |                 | 11.05             |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |
| 22      |                 | 12.04             |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |
| 23      |                 | 12.84             |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |
| 24      |                 | 12.96             |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |
| 25      |                 | 13.29             |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |
| 26      |                 | 13.4              |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |
| 27      |                 | 14.08             |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |
| 28      |                 | 14.25             |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |
| 29      |                 | 14.3              |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |
| 30      |                 | 14.45             |                 | RCC Slab Culvert   | RCC Slab Culvert   | Widening       |                  |              | 12                       |



| Sl. No. | Existing CD No. | Existing Chainage | Design Chainage | Type of Structure |                  | Recommendation | Span Arrangement |              | Proposed total width (m) |
|---------|-----------------|-------------------|-----------------|-------------------|------------------|----------------|------------------|--------------|--------------------------|
|         |                 |                   |                 | Existing          | Proposed         |                | Existing (m)     | Proposed (m) |                          |
|         |                 |                   |                 | Culvert           | Culvert          |                |                  |              |                          |
| 31      |                 | 14.5              |                 | RCC Slab Culvert  | RCC Slab Culvert | Widening       |                  |              | 12                       |
| 32      |                 | 15.38             |                 | RCC Slab Culvert  | RCC Slab Culvert | Widening       |                  |              | 12                       |
| 33      |                 | 15.72             |                 | RCC Slab Culvert  | RCC Slab Culvert | Widening       |                  |              | 12                       |
| 34      |                 | 16.17             |                 | Pipe Culvert      | Pipe Culvert     | Widening       |                  |              | 12                       |
| 35      |                 | 16.4              |                 | Pipe Culvert      | Pipe Culvert     | Widening       |                  |              | 12                       |

## Proposed New Culverts

| Sl No. | Design Chainage/ Location | Design Chainage | Proposed Structure | Proposed size arrangement | Proposed total width (m) |
|--------|---------------------------|-----------------|--------------------|---------------------------|--------------------------|
| Nil    |                           |                 |                    |                           |                          |



## Details of Proposed ROB/RUB

## Appendix BXIV

## Section 1

| Sl. No | Location | ROB/RUB | Existing Chainage (km)/Design Chainage | Name of crossing | Existing Structure | Proposed Structural Configuration | Proposed Structural Type | Proposed span arrangement | Total width of structure |
|--------|----------|---------|--|------------------|--------------------|-----------------------------------|--------------------------|---------------------------|--------------------------|
| NIL    |          |         |  |                  |                    |                                   |                          |                           |                          |

## Section 2

| Sl. No | Location               | ROB/RUB | Existing Chainage (km)/Design Chainage | Name of crossing                             | Existing Structure         | Proposed Structural Configuration | Proposed Structural Type | Proposed span arrangement | Total width of structure |
|--------|------------------------|---------|--|--|----------------------------|-----------------------------------|--------------------------|---------------------------|--------------------------|
| 1      | Mangalore - Sakleshpur | ROB     | 5/000                                  | broad gauge line from Mangalore - Sakleshpur | ROB; column pier structure | 3 x 10.3                          | -                        | 1 x 31                    | 13.1 with 1.5m footpath  |





**SCHEDULE – C**  
(See Clause 2.1)

**PROJECT FACILITIES**

**1 Project Facilities**

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

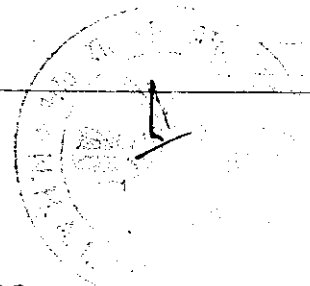
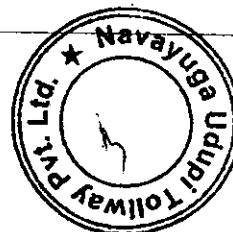
- (a) toll plazas;
- (b) roadside furniture;
- (c) street lighting;
- (d) pedestrian facilities;
- (e) landscaping and tree plantation;
- (f) rest areas;
- (g) truck lay-bys;
- (h) bus-bays and bus shelters;
- (i) cattle crossings;
- (j) traffic aid posts;
- (k) medical aid posts;
- (m) vehicle rescue posts; and
- (n) telecom system;

**2 Project Facilities for Four-Laning**

Project Facilities forming part of Four-Laning and to be completed on or before the Project Completion Date have been described in Annex-I of this Schedule-C.

**3 Project Facilities for Six-Laning**

Deleted



**Annex - I**  
**(Schedule-C)****Project Facilities for Four-Laning****1 Project Facilities**

The Concessionaire shall construct the Project Facilities described in this Annex-I to form part of the Four-Lane Project Highway. The Project Facilities shall include:

- (a) toll plazas;
- (b) roadside furniture;
- (c) street lighting
- (d) pedestrian facilities;
- (e) landscaping and tree plantation;
- (f) rest areas;
- (g) truck lay-bys;
- (h) bus-bays and bus shelters;
- (i) Vehicular Underpasses and Pedestrian/Cattle Underpasses
- (j) traffic aid posts;
- (k) medical aid posts;
- (l) vehicle rescue posts
- (m) telecom system

**2 Description of Project Facilities**

Each of the Project Facilities is briefly described below:

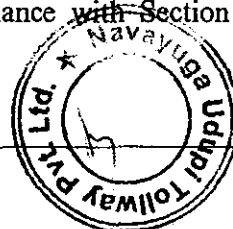
**(a) Toll Plazas (3 Nos)**

- 1) At km. km 300+480 (Design Ch. 300+600) for section 1
- 2) At Km. 347+180 (Design Ch 347+200) for section 1
- 3) Between km 16+850 and km 17+050 for section 2

Specifications and other requirements of the toll plaza's shall be strictly as per schedule "D"

**(b) Road side Furniture**

Road side furniture shall be provided in accordance with Section 11 of the Manual of Specifications and Standards.



**(c) Street Lighting:**

Street lighting shall be provided in accordance with para 13.3 of Section 13 of the Manual of Specifications and Standards.

**(d) Pedestrian Facilities**

Pedestrian Facilities shall be provided in accordance with para 13.2 of Section 13 of the Manual of Specifications and Standards.

**(e) Landscaping and Tree Plantation:**

Landscaping and tree plantation shall be provided in accordance with Section 12 of the Manual of specifications and Standards.

**(f) Rest areas and Wayside Amenities:**

Wayside Amenities (one rest area) shall be provided at one location. These should have provisions for restaurants, car parking, toilets, vehicle service station, drinking water facilities and emergency health care facilities for accident victims.

**(g) Truck Lay-byes**

Truck lay-byes are proposed to be constructed at the following locations.

**Section 1**

| S.No. | Existing Chainage(Km) | Design Chainage(km) | Side      | Name/Location |
|-------|-----------------------|---------------------|-----------|---------------|
| 1     | 312+580               | 312+700             | LHS       | Herur         |
| 2     | 313+420               | 313+600             | RHS       | Herur         |
| 3     | 351+000               | 351+400             | Bothsides | Mulki         |

**Section 2**

| S.No. | Chainage(km) | Side | Name/Location |
|-------|--------------|------|---------------|
| 1     | 8+500        | RHS  | Thokuttu      |

It shall be constructed in accordance with para 13.4 of Section 13 of the Manual of Specifications and Standards.



## (h) Bus-bays and Bus Shelter,

Bus bays with pick up bus stops are provided at following locations in **Section 1**

| Sl.No | Existing Chainage (Km) |         | Design chainage (km) |         | Village      | Side      |
|-------|------------------------|---------|----------------------|---------|--------------|-----------|
|       | LHS                    | RHS     | LHS                  | RHS     |              |           |
| 1     | 289+000                | 289+940 | 290+000              | 290+040 | Kumbhashi    | Both side |
| 2     | 294+275                | 294+195 | 294+400              | 294+320 | Kota Village | Both side |
| 3     | 296+080                | 295+920 | 296+210              | 296+040 | Kota Village | Both side |
| 4     | 298+610                | 298+430 | 298+720              | 298+540 | Saligrama    | Both side |
| 5     | 299+940                | 300+200 | 300+070              | 300+330 | Gundmi       | Both side |
| 6     | 301+190                | 300+870 | 301+370              | 301+000 | Saasthan     | Both side |
| 7     | 306+300                | 306+580 | 306+420              | 306+700 | Uppinakote   | Both side |
| 8     | 307+790                | 307+890 | 307+900              | 308+000 | Brahmavar    | Both side |
| 9     | 311+160                | 311+260 | 311+300              | 311+400 | Uppur        | Both side |
| 10    | 316+470                | 316+535 | 316+420              | 316+485 | Puttur       | Both side |
| 11    | 326+250                | 326+310 | 326+280              | 326+340 | Kotpadi      | Both side |
| 12    | 332+990                | 332+930 | 333+000              | 332+940 | Kaup         | Both side |
| 13    | 336+130                | 336+450 | 336+140              | 336+460 | Muloor       | Both side |
| 14    | 337+395                | 337+115 | 337+395              | 337+115 | Uchila       | Both side |
| 15    | 340+000                | 339+310 | 339+960              | 339+280 | Ermaalubada  | Both side |
| 16    | 340+740                | 340+770 | 340+700              | 340+730 | Thenkaermalu | Both side |
| 17    | Padubidri Bypass       |         | 343+825              | 343+680 | Padubidri    | Both side |
| 18    | Mulky Bypass           |         | 349+690              | 349+840 | Mulky        | Both side |
| 19    | 354+140                | 354+420 | 354+650              | 354+930 | Haleyangadi  | Both side |
| 20    | -                      | 357+410 | -                    | 358+010 | Mukka        | RHS       |
| Total |                        |         |                      |         |              | 39        |

Bus bays with pick up bus stops are provided at following locations in **Section 2**. The Chainages mentioned below are indicative. The exact chainages shall be finalized with ICE

| Sl.No | Existing Chainage (Km) | Side |
|-------|------------------------|------|
| 1     | 5.791                  | LHS  |
| 2     | 11.765                 | LHS  |
| 3     | 13.152                 | LHS  |
| 4     | 14.669                 | LHS  |
| 5     | 5.028                  | RHS  |
| 6     | 10.056                 | RHS  |
| 7     | 11.765                 | RHS  |
| 8     | 13.152                 | RHS  |



| Sl.No | Existing Chainage (Km) | Side |
|-------|------------------------|------|
| 9     | 14.669                 | RHS  |
| 10    | 14.307                 | RHS  |
| 11    | 15.300                 | RHS  |

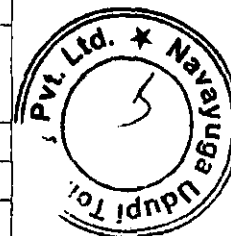


## (i) Vehicular Underpasses and Pedestrian/Cattle Underpasses:

2 Vehicular underpasses, 1 Vehicular Overpass, 7 Pedestrian Underpasses and 10 Cattle Underpasses shall be provided at the following locations in Section I:

## For Section 1

| Sl. No.                 | Existing Chainage (Km) | Design Chainage (Km) | Name of Intersecting Roads                 | Proposed Structure Configuration | Proposed Structure Type | Proposed Span Arrangement | Total Width of the structure |
|-------------------------|------------------------|----------------------|--|----------------------------------|-------------------------|---------------------------|------------------------------|
| 1                       | 284+040                | 284+000              | Loin's Club road                           | New Four lane                    | Vehicular Underpass     | 10.5 x 5                  | 27.5                         |
| 2                       | 321+500                | 321+350              | Uduppi                                     | New Four lane                    | Overpass                | 2x12 x 5                  | 27.5                         |
| 3                       | 357+957                | 358+520              | Near NIT                                   | New Four lane                    | Vehicular Underpass     | 10.5 x 5                  | 27.5                         |
| <b>Cattle Underpass</b> |                        |                      |  |                                  |                         |                           |                              |
| 1                       | 286+580                | 286+550              | -  | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 2                       | 287+750                | 287+800              | Koteswara Town - Shimoga                   | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 3                       | 289+190                | 289+290              | -  | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 4                       | 294+610                | 294+730              | To Police Station                          | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 5                       | 295+380                | 295+500              | To Kota Village                            | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 6                       | 298+000                | 298+120              | Saligram Old Road - Narasimha Swami Temple | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 7                       | 307+200                | 307+300              | Brahmavara Village                         | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 8                       | 320+050                | 319+960              | To Udupi                                   | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 9                       | Bypass                 | 349+140              | -  | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |
| 10                      | 357+020                | 357+620              | -  | New Four Lane                    | Cattle Underpass        | 4.0m x 3.5m               | 27.5                         |

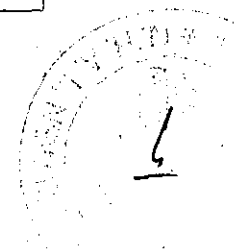
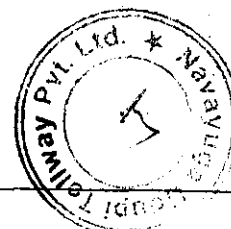


| Pedestrian Underpass |          |         |                 |               |                 |           |      |
|----------------------|----------|---------|-----------------|---------------|-----------------|-----------|------|
| 11                   | 283+820  | 283+705 | –               | New Four Lane | Pedestrian Pass | 3.0mx2.5m | 27.5 |
| 12                   | 284+240  | 284+145 | –               | New Four Lane | Pedestrian Pass | 3.0mx2.5m | 27.5 |
| 13                   | 284+850  | 284+765 | Rayappana Matha | New Four Lane | Pedestrian Pass | 3.0mx2.5m | 27.5 |
| 14                   | 285+280  | 285+195 | TT Road         | New Four Lane | Pedestrian Pass | 3.0mx2.5m | 27.5 |
| 15                   | 332+200  | 332+200 | –               | New Four Lane | Pedestrian Pass | 3.0mx2.5m | 22.5 |
| 16                   | Bypassed | 342+883 | –               | New Four Lane | Pedestrian Pass | 3.0mx2.5m | 27.5 |
| 17                   | Bypassed | 343+340 | –               | New Four Lane | Pedestrian Pass | 3.0mx2.5m | 27.5 |

## For Section 2

2 Pedestrian Underpasses shall be provided at the following locations in Section II:

| Sl. No.              | Existing Chainage (Km) | Design Chainage (Km) | Name of Intersecting Roads | Proposed Structure Configuration | Proposed Structure Type | Proposed Span Arrangement | Total Width of the structure |
|----------------------|------------------------|----------------------|----------------------------|----------------------------------|-------------------------|---------------------------|------------------------------|
| Pedestrian Underpass |                        |                      |                            |                                  |                         |                           |                              |
| 1                    | 14+500                 | 14+500               | Uchilla                    | New Four Lane                    | Pedestrian Underpass    | 3.0mx2.5m                 | 27.5                         |
| 2                    | 16+900                 | 16+900               | Thalappady                 | New Four Lane                    | Pedestrian Underpass    | 3.0mx2.5m                 | 27.5                         |



**(j) Traffic Aid Posts:**

Traffic Aid Posts shall be provided at the Toll Plazas in accordance with Para 20.3 of this Agreement.

**(k) Medical Aid Posts:**

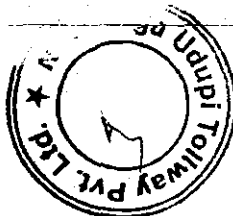
Medical aid posts shall be provided at the Toll Plazas in accordance with Para 21.2 of this Agreement.

**(l) Vehicle rescue posts:**

Vehicle rescue posts shall be provided at the Toll Plazas in accordance with Para 13.9 of the Manual of Specifications and Standards.

**(m) Telecom system:**

Telecom posts shall be provided at the Toll Plazas for convenience of the users of the Project Highway.



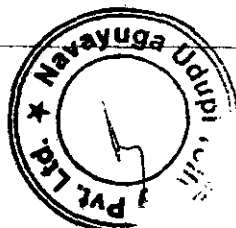


**SCHEDULE – D**  
(See Clause 2.1)

**SPECIFICATIONS AND STANDARDS**

**1 Four-Laning**

The Concessionaire shall comply with the Specifications and Standards set forth in Annex-I of this Schedule-D for construction of the Four-Lane Project Highway.



Annex - I  
(Schedule-D)**Specifications and Standards for Four-Laning****1. Manual of specifications and standards to apply**

Subject to the provisions of Paragraph 2 of this Annex-I, 4-laning of the Project Highway shall conform to the Manual of Specifications and Standards for 4-Laning of National Highways through Public Private Partnership published by the MOSRTH. (An authenticated copy of the Manual has been provided as a part of this RFP (refer Volume V))

**2. Deviations from the Manual**

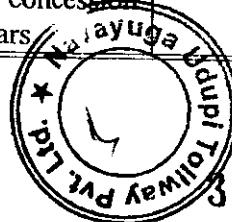
Notwithstanding anything to the contrary contained in the aforesaid Manual, the following Specifications and Standards shall apply to the 4-lane Project Highway, and for purposes of this agreement, the aforesaid manual shall be deemed to be amended to the extent set forth below:

| Sl. No | Clause | Detail of Item                                | Provision as per Manual  | Description of Deviation  |
|--------|--------|---|--|---|
| 1      | 2.2.1  | Service road for separation of local traffic. | Local traffic in built up area shall be separated with provisions of service roads. The requirement and the length of the service roads in such built up areas shall be identified for the design period of the project highway and specified in the Schedule B. Built up area shall mean all sections of the Project Highway, which are situated within the limits of municipal town(s) and shall also include those sections having continuous length of 200 m or more in non-municipal areas where dwellings / shops have been built on one or both sides of the Project Highway on at least 50 percent of the total length of each such section. | Service roads shall be provided at locations as specified in schedule 'B'. The service roads shall be connected to the main carriageway by a taper merge at both entry and exit. However, service roads shall not be continued at minor bridges, major bridges, ROBS and toll plazas etc. |
| 2      | 2.2.4  | Vehicular underpasses                         | Vehicular underpass shall be provided as specified in schedule 'B' and to connect service roads on both sides of the Project Highway in such a manner that no vehicle is required to travel more than 2 km on service road to approach an underpass for crossing over to the   | Vehicular underpass shall be provided at locations as specified in schedule 'B'.  |

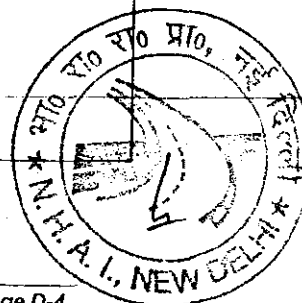
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| Sl. No | Clause | Detail of Item                           | Provision as per Manual   | Description of Deviation   |
|--------|--------|--|---|--|
| 3      | 2.2.5  | Facilities for pedestrians and cyclists. | other side.<br>Facilities for safe and unhindered movement of pedestrians and cyclists shall be provided on the project highway wherever it passes through urban/built-up areas and at grade separators. These facilities shall be planned in accordance with the relevant provisions contained in IRC-11, IRC-17 and IRC-103. Facilities shall also be planned and provided for crossing of pedestrians and cyclists. The crossing facilities can be either in conjunction with at grade intersections or through underpasses. The crossing facilities shall be so planned that pedestrians do not have to walk for more than 0.5 km. to reach the crossing point. The existing slab culverts and minor bridges with span length equal to or more than 5m, a vertical clearance of more than 2.5m and not catering to perennial flow, can also be used for pedestrians and cycle crossings by providing necessary flooring. In rural stretches, pedestrian / cycle underpasses shall be provided at the locations of existing crossing points. | Pedestrian/Cattle underpass shall be provided at locations as specified in schedule 'B'.   |
| 4      | 4.2.2. | Specific Cross sectional requirements    | 4.2.2.1 Rural Sections<br>(i) Width of Median<br>(iii) Width of earthen shoulder<br>(a) Plain and rolling terrain 2.0 m   | (i) Width of median in rural areas shall be 4.5 to 1.5m depending on availability of ROW and with the approval of ICE.<br>(iii) width of Earthen shoulder of 1.5m is adopted |
| 5      | 4.4.2  | Pavement Design                          | Pavement of the main highway shall be designed for the cumulative number of standard axles of 8.16 tones over the design life of 20 years for the concession period of 15 years and above and the design life of 15 years for the concession period of less than 15 years   | Pavement has been designed for a life of 15 years and an overall growth rate of 5%.  |

4 Lining of Kundapur – Surathkal and Mangalore -Karnataka/  
Kerala Border Sections of NH 17 (Total Length 90.08 Km)  
in the State of Karnataka under NHDP Phase III on BOT Basis



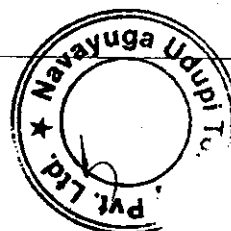
| Sl. No | Clause    | Detail of Item         | Provision as per Manual  | Description of Deviation  |
|--------|-----------|------------------------|--|---|
| 6      | 4.18      | ATMS                   |  | All the ATMS facilities other than Electronic Calling Boxes (ECBs) have been deleted  |
| 7      | 4.5.5 (b) | Width of Structures    | (b) All other new bridges shall be constructed to accommodate for six lane carriageway. In case existing bridge is retained, as mentioned below, for traffic in one direction, a new three lane bridge shall be constructed for plying of traffic in other direction. Width of bridge shall be increased to provide for additional lane in urban/built up areas in accordance with section 4.2.9 e (ii) above. Width of immediate approaches shall be adjusted to provide smooth transition from approaches to bridge. | All other new bridges shall be constructed to accommodate for four lane carriageway with footpath. In case existing bridge is retained, as mentioned below, for traffic in one direction, a new two lane bridge with footpath shall be constructed for plying of traffic in other direction. Width of bridge shall be increased to provide for additional lane in urban/built up areas in accordance with section 4.2.9 e (ii) above. Width of immediate approaches shall be adjusted to provide smooth transition from approaches to bridge. |
| 8      | 4.3.3     | Use Fly-ash Embankment | Use of fly-ash for Embankment Construction<br>(i) Fly-ash shall be used for construction of embankment shall be designed and construction in accordance with IRC:SP-58. The thickness of soil cover shall not be less than 1 m for embankment upto 3m height. For high embankment the thickness of soil cover shall be increased as per design.  | No fly-ash is being proposed to be used due to non-availability of Thermal Power Station within 100 km from the project corridor.   |



9. **ENTRY / EXIT RAMPS:** At grade ramps without loop to be provided at the following locations where service roads are joining the Project Highway:

| Sl No | Existing Chainage (km) | Design Chainage (km) |
|-------|------------------------|----------------------|
| 1     | 283300                 | 283300               |
| 2     | 288040                 | 288000               |
| 3     | 288980                 | 289080               |
| 4     | 289400                 | 289500               |
| 5     | 293480                 | 293500               |
| 6     | 295380                 | 295500               |
| 7     | 297680                 | 297800               |
| 8     | 298270                 | 298380               |
| 9     | 305780                 | 305900               |
| 10    | 307500                 | 307600               |
| 11    | 314020                 | 314000               |
| 12    | 315020                 | 315000               |
| 13    | 319270                 | 319200               |
| 14    | 321790                 | 321650               |
| 15    | 325770                 | 325800               |
| 16    | 326770                 | 326800               |
| 17    | 329870                 | 329900               |
| 18    | 330400                 | 330400               |
| 19    | 331290                 | 331300               |
| 20    | 332400                 | 332400               |
| 21    | 349020                 | 349020               |
| 22    | 349630                 | 349630               |
| 23    | 356845                 | 357470               |
| 24    | 358061                 | 358686               |

Exit and Entry Ramps for Section II shall be fixed based on Availability of ROW in consultation with ICE based on site requirements.



**SCHEDULE - E**  
(See Clause 4.1.3)

**APPLICABLE PERMITS**

**1 Applicable Permits**

- 1.1 The Concessionaire shall obtain, as required under the Applicable Laws, the following Applicable Permits on or before the Appointed Date, save and except to the extent of a waiver granted by the Authority in accordance with Clause 4.1.3 of the Agreement:
- (a) Permission of the State Government for extraction of boulder from quarry;
  - (b) Permission of Village Panchayat and Pollution Control Board for installation of crusher;
  - (c) Licence for use of explosives;
  - (d) Permission of the State Government for drawing water from river/reservoir;
  - (e) Licence 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 Asphalt Plant;
  - (h) Permission of Village Panchayat and State Government for borrow earth;
  - (i) Permission of State Government for cutting of trees;
  - (j) 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 as a Condition Precedent.



