

TENDER DOCUMENT

Road Construction Project

Tender ID:	TEN20250330153341
Issuing Authority:	Public Works Department (PWD), State Government
Tender Amount:	■100,000,000.00
Bid Start Date:	25-02-2025
Bid End Date:	09-05-2025

## Executive Summary

### Executive Summary

The proposed Road Construction Project is a significant infrastructure development initiative that aims to construct a 20-kilometer stretch of road with asphalt paving, drainage systems, and necessary signage. The project has a total value of █100,000,000.0 and is expected to be completed within a duration of 18 months. This Executive Summary provides a comprehensive overview of the project, highlighting its scope, requirements, and key performance indicators.

### Project Overview

The project involves the construction of a 20-kilometer stretch of road, which will be a critical component of the regional transportation infrastructure. The road will be designed to accommodate a capacity of 10,000 vehicles per day, with a speed limit of 80 km/h. The project will involve the following key components:

- Asphalt paving of the road surface
- Installation of drainage systems, including culverts and stormwater management structures
- Provision of necessary signage, including traffic signals and directional signage
- Earthworks, including excavation and backfilling

### Scope of Work

The scope of work for the project includes the following key activities:

- Site preparation and excavation
- Subgrade preparation and stabilization
- Base course construction
- Asphalt paving
- Drainage system installation
- Signage installation
- Road marking and signage

### Requirements

To ensure the successful completion of the project, the following requirements must be met:

- **Experience**: The bidder must provide proof of experience in road construction, with a minimum of three similar projects completed in the past five years.
- **Labor**: The bidder must provide qualified labor, with a minimum of 50% of the workforce having relevant experience in road construction.

- • **Machinery**: The bidder must provide suitable machinery for the job, including asphalt pavers, rollers, and excavators.
- • **Environmental and Safety Standards**: The bidder must adhere to environmental and safety standards, including compliance with regulations and guidelines set by the government and industry associations.

#### **Key Performance Indicators (KPIs)**

The following KPIs will be used to measure the success of the project:

- • **Project completion date**: 18 months from the start of the project
- • **Quality of road surface**: The road surface will be designed to meet the Indian Road Congress (IRC) standards for asphalt pavement.
- • **Safety record**: The bidder must maintain a safety record that meets the industry standards, with a minimum of 1,000 man-hours worked without a lost-time injury.
- • **Environmental impact**: The bidder must minimize environmental impact, including reduction of waste and emissions.

#### **Project Timeline**

The project timeline is as follows:

- • **Month 1-3**: Site preparation and excavation
- • **Month 4-6**: Subgrade preparation and stabilization
- • **Month 7-9**: Base course construction
- • **Month 10-12**: Asphalt paving
- • **Month 13-15**: Drainage system installation
- • **Month 16-18**: Signage installation and road marking

#### **Project Budget**

The project budget is **■100,000,000.0**, which includes the following key components:

- • **Construction costs**: **■80,000,000.0**
- • **Labor costs**: **■10,000,000.0**
- • **Machinery costs**: **■5,000,000.0**
- • **Contingency funds**: **■5,000,000.0**

By submitting a bid for this project, the bidder acknowledges that they have read and understood the scope of work, requirements, and key performance indicators outlined in this Executive Summary. The bidder must provide a detailed proposal that meets the requirements and specifications outlined in the tender document.

## Project Overview and Objectives

**Project Overview and Objectives**

**Project Title:** Road Construction Project

**Project Value:** ₹100,000,000.0

**Project Location:** [Insert Location]

**Project Duration:** [Insert Duration]

**Project Overview:**

The proposed Road Construction Project aims to construct a 20-kilometer stretch of road with high-quality asphalt paving, efficient drainage systems, and necessary signage to ensure safe and smooth vehicular movement. The project will be undertaken in accordance with the Indian Road Congress (IRC) and Ministry of Road Transport and Highways (MoRTH) guidelines, ensuring compliance with the latest standards and regulations.

**Project Objectives:**

The primary objectives of the Road Construction Project are:

- To construct a durable and long-lasting road infrastructure that can withstand heavy traffic and varying climatic conditions.
- To ensure the safety of road users by designing and constructing the road with adequate drainage systems, proper signage, and high-quality asphalt paving.
- To minimize environmental impact by implementing sustainable practices and adhering to environmental regulations.
- To provide a smooth and efficient transportation network, reducing travel time and increasing connectivity between destinations.
- To ensure the project is completed within the stipulated timeframe and budget, with minimal disruption to the surrounding area.

**Key Performance Indicators (KPIs):**

- Project completion within 18 months from commencement.
- Maintenance of high-quality asphalt paving with a minimum thickness of 50mm and a maximum layer thickness of 100mm.
- Installation of efficient drainage systems to ensure proper water flow and minimize erosion.
- Provision of necessary signage, including warning signs, directional signs, and information signs.

- • Compliance with environmental regulations, including minimization of waste generation, proper disposal of hazardous materials, and implementation of sustainable practices.
- • Achievement of a maximum noise level of 40 dB(A) during construction.

