

STATEMENT OF QUALIFICATIONS

**INFRASTRUCTURE DEVELOPMENT, HIGHWAYS AND
STRUCTURES**



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1 Executive Summary

SECON Private Limited is an ISO 9001:2008 certified, NABL Accredited, GIS Driven Multidiscipline Engineering Company. SECON is a financially sound, stable, zero-debt Company that was established in 1981. SECON is one of the leading multidiscipline engineering consulting firms and one of the largest and oldest Surveying and Mapping firms in India. Most of SECON's clients are repeat and long-term clients.

The key differentiator for SECON is that the company is a well-established (established in 1981) financially stable (Zero Debt and Consistently Profit Making) Multidiscipline Mapping and Engineering firm that provides a total solution from a single window for the entire lifecycle of an Infrastructure development project.

The domain expertise of SECON comprises:

| Design Consultancy and Engineering Services | Investigation and Services |
|--|---|
| <ol style="list-style-type: none"> 1. Irrigation, Flood Control and Water Management 2. Water, Sanitation and Storm water Engineering(Public Health Engineering) 3. Highway Engineering and Construction Supervision 4. Electrical Network Distribution Engineering 5. Oil and Gas Pipeline Transportation Routing and Feasibility 6. Web enabled GIS Driven Software Development and Database Creation for Infrastructure. 7. Software development to improve productivity for Engineering Design and Drafting (CAD) fields. 8. Civil and Structural Design 9. Town Planning and Urban Development 10. Environmental Engineering and Environmental Impact Assessments and Permitting 11. Assistance in Right of Use Acquisition and Permitting | <ol style="list-style-type: none"> 1. Land Surveying for Topographic, Cadastral Mapping, Construction Supervision and Hydrographic Surveys 2. Geotechnical Engineering and Soil Investigations 3. Water Distribution System Leak Detection, Rehabilitation and GIS Based Asset Management Services 4. Photogrammetry, LiDar, Satellite Image Processing and Remote Sensing and generation of 3D Digital Terrain and City models. 5. GIS Data Conversion and Maintenance 6. Route Planning, 3D Corridor Mapping, Generation of GIS database 7. Ground water and Resistivity Surveys 8. Underwater Leak Detection and Turnkey Solutions 9. Exploration, Mine Survey & Planning 10. Terrain Evaluation and Geological Appraisal 11. Detection of Underground Utilities using Ground Penetrating Radar and Associated Tools. |

SECON is the only firm in India to offer a Total Solution for Mapping, Infrastructure Investigation, Engineering Design and Construction Supervision. All of these services are offered wholly in-house by SECON .



SECON's over **3 decades of mapping experience** in Land Surveying, Photogrammetry, LiDAR Data Acquisition and Processing, and Remote Sensing, gives it a significant advantage for advanced mapping since it has a comprehensive combined experience in all of the above technologies.

SECON has long-term partnerships with International Engineering and Mapping Firms across Asia, North America, Africa, Middle East, Europe and Australia and has executed both Engineering and Mapping projects in these areas for its clients. SECON is registered with Asian Development Bank (ADB) and DACON (World Bank) to provide consultancy services.

SECON has been awarded the 3rd CIDC Vishwakarma Award 2011. This is a National Award for Projects of National Excellence.

SECON has been awarded the best services Export Excellence Award-2010 by Federation of Chamber of Commerce and State Bank of India.

SECON has the following standing in India:

- The largest private Land Surveying and Mapping firm in India for Topographic and Cadastral Surveys.
- One of the Largest and most Experienced Firms for Land Acquisition Assistance for Pipeline, Highway and other Linear Corridor and Large Area projects. SECON has developed Customized Web Enabled Software for Data Management and Administration of this Complex Process which have included the compilation and data management more than 10 million parcels compiled by SECON as of date (including field data collection).
- One of the leading private Mapping and Design firm for Irrigation and Water Management projects.
- One of the largest private Highway Mapping, Design and Construction Supervision firms in India.
- One of a handful of firms in India to have the NABL certification for its Geotechnical Laboratory. NABL is the National Accreditation Board for Testing and Calibration Laboratories (NABL).

Government of India has authorized NABL as the sole accreditation body for Testing and Calibration laboratories.

- The first private company to execute LiDAR flying and processing services in India. SECON now one of the largest LiDAR Data processing company in India.

SECON has executed over:

- 65,000 km of large-scale Pipeline Corridor Mapping – this includes Route Engineering, Topographical and Cadastral Mapping and Rights-of-Way Acquisition assistance and management. This is the largest amount of Pipeline Corridor mapping done by any corporation in India.
- 15000 km of mapping, design, and construction supervision of highways
- 11950 sq km of large-scale mapping (topographical and cadastral) for Irrigation projects. This includes the Topographic and Cadastral Mapping of 6000 Sq Km for the World Bank Aided Uttar Pradesh Water System Restructuring Project.
- 7950 Sq Km of Irrigation and Water Management design projects. SECON is currently executing and Irrigation Mapping and Design Project for an area of 14000 sq km for the Narmada River Basin in Madhya Pradesh. This project was done by mapping with a combination of High Resolution (0.5 m) Stereo Satellite Imagery and Land Survey Method. This technology is being used for the first time in India for an Irrigation and Water Management project.



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- 600 infrastructure development projects (includes subdivision/township mapping, design and planning) which includes construction supervision and quality control for the International Tech Park (ITPL) in Bangalore.
- 600,000 meters of geotechnical investigation and drilling in various soil strata including investigations for the Bangalore International Airport.
- SECON has completed a major multimillion dollar mapping and consulting project for the planning and design of the Water and Sanitation system for 13 municipalities (100 settlements) in Libya. The capital expenditure of the project is around 2.5 billion US\$.
- SECON has successfully completed the Multi Million Dollar Contract for Project Management Consultancy Services for Up Gradation of important Road Corridors in Bangalore Urban and Rural Districts for a length of 1004 Km. Estimated capital expenditure of the project is 9.96 Billion Rupees(US \$ 220 million).
- SECON has successfully completed more than 500,000 Sq Km of LiDar, Photogrammetry and Remote Sensing Projects as of August 2010.

SECON has a state of the art 105,000 sq ft ISO 9001:2008 certified operations center set on a 2.5 acre campus in Bangalore, India that is fully owned by the company. Bangalore is the technology capital of India and is globally recognized for its technical excellence.





2 Infrastructure Development, Highways and Structures

2.1 Introduction

Infrastructure is the root for development of an area. With India scaling new heights in economic growth, developing a strong infrastructure is essential to continue the growth. Infrastructure includes Highways, Urban Development, Airports, Railways, Ports, Power, etc. The road sector has witnessed phenomenal growth since the year 2000 with most of the National Highways being upgraded to 4 lane divided carriageways.

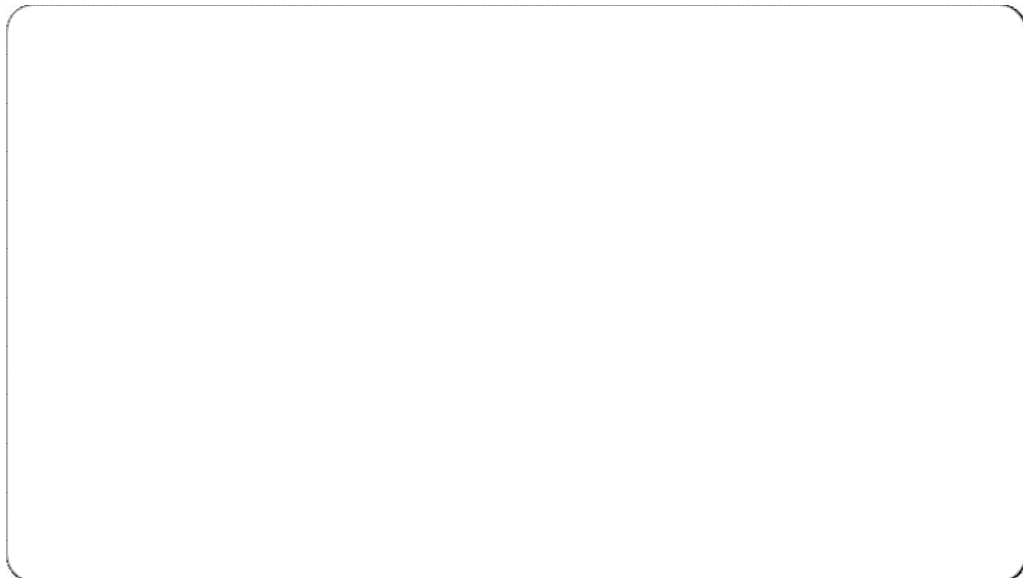
SECON provides consultancy services/Technical assistance in Infrastructure Development, Highways and Structures to clients of all sectors including Private / Public and Government, both at National and International level.