347

**SCHEDULE - F**

(See Clause 9.1)

**PERFORMANCE SECURITY**

The Chairman,  
National Highways Authority of India,  
New Delhi.

**WHEREAS:**

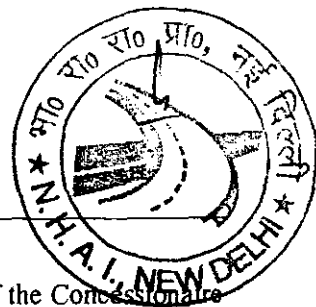
- (A) M/s Navayuga Udupi Tollway Private Limited (the "Concessionaire") and the Chairman, National Highways Authority of India (the "Authority") have entered into a Concession Agreement dated \_\_\_\_\_ (the "Agreement") whereby the Authority has agreed to the Concessionaire undertaking Design, Engineering, Finance, Construction, Operation and Maintenance of 4 laning of NH-17, Kundapur- Surathkal section from km 283+300 to km 358+080 (Section 1) and Mangalore- Kerala Border [km 375+300 to km 376+700 (i.e. Nantur circle to Mahaveer circle) and km 3+700 to km 17+200 (i.e. Mahaveer circle to Kerala border)] (Section 2) of total length 90.08 km under NHDP PHASE III on Build, Operate and Transfer (BOT) Basis subject to and in accordance with the provisions of the Agreement.
- (B) The Agreement requires the Concessionaire to furnish a Performance Security to the Authority in a sum of Rs.33.55 -Rs Thirty three point five five-Crores (the "Guarantee Amount") as security for due and faithful performance of its obligations under and in accordance with the Agreement, during the Construction Period (as defined in the Agreement).
- (C) We, \*\*\*\*\* through our Branch at \*\*\*\*\* (the "Bank") have agreed to furnish this Bank 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 Concessionaire's obligations during the Construction 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 Concessionaire, such sum or sums upto 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 Concessionaire has committed default in the due and faithful performance of all or 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 Concessionaire is in default in due and faithful performance of its obligations during the Construction Period under the Agreement and its decision that the Concessionaire is in default shall be final, and binding on the Bank, notwithstanding any differences between the Authority and the Concessionaire, or any dispute between them pending before any court, tribunal,



348



arbitrators or any other authority or body, or by the discharge of the Concessionaire 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 Concessionaire 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 Concessionaire 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, fulfilment and/or performance of all or any of the obligations of the Concessionaire 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 Concessionaire, 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 Concessionaire 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 fulfilment, compliance and/or performance of all or any of the obligations of the Concessionaire 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, not later than 6 (six) months from the date of expiry of 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 Performance Security shall cease to be in force and effect when the Concessionaire shall have expended on Project construction an aggregate sum not less than 20% (twenty per cent) of the Total Project Cost which is deemed to be Rs. 134.20 crores. (One Hundred Thirty Four Crores and Twenty Lakhs) for the purpose of this Guarantee, and provided the Concessionaire is not in breach of this Agreement. Upon request made by the Concessionaire for release of the Performance Security alongwith the particulars required hereunder, duly certified by a statutory auditor of the Concessionaire, the Authority shall release the Performance Security forthwith.





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 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 a period of one year or until it is released earlier by the Authority pursuant to the provisions of the Agreement

Signed and sealed this \*\* day of \*\*\*, 200\* at \*\*\*.

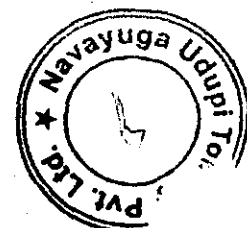
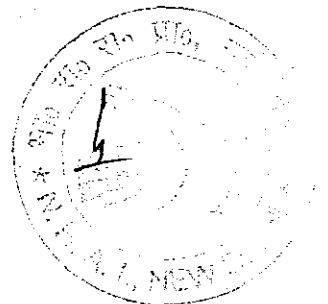
SIGNED, SEALED AND DELIVERED  
For and on behalf of the BANK by:

(Signature)

(Name)

(Designation)

(Address)



350

**SCHEDULE - G**  
(See Clause 12.1)  
**PROJECT COMPLETION SCHEDULE**

**1 Project Completion Schedule**

During Construction Period, the Concessionaire shall comply with the requirements set forth in this Schedule-G for each of the Project Milestones and the Scheduled Four-Laning Date (the "Project Completion Schedule"). Within 15 (fifteen) days of the date of each Project Milestone, the Concessionaire 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 Concessionaire shall have commenced construction of the Project Highway and expended not less than 10% (ten per cent) of the total capital cost set forth in the Financial Package.

**3 Project Milestone-II**

3.1 Project Milestone-II shall occur on the date falling on the 400<sup>th</sup> (Four Hundredth) day from the Appointed Date (the "Project Milestone-II").

3.2 Prior to the occurrence of Project Milestone-II, the Concessionaire shall have commenced construction of all bridges and expended not less than 35% (thirty five per cent) of the total capital cost set forth in the Financial Package.

**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 Concessionaire shall have commenced construction of all Project Facilities and expended not less than 70% (Seventy per cent) of the total capital cost set forth in the Financial Package.

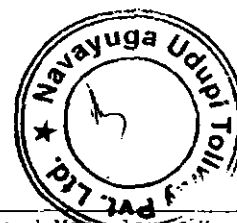
**5 Scheduled [Four-Laning] Date**

5.1 The Scheduled Four-Laning 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 Project Completion Date, the Concessionaire shall have completed the Four-Lane Project Highway in accordance with this Agreement.

**6 Extension of period**

Upon extension of any or all of the aforesaid Project Milestones or the Scheduled Project 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 - H**

*(See Clause 12.3)*

### **DRAWINGS**

#### **1 Drawings**

In compliance of the obligations set forth in Clause 12.3 of this Agreement, the Concessionaire shall furnish to the Independent Consultant, free of cost, all Drawings listed in Annex-I of this Schedule-H.

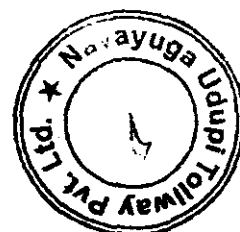
#### **2 Additional drawings**

- 2.1 If the Independent Consultant 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 Concessionaire to prepare and furnish such drawings forthwith. Upon receiving a requisition to this effect, the Concessionaire shall promptly prepare and furnish such drawings to the Independent Consultant, as if such drawings formed part of Annex-I of this Schedule-H.



**ANNEX-I**  
**(Schedule-H)**  
**List of Drawings**

1. The Project Highway drawings, as defined in Clause 1.1, Definitions, Article 1, Definitions and Interpretation, Part-I : Preliminary, of the Concession Agreement shall consist:
  - (a) Working Drawings of all the components/elements of the Project Highway as determined by Independent Consultant/NHAI, and
  - (b) As-built drawings for the Project Highway components/elements as determined by IE/NHAI. As-built drawings shall be duly certified by Independent Consultant.
2. A broad list of the drawings of the various components/elements of the Project Highway and project facilities required to be submitted by the Concessionaire is given below:
  - (a) Drawings of horizontal alignment, vertical profile and cross sections
  - (b) Drawings of cross drainage works
  - (c) Drawings of interchanges, major intersections, grade separators, underpasses and ROB's
  - (d) Drawings of toll plaza layout, toll collection systems and roadway near toll plaza
  - (e) Drawings of Control Centre
  - (f) Drawings of bus-bay and bus shelters with furniture and drainage system
  - (g) Drawing of a truck parking lay bye with furniture and drainage system
  - (h) Drawings of road furniture items including traffic signage, markings, safety barriers, etc.
  - (i) Drawings of traffic diversion plans and traffic control measures
  - (j) Drawings of road drainage measures
  - (k) Drawings of typical details slope protection measures
  - (l) Drawings of landscaping and horticulture
  - (m) Drawings of pedestrian crossings
  - (n) Drawings of street lighting
  - (o) Layout/Configuration of HTMS
  - (p) General arrangement of Base camp and Administrative Block



**SCHEDULE-I**  
(See Clause 14.1.2)



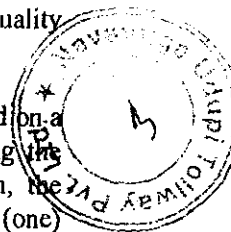
**TESTS**

**1 Schedule for Tests**

- 1.1 The Concessionaire shall, not later than 30 (thirty) days prior to the likely completion of Four-Laning, notify the Independent Consultant and the Authority of its intent to subject the Project Highway to Tests, and not later than 7 (seven) days prior to the actual date of Tests, furnish to the Independent Consultant and the Authority detailed inventory and particulars of all works and equipment forming part of Four-Laning.
- 1.2 The Concessionaire shall notify the Independent Consultant of its readiness to subject the Project Highway to Tests at any time after 7 (seven) days from the date of such notice, and upon receipt of such notice, the Independent Consultant shall, in consultation with the Concessionaire, 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 Independent Consultant shall thereupon conduct the Tests itself or cause any of the Tests to be conducted in accordance with Article 14 and this Schedule-I.

**2 Tests**

- 2.1 Visual and physical Test: The Independent Consultant shall conduct a visual and physical check of Four-Laning to determine that all works and equipment forming part thereof conform to the provisions of this Agreement.
- 2.2 Test drive: The Independent Consultant shall undertake a test drive of the Project Highway by a Car and by a fully loaded Truck to determine that the quality of service conforms to the provisions of the Agreement.
- 2.3 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 1,800 (one thousand and eight hundred) mm for each kilometre.
- 2.4 Pavement Composition Test: The thickness and composition of the pavement structure shall be checked on a sample basis by digging pits to determine conformity of such pavement structure with Specifications and Standards. The sample shall consist of one pit in each direction of travel to be chosen at random in each stretch of 5 (five) kilometres of the Project Highway. The first pit for the sample shall be selected by the Independent Consultant through an open draw of lots and every fifth kilometre from such first pit shall form part of the sample for this pavement quality Test.
- 2.5 Cross-section Test: The cross-sections of the Project Highway shall be checked on a sample basis through physical measurement of their dimensions for determining the conformity thereof with Specifications and Standards. For the road portion, the sample shall consist of one spot to be selected at random in each stretch of 1 (one) kilometre of the Project Highway. The first spot for the sample shall be selected by the Independent Consultant through an open draw of lots and the spots located every one kilometre from such first spot shall form part of the sample. For the bridge



portion, one spot shall be selected at random by the Independent Consultant in each span of the bridge.

- 2.6 Structural Test for bridges: All major and minor bridges constructed by the Concessionaire 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 Independent Consultant. Bridges with a span of 15 (fifteen) metres or more shall also be subjected to load testing.
- 2.7 Other Tests: The Independent Consultant may require the Concessionaire 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.
- 2.8 Environmental audit: The Independent Consultant shall carry out a check to determine conformity of the Project Highway with the environmental requirements set forth in Applicable Laws and Applicable Permits.
- 2.9 Safety review: Safety audit of the Project Highway shall have been undertaken by the Safety Consultant as set forth in Schedule-L, and on the basis of such audit, the Independent Consultant shall determine conformity of the Project Highway with the provisions of this Agreement.

### **3 Agency for conducting Tests**

All Tests set forth in this Schedule-I shall be conducted by the Independent Consultant or such other agency or person as it may specify in consultation with the Authority.

### **4 Completion/Provisional Certificate**

Upon successful completion of Tests, the Independent Consultant shall issue the Completion Certificate or the Provisional Certificate, as the case may be, in accordance with the provisions of Article 14.



**SCHEDULE - J**  
(See Clauses 14.2 & 14.3)

**COMPLETION CERTIFICATE**

- 1 I, \*\*\*\* (Name of the Independent Consultant), acting as Independent Consultant, under and in accordance with the Concession Agreement dated \*\*\* (the "Agreement"), Design, Engineering, Finance, Construction, Operation and Maintenance of 4 laning of NH-17, Kundapur- Surathkal section from km 283+300 to km 358+080 (Section 1) and Mangalore- Kerala Border [km 375+300 to km 376+700 (i.e. Nantur circle to Mahaveer circle) and km 3+700 to km 17+200 (i.e. Mahaveer circle to Kerala border)] (Section 2) of total length 90.08 km under NHDP PHASE III on Build, Operate and Transfer (BOT) Basis through M/s Navayuga Udupi Tollway Private Limited, hereby certify that the Tests specified in Article 14 and Schedule-I 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 commercial service of the Users thereof.
- 2 It is certified that, in terms of the aforesaid Agreement, all works forming part of Four-Laning have been completed, and the Project Highway is hereby declared fit for entry into commercial operation on this the \*\*\* day of \*\*\* 200\*.

SIGNED, SEALED AND DELIVERED

For and on behalf of

INDEPENDENT CONSULTANT by:

(Signature)

(Name)

(Designation)

(Address)



356

### Provisional Certificate

- 1 I, \*\*\*\* (Name of the Independent Consultant), acting as Independent Consultant, under and in accordance with the Concession Agreement dated \*\*\* (the "Agreement"), for Design, Engineering, Finance, Construction, Operation and Maintenance of 4 laning of NH-17, Kundapur- Surathkal section from km 283+300 to km 358+080(Section 1) and Mangalore- Kerala Border [km 375+300 to km 376+700 (i.e. Nantur circle to Mahaveer circle) and km 3+700 to km 17+200 (i.e. Mahaveer circle to Kerala border) (Section 2) of total length 90.08 km under NHDP PHASE III on Build, Operate and Transfer (BOT) Basis through M/s Navayuga Udupi Tollway Private Limited, hereby certify that the Tests specified in Article 14 and Schedule-I of the Agreement have been undertaken to determine compliance of the Project Highway with the provisions of the Agreement.
- 2 Construction Works that were found to be incomplete and/or deficient have been specified in the Punch List appended hereto, and the Concessionaire has agreed and accepted that it shall complete and/or rectify all such works in the time and manner set forth in the Agreement. [Some of the incomplete works have been delayed as a result of reasons attributable to the Authority or due to Force Majeure and the Provisional Certificate cannot be withheld on this account. Though the remaining incomplete works have been delayed as a result of reasons attributable to the Concessionaire,] I am satisfied that having regard to the nature and extent of such incomplete works, it would not be prudent to withhold commercial operation of the Project Highway, pending completion thereof.
- 3 In view of the foregoing, I am satisfied that the Project Highway can be safely and reliably placed in commercial service of the Users thereof, and in terms of the Agreement, the Project Highway is hereby provisionally declared fit for entry into commercial operation on this the \*\*\* day of \*\*\* 200\*.

ACCEPTED, SIGNED, SEALED

SIGNED, SEALED AND

AND DELIVERED

DELIVERED

For and on behalf of

For and on behalf of

CONCESSIONAIRE by:  
by:

INDEPENDENT CONSULTANT

(Signature)

(Signature)

(Name and Designation)

(Name and Designation)

(Address)

(Address)





4

**SCHEDULE - K**  
(See Clause 17.2)

**MAINTENANCE REQUIREMENTS**

**1 Maintenance Requirements**

- 1.1 The Concessionaire shall, at all times, operate and maintain the Project Highway in accordance with the provisions of the Agreement, Applicable Laws and Applicable Permits. In particular, the Concessionaire shall, at all times during the Operation Period, conform to the maintenance requirements set forth in this Schedule-K (the "Maintenance Requirements").
- 1.2 The Concessionaire shall repair or rectify any defect or deficiency set forth in Paragraph 2 of this Schedule-K within the time limit specified therein and any failure in this behalf shall constitute a breach of the Agreement. Upon occurrence of any breach hereunder, the Authority shall be entitled to recover Damages as set forth in Clause 17.8 of the Agreement, without prejudice to the rights of the Authority under the Agreement, including Termination thereof.

**2 Repair/rectification of defects and deficiencies**

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

**3 Other defects and deficiencies**

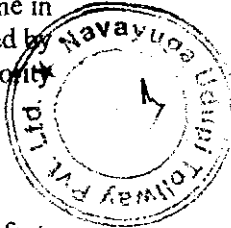
- 3.1 In respect of any defect or deficiency not specified in Annex - I of this Schedule-K, the Concessionaire shall undertake repair or rectification in accordance with Good Industry Practice.
- 3.2 In respect of any defect or deficiency not specified in Annex - I of this Schedule-K, the Independent Consultant 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 Concessionaire within the time limit specified by the Independent Consultant.

**4 Extension of time limit**

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

**5 Emergency repairs/restoration**

Notwithstanding anything to the contrary contained in this Schedule-K, if any defect, deficiency or deterioration in the Project Highway poses danger to the life or property



358

of the Users thereof, the Concessionaire shall promptly take all reasonable measures for eliminating or minimizing such danger.

**6 Daily Inspection by the Concessionaire**

The Concessionaire 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 Independent Consultant may specify. Such record shall be kept in safe custody of the Concessionaire and shall be open to inspection by the Authority and the Independent Consultant at any time during office hours.

**7 Divestment Requirements**

All defects and deficiencies specified in this Schedule-K shall be repaired and rectified by the Concessionaire so that the Project Highway conforms to the Maintenance Requirements on the Transfer Date.

**8 Display of Schedule - K**

deleted



Annex - I

(Schedule-K)

**Repair/Rectification of Defects and Deficiencies**

The Concessionaire shall repair and rectify the defects and deficiencies specified in this Annex - I of Schedule - K within the time limit set forth herein.

**Nature of defect or deficiency**

**Time limit for  
repair/rectification**

**ROADS**

**(a) Carriageway and paved shoulders**

- |   |  |
|---|--|
| (i) Breach or blockade  | - Temporary restoration of traffic within 24 hours; permanent restoration within 15 days |
| (ii) Roughness value exceeding 2,500 mm in a stretch of 1 km (as measured by a standardised roughometer/ bump integrator) | - 180 days   |
| (iii) Pot holes   | - 48 hours   |
| (iv) Cracking in more than 5% of road surface in a stretch of 1 km  | - 30 days  |
| (v) Rutting exceeding 10 mm in more than 2% of road surface in a stretch of 1 km (measured with 3 m straight edge)        | - 30 days  |
| (vi) Bleeding/skidding  | - 7 days   |
| (vii) Ravelling/Stripping of bitumen surface exceeding 10 sq m  | - 15 days  |
| (viii) Damage to pavement edges exceeding 10 cm   | - 15 days  |



(ix) Removal of debris - 6 hours

**(b) Hard/earth shoulders, side slopes, drains and culverts**

(i) Variation by more than 2% in the prescribed slope of camber/cross fall - 30 days

(ii) Edge drop at shoulders exceeding 40 mm - 7 days

(iii) Variation by more than 15% in the prescribed side (embankment) slopes - 30 days

(iv) Rain cuts/gullies in slope - 7 days

(v) Damage to or silting of culverts and side drains during and immediately preceding the rainy season - 7 days

(vi) Desilting of drains in urban/semi-urban areas - 48 hours

**(c) Road side furniture including road signs and pavement marking**

(i) Damage to shape or position; poor visibility or loss of retro-reflectivity - 48 hours

**(d) Street lighting and telecom (ATMS)**

(i) Any major failure of the system - 24 hours

(ii) Faults and minor failures - 8 hours

**(e) Trees and plantation**

(i) Obstruction in a minimum head-room of 5 m above carriageway or obstruction in visibility of road signs - 24 hours



361

- (ii) Deterioration in health of trees and bushes - Timely watering and treatment
- (iii) Replacement of trees and bushes - 90 days
- (iv) Removal of vegetation affecting sight line and road structures - 15 days
- (f) Rest areas
- (i) Cleaning of toilets - Every 4 hours
- (ii) Defects in electrical, water and sanitary installations - 24 hours
- (g) Toll plaza
- (i) Failure of toll collection equipment or lighting - 8 hours
- (ii) Damage to toll plaza - 7 days
- (h) Other Project Facilities and Approach roads
- (i) Damage or deterioration in Approach Roads, [pedestrian facilities, truck lay-bys, bus-bays, bus- shelters, cattle crossings, Traffic Aid Posts, Medical Aid Posts and other works] - 15 days

## BRIDGES

### (a) Superstructure of bridges

#### (i) Cracks -

Temporary measures

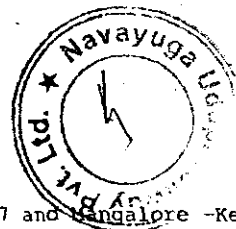
within 48 hours

Permanent measures

within 45 days

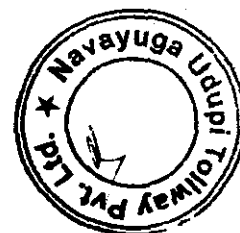
#### (ii) Spalling/scaling

- 15 days



362

- (b) **Foundations of bridges**
  - (i) Scouring and/or cavitation - 15 days
- (c) **Piers, abutments, return walls and wing walls of bridges**
  - (i) Cracks and damages including settlement and tilting - 30 days
- (d) **Bearings (metallic) of bridges**
  - (i) Deformation - 15 days
- (e) **Joints in bridges**
  - (i) Loosening and malfunctioning of joints - 15 days
- (f) **Other items relating to bridges**
  - (i) Deforming of pads in elastomeric bearings - 7 days
  - (ii) Gathering of dirt in bearings and joints; or clogging of spouts, weep holes and vent-holes - 3 days
  - (iii) Damage or deterioration in parapets and handrails - 3 days
  - (iv) Rain-cuts or erosion of banks of the side slopes of approaches - 15 days
  - (v) Damage to wearing coat - 15 days
  - (vi) Damage or deterioration in approach slabs, pitching, apron, toes, floor or guide bunds - 30 days
  - (vii) Growth of vegetation affecting the structure or obstructing the waterway - 15 days



363

**SCHEDULE - L**  
(See Clause 18.1.1)

**SAFETY REQUIREMENTS**

**1 Guiding principles**

- 1.1 Safety Requirements aim at reduction in injuries, loss of life and damage to property resulting from accidents on the Project Highway, irrespective of the person(s) at fault.
- 1.2 Users of the Project Highway include motorised and non-motorised vehicles as well as pedestrians and animals involved in, or associated with accidents. Vulnerable Road Users (VRU) include pedestrians as well as riders of motorised two-wheelers, bicycles and other vehicles which do not provide adequate occupant protection.
- 1.3 Safety Requirements apply to all phases of construction, operation and maintenance with emphasis on identification of factors associated with accidents, consideration of the same, and implementation of appropriate remedial measures.
- 1.4 Safety Requirements include measures associated with traffic management and regulation such as road signs, pavement marking, traffic control devices, roadside furniture, highway design elements, enforcement and emergency response.

**2 Obligations of the Concessionaire**

The Concessionaire shall abide by the following insofar as they relate to safety of the Users:

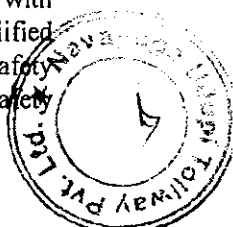
- (a) Applicable Laws and Applicable Permits;
- (b) Manual for Safety in Road Design, issued by MOSRTH;
- (c) relevant Standards/Guidelines of IRC relating to road geometrics, bridges, culverts, road signs, pavement marking and roadside furniture;
- (d) provisions of this Agreement; and
- (e) Good Industry Practice.

**3 Appointment of Safety Consultant**

For carrying out safety audit of the Project Highway under and in accordance with this Schedule-L, the Authority shall appoint from time to time, one or more qualified firms or organisations as its consultants (the "Safety Consultant"). The Safety Consultant shall employ a team comprising, without limitation, one road safety expert and one traffic planner to undertake safety audit of the Project Highway.

**4 Safety measures during Development Period**

- 4.1 Not later than 90 (ninety) days from the date of this Agreement, the Authority shall appoint a Safety Consultant for carrying out safety audit at the design stage of the Project. The Safety Consultant shall collect data on all fatal crashes and other road accidents which occurred on the Project Highway in the preceding two years by



obtaining copies of the relevant First Information Reports (FIRs) from the police stations having jurisdiction. The information contained in such FIRs shall be summarised in the form prescribed by IRC/MOSRTH for this purpose and the data shall be analysed for the type of victims killed or injured, impacting vehicles, location of accidents and other relevant factors.

