



MINISTRY OF ROADS AND TRANSPORT
STATE DEPARTMENT FOR ROADS

COST ESTIMATION MANUAL 2025

FOR ROAD CONSTRUCTION AND MAINTENANCE WORKS



FIFTH EDITION

UPPER EASTERN REGION



Cost Estimation Manual

for Road Construction and Maintenance Works

Upper Eastern Region

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**COST ESTIMATION MANUAL
FOR ROAD CONSTRUCTION AND MAINTENANCE WORKS**

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Foreword

Kenya's long-term development blueprint, Vision 2030, aims to transform the country into a newly industrializing, middle-income nation providing a high quality of life to all its citizens. A critical enabler in this transformation journey is the development and maintenance of a robust and efficient road network.

One of the key initiatives contributing to Vision 2030 is the containment of escalating costs in road construction and maintenance. In response, the Government initiated the development of a standardized framework for accurate cost estimation in the Roads Sub-Sector. This led to the formulation and initial publication of the Cost Estimation Manual (CEM) for road maintenance works in 2011 by the Ministry responsible for roads, with technical support from the Japan International Cooperation Agency (JICA). The manual guides Road Agencies in preparing reliable cost estimates during project planning and provides a reference point for Contractors and Practitioners in generating unit rates during project bidding.

Since its first publication in 2011, the CEM has evolved through multiple revisions — 2017, 2019, and 2022/2023 — to reflect advancements in construction technology and changing economic dynamics. In 2020, Kenya Roads Board (KRB) was officially appointed as the administrator of the cost estimation system, with the responsibility of ensuring the manual's timely revision and alignment with evolving fiscal, technical, and sectoral conditions. In line with this mandate, the Board has developed the Cost Estimation Manual 2025.

Notably, earlier versions of the manual provided rates under two broad geographical categories: cities and other areas. However, growing recognition of regional cost disparities led to a breakthrough in the 4th edition with the introduction of eight (8) region-specific manuals and a concise popular version for broader use. Building on these achievements, the CEM 2025 marks a significant leap forward. The manual has been updated to include ten (10) regional manuals, offering even more refined and location-sensitive cost estimates.

The CEM is a dynamic document, subject to biennial updates to incorporate changing work methodologies, market trends, and policy priorities. This 2025 edition was prepared through a collaborative and consultative process involving a wide range of stakeholders, including the Ministry of Roads and Transport (State Department for Roads), Kenya National Highways Authority (KeNHA), Kenya Rural Roads Authority (KeRRA), Kenya Urban Roads Authority (KURA), Kenya Wildlife Service (KWS), National Construction Authority (NCA), Public Procurement Regulatory Authority (PPRA), Kenya Institute of Highways & Building Technology (KIHBT), Materials Testing & Research Division (MTRD), County Governments, and the consultant (ITEC Engineering Limited).

It is my hope that the effective use of this manual will foster greater cost-effectiveness in the maintenance, rehabilitation, and development of our road network and accelerate Kenya's progress toward achieving the aspirations of Vision 2030.

Rashid Mohamed, MBS
DIRECTOR GENERAL

Acknowledgement

The Kenya Roads Board (KRB), through the Director General, Mr. Rashid Mohamed, MBS, wishes to express its sincere appreciation to the Inter-Agency Cost Estimation Task Force for its initiative and commitment towards the update and publication of the Cost Estimation Manual (CEM) 2025.

We especially acknowledge the efforts of the KRB Project Implementation Team, led by the Director Policy and Planning, Eng. Tom Omai, supported by the Project Manager, Eng. Victor Odula; Deputy Project Manager, Mr. Thomas Bundi; and team members Eng. Billy Kimko, Mr. Joseph Kolani, and Eng. Tabitha Kariuki.

We further extend our gratitude to the various Road Agencies and partner organisations that actively participated in the CEM 2025 validation workshop. These include:

- Chief Engineer Roads, State Department for Roads
- Chief Engineer, Material Testing and Research Division
- Chief Mechanical Engineer, Mechanical and Transport Division
- Council of Governors - County Governments
- Kenya National Highways Authority (KeNHA)
- Kenya Urban Roads Authority (KURA)
- Kenya Rural Roads Authority (KeRRA)
- Kenya Wildlife Service (KWS)
- Kenya Roads Board (KRB) Regional Offices
- Kenya Institute of Highways and Building Technology (KIHBT)
- Public Procurement Regulatory Authority (PPRA)
- Kenya National Bureau of Statistics (KNBS)

Finally, this Manual would not have been realised without the dedication and technical expertise provided by the Consultant, M/s ITEC Engineering Ltd. Their valuable support throughout the process is appreciated.