Capabilities include Fixing of alignments, Feasibility studies, Engineering Surveys and Investigation, Traffic studies and Analysis, Detailed Design, Preparation of Construction Drawings, Detailed Cost Estimates, Financial and Economic Viability Analysis, Bid Documents for International/National Competitive Bidding and Public-Private Partnership Projects, Construction Supervision, Project management and Quality Control

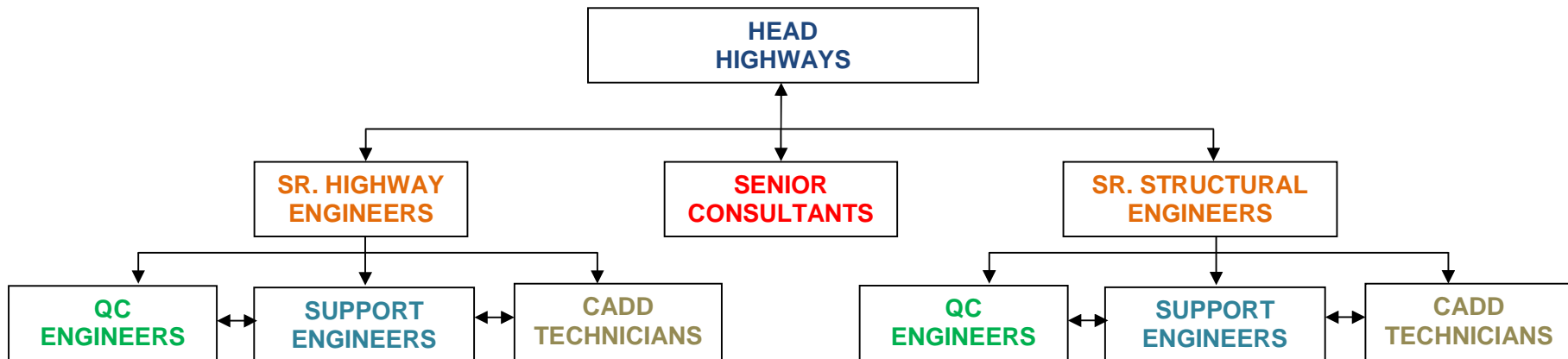
SECON's uniqueness is expertise in Multidisciplinary fields – the capability of providing wholistic solutions including Data Collection, processing, design and GIS development for Infrastructure as well as Public Health Engineering, Irrigation and Electrical networks.

2.2 Team Highways

Team Highways in SECON, is an amalgamation of experience and youth. The teams comprises of Engineers, QC personnel, CADD Technicians and Administration staff. Split of the team is given below



2.3 Organization Chart



3 Facilities

3.1 Hardware and Software

The department is amply augmented with high end computers, latest design and drafting software and in house NABL accredited laboratory for soil, rock, water and material testing.

3.2 Computer Aided Optimal Design and Drawings

Team Highways of SECON is capable of designing alignments, interchanges, bridges, flyovers and other structures using the latest software and technology. Expertise includes Generation of **Digital Terrain Model (DTM)**, **Complex Stress Analysis for Structural Elements**, **Transport Network Modelling**, etc.

Standards software is supplemented by **in-House Software** for Quantity calculation, generation of drawings, etc. developed by SECON Software & GIS department.

Some of the important software held and used for computer aided optimal design and drawings include the following:

| Components | Critical Design Parameters | Software |
|--|--|---|
| Highway Design | <ul style="list-style-type: none"> • Generation of DTM • Design of Horizontal Geometrics • Design of Vertical Profile • Generation of Working Cross Sections • Working drawings | <ul style="list-style-type: none"> • Mx Road Suite • Novapoint • Civil 3D • AutoCADD • In house Software |
| Interchange and Junction Designs | <ul style="list-style-type: none"> • Geometric Design as per standards • Vertical Profile • Working drawings | <ul style="list-style-type: none"> • Mx Road Suite • Novapoint • Civil 3D • AutoCADD • In house Software |
| Bridges, Flyovers, Underpasses, Culverts | <ul style="list-style-type: none"> • Hydraulic Studies • Load Analysis • Structural Design • Working Drawings | <ul style="list-style-type: none"> • Staad Pro • AutoCADD • In house Software |
| Traffic Studies and Analysis | <ul style="list-style-type: none"> • Collection of Data • Compilation and Analysis of Data | <ul style="list-style-type: none"> • In house software and routines |
| Quantity Survey | <ul style="list-style-type: none"> • Detailed Quantity Calculation • Bill of Quantities • Cost Estimates | <ul style="list-style-type: none"> • In house software and routines |

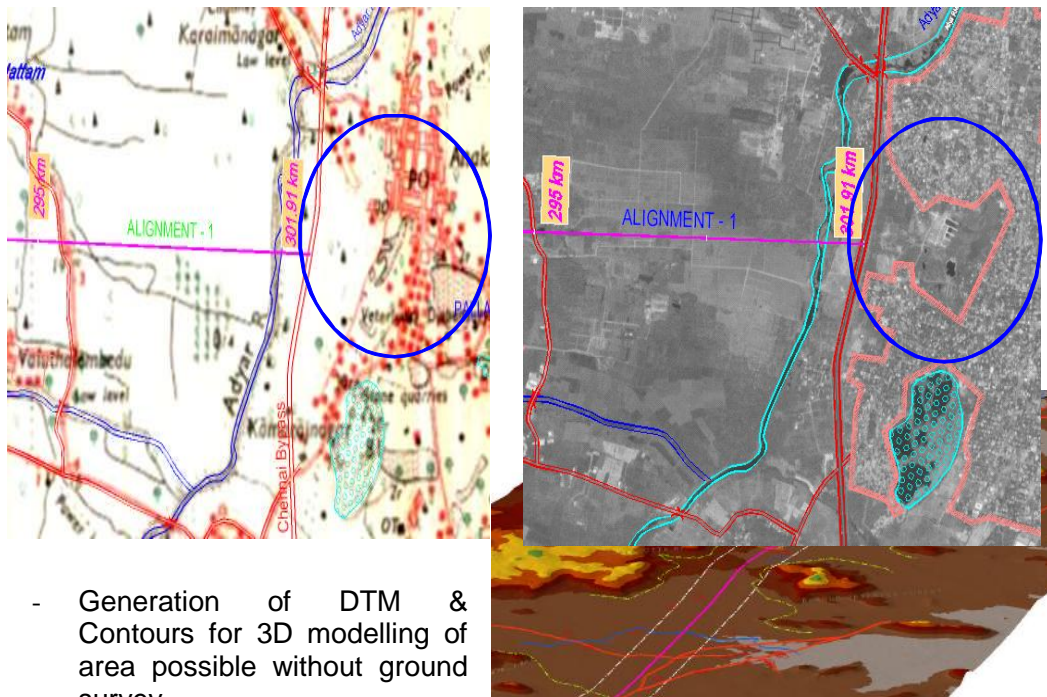
| Components | Critical Design Parameters | Software |
|--------------------|--|--|
| Cut & Fill Volumes | <ul style="list-style-type: none"> • Volume calculation between surfaces • Layer wise quantities based on soil types • Generation of Earthwork Contours | <ul style="list-style-type: none"> • Mx Road Suite • AutoCADD • In house Software |

3.3 Use of Remote Sensing, Photogrammetry & LiDAR for Highways

SECON is the first consultant in India to use Stereo Satellite Images for the planning of alignments for Expressways. The entire processing, interpretation and mapping of the images is done in-house.