- 4.2 The Concessionaire shall provide to the Safety Consultant, in four copies, the relevant drawings containing the design details that have a bearing on safety of Users (the "Safety Drawings"). Such design details shall include horizontal and vertical alignments; sightlines; layouts of intersections; interchanges; road cross-section; bridges and culverts; side drains; provision for parked vehicles, slow moving vehicles (tractors, bullock carts, bicycles) and pedestrians; bus bays; truck lay-bys; and other incidental or consequential information. The Safety Consultant shall review the design details and forward three copies of the Safety Drawings with its recommendations, if any, to the Independent Consultant who shall record its comments, if any, and forward one copy each to the Authority and the Concessionaire.
- 4.3 The accident data and the design details shall be compiled, analysed and used by the Safety Consultant for evolving a package of recommendations consisting of safety related measures for the Project Highway. The safety audit shall be completed in a period of three months and a report thereof (the "Safety Report") shall be submitted to the Authority, in five copies. One copy each of the Safety Report shall be forwarded by the Authority to the Concessionaire and the Independent Consultant forthwith.
- 4.4 The Concessionaire shall endeavour to incorporate the recommendations of the Safety Report in the design of the Project Highway, as may reasonably be required in accordance with Applicable Laws, Applicable Permits, Manuals and Guidelines of MOSRTH and IRC, Specifications and Standards, and Good Industry Practice. If the Concessionaire does not agree with any or all of such recommendations, it shall state the reasons thereof and convey them to the Authority forthwith. In the event that any or all of the works and services recommended in the Safety Report fall beyond the scope of Schedule-B, Schedule-C or Schedule-D, the Concessionaire shall make a report thereon and seek the instructions of the Authority for funding such works in accordance with the provisions of Article 18.
- 4.5 Without prejudice to the provisions of Paragraph 4.4, the Concessionaire and the Independent Consultant shall, within 15 (fifteen) days of receiving the Safety Report, send their respective comments thereon to the Authority, and not later than 15 (fifteen) days of receiving such comments, the Authority shall review the same alongwith the Safety Report and by notice direct the Concessionaire to carry out any or all of the recommendations contained therein with such modifications as the Authority may specify; provided that any works or services required to be undertaken hereunder shall be governed by the provisions of Article 18.

## 5 Safety measures during Construction Period

- 5.1 A Safety Consultant shall be appointed by the Authority, not later than 4 (four) months prior to the expected Project Completion Date, for carrying out a safety audit of the completed Construction Works.



- 5.2 The Safety Consultant shall collect and analyse the accident data for the preceding two years in the manner specified in Paragraph 4.1 of this Schedule-L. It shall study the Safety Report for the Development Period and inspect the Project Highway to assess the adequacy of safety measures. The Safety Consultant shall complete the safety audit within a period of 4 (four) months and submit a Safety Report recommending a package of additional road safety measures, if any, that are considered essential for reducing accident hazards on the Project Highway. Such recommendations shall be processed, *mutatis mutandis*, and acted upon in the manner set forth in Paragraphs 4.3, 4.4 and 4.5 of this Schedule-L.
- 5.3 The Concessionaire shall make adequate arrangements during the Construction Period for the safety of workers and road Users in accordance with the guidelines of IRC for safety in construction zones, and notify the Authority and the Independent Consultant about such arrangements.
- 6 Safety measures during Operation Period**
- 6.1 The Concessionaire shall develop, implement and administer a surveillance and safety programme for Users, including correction of safety violations and deficiencies and all other actions necessary to provide a safe environment in accordance with this Agreement.
- 6.2 The Concessionaire shall establish a Highway Safety Management Unit (the "HSMU") to be functional on and after COD, and designate one of its officers to be in-charge of the HSMU. Such officer shall have specialist knowledge and training in road safety and traffic engineering by having attended a course conducted by a reputed organisation on the subject.
- 6.3 The Concessionaire shall keep a copy of every FIR recorded by the Police with respect to any accident occurring on the Project Highway. In addition, the Concessionaire shall also collect data for all cases of accidents not recorded by the Police but where a vehicle rolled over or had to be towed away. The information so collected shall be summarised in the form prescribed by IRC/ MOSRTH for this purpose. The Concessionaire shall also record the exact location of each accident on a road map. The aforesaid data shall be submitted to the Authority at the conclusion of every quarter and to the Safety Consultant as and when appointed.
- 6.4 The Concessionaire shall submit to the Authority before the 31st (thirty first) May of each year, an annual report (in ten copies) containing, without limitation, a detailed listing and analysis of all accidents of the preceding Accounting Year and the measures taken by the Concessionaire pursuant to the provisions of Paragraph 6.1 of this Schedule-L for averting or minimising such accidents in future.
- 6.5 Once in every Accounting Year, a safety audit shall be carried out by the Safety Consultant to be appointed by the Authority. It shall review and analyse the annual report and accident data of the preceding year, and undertake an inspection of the Project Highway. The Safety Consultant shall complete the safety audit within a period of 1 (one) month and submit a Safety Report recommending specific improvements, if any, required to be made to the road, bridges, culverts, markings, signs, road furniture and Project Facilities, including cattle crossings and pedestrian crossings. Such recommendations shall be processed, *mutatis mutandis*, and acted upon in the manner set forth in Paragraphs 4.3, 4.4 and 4.5 of this Schedule-L.

7 **Costs and expenses**

Costs and expenses incurred in connection with the Safety Requirements set forth herein, including the provisions of Paragraph 2 of this Schedule, shall be met in accordance with Article 18, and in particular, the remuneration of the Safety Consultant, safety audit, and costs incidental thereto, shall be met out of the Safety Fund.



367

## SCHEDULE - M

(See Clause 19.5)

### MONTHLY FEE STATEMENT

**Project Highway:** Four laning of NH-17, Kundapur- Surathkal section Month:   
 from km 283+300 to km 358+080 (Section 1) and Mangalore-   
 Kerala Border [km 375+300 to km 376+700 (i.e. Nantur circle   
 to Mahaveer circle) and km 3+700 to km 17+200 (i.e.   
 Mahaveer circle to Kerala border)] (Section 2) of total l   
 ength 90.08 km under NHDP PHASE III

| Type of Vehicle   | For Corresponding Month of Previous Year |                             | For Preceding Month |                             | For the Month Reported upon |                 |                             |
|-------------------|--|-----------------------------|---------------------|-----------------------------|-----------------------------|-----------------|-----------------------------|
|                   | No. of Vehicles                          | Fee Collected (in lakh Rs.) | No. of Vehicles     | Fee Collected (in lakh Rs.) | Fee per Vehicle (in Rs.)    | No. of Vehicles | Fee Collected (in lakh Rs.) |
| (1)               | (2)                                      | (3)                         | (4)                 | (5)                         | (6)                         | (7)             | (8)                         |
| A Car             |  |                             |                     |                             |                             |                 |                             |
| B Mini Bus/ LCV   |  |                             |                     |                             |                             |                 |                             |
| C Bus             |  |                             |                     |                             |                             |                 |                             |
| D Mini Truck/ LCV |  |                             |                     |                             |                             |                 |                             |
| E Truck           |  |                             |                     |                             |                             |                 |                             |
| F Heavy Truck     |  |                             |                     |                             |                             |                 |                             |
| G Total           |  |                             |                     |                             |                             |                 |                             |

**Note 1:** The above statement does not include Local Traffic and vehicles travelling on Daily Passes or Monthly Passes

**Note 2:** Monthly Fee Statements for Monthly Passes and Daily Passes have been prepared separately in the above format and are enclosed.

**Remarks, if any:**



368

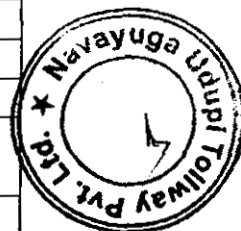
**SCHEDULE - N**  
(See Clause 22.1)

**WEEKLY TRAFFIC CENSUS**

**Project Highway:** Four laning of NH-17, Kundapur- Surathkal section from km 283+300 to km 358+080 (Section 1) and Mangalore- Kerala Border [km 375+300 to km 376+700 (i.e. Nantur circle to Mahaveer circle) and km 3+700 to km 17+200 (i.e. Mahaveer circle to Kerala border)].  
(Section 2) of total length 90.08 km under NHDP PHASE III

**Week ending:**

| Type of Vehicle                | No. of vehicles using the Project Highway during |                |                |
|--------------------------------|--|----------------|----------------|
|                                | Corresponding week/last year                     | Preceding week | Week of report |
| (1)                            | (2)  | (3)            | (4)            |
| <b>A Fee paying Traffic</b>    |  |                |                |
| A1 Car                         |  |                |                |
| A2 Mini Bus/ LCV               |  |                |                |
| A3 Bus                         |  |                |                |
| A4 Mini Truck/ LCV             |  |                |                |
| A5 Truck                       |  |                |                |
| A6 Heavy Truck                 |  |                |                |
| <b>Total (A)</b>               |  |                |                |
| <b>B Local Traffic</b>         |  |                |                |
| B1 Car                         |  |                |                |
| <b>Total (B)</b>               |  |                |                |
| <b>C Exempted Vehicles</b>     |  |                |                |
| C1 Car                         |  |                |                |
| C2 Mini Bus/ LCV               |  |                |                |
| C3 Bus                         |  |                |                |
| C4 Mini Truck/ LCV             |  |                |                |
| C5 Truck                       |  |                |                |
| C6 Tractor                     |  |                |                |
| <b>Total (C)</b>               |  |                |                |
| <b>D Total Traffic (A+B-C)</b> |  |                |                |
| D1 Car                         |  |                |                |
| D2 Mini Bus/ LCV               |  |                |                |
| D3 Bus                         |  |                |                |
| D4 Mini Truck/ LCV             |  |                |                |
| D5 Truck                       |  |                |                |
| D6 Heavy Truck                 |  |                |                |
| D7 Tractor                     |  |                |                |
| <b>Grand Total (E)</b>         |  |                |                |



369

## WEEKLY REPORT FOR WEIGH STATIONS

**Project Highway:**

**Week ending:**

| Type of Vehicle  | Permitted Gross Vehicle Weight (Tonnes) | No. of Vehicles weighed (Sample size) | No. of Vehicles carrying load: |                     |                                  |                    |
|------------------|---|---------------------------------------|--------------------------------|---------------------|----------------------------------|--------------------|
|                  |   |                                       | Within permissible limits      | Up to 10% in excess | Over 10% and up to 20% in excess | Over 20% in excess |
| (1)              | (2)                                     | (3)                                   | (4)                            | (5)                 | (6)                              | (7)                |
| A Mini Truck/LCV |   |                                       |                                |                     |                                  |                    |
| B Truck          |   |                                       |                                |                     |                                  |                    |
| C Heavy Truck    |   |                                       |                                |                     |                                  |                    |
| D Total          |   |                                       |                                |                     |                                  |                    |

[Note: Sample size shall not be less than 200 trucks per week and 20 trucks per day, and should include a proportionate number of Heavy Trucks.]

Remarks, if any: ]



370

**SCHEDULE - O**  
(See Clause 22.3.1)

**TRAFFIC SAMPLING**

**1 Traffic sampling**

The Authority may, in its discretion and at its own cost, undertake traffic sampling, pursuant to Clause 22.3, in order to determine the actual traffic on the Project Highway. Such traffic sampling shall be undertaken through the Independent Consultant in the manner set forth below.

**2 Manual traffic count**

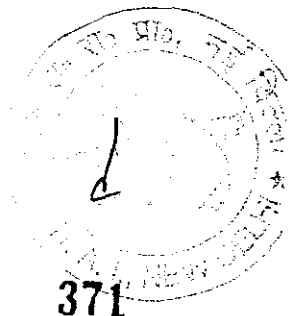
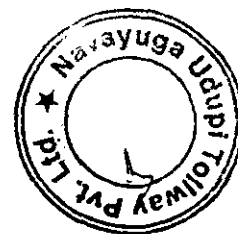
The Independent Consultant shall employ the required number of enumerators who shall count, classify and record all the vehicles as they pass by, and divide the survey into fixed time periods. The count stations shall be located near the Toll Plaza on a straight section of the road with good visibility. The survey shall be conducted continuously for a minimum of 24 (twenty four) hours and maximum of 7 (seven) days at a time. The count period shall be 15 (fifteen) minutes with results summarised hourly.

**3 Automatic traffic count**

For automatic traffic count to be conducted on intermittent (non-continuous) basis, the Independent Consultant shall use suitable and standardised equipment to classify and record the range of vehicles passing through the Toll Plaza. For this purpose, the counter shall be checked with at least 100 (one hundred) vehicles, including all major vehicle types, over a range of speeds to ensure that all vehicles are being counted and classified correctly.

**4 Variation between manual and automatic count**

Average Daily Traffic (ADT) for each type of vehicle shall be determined separately by the aforesaid two methods and in the event that the number of vehicles in any category, as counted by the manual method, varies by more than 1% (one per cent) of the number of such vehicles as counted by the automatic method, the manual and automatic count of such category of vehicles shall be repeated, and in the event of any discrepancy between the two counts in the second enumeration, the average thereof shall be deemed to be the actual traffic. For the avoidance of doubt, it is expressly agreed that the Authority may, in consultation with the Concessionaire, adopt modified or alternative processes of traffic sampling for improving the reliability of such sampling.



**SCHEDULE - P**  
(See Clause 23.1)

**SELECTION OF INDEPENDENT CONSULTANT**

**1 Selection of Independent Consultant**

- 1.1 The provisions of Part II of the Standard Bidding Documents for Consultancy Assignments: Time Based (Volume V) issued by the Ministry of Finance, GOI in July, 1997 shall apply, *mutatis mutandis*, for invitation of bids and evaluation thereof save as otherwise provided herein.
- 1.2 The Authority shall invite expressions of interest from consulting engineering firms or bodies corporate to undertake and perform the duties and functions set forth in Schedule-Q and thereupon shortlist 10 (ten) qualified firms in accordance with pre-determined criteria. The Authority shall convey the aforesaid list of firms to the Concessionaire for scrutiny and comments, if any. The Concessionaire shall be entitled to scrutinise the relevant records of the Authority to ascertain whether the selection of firms has been undertaken in accordance with the prescribed procedure and it shall send its comments, if any, to the Authority within 15 (fifteen) days of receiving the aforesaid list of firms. Upon receipt of such comments, if any, the Authority shall, after considering all relevant factors, finalise and constitute a panel of 10 (ten) firms (the "Panel of Firms") and convey its decision to the Concessionaire.
- 1.3 The Authority shall invite the aforesaid firms in the Panel of Firms to submit their respective technical and financial offers, each in a separate sealed cover. All the technical bids so received shall be opened and pursuant to the evaluation thereof, the Authority shall shortlist 3 (three) eligible firms on the basis of their technical scores. The financial bids in respect of such 3 (three) firms shall be opened and the order of priority as among these firms shall be determined on the basis of a weighted evaluation where technical and financial scores shall be assigned respective weights of 80:20.

**2 Fee and expenses**

- 2.1 In determining the nature and quantum of duties and services to be performed by the Independent Consultant during the Development Period and Construction Period, the Authority shall endeavour that payments to the Independent Consultant on account of fee and expenses do not exceed 2% (two per cent) of the Total Project Cost. Payments not exceeding such 2% (two per cent) shall be borne equally by the Authority and the Concessionaire in accordance with the provisions of this Agreement and any payments in excess thereof shall be borne entirely by the Authority.
- 2.2 The nature and quantum of duties and services to be performed by the Independent Consultant during the Operation Period shall be determined by the Authority in conformity with the provisions of this Agreement and with due regard for economy in expenditure. All payments made to the Independent Consultant on account of fee and expenses during the Operation Period, shall be borne equally by the Authority and the Concessionaire.

**3 Constitution of fresh panel**

Not later than three years from the date of this Agreement, and every three years thereafter, the Authority shall prepare a fresh panel of firms in accordance with the criteria set forth in this Schedule-P; provided that the Authority may, at any time, prepare a fresh panel with prior written consent of the Concessionaire.

**4 Appointment of government entity as Independent Consultant**

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





4

**SCHEDULE - Q**  
(See Clause 23.2.1)

**TERMS OF REFERENCE FOR INDEPENDENT CONSULTANT**

**1 Scope**

- 1.1 These Terms of Reference for the Independent Consultant (the "TOR") are being specified pursuant to the Concession Agreement dated \*\*\* (the "Agreement"), which has been entered into between the Authority and M/s Navayuga Udupi Tollway Private Limited (the "Concessionaire") for Design, Engineering, Finance, Construction, Operation and Maintenance of 4 laning of NH-17, Kundapur- Surathkal section from km 283.300 to km 358.080 (Section 1) and Mangalore- Kerala Border km 375.300 to km 376.700 (i.e. Nantur circle to Mahaveer circle) and km 3.700 to km 17.200 (i.e. Mahaveer circle to Kerala border) (Section 2) of total length 90.08 km under NHDP PHASE III on Build, Operate and Transfer (BOT) Basis, and a copy of which is annexed hereto and marked as Annex-A to form part of this TOR.
- 1.2 This TOR shall apply to construction, operation and maintenance of the Four-Lane Project Highway.

**2 Definitions and interpretation**

- 2.1 The words and expressions beginning with or in capital letters used in this TOR 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 Role and functions of the Independent Consultant**

- 3.1 The role and functions of the Independent Consultant shall include the following:
- (i) review of the Drawings and Documents as set forth in Paragraph 4;
  - (ii) review, inspection and monitoring of Construction Works as set forth in Paragraph 5;
  - (iii) conducting Tests on completion of construction and issuing Completion\* Provisional Certificate as set forth in Paragraph 5;
  - (iv) review, inspection and monitoring of O&M as set forth in Paragraph 6;
  - (v) review, inspection and monitoring of Divestment Requirements as set forth in Paragraph 7;
  - (vi) determining, as required under the Agreement, the costs of any works or services



374



and/or their reasonableness;

(vii) determining, as required under the Agreement, the period or any extension thereof, for performing any duty or obligation;

(viii) assisting the Parties in resolution of disputes as set forth in Paragraph 9; and

(ix) undertaking all other duties and functions in accordance with the Agreement.

3.2 The Independent Consultant shall discharge its duties in a fair, impartial and efficient manner, consistent with the highest standards of professional integrity and Good Industry Practice.

#### 4 Development Period

4.1 During the Development Period, the Independent Consultant shall undertake a detailed review of the Drawings to be furnished by the Concessionaire along with supporting data, including the geo-technical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, topographical surveys and traffic surveys. The Independent Consultant shall complete such review and send its comments/observations to the Authority and the Concessionaire within 15 (fifteen) days of receipt of such Drawings. 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 Independent Consultant shall review any modified Drawings or supporting Documents sent to it by the Concessionaire and furnish its comments within 7 (seven) days of receiving such Drawings or Documents.

4.3 The Independent Consultant shall review the Drawings sent to it by the Safety Consultant in accordance with Schedule-L and furnish its comments thereon to the Authority and the Concessionaire within 7 (seven) days of receiving such Drawings. The Independent Consultant shall also review the Safety Report and furnish its comments thereon to the Authority within 15 (fifteen) days of receiving such report.

4.4 The Independent Consultant shall review the detailed design, construction methodology, quality assurance procedures and the procurement, engineering and construction time schedule sent to it by the Concessionaire and furnish its comments within 15 (fifteen) days of receipt thereof.

4.5 Upon reference by the Authority, the Independent Consultant shall review and comment on the EPC Contract or any other contract for construction, operation and maintenance of the Project Highway, and furnish its comments within 7 (seven) days from receipt of such reference from the Authority.

#### 5 Construction Period

5.1 In respect of the Drawings, Documents and Safety Report received by the Independent Consultant for its review and comments during the Construction Period, the provisions of Paragraph 4 shall apply, *mutatis mutandis*.

5.2 The Independent Consultant shall review the monthly progress report furnished by the Concessionaire and send its comments thereon to the Authority and the

375



Concessionaire within 7 (seven) days of receipt of such report.

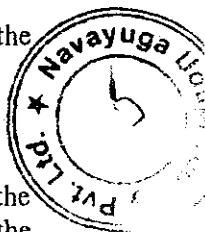
- 5.3 The Independent Consultant shall inspect the Construction Works and the Project Highway once every month, preferably after receipt of the monthly progress report from the Concessionaire, but before the 20th (twentieth) day of each month in any case, and make out a report of such inspection (the "Inspection Report") setting forth an overview of the status, progress, quality and safety of construction, including the work methodology adopted, the materials used and their sources, and conformity of Construction Works with the Scope of the Project and the Specifications and Standards. In a separate section of the Inspection Report, the Independent Consultant shall describe in reasonable detail the lapses, defects or deficiencies observed by it in the construction of the Project Highway. The Inspection Report shall also contain a review of the maintenance of the existing lanes in conformity with the provisions of the Agreement. The Independent Consultant shall send a copy of its Inspection Report to the Authority and the Concessionaire within 7 (seven) days of the inspection.
- 5.4 The Independent Consultant may inspect the Project Highway more than once in a month if any lapses, defects or deficiencies require such inspections.
- 5.5 For determining that the Construction Works conform to Specifications and Standards, the Independent Consultant shall require the Concessionaire to carry out, or cause to be carried out, tests on a sample basis, to be specified by the Independent Consultant in accordance with Good Industry Practice for quality assurance. For purposes of this Paragraph 5.5, 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 MOSRTH (the "Quality Control Manuals") or any modification/substitution thereof shall be deemed to be tests conforming to Good Industry Practice for quality assurance. The Independent Consultant shall issue necessary directions to the Concessionaire for ensuring that the tests are conducted in a fair and efficient manner, and shall monitor and review the results thereof.
- 5.6 The sample size of the tests, to be specified by the Independent Consultant under Paragraph 5.5, shall comprise 10% (ten per cent) of the quantity or number of tests prescribed for each category or type of tests in the Quality Control Manuals; provided that the Independent Consultant may, for reasons to be recorded in writing, increase the aforesaid sample size by up to 10% (ten per cent) for certain categories or types of tests.
- 5.7 The timing of tests referred to in Paragraph 5.5, and the criteria for acceptance/rejection of their results shall be determined by the Independent Consultant 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 Concessionaire for its own quality assurance in accordance with Good Industry Practice.
- 5.8 In the event that the Concessionaire carries out any remedial works for removal or rectification of any defects or deficiencies, the Independent Consultant shall require the Concessionaire to carry out, or cause to be carried out, tests to determine that such remedial works have brought the Construction Works into conformity with the Specifications and Standards, and the provisions of this Paragraph 5 shall apply to

such tests.

- 5.9 In the event that the Concessionaire fails to achieve any of the Project Milestones, the Independent Consultant shall undertake a review of the progress of construction and identify potential delays, if any. If the Independent Consultant shall determine that completion of the Project Highway is not feasible within the time specified in the Agreement, it shall require the Concessionaire 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 Concessionaire, the Independent Consultant shall review the same and send its comments to the Authority and the Concessionaire forthwith.
- 5.10 If at any time during the Construction Period, the Independent Consultant determines that the Concessionaire has not made adequate arrangements for the safety of workers and Users in the zone of construction or that any work is being carried out in a manner that threatens the safety of the workers and the Users, it shall make a recommendation to the Authority forthwith, identifying the whole or part of the Construction Works that should be suspended for ensuring safety in respect thereof.
- 5.11 In the event that the Concessionaire carries out any remedial measures to secure the safety of suspended works and Users, it may, by notice in writing, require the Independent Consultant to inspect such works, and within 3 (three) days of receiving such notice, the Independent Consultant shall inspect the suspended works and make a report to the Authority forthwith, recommending whether or not such suspension may be revoked by the Authority.
- 5.12 If suspension of Construction Works is for reasons not attributable to the Concessionaire, the Independent Consultant shall determine the extension of dates set forth in the Project Completion Schedule, to which the Concessionaire is reasonably entitled, and shall notify the Authority and the Concessionaire of the same.
- 5.13 The Independent Consultant shall carry out, or cause to be carried out, all the Tests specified in Schedule-I and issue a Completion Certificate or Provisional Certificate, as the case may be. For carrying out its functions under this Paragraph 5.13 and all matters incidental thereto, the Independent Consultant shall act under and in accordance with the provisions of Article 14 and Schedule-I.
- 5.14 Upon reference from the Authority, the Independent Consultant shall make a fair and reasonable assessment of the costs of providing information, works and services as set forth in Article 16 and certify the reasonableness of such costs for payment by the Authority to the Concessionaire.
- 5.15 The Independent Consultant shall aid and advise the Concessionaire in preparing the Maintenance Manual.