Abbreviations and Acronyms

AASHTO	American Association of State Highway and Transportation Officials
AC	Asphalt Concrete
CBR	California Bearing Ratio
CEM	Cost Estimation Manual
CES	Cost Estimation System
IWC	Indirect Work Cost
JICA	Japan International Cooperation Authority
KeNHA	Kenya National Highways Authority
KeRRA	Kenya Rural Roads Authority
KIHBT	Kenya Institute of Highways and Building Technology
KNBS	Kenya National Bureau of Statistics
KRB	Kenya Roads Board
KURA	Kenya Urban Roads Authority
KWS	Kenya Wildlife Service
MDD	Maximum Dry Density
MoRT	Ministry of Roads and Transport
MTD	Mechanical and Transport Division
MTRD	Materials Testing and Research Department
PPRA	Public Procurement Regulatory Authority
PVC	Polyvinyl Chloride
RAs	Road Agencies / Authorities
RMS	Road Management System
VAT	Value-added Tax

Glossary of Terms

Abutment	Structure support to bridge deck and retains the road embankment.
Adhesion	Sticking quality, for example, holding aggregate to the binder in chip sealing.
Aggregate	Crushed local rock or stone.
Apron	Floor of concrete, masonry or stone at the inlet or outlet of a culvert or waterway to prevent scour.
Asphalt Concrete	Road construction material usually comprising a mixture of bitumen and aggregate, also known as hot-mix or hot-rolled asphalt.
Base Course	The main structural element of the pavement, between the surface course and subbase.
Benching	A stepped platform cut in an embankment to prevent earth slipping and improve slope stability. Can also be used as a stepping to provide a level base for additional fill material.
Berm	A low ridge or bund of soil to collect or redirect surface water.
Binder	An adhesive material, usually bitumen or bitumen emulsion, used to seal the road surface, also providing a waterproof layer to receive and hold aggregate. The most common binders are bitumen based. A binder is also used to hold aggregate together in bituminous mixtures.
Binder Course	The layer forms part of the bituminous surfacing immediately below the wearing course.
Bitumen	Bitumen (called asphalt cement in the US) is a black to dark brown sticky material composed principally of high-molecular-weight hydrocarbons. Most bitumen is derived from the distillation of crude oil. Bitumen is a thermoplastic material that gradually liquefies when heated.
Borrow Pit	An excavation outside the road limits from which suitable material is obtained, usually for earthwork or re-gravelling operations.
Box Culvert	A culvert of rectangular cross-section, usually constructed in reinforced concrete.
Bridge	A structure with a span of 6 metres or more providing a means of transit above land and/or water or above an obstruction, whether natural or artificial.
Camber (Cross Fall)	The transverse slope applied to the carriageway on a section of straight alignment.
Carriageway	The part of the road used by vehicular traffic.
Catch pit	A covered, accessible chamber with a sump for collection of silt forming part of the drainage system and permitting inspection and maintenance of

	underground drainage pipes.
Catchment Area	The area from which water runs off by gravity to a collecting point.
Causeway	Low-level structure constructed across streams or rivers with openings to permit water to pass below road level.
Centre-line	The middle of the carriageway, normally marked with a yellow dashed line on a paved road.
Compaction	Compacting embankment by roller to increase the density of soil what composes embankment body. It causes to improve mechanical properties of soil.
Cross-fall	The transverse gradient or fall across a formation or pavement.
Cross-section	Section through the road construction at right angles to the centre-line.
Crown	The highest part of a cambered surface, usually on or near the centre-line.
Culvert	A duct, usually rectangular or circular, for carrying surface water under the road.
Cut (Cutting)	Excavation in natural ground usually with graded slopes.
Cut Slope	A soil plane constructed at an angle to the horizontal.
Cut-off Drain	A drain cut to intercept surface water flowing from adjacent land and to prevent it reaching a pavement or other prepared surface.
Cycleway	The track which is mainly used for bicycle traffic. The track is separated with other parts of road by kerb stone or its similar structures.
Direct Cost	Actual input costs required for the execution of each activity, including materials, labour, and equipment.
Ditch (Drain)	A long narrow excavation designed or intended to collect and drain off surface water.
Drainage	The interception and removal of ground and surface water by artificial or natural means.
Drainage Channel	A waterway or gutter to carry away surface water.
Drift or Ford	A stream or river crossing at bed level over which the stream or river water can flow.
Earthworks	General term of construction works involving soil and rocks (e.g. excavation, loading, hauling, spreading and compaction).
Embankment Slope	An artificially constructed soil plane at an angle to the horizontal.

Fill (Embankment)	Earthworks constructed below the pavement raising the road above the surrounding natural ground level.
Footbridge	The overpass bridge crossing carriageway/railway to ensure the safety of pedestrian and smooth vehicle traffic.
Footpath	The track which is mainly used for pedestrian. The track is separated with other parts of road by kerb stone or its similar structures.
Gabion	The steel mesh cage filled with cobble stone or crushed stone. This is mainly used for revetment and foot protection.
Gravel	A non-cohesive, coarse granular material, resulting from natural disintegration of rock with or without finer material. In general, the particles are irregular or flaky. It is used as material of surface course and to correct loss of shape, ruts, potholes and erosion gullies.
Guardrail	A safety barrier on embankment or river crossing
Gutter	A shallow waterway provided at the edge of the road to carry surface water longitudinally.
Headwalls	The walls located on the top of outlet/inlet of culvert. The walls of inlet direct the flow into the culvert, while the walls of outlet provide a transition from the culvert to the outlet channel. Headwalls also protect the embankment from erosion by flood waters.
Indirect Cost	Administration, management, and logistical support cost required to execute a unit of work.
Inlet	The point at which surface water enters a pipe culvert or box culvert.
Invert	The lowest point of the internal cross section of a ditch or culvert.
Lane	The width of carriageway required to accommodate one line of traffic.
Manhole	Accessible chamber with a cover forming part of the drainage system and permitting inspection and maintenance of underground drainage pipes.
Mitre Drain	Short, open, skew ditches used to remove water from the roadside ditches or gutters. Use of this reduces the necessary size of the side ditches and minimizes the velocity of water and thereby the risk of erosion.
Original Ground Level	Line of natural ground.
Outfall	The point at which water discharges from a pipe or box culvert.
Paved Road	For the purpose of this manual a paved road is a road with a concrete surface, concrete block, bituminous surface or surface dressing.
Pavement	The road structure above the formation, designed to spread the loading over the base and subbase.
Pipe Culvert	A culvert of circular cross-section, usually constructed in pre-cast concrete.

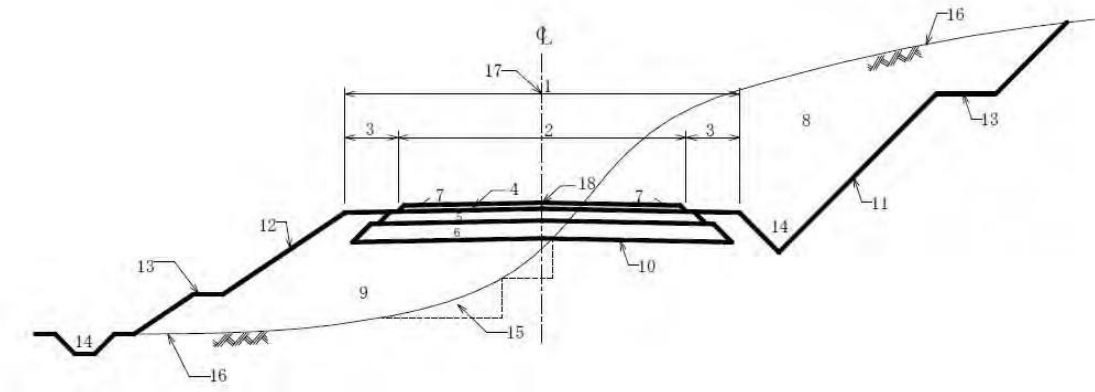
Premix	Premix is a paving material manufactured by mixing aggregates, filler and bitumen. Most premix is mixed and placed hot. Premix is used in the construction of wearing course, binder courses and base courses.
Prime Coat	A coating of low viscosity binder applied to a surface of stabilised or naturally compacted soil before sealing or paving.
Road Furniture	Road or street furniture e.g., traffic sign, traffic board, traffic signal, lane marking, guardrail, street light, etc.
Road Reserve (Right-of-way)	The area within the road limits over which members of the public have the right to pass and re-pass.
Roadway	The portion of a road including shoulders for vehicular use.
Scour Checks	The structures to prevent scouring of drains. Simple scour checks may be constructed of wood pegs or stones. All scour checks should have an apron downstream built of stones or grass turves pinned to the ditch invert with wooden pegs.
Shoulder	Paved or unpaved part of the road next to the outer edge of the pavement. The shoulder provides side support for the pavement and allows vehicles to stop or pass in an emergency.
Side Drain	Drain beyond the shoulders, parallel to the centre-line, to take the run-off from the road surface.
Slope	A natural or artificially constructed soil plane at an angle to the horizontal.
Sub-base	The layer of material between the base course and the subgrade.
Subgrade	Upper layer of the soil that supports the pavement
Superelevation	Raising outside edge level of the road above the inner edge level on curves to reduce the effect of centrifugal forces and minimize sliding, skidding, tipping and rolling over of vehicles through curves.
Surface Dressing	A sprayed or hand-applied film of bitumen followed by the application of a layer of stone chippings, which is then rolled.
Surfacing	Top layer of the pavement. Consists of wearing course, and sometimes a base course or binder course.
Tack Coat	Asphalt material to bond lower layer (asphalt material or cement) and upper layer (asphalt mixture). It is sprayed on surface of lower layer.
Traffic Lane	The portion of the carriageway defined by road marking for the movement of a single line of vehicles.
Transverse Joint	Joint at right angles to the road centre-line.
Transverse Joint Taper	Slope or ramp of asphalt mix at the end of a freshly laid asphalt course.
Unit Cost	Total expense to produce a single, measurable unit of work, combining all

direct and indirect costs.

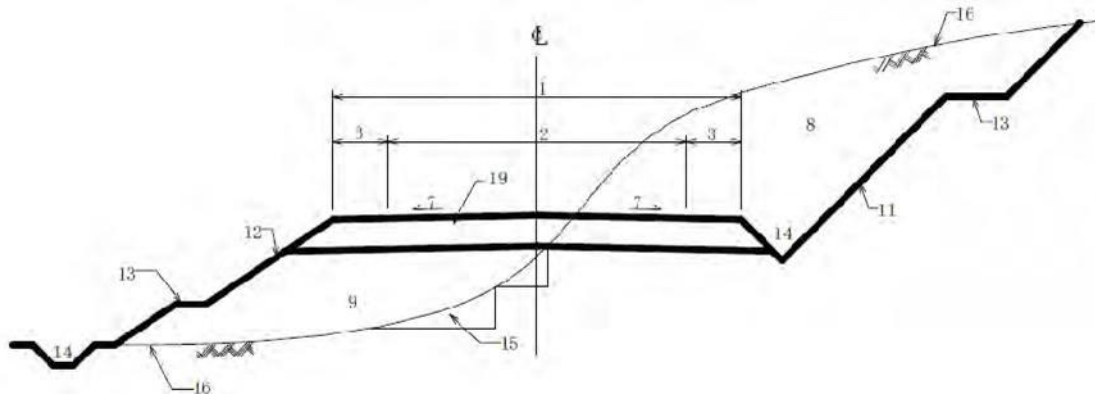
Unpaved Road	For the purpose of this manual an unpaved road is a road with a gravel or earth surface.
Wearing Course	The part of the road surface in contact with traffic wheels.
Wing-wall	Retaining wall at a bridge abutment to retain and protect the embankment fill behind the abutment.
Work Category	Grouping of construction activities defined by their shared requirements for materials, equipment, labour, and technological processes
Work Item	A measurable task that serves as the basis for payment.

Cross Section

The typical cross sections of paved, unpaved and urban roads are as follows:



Paved Road



Unpaved Road

1. Roadway	2. Carriageway	3. Shoulder	4. Surfacing	5. Base
6. Sub-base	7. Camber (Cross Fall)	8. Cut	9. Embankment	10. Subgrade
11. Cut Slope	12. Embankment Slope	13. Berm	14. Side Ditch	15. Benching
16. Natural Ground Level	17. Centre-line	18. Marking	19. Gravel	20. Footpath
21. Road Reserve	22. Pavement	23. Side Ditch	24. Boundary Stone	

I. Introduction

The Kenya Vision 2030 is the long-term vision which aspires that Kenya becomes a globally competitive and prosperous country by the year 2030. The plan is anchored on three pillars: The Economic, the Social and the Political. Infrastructure is considered one of the foundations and enablers of macroeconomic stability to support the three main pillars. The 2025 edition of the Cost Estimation Manual (CEM) for Road Maintenance Works builds upon Kenya's commitment to sustainable infrastructure development as outlined in the Kenya Vision 2030 and the ongoing Fourth Medium Term Plan (MTP IV) 2023–2027. As infrastructure continues to serve as a key enabler of economic growth and social transformation, the roads sub-sector plays a central role.

Originally developed in 2011 by the Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works (MoTIHUD&PW) with support from the Japan International Cooperation Agency (JICA), the CEM has undergone several revisions—in 2017, 2019, and most recently in 2022—to align with technological advancements, market trends, and evolving construction practices. The 2025 edition consolidates these updates and introduces refinements to ensure the manual remains responsive to current industry needs, while promoting transparency, efficiency, and value for money in road maintenance investments.

I.1. Purpose of the Manual

The 2025 CEM is intended to provide a standardized, transparent, and data-driven approach to estimating the cost of road maintenance works in Kenya. By promoting consistency and predictability in cost estimation, the manual helps improve accountability and decision-making in the roads sector. It serves as a practical guide for engineers, contractors, road agencies, and procurement entities by:

1. Defining cost elements and unit rates based on realistic inputs and methodologies.
2. Supporting the preparation of consistent, accurate, and defensible estimates.
3. Facilitating fair competition during procurement through reliable benchmarking.
4. Informing the planning and budgeting of maintenance works at national and county levels.

I.2. Application of the Manual

The manual is to be used throughout the project cycle, with specific application in the following areas:

1. Preparation of Engineer's Estimates for tendering by procurement entities, serving as a baseline for evaluating bids.
2. Development of annual and medium-term maintenance plans by Road Agencies and County Governments.
3. Project auditing and monitoring using benchmarking costs for ongoing and completed works to assess value for money and compliance.
4. Bidding support for contractors and consultants to prepare competitive bids aligned with sector-wide cost standards.

2. Contents of the Manual

2.1. Work items and coding

The work items covered in this manual are listed in Appendix I. These represent the common categories of activities frequently encountered in road maintenance works across Kenya. Each work item has been structured to reflect standardised practices and operational realities in the sector.

The coding of work items follows the Road Management System (RMS) and is aligned with the classification in the Standard Specifications for Road and Bridge Construction (1986).

2.2. Cost configuration

Road works consist of a combination of individual work items that are aggregated into work packages. The total cost of any work package is structured in the formula shown in Figure 2-1 below which incorporates all direct and indirect cost elements.

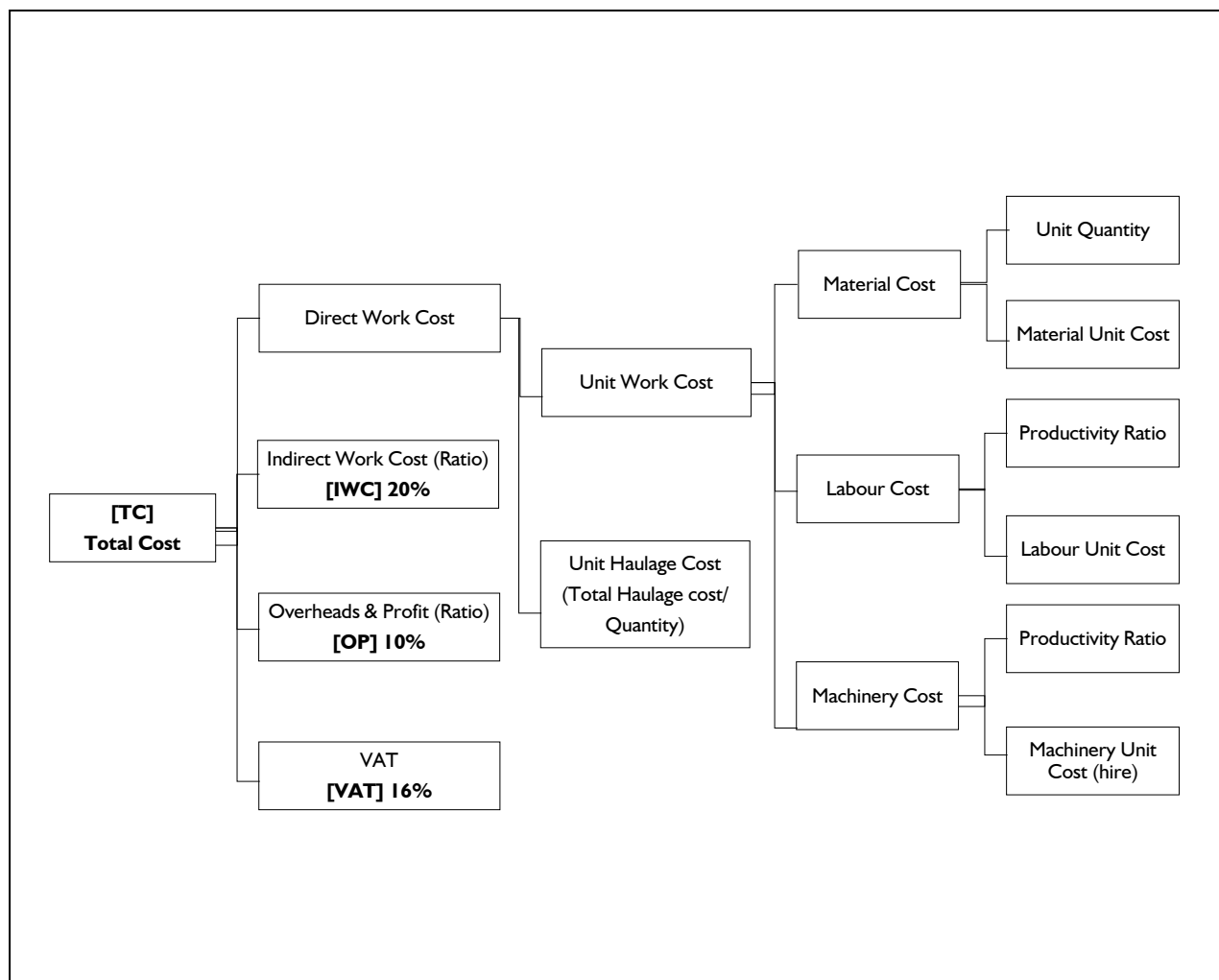


Figure 2-1 Cost configuration

$$TC = \sum (Q \times UP) \times (I + IWC) \times (I + OP) \times (I + VAT)$$

Where:

Q = Quantity of each work item

UP = Unit Price (combination of Unit Work Price and Unit Haulage Price)

IWC = Indirect Work Cost ratio (%)

OP = Overheads and Profit ratio (%)

VAT = Value Added Tax as per prevailing tax laws (%)

Direct Work Costs represent the actual input costs required for the execution of each activity, including materials, labour, and equipment. These are computed as the product of the quantity and the unit cost. Unit Price comprises the Unit Work Price (assuming all resources are on-site) and the Unit Haulage Price, which accounts for transportation.

Indirect Work Costs cover the administration, management, and logistical support required to execute the works and are applied as a percentage of Direct Work Costs.

Overheads and Profits are also expressed as a ratio of Direct Work Costs, while VAT is applied as per prevailing statutory rates.

2.3. Input Prices

Input prices for materials, labour, and machinery were determined via a market survey supplemented by official government prices. They are reflective of regional average market conditions. These are regularly reviewed and made publicly accessible. The key sources include:

1. Material Prices: Prices from market surveys supplemented with data from Kenya National Bureau of Statistics.
2. Labour Rates: Prices from market surveys and government regulations on wages
3. Machinery Hire Costs: Prices from market surveys and equipment hire prices issued by the Mechanical and Transport Division (MTD) under the Ministry of Roads and Transport (MoRT)

In this 2025 CEM revision, work unit prices were regionally disaggregated into ten (10) geographical zones to account for cost variations across the country.

Official prices are updated periodically, and ad-hoc adjustments may be made in response to significant market shifts such as inflation spikes, supply disruptions, or policy changes. In cases where official prices are outdated or unavailable, market surveys or comparable benchmarks may be used to derive provisional estimates. These are to be revised as soon as official data becomes available.

All prices and rate components are codified using the RMS coding system to ensure uniformity in cