

# National Highways Authority of India

(Ministry of Shipping, Road Transport & Highways)

**Short Term Improvement and Routine Maintenance of  
Udaipur-Mangalwar-Chittorgarh (Km. 113.830 to Km. 220.000) Section of NH-76  
&  
Udaipur-Kesariaji-Ratanpur (Km 278.000 to Km 388.180) Section of NH-8.**

<b>Length</b>	<b>216.350 Km</b>	
NH.	NH 76 (Km 113/825 to Km 220/000), Length = 106.175 km <b>(Four Lane Section = 99.17 km and Two Lane Section= 7 km)</b> NH 8 (Km 278/000 to Km 388/180), Length = 110.180 km <b>(Four Lane Section = 110.18 km)</b>	
Contractor	M/s. Highway Infrastructure Pvt. Ltd., Indore (M.P.)	
Supervision Consultant	M/s. RITES Ltd., New Delhi.	
	<b>Civil Works Contract</b>	<b>Supervision Consultancy</b>
Contract Amount	Rs. 0.74 Crores	Rs. 1.44 Crores
Start Date	01. 06. 2007	21.10.2005
Contractual Period	Four months	Two years

S.No.	DESCRIPTION	DETAIL WORK DONE	REMARKS
I)	<b>Round the clock Patrol.</b>	4 Nos. Patrol vehicle deployed for both the sections i.e. 2 for each section for round the clock patrolling. The locations are as under: <b>For Chittorgarh to Udaipur Section</b> Station at Mangalwar Toll Plaza- 2 Nos. <b>For Udaipur to Ratanpur Section</b> Station at (i) Paduna Toll Plaza - 1 No. (ii) Kherwara Toll Plaza-1 No.	The main task being performed by patrolling vehicle is to provide immediate help to accident vehicles, traffic management, road safety works and reporting for prevention of encroachment.
II)	<b>Deployment of Ambulance.</b>	4 Nos. Ambulances deployed for both the sections. The locations are as under: <b>For Chittorgarh to Udaipur Section</b> Station at Mangalwar Toll Plaza- 2 Nos. <b>For Udaipur to Ratanpur Section</b> Station at (i) Paduna Toll Plaza - 1 No. (ii) Kherwara Toll Plaza-1 No.	4 Nos. ambulances deployed with proper staffing as per provision of contract. The O & M contractor has also tie up with local doctor for "on call" availability in case of emergency at accident site.
III)	<b>Tow Away Crane.</b>	As per provision of Contract, 4 Nos Tow away Cranes deployed for both sections. The locations are as under: <b>For Chittorgarh to Udaipur Section</b> Station at Mangalwar Toll Plaza- 2 Nos. <b>For Udaipur to Ratanpur Section</b> Station at (i) Paduna Toll Plaza - 1 No. (ii) Kherwara Toll Plaza-1 No	As per the provision of contract, the contractor has deployed 4 Nos. tow away vehicles to cater for the vehicle met with accident. Additional lifting Cranes of higher capacity are also engaged by the Contractor for removing heavy vehicle in case of requirement.
IV)	<b>Help lines boards.</b>	At alternative side at an intervals of every 5 km Help line Board have been fixed indicating telephone number of Police station and Control room number. The Control rooms are at the following locations: <b>For Chittorgarh to Udaipur Section</b> Mangalwar Toll Plaza - Ph. No. 9414156293 <b>For Udaipur to Kesariyaji Section</b> Paduna Toll Plaza- Ph. No. 9414157273. <b>For Kesariyaji to Ratanpur Section</b> Kherwara Toll Plaza- Ph. No. 9414156258	All help lines boards are installed at an intervals of 5 Km on both sides staggered, which is helpful for road users for getting immediate help of Police & O&M Operator.
V)	<b>Cleaning work</b> Cleaning of Road	Cleaning in both section i.e. Chittorgarh-Udaipur & Udaipur-Ratanpur section is being done regularly.	The O & M Contractor has taken up activities of cleaning of Road by deployment of different teams in different sections for over all cleaning work
VI)	<b>Maintenance of Plantation</b>	The O & M Contractor is maintaining median plantation in the entire section of the project road on NH-76 and NH-8.	The O & M Contractor has taken up activities of maintaining the median plantation by deployment of water tankers for feeding of water and manpower for making carry, manuring and trimming works in different locations by different teams for overall maintaining of plants.
VII)	<b>Removal of Dead Animals</b>	Removal of Dead Animal is regularly being done by separate teams by using 2 Nos. of Picking Vans.	The dead animals lying on the highway are removed and buried at safe locations.