## 6 Operation Period

- 6.1 In respect of the Drawings, Documents and Safety Report received by the Independent Consultant for its review and comments during the Operation Period, the provisions of Paragraph 4 shall apply, *mutatis mutandis*.
- 6.2 The Independent Consultant shall review the annual Maintenance Programme furnished by



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the Concessionaire and send its comments thereon to the Authority and the Concessionaire within 15 (fifteen) days of receipt of the Maintenance Programme.

- 6.3 The Independent Consultant shall review the monthly status report furnished by the Concessionaire and send its comments thereon to the Authority and the Concessionaire within 7 (seven) days of receipt of such report.
- 6.4 The Independent Consultant shall inspect the Project Highway once every month, preferably after receipt of the monthly status report from the Concessionaire, but before the 20th (twentieth) day of each month in any case, and make out an O&M Inspection Report setting forth an overview of the status, quality and safety of O&M including its conformity with the Maintenance Requirements and Safety Requirements. In a separate section of the O&M Inspection Report, the Independent Consultant shall describe in reasonable detail the lapses, defects or deficiencies observed by it in O&M of the Project Highway. The Independent Consultant shall send a copy of its O&M Inspection Report to the Authority and the Concessionaire within 7 (seven) days of the inspection.
- 6.5 The Independent Consultant may inspect the Project Highway more than once in a month, if any lapses, defects or deficiencies require such inspections.
- 6.6 The Independent Consultant shall in its O&M Inspection Report specify the tests, if any, that the Concessionaire 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 Concessionaire in this behalf.
- 6.7 In respect of any defect or deficiency referred to in Paragraph 3 of Schedule-K, the Independent Consultant 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.
- 6.8 The Independent Consultant shall determine if any delay has occurred in completion of repair or remedial works in accordance with the Agreement, and shall also determine the Damages, if any, payable by the Concessionaire to the Authority for such delay.
- 6.9 The Independent Consultant shall examine the request of the Concessionaire for closure of any lane(s) of the carriageway for undertaking maintenance/repair thereof, keeping in view the need to minimise disruption in traffic and the time required for completing such maintenance/repair in accordance with Good Industry Practice. It shall grant permission with such modifications, as it may deem necessary, within 5 (five) days of receiving a request from the Concessionaire. Upon expiry of the permitted period of closure, the Independent Consultant shall monitor the re-opening of such lane(s), and in case of delay, determine the Damages payable by the Concessionaire to the Authority under Clause 17.7.
- 6.10 The Independent Consultant shall monitor and review the curing of defects and deficiencies by the Concessionaire as set forth in Clause 19.4.
- 6.11 In the event that the Concessionaire notifies the Independent Consultant of any



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modifications that it proposes to make to the Project Highway, the Independent Consultant shall review the same and send its comments to the Authority and the Concessionaire within 15 (fifteen) days of receiving the proposal.

- 6.12 The Independent Consultant shall undertake traffic sampling, as and when required by the Authority, under and in accordance with Article 22 and Schedule-O.

## **7 Termination**

- 7.1 At any time, not earlier than 90 (ninety) days prior to Termination but not later than 10 (ten) days prior to such Termination, the Independent Consultant shall, in the presence of a representative of the Concessionaire, inspect the Project Highway for determining compliance by the Concessionaire with the Divestment Requirements set forth in Clause 38.1 and, if required, cause tests to be carried out at the Concessionaire's cost for determining such compliance. If the Independent Consultant determines that the status of the Project Highway is such that its repair and rectification would require a larger amount than the sum set forth in Clause 39.2, it shall recommend retention of the required amount in the Escrow Account and the period of retention thereof.

- 7.2 The Independent Consultant shall inspect the Project Highway once in every 15 (fifteen) days during a period of 90 (ninety) days after Termination for determining the liability of the Concessionaire under Article 39, in respect of the defects or deficiencies specified therein. If any such defect or deficiency is found by the Independent Consultant, it shall make a report in reasonable detail and send it forthwith to the Authority and the Concessionaire.

## **8 Determination of costs and time**

- 8.1 The Independent Consultant shall determine the costs, and/or their reasonableness, that are required to be determined by it under the Agreement.
- 8.2 The Independent Consultant shall determine the period, or any extension thereof, that is required to be determined by it under the Agreement.

## **9 Assistance in Dispute resolution**

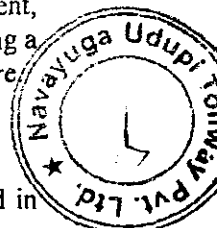
- 9.1 When called upon by either Party in the event of any Dispute, the Independent Consultant shall mediate and assist the Parties in arriving at an amicable settlement.
- 9.2 In the event of any disagreement between the Parties regarding the meaning, scope and nature of Good Industry Practice, as set forth in any provision of the Agreement, the Independent Consultant shall specify such meaning, scope and nature by issuing a reasoned written statement relying on good industry practice and authentic literature.

## **10 Other duties and functions**

The Independent Consultant shall perform all other duties and functions specified in the Agreement.

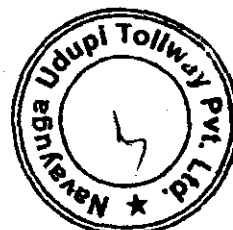
## **11 Miscellaneous**

- 11.1 The Independent Consultant shall notify its programme of inspection to the Authority



and to the Concessionaire, who may, in their discretion, depute their respective representatives to be present during the inspection.

- 11.2 A copy of all communications, comments, instructions, Drawings or Documents sent by the Independent Consultant to the Concessionaire pursuant to this TOR, and a copy of all the test results with comments of the Independent Consultant thereon shall be furnished by the Independent Consultant to the Authority forthwith.
- 11.3 The Independent Consultant shall obtain, and the Concessionaire shall furnish in two copies thereof, all communications and reports required to be submitted, under this Agreement, by the Concessionaire to the Independent Consultant, whereupon the Independent Consultant shall send one of the copies to the Authority along with its comments thereon.
- 11.4 The Independent Consultant 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.
- 11.5 Upon completion of its assignment hereunder, the Independent Consultant shall duly classify and list all Drawings, Documents, results of tests and other relevant records, and hand them over to the Authority or such other person as the Authority may specify, and obtain written receipt thereof

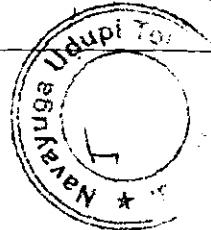


SCHEDULE –R  
(See Clause 27.1.1)**FEE NOTIFICATION****MINISTRY OF ROAD TRANSPORT AND HIGHWAYS****(Department of Road Transport and Highways)****NOTIFICATION****New Delhi, the \*\*\* 20\*\***

S.O. \*\*\*. Whereas, by the notification of the Government of India in the Ministry of Road Transport and Highways, number \*\*\*\*\* dated the \*\*\*\*\*, issued under section 11 of the National Highways Authority of India Act, 1988 (68 of 1988), the Central Government has entrusted the section of National highway from Kundapur- Surathkal (km 283+300 to km 358+060,) and Mangalore- Kerala Border [km 375+300 to km 376+700 (i.e. Nantur circle to Mahaveer circle) and km 3+700 to km 17+200 (i.e. Mahaveer circle to Kerala border)] of 90.08km in the state of Karnataka to the National Highways Authority of India (hereinafter referred to as the “Authority”);

And Whereas, pursuant to the provisions of section 14 of the said Act, the Authority has entered into an agreement with ....., having its Registered Office at ..... (hereinafter referred to as “Concessionaire”) for the development of the Kundapur- Surathkal and Mangalore- Kerala Border [km 375+300 to km 376+700 (i.e. Nantur circle to Mahaveer circle) and km 3+700 to km 17+200 (i.e. Mahaveer circle to Kerala border)] (hereinafter referred to as the said section) of the national highway No. 17 on Design, Build, Finance, Operate and Transfer (DBFOT) basis;

Now, therefore, in exercise of the powers conferred by section 8A of the National Highways Act, 1956 (48 of 1956), read with Rule 3 of the National Highways Fee (Determination of Rates and Collection) Rules, 2008, the Central Government, having regard to the expenditure involved in building, maintenance, management and operation of the said section of the said national highway, interest on the capital invested, reasonable return, the volume of traffic and the period of said agreement between the Authority and the Concessionaire, hereby notifies that there shall be levied and collected fees on mechanical vehicles for the use of the stretch from Kundapur- Surathkal (km 283+300 to km 358+060,) and Mangalore- Kerala Border [km 375+300 to km 376+700 (i.e. Nantur circle to Mahaveer circle) and km 3+700 to km 17+200 (i.e. Mahaveer circle to Kerala border)] including





construction of permanent Bridge over Netravathi having estimated cost of Rs.60.0 crores in the state of Karnataka at the rates specified in the aforesaid Rules and authorises the said Concessionaire to collect and retain the said fees on and from the date of commercial operation of the said section of National highway, subject to and in accordance with the said Rules and the provisions of the aforesaid agreement.

The fee levied and collected hereunder shall be due and payable at the following Toll Plazas for the distance specified for each such Toll Plaza:

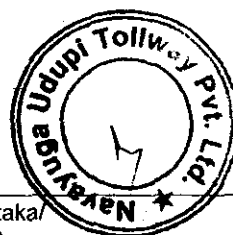
| S No. | Location of Toll Plaza | Length (in km) for which Fee payable. |
|-------|------------------------|---------------------------------------|
| 1.    | km 300+480             | 40.53                                 |
| 2.    | Km . 347+180           | 34.25                                 |
| 3.    | Km. 16.850             | 15.30                                 |

[F.No. RW/NH-\*\*\*\*\*]

(Name)

Deputy Secretary

Government of India



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1. **Short title and commencement.** - (1) These rules may be called the National Highways Fee (Determination of Rates and Collection) Rules, 2008.

(2) They shall come into force on the date of their publication in the Official Gazette.

(3) They shall not apply to agreements and contracts executed and bids invited prior to the publication of these rules.

2. **Definitions.** - (1) In these rules, unless the context otherwise requires, -

(a) "Act" means the National Highways Act, 1956;

(b) "base year" means the period from 1<sup>st</sup> April 2007 to 31<sup>st</sup> March 2008;

(c) "bypass" means a section of the national highway bypassing a town or city;

(d) "concessionaire" means a person with whom an agreement has been entered into under section 8A of the Act;

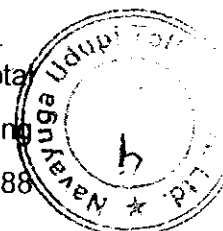
(e) "elevated highway" means any section of national highway raised above ground level through support of piers or columns;

(f) "executing authority" means an officer or authority notified by the Central Government under section 5 of the Act;

(g) "expressway" means a national highway having a divided carriageway suitable for high speed traffic and with control of access;

(h) "financial year" means the year commencing on the 1<sup>st</sup> day of April of a year and ending on 31<sup>st</sup> day of March of the succeeding year;

(i) "gross vehicle weight" in respect of any vehicle means the total weight of the vehicle and load certified and registered by the registering authority as permissible for that vehicle under the Motor Vehicles Act, 1988 (59 of 1988);



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(j) **"lane"** means a lane forming part of the main carriageway and having a minimum width of three meters and fifty centimeters;

(k) **"mechanical vehicle"** means any vehicle driven under its own power including a motor vehicle as defined under the Motor Vehicles Act, 1988;

(l) **"notification"** means a notification published in the Official Gazette;

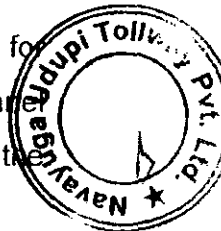
(m) **"private investment project"** means a project relating to section of national highway, permanent bridge, bypass or tunnel, as the case may be, for which an agreement is entered into with a concessionaire ;

(n) **"public funded project"** means a project which is not a private investment project, as defined in clause (m) above and includes a private investment project in respect of which the agreement has expired;

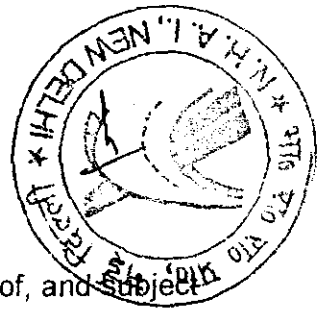
(o) **"toll plaza"** means any building, structure or booth made for collection of fee.

(2) Words and expressions used herein and not defined but defined in the National Highways Authority of India Act, 1988 shall have the meanings respectively assigned to them in that Act.

3. **Levy of fee.**- (1) The Central Government may by notification, levy fee for use of any section of national highway, permanent bridge, bypass or tunnel forming part of the national highway, as the case may be, in accordance with the provisions of these rules:



Provided that the Central Government may, by notification, exempt any section of national highway, permanent bridge, bypass or tunnel constructed



through a public funded project from levy of such fee or part thereof, and subject to such conditions as may be specified in that notification.

(2) The collection of fee levied under sub-rule (1), shall commence within forty- five days from the date of completion of the section of national highway, permanent bridge, bypass or tunnel, as the case may be, constructed through a public funded project.

(3) In case of private investment project, the collection of fee levied under sub-rule (1) shall be made in accordance with the terms of the agreement entered into by the concessionaire.

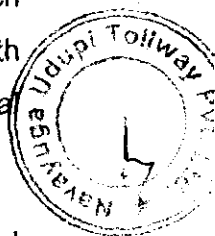
(4) No fee shall be levied for the use of the section of national highway, permanent bridge, bypass or tunnel, as the case may be, by two wheelers, three wheelers, tractors and animal drawn vehicles:

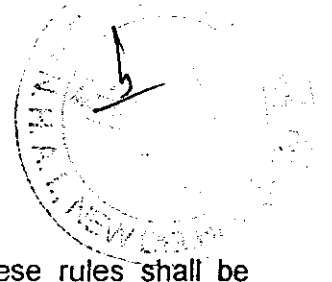
Provided that three wheelers, tractors and animal-drawn vehicles shall not be allowed to use the section of national highway, permanent bridge, bypass or tunnel, as the case may be, where a service road or alternative road is available in lieu of the said national highway, permanent bridge, bypass or tunnel:

Provided further that where service road or alternative road is available and the owner, driver or the person in charge of a two wheeler is making use of the section of national highway, permanent bridge, bypass or tunnel, as the case may be, he or she shall be charged fifty per cent. of the fee levied on a car.

*Explanation 1.*- For the purposes of this rule,- (a) "alternative road" means such other road, the carriageway of which is more than ten meters wide and the length of which does not exceed the corresponding length of such section of national highway by twenty per cent. thereof;

(b) "service road" means a road running parallel to a section of the national highway which provides access to the land adjoining such section of the national highway.





(5) The fee notified by the Central Government under these rules shall be rounded off and levied in multiple of the nearest rupees five.

4. **Base rate of fee.** - (1) The rate of fee for use of the section of national highway, permanent bridge, bypass or tunnel constructed through public funded project or private investment project shall be identical.

(2) The rate of fee for use of a section of national highway of four or more lanes shall, for the base year 2007-08, be the product of the length of such section multiplied by the following rates, namely:-

| Type of Vehicle  | Base rate of fee per km<br>(in rupees) |
|--|--|
| Car, Jeep, Van or Light Motor Vehicle  | 0.65                                   |
| Light Commercial Vehicle, Light Goods Vehicle or Mini Bus  | 1.05                                   |
| Bus or Truck   | 2.20                                   |
| Heavy Construction Machinery(HCM) or Earth Moving Equipment (EME) or Multi Axle Vehicle (MAV) (three to six axles) | 3.45                                   |
| Oversized Vehicles (seven or more axles)   | 4.20                                   |

Explanation.- For the purposes of this rule,-

(a) "car" or "jeep" or "van" or "light motor vehicle" means any mechanical vehicle the gross vehicle weight of which does not exceed seven thousand five hundred kilograms or the registered passenger carrying capability as specified in the certificate of registration issued under the Motor Vehicles Act, 1988 does not exceed twelve excluding the driver;

(b) "light commercial vehicle" or "light goods vehicle" or "mini bus" means any mechanical vehicle with a gross vehicle weight exceeding seven thousand five hundred kilograms but less than twelve thousand kilograms or the registered passenger carrying capability as specified in the certificate of registration issued under the Motor Vehicles Act, 1988, exceeds twelve but does not exceed thirty two excluding the driver;

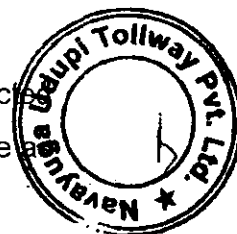
(c) "truck" or "bus" means any mechanical vehicle with a gross vehicle weight exceeding twelve thousand kilograms but less than twenty thousand kilograms or the registered passenger carrying capability as specified in the certificate of registration issued under the Motor Vehicles Act, 1988, exceeds thirty two, excluding the driver;

(d) "heavy construction machinery" or "earth moving equipment" or "multi axle vehicle " means heavy construction machinery or earth moving equipment or mechanical vehicle including a multi axle vehicle with three to six axles or vehicle with a gross vehicle weight exceeding twenty thousand kilograms but less than sixty thousand kilogram; and

(e) "oversized vehicle " means any mechanical vehicle having seven or more axles or vehicle with a gross vehicle weight exceeding sixty thousand kilograms.

(3) The rate of fee for use of a section of national highway, having two lanes and on which the average investment for up gradation has exceeded rupees one crore per kilometer, shall be sixty per cent. of the rate of fee specified under sub-rule (2).

(4) The rate of fee for use of permanent bridge, bypass or tunnel constructed with the cost exceeding rupees ten crore, shall, for the base year 2007-08, be as follows:-



| Base rate of fee (rupees per vehicle per trip)               |                                       |   |              |                 |                   |
|--|---------------------------------------|---|--------------|-----------------|-------------------|
| Cost of permanent bridge, bypass or tunnel (rupees in crore) | Car, Jeep, Van or Light Motor Vehicle | Light Commercial Vehicle, Light Goods Vehicle or Mini Bus | Truck or Bus | HCM, EME or MAV | Oversized Vehicle |
| 10 to 15   | 5                                     | 7.50  | 15           | 22              | 30                |
| For every additional rupees five crore or part               | 1                                     | 1.50  | 3            | 4.50            | 6                 |

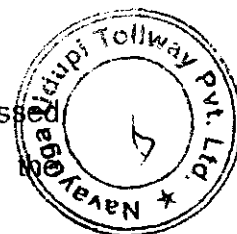
|   |      |      |      |      |      |
|---|------|------|------|------|------|
| thereof, exceeding rupees fifteen crore and up to rupees one hundred crore.   |      |      |      |      |      |
| For every additional rupees five crore or part thereof, exceeding rupees one hundred crore and upto rupees two hundred crore. | 0.75 | 1.15 | 2.25 | 3.40 | 4.50 |
| For every additional rupees five crore or part thereof, exceeding rupees two hundred crore.                                   | 0.50 | 0.75 | 1.50 | 2.25 | 3    |

Provided that while computing fee for the section of national highway on which a permanent bridge, bypass or tunnel costing rupees fifty crore or more is situated, the length of such permanent bridge, bypass or tunnel shall be excluded from the length of such section of national highway and fee shall be levied at the rates specified for such permanent bridge, bypass and tunnel:

Provided further that where the cost of such permanent bridge, bypass or tunnel, as the case may be, is less than rupees fifty crore, and the said permanent bridge, bypass or tunnel, form part of the section of national highway, then instead of above rate of fee, the rate of fee specified under sub-rule (2) shall be applicable, for such permanent bridge, bypass or tunnel.

Explanation.- For the purpose of this sub-rule,-

- the cost for private investment project, shall be the cost as assessed by the executing authority prior to invitation of bids from the concessionaire ;
- the cost for public funded project shall be the cost as assessed by the executing authority six months prior to completion thereof.





**5. Annual revision of rate of fee.-(1)** The rates specified under rule 4 shall be increased without compounding, by three per cent. each year with effect from the 1<sup>st</sup> day of April, 2008 and such increased rate shall be deemed to be the base rate for the subsequent years.

(2) The applicable base rates shall be revised annually with effect from April 1 each year to reflect the increase in wholesale price index between the week ending on January 6, 2007 (i.e. 208.7) and the week ending on or immediately after January 1 of the year in which such revision is undertaken but such revision shall be restricted to forty per cent of the increase in wholesale price index.

(3) The formula for determining the applicable rate of fee shall be as follows:-

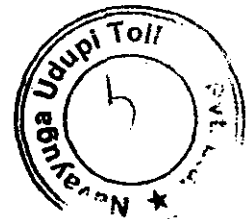
$$\text{Applicable rate of fee} = \text{base rate} + \text{base rate} \times \left\{ \frac{\text{WPI A} - \text{WPI B}}{\text{WPI B}} \right\} \times 0.4$$

*Explanation.-* for the purposes of this sub-rule , -

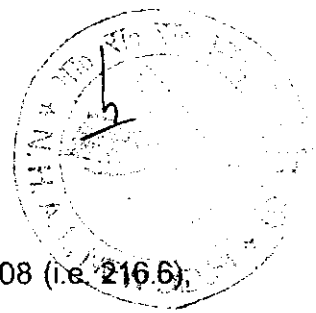
- (a) applicable rate of fee shall be the rate payable by the user;
- (b) base rate shall be the rate specified in rule 4 read with sub- rule (1);
- (c) WPI A means the wholesale price index of the week ending on or subsequent to 1st January immediately preceding the date of revision under these rules; and
- (d) WPI B means the wholesale price index of the week ending on 6<sup>th</sup> January, 2007 i.e. 208.7.

**Illustration:**

If the revision is to be made for the year 2008-09 by applying the







wholesale price index of the week ending on 5<sup>th</sup> January 2008 (i.e. 216.6),  
then the rate for car, jeep or van will be 0.6796 as computed below:

$$\text{Applicable rate of fee: } 0.6695 \cdot 0.6695 \times \left\{ \frac{216.6 - 208.7}{208.7} \right\} \times 0.4 =$$
$$0.6796$$

(4) Annual revision of rate of fee under this rule shall be effective from first of April every year.

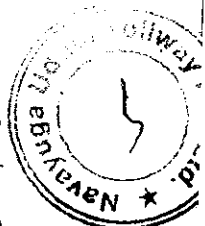
**6. Collection of fee.-** (1) Fee levied under these rules shall be collected by the Central Government or the executing authority or the concessionaire, as the case may be, at the toll plaza.

(2) Every driver, owner or person in charge of a mechanical vehicle shall for the use of the section of national highway, permanent bridge, bypass or tunnel, before crossing the toll plaza, pay the fee specified under these rules.

(3) The fee collected under these rules shall be paid either in cash or through smart card or on board unit (transponder) or any other like device:

Provided that no additional charges shall be realised for making the payment of fee by use of a smart card or on board unit (transponder) or any other such device.

(4) Any driver, owner or person in charge of a mechanical vehicle who opts for the installation of on board unit (transponder) or any other such device for payment of fee, shall deposit a refundable security equivalent to the cost of the equipment with the Central Government, the executing authority or the concessionaire, as the case may be, for such installation and no interest shall accrue on such security deposit.



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(5) The person receiving such fee under sub-rule (2), shall issue to the driver, owner or person in charge of mechanical vehicle a receipt, specifying therein the date and time of such receipt of fee, total amount received, and the class of vehicle for which the fee has been received:

Provided that where the fee is paid through smart card or on board unit (transponder) or any other such device, a receipt shall be issued on demand only.

(6) The fee shall be collected in perpetuity by the Central Government or the executing authority, as the case may be, and for a specified period in accordance with the terms of the agreement entered into by the concessionaire.

(7) In respect of public funded projects the fee levied under these rules shall be collected by the Central Government, or the executing authority, as the case may be, through its own officials or through a contractor.

**7. Remittance and appropriation of fee.-** (1) In case of public funded projects, the fee collected under the provisions of these rules by every executing authority shall be remitted to the Central Government:

Provided that the Central Government may by notification allow any or all executing authorities to appropriate the whole or any part of the fee for such purposes and subject to such conditions as may be specified in the said notification:

Provided further that in case of private investment projects, the fee collected under the provisions of these rules shall be appropriated by the concessionaire in accordance with the provisions of and for the performance of its obligations under the agreement entered into by such concessionaire.

(2) Every executing authority shall remit to the Central Government, the amount of fee collected over and above the amount permitted to be appropriated by the executing authority under sub-rule (1), within ninety days from the date of the closing of the financial year along with an annual return showing the amount

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collected and the expenditure incurred on collection of fee, including the administrative and management expenses.

(3) The Central Government shall by notification determine the administrative and management expenses which may be allowed to be deducted and retained by the executing authority.