Plan and profile drawings for various alternate alignments have been generated based on the DTM from the Satellite Images. Advantages of using these latest technologies are:

- Availability of updated land information



- Generation of DTM & Contours for 3D modelling of area possible without ground survey
- Generation of vertical profile along alternate alignments based on DTM

3.4 GIS Driven Information System

In the fast dynamic world, GIS and MIS are the key to keep pace with the requirements of the user. Data management is an important aspect in monitoring

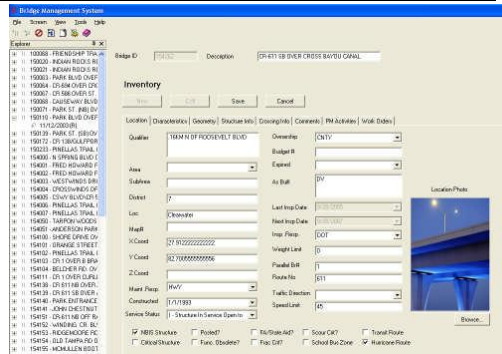


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projects. SECON has the unique feature of having Technical and GIS /MIS Teams working in close association.

GIS/MIS Applications developed in-house by the SECON Software and GIS team include

- Bridge Management System
- Road Progress Monitoring System (RPMS)
- Bridge Progress Monitoring System
- ROW Acquisition for Roads



3.5 Knowledge Base

SECON Highways Department maintains a library of literature in hard and soft copy. Collection includes Indian and International Standards, Handbooks, Manuals, Journals, Books Covering different Fields of Transportation and Structural Engineering.

The knowledge base is dynamic and gets updated as and when one of the members adds on with technical periodicals.



4 Service Offerings

SECON is one of the very few organizations in India that has the capability of both Investigation and Design. We are presently carrying out both Design Consultancy as well as construction Supervision Projects for the National Highways Authority of India (NHAI), the premier organisation of Highways in India. SECON has executed projects all across India, Afghanistan and some parts of Africa.

SECON has executed projects in Infrastructure Development Services for Refineries, Terminals, Airports, Roads & Highways, Power Plants, Chemical Plant and Off-shore Missile Launching sites.

SECON's supervision teams have been deputed to work with major multinational engineering and construction companies operating in India as well as leading public and private sector agencies. Our teams have actively involved in construction supervision and project management as well as contract management.

Details of projects is furnished in Section 6

4.1 Preparation of Basemap

- Topographic/Planimetric/ mapping
- Digital Terrain models
- Preparation by data collection and processing from:
 - Satellite Images
 - Field Surveys
 - Aerial Photos and LiDAR

4.2 Surveys and Investigation

Pre Construction

- Establishing GPS control for the command area based on National Network of Control
- Extension of primary control by Total Station based on coordinates of GPS control points
- Providing bench marks and connection of the same to the National Datum
- Monumentation of the Panimetric and Height control
- Topographical survey of the entire area including cross sections and longitudinal sections
- Computer aided downloading, processing, digitisation, development of Digital Terrain Model (DTM), data management for engineering application.
- Preparation of horizontal and vertical profile on selected centerline
- Traffic Studies including Demand Forecasting

- Environment Resettlement and Rehabilitation Studies
- Data acquisition and preparation of land schedules for acquisition.

During Construction

- Checking the stability of control points
- Setting out of co-ordinates of the final road centreline
- Checking coordinates and levels for foundation, substructure, bearing and superstructure as per construction drawing;

4.3 Soil and Material Investigation

- Drilling 150mm dia. boreholes in all kinds of strata for structures and high embankment
- Conducting Standard Penetration Tests (SPT)
- Collecting 100mm dia. undisturbed soil samples in cohesive layers;
- Identification of quarries for road metal, sand, gravel, fill material, etc
- Testing of the samples and quantum available
- Subgrade Investigation by trial pitting and conduction of Dynamic Cone Penetration Tests and field CBR Tests

In addition to above, following laboratory tests are conducted at our in-house laboratory.

- Grain size analysis – Both Sieve and Hydrometer analysis;
- Atterberg Limits;
- Natural Moisture Content;
- Bulk and Dry Density;
- Specific Gravity;
- Direct Shear Test;
- Triaxial – UU Test;
- Consolidation Test;
- Crushing Strength of Rock;
- Specific Gravity of rock;
- Water absorption of rock;

4.4 Design and Detailed Engineering

- Traffic Demand Estimates
- Detail Engineering for Road, Pavement, Junctions, Intersection and Interchanges

- Horizontal and Vertical geometrics design
- Pavement Design
- Analysis, design and preparation of construction drawing for Bridges, Culverts, Flyovers, Interchange, Vehicular and pedestrian underpass and other ancillary structures.
- Preparation of Bill of Quantities, rate analysis and estimate.
- Site selection and complete design of Toll Plazas
- Site selection and complete design for Rest areas and Truck Parking facilities.
- Design of landscaping, site grading and roadside arboriculture.
- Value analysis/value engineering
- Economic analysis and BOT viability studies
- Preparation of technical specifications, Bill of Quantities, cost estimate and detailed tender documents.

4.5 Resource Based Construction Scheduling

- Preparation of detail resourced based program covering general methods, arrangements, order and timing for all the activities by MS Projects;
- Identification of corridor for transportation of personnel and heavy equipments for execution.
- Checking of milestone progress of work;

4.6 Construction Supervision and Generation of As Built Drawings

- Construction supervision and project management
- Preparation of Inspection Checklist for critical items including material testing and investigation
- Assistance in obtaining project related clearances from the concerned Authorities.
- Contract management involving various aspects of Civil Engineering Construction
- Supervision of bulk earthwork handling, site grading, high embankments, controlled filling of low-lying areas, alignment and survey control, storm water drainage, flexible and rigid payments, landscaping, etc.
- Checking and Certification of quantities executed as per the specifications laid down in the tender document
- Verification of bills

- Assisting Client in clearing arbitration and Disputes
- Identification of approved variations from the Tender drawings
- Preparation of as built drawings incorporating the changes, if any for effective management.

4.7 GIS Based Asset Management

- Field Survey and Data collection
- GIS Data Development (converting hardcopy/CAD plans/asbuilt drawings into GIS database)
- Development of Enterprise GIS applications for Asset management and Environmental monitoring
- Generation of Network Mapbooks (generation of network system maps in hard copy and digital format viewable on web based system)

5 Relevant Project Experience

Relevant experience gained in executing major International and National Projects are listed below

5.1 Fixing of Alignment, feasibility and Detailed Project Reports

- ❖ Finalization of alignment, Topographical and Cadastral Survey work of Satellite Town Ring Road, Intermediate Ring Road, Radial Roads and Town Ring Roads for as a part of Integrated Road Network Programme in and around Bangalore City for Bangalore Metropolitan Region Development Authority / Public Works Department for 1100 km.
- ❖ Preparation of Detailed Project Report (DPR) Covering Topographical & Cadastral Survey, Geotechnical Investigations, Traffic Studies, Bye-pass Alignments, GAD & Designs for ROB's, Bridges, Flyovers & Culverts, Relocation Plan of Existing Utilities, Environmental Impact Assessment studies, Resettlement Action Plan and Social Impact Analysis, Economic and Financial Analysis and preparation of Bid Documents for
 - 4/6 laning of Nellore to Chilkalurupet section from km 178 to km 355 on NH 5 (180 km)
 - 4/6 laning of Farukhnagar to Kottakota section of NH 7 (105 km)
 - 4/6 laning for Kanyakumari to Trivandrum section of NH 47 & Nagarcoil to Kavalkinaru of NH 47B (115 km)
 - Integrated Road Development Project at Kanpur (55 Km)
 - 4 lane bypass for Nellore Town on NH5 between km 165/200 and km 178/200 (17 km)
 - Improvement of selected road stretches in Kochi (67 km)
 - 4 laning of Hyderabad - Vijayawada (km 40/0 to km 160/0) section of NH 9 (120 km)
 - 4/6 laning from Nelamangala to Hassan of NH 48 (163 km)
 - Feasibility & Detailed Design of Road Tunnels in and around Shimla in JV with GeoConsult - Australia, being the lead partner and RITES
- ❖ Fixing up alignment using stereo satellite imagery to build Digital Terrain Models for
 - Mumbai – Vadodara Expressway
 - Delhi – Meerut Expressway
 - Chennai – Bangalore Expressway
- ❖ Alignment, investigations and design of Alternate Approach Road to the **Bangalore International Airport**.
- ❖ *Feasibility cum Preliminary Design Report for the Bangalore Chennai Expressway in association of Egis, France (ongoing)*

5.2 Value Engineering Services proposed on B.O.T basis

- Palanpur -Swaroopgunj section of NH 14 from km 340.000 to km 264.000 (76 km)
- Jadcherla to Kottakota from km 80.05 to km135.469 (55 km)

5.3 Collation of DPR Data for 5700 Km of NH

Collation of DPR Data for 5700 Km of NH for NHAI's Road Information System (RIS) for North South Corridor connecting Srinagar to Kanyakumari and East West Corridor connecting Silchar to Porbandar including Seamless Merging and Geo Referencing using common GPS control points.