**STATUS OF CONSTRUCTION PACKAGES UNDER PIU, UDAIPUR**

**Udaipur – Mangalwar Section (Km. 113/825 to Km. 172/000) of NH-76  
(Contract Package KU-VI)**

<b>Length</b>	<b>58.175 Km.</b>
NH No.	76
Funding	NHAI
Contractor	M/s. Sadbhav Prakash (JV)
Consultant/Engineer	M/s. SMEC International Pty Ltd. in association with M/s. SMEC (India) Pvt. Ltd.
Contract Amount	Rs. 146.35 Crores
Final Contract Price	Rs. 177.24 Crores
Start Date	23.10.2001
Contractual Completion Date	22.04.2004
Actual completion date	28.02.2005

**STATUS OF CONSTRUCTION PACKAGES UNDER PIU, UDAIPUR**

**Mangalwar - Chittorgarh Section (Km. 172/000 to Km. 220/000) of NH-76  
(Contract Package KU-V)**

<b>Length</b>	<b>48.00 Km.</b>
NH No.	76
Funding	NHAI
Contractor	M/s. Madhucon Binapuri (JV)
Consultant/Engineer	M/s. SMEC International Pty Ltd. in association with M/s. SMEC (India) Pvt. Ltd.
Contract Amount	Rs. 124.70 Crores
Final Contract Price	Rs. 122.05 Crores
Start Date	23.10.2001
Contractual Completion Date	22.04.2004
Actual completion date	05.02.2004

**STATUS OF CONSTRUCTION PACKAGES UNDER PIU, UDAIPUR**

**GQ : DELHI – MUMBAI CORRIDOR**

**Udaipur – Kesariyaji Section (Km. 278/000 to Km. 340/000) of NH-8  
(Contract Package UG-I)**

<b>Length</b>	<b>62.00 Km.</b>
NH No.	8
Funding	NHAI
Contractor	M/s. KMC Construction Limited, Hyderabad.
Consultant/Engineer	Scott Wilson Kirkpatrick & Co. Ltd., UK in association with M/s. SWK India, M/s. Span & M/s. CEG Jaipur.
Contract Amount	Rs. 1,64,75,76,353/-
Likely Cost of Completion	Rs. 227.86 Crores.
Start Date	30.10.2001
Contractual Completion Date	30.04.2004
Actual completion date	28.02.2004

**STATUS OF CONSTRUCTION PACKAGES UNDER PIU, UDAIPUR**

**GQ : DELHI – MUMBAI CORRIDOR**

**Kesariyaji – Ratanpur Section (Km. 340/000 to Km. 388/180) of NH-8  
(Contract Package UG-II)**

<b>Length</b>	<b>48.180 Km.</b>
NH No.	8
Funding	NHAI
Contractor	M/s. Gayatri-Ranjit (Joint Venture)
Consultant/Engineer	Scott Wilson Kirkpatrick & Co. Ltd., UK in association with M/s. SWK India, M/s. Span & M/s. CEG Jaipur.
Contract Amount	Rs, 1,26,04,76,270/-
Final Contract Price	Rs. 127.00 Crores
Start Date	24.10.2001
Contractual Completion Date	24.04.2004
Actual completion date	10.04.2005

## **Project Brief**

### **Introduction**

Good transportation systems are lifeline to the area they serve. Highways are a major component of the total transportation system in India. Roads bring about all-round development to the region. A good road network helps in the success of all development activities, including movement of people and goods, agriculture, commerce, economic, education, health, social welfare, cultural diversification, and maintenance of law and order and security.

The National Highways Authority of India (NHAI) has been entrusted with the development of the North-South Corridor (NS) connecting Srinagar (Jammu & Kashmir) to Kanyakumari (Tamil Nadu) including Cochin-Salem spur and the East-West Corridor (EW), which connects Silchar (Assam) and Porbandar (Gujarat).

The 4 laning Project road under implementation with this Project Implementation Unit (PIU EW Udaipur) of National Highways Authority of India, is part of the East West Corridor, which comprises of 4 laning the existing National Highway no.14 from Swaroopgunj to Pindwara (Km 264 – Km 246) and NH-76 from Pindwara to Udaipur (Km 0.0 to Km 104). It provides the important link between western part of India (Kandla port) in Gujarat and Silchar in Assam. Needless to emphasise the important role it plays in the already soaring economic growth of the country and its social structure.

The road network on completion will provide superior quality with connectivity in these high traffic density corridors. Almost all the important cities and towns of the country, industrial/mining areas, ports, agricultural belts and other major commercial centres would be connected through an efficient road transport system, playing a very important role in our already fast growing economy. Socially, it would be a great boon, bringing people and cultures nearer and better integrated.

Depending upon the prioritisation of road sections, it is being implemented in stretches through civil contracts by breaking up into manageable packages namely RJ-1, 2, & 3. Their supervision has been entrusted to reliable international level Supervision Consultants.

### **Background**

The work of construction under these contract packages was awarded by NHAI to experienced agencies equipped with sophisticated and modern construction machinery and equipments after National Bidding process with High standard Pre-qualification conditions.

The work is to be executed as per MoRTH specifications for Roads & Bridges and modified specifications as per contract agreement.

The work mainly involves heavy earth/rock cutting, mostly by blasting, embankment construction, new pavement and structures.

The works of consultancy services for construction supervision of these packages were awarded by NHAI to internationally experienced consultants

who have experienced technical staff to supervise such important projects and appointed from a group of pre-qualified consultants.

### **General Project Features**

Total length of project road is 119.024 km (14.3 kms on NH-14 & 104.724 kms on NH-76).

The provision of service roads has been confined to only those locations where substantial local traffic movement is expected over considerable road length.