**8. Location of toll plaza.-** (1) The executing authority or the concessionaire, as the case may be, shall establish a toll plaza beyond a distance of ten kilometers from a municipal or local town area limits:

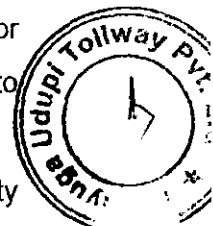
Provided that the executing authority may, for reasons to be recorded in writing, locate or allow the concessionaire to locate a toll plaza within a distance of ten kilometers of such municipal or local town area limits, but in no case within five kilometers of such municipal or local town area limits:

Provided further that where a section of the national highway, permanent bridge, bypass or tunnel, as the case may be, is constructed within the municipal or town area limits or within five kilometers from such limits, primarily for use of the residents of such municipal or town area, the toll plaza may be established within the municipal or town area limits or within a distance of five kilometers from such limits:

(2) Any other toll plaza on the same section of national highway and in the same direction shall not be established within a distance of sixty kilometers:

Provided that where the executing authority deems necessary, it may for reasons to be recorded in writing, establish or allow the concessionaire to establish another toll plaza within a distance of sixty kilometers:

Provided further that a toll plaza may be established within a distance of sixty kilometers from another toll plaza if such toll plaza is for collection of fee for a permanent bridge, bypass or tunnel.



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9. **Discounts.**-(1) The executing authority or the concessionaire, as the case may be, shall upon request provide a pass for multiple journeys to cross a toll plaza within the specified period at the rates specified in sub-rule (2).

(2) A driver, owner or person in charge of a mechanical vehicle who makes use of the section of national highway, permanent bridge, bypass or tunnel, may opt for such pass and he or she shall have to pay the fee in accordance with the following rates, namely:-

| Amount payable  | Maximum number of one way journeys allowed | Period of validity                         |
|---|--|--|
| One and half times of the fee for one way journey                 | Two  | Twenty four hours from the time of payment |
| Two-third of amount of the fee payable for fifty single journeys. | Fifty                                      | One month from date of payment             |

(3) A person who owns a mechanical vehicle registered for non-commercial purposes and uses it as such for commuting on a section of national highway, permanent bridge, bypass or tunnel, may obtain a pass, on payment of fee at the base rate for the year 2007-2008 of rupees one hundred and fifty per calendar month and revised annually in accordance with rule 5, authorising it to cross the toll plaza specified in such pass:

Provided that such pass shall be issued only if such driver, owner or person in charge of such mechanical vehicle resides within a distance of twenty kilometers from the toll plaza specified by such person and the use of such section of national highway, permanent bridge, bypass or tunnel, as the case may be, does not extend beyond the toll plaza next to the specified toll plaza.

Provided further that no such pass shall be issued if a service road or alternative road is available for use by such driver, owner or person in charge of a mechanical vehicle.

(4) No pass shall be issued or fee collected from a driver, owner or person in charge of a mechanical vehicle that uses part of the section of a national highway and does not cross a toll plaza.

**10. Rate of fee for overloading.-** (1) Without prejudice to the liability of the driver, owner or a person in charge of a mechanical vehicle under any law for the time being in force, a mechanical vehicle which is loaded in excess of the permissible load specified for its category under sub-rule (2) of rule 4, shall be liable to pay fee at such rate which is applicable for the next higher category of mechanical vehicles:

Provided that the payment of such fee for overloading shall not entitle a driver or owner or a person in charge of a mechanical vehicle to make use of such national highway and his or her vehicle shall be prevented from using the national highway or crossing the toll plaza until the excess load has been removed from such mechanical vehicle.

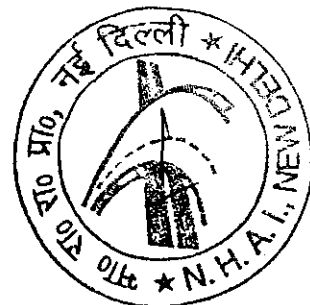
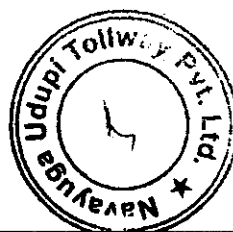
(2) The weight of a mechanical vehicle, as recorded at a weighbridge installed at the toll plaza, shall be the basis for levying the fee for overloading under this rule:

Provided that where no weighbridge has been installed at the toll plaza, no fee for overloading shall be levied and collected under this rule and the driver, owner or person in charge of the mechanical vehicle shall be liable to pay fee applicable for such vehicle only.

**11. Exemption from payment of fee.-** (1) No fee shall be levied and collected from a mechanical vehicle,-

(a) transporting and accompanying,-

- (i) the President of India;
- (ii) the Vice-President of India;
- (iii) the Prime-Minister of India;



- (iv) the Chief Justice of India;
- (v) the Governor;
- (vi) the Lieutenant Governor;
- (vii) the Union Minister;
- (viii) the Chief Minister;
- (ix) the Judge of Supreme Court;
- (x) the Chairman of the Council of State;
- (xi) the Speaker of the House of People;
- (xii) the Chairman of the Legislative Council of the State;
- (xiii) the Speaker of the Legislative Assembly of the State;
- (xiv) the Chief Justice of High Court;
- (xv) the Judge of High Court;
- (xvi) Ministers of States; and
- (xvii) Foreign dignitaries on State visit.

(b) used for official purposes by,-

- (i) the Ministry of Defence including those which are eligible for exemption in accordance with the provisions of the Indian Toll (Army and Air Force) Act, 1901 and rules made thereunder, as extended to Navy also;
- (ii) the Central and State armed forces in uniform including para military forces and police;
- (iii) an executive Magistrate;
- (iv) a fire-fighting department or organisation;
- (v) the National Highway Authority or any other organisation or person using such vehicle for inspection, survey, construction or operation and maintenance thereof; and

(c) used as ambulance.

**12. Display of Information.-** (1) The executing authority or the concessionaire, as the case may be, shall publish a notice specifying the amount of fee to be charged from the mechanical vehicle, in at least one Newspaper, each in English and vernacular language, having a wide circulation in such area.

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(2) The executing authority shall prominently display in Hindi and English one thousand meters ahead of the toll plaza and in English and local language five hundred meters ahead of the toll plaza,-

- (i) the amount of fee payable for each class of vehicles and the discounts available under rule 9;
- (ii) the categories of vehicles exempted from payment of fee; and
- (iii) the name, address and telephone or contact number of the executing authority or the concessionaire, as the case may be.

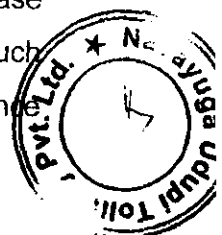
(3) The height of the display boards, their quality and size of lettering shall be clearly visible and legible to the users.

**13. Unauthorised collection.-** (1) An officer authorised by the Central Government or by the executing authority, as the case may be, may assess the excess fee collected, if any, by the executing authority or the concessionaire, as the case may be, and recover the same from such authority or concessionaire, along with an additional sum equal to twenty five per cent. of the excess fee collected:

Provided that no recovery of such excess fee shall be made unless an opportunity of hearing has been given to the executing authority or concessionaire, as the case may be.

(2) Any driver, owner or person incharge of a mechanical vehicle aggrieved by unauthorised collection of fee, may lodge a complaint with the officer authorised by the Central Government or the executing authority, as the case may be, in this behalf, who shall after hearing the parties pass an order on such complaint for refund of excess payment and damages for the inconvenience suffered by such user within thirty days.

**14. Failure to pay fee.-** (1) If any driver, owner or person in charge of a mechanical vehicle does not pay or refuses to pay the fee for use of national



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highway, permanent bridge, bypass or tunnel, his or her vehicle shall not be allowed to use such section of national highway, permanent bridge, bypass or tunnel and in case such vehicle obstructs the normal flow of traffic, the executing authority or the concessionaire, as the case may be, may get such obstructing vehicle removed from the national highway, permanent bridge, bypass or tunnel, as the case may be.

(2) Where the driver or the person in charge of a mechanical vehicle refuses or fails to pay the fee levied under these rules, the same shall be recovered from the registered owner of the mechanical vehicle.

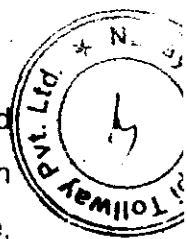
(3) Where the Central Government, executing authority or the concessionaire, as the case may be, has reason to believe that a mechanical vehicle is plying on a section of the national highway, permanent bridge, bypass or tunnel without payment of fee due, it may stop such vehicle for the purpose of verifying the payment thereof and collect the fee due from such vehicle.

**15. Power of Central Government to verify records.-** An officer duly authorised by the Central Government or the executing authority, as the case may be shall have the power to verify the collection of fee, and inspect any document, records, other information, receipts or reports of the executing authority or the concessionaire, as the case may be.

**16. Collection of fee in respect of Private Investment Project.-** (1) The fee levied under the provisions of sub-rule (3) of rule 3 shall be collected by the concessionaire till its agreement is in force.

(2) On and from the date of expiry of the agreement specified under sub-rule (3) of rule 3, the fee levied shall be collected by the Central Government or the executing authority, as the case may be.

**17. Bar for installation of additional barrier.-** No barrier shall be installed at any place, other than at the toll plaza, except with the prior permission in writing of the Central Government or the executing authority, as the case may be, who after being satisfied that there is evasion of fee, may allow on such terms and conditions as it may impose, the installation of such additional barrier by the





Central Government, the executing authority or the concessionaire, as the case may be, within ten kilometers from the toll plaza, to check the evasion of fee:

Provided that the Central Government or the executing authority, as the case may be, may, at any time, for reasons to be recorded in writing, withdraw such permission.

Provided further that where the Central Government or the executing authority, as the case may be, do not allow installation of an additional barrier by the concessionaire, the reasons for such refusal shall be communicated to such concessionaire within a reasonable period.



**SCHEDULE - S**  
(See Clause 31.1.2)

**ESCROW AGREEMENT**

THIS ESCROW AGREEMENT is entered into on this the \*\*\* day of \*\*\* 200\*.

**AMONGST**

- 1 M/s NAVAYUGA UDUPI TOLLWAY PRIVATE LIMITED], a company incorporated under the provisions of the Companies Act, 1956 and having its registered office at 1259, Lakshmi Towers, Road No. 36, Jubilee Hills Hyderabad-500033 (hereinafter referred to as the "Concessionaire" which expression shall, unless repugnant to the context or meaning thereof, include its successors, permitted assigns and substitutes);
- 2 \*\*\*\*[name and particulars of Lenders' Representative] and having its registered office at \*\*\* acting for and on behalf of the Senior Lenders as their duly authorised agent with regard to matters arising out of or in relation to this Agreement (hereinafter referred to as the "Lenders' Representative" which expression shall, unless repugnant to the context or meaning thereof, include its successors and substitutes);
- 3 \*\*\*\*[name and particulars of the Escrow Bank] and having its registered office at \*\*\*\*(hereinafter referred to as the "Escrow Bank" which expression shall, unless repugnant to the context or meaning thereof, include its successors and substitutes); and
- 4 The National Highways Authority of India, established under the National Highways Authority of India Act 1988, represented by its Chairman and having its principal offices at G-5 & 6, Sector 10, Dwarka, New Delhi-110075 (hereinafter referred to as the "Authority" which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns).

**WHEREAS:**

- (A). The Authority has entered into a Concession Agreement dated \*\*\* with the Concessionaire (the "Concession Agreement") for Four laning of Design, Engineering, Finance, Construction, Operation and Maintenance of NH-17 Kundapur- Surathkal section from km 283+300 to km 358+080(Section 1) and Mangalore- Kerala Border [km 375+300 to km 376+700 (i.e. Nantur circle to Mahaveer circle) and km 3+700 to km 17+200 (i.e. Mahaveer circle to Kerala border)] (Section 2) of total length 90.08 km under NHDP PHASE III on Build Operate and Transfer (BOT) Basis and a copy of which is annexed hereto and marked as Annex-A to form part of this Agreement.
- (B). Senior Lenders have agreed to finance the Project in accordance with the terms and conditions set forth in the Financing Agreements.
- (C). The Concession Agreement requires the Concessionaire to establish an Escrow Account, *inter alia*, on the terms and conditions stated therein.

NOW IT IS HEREBY AGREED as follows:

## 1 DEFINITIONS AND INTERPRETATION

### 1.1 Definitions

In this Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

"Agreement" means this Escrow Agreement and any amendment thereto made in accordance with the provisions contained herein;

"Concession Agreement" means the Concession Agreement referred to in Recital (A) above and annexed hereto as Annex-A, and shall include all of its Recitals and Schedules and any amendments made thereto in accordance with the provisions contained in this behalf therein;

"Cure Period" means the period specified in this Agreement for curing any breach or default of any provision of this Agreement by the Concessionaire, and shall commence from the date on which a notice is delivered by the Authority or the Lenders' Representative, as the case may be, to the Concessionaire asking the latter to cure the breach or default specified in such notice;

"Escrow Account" means an escrow account established in terms of and under this Agreement, and shall include the Sub-Accounts;

"Escrow Default" shall have the meaning ascribed thereto in Clause 6.1;

"Lenders' Representative" means the person referred to as the Lenders' Representative in the foregoing Recitals;

"Parties" means the parties to this Agreement collectively and "Party" shall mean any of the Parties to this Agreement individually;

"Payment Date" means, in relation to any payment specified in Clause 4.1, the date(s) specified for such payment; and

"Sub-Accounts" means the respective Sub-Accounts of the Escrow Account, into which the monies specified in Clause 4.1 would be credited every month and paid out if due, and if not due in a month then appropriated proportionately in such month and retained in the respective Sub Accounts and paid out therefrom on the Payment Date(s).

### 1.2 Interpretation

1.2.1 References to Lenders' Representative shall, unless repugnant to the context or meaning thereof, mean references to the Lenders' Representative, acting for and on behalf of Senior Lenders.

1.2.2 The words and expressions beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein, and the words and



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expressions used in this Agreement and not defined herein but defined in the Concession Agreement shall, unless repugnant to the context, have the meaning ascribed thereto in the Concession Agreement.

1.2.3 References to Clauses are, unless stated otherwise, references to Clauses of this Agreement.

1.2.4 The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Concession Agreement shall apply, *mutatis mutandis*, to this Agreement.

## **2 ESCROW ACCOUNT**

### **2.1 Escrow Bank to act as trustee**

2.1.1 The Concessionaire hereby appoints the Escrow Bank to act as trustee for the Authority, the Lenders' Representative and the Concessionaire in connection herewith and authorises the Escrow Bank to exercise such rights, powers, authorities and discretion as are specifically delegated to the Escrow Bank by the terms hereof together with all such rights, powers, authorities and discretion as are reasonably incidental hereto, and the Escrow Bank accepts such appointment pursuant to the terms hereof.

2.1.2 The Concessionaire hereby declares that all rights, title and interest in and to the Escrow Account shall be vested in the Escrow Bank and held in trust for the Authority, the Lenders' Representative and the Concessionaire, and applied in accordance with the terms of this Agreement. No person other than the Authority, the Lenders' Representative and the Concessionaire shall have any rights hereunder as the beneficiaries of or as third party beneficiaries under this Agreement.

### **2.2 Acceptance of Escrow Bank**

The Escrow Bank hereby agrees to act as such and to accept all payments and other amounts to be delivered to and held by the Escrow Bank pursuant to the provisions of this Agreement. The Escrow Bank shall hold and safeguard the Escrow Account during the term of this Agreement and shall treat the amount in the Escrow Account as monies deposited by the Concessionaire, Senior Lenders or the Authority with the Escrow Bank. In performing its functions and duties under this Agreement, the Escrow Bank shall act in trust for the benefit of, and as agent for, the Authority, the Lenders' Representative and the Concessionaire or their nominees, successors or assigns, in accordance with the provisions of this Agreement.

### **2.3 Establishment and operation of Escrow Account**

2.3.1 Within 30 (thirty) days from the date of this Agreement, and in any case prior to the Appointed Date, the Concessionaire shall open and establish the Escrow Account with the \*\*\*\* (name of Branch) Branch of the Escrow Bank. The Escrow Account shall be denominated in Rupees.

2.3.2 The Escrow Bank shall maintain the Escrow Account in accordance with the terms of this Agreement and its usual practices and applicable regulations, and pay the maximum rate of interest payable to similar customers on the balance in the said account from time to time.



2.3.3 The Escrow Bank and the Concessionaire shall, after consultation with the Lenders' Representative, agree on the detailed mandates, terms and conditions, and operating procedures for the Escrow Account, but in the event of any conflict or inconsistency between this Agreement and such mandates, terms and conditions, or procedures, this Agreement shall prevail.

#### 2.4 Escrow Bank's fee

The Escrow Bank shall be entitled to receive its fee and expenses in an amount, and at such times, as may be agreed between the Escrow Bank and the Concessionaire. For the avoidance of doubt, such fee and expenses shall form part of the O&M Expenses and shall be appropriated from the Escrow Account in accordance with Clause 4.1.

#### 2.5 Rights of the parties

The rights of the Authority, the Lenders' Representative and the Concessionaire in the monies held in the Escrow Account are set forth in their entirety in this Agreement and the Authority, the Lenders' Representative and the Concessionaire shall have no other rights against or to the monies in the Escrow Account.

#### 2.6 Substitution of the Concessionaire

The Parties hereto acknowledge and agree that upon substitution of the Concessionaire with the Nominated Company, pursuant to the Substitution Agreement, it shall be deemed for the purposes of this Agreement that the Nominated Company is a Party hereto and the Nominated Company shall accordingly be deemed to have succeeded to the rights and obligations of the Concessionaire under this Agreement on and with effect from the date of substitution of the Concessionaire with the Nominated Company.

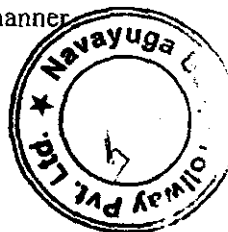
### 3 DEPOSITS INTO ESCROW ACCOUNT

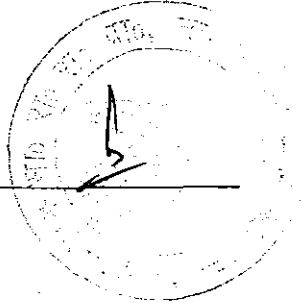
#### 3.1 Deposits by the Concessionaire

3.1.1 The Concessionaire agrees and undertakes that it shall deposit into and/or credit the Escrow Account with:

- (a) all monies received in relation to the Project from any source, including the Senior Lenders, lenders of Subordinated Debt and the Authority;
- (b) all funds received by the Concessionaire from its share-holders, in any manner or form;
- (c) all Fee levied and collected by the Concessionaire;
- (d) any other revenues from or in respect of the Project Highway; and
- (d) all proceeds received pursuant to any insurance claims.

3.1.2 The Concessionaire may at any time make deposits of its other funds into the Escrow Account, provided that the provisions of this Agreement shall apply to such deposits.





### 3.2 Deposits by the Authority

The Authority agrees and undertakes that, as and when due and payable, it shall deposit into and/or credit the Escrow Account with:

- (a) Grant and any other monies disbursed by the Authority to the Concessionaire;
- (b) Revenue Shortfall Loan;
- (c) all Fee collected by the Authority in exercise of its rights under the Concession Agreement; and
- (d) Termination Payments:

Provided that the Authority shall be entitled to appropriate from the aforesaid amounts, any Concession Fee due and payable to it by the Concessionaire, and the balance remaining shall be deposited into the Escrow Account.

### 3.3 Deposits by Senior Lenders

The Lenders' Representative agrees, confirms and undertakes that the Senior Lenders shall deposit into and/or credit the Escrow Account with all disbursements made by them in relation to or in respect of the Project; provided that notwithstanding anything to the contrary contained in this Agreement, the Senior Lenders shall be entitled to make direct payments to the EPC Contractor under and in accordance with the express provisions contained in this behalf in the Financing Agreements.

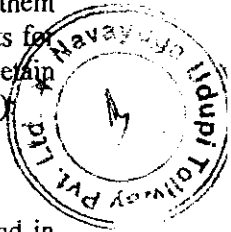
### 3.4 Interest on deposits

The Escrow Bank agrees and undertakes that all interest accruing on the balances of the Escrow Account shall be credited to the Escrow Account; provided that the Escrow Bank shall be entitled to appropriate therefrom the fee and expenses due to it from the Concessionaire in relation to the Escrow Account and credit the balance remaining to the Escrow Account.

## 4 WITHDRAWALS FROM ESCROW ACCOUNT

### 4.1 Withdrawals during Concession Period

- 4.1.1 At the beginning of every month, or at such shorter intervals as the Lenders' Representative and the Concessionaire may by written instructions determine, the Escrow Bank shall withdraw amounts from the Escrow Account and appropriate them in the following order by depositing such amounts in the relevant Sub-Accounts for making due payments, and if such payments are not due in any month, then retain such monies in such Sub-Accounts and pay out therefrom on the Payment Date(s).

- (a) all taxes due and payable by the Concessionaire;
  - (b) all payments relating to construction of the Project Highway, subject to and in accordance with the conditions, if any, set forth in the Financing Agreements;
  - (c) O&M Expenses, subject to the ceiling, if any, set forth in the Financing Agreements;
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- (d) O&M Expenses incurred by the Authority, provided it certifies to the Escrow Bank that it had incurred such expenses in accordance with the provisions of the Concession Agreement and that the amounts claimed are due to it from the Concessionaire;
  - (e) Concession Fee due and payable to the Authority;
  - (f) monthly proportionate provision of Debt Service due in an Accounting Year;
  - [(g) Deleted;]
  - (h) all payments and Damages certified by the Authority as due and payable to it by the Concessionaire pursuant to the Concession Agreement, including repayment of Revenue Shortfall Loan;
  - (i) debt service payments in respect of Subordinated Debt;
  - (j) any reserve requirements set forth in the Financing Agreements; and
  - (k) balance, if any, in accordance with the instructions of the Concessionaire.
- 4.1.2 Not later than 60 (sixty) days prior to the commencement of each Accounting Year, the Concessionaire shall provide to the Escrow Bank, with prior written approval of the Lenders' Representative, details of the amounts likely to be required for each of the payment obligations set forth in this Clause 4.1; provided that such amounts may be subsequently modified, with prior written approval of the Lenders' Representative, if fresh information received during the course of the year makes such modification necessary.

#### 4.2 Withdrawals upon Termination

Upon Termination of the Concession Agreement, all amounts standing to the credit of the Escrow Account shall, notwithstanding anything in this Agreement, be appropriated and dealt with in the following order:

- (a) all taxes due and payable by the Concessionaire;
- (b) 90% (ninety per cent) of Debt Due excluding Subordinated Debt;
- (c) outstanding Concession Fee;
- (d) all payments and Damages certified by the Authority as due and payable to it by the Concessionaire pursuant to the Concession Agreement, including repayment of Revenue Shortfall Loan and any claims in connection with or arising out of Termination;
- (e) retention and payments arising out of, or in relation to, liability for defects and deficiencies set forth in Article 39 of the Concession Agreement;
- (f) outstanding Debt Service including the balance of Debt Due;
- (g) outstanding Subordinated Debt;

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- (h) incurred or accrued O&M Expenses;
  - (i) any other payments required to be made under the Concession Agreement; and
  - (j) balance, if any, in accordance with the instructions of the Concessionaire:

Provided that the disbursements specified in Sub-clause (j) of this Clause 4.2 shall be undertaken only after the Vesting Certificate has been issued by the Authority.

#### **4.3 Application of insufficient funds**

Funds in the Escrow Account shall be applied in the serial order of priority set forth in Clauses 4.1 and 4.2, as the case may be. If the funds available are not sufficient to meet all the requirements, the Escrow Bank shall apply such funds in the serial order of priority until exhaustion thereof.

#### **4.4 Application of insurance proceeds**

Notwithstanding anything in this Agreement, the proceeds from all insurance claims, except life and injury, shall be deposited into and/or credited to the Escrow Account and utilised for any necessary repair, reconstruction, reinstatement, replacement, improvement, delivery or installation of the Project Highway, and the balance remaining, if any, shall be applied in accordance with the provisions contained in this behalf in the Financing Agreements.

#### **4.5 Withdrawals during Suspension**

Notwithstanding anything to the contrary contained in this Agreement, the Authority may exercise all or any of the rights of the Concessionaire during the period of Suspension under Article 36 of the Concession Agreement. Any instructions given by the Authority to the Escrow Bank during such period shall be complied with as if such instructions were given by the Concessionaire under this Agreement and all actions of the Authority hereunder shall be deemed to have been taken for and on behalf of the Concessionaire.