5.4 Construction supervision

- Upgradation of 39 important road corridors in Bangalore Urban and Rural Districts for a length of 1004 km
- 4 laning and strengthening of existing two lane stretches from Nellore to Chilakalurupet (km 178 to km 358) on NH 5 in Andhra Pradesh in Joint Venture with KM International, Sweden
- 4 laning and strengthening of existing two lane stretches from Krishnagiri to Ranipet (km 1.44 to km 144.21) on NH 46, Easterly Bypass (2.3 km) on NH 7 and Walajahpet Bypass (7.5 km) on NH 46 in Tamilnadu in JV with RITES and Sir Owen Williams India Limited (SOWIL)
- Quality Assurance and Supervision of State Highway Maintenance in Belgaum, Chikkodi, Dharwad, Bijapur, Bagalkot, Haveri, Karwar and Gadag Divisions for a length of 3700 km spread in North Karnataka.
- Quality Control / Concurrent evaluation / Quality Assurance in the works of Roads (350 km) and Bridges under Road Construction Department in Jharkhand in Joint Venture with Dakshayan Consultants, Ranchi, SECON being lead partner.
- Widening & Improvements to existing road from Yadgir to Shahpur (34.80 km)
- Detailed Project Report and Construction Supervision of major bridge across River Yagachi near the historical town of Belur.
- Consulting services for **Master Planning, Design and Supervision** of additional roads, staff/visitor parking, bus holdings and bus stops inside the **Bangalore International Airport**.
- *Upgradation of State Highways in Uttar Pradesh for a length of 240 Km in JV with CES (ongoing).*

5.5 Proof Checking Designs and Construction Supervision

- *96 Bridges located in Bangalore, Tumkur, Kolar, Shimoga, Davanagere, Chitradurga, Mysore, Mandya, Dakshina Kannada, Chikkamagalur, Chamarajanagara, Kodagu, Udupi & Hassan Districts of South Karnataka (ongoing)*

5.6 International Projects

- Preparation of DPR for "Water Supply, Sewerage, Storm Water Collection System, Electrical Town Distribution Network, Telecom Distribution Network and Roads for 100 towns in Tripoli Region, Libya
- Engineering Survey and Design of Water Supply System, Sewerage System, Storm Water System, Electrical Town Distribution Network, Street Lighting, Telecommunication Network, Gas Distribution System and Roads for Al Herrah Project in Tripoli Region, Libya for Saving Investments and Urban Development Company (SIUDC), Libya.
- Preparation of DPR for "Water Supply Distribution Network, Sewerage Drainage System, Storm Water Drainage System, Irrigation System, Roads and Pavement Designs with Parking Area " for Gargaresh Cornish Beach Development (Water Front) in Tripoli, Libya.
- Design of interchanges at for decongestion of 6 junctions on 2nd Ring Road of Tripoli, Libya

- Detailed Engineering Survey, Design of Water Supply, Fire Hydrant Network, Sewerage Network, Storm Water Network, Roads, Sidewalks, Car Parking, Electrical Power, Road / Street Lighting Network including Lighting for side walk along the beach, Telecommunication Network and Irrigation System for gardens and green areas for complete area inside the boundary of the approved Master Plan of Gargaresh Beach Area, Tripoli, Libya for Organization for Development of Administrative Centers (ODAC), Libya.
- *Preparation of "Preliminary and Detailed Design Of Water Supply, Sewerage and Road Network" for Al Quryat Eshargiah , in Libya (ongoing)*
- *Preparation of "Preliminary and Detailed Design Of Water Supply, Sewerage System, storm water Drainage System Road Network, Electrical and Telecommunication, Town Distribution System" for Al Tawarga , in Libya. (ongoing)*
- *Design of "Roads, RCC Structures, Storm Water Drainage Collection and Disposal System" for the following projects in Kingdom of Saudi Arabia (ongoing)*
 - *Shuqaiq Water Transmission System*
 - *Ras Az Zaur Water Transmission System**Design of "Roads, Storm Water Drainage Collection and Disposal System" for the Eastern Province Water Transmission System in Kingdom of Saudi Arabia(ongoing)*

6 DESCRIPTION OF ASSIGNMENTS

6.1 National Projects

| Sl. No. | Assignment Name | Assignment Highlights |
|---------|---|---|
| 1. | Consulting Services for Proof Checking of Designs, Project Management and Construction Supervision of III Phase Bridges in Package-B i.e. Bridges in Bangalore, Tumkur, Kolar, Shimoga, Davanagere, Chitradurga, Mysore, Mandya, Dakshina Kannada, Chikkamagalur, Chamarajanagara, Kodagu, Udupi & Hassan Districts in the State of Karnataka | <p>Proof Checking and recommending approval of Contractor's Design, Drawings, Tender Documents & Testing Procedures, Co-ordination with Contractor and Client, Construction Supervision, Progress Monitoring, Quality Control and Quality Assurance Construction, Safety Audits for</p> <ul style="list-style-type: none"> • 6 Major Bridges • 90 Minor Bridges • 16.5 km of approach roads <p>Project Cost – Rs. 120 Crores</p> |
| 2. | Construction Supervision for 4 laning and Strengthening of existing two lane stretches from Nellore to Chilakalurpet on NH5 in the State of Andhra Pradesh. (In JV with KM International) | <p>Construction Supervision, Progress Monitoring and Co-ordination, Quality Control and Quality Assurance Construction, Safety Audits, Checking laboratory and field tests of Construction materials, Working Drawings and job layout , Establishing mix Design procedure and Checking mix Designs for</p> <ul style="list-style-type: none"> • 180.68 km of 4/6 lane highway • 68 Bridges, including 9 Major Bridges • 3 Road Over Bridges • 3 Underpasses |

| Sl. No. | Assignment Name | Assignment Highlights |
|---------|--|--|
| | | <ul style="list-style-type: none"> • 540 m long flyover Project Cost – Rs. 880 Crores |
| 3. | Construction Supervision for 4 laning and Strengthening of existing two lane stretches from Krishnagiri-Ranipet (Km 1.44 to Km 144.21) on NH-46 (Easterly Bypass 2.275 Km on NH-7 and Walajahpet Bypass of 7.5 Km) on NH-46 and NH-7 in Tamilnadu. (In JV with SOWIL and RITES) | <i>SECON was responsible for</i> Construction Supervision, Progress Monitoring and Co-ordination, Quality Control and Quality Assurance Construction, Safety Audits, Checking laboratory and field tests of Construction materials, Working Drawings and job layout , Establishing mix Design procedure and Checking mix Designs for <ul style="list-style-type: none"> • 50.2 km of 4/6 lane highway Project Cost – Rs. 593.7 Crores |
| 4. | Independent Engineer Services for Lenders for Construction of Elevated Highway Project on Bangalore - Hosur Section of NH -7 from Silk Board Junction to Electronic City. | Review of the technical aspects of the Concession Agreement, Project Contracts, Technical Appraisal, Review of the Projected Construction Budget and Construction Schedule and adequacy of arrangements for <ul style="list-style-type: none"> • 9.9 km of 4 lane elevated highway • 2 Overpasses • 4 Underpasses Project Cost – Rs. 1000 Crores |
| 5. | Project Management Consultancy Services for Upgradation of important Road Corridors in Bangalore Urban and Rural Districts comprising of 39 construction packages. | Construction Supervision, Progress Monitoring and Co-ordination, Quality Control and Quality Assurance Construction, Safety Audits, Checking laboratory and field tests of Construction materials, Working Drawings and job layout , Establishing mix Design procedure and Checking mix Designs for <ul style="list-style-type: none"> • 1004 km of roads including 18 km 4 lane roads |