The project has three bypass alignments at the following locations:

- Pindwara Bypass of 5.6 km long;
- Jaswantgarh Bypass of 3.6 km long; and
- Udaipur Bypass of 19.7 km (Kavita – Debari via Amberi)

The Road Carriageway is 7.5m wide with 1.5m paved shoulder and 1.0m hard shoulder. The median is 4.5m wide therefore total width of project road is 24.0 m. The Service Road is 5.75m wide with 1.50m wide hard shoulder.

The road has been designed for speeds of 100Km/h in rolling/plan terrain while for Mountainous sections, it is kept as 80Km/h. These improvements in Geometrics and other elements resulted in a shortening the distance from Pindwara to Udaipur by more than 13Kms on NH-76. Gradient of existing alignment also has been eased to facilitate the heavy vehicles to run smoothly resulted in saving in time, maintenance and fuel consumption for the road users which in broad aspect resulted in overall economy of the Nation.

### **Pavement Design (All in mm)**

Only flexible pavement is considered for new pavement because during the Feasibility Study Report rigid pavement was not found to be economically viable option. Wearing course has been designed using IRC and AASHTO methods.

Thickness of Road Crust is as under:

Sr. No.	Item	Main Carriageway	Service Road
i	Subgrade	500mm	500mm
ii	GSB	200mm	150mm
iii	WMM	250mm	200mm
iv	DBM	120mm	50mm
v	BC	40mm	40mm

Pavement Design for NH-14 is different than NH-76 based on traffic data and available pavement crust.

### **Junctions and Other Improvements**

All intersections have been designed to minimize the number and severity of potential conflicts between cars, buses, trucks, bicycles and pedestrians by access control islands through channelizing, by providing acceleration &

deceleration lanes. Raised channelizing islands have been provided to accommodate traffic control devices. Refuge islands have been provided for the safe manoeuvres of pedestrians. Separate left / right turn lanes are provided to reduce conflict in the intersection area. Acceleration lanes on the major roads have been provided for the left turning traffic from the minor road on to the major road, and deceleration lanes on the major roads, for left turning traffic from the major road on to the minor road to minimize hazard and inconvenience, to increase capacity, and to promote operating efficiency.

The following aspects have been considered to ensure partially controlled access system and to improve traffic safety aspects on a high speed highway:

Unregulated roadside development needs to be curbed by exercising limited access control.

Individual driveways to private properties such as petrol pumps, industry and commercial premises have not been spaced as per norms.

Median openings have been generally limited to intersections with sub-arterial roads and have not been provided for individual driveways. However, where intersections are far apart, additional openings have been provided at intervals of about 2 km for U-turns and for diversion of traffic to one of the carriageway at times of emergency or major repairs.

#### **Special Provisions for Hill Section**

Part of road section of NH-76 passes through mountainous terrain. Extensive slope stabilisation measures ranging from simple turfing to gabions, RCC retaining/ breast walls, shotcrete and rock bolting are envisaged in order to get stable hill slope at the desired inclination.

For the mountainous terrain, the design speed criteria is 80 km/h wherever it is not economically viable to design horizontal alignment at 100 km/h, complete with transition zones for smooth transition in speed between plain / rolling terrain and mountainous sections.

As NH-76 is a part of a greater Kandla to Kanpur highway corridor, no compromise on longitudinal grade aspects has been made to facilitate smooth manoeuvring of trailers.

Two short tunnels are provided because of consideration of economics. Twin tubes tunnels at Km 44.3 and Km 49.2 are to be constructed.

#### **Wayside Amenities & Safety aspects**

In order to improve the road users' comfort, various way-side amenities are proposed along the project road. Duct line crossings for utility services are also proposed at required intervals throughout the route.

In addition, measures have been proposed to improve traffic safety by proposing metal beam/ concrete crash barrier, road sign, pavement marking, delineators, street lighting in urban areas and pedestrian guard rails.

**Bridges & Cross Drainage Structures**

<b><u>Structure</u></b>	<b><u>RJ-3</u></b>	<b><u>RJ-2</u></b>	<b><u>RJ-1</u></b>
• Fly-over	1	-	1
• Major Bridges	-	3	3
• Minor Bridges	4	10	12
• Box Culverts	89	116	93
• Road Under Passes	7	6	9
• Hume pipe culverts	5	18	13

**Environmental Impact Assessment and Management Plan**

Environmental Assessment has been carried out in order to assess the likely impacts both beneficial as well as adverse, arising due to the proposed road project. The methodology adopted for this purpose is in accordance with the requirements of the Ministry of Environmental & Forest (MoEF), Government of India guidelines for Rail / Road / Highway projects.

The widening of the project road will result in some adverse impacts on biological environment. However, it will also result in the induced development, enhanced business opportunities, employment generation, easy access for the local residents of the areas as well as will improve the socio-economic conditions of the region.

**Project Scheduling**

The Civil Works Contract has been awarded for duration of 30 months scheduled to be completed by June-July 2008.

Present Progress of Each Contract Package is as below:

- Contract Package RJ-1                      26.90%
- Contract Package RJ-2                      39.28%
- Contract Package RJ-3                      38.05%.