#### <b>Technical Requirements:</b>

- • The bidder must provide proof of experience in road construction, including a minimum of 5 years of experience in similar projects.
- • The bidder must demonstrate the capability to provide qualified labor, including engineers, technicians, and skilled workers, to undertake the project.
- • The bidder must provide details of the machinery and equipment required for the project, including asphalt pavers, rollers, graders, and excavators.
- • The bidder must adhere to environmental and safety standards, including the implementation of sustainable practices, proper waste management, and adherence to noise regulations.

#### <b>Industry Standards:</b>

- • The project will be undertaken in accordance with the Indian Road Congress (IRC) and Ministry of Road Transport and Highways (MoRTH) guidelines.
- • The bidder must comply with the latest standards and regulations, including the use of high-quality materials and equipment.
- • The bidder must ensure that all works are carried out in accordance with the relevant standards, including the use of certified materials and equipment.

#### <b>Scope of Work:</b>

The scope of work for the Road Construction Project includes:

- • Excavation and clearing of the road alignment
- • Construction of the sub-grade and sub-base layers
- • Laying of the base course and asphalt layers
- • Installation of drainage systems, including culverts and manholes
- • Provision of necessary signage, including warning signs, directional signs, and information signs
- • Implementation of sustainable practices and adherence to environmental regulations.

## Detailed Technical Specifications

<b>Detailed Technical Specifications for Road Construction Project</b>

## **<b>1. Road Design and Construction</b>**

- • The bidder shall design and construct a 20-kilometer stretch of road with a minimum width of 7.5 meters (25 feet) and a maximum width of 9 meters (30 feet) depending on the terrain and traffic conditions.
- • The road shall be constructed with a minimum thickness of 100 mm (4 inches) of asphalt surfacing, with a 50 mm (2 inches) thick binder course and a 30 mm (1.2 inches) thick surface course.
- • The road shall be designed to accommodate a minimum speed limit of 80 km/h (50 mph) with a minimum of 2 lanes, one in each direction.

## **<b>2. Materials</b>**

- • The bidder shall use the following materials for the road construction:

+ Asphalt: The bidder shall use a mix of 60/70 pen grade asphalt, meeting the requirements of IS: 73-1987.

+ Aggregates: The bidder shall use crushed stone or gravel, meeting the requirements of IS: 383-1970, with a minimum 10% fines content.

+ Cement: The bidder shall use Portland cement, meeting the requirements of IS: 12269-1987.

+ Bitumen: The bidder shall use a bitumen emulsion, meeting the requirements of IS: 8887-2012.

+ Water: The bidder shall use potable water, meeting the requirements of IS: 10500-2012.

## **<b>3. Drainage Systems</b>**

- • The bidder shall design and construct a drainage system to collect and dispose of surface water and storm water runoff.
- • The drainage system shall include:

+ Culverts: The bidder shall use precast concrete culverts, meeting the requirements of IS: 4580-2002.

+ Catch basins: The bidder shall use stainless steel or galvanized iron catch basins, meeting the requirements of IS: 1239-2004.

+ Storm water drains: The bidder shall use PVC or HDPE storm water drains, meeting the requirements of IS: 13478-1992.

## **<b>4. Signage</b>**

- • The bidder shall design and install signage along the length of the road, including:

+ Directional signs: The bidder shall install directional signs at a minimum interval of 500 meters (1,640 feet).

+ Warning signs: The bidder shall install warning signs at a minimum interval of 200 meters (656 feet).

+ Information signs: The bidder shall install information signs at a minimum interval of 1 kilometer (0.62 miles).

#### **<b>5. Environmental Protection</b>**

- • The bidder shall take all necessary measures to protect the environment during the construction process, including:

+ Dust suppression: The bidder shall use dust suppressants to minimize dust generation during the construction process.

+ Noise reduction: The bidder shall take measures to minimize noise pollution during the construction process.

+ Waste management: The bidder shall manage waste generated during the construction process, including segregation and disposal.

#### **<b>6. Safety Measures</b>**

- • The bidder shall take all necessary measures to ensure the safety of workers and the public during the construction process, including:

+ Personal Protective Equipment (PPE): The bidder shall provide PPE to all workers at all times.

+ Safety training: The bidder shall provide regular safety training to all workers.

+ Emergency response plan: The bidder shall develop and implement an emergency response plan in case of accidents or incidents.

#### **<b>7. Quality Control and Assurance</b>**

- • The bidder shall implement a quality control and assurance program to ensure that the road construction meets the specified technical requirements.
- • The bidder shall conduct regular quality checks and inspections during the construction process.
- • The bidder shall maintain records of quality control and assurance activities.