| Sl. No. | Assignment Name | Assignment Highlights |
|---------|--|---|
| | | <ul style="list-style-type: none"> • 82 Bridges Project Cost – Rs. 996 Crores |
| 6. | Consulting Services for Construction Supervision and Project Management of Widening & Improvements to existing Road from Yadgir to Shahpur in Karnataka. | Construction Supervision, Progress Monitoring and Co-ordination, Quality Control and Quality Assurance Construction, Safety Audits, Checking laboratory and field tests of Construction materials, Working Drawings and job layout , Establishing mix Design procedure and Checking mix Designs for <ul style="list-style-type: none"> • 34.80 km of road • 12 Minor Bridges • 1 Road Over Bridge Project Cost – Rs. 56 Crores |
| 7. | Consulting Services for Preparation of Detailed Project Report and Construction Supervision of Bridge across Yagachi River in Belur Town, Karnataka. | Detailed Engineering Investigations and Design, Preparation of Construction drawings, assisting the client in tender process, Construction Supervision, Progress Monitoring and Co-ordination, Quality Control and Quality Assurance Construction, Safety Audits, Checking laboratory and field tests of Construction materials, Working Drawings and job layout , Establishing mix Design procedure and Checking mix Designs for <ul style="list-style-type: none"> • 182 m long bridge • 3 km approach road Project cost-7 crores |
| 8. | Consultancy Services for Supervision and Quality Control of Anand Package under Pradhan Mantri Gram | Comprehensive Supervision and Project Management of civil works contract as “Engineer” in terms of civil works contract |

| Sl. No. | Assignment Name | Assignment Highlights |
|---------|--|--|
| | Sadak Yojana (PMGSY) in the state of Gujarat. | including field measurements and quality assurance work for <ul style="list-style-type: none"> • 127 km roads • 1 bridge and several culverts |
| 9. | Rehabilitation and upgradation of (DPR) existing 2-lane road to 4/6 lane divided carriageway configuration of Nellore to Chilikalurupet km 178 to km 355 of NH5 in Andhra Pradesh. (180 km) in the state of Andhra Pradesh | Fixing of alignment, Reconnaissance Survey Detailed Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents, Economic and Financial Viability, Environmental and Social Studies and preparation of Detailed Project Report for <ul style="list-style-type: none"> • 183.7 km 4/6 lane highway • 11 Major Bridges • 54 Minor Bridges • 3 Road Over Bridges • 1 Vehicular Underpass • 1 Pedestrian Underpass • 1 Interchange Project Cost – Rs 924 Crores |
| 10. | Consultancy Services for Feasibility Study and Detailed Project Report for 4/6 laning of Kanyakumari to Trivandrum section of NH-47 & Nagarcoil to Kavalkinaru of NH-47B in Tamil Nadu and Kerala | Fixing of alignment, Reconnaissance Survey Detailed Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents, Economic and Financial Viability, Environmental and Social Studies including obtaining project clearances and preparation of Detailed Project Report for <ul style="list-style-type: none"> • 113.4 km 4/6 lane highway |

| Sl. No. | Assignment Name | Assignment Highlights |
|---------|---|---|
| | | <ul style="list-style-type: none"> • 5 Major Bridges • 40 Minor Bridges • 4 Road Over Bridges • 15 Vehicular Underpasses • 11 Pedestrian Underpasses • 6 Vehicular Overpasses Project Cost – Rs 1527 Crores |
| 11. | Consultancy Services for Feasibility Study and Detailed Project Report for 4/6-laning of Nelamangala to Hassan section (Length 163 Km) of NH-48 in Karnataka under NHDP Phase III Programme. (Package Nos. NHDP-III/DL4/02) | Fixing of alignment, Reconnaissance Survey Detailed Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents, Economic and Financial Viability, Environmental and Social Studies including obtaining project clearances and preparation of Detailed Project Report for <ul style="list-style-type: none"> • 159.1 km 4/6 lane highway • 2 Major Bridges • 46 Minor Bridges • 3 Road Over Bridges • 19 Vehicular Underpasses • 10 Pedestrian Underpasses • 17 Cattle Underpasses Project Cost – Rs 1010 Crores |
| 12. | Consultancy Services for Feasibility Study and Detailed Project Report for 4/6 laning of Hyderabad - Vijayawada | Fixing of alignment, Reconnaissance Survey Detailed Investigations and Design, preparation of detailed drawings, Bill |

| Sl. No. | Assignment Name | Assignment Highlights |
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| | (Km 40/0 to Km 160/0) section of NH-9 under NHDP Phase III. (Package Nos. NHDPIII/DL4/13) | of Quantities, Cost Estimate, Technical Specifications and Tender Documents, Economic and Financial Viability, Environmental and Social Studies including obtaining project clearances and preparation of Detailed Project Report for <ul style="list-style-type: none"> • 121.2 km 4/6 lane highway • 2 Major Bridges • 31 Minor Bridges • 1 Road Under Bridge • 8 Vehicular Underpasses • 15 Pedestrian Underpasses • 4 Cattle Underpasses Project Cost – Rs.1001.7 Crores |
| 13. | Consultancy Services for Preparation of Detailed Project Report for Rehabilitation and Updgrading of existing 2 lane road to 4 lane Divided Carriageway Configuration from Farukhanagar to Kottakota section of NH-7 from Km 34.80 to Km 133.00 in Andhra Pradesh. (Contract Package Nos. C-II A/5) | Fixing of alignment, Reconnaissance Survey Detailed Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents, Economic and Financial Viability, Environmental and Social Studies including obtaining project clearances and preparation of Detailed Project Report for <ul style="list-style-type: none"> • 101.5 km 4/6 lane highway • 9 Major Bridges • 30 Minor Bridges • 2 Road Over Bridges • 2 Flyovers • 7 Underpasses |

| Sl. No. | Assignment Name | Assignment Highlights |
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| | | <ul style="list-style-type: none"> • 3 Cattle Underpasses Project Cost – Rs.652.6 Crores |
| 14. | Consultancy services for Preparation of Detailed Project Report for 4 - laning of NH 5 Nellore bypass between Km 165/200 and Km 178/200 in Andhra Pradesh. | Fixing of alignment, Reconnaissance Survey Detailed Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents, Economic and Financial Viability, Environmental and Social Studies including obtaining project clearances and preparation of Detailed Project Report for <ul style="list-style-type: none"> • 180.68 km of 4/6 lane highway • 68 Bridges, including 9 Major Bridges • 3 Road Over Bridges • 3 Underpasses • 540 m long flyover Project Cost – Rs. 880 Crores |
| 15. | Detailed Project Report for Improvement of road corridors in the city of Kochi, Kerala | Fixing of alignment, Reconnaissance Survey Detailed Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents, Economic and Financial Viability, Environmental and Social Studies and preparation of Detailed Project Report for <ul style="list-style-type: none"> • 60.7 km 2/4/6 lane highway • 2 Major Bridges • 6 Road Over Bridges • 3 Flyovers |

| Sl. No. | Assignment Name | Assignment Highlights |
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| | | Project Cost – Rs. 303.7 Crores |
| 16. | Preparation of Detailed Project Reports & other works for the Integrated Road Development Project Package of Kanpur. | Fixing of alignment, Reconnaissance Survey Detailed Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents, Economic and Financial Viability, Environmental and Social Studies and preparation of Detailed Project Report for <ul style="list-style-type: none"> • 52.9 km 4/6 lane highway Project Cost – Rs 39.45 Crores |
| 17. | Techno - Economic Feasibility Study for Development of Satellite Town Ring Road and 07 Taluk Headquarters of Bangalore for a length of 367 Km | <ul style="list-style-type: none"> • Review and analysis of BMRDA & BDA Master plans, Traffic studies, analysis and projection up to 2040, Identification of type and number of intersections required • Preliminary Project Costing supporting phased implementation, Economic and Financial Viability • Preparation of Feasibility Report and Bid Documents with a Comprehensive note on environmental factors. |
| 18. | Data collation from Detailed Project Reports of North-South & East- West Corridors for GIS Based Road Information System. | <ul style="list-style-type: none"> • Collection and collation of data of 5700 km of North -South & East -West corridors of NH from DPRs • Analysis of data and presentation in the formats compatible with Road Information System; • Input the data into the Road Information System data formats; • Develop maps necessary for presenting the information in Geographical Information System as a part of Road Information system through DGPS information from Total Station Surveys carried out as part of DPR Preparation; |