### **5 OBLIGATIONS OF THE ESCROW BANK**

#### **5.1 Segregation of funds**

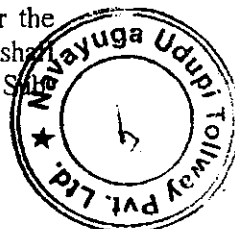
Monies and other property received by the Escrow Bank under this Agreement shall, until used or applied in accordance with this Agreement, be held by the Escrow Bank in trust for the purposes for which they were received, and shall be segregated from other funds and property of the Escrow Bank.

#### **5.2 Notification of balances**

7 (seven) business days prior to each Payment Date (and for this purpose the Escrow Bank shall be entitled to rely on an affirmation by the Concessionaire and/or the Lenders' Representative as to the relevant Payment Dates), the Escrow Bank shall notify the Lenders' Representative of the balances in the Escrow Account and Sub-Accounts as at the close of business on the immediately preceding business day.

#### **5.3 Communications and notices**

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In discharge of its duties and obligations hereunder, the Escrow Bank:

- (a) may, in the absence of bad faith or gross negligence on its part, rely as to any matters of fact which might reasonably be expected to be within the knowledge of the Concessionaire upon a certificate signed by or on behalf of the Concessionaire;
- (b) may, in the absence of bad faith or gross negligence on its part, rely upon the authenticity of any communication or document believed by it to be authentic;
- (c) shall, within 5 (five) business days after receipt, deliver a copy to the Lenders' Representative of any notice or document received by it in its capacity as the Escrow Bank from the Concessionaire or any other person hereunder or in connection herewith; and
- (d) shall, within 5 (five) business days after receipt, deliver a copy to the Concessionaire of any notice or document received by it from the Lenders' Representative in connection herewith.

#### 5.4 No set off

The Escrow Bank agrees not to claim or exercise any right of set off, banker's lien or other right or remedy with respect to amounts standing to the credit of the Escrow Account. For the avoidance of doubt, it is hereby acknowledged and agreed by the Escrow Bank that the monies and properties held by the Escrow Bank in the Escrow Account shall not be considered as part of the assets of the Escrow Bank and being trust property, shall in the case of bankruptcy or liquidation of the Escrow Bank, be wholly excluded from the assets of the Escrow Bank in such bankruptcy or liquidation.

#### 5.5 Regulatory approvals

The Escrow Bank shall use its best efforts to procure, and thereafter maintain and comply with, all regulatory approvals required for it to establish and operate the Escrow Account. The Escrow Bank represents and warrants that it is not aware of any reason why such regulatory approvals will not ordinarily be granted to the Escrow Bank.

### 6 ESCROW DEFAULT

#### 6.1 Escrow Default

6.1.1 Following events shall constitute an event of default by the Concessionaire (an "Escrow Default") unless such event of default has occurred as a result of Force Majeure or any act or omission of the Authority or the Lenders' Representative:

- (a) the Concessionaire commits breach of this Agreement by failing to deposit any receipts into the Escrow Account as provided herein and fails to cure such breach by depositing the same into the Escrow Account within a Cure Period of 5 (five) business days;
- (b) the Concessionaire causes the Escrow Bank to transfer funds to any account of the Concessionaire in breach of the terms of this Agreement and fails to cure



such breach by depositing the relevant funds into the Escrow Account or any Sub-Account in which such transfer should have been made, within a Cure Period of 5 (five) business days; or

- (c) the Concessionaire commits or causes any other breach of the provisions of this Agreement and fails to cure the same within a Cure Period of 5 (five) business days.

6.1.2 Upon occurrence of an Escrow Default, the consequences thereof shall be dealt with under and in accordance with the provisions of the Concession Agreement.

## 7 TERMINATION OF ESCROW AGREEMENT

### 7.1 Duration of the Escrow Agreement

This Agreement shall remain in full force and effect so long as any sum remains to be advanced or is outstanding from the Concessionaire in respect of the debt, guarantee or financial assistance received by it from the Senior Lenders, or any of its obligations to the Authority remain to be discharged, unless terminated earlier by consent of all the Parties or otherwise in accordance with the provisions of this Agreement.

### 7.2 Substitution of Escrow Bank

The Concessionaire may, by not less than 45 (forty five) days prior notice to the Escrow Bank, the Authority and the Lenders' Representative, terminate this Agreement and appoint a new Escrow Bank, provided that the new Escrow Bank is acceptable to the Lenders' Representative and arrangements are made satisfactory to the Lenders' Representative for transfer of amounts deposited in the Escrow Account to a new Escrow Account established with the successor Escrow Bank. The termination of this Agreement shall take effect only upon coming into force of an Escrow Agreement with the substitute Escrow Bank.

### 7.3 Closure of Escrow Account

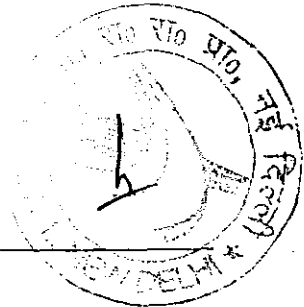
The Escrow Bank shall, at the request of the Concessionaire and the Lenders' Representative made on or after the payment by the Concessionaire of all outstanding amounts under the Concession Agreement and the Financing Agreements including the payments specified in Clause 4.2, and upon confirmation of receipt of such payments, close the Escrow Account and Sub-Accounts and pay any amount standing to the credit thereof to the Concessionaire. Upon closure of the Escrow Account hereunder, the Escrow Agreement shall be deemed to be terminated.

## 8 SUPPLEMENTARY ESCROW AGREEMENT

### 8.1 Supplementary escrow agreement

The Lenders' Representative and the Concessionaire shall be entitled to enter into a supplementary escrow agreement with the Escrow Bank providing, *inter alia*, for detailed procedures and documentation for withdrawals from Sub-Accounts pursuant to Clause 4.1.1 and for matters not covered under this Agreement such as the rights and obligations of Senior Lenders and lenders of Subordinated Debt, investment of





surplus funds, restrictions on withdrawals by the Concessionaire in the event of breach of this Agreement or upon occurrence of an Escrow Default, procedures relating to operation of the Escrow Account and withdrawal therefrom, reporting requirements and any matters incidental thereto; provided that such supplementary escrow agreement shall not contain any provision which is inconsistent with this Agreement and in the event of any conflict or inconsistency between provisions of this Agreement and such supplementary escrow agreement, the provisions of this Agreement shall prevail.

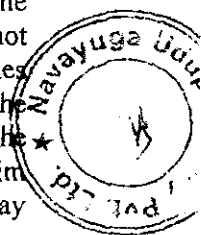
## 9 INDEMNITY

### 9.1 General indemnity

- 9.1.1 The Concessionaire will indemnify, defend and hold the Authority, Escrow Bank and the Senior Lenders, acting through the Lenders' Representative, harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of any breach by the Concessionaire of any of its obligations under this Agreement or on account of failure of the Concessionaire to comply with Applicable Laws and Applicable Permits.
- 9.1.2 The Authority will indemnify, defend and hold the Concessionaire harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of the Authority to fulfil any of its obligations under this Agreement materially and adversely affecting the performance of the Concessionaire's obligations under the Concession Agreement or this Agreement other than any loss, damage, cost and expense arising out of acts done in discharge of their lawful functions by the Authority, its officers, servants and agents.
- 9.1.3 The Escrow Bank will indemnify, defend and hold the Concessionaire harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of the Escrow Bank to fulfil its obligations under this Agreement materially and adversely affecting the performance of the Concessionaire's obligations under the Concession Agreement other than any loss, damage, cost and expense, arising out of acts done in discharge of their lawful functions by the Escrow Bank, its officers, servants and agents.

### 9.2 Notice and contest of claims

In the event that any Party hereto receives a claim from a third party in respect of which it is entitled to the benefit of an indemnity under Clause 9.1 or in respect of which it is entitled to reimbursement (the "**Indemnified Party**"), it shall notify the other Party responsible for indemnifying such claim hereunder (the "**Indemnifying Party**") within 15 (fifteen) days of receipt of the claim and shall not settle or pay the claim without the prior approval of the Indemnifying Party, which approval shall not be unreasonably withheld or delayed. In the event that the Indemnifying Party wishes to contest or dispute the claim, it may conduct the proceedings in the name of the Indemnified Party and shall bear all costs involved in contesting the same. The Indemnified Party shall provide all cooperation and assistance in contesting any claim and shall sign all such writings and documents as the Indemnifying Party may reasonably require.



## **10 DISPUTE RESOLUTION**

### **10.1 Dispute resolution**

- 10.1.1 Any dispute, difference or claim arising out of or in connection with this Agreement, which is not resolved amicably, shall be decided finally by reference to arbitration to a Board of Arbitrators comprising one nominee of each Party to the dispute, and where the number of such nominees is an even number, the nominees shall elect another person to such Board. Such arbitration shall be held in accordance with the Rules of Arbitration of the Indian Council of Arbitration, and shall be subject to the provisions of the Arbitration and Conciliation Act, 1996.
- 10.1.2 The Arbitrators shall issue a reasoned award and such award shall be final and binding on the Parties. The venue of arbitration shall be Delhi and the language of arbitration shall be English.

## **11 MISCELLANEOUS PROVISIONS**

### **11.1 Governing law and jurisdiction**

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the Courts at Delhi shall have jurisdiction over all matters arising out of or relating to this Agreement.

### **11.2 Waiver of sovereign immunity**

The Authority unconditionally and irrevocably:

- (a) agrees that the execution, delivery and performance by it of this Agreement constitute commercial acts done and performed for commercial purpose;
- (b) agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the Authority with respect to its assets;
- (c) waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and
- (d) consents generally in respect of the enforcement of any judgement or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgement that may be made or given in connection therewith).

### **11.3 Priority of agreements**

In the event of any conflict between the Concession Agreement and this Agreement, the provisions contained in the Concession Agreement shall prevail over this Agreement.



**11.4 Alteration of terms**

All additions, amendments, modifications and variations to this Agreement shall be effectual and binding only if in writing and signed by the duly authorised representatives of the Parties.

**11.5 Waiver**

**11.5.1** Waiver by any Party of a default by another Party in the observance and performance of any provision of or obligations under this Agreement:

(a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;

(b) shall not be effective unless it is in writing and executed by a duly authorised representative of the Party; and

(c) shall not affect the validity or enforceability of this Agreement in any manner.

**11.5.2** Neither the failure by any Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by any Party to another Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

**11.6 No third party beneficiaries**

This Agreement is solely for the benefit of the Parties and no other person or entity shall have any rights hereunder.

**11.7 Survival**

**11.7.1 Termination of this Agreement:**

(a) shall not relieve the Parties of any obligations hereunder which expressly or by implication survive termination hereof; and

(b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, shall not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of, or caused by, acts or omissions of such Party prior to the effectiveness of such termination or arising out of such termination.

**11.7.2** All obligations surviving the cancellation, expiration or termination of this Agreement shall only survive for a period of 3 (three) years following the date of such termination or expiry of this Agreement.

**11.8 Severability**

If for any reason whatever any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and



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the Parties will negotiate in good faith with a view to agreeing to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to dispute resolution under Clause 10.1 of this Agreement or otherwise.

**11.9 Successors and assigns**

This Agreement shall be binding on and shall inure to the benefit of the Parties and their respective successors and permitted assigns.

**11.10 Notices**

All notices or other communications to be given or made under this Agreement shall be in writing and shall either be delivered personally or sent by courier or registered post with an additional copy to be sent by facsimile. The address for service of each Party and its facsimile number are set out under its name on the signing pages hereto. A notice shall be effective upon actual receipt thereof, save that where it is received after 5.30 (five thirty) p.m. on a business day, or on a day that is not a business day, the notice shall be deemed to be received on the first business day following the date of actual receipt. Without prejudice to the foregoing, a Party giving or making a notice or communication by facsimile shall promptly deliver a copy thereof personally, or send it by courier or registered post to the addressee of such notice or communication. It is hereby agreed and acknowledged that any Party may by notice change the address to which such notices and communications to it are to be delivered or mailed. Such change shall be effective when all the Parties have notice of it.

**11.11 Language**

All notices, certificates, correspondence and proceedings under or in connection with this Agreement shall be in English.

**11.12 Authorised representatives**

Each of the Parties shall, by notice in writing, designate their respective authorised representatives through whom only all communications shall be made. A Party hereto shall be entitled to remove and/or substitute or make fresh appointment of such authorised representative by similar notice.

**11.13 Original Document**

This Agreement may be executed in four counterparts, each of which when executed and delivered shall constitute an original of this Agreement.



IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED  
THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED, SEALED AND DELIVERED  
For and on behalf of  
CONCESSIONAIRE by:

(Signature)  
(Name)  
(Designation)  
(Address)  
(Fax No.)

SIGNED, SEALED AND DELIVERED  
For and on behalf of ESCROW BANK by

(Signature)  
(Name)  
(Designation)  
(Address)  
(Fax No.)

In the presence of;

1.

SIGNED, SEALED AND DELIVERED  
For and on behalf of SENIOR LENDERS by the  
Lenders' Representative:

(Signature)  
(Name)  
(Designation)  
(Address)  
(Fax No.)

SIGNED, SEALED AND DELIVERED  
For and on behalf of NATIONAL HIGHWAY  
AUTHORITY OF INDIA by:

(Signature)  
(Name)  
(Designation)  
(Address)  
(Fax No.)

2.





**SCHEDULE - T**  
(See Clause 33.2.1)

**PANEL OF CHARTERED ACCOUNTANTS**

**1 Panel of Chartered Accountants**

Pursuant to the provisions of Clause 33.2.1 of the Agreement, the Authority and the Concessionaire shall prepare a mutually agreed panel of 10 (ten) reputable firms of Chartered Accountants having their registered offices in India (the "Panel of Chartered Accountants"). The criteria for preparing such Panel and the procedure to be adopted in this behalf shall be as set forth in this Schedule-T.

**2 Invitation for empanelment**

2.1 The Authority shall invite offers from all reputable firms of Chartered Accountants who fulfil the following eligibility criteria, namely:

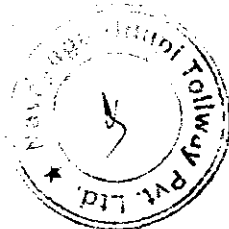
- (a) the firm should have conducted statutory audit of the annual accounts of at least one hundred companies registered under the Companies Act, 1956, of which at least ten should have been public sector undertakings;
- (b) the firm should have at least 5 (five) practising Chartered Accountants on its rolls, each with a minimum experience of ten years in the profession;
- (c) the firm or any of its partners should not have been disqualified or black-listed by the Comptroller and Auditor General of India or the Authority; and
- (d) the firm should have an office in the State or in an adjacent State with at least 2 (two) practising Chartered Accountants on its rolls in such State.

2.2 Interested firms meeting the eligibility criteria shall be required to submit a statement of their capability including the bio-data of all the practising Chartered Accountants on its rolls. In particular, each firm shall be required to furnish year-wise information relating to the names of all the companies with an annual turnover exceeding Rs. 100,00,00,000 (Rs. One hundred crore) whose annual accounts were audited by such firm in any of the preceding 5 (five) Accounting Years.

**3 Evaluation and selection**

3.1 The information furnished by each firm shall be scrutinised and evaluated by the Authority and 1 (one) point shall be awarded for each annual audit of the companies specified in Paragraph 2.2 above. (For the avoidance of doubt, a firm which has conducted audit of the annual accounts of any such company for five years shall be awarded five points).

3.2 The Authority shall prepare a list of all the eligible firms along with the points scored by each such firm and 10 (ten) firms scoring the highest points shall be identified and included in the draft Panel of Chartered Accountants.



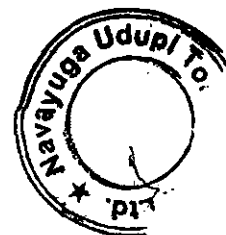
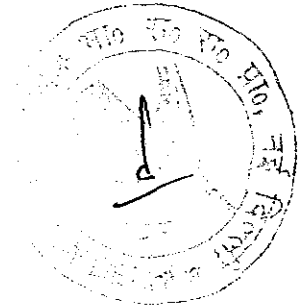


**4 Consultation with the Concessionaire**

The Authority shall convey the aforesaid panel of firms to the Concessionaire for scrutiny and comments, if any. The Concessionaire shall be entitled to scrutinise the relevant records of the Authority to ascertain whether the selection of firms has been undertaken in accordance with the prescribed procedure and it shall send its comments, if any, to the Authority within 15 (fifteen) days of receiving the aforesaid panel.

**5 Mutually agreed panel**

- 5.1 The Authority shall, after considering all relevant factors including the comments, if any, of the Concessionaire, finalise and constitute a panel of 10 (ten) firms which shall be deemed to be the mutually agreed Panel of Chartered Accountants.
- 5.2 After completion of every five years from the date of preparing the mutually agreed Panel of Chartered Accountants, or such earlier period as may be agreed between the Authority and the Concessionaire, a new panel shall be prepared in accordance with the provisions of this Schedule - T.



**Schedule-U**  
(See clause 38.3)

**VESTING CERTIFICATE**

1. The Chairman, National Highways Authority of India (the "Authority") refers to the Concession Agreement dated \*\*\* (the "Agreement") entered into between the Authority and M/s Navayuga Udupi Tollway Private Limited (the "Concessionaire") Design, Engineering, Finance, Construction, Operation and Maintenance of 4 laning of NH-17, Kundapur- Surathkal section from km 283.300 to km 358.080 (Section 1) and Mangalore- Kerala Border [km 375.300 to km 376.700 (i.e. Nantur circle to Mahaveer circle) and km 3.700 to km 17.200 (i.e. Mahaveer circle to Kerala border)] (Section 2) of total length 90.08 km in the State of Karnataka under NHDP PHASE III on Build, Operate and Transfer ("BOT") Basis.
2. The Authority hereby acknowledges compliance and fulfillment by the Concessionaire of the Divestment Requirements set forth in Clause 38.1 of the Agreement on the basis that upon issue of this Vesting Certificate, the Authority shall be deemed to have acquired, and all title and interest of the Concessionaire in or about the Project Highway shall be deemed to have vested unto the Authority, free from any encumbrances, charges and liens whatsoever.
3. Notwithstanding anything to the contrary contained hereinabove, it shall be a condition of this Vesting Certificate that nothing contained herein shall be construed or interpreted as waiving the obligation of the Concessionaire to rectify and remedy any defect or deficiency in any of the Divestment Requirements and/or relieving the Concessionaire in any manner of the same.

Signed this \*\*\* day of \*\*\*, 200\* at Delhi.

AGREED, ACCEPTED AND SIGNED  
DELIVERED For and on behalf of  
CONCESSIONAIRE by:

SIGNED, SEALED AND  
For and on behalf of  
NATIONAL HIGHWAYS AUTHORITY OF  
INDIA by:

Signature  
Name  
Designation  
Address

Signature  
Name  
Designation  
Address

In the presence of  
1.

2.



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**SCHEDULE - V**  
(See Clause 40.3.1)

**SUBSTITUTION AGREEMENT**

THIS SUBSTITUTION AGREEMENT is entered into on this the \*\*\* day of \*\*\* 200\*.

**AMONGST**

- 1 The National Highways Authority of India, established under the National Highways Authority of India Act 1988, represented by its Chairman and having its principal offices at G-5 & 6, Sector 10, Dwarka, New Delhi-110075 (hereinafter referred to as the "Authority" which expression shall unless repugnant to the context or meaning thereof include its administrators, successors and assigns);
- 2 M/s NAVAYUGA UDUPI TOLLWAY PRIVATE LIMITED, a company incorporated under the provisions of the Companies Act, 1956 and having its registered office at 1259, Lakshmi Towers, Road No:36, Jubilee Hills, Hyderabad-500033, Andhra Pradesh, (hereinafter referred to as the "Concessionaire" which expression shall unless repugnant to the context or meaning thereof include its successors and permitted assigns and substitutes);
- 3 \*\*\*\* [name and particulars of Lenders' Representative] and having its registered office at \*\*\*\*, acting for and on behalf of the Senior Lenders as their duly authorised agent with regard to matters arising out of or in relation to this Agreement (hereinafter referred to as the "Lenders' Representative", which expression shall unless repugnant to the context or meaning thereof include its successors and substitutes);

**WHEREAS:**

- (A) The Authority has entered into a Concession Agreement dated \*\*\* with the Concessionaire (the "Concession Agreement") for Four Laning of Nh 17, Kundapur-Surathkal section from km 283.300 to km 358.080 (Section 1) and Mangalore- Kerala Border [km 375.300 to km 376.700 (i.e. Nantur circle to Mahaveer circle) and km 3.700 to km 17.200 (i.e. Mahaveer circle to Kerala border)] (Section 2) of total length 90.08 km in the State of Karnataka on build, operate and transfer ("BOT") basis, and a copy of which is annexed hereto and marked as Annex-A to form part of this Agreement.
- (B) Senior Lenders have agreed to finance the Project in accordance with the terms and conditions set forth in the Financing Agreements.
- (C) Senior Lenders have requested the Authority to enter into this Substitution Agreement for securing their interests through assignment, transfer and substitution of the Concession to a Nominated Company in accordance with the provisions of this Agreement and the Concession Agreement.
- (D) In order to enable implementation of the Project including its financing, construction, operation and maintenance, the Authority has agreed and undertaken to transfer and assign the Concession to a Nominated Company in accordance with the terms and conditions set forth in this Agreement and the Concession Agreement.

**NOW IT IS HEREBY AGREED** as follows:

## **1 DEFINITIONS AND INTERPRETATION**

### **1.1 Definitions**

In this Substitution Agreement, the following words and expressions shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them:

**"Agreement"** means this Substitution Agreement and any amendment thereto made in accordance with the provisions contained in this Agreement;

**"Financial Default"** means occurrence of a material breach of the terms and conditions of the Financing Agreements or a continuous default in Debt Service by the Concessionaire for a minimum period of 3 (three) months;

**"Lenders' Representative"** means the person referred to as the Lenders' Representative in the foregoing Recitals;

**"Nominated Company"** means a company, incorporated under the provisions of the Companies Act, 1956, selected by the Lenders' Representative, on behalf of Senior Lenders, and proposed to the Authority for assignment/transfer of the Concession as provided in this Agreement;

**"Notice of Financial Default"** shall have the meaning ascribed thereto in Clause 3.2.1; and

**"Parties"** means the parties to this Agreement collectively and **"Party"** shall mean any of the Parties to this Agreement individually.

### **1.2 Interpretation**

1.2.1 References to Lenders' Representative shall, unless repugnant to the context or meaning thereof, mean references to the Lenders' Representative, acting for and on behalf of Senior Lenders.

1.2.2 References to Clauses are, unless stated otherwise, references to Clauses of this Agreement.

1.2.3 The words and expressions beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein, and the words and expressions used in this Agreement and not defined herein but defined in the Concession Agreement shall, unless repugnant to the context, have the meaning ascribed thereto in the Concession Agreement.

1.2.4 The rules of interpretation stated in Clauses 1.2, 1.3 and 1.4 of the Concession Agreement shall apply, *mutatis mutandis*, to this Agreement.



## 2 ASSIGNMENT

### 2.1 Assignment of rights and title

The Concessionaire hereby assigns the rights, title and interest in the Concession to, and in favour of, the Lenders' Representative pursuant to and in accordance with the provisions of this Agreement and the Concession Agreement by way of security in respect of financing by the Senior Lenders under the Financing Agreements.

## 3 SUBSTITUTION OF THE CONCESSIONAIRE

### 3.1 Rights of substitution

3.1.1 Pursuant to the rights, title and interest assigned under Clause 2.1, the Lenders' Representative shall be entitled to substitute the Concessionaire by a Nominated Company under and in accordance with the provisions of this Agreement and the Concession Agreement.

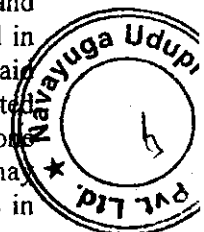
3.1.2 The Authority hereby agrees to substitute the Concessionaire by endorsement on the Concession Agreement in favour of the Nominated Company selected by the Lenders' Representative in accordance with this Agreement. (For the avoidance of doubt, the Senior Lenders or the Lenders' Representative shall not be entitled to operate and maintain the Project Highway as Concessionaire either individually or collectively).