#### **<b>8. Compliance with Industry Standards</b>**

- • The bidder shall comply with all relevant industry standards and regulations, including:

+ IS: 73-1987 (Asphalt for Road Surface)

+ IS: 383-1970 (Aggregates for Road and Other Paving Purposes)

+ IS: 12269-1987 (Portland Cement)

+ IS: 8887-2012 (Bitumen Emulsions)

- + IS: 10500-2012 (Specification for Drinking Water)
- + IS: 13478-1992 (PVC and HDPE Pressure Pipes)
- + IS: 4580-2002 (Precast Concrete Culverts)
- + IS: 1239-2004 (Stainless Steel or Galvanized Iron Catch Basins)

#### <b>9. Method of Measurement</b>

- • The bidder shall use the following method of measurement to calculate the quantity of materials required for the road construction:
  - + Volume of asphalt surfacing: The bidder shall calculate the volume of asphalt surfacing required using the formula:  $\text{Volume (m}^3\text{)} = \text{Length (m)} \times \text{Width (m)} \times \text{Thickness (m)} \times 0.9$ .
  - + Volume of aggregates: The bidder shall calculate the volume of aggregates required using the formula:  $\text{Volume (m}^3\text{)} = \text{Length (m)} \times \text{Width (m)} \times \text{Thickness (m)} \times 0.7$ .
  - + Volume of cement: The bidder shall calculate the volume of cement required using the formula:  $\text{Volume (m}^3\text{)} = \text{Length (m)} \times \text{Width (m)} \times \text{Thickness (m)} \times 0.05$ .

#### <b>10. Payment Terms</b>

- • The bidder shall submit invoices to the client on a regular basis, including:
  - + Weekly progress reports
  - + Quantity of materials used
  - + Payment schedule

The bidder shall ensure that all invoices are accurate, complete, and in compliance with the payment terms.

## Implementation Methodology

#### <b>Implementation Methodology</b>

The successful bidder will be required to implement the Road Construction Project in accordance with the following methodology, ensuring timely completion, quality, and adherence to environmental and safety standards.

#### <b>Phase 1: Pre-Construction (Weeks 1-4)</b>

- • Conduct site investigation and survey to identify potential risks and opportunities
- • Develop a detailed project schedule and timeline
- • Create a project organization structure and assign roles and responsibilities
- • Establish a communication plan for stakeholders, including project management, site staff, and community members
- • Conduct environmental impact assessment and obtain necessary permits



- • Develop a quality management plan, including quality control and assurance processes

#### **<b>Phase 2: Site Preparation (Weeks 5-12)</b>**

- • Clear the site of debris, vegetation, and other obstructions
- • Conduct geotechnical investigations to determine soil and rock conditions
- • Install temporary roads and access points for heavy machinery
- • Construct drainage systems, including culverts and stormwater management structures
- • Excavate and grade the roadbed to the required depth and width

#### **<b>Phase 3: Asphalt Paving (Weeks 13-20)</b>**

- • Lay down a layer of aggregate base course material
- • Apply a layer of asphalt binding agent
- • Install the asphalt pavement layers, including the wearing course
- • Ensure proper compaction and density of the asphalt layers
- • Conduct quality control checks to ensure compliance with industry standards

#### **<b>Phase 4: Signage and Marking (Weeks 21-24)</b>**

- • Design and install permanent signage, including mile markers, danger signs, and directional signs
- • Apply road markings, including lane dividers, arrows, and pedestrian crossings
- • Conduct quality control checks to ensure compliance with industry standards

#### **<b>Phase 5: Testing and Commissioning (Weeks 25-28)</b>**

- • Conduct tests to ensure the road meets the required specifications, including strength, density, and surface texture
- • Obtain approval from the client and regulatory authorities
- • Conduct a safety audit to ensure the road meets safety standards
- • Obtain a certificate of completion and handover the project to the client

#### **<b>Metrics and Performance Indicators</b>**

- • Project completion time: 28 weeks
- • Quality rating: 90% or higher, based on quality control checks and testing results
- • Safety rating: 95% or higher, based on safety audits and incident reports
- • Environmental rating: 90% or higher, based on environmental impact assessment and mitigation measures

- • Cost efficiency: 95% or higher, based on actual costs compared to budgeted costs

#### <b>Industry Standards and Best Practices</b>

- • The project will be implemented in accordance with the Indian Roads Congress (IRC) standards and guidelines
- • The project will be certified to the ISO 9001:2015 quality management system standard
- • The project will be implemented in accordance with the Occupational Safety and Health Administration (OSHA) standards and guidelines
- • The project will be implemented in accordance with the Environment (Protection) Act, 1986, and the rules and regulations made thereunder

#### <b>Risk Management</b>

- • The bidder must identify and mitigate potential risks, including:
  - + Geotechnical risks (e.g., soil instability, rock falls)
  - + Environmental risks (e.g., water pollution, noise pollution)
  - + Safety risks (e.g., accidents, injuries)
  - + Cost risks (e.g., cost overruns, delays)
- • The bidder must develop a risk management plan, including risk assessment, risk mitigation, and risk monitoring and review

#### <b>Quality Control and Assurance</b>

- • The bidder must implement a quality management system, including quality control and assurance processes
- • The bidder must conduct quality control checks at regular intervals, including:
  - + Material testing (e.g., asphalt, aggregate, concrete)
  - + Workmanship inspection (e.g., road surfacing, drainage systems)
  - + Testing and inspection of completed works (e.g., road strength, surface texture)
- • The bidder must maintain quality records and submit them to the client for review and approval.

## Quality Control and Standards

#### <b>Quality Control and Standards</b>

#### <b>Introduction</b>

The successful bidder for the Road Construction Project is required to adhere to the highest standards of quality and safety throughout the project duration. The Quality

Control and Standards section outlines the requirements and expectations for the project, ensuring that the constructed road meets the desired quality, safety, and environmental standards.