| Sl. No. | Assignment Name | Assignment Highlights |
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| | | <ul style="list-style-type: none"> • Integration of collected information with existing database of Road Information System developed for GQ corridors. • Preparation of Detailed Report |
| 19. | Topographical and Cadastral Survey work of Satellite Town Ring Road, Intermediate Ring Road, Radial Roads and Individual Town Ring Roads for all the Taluks of Bangalore District under NHDP Phase VII Programme | <ul style="list-style-type: none"> • Preparation of Base Map using Satellite Images and superimposing proposed Development Plans. • Desktop Study and Reconnaissance Survey to finalise road network alignment for 1100 km. • Detailed Topographic and Land Acquisition Survey and preparation of maps. • Preparation of Technical Reports and Village wise Land Acquisition Statement |
| 20. | Engineering Design Consultancy for Palanpur - Swaroopgunj Road Project. | <p>Value engineering, detailed investigations and preparation of detailed construction drawings for</p> <ul style="list-style-type: none"> • 76 km of 4 lane highway • 19 Bridges including 3 Major Bridges • 16 Vehicular and Pedestrian Underpasses <p>Project Cost – Rs. 496 Crores</p> |
| 21. | Consultancy Services for construction of high level bridge across Piparia River near Agriculture Farm in U.T of Dadra & Nagar Haveli and Construction of High level bridge in place of Cause Way across Satarkod River at Talavli | <p>Detailed Engineering Investigations and Design, Preparation of Construction drawings, Bill of Quantities, Cost Estimates for the PSC Bridges across</p> <ul style="list-style-type: none"> • Khanvel across Sakarthkod River - 152.15 m • Sakartod River - 159.85 m • Pipariya River - 179.38 m |

| Sl. No. | Assignment Name | Assignment Highlights |
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| | | Total length of approaches – 6.7 km |
| 22. | Consultancy Services for Fixing the Alignment of Vadodara-Mumbai Expressway to be executed as BOT (Toll) Project on DBFO Pattern under NHDP Phase VI | Fixing of alignment, preparation of plan and profiles of various alternate alignments based on DTM and maps generated from stereo Satellite Imageries for 380.6 km 6 lane expressway. Total work involved <ul style="list-style-type: none"> • Maps and DTM for 16,000 sqkm • Horizontal Geometrics Design - 1637 km • Vertical Profile Design - 1162 km Approx. Project Cost – Rs. 6,470 Crores |
| 23. | Consultancy Services for Fixing the Alignment of Delhi - Meerut Expressway to be executed as BOT (Toll) Project on DBFO Pattern under NHDP Phase VI | Fixing of alignment, preparation of plan and profiles of various alternate alignments based on DTM and maps generated from stereo Satellite Imageries for 60.5 km 6 lane expressway. Total work involved <ul style="list-style-type: none"> • Maps and DTM for 2,200 sqkm • Horizontal Geometrics Design - 220 km • Vertical Profile Design - 166 km Approx. Project Cost – Rs. 968 Crores |
| 24. | Consultancy Services for Fixing the Alignment of Bangalore - Chennai Expressway to be executed as BOT (Toll) Project on DBFO Pattern under NHDP Phase VI | Fixing of alignment, preparation of plan and profiles of various alternate alignments based on DTM and maps generated from stereo Satellite Imageries for 380.9 km 6 lane expressway. Total work involved <ul style="list-style-type: none"> • Maps and DTM for 16,000 sqkm • Horizontal Geometrics Design - 1611 km |

| Sl. No. | Assignment Name | Assignment Highlights |
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| | | <ul style="list-style-type: none"> Vertical Profile Design - 1619 km Approx. Project Cost – Rs. 6,094 Crores |
| 25. | Consultancy Services for Feasibility and Detailed Design of Tunnels in Shimla and other parts of Himachal Pradesh (World Bank Funded) | Reconnaissance Survey, Feasibility Studies, Detailed topographical survey and geotechnical Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents and preparation of Detailed Project Report for <ul style="list-style-type: none"> 4 km approaches to 5 Tunnels Project was executed in hilly region in extremely difficult site conditions. Project Cost – Rs.35.4 Crores |
| 26. | Consultancy Services for the Detailed Survey, Investigations, Design and Cost Estimate for the Approach Road to Technical Facility at Site Khetri. | Reconnaissance Survey, Feasibility Studies, Detailed topographical survey and geotechnical Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents and preparation of Detailed Project Report for 4.7 km hill road with high embankments Project was executed in steep terrain. Project Cost – Rs 42.99 Crores |
| 27. | Design Consultancy and site supervision for off-site Treated effluent Disposal scheme @ Bidadi, Bangalore | Detailed Survey and Investigations, Design of the effluent Disposal Scheme including internal road and field canal network, Preparation of construction drawings, Technical Specifications and Bill of Quantities. Construction management and quality control for network of roads, drains, cross drainage works, effluent disposal system |
| 28. | Traffic Study and Access Road Design including Design of External Road Drainage System for the “Wave Rock Project”, TSI Business Parks(Hyderabad) Pvt., Ltd., | Detailed traffic studies and estimates for proposed business park, analysis and preparation of traffic circulation plans, Design of road network and preparation of construction drawings, technical report, |

| Sl. No. | Assignment Name | Assignment Highlights |
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| | Hyderabad. | specification, tender documents and Bill of Quantities. |
| 29. | Rehabilitation and improvement of road connecting the HPCL LPG terminal to Surathkal-Bajpe Road. | Detailed Survey and investigations, Condition Survey of existing road and structures, Geometric design, Pavement design, improvement of existing drainage system and preparation of construction drawings, Design of Rigid pavement for the internal roads and truck loading area, estimation of quantities and preparation of contract documents, Quality control and construction supervision. |
| 30. | Topographical Survey of 50 acres and monumentation of pillars. Mangalore Bajpe Airport. | Detailed Engineering Survey and Estimation of earthwork quantities for various options of proposed runway. |
| 31. | SALNG Project – Cut and Fill Study | Design of Finished Levels for Balanced Cut & Fill Earth Volumes and estimation of earthwork for various soil layers, preparation of cross section drawings and Plans of cut & fill volumes contours. |
| 32. | Approach Road to Dolphin Hill Range | <p>Reconnaissance Survey, Feasibility Studies, Detailed topographical survey and geotechnical Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents and preparation of Detailed Project Report for 6 km hill road with high embankments, laybys, etc.</p> <p>Project was executed in steep terrain. Project Cost – Rs.6.14 Crores</p> |
| 33. | Preparation of detailed design documents for Avalanche Control Structures in middle and run-out zones at km 18.5 & km 20.0 of NH-21 (MSP-06 & MSP-10) near Manali | <p>Detailed Topographical survey, Hydrological investigation, Geological and Geotechnical investigation, design and preparation of drawings for the construction of Avalanche control structures.</p> <p>The project location was at an altitude of 2735m to 3100m in a temperature varying between -8°C to $+15^{\circ}\text{C}$.</p> |

| Sl. No. | Assignment Name | Assignment Highlights |
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| 34. | DPR for Road to GSPCL Terminal from Surat-Hazira SH and 460 m long Bridge across Tena Creek | Reconnaissance Survey, Feasibility Studies, Detailed topographical survey and geotechnical Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents and preparation of Detailed Project Report for <ul style="list-style-type: none"> • 12 km road to the GSPCL Terminal • 460 m long bridge across Tena Creek |
| 35. | Consulting services for Quality Assurance and Supervision of State Highway Maintenance in Belgaum, Chikkodi, Dharwad, Bijapur, Bagalkot, Haveri, Karwar (UK) and Gadag Divisions (Q.A. Package II) for Karnataka Road Development Corporation Limited (KRDCL) | Formulation of QAP and working procedure, Checking of all materials and work procedures as per specifications, Supervision and Certification of measurements and as-built drawings of maintenance works and Preparation of close-out report for 3794 km of roads (Total of 11 maintenance contracts). |
| 36. | Detailed Engineering, Procurement, Project Management, Construction Supervision of 100 crores BASF Chemical Plant | Supervision of site grading, layouts, design and supervision of compound wall, pump house, raw water and effluent disposal, preparation of BOQ and tender documents, evaluation of tender, construction supervision and quality control. |
| 37. | Consultancy services for sites and services scheme at Anjanapura, Uttarhalli Hobli, Bangalore South Taluk | Reconnaissance Survey, Feasibility Studies, Detailed topographical survey and geotechnical Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents and preparation of Detailed Project Report for <ul style="list-style-type: none"> • Layout design for 533 acres as per Urban planning norms • 53 km road network • Storm water drainage, potable water supply, sewerage and electrical networks |

| Sl. No. | Assignment Name | Assignment Highlights |
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| | | Project Cost – Rs 450 million |
| 38. | Dolphin Hill Township Development Project | Reconnaissance Survey, Feasibility Studies, Detailed topographical survey and geotechnical Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents and preparation of Detailed Project Report for <ul style="list-style-type: none"> • Layout design as per Urban planning norms • Road, Storm water drainage, potable water supply, sewerage and electrical networks |
| 39. | Sahara Housing and Township, Lonavla | Reconnaissance Survey, Feasibility Studies, Detailed topographical survey and geotechnical Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents and preparation of Detailed Project Report for <ul style="list-style-type: none"> • Layout design as per Urban planning norms • Road, Storm water drainage and electrical networks |
| 40. | Feasibility Studies and preparation of Detailed Project Report of proposed RUB at Km 83.980 and ROB at km 99/4 of NH:208 | <ul style="list-style-type: none"> • Detailed Topographical Survey, Traffic Studies, Geotechnical & Material Investigations • Detailed Engineering Design, preparation of drawings, Estimation of Quantities and Costs, Bill of Quantities |
| 41. | Design of Approaches for ROB at Pandavapura | <ul style="list-style-type: none"> • Topographical survey and Geotechnical Investigations. • Geometric design and Detailed design of the approaches on trestle and Preparation of construction drawings • Preparation of Cost Estimates |

| Sl. No. | Assignment Name | Assignment Highlights |
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| 42. | Bridge cum Barrage across Bhima River | <ul style="list-style-type: none"> • Reconnaissance Survey and selection of appropriate site for bridge cum barrage • Conducted detailed river study by taking cross section of river at 100m c/c for 15 km upstream and 1 km downstream of the proposed barrage upto Full Reservoir Level (FRL) for the entire width of the river basin. • Topographical Survey, Geotechnical investigation, Preparation of General Arrangement Drawings, detailed designs and detailed working drawings. Technical Specifications, Detailed Estimates and Bill of Quantities. <p>Length of the Bridge cum Barrage – 260 m</p> |
| 43. | Widening of Sambalpur – Rourkela Road (ADB Funded Project) | Alignment survey, longitudinal and cross sections, design of horizontal and vertical profile and setting out final alignment, strengthening and widening of 4-laning of 60 km road. |
| 44. | Approach Road to Kaiga Nuclear Plant | Optimisation of Road Centreline and Geometric design. Alignment drawings including profile. Earthwork calculations and preparation of Mass Haul Diagrams. Design of minor bridges, culverts including preparation of drawings, estimates and report. Junction designs and preparation of drawings. Staking the centre line designed. |
| 45. | Development of Outer Ring Road for Bangalore (World Bank Funded) | Topographical survey and preparation of maps, longitudinal and cross-sections, alignment and report for 17km road from Banashankari to Bellary Road. |
| 46. | Improvement of Gadag-Bellary-Andhra Border Road (ADB Funded) | Detailed Project Report including Survey and geometric design, longitudinal and cross sections. Preparation of detailed estimates and drawings for improving the |

| Sl. No. | Assignment Name | Assignment Highlights |
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| | | carriageway to 2-lane of 182 km of road |
| 47. | Construction Supervision and Quality Control of site grading, plant roads and other Civil Works for Jindal Tractabel Power Project at Toranagallu. | Supervision of site grading, layouts, design and supervision of civil structures and quality control. |
| 48. | Consultancy Services for Quality Control of Roads under Road Construction Department in Jharkhand. | <p>Quality Assurance, Technical Audit, Testing and Certification of materials used by the contractor, Verification of lines and levels for 350 km roads and 3 bridges.</p> <p>Preparation of Technical Reports, Operation and Maintenance Manual and Training of officials</p> |
| 49. | Consultancy services for preparation of Detailed Project Report for "Construction of Ring Road and Link Road around Holenarasipura Town" | <p>Reconnaissance Survey, Feasibility Studies, Detailed topographical survey, traffic surveys and geotechnical Investigations, Design and preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents and preparation of Detailed Project Report for</p> <ul style="list-style-type: none"> • 11.1 km road • 1 Major Bridge cum barrage bridge across Hemavathi River and 2 Minor Bridges <p>Project Cost – Rs.37.7 crores</p> |
| 50. | Consultancy Services for preparation of Detailed Project Report for ROB & RUB on proposed Holenarasipura Bypass | <p>Reconnaissance Survey, Feasibility Studies, Detailed topographical survey, geotechnical Investigations, Design and preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents and preparation of Detailed Project Report for following</p> <ul style="list-style-type: none"> • ROB at Ch. 2.530 |

| Sl. No. | Assignment Name | Assignment Highlights |
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| | | <ul style="list-style-type: none"> RUB at Ch. 87.350 |
| 51. | Consultancy Services for preparation of Detailed Project Report for ROBs on proposed Hassan Ring Road | Reconnaissance Survey, Feasibility Studies, Detailed topographical survey, geotechnical Investigations, Design and preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents and preparation of Detailed Project Report for following 5 ROBs <ul style="list-style-type: none"> ROB at Ch. 1.746 & Ch. 120.320 at Hassan Inner City ROBs at Ch. 6.487, Ch. 20.502, & Ch. 40.730 of Hassan Ring Road |
| 52. | Consulting Services for Investigation and Detailed Engineering for Grade Separator along SH-17 at the junction of Bidadi Industrial Area and Bangalore-Mysore Road at 31.60 km along (SH-17) | Reconnaissance Survey, Feasibility Studies, Detailed topographical survey, traffic surveys and geotechnical Investigations, Design and preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents and preparation of Detailed Project Report for traffic decongestion at junction Project Cost – Rs.8.1 crores |
| 53. | Preparation of Conceptual Project/Technical Report for Runway and Conducting Geo-Technical Investigation for proposed ATR facility at Chitradurga, Karnataka | Collection and Analysis of relevant Data, Wind data study and analysis of wind rose diagrams for proper orientation of the runway as per International Civil Aviation Organisation (ICAO) Standards, Preliminary Geotechnical and Subgrade Investigations. Site feasibility study, land requirement for runway, Final Orientation of runway, Obstacle limitation survey and funnel identification, Study of the drainage pattern, Fixing the preliminary profile of runway as per ICAO standards, Preparation of Preliminary Cost Estimates, Conceptual/ Technical Project Report and obtain approval from Technical Committee: <ul style="list-style-type: none"> Various options (Total Length 12.2 km) were studied for fixing the alignment of 45 m wide runway and 18 m wide |

| Sl. No. | Assignment Name | Assignment Highlights |
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| | | taxiway. <ul style="list-style-type: none"> Length of approved alignments: Runway - 3.0 km and Taxiways - 1.06 km. Estimated Civil Construction Cost for the approved alignments – Rs. 179.82 Crores. |
| 54. | Preliminary Consultancy Services for provision of flexible overlay on existing Airstrip at Site - K- Kolar | Data collection and review, Conducting field and lab tests to assess the existing conditions, Detailed site inspection and condition survey of the existing runway, Preliminary design of flexible overlay thickness, proper longitudinal slope and provide the proposed levels, Preparation of Preliminary cost estimates and Report with recommendations on rehabilitation measures for the Airstrip Length of the runway is 2.1 km and width 46m. Civil Construction Cost of the project - Rs. 12.16 Crores. |
| 55. | Consultancy Services for Restoration of Airfield at Site-K, Kolar | Preparation of tenders, assisting client in finalisation of Contractor, preparation of working drawings and providing technical clarifications during construction for 2.1 km long and 46 m wide runway. Civil Construction Cost of the project - Rs. 12.16 Crores. |
| 56. | Consultancy Services for Feasibility-cum-Preliminary Design Report for Bangalore - Chennai Expressway under NHDP Phase - VI in the States of Karnataka, Tamil Nadu | Reconnaissance Survey, Feasibility Studies, Detailed Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents, Economic and Financial Viability, Environmental and Social Studies including obtaining project clearances and preparation of Detailed Project Report for <ul style="list-style-type: none"> 259 km 6 lane expressway and 2 km Spur alignment |

| Sl. No. | Assignment Name | Assignment Highlights |
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| | | Project Cost – Rs 4,470 Crores |
| 57. | Consultancy Services for Supervision and Quality Control of Vadodara Package under Pradhan Mantri Gram Sadak Yojana (PMGSY) in the state of Gujarat. | Comprehensive Supervision and Project Management of civil works contract as “Engineer” in terms of civil works contract including field measurements and quality assurance work for <ul style="list-style-type: none"> • 106 km roads • 1 bridge and several culverts |
| 58. | Consultancy Services for Supervision of Construction and Contract Administration for Upgradation of Works Phase II in the state of Uttar Pradesh for a length of 240 Km (Uttar Pradesh State Roads Project). Package No. UPSRP/SC/02 (In JV with CES) | Construction Supervision, Progress Monitoring and Co-ordination, Quality Control and Quality Assurance Construction, Safety Audits, Checking laboratory and field tests of Construction materials, Working Drawings and job layout , Establishing mix Design procedure and Checking mix Designs for <ul style="list-style-type: none"> • 234.3 km of State Highways • 3 Major Bridges across Ganga, Yamuna and Ghagra Rivers |
| 1 | Consultancy Services for the Detailed Survey, Investigations, Design and Cost Estimate for the Road Network at Site PS. | Reconnaissance Survey, Feasibility Studies, Detailed topographical survey and geotechnical Investigations and Design, preparation of detailed drawings, Bill of Quantities, Cost Estimate, Technical Specifications and Tender Documents and preparation of Detailed Project Report for 10 km hill road network with high embankments |

6.2 International Projects

| Sl. No. | Assignment Name | Relevant Scope & Assignment Highlights |
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| 1. | Preparation of DPR for "Water Supply System, Sewerage System, Storm Water Collection System, Electrical Town Distribution Network, Telecom Distribution Network and Roads for 100 towns in Tripoli Region, Libya | Detailed Survey, Base Plan from Satellite Images, Preliminary Design, drawings, Detailed Project Report and Tender Documents for <ul style="list-style-type: none"> • 100 Towns covering 24000 Hectare • Length Road network : 1996 km • Total project Cost: 645 Million Libyan Dinars (501.6 Million USD) |
| 2. | Preparation of DPR for "Water Supply Distribution Network, Sewerage Drainage System, Storm Water Drainage System, Irrigation System, Roads and Pavement Designs with Parking Area" for Gargaresh Cornish Beach Development (Water Front) in Tripoli, Libya. | Detailed Design, drawings, Detailed Project Report and Tender Documents for <ul style="list-style-type: none"> • Length Road network: 2.45 km with Sidewalk, Pedestrian way and Bicycle lane along the Road. • 5 Car Parking lots covering area of 0.63 Hectare • Pathways covering area of 2.06 Hectare • Total project Cost: 18.5 Million Libyan Dinars (14.38 Million USD) |
| 3. | Preparation of DPR "Water Supply Distribution Network, Sewerage Collection System, Storm Water Drainage System, Roads and Pavement Designs with parking area, Street Lighting & Electrical Town Distribution System, Telecommunication and Gas Network" for Al Herrah Township in Tripoli region, Libya. | Detailed Design, drawings, Detailed Project Report and Tender Documents for <ul style="list-style-type: none"> • Area covering 70 Hectare • Length Road network: 10.02 km • 76 Car Parking lots covering area of 13.6 Hectare • Walkways covering area of 13.6 Hectare • Total project Cost: 20.4 Million Libyan Dinars (15.9 Million USD) |
| 4. | Design of "Civil Structures, Road, Storm Water Drainage Collection and Disposal System" for Shuqaiq Phase 2 | Detailed Design and preparation of Construction drawings for Roads, Junctions, fencing, and Storm Water Drainage System for |



| Sl. No. | Assignment Name | Relevant Scope & Assignment Highlights |
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| | and Eastern Province Water Transmission System Phase 2” in Kingdom of Saudi Arabia | <ul style="list-style-type: none"> • 48 Reservoir and Pumping Stations • 29 Truck Filling Areas Structural Design and Construction Drawings of the following Civil Structures <ul style="list-style-type: none"> • Foundations for 19 Water Tanks and 3 Water Towers • 54 buildings • 3 Surge Vessel Plants • 290 Shafts • 1.2 km long Cable Duct |

| Sl. No. | Assignment Name | Relevant Scope & Assignment Highlights |
|---------|---|--|
| 5. | Preparation of "Preliminary and Detailed Design of Water Supply, Sewerage System, Storm Water Drainage System Road Network, Electrical and Telecommunication Town Distribution System" for Twargah, in Libya | Detailed Design, drawings, Detailed Project Report and Tender Documents for <ul style="list-style-type: none"> • Area covering 504 Hectare • Length Road network: 50.8 km • Total project Cost: - |
| 6. | Preparation of "Preliminary and Detailed Design of Water Supply, Sewerage and Road Network" for Al Gharyat Eshargiah , in Libya | Preliminary Design, drawings and Detailed Project Report for <ul style="list-style-type: none"> • Area covering 532.7 Hectare • Length Road network: 55.9 km Detailed Design, drawings, Detailed Project Report and Tender Documents for <ul style="list-style-type: none"> • Area covering 246.3 Hectare • Length Road network: 25.3 km • 59 Parking lots • Total project Cost: - |
| 7. | Design of "Storm Water Drainage Collection and Disposal System, Design of Road and Structural Design of Civil Structures " for Shuqaiq Phase 2 and Eastern Province Water Transmission System Phase 2" in Kingdom of Saudi Arabia | Detailed Design and preparation of Construction drawings for Roads, Junctions, fencing, and Storm Water Drainage System for 8 Reservoir and Blending Stations |
| 8. | Design and Detailed Engineering for proposed construction of bridges on | Detail Engineering Design, Preparation of Construction Drawings, Bill of Quantities and Cost Estimates for |

| Sl. No. | Assignment Name | Relevant Scope & Assignment Highlights |
|---------|---|--|
| | Sarobi - Jalalabad Highway Section, Kabul - Jalalabad Bypass and bridge across Kabul River. | <ul style="list-style-type: none"> • Bridge on Sarobi - Jalalabad Road - 162.0m • Bridge across Kabul river - 73.6m • Bridge on Kabul - Jalalabad Bypass - 52.2m |
| 9. | 2nd Ring Road in Tripoli, Libya | <p>Detail Engineering Design and Drawings, Bill of Quantities and Cost Estimates for decongestion of the following junctions</p> <ul style="list-style-type: none"> • Al Hadbha Al Khadra Interchange IC4 – Length 0.48 km. • Extension of 2nd Ring Road – Length 0.58 km • Geometric Improvement of Approach to Trauma Hospital – Length 1.29 km • Ghot Eshaal Interchange IC11 – Length 1.48 km • Janjur Interchange IC10 – Length 3.13 km • Trauma Hospital Interchange – Length 1.27 km • University Interchange IC5 – Length 2.87 km |
| 10. | Design of "Storm Water Drainage Collection and Disposal System, Design of Road and Structural Design of Civil Structures " for Ras Al Zawr – Riyadh Water Transmission System" in Kingdom of Saudi Arabia | <p>Detailed Design and preparation of Construction drawings for Roads, Junctions, fencing, and Storm Water Drainage System for</p> <ul style="list-style-type: none"> • 8 Reservoir and Pumping Stations <p>Structural Design and Construction Drawings of the following Civil Structures</p> <ul style="list-style-type: none"> • 73 Shafts • 9 Surge Vessel Plants • 9 Pressure Relief Systems • 2 Water Tower Ring Foundations |