### 3.2 Substitution upon occurrence of Financial Default

3.2.1 Upon occurrence of a Financial Default, the Lenders' Representative may issue a notice to the Concessionaire (the "Notice of Financial Default") along with particulars thereof, and send a copy to the Authority for its information and record. A Notice of Financial Default under this Clause 3 shall be conclusive evidence of such Financial Default and it shall be final and binding upon the Concessionaire for the purposes of this Agreement.

3.2.2 Upon issue of a Notice of Financial Default hereunder, the Lenders' Representative may, without prejudice to any of its rights or remedies under this Agreement or the Financing Agreements, substitute the Concessionaire by a Nominated Company in accordance with the provisions of this Agreement.

3.2.3 At any time after the Lenders' Representative has issued a Notice of Financial Default, it may by notice require the Authority to suspend all the rights of the Concessionaire and undertake the operation and maintenance of the Project Highway in accordance with the provisions of Article 36 of the Concession Agreement, and upon receipt of such notice, the Authority shall undertake Suspension under and in accordance with the provisions of the Concession Agreement. The aforesaid Suspension shall be revoked upon substitution of the Concessionaire by a Nominated Company, and in the event such substitution is not completed within 180 (one hundred and eighty) days from the date of such Suspension, the Authority may terminate the Concession Agreement forthwith by issuing a Termination Notice in accordance with the provisions of the Concession Agreement; provided that upon written request from the Lenders' Representative and the Concessionaire, the



ed and eighty days by a

### 3.3 Substitution upon occurrence of Concessionaire Default

- 3.3.1 Upon occurrence of a Concessionaire Default, the Authority shall by a notice inform the Lenders' Representative of its intention to issue a Termination Notice and grant 15 (fifteen) days time to the Lenders' Representative to make a representation, stating the intention to substitute the Concessionaire by a Nominated Company.
- 3.3.2 In the event that the Lenders' Representative makes a representation to the Authority within the period of 15 (fifteen) days specified in Clause 3.3.1, stating that it intends to substitute the Concessionaire by a Nominated Company, the Lenders' Representative shall be entitled to undertake and complete the substitution of the Concessionaire by a Nominated Company in accordance with the provisions of this Agreement within a period of 180 (one hundred and eighty) days from the date of such representation, and the Authority shall either withhold Termination or undertake Suspension for the aforesaid period of 180 (one hundred and eighty) days; provided that upon written request from the Lenders' Representative and the Concessionaire, the Authority shall extend the aforesaid period of 180 (one hundred and eighty) days by a period not exceeding 90 (ninety) days.

### 3.4 Procedure for substitution

- 3.4.1 The Authority and the Concessionaire hereby agree that on or after the date of Notice of Financial Default or the date of representation to the Authority under Clause 3.3.2, as the case may be, the Lenders' Representative may, without prejudice to any of the other rights or remedies of the Senior Lenders, invite, negotiate and procure offers, either by private negotiations or public auction or tenders for the take over and transfer of the Project Highway including the Concession to the Nominated Company upon such Nominated Company's assumption of the liabilities and obligations of the Concessionaire towards the Authority under the Concession Agreement and towards the Senior Lenders under the Financing Agreements.
- 3.4.2 To be eligible for substitution in place of the Concessionaire, the Nominated Company shall be required to fulfil the eligibility criteria that were laid down by the Authority for shortlisting the bidders for award of the Concession; provided that the Lenders' Representative may represent to the Authority that all or any of such criteria may be waived in the interest of the Project, and if the Authority determines that such waiver shall not have any material adverse effect on the Project, it may waive all or any of such eligibility criteria.
- 3.4.3 Upon selection of a Nominated Company, the Lenders' Representative shall request the Authority to:
- (a) accede to transfer to the Nominated Company the right to construct, operate and maintain the Project Highway in accordance with the provisions of the Concession Agreement;
  - (b) endorse and transfer the Concession to the Nominated Company, on the same terms and conditions, for the residual Concession Period; and

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- (c) enter into a Substitution Agreement with the Lenders' Representative and the Nominated Company on the same terms as are contained in this Agreement.

3.4.4 If the Authority has any objection to the transfer of Concession in favour of the Nominated Company in accordance with this Agreement, it shall within 7 (seven) days from the date of proposal made by the Lenders' Representative, give a reasoned order after hearing the Lenders' Representative. If no such objection is raised by the Authority, the Nominated Company shall be deemed to have been accepted. The Authority thereupon shall transfer and endorse the Concession within 7 (seven) days of its acceptance/deemed acceptance of the Nominated Company; provided that in the event of such objection by the Authority, the Lenders' Representative may propose another Nominated Company whereupon the procedure set forth in this Clause 3.4 shall be followed for substitution of such Nominated Company in place of the Concessionaire.

**3.5 Selection to be binding**

The decision of the Lenders' Representative and the Authority in selection of the Nominated Company shall be final and binding on the Concessionaire. The Concessionaire irrevocably agrees and waives any right to challenge the actions of the Lenders' Representative or the Senior Lenders or the Authority taken pursuant to this Agreement including the transfer/assignment of the Concession in favour of the Nominated Company. The Concessionaire agrees and confirms that it shall not have any right to seek revaluation of assets of the Project or the Concessionaire's shares. It is hereby acknowledged by the Parties that the rights of the Lenders' Representative are irrevocable and shall not be contested in any proceedings before any court or Authority and the Concessionaire shall have no right or remedy to prevent, obstruct or restrain the Authority or the Lenders' Representative from effecting or causing the transfer by substitution and endorsement of the Concession as requested by the Lenders' Representative.

**4 PROJECT AGREEMENTS**

**4.1 Substitution of Nominated Company in Project Agreements**

The Concessionaire shall ensure and procure that each Project Agreement contains provisions that entitle the Nominated Company to step into such Project Agreement, in its discretion, in place and substitution of the Concessionaire in the event of such Nominated Company's assumption of the liabilities and obligations of the Concessionaire under the Concession Agreement.

**5 TERMINATION OF CONCESSION AGREEMENT**

**5.1 Termination upon occurrence of Financial Default**

At any time after issue of a Notice of Financial Default, the Lenders' Representative may by a notice in writing require the Authority to terminate the Concession Agreement forthwith, and upon receipt of such notice, the Authority shall undertake Termination under and in accordance with the provisions of Article 37 of the Concession Agreement.

**5.2 Termination when no Nominated Company is selected**

420

In the event that no Nominated Company acceptable to the Authority is selected and recommended by the Lenders' Representative within the period of 180 (one hundred and eighty) days or any extension thereof as set forth in Clause 3.3.2, the Authority may terminate the Concession Agreement forthwith in accordance with the provisions thereof.

### **5.3 Realisation of Debt Due**

The Authority and the Concessionaire hereby acknowledge and agree that, without prejudice to their any other right or remedy, the Lenders' Representative is entitled to receive from the Concessionaire, without any further reference to or consent of the Concessionaire, the Debt Due upon Termination of the Concession Agreement. For realisation of the Debt Due, the Lenders' Representative shall be entitled to make its claim from the Escrow Account in accordance with the provisions of the Concession Agreement and the Escrow Agreement.

## **6 DURATION OF THE AGREEMENT**

### **6.1 Duration of the Agreement**

6.1 This Agreement shall come into force from the date hereof and shall expire at the earliest to occur of the following events:

- (a) Termination of the Agreement; or
- (b) no sum remains to be advanced, or is outstanding to the Senior Lenders, under the Financing Agreements.

## **7 INDEMNITY**

### **7.1 General indemnity**

7.1.1 The Concessionaire will indemnify, defend and hold the Authority and the Lenders' Representative harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense of whatever kind and nature arising out of any breach by the Concessionaire of any of its obligations under this Agreement or on account of failure of the Concessionaire to comply with Applicable Laws and Applicable Permits.

7.1.2 The Authority will indemnify, defend and hold the Concessionaire harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of the Authority to fulfil any of its obligations under this Agreement, materially and adversely affecting the performance of the Concessionaire's obligations under the Concession Agreement or this Agreement, other than any loss, damage, cost and expense, arising out of acts done in discharge of their lawful functions by the Authority, its officers, servants and agents.

7.1.3 The Lenders' Representative will indemnify, defend and hold the Concessionaire harmless against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of the Lenders' Representative to fulfil its obligations under this Agreement, materially and adversely affecting the performance



of the Concessionaire's obligations under the Concession Agreement, other than any loss, damage, cost and expense, arising out of acts done in discharge of their lawful functions by the Lenders' Representative, its officers, servants and agents.

## **7.2 Notice and contest of claims**

In the event that any Party hereto receives a claim from a third party in respect of which it is entitled to the benefit of an indemnity under Clause 7.1 or in respect of which it is entitled to reimbursement (the "Indemnified Party"), it shall notify the other Party responsible for indemnifying such claim hereunder (the "Indemnifying Party") within 15 (fifteen) days of receipt of the claim and shall not settle or pay the claim without the prior approval of the Indemnifying Party, such approval not to be unreasonably withheld or delayed. In the event that the Indemnifying Party wishes to contest or dispute the claim, it may conduct the proceedings in the name of the Indemnified Party and shall bear all costs involved in contesting the same. The Indemnified Party shall provide all cooperation and assistance in contesting any claim and shall sign all such writings and documents as the Indemnifying Party may reasonably require.

## **8 DISPUTE RESOLUTION**

### **8.1 Dispute resolution**

8.1.1 Any dispute, difference or claim arising out of or in connection with this Agreement which is not resolved amicably shall be decided by reference to arbitration to a Board of Arbitrators comprising one nominee each of the Authority, Concessionaire and the Lenders' Representative. Such arbitration shall be held in accordance with the Rules of Arbitration of the Indian Council of Arbitration and shall be subject to provisions of the Arbitration and Conciliation Act, 1996.

8.1.2 The Arbitrators shall issue a reasoned award and such award shall be final and binding on the Parties. The venue of arbitration shall be Delhi and the language of arbitration shall be English.

## **9 MISCELLANEOUS PROVISIONS**

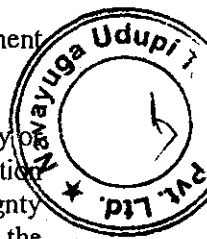
### **9.1 Governing law and jurisdiction**

This Agreement shall be construed and interpreted in accordance with and governed by the laws of India, and the Courts at Delhi shall have jurisdiction over all matters arising out of or relating to this Agreement.

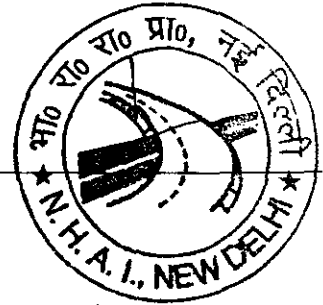
### **9.2 Waiver of sovereign immunity**

The Authority unconditionally and irrevocably:

- (a) agrees that the execution, delivery and performance by it of this Agreement constitute commercial acts done and performed for commercial purpose;
- (b) agrees that, should any proceedings be brought against it or its assets, property or revenues in any jurisdiction in relation to this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings shall be claimed by or on behalf of the



422



Authority with respect to its assets;

- (c) waives any right of immunity which it or its assets, property or revenues now has, may acquire in the future or which may be attributed to it in any jurisdiction; and
- (d) consents generally in respect of the enforcement of any judgement or award against it in any such proceedings to the giving of any relief or the issue of any process in any jurisdiction in connection with such proceedings (including the making, enforcement or execution against it or in respect of any assets, property or revenues whatsoever irrespective of their use or intended use of any order or judgement that may be made or given in connection therewith).

### 9.3 Priority of agreements

In the event of any conflict between the Concession Agreement and this Agreement, the provisions contained in the Concession Agreement shall prevail over this Agreement.

### 9.4 Alteration of terms

All additions, amendments, modifications and variations to this Agreement shall be effectual and binding only if in writing and signed by the duly authorised representatives of the Parties.

### 9.5 Waiver

#### 9.5.1 Waiver by any Party of a default by another Party in the observance and performance of any provision of or obligations under this Agreement:

- (a) shall not operate or be construed as a waiver of any other or subsequent default hereof or of other provisions of or obligations under this Agreement;
- (b) shall not be effective unless it is in writing and executed by a duly authorised representative of the Party; and
- (c) shall not affect the validity or enforceability of this Agreement in any manner.

#### 9.5.2 Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement or any obligation thereunder nor time or other indulgence granted by a Party to another Party shall be treated or deemed as waiver of such breach or acceptance of any variation or the relinquishment of any such right hereunder.

### 9.6 No third party beneficiaries

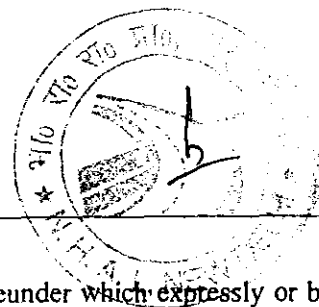
This Agreement is solely for the benefit of the Parties and no other person or entity shall have any rights hereunder.

### 9.7 Survival

#### 9.7.1 Termination of this Agreement:



423



(a) shall not relieve the Parties of any obligations hereunder which expressly or by implication survive termination hereof; and

(b) except as otherwise provided in any provision of this Agreement expressly limiting the liability of either Party, shall not relieve either Party of any obligations or liabilities for loss or damage to the other Party arising out of or caused by acts or omissions of such Party prior to the effectiveness of such termination or arising out of such termination.

9.7.2 All obligations surviving the cancellation, expiration or termination of this Agreement shall only survive for a period of 3 (three) years following the date of such termination or expiry of this Agreement.

#### 9.8 Severability

If for any reason whatever any provision of this Agreement is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Parties will negotiate in good faith with a view to agreeing to one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable to such invalid, illegal or unenforceable provision. Failure to agree upon any such provisions shall not be subject to dispute resolution under Clause 8 of this Agreement or otherwise.

#### 9.9 Successors and assigns

This Agreement shall be binding on and shall inure to the benefit of the Parties and their respective successors and permitted assigns.

#### 9.10 Notices

All notices or other communications to be given or made under this Agreement shall be in writing, shall either be delivered personally or sent by courier or registered post with an additional copy to be sent by facsimile. The address for service of each Party and its facsimile number are set out under its name on the signing pages hereto. A notice shall be effective upon actual receipt thereof, save that where it is received after 5.30 (five thirty) p.m. on any day, or on a day that is a public holiday, the notice shall be deemed to be received on the first working day following the date of actual receipt. It is hereby agreed and acknowledged that any Party may by notice change the address to which such notices and communications to it are to be delivered or mailed. Such change shall be effective when all the Parties have notice of it.

#### 9.11 Language

All notices, certificates, correspondence and proceedings under or in connection with this Agreement shall be in English.

#### 9.12 Authorised representatives

Each of the Parties shall by notice in writing designate their respective authorised representatives through whom only all communications shall be made. A Party hereto

424

shall be entitled to remove and/or substitute or make fresh appointment of such authorised representative by similar notice.

**9.13 Original Document**

This Agreement may be executed in three counterparts, each of which when executed and delivered shall constitute an original of this Agreement.

**IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.**

SIGNED, SEALED AND DELIVERED  
For and on behalf of  
CONCESSIONAIRE by:

(Signature)  
(Name)  
(Designation)  
(Address)  
(Fax No.)

SIGNED, SEALED AND DELIVERED  
For and on behalf of  
NATIONAL HIGHWAY AUTHORITY OF  
INDIA  
by:

(Signature)  
(Name)  
(Designation)  
(Address)  
(Fax No.)

SIGNED, SEALED AND DELIVERED  
For and on behalf of  
SENIOR LENDERS by the Lenders' Representative:

(Signature)  
(Name)  
(Designation)  
(Address)  
(Fax)

In the presence of:

1.

2.

**SSCHEDULE W**

*(See Clause 47.3)*

**STATE SUPPORT AGREEMENT**

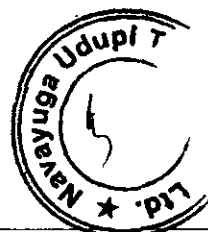
THIS STATE SUPPORT AGREEMENT is made on this \_\_\_\_\_ day of \_\_\_\_\_ 200\_\_\_\_  
AMONGST

- 1 THE GOVERNOR OF THE STATE OF Karnataka through the Secretary, Ministry of \_\_\_\_\_, Government of Karnataka, (hereinafter referred to as "GOK" which expression shall unless repugnant to the context or meaning thereof include its successors and permitted assigns) of the One Part,
- 2 National Highways Authority of India, a statutory body established under the provisions of the National Highways Authority of India Act, 1988, through its [.....] and having its principal office at G - 5 & 6, Sector - 10, Dwarka, New Delhi - 110 075 (hereinafter referred to as "NHAI" which expression shall unless repugnant to the context or meaning thereof include its administrators, successors and assigns), of the Second Part,

AND

- 3 M/s NAVAYUGA UDUPI TOLLWAY PRIVATE LIMITED LIMITED, a company incorporated and existing under the provisions of the Companies Act, 1956 and having its registered office at 1259, Lakshmi Towers, Road No. 36, Jubilee Hills, Hyderabad-500033 (hereinafter referred to as the "Concessionaire", which expression shall unless repugnant to the context or meaning thereof include its successors and substitutes) of the Third Part.

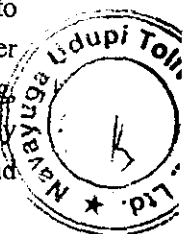
(Unless repugnant to the context or meaning thereof GOK, NHAI and the Concessionaire are hereinafter collectively referred to as "Parties" and singly as "Party")



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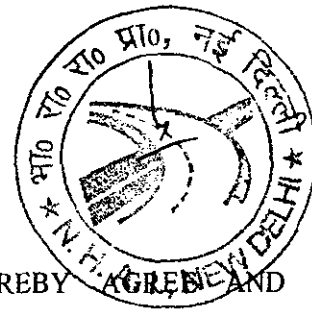
WHEREAS

- A The Government of India in the Ministry of Shipping, Road Transport & Highways has mandated as on date hereof and may entrust at any time to NHAI specified sections of various National Highways situated within the State of Karnataka for, inter alia, improvement (including four laning), operation and maintenance on build, operate and transfer ("BOT") basis.
- B The NHAI had decided to take up the improvement and strengthening of the existing carriageway of NH-17, Kundapur- Surathkal section from km 283.300 to km 358.080 (Section 1) and Mangalore- Kerala Border [km 375.300 to km 376.700 (i.e. Nantur circle to Mahaveer circle) and km 3.700 to km 17.200 (i.e. Mahaveer circle to Kerala border)] (Section 2) of total length 90.08 km in the State of Karnataka, India and widening thereof to 4 lanes and its improvement, operation and maintenance on BOT basis (the "Project") through award of concession on certain terms and conditions as set forth in the Concession Agreement (as defined hereinafter).
- C NHAI had accordingly, invited Request for Proposals dated [.....] (the "RFP") for selection of BOT Entrepreneurs for, inter alia, execution and implementation of the said Project on BOT basis.
- D NHAI had after evaluation of bids received, in response to the RFP, accepted the bid of the Consortium and had issued its Letter of Acceptance vide Letter No. **NHAI/BOT-I/11012/58/11/2005/1** dated 04.11.2009 (the "LOA") to the Consortium requiring, inter alia, the execution of the Concession Agreement pursuant thereto.
- E The Consortium had promoted and incorporated the Concessionaire as a limited liability company to enter into the Concession Agreement pursuant to the LOA for undertaking, inter alia, the design, engineering, financing, procurement, utility shifting, tree cutting, improvement, construction, operation and maintenance of the Project on BOT basis as referred to in Recital B and to fulfill its other obligations under the Concession Agreement and had requested NHAI to accept the Concessionaire as the entity which shall undertake and fulfill and perform the obligations and exercise the rights of the Consortium under the LOA, including under the Concession Agreement to be entered into pursuant to the LOA.
- F NHAI agreed to the said request of the Consortium and had accordingly entered into the Concession Agreement with the Concessionaire pursuant to the LOA for, inter alia, the design, engineering, financing, procurement, utility shifting, tree cutting, improvement, construction, operation and maintenance of the said Project Highway including the widening thereof to 4 lanes on BOT basis subject to and on the terms and conditions set forth therein including schedules forming part thereof.



- G** GOK recognizes that the implementation of the Project and its continued operation and maintenance under and in accordance with the Concession Agreement is necessary and required for the development of the State of Karnataka in general and development of infrastructure for economic development and growth of the State in particular and acknowledges that to enable the implementation of the said Project, including to facilitate its financing and its operation and maintenance on BOT basis, in accordance with the Concession Agreement, it is necessary for the GOK to agree and undertake to support and extend complete cooperation to the Concessionaire and NHAI with respect to the implementation of the Project.
- H** GOK, NHAI and the Concessionaire have agreed that for the successful implementation of the Project, including performance of its obligations by the Concessionaire under and in accordance with the Concession Agreement requires extensive continued support and grant of certain rights and authorities as hereinafter set forth by GOK and is an essential pre-condition for mobilization of resources therefore by the Concessionaire and therefore it is necessary and expedient to enter into this Agreement.



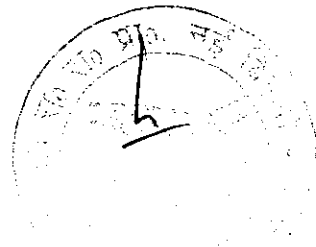


NOW THEREFORE THE PARTIES HERETO HEREBY ~~AGREED~~ AND THIS AGREEMENT WITNESSETH AS FOLLOWS:

## 1. DEFINITIONS AND INTERPRETATIONS

- 1.1 In this Agreement the following terms shall, unless repugnant to the context or meaning thereof, have the meaning hereinafter respectively assigned to them.
- 1.1.1 "Agreement" means this Support Agreement and all annexures hereto and amendments if any thereto made in accordance with the provisions contained herein in this behalf.
- 1.1.2 "Concession Agreement" means the Concession Agreement dated \_\_\_\_\_ entered into between NHAI and the Concessionaire for, inter alia, the implementation of the Project as more fully described therein and shall include all of its annexures and appendices and any amendments thereto made in accordance with the provisions contained in this behalf therein.
- 1.1.3 "Cure Period" means the period specified in this Agreement for curing any breach or default under this Agreement by a Party and shall commence from the date on which notice is delivered to the Party in such breach or default by any of the other Parties requiring it to cure such breach or default.
- 1.1.4 "GOK Agency" means and department, body, authority, commission, instrumentality, agency, Municipality, Panchayat or other local authority or any statutory body or authority under the control of GOK or which is subject to supervision, direction or control of GOK in respect of any matter or which can be suspended, superseded or dissolved by GOK.
- 1.1.5 "Local Taxes" means any state or local taxes, duties, levies, cess, fee or octroi or any import or surcharge of like nature on the whole or any part of the traffic including any motorized vehicles or goods while in transit on the whole or any part of the Project Highway.
- 1.1.6 "MOSRTH" means Ministry of Shipping, Road Transport and Highways, earlier Ministry of Road Transport & highways.
- 1.1.7 "Municipality" shall have the meaning as assigned to it in Article 243Q of the Constitution of India.
- 1.1.8 "Panchayat" shall have the meaning as assigned to it in Article 243B of the Constitution of India.





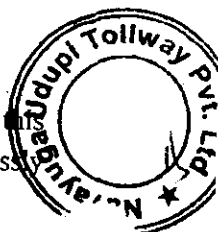
1.1.9 "State Support" means the obligations assumed and the facilities agreed to the provided by GOK to the Concessionaire hereunder or pursuant hereto and shall include the support obligations of the GOK as set forth in the Concession Agreement.

1.1.10 "Substitution Agreement" means the Substitution Agreement dated \_\_\_\_\_ entered into between the Senior Lenders, NHAI and the Concessionaire in relation to the Project and providing for substitution of the Concessionaire by any other person selected by the Senior Lenders in the manner and subject to and on the terms and conditions set forth therein and a copy of which is annexed hereto and marked as "Annexure 'A'."

1.2 The words and expressions beginning with or in capital letters used in this Agreement and not defined herein but defined in the Concession Agreement shall have, unless repugnant to the context, the meaning respectively assigned to them in the Concession Agreement. Words and expressions used in this Agreement and neither defined herein nor in the Concession Agreement but defined in the Substitution Agreement shall have the meaning respectively assigned to them in the Substitution Agreement.

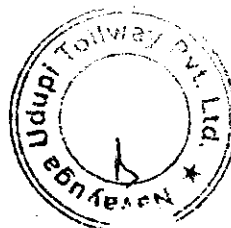
1.3 In this Agreement unless the context otherwise requires-

- (a) any reference to a any statue or any statutory provision shall include any amendment or re-enactment or consolidation thereof so far as such modification or re-enactment or consolidation applies or is capable of applying to any transactions entered into hereunder;
- (b) the words importing singular shall include plural and vice versa, and reference to a "person" and words denoting natural persons shall include partnerships, firms, companies, corporations, joint ventures, trusts, associations, organizations or other entities (whether or not having a separate legal entity) and shall include Government Instrumentalities and GOK Agencies;
- (c) the headings are for convenience of reference only and shall not be used in and shall not affect the construction or interpretation of this Agreement;
- (d) terms beginning with capital letters and defined in this Agreement shall have the meaning ascribed thereto herein;
- (e) the words "include" and "including" are to be construed without limitation.
- (f) any reference to a "day" shall mean reference to a calendar day;
- (g) any reference to "month" shall mean reference to a calendar month;
- (h) the Annexures and appendices to this Agreement form an integral part of this Agreement and will be in full force and effect as though they were expressly set out in the body of this Agreement;
- (i) any reference at any time to any agreement, deed, instrument, license or document of any description shall be construed as reference to that agreement,



deed, instrument,, license or other document as amended, varied, supplemented, modified or suspended at the time of such reference provided that this clause shall not operate so as to increase liabilities or obligations of GOK or NHAI hereunder or pursuant hereto in any manner whatsoever.

- (j) References to Recitals, Clauses, Sub-clauses, Paragraphs, Annexures or Appendices in this Agreement shall, except where the context otherwise requires, be deemed to be references to Recitals, Clauses, Sub-clauses, Paragraphs, Annexures and Appendices of this Agreement.
- (k) Any agreement, consent, approval, authorization, proposal, notice, communication, information or report required under or pursuant to this Agreement from or by any Party or Senior Lender(s) shall be valid and effectual only if it is in writing under the hands of duly authorized representative of such Party or the Senior Lender(s), as the case may be, in this behalf and not otherwise; and
- (l) Any reference to any period commencing "from" a specified day or date and "till" or "until" a specified day or date shall include both days or dates.
- (m) "Concessionaire" shall include Selectee under the Substitution Agreement.



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## 2. TERM

- 2.1 This Agreement shall come into force on and from the date hereof and shall continue to be in full force and effect for (i) the period the Concession Agreement is in force and effect in accordance with the terms thereof including any extension thereof, or (ii) final determination and discharge by GOK of all of its liabilities and claims hereunder against it, whichever is later.

## 3. SUPPORT OF GOK

- 3.1 In Consideration of the Project being in the interests of the State of Karnataka and its economic growth and development and the Concessionaire entering into the Concession Agreement and agreeing to comply with its obligations hereunder, GOK agrees and undertakes to observe, comply with and perform the following with reference to the Concession Agreement and the Project:

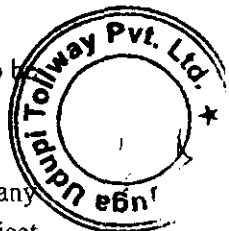
- (i) enable continued access to the Site to the Concessionaire for peaceful use of and operations at the Site by the Concessionaire under and in accordance with the provisions of the Concession Agreement without any let or hindrance from GOK or persons claiming through or under it or any GOK Agency;
- (ii) subject to the Concessionaire complying with Applicable Laws, including payment of prescribed fee and charges, if any, provide to the Concessionaire Applicable Permits to the extent GOK or any Governmental Instrumentality of GOK is entitled to issue;
- (iii) upon written request from the Concessionaire, assist the Concessionaire in obtaining access to all necessary infrastructure facilities from any Governmental Instrumentality of GOK and to utilities, including water, electricity and telecommunication facilities at rates and on terms no less favorable to the Concessionaire than those generally available to commercial customers receiving substantially equivalent services;
- (iv) ensure that no barriers are erected or placed on the Project Highway by GOK or any GOK Agency that interrupts free flow of traffic on the Project Highway except on account of any law and order situation calamities, disasters (natural, accidental or due to any act or omission of any person or accident or otherwise) or upon national security considerations;
- (v) provide the Concessionaire with assistance through a dedicated team against payment of prescribed fee and charges, if any, for regulation of traffic on the Project Highway;
- (vi) provide the Concessionaire with police assistance in the form of dedicated highway patrol parties against payment of prescribed costs and charges, if any, for patrolling and provision of security on the Project Highway;
- (vii) observe and comply with its obligations set forth in this Agreement;

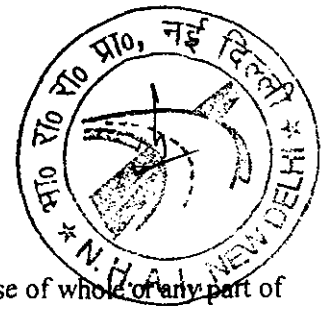
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- (viii) support, cooperate with and facilitate NHAI and the Concessionaire in the implementation of the Project;
  - (ix) subject to and in accordance with the Applicable Laws including payment of prescribed fee and charges, if any, assist the Concessionaire in the procurement of all Applicable Permits required from any municipal and other local authorities and bodies including Panchayats in the State of Karnataka for the implementation of the Project;
  - (x) ensure and procure, subject to and in accordance with the Applicable Laws, that all relevant municipal and other local authorities and bodies including Panchayats in the State of Karnataka do not put any barriers or other obstructions on the Project Highway or accesses thereto that interrupt free flow of traffic on the Project Highway;
  - (xi) ensure and procure, subject to and in accordance with the Applicable Laws, that all relevant municipal and other local authorities and bodies including Panchayats in the State of Karnataka do not levy or impose any Local Taxes on the Project Highway or on the traffic and or goods moving on the Project Highway without prior express written consent of the GOK and after prior consultation with NHAI;
  - (xii) support, cooperate with and facilitate the NHAI and the Concessionaire in the implementation and operation of the Project Highway in accordance with the provisions of the Concession Agreement;
  - (xiii) not do or omit to do any act, deed or thing which may in any manner be violative of or cause the Concessionaire to violate any of the provisions of the Concession Agreement; and
  - (xiv) observe and comply with all of its obligations set forth in this Agreement.

3.2 Notwithstanding anything to the contrary contained in the Agreement, GOK may construct and operate either itself or have the same, inter alia, built and operated on BOT basis or otherwise any Expressway or other toll road., not being a bye-pass, between inter alia, from kundapur to surathkal (km 283.300 to km 358.080)(Section 1) and Mangalore- Kerala Border [km 375.300 to km 376.700 (i.e. Nantur circle to Mahaveer circle) and km 3.700 to km 17.200 (i.e. Mahaveer circle to Kerala border) (Section 2) of total length 90.08)(the "Additional Tollway"), provided that such Additional Tollway shall not be opened to traffic before expiry of 15 (fifteen) years from the Appointed Date

3.3 GOK agrees and undertakes that it shall not build and construct nor shall it cause to be built and constructed any Competing Road in breach of the Concession Agreement.

3.4 GOK agrees and undertakes that it shall not levy, nor permit or authorize any Panchayat or Municipality to levy, any property taxes on or for the Site or Project





Highway any additional toll, fee, charge or other tax on the use of whole or any part of the Project Highway.

3.5 **GOK** acknowledges the rights of Senior Lenders and NHAI under the Substitution Agreement to undertake the substitution of the Concessionaire in accordance therewith and hereby covenants that upon substitution of the Concessionaire by the Selectee pursuant to and in accordance with the Substitution Agreement, it shall be deemed for the purposes of this Agreement that as if Selectee is a Party hereto and the Selectee shall accordingly be deemed to have succeeded to the rights and obligations of the Concessionaire under this Agreement on and with effect from the date of such substitution of the Concessionaire by the Selectee.

3.6 **GOK** acknowledges and agrees that each of the Concessionaire and the NHAI shall have the right to seek specific performance of this Agreement.

#### 4. CONCESSIONAIRE'S OBLIGATIONS

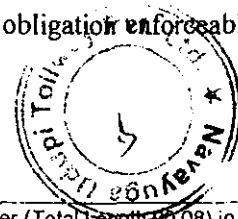
4.1 Concessionaire agrees and undertakes to perform, observe and comply with the following :

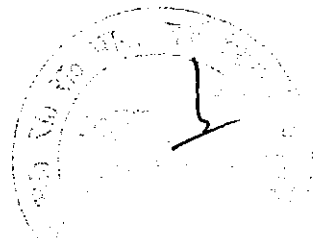
- (i) All Applicable Laws and Applicable Permits;
- (ii) The provisions of the Concession Agreement, the Substitution Agreement, and the Project Agreements; and
- (iii) Its obligations under this Agreement.

#### 5. REPRESENTATIONS AND WARRANTIES

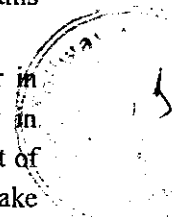
5.1 The Concessionaire reiterates all of the Concessionaire's representations and warranties set forth in Article 7.1 of the Concession Agreement as if the same have been expressly incorporated herein by reference and makes the following further representations and warranties:

- (i) It is duly organized, validly existing and in good standing under the laws of India.
- (ii) It has power and authority to execute, deliver and perform its obligations under this Agreement and to carry out the transactions contemplated hereby;
- (iii) It has taken all necessary corporate and other action under Applicable Laws and its constitutional documents to authorize the execution, delivery and performance of this Agreement;
- (iv) This Agreement constitutes its legal, valid and binding obligation enforceable against it in accordance with the terms hereof;



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- (v) It is subject to civil and commercial laws of India with respect to this Agreement and it hereby expressly and irrevocably waives any immunity in any jurisdiction in respect thereof;
  - (vi) All the information furnished to the GOK pertaining to the Concessionaire including its constitution and existing and proposed shareholding structure is now and shall be true and correct as on the Appointed Date and COD;
  - (vii) The execution, delivery and performance of this Agreement will not conflict with, result in the breach of, constitute a default under or accelerate performance required by any of the terms of the Concessionaire's Memorandum and Articles of Association or any member of the Consortium or any Applicable Laws or Applicable Permits or any covenant, agreement, understanding, decree or order to which it is a party or by which it or any of its properties or assets is bound or affected;
  - (viii) There are no actions, suits, proceedings or investigations pending or, to the Concessionaire's knowledge, threatened against it at law or in equity before any court or before any judicial, quasi judicial or other authority, the outcome of which may result in the breach of or constitute a default of the Concessionaire under this Agreement or

which individually or in the aggregate may result in any material adverse effect on its business, properties or assets or its condition, financial or otherwise, or in any impairment of its ability to perform its obligations and duties under this Agreement;

- (ix) The Concessionaire has no knowledge of any violation or default with respect to any order, writ, injunction or decree of any court or any legally binding order of any Governmental Instrumentality which may result in any material adverse effect or impairment of the Concessionaire's ability to perform its obligations and duties under this Agreement;
  - (x) The Concessionaire has complied with all Applicable Laws and Applicable Permits, and has not been subject to any fines, penalties, injunctive-relief or any other civil or criminal liabilities which in the aggregate have or may have material adverse effect on its financial condition or its ability to perform its obligations and duties under this Agreement;
  - (xi) Each Consortium Member was and is duly organized and existing under the laws of the jurisdiction of its incorporation and has full power and authority to consent to and has validly consented to the Concessionaire entering into this Agreement with the GOK;
  - (xii) No representation or warranty by the Concessionaire contained herein or in any other document furnished by it to GOK, or to any GOK Agency in relation to Applicable Permits contains or will contain any untrue statement of material fact or omits or will omit to state a material fact necessary to make such representation or warranty not misleading;
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- (xiii) The Concessionaire warrants that no sums have been paid or will be paid, by or on behalf of the Concessionaire, to any Person by way of fees, commission or otherwise for entering into this Agreement or for influencing or attempting to influence any officer or employee of NHAI, or GOK in connection herewith; and
  - (xiv) The Concessionaire is subject to civil and commercial laws of India with respect to this Agreement.

5.2 GOK represents and warrants to the Concessionaire that :

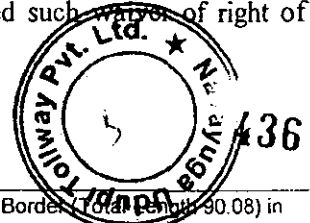
- (i) It has full power and authority to execute, deliver and perform this Agreement.
- (ii) It has taken all necessary governmental action to authorize the execution, delivery and performance of this Agreement; and
- (iii) This Agreement constitutes the legal, valid and binding obligation of GOK enforceable against it in accordance with its terms.

6. SOVEREIGN IMMUNITY

6.1 GOK hereby unconditionally and irrevocably:

- (i) Agrees that the execution, delivery and performance by it of this Agreement do not constitute sovereign acts;
- (ii) Agrees that should any proceedings be brought or any execution, attachment or any other legal process is made against it or its assets, property or revenues in any jurisdiction in relation to or arising out of this Agreement or any transaction contemplated by this Agreement, no immunity (whether by reason of sovereignty or otherwise) from such proceedings, execution, attachment or other legal process shall be claimed by or on behalf of GOK or with respect to any of its assets, property or revenues;
- (iii) waives any right of immunity, which it or its assets property or revenues now has or may acquire in the future or which may be attributed to it in any jurisdiction; and
- (iv) consents generally to the enforcement of any judgment or award against it in any such proceedings including to the giving of any relief or the issue of any process in any jurisdiction in connection with any such proceedings including the making, enforcement or execution against it or any of its assets, property or revenues, of any order, judgment or decree that may be made or given in connection therewith.

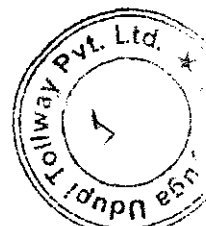
6.2 Notwithstanding anything to the contrary herein contained such waiver of right of immunity shall not apply to



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- a) Property and assets of any consular or diplomatic mission or consulate or
  - b) Property belonging to the Defence services and such assets of the Union of India.

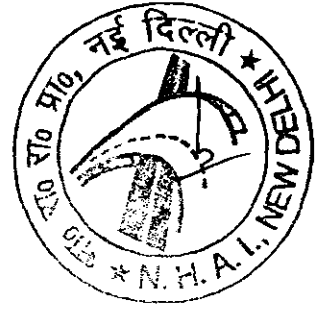
**7. Breach and Compensation**

- 7.1 In case GOK or any GOK Agency is in material breach of any of its obligations under this Agreement, and such breach is not cured within 30 days of receipt of a notice in writing in this behalf from the Concessionaire to GOK with copy to NHAI and which has not occurred as a result of Concessionaire's breach of its obligations under this Agreement or the Concession Agreement or Force Majeure, GOK shall pay to the Concessionaire, all direct additional costs suffered or incurred by the Concessionaire, determined by MOSRTH as arising out of such material default by GOK.
- 7.2 In case of any dispute by GOK on admissibility of the claim or extent of compensation determined by MOSRTH, the claim shall be settled in accordance with the Dispute Settlement mechanism provided in Clause 9 of this Agreement.
- 7.3 Any such compensation, as determined by MOSRTH or through the Dispute Settlement mechanism set forth in Clause 9 hereof as payable by GOK, shall be paid to the Concessionaire by GOK, in one lump sum within 90 (ninety) days of receipt of MOSRTH's determination of compensation or Award made in the arbitration pursuant to the Dispute Settlement mechanism set forth in Clause 9 of this Agreement.
- 7.4 In the event of the Concessionaire being in material breach of any of its obligations under this Agreement and such breach is not cured by the Concessionaire within 30 days of receipt of a notice in writing from GOK or NHAI (the "Claiming Party"), as the case may be, with copy to the other of them and which has not occurred as a result of breach by Claiming Party of its obligations under this Agreement or the Concession Agreement or Force Majeure, the Concessionaire shall pay to the Claiming Party, all direct additional costs suffered or incurred by it determined by MOSRTH as arising out of such material breach by the Concessionaire. In case of any dispute by the Concessionaire on the admissibility of such claim or the extent of compensation by MOSRTH, the claim shall be settled in accordance with the Dispute Resolution mechanism set forth in Clause 9 of this Agreement. Any such compensation, as determined by MOSRTH or by an Award in any
- arbitration pursuant to Clause 9, shall be paid within 90 (ninety) days of receipt of such MOSRTH determination or Award, as the case may be.



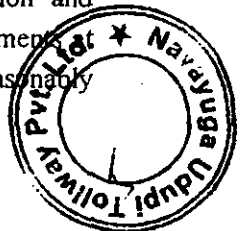
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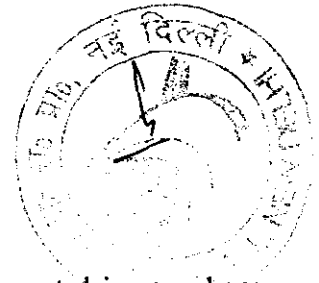




## 8. INDEMNITY

- 8.1. The Concessionaire will indemnify, defend and hold **GOK** and NHAI harmless against any and all proceedings, actions and claims for any loss, damage, cost and expense of whatever kind and nature arising out of design, engineering, construction, operation and maintenance of the Project Highway or arising out of any breach by the Concessionaire of any of its obligations under this Agreement or on account of failure of the Concessionaire to comply with, and observe Applicable Laws and Applicable Permits;
- 8.2. **GOK** will, indemnify, defend and hold harmless the Concessionaire against any and all proceedings, actions and third party claims for any loss, damage, cost and expense arising out of failure of **GOK** to fulfill any of its obligations under this Agreement materially and adversely affecting the performance of the Concessionaire's obligations under the Concession Agreement other than any loss, damage, cost and expense, arising out of acts done in good faith in discharge of their lawful functions by **GOK**, its officers, servants and **GOK** Agencies;
- 8.3. Without limiting the generality of Clause 8.2, the **GOK** shall indemnify the Concessionaire and shall save it harmless from and against any payments required to be made by the Concessionaire with respect to levy of any Local Taxes [provided nothing contained herein shall be construed or interpreted as restricting in any way or manner the right of **GOK** or any municipal, Panchayat or other local authorities to levy any taxes which they or any of them are lawfully entitled to levy, impose or collect (the "Expected Taxes"). The Concessionaire shall not be entitled to and **GOK** shall be under no obligation to reimburse Expected Taxes to the Concessionaire or any person claiming through or under the Concessionaire;]
- 8.4. In the event that any of the Parties receives a claim from a third party in respect of which it is entitled to the benefit of an indemnity under this Clause 8 or in respect of which it is entitled to reimbursement hereunder (the "Indemnified Party") it shall within 14 (fourteen) days of receipt of the claim or payment, as the case may be, communicate such claim to the Party obligated to indemnify the Indemnified Party hereunder (the "Indemnifying Party") and shall not settle or pay the claim without the prior approval of the Indemnifying Party. In the event that the Indemnifying Party wishes to contest or dispute the claim, it may conduct the proceedings in the name of the Indemnified Party and shall bear all costs involved in contesting the same. The Indemnified Party shall provide to the Indemnifying Party all cooperation and assistance in contesting any claim and shall sign all such writings and documents, the risk and cost of the Indemnifying Party as the Indemnifying Party may reasonably require.





## 9. GOVERNING LAW AND DISPUTE SETTLEMENT

- 9.1. This Agreement shall be governed by and construed and interpreted in accordance with the laws of India. The provisions contained in Clause 8 and 9 shall survive the termination of this Agreement.
- 9.2. Any dispute, difference or controversy of whatever nature howsoever arising out of or in connection with or in relation to this Agreement which is not resolved amicably within 90 (ninety) days of receipt of notice of such dispute, difference or controversy from a Party (the "Claimant") by the other remaining Parties (collectively the "Respondents"), the same shall be decided finally by reference to arbitration to a Board or Arbitrators comprising of one nominee each of the Claimant and of the Respondent against whom the claim has been made and if the claim is against both the Respondents than the two Respondents shall jointly select their nominee arbitrator and if the two Respondents are unable to agree upon such arbitrator than such arbitrator shall be appointed by the International Centre for Alternative Dispute Resolution, New Delhi in accordance with its Rules of Arbitration. Such arbitration shall be held in accordance with the Rules of Arbitration of the International Centre for Alternative Dispute Resolution, New Delhi. The arbitration shall be subject to the provisions of the Arbitration and Conciliation Act, 1996 as amended from time to time. The Arbitrators shall issue a reasoned award. The venue of such arbitration shall be New Delhi, India. The Award made in any such arbitration shall be final and binding on the Parties.
- 9.3. Parties agree that they shall continue to perform their respective obligations under this Agreement during such arbitration, unless the performance or otherwise of such arbitration is itself the subject matter of arbitration.
- 9.4. The Courts of Delhi shall have exclusive jurisdiction over all matters arising out of or relating to this Agreement.

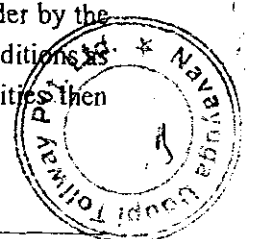
## 10. MISCELLANEOUS

### 10.1. Alteration of Terms

All additions, amendments, modifications and variations to this agreement shall be effectual and binding only if in writing and signed by the duly authorized representatives of GOK and the Concessionaire.

### 10.2. Time or Indulgence Allowed

An indulgence by a Party to any of the other Party in respect of any obligation or matter hereunder including time for performance to such other party or to remedy any breach hereof shall not be construed as a waiver of any of its rights hereunder by the Parties and any such indulgence may be on such terms and subject to such conditions as the Party giving it may specify and shall be without prejudice to the Parties then



accrued respective rights under this Agreement except to the extent expressly varied in writing.

10.3. Severability of Terms

If any provisions of this Agreement are declared to be invalid, unenforceable or illegal by any competent arbitration tribunal or court, such invalidity, unenforceability or illegality shall not prejudice or affect the remaining provisions of this Agreement, which shall continue in full force and effect.

10.4. Language

All notices, certificates, correspondence or other communications under or in connection with the Agreement shall be in English

10.5. Notices

Any notice or communication hereunder shall be in writing and shall either be delivered personally or sent by registered or by electronic means. A copy of facsimile transmission or other means of telecommunication shall be sent in permanent written form. A copy of all the notices and communications will also be forwarded to the Lenders Representative. The service of notice shall unless otherwise notified by a notice hereunder to the parties at their following address:

IF to GOK:

Attn :

Fax no :

Tel no.

IF to the NHAI:

Attn:

Fax no.

Tel no.

IF to the Concessionaire:

Attn :

Fax no.

Tel no.

The notice pursuant hereto will be deemed to have been received on the date when such notice is in fact received by the addressee.

10.6. Authorized Representatives

Each of the Parties shall by notice in writing designate their respective authorized representatives through whom only all communications shall be made. A Party hereby



shall be entitled to remove and/or substitute or make fresh appointment of its such authorized representative by similar notice.

**10.7. Original Document**

This Agreement is made in three counterparts, each of which shall be deemed to be an original.

10.8. In case of any conflict between this Agreement and the Concession Agreement, the provisions contained in the Concession Agreement shall be binding on parties signing this State Support Agreement.

10.9. This Agreement is solely for the benefit of the Parties and no other person or entity shall have any rights hereunder.

10.10. Termination of this Agreement shall not relieve any Party of any accrued rights, obligations and liabilities arising out of or caused by any act or omission of a Party into the effective date of such termination or arising out of such termination.

10.11. This Agreement shall be binding on and shall inure to the benefit of successors and permitted assigns.

**IN WITNESS WHEREOF THE PARTIES HERETO HAVE PUT THEIR HANDS  
HEREUNTO ON THE DAY, MONTH AND YEAR FIRST ABOVE WRITTEN.**

**FOR CONCESSIONAIRE**

**FOR GOVT. OF \_\_\_\_\_**

BY : \_\_\_\_\_  
Name : \_\_\_\_\_  
Title: \_\_\_\_\_

BY : \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

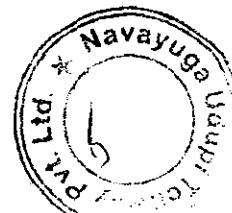
**FOR NATIONAL HIGHWAYS AUTHORITY OF INDIA**

BY : \_\_\_\_\_  
Name : \_\_\_\_\_  
Title: \_\_\_\_\_

In the presence of:

1.

2.



441