#### **Quality Control Policy**

The bidder must implement a quality control policy that ensures the project is executed in accordance with the approved scope, specifications, and industry standards. The policy must include the following elements:

- • Clear definition of quality objectives and standards
- • Identification of quality control processes and procedures
- • Roles and responsibilities of personnel involved in quality control
- • Procedures for monitoring and reporting quality control issues
- • Implementation of corrective actions for quality control non-conformities

#### **Standards and Specifications**

The bidder must adhere to the following standards and specifications for the project:

- • **Indian Roads Congress (IRC) Standards**: The bidder must comply with the IRC standards for road construction, including IRC: 37-2012, IRC: 83-2012, and IRC: 109-2011.
- • **American Society for Testing and Materials (ASTM) Standards**: The bidder must comply with the relevant ASTM standards for materials and testing, including ASTM D4791, ASTM D6929, and ASTM D6931.
- • **Environmental Standards**: The bidder must comply with the Environmental Protection Act, 1986, and the rules and regulations framed thereunder, including the provision of a comprehensive Environmental Management Plan (EMP).
- • **Safety Standards**: The bidder must comply with the Occupational Safety, Health and Working Conditions Code, 2020, and the Factories Act, 1948.

#### **Quality Control Metrics**

The bidder must establish and maintain a quality control system that includes the following metrics:

- • **Percentage of defects**: Not more than 5% of the total road length constructed shall be defective.
- • **Percentage of defects repaired**: All defects shall be repaired within 7 days of reporting.
- • **Percentage of material testing**: Not less than 10% of the materials shall be tested at the site.

- • **Percentage of quality control inspections**: Not less than 10% of the road length constructed shall be inspected at random.
- • **Percentage of environmental monitoring**: Not less than 10% of the environmental parameters shall be monitored at random.

#### **Labor and Machinery Requirements**

The bidder must provide evidence of qualified labor and machinery for the project, including:

- • **Labor qualifications**: All labor personnel shall be qualified and certified to perform the respective tasks.
- • **Machinery certifications**: All machinery shall be certified and calibrated to meet the required specifications.
- • **Equipment maintenance**: All machinery shall be properly maintained and serviced to ensure availability and efficiency.

#### **Documentation and Reporting**

The bidder must maintain and submit the following documentation and reports:

- • **Quality control plans**: A comprehensive quality control plan shall be submitted with the bid proposal.
- • **Quality control reports**: Monthly quality control reports shall be submitted to the Client.
- • **Defect reports**: Defect reports shall be submitted to the Client within 7 days of reporting.
- • **Environmental reports**: Environmental reports shall be submitted to the Client on a quarterly basis.

#### **Audit and Inspection**

The Client reserves the right to conduct audits and inspections to ensure compliance with the quality control standards and specifications. The bidder must provide access to the project site for the Client's auditors and inspectors.

#### **Penalties for Non-Compliance**

The bidder shall be liable to pay penalties for non-compliance with the quality control standards and specifications, as follows:

- • **First-time non-compliance**: ■100,000
- • **Second-time non-compliance**: ■200,000
- • **Third-time non-compliance**: ■500,000 and termination of the contract

By signing the contract, the bidder acknowledges that they have read, understood, and agreed to comply with the Quality Control and Standards section of the tender document.

# Risk Management Framework

## <b>Risk Management Framework</b>

### <b>Introduction</b>

The Road Construction Project, with a value of ■100,000,000.0, involves the construction of a 20-kilometer stretch of road with asphalt paving, drainage systems, and necessary signage. To ensure the successful completion of the project, the bidder must adopt a robust risk management framework that identifies, assesses, mitigates, and monitors potential risks. The following risk management framework is designed to provide a comprehensive approach to managing risks associated with the project.

### <b>Risk Management Policy</b>

The bidder shall adopt a risk management policy that is aligned with industry best practices and standards. The policy shall be based on the following principles:

- Identify and assess risks that could impact the project's objectives, scope, time, cost, and quality;
- Develop and implement strategies to mitigate, transfer, or accept risks;
- Continuously monitor and review risks throughout the project's lifecycle;
- Ensure that risk management is an integral part of the project management process.

### <b>Risk Categories</b>

The project risks shall be categorized into the following areas:

- • <b>Project Risks</b>: These are risks that are inherent in the project itself, such as:
  - + Delays in project completion due to unforeseen site conditions;
  - + Cost overruns due to changes in project scope or unforeseen site conditions;
  - + Quality issues due to inadequate materials or labor;
- • <b>Operational Risks</b>: These are risks associated with the bidder's operations, such as:
  - + Unavailability of skilled labor or machinery;
  - + Inadequate resources to manage the project;
  - + Insufficient experience in road construction;
- • <b>Environmental Risks</b>: These are risks associated with the project's impact on the environment, such as:
  - + Damage to nearby ecosystems or wildlife habitats;
  - + Disruption to nearby communities or businesses;

+ Non-compliance with environmental regulations;

- • **Safety Risks**: These are risks associated with the project's impact on the health and safety of workers, the public, and the environment, such as:

+ Accidents or injuries to workers or the public;

+ Damage to equipment or property;

+ Non-compliance with safety regulations.

#### **Risk Identification and Assessment**

The bidder shall identify and assess risks using the following tools and techniques:

- • **Risk Registers**: A risk register shall be maintained to record all identified risks, including their likelihood, impact, and mitigation strategies.
- • **SWOT Analysis**: A SWOT analysis shall be conducted to identify the bidder's strengths, weaknesses, opportunities, and threats related to the project.
- • **Pareto Analysis**: A Pareto analysis shall be conducted to identify the most critical risks that require mitigation.
- • **Risk Matrix**: A risk matrix shall be used to categorize risks based on their likelihood and impact.

#### **Risk Mitigation and Monitoring**

The bidder shall develop and implement strategies to mitigate, transfer, or accept risks.

The following risk mitigation and monitoring strategies shall be adopted:

- • **Risk Avoidance**: The bidder shall avoid risks whenever possible, such as by selecting a different site or project scope.
- • **Risk Transfer**: The bidder shall transfer risks to third parties, such as by subcontracting work or purchasing insurance.
- • **Risk Mitigation**: The bidder shall mitigate risks by developing and implementing strategies to reduce their likelihood or impact, such as by implementing quality control measures or providing training to workers.
- • **Risk Monitoring**: The bidder shall continuously monitor and review risks throughout the project's lifecycle, and update the risk register as necessary.

#### **Industry Standards and Metrics**

The bidder shall adhere to the following industry standards and metrics:

- • **ISO 31000:2018**: The bidder shall comply with the international standard for risk management, ISO 31000:2018.
- • **IS 2483:2012**: The bidder shall comply with the Indian standard for risk management, IS 2483:2012.

- • **HSE Guidelines**: The bidder shall comply with the Health, Safety, and Environment (HSE) guidelines for road construction projects.
- • **Quality Metrics**: The bidder shall use quality metrics, such as the Construction Industry Institute's (CII) quality metric, to measure the quality of work.

#### **Responsibilities and Accountabilities**

The following responsibilities and accountabilities shall be assigned to the bidder:

- • **Risk Manager**: The bidder shall appoint a risk manager who shall be responsible for developing and implementing the risk management framework.
- • **Project Manager**: The project manager shall be responsible for ensuring that the risk management framework is implemented throughout the project's lifecycle.
- • **Workers**: Workers shall be responsible for reporting any risks or incidents to the project manager or risk manager.

#### **Reporting and Documentation**

The bidder shall maintain a comprehensive risk management report that includes:

- • **Risk Registers**: A record of all identified risks, including their likelihood, impact, and mitigation strategies.
- • **Risk Assessments**: A record of all risk assessments, including their results and recommendations.
- • **Risk Mitigation Strategies**: A record of all risk mitigation strategies, including their implementation and effectiveness.
- • **Quality Metrics**: A record of all quality metrics, including their results and recommendations.

By adopting this comprehensive risk management framework, the bidder can ensure that the Road Construction Project is completed on time, within budget, and to the required quality standards.

## **Financial Terms and Conditions**

#### **Financial Terms and Conditions**

##### **1. Contract Price and Payment Terms**

The contract price for the Road Construction Project shall be **₹100,000,000.0** (Indian Rupees One Hundred Million). The payment terms shall be as follows:

- • The Contractor shall submit a detailed payment schedule, indicating the payment milestones and amounts, for the approval of the Client.
- • The Client shall make payments to the Contractor as per the approved schedule, within 30 days from the receipt of the Contractor's invoice.

- • The payment terms shall be as follows:

+ 10% of the contract price on signing of the contract (■10,000,000.0)

+ 40% of the contract price on completion of 50% of the work (■40,000,000.0)

+ 30% of the contract price on completion of 75% of the work (■30,000,000.0)

+ 20% of the contract price on completion of the entire work (■20,000,000.0)

#### <b>2. Taxes and Duties</b>

The Contractor shall be responsible for paying all applicable taxes and duties on the contract price. The Client shall not be liable for any taxes or duties incurred by the Contractor.

#### <b>3. Cost Escalation</b>

The contract price shall be adjusted to reflect any cost escalation due to factors beyond the Contractor's control, such as changes in government regulations, currency fluctuations, or unforeseen site conditions. The Contractor shall provide evidence of the cost escalation and shall obtain the Client's prior approval before making any adjustments to the contract price.

#### <b>4. Retention Sum</b>

The Client shall retain a sum of 5% of the contract price (■5,000,000.0) as a retention sum. The retention sum shall be released to the Contractor upon satisfactory completion of the entire work and finalization of all defects liability periods.

#### <b>5. Progress Payments</b>

The Contractor shall receive progress payments as per the payment schedule approved by the Client. The progress payments shall be made on the basis of the work completed, as certified by the Client.

#### <b>6. Invoicing and Payment Deadlines</b>

The Contractor shall submit invoices to the Client on a monthly basis, detailing the work completed, materials supplied, and labor costs incurred. The Client shall make payments to the Contractor within 30 days from the receipt of the invoice.

#### <b>7. Dispute Resolution</b>

In the event of any dispute arising out of the interpretation or implementation of this contract, the parties shall attempt to resolve the dispute through amicable negotiations. If the dispute cannot be resolved through negotiations, it shall be referred to arbitration in accordance with the Indian Arbitration and Conciliation Act, 1996.

#### <b>8. Currency and Exchange Rates</b>

The contract price and all payments shall be made in Indian Rupees (■). The exchange rate applicable to the contract price shall be the rate prevailing on the date of signing of the contract.



**<b>9. Delay Penalties</b>**

The Contractor shall be liable to pay a delay penalty of ■100,000.0 per day for each day of delay beyond the stipulated completion date.

**<b>10. Liquidated Damages</b>**

The Client shall be entitled to claim liquidated damages from the Contractor in the event of any breach of the contract. The liquidated damages shall be ■500,000.0 per day for each day of delay beyond the stipulated completion date.

**<b>11. Warranty and Defects Liability</b>**

The Contractor shall provide a warranty of 12 months for the entire work. The Contractor shall be responsible for rectifying any defects or defects in the work, as reported by the Client, within a period of 12 months from the date of completion of the work.

**<b>12. Insurance</b>**

The Contractor shall obtain and maintain insurance coverage for the following risks:

- • Workmen's compensation insurance
- • Public liability insurance
- • Employers' liability insurance
- • Professional indemnity insurance

The Contractor shall provide proof of insurance coverage to the Client prior to commencing the work.

**<b>13. Governing Law and Jurisdiction</b>**

This contract shall be governed by and construed in accordance with the laws of India. Any disputes arising out of this contract shall be subject to the jurisdiction of the courts of India.

**<b>14. Entire Agreement</b>**

This contract constitutes the entire agreement between the parties and supersedes all prior negotiations, understandings, and agreements between the parties.

By signing below, the parties acknowledge that they have read, understood, and agreed to the terms and conditions of this contract.

---

**<b>Client's Signature:</b>** \_\_\_\_\_

**<b>Contractor's Signature:</b>** \_\_\_\_\_

**<b>Date:</b>** \_\_\_\_\_

Note: The above content is a sample and may need to be modified to suit the specific requirements of the project and the parties involved. It is recommended to consult with a

lawyer and/or a financial expert before finalizing the financial terms and conditions of the contract.

## Legal and Compliance Requirements

### Legal and Compliance Requirements

#### 1.1. Introduction

The Road Construction Project, with a value of ₹100,000,000.0, is subject to various legal and compliance requirements as outlined below. The successful bidder shall adhere to all applicable laws, regulations, and industry standards to ensure a smooth and successful execution of the project.

#### 1.2. Applicable Laws and Regulations

The project shall be governed by and comply with the following laws and regulations:

- **The Indian Contract Act, 1872**: The contract between the bidder and the Client shall be governed by this Act.
- **The Arbitration and Conciliation Act, 1996**: Disputes arising out of the contract shall be resolved through arbitration as per this Act.
- **The Environment (Protection) Act, 1986**: The bidder shall comply with all environmental regulations and standards, including the prevention of air and water pollution.
- **The Factories Act, 1948**: The bidder shall ensure that all labor working on the project complies with the provisions of this Act, including the provision of safe working conditions.
- **The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996**: The bidder shall comply with all provisions of this Act, including the registration of workers and payment of wages.

#### 1.3. Industry Standards and Best Practices

The project shall be executed in accordance with the following industry standards and best practices:

- **Indian Road Congress (IRC) Standards**: The construction of the road shall comply with IRC standards for asphalt paving, drainage systems, and signage.
- **IS 14669:2011**: The bidder shall comply with this Indian Standard for the design and construction of roads.
- **Occupational Safety and Health Administration (OSHA) Guidelines**: The bidder shall ensure that all labor working on the project complies with OSHA guidelines for safety and health.

#### 1.4. Environmental Compliance

The bidder shall ensure that the project is executed in an environmentally friendly manner, including:

- • **Environmental Impact Assessment (EIA)**: The bidder shall conduct an EIA to identify and mitigate any potential environmental impacts of the project.
- • **Waste Management**: The bidder shall ensure that all waste generated during the project is managed and disposed of in an environmentally responsible manner.
- • **Air and Water Pollution Prevention**: The bidder shall take all necessary measures to prevent air and water pollution during the project.

#### **1.5. Labor Compliance**

The bidder shall ensure that all labor working on the project complies with the following:

- • **Minimum Wage Act**: The bidder shall pay all labor a minimum wage as per the Minimum Wage Act.
- • **Equal Remuneration Act**: The bidder shall ensure that all labor is paid equal remuneration for equal work.
- • **Working Hours and Leave**: The bidder shall ensure that all labor complies with working hours and leave regulations.

#### **1.6. Insurance and Liability**

The bidder shall ensure that the project is insured against all potential risks, including:

- • **Professional Indemnity Insurance**: The bidder shall have professional indemnity insurance to cover any losses or damages arising out of professional negligence.
- • **Public Liability Insurance**: The bidder shall have public liability insurance to cover any losses or damages arising out of accidents or environmental damage.
- • **Employee Liability Insurance**: The bidder shall have employee liability insurance to cover any losses or damages arising out of employee injuries or fatalities.

#### **1.7. Termination and Cancellation**

The contract may be terminated or cancelled by the Client in the event of:

- • **Material Breach**: The bidder's material breach of any of the terms and conditions of the contract.
- • **Insolvency**: The bidder's insolvency or bankruptcy.
- • **Force Majeure**: The occurrence of any event beyond the control of the Client, including natural disasters and wars.

#### **1.8. Dispute Resolution**

Any disputes arising out of the contract shall be resolved through arbitration as per the Arbitration and Conciliation Act, 1996.

#### **<b>1.9. Confidentiality</b>**

The bidder shall ensure that all confidential information and documents related to the project are kept confidential and not disclosed to any third party without the prior written consent of the Client.

#### **<b>1.10. Record Keeping</b>**

The bidder shall maintain accurate and complete records of all work performed, including:

- • **<b>Time Sheets</b>**: The bidder shall maintain time sheets for all labor working on the project.
- • **<b>Material Receipts</b>**: The bidder shall maintain receipts for all materials received.
- • **<b>Payment Records</b>**: The bidder shall maintain records of all payments made to labor and suppliers.

By submitting a bid for the Road Construction Project, the bidder acknowledges that it has read, understood, and agrees to comply with all the legal and compliance requirements outlined above.

## **Performance Metrics and SLAs**

#### **<b>Performance Metrics and SLAs</b>**

As part of this Road Construction Project, the successful bidder is expected to meet specific performance metrics and adhere to Service Level Agreements (SLAs) to ensure timely completion, quality of work, and budget compliance.

#### **<b>Performance Metrics:</b>**

The following performance metrics will be used to evaluate the bidder's performance:

- • **<b>Project Completion Time:</b>** The project shall be completed within 24 weeks from the date of commencement, as specified in the project timeline.
- • **<b>Quality of Work:</b>** The bidder shall ensure that the constructed road meets the following quality standards:

+ Asphalt paving: The asphalt layer shall be laid to a thickness of 3.5 inches, with a density of 95% or higher.

+ Drainage systems: The drainage system shall be designed and installed to ensure that the road can handle a minimum of 0.5 inches of rainfall per hour.

+ Signage: The signage shall be installed in accordance with the Indian Road Congress (IRC) standards.

- • **<b>Safety Standards:</b>** The bidder shall ensure that the project is executed in a safe and healthy manner, with zero fatalities and zero major injuries.

- • **Environmental Standards:** The bidder shall ensure that the project is executed in an environmentally responsible manner, with minimal disturbance to the surrounding ecosystem.
- • **Budget Compliance:** The bidder shall ensure that the project is completed within the approved budget of ₹100,000,000.0.

#### **Service Level Agreements (SLAs):**

The following SLAs shall be applicable to the project:

- • **Response Time:** The bidder shall respond to all project-related queries and requests within 2 hours of receipt.
- • **Communication:** The bidder shall provide regular project updates to the client, including weekly progress reports and monthly financial reports.
- • **Quality Control:** The bidder shall conduct regular quality control checks to ensure that the work meets the specified standards.
- • **Safety Inspections:** The bidder shall conduct regular safety inspections to ensure that the project is executed in a safe and healthy manner.

#### **Key Performance Indicators (KPIs):**

The following KPIs shall be used to measure the bidder's performance:

- • **Percentage of project completed within the specified timeframe:**  $\geq 95\%$
- • **Quality of work:**  $\geq 90\%$  of the work shall meet the specified quality standards
- • **Safety record:** Zero fatalities and zero major injuries
- • **Environmental impact:** Minimal disturbance to the surrounding ecosystem
- • **Budget compliance:** The project shall be completed within the approved budget

#### **Benchmarking:**

The bidder's performance shall be benchmarked against industry standards and best practices. The following benchmarks shall be used:

- • **Construction industry standards:** The bidder's performance shall be compared to industry standards, such as the Indian Road Congress (IRC) standards.
- • **Best practices:** The bidder's performance shall be compared to best practices in the construction industry, such as the use of sustainable materials and energy-efficient equipment.

#### **Penalties and Rewards:**

The bidder shall be subject to penalties and rewards based on their performance. The following penalties and rewards shall apply:

- • **Late completion:** ■500,000.0 per day for each day beyond the specified completion date
- • **Non-compliance with quality standards:** ■1,000,000.0 per instance of non-compliance
- • **Safety incidents:** ■2,000,000.0 per safety incident
- • **Environmental damage:** ■5,000,000.0 per instance of environmental damage
- • **Budget overruns:** ■10,000,000.0 per instance of budget overrun

The bidder shall also be eligible for rewards based on their performance. The following rewards shall apply:

- • **Early completion:** ■1,000,000.0 per day for each day before the specified completion date
- • **Quality excellence:** ■2,000,000.0 per instance of quality excellence
- • **Safety excellence:** ■5,000,000.0 per instance of safety excellence
- • **Environmental excellence:** ■10,000,000.0 per instance of environmental excellence
- • **Budget undershoot:** ■20,000,000.0 per instance of budget undershoot

By including these performance metrics and SLAs, the bidder shall be incentivized to deliver a high-quality project that meets the specified standards and deadlines.

## Testing and Acceptance Criteria

### TESTING AND ACCEPTANCE CRITERIA

#### 1.0 Introduction

The purpose of this section is to outline the testing and acceptance criteria for the Road Construction Project, ensuring that the works meet the specified requirements, industry standards, and regulatory compliance. The testing and acceptance criteria are divided into two phases: Construction Phase and Completion Phase.

#### 1.1 Construction Phase Testing

The following testing shall be conducted during the construction phase to ensure that the works meet the specified requirements:

- • **Pavement Testing:**

+ Conduct an in-situ density test on all layers of the pavement to ensure a minimum density of 98% of the design value.

+ Conduct a rolling wheel load test on the pavement to ensure the pavement can withstand a minimum load of 100 kN without any deformation.

+ Conduct a dynamic cone penetrometer (DCP) test on the pavement to ensure a minimum penetration resistance of 10 MPa.

- • **Drainage System Testing:**

+ Conduct a flow test on the drainage system to ensure a minimum flow rate of 50 liters per second.

+ Conduct a pressure test on the drainage system to ensure a minimum pressure of 500 kPa.

- • **Signage Testing:**

+ Conduct a visual inspection of the signage to ensure compliance with the specified design and color standards.

+ Conduct a functional test of the signage to ensure proper illumination and visibility.

### **1.2 Completion Phase Testing**

The following testing shall be conducted during the completion phase to ensure that the works meet the specified requirements, industry standards, and regulatory compliance:

- • **Pavement Testing:**

+ Conduct a visual inspection of the pavement to ensure compliance with the specified design and color standards.

+ Conduct a skid resistance test on the pavement to ensure a minimum skid number of 60.

+ Conduct a rut depth test on the pavement to ensure a maximum rut depth of 20 mm.

- • **Drainage System Testing:**

+ Conduct a flow test on the drainage system to ensure a minimum flow rate of 50 liters per second.

+ Conduct a pressure test on the drainage system to ensure a minimum pressure of 500 kPa.

- • **Signage Testing:**

+ Conduct a visual inspection of the signage to ensure compliance with the specified design and color standards.

+ Conduct a functional test of the signage to ensure proper illumination and visibility.

### **1.3 Acceptance Criteria**

The works shall be deemed acceptable if they meet the following criteria:

- • **Pavement:**

+ The pavement meets the specified design and color standards.

+ The pavement can withstand a minimum load of 100 kN without any deformation.

- + The pavement has a minimum skid number of 60.
- + The pavement has a maximum rut depth of 20 mm.
  - • **Drainage System:**
- + The drainage system meets the specified design and color standards.
- + The drainage system can withstand a minimum pressure of 500 kPa.
- + The drainage system has a minimum flow rate of 50 liters per second.
  - • **Signage:**
- + The signage meets the specified design and color standards.
- + The signage is properly illuminated and visible.

#### **1.4 Industry Standards and Regulatory Compliance**

The works shall be designed, constructed, and tested in accordance with the following industry standards and regulatory requirements:

- • IS 13370:2012 - Specification for design and construction of flexible pavements for high traffic volumes.
- • IS 11450:2014 - Specification for design and construction of rigid pavements.
- • IS 10085:2011 - Code of practice for the selection and use of materials for road construction.
- • The Indian Road Congress (IRC) guidelines for road design and construction.
- • The Environmental Protection Act, 1986.
- • The Occupational Safety and Health Act, 1987.

#### **1.5 Testing and Acceptance Schedule**

The testing and acceptance schedule shall be as follows:

- • Construction Phase Testing: Conducted during the construction phase, every 5 days.
- • Completion Phase Testing: Conducted after the completion of the works, within 14 days.
- • Acceptance Criteria: The works shall be deemed acceptable if they meet the specified acceptance criteria.

#### **1.6 Reporting Requirements**

The contractor shall submit a report to the client after each testing and acceptance phase, detailing the results of the testing and any corrective actions taken. The report shall include the following information:

- • A summary of the testing results.
- • A description of any corrective actions taken.



- • A detailed plan for rectification of any defects or deficiencies identified during testing.

By following this testing and acceptance criteria, the contractor can ensure that the Road Construction Project meets the specified requirements, industry standards, and regulatory compliance, providing a safe, durable, and functional road infrastructure for the community.

## Additional Details

### Contact Information

For queries, contact:

PWD Office, City Road, ABC

Email: [tenders@pwdabc.com](mailto:tenders@pwdabc.com)

Phone: +91 123 456 7890

### Eligibility Criteria

Bidders must have completed at least 3 similar road construction projects with a value of **■**5,00,00,000 or more in the last 5 years.

### MVP Requirements

The MVP will include the construction of the initial 5-kilometer stretch of road, with a completed drainage system and road base layer.

### Milestone Deliverables

Completion of initial site survey and soil testing within 2 weeks.

Submission of design plans within 1 month.

### Liquidated Damages

In case of project delay beyond the agreed timeline, liquidated damages of **■**5,00,000 per week will be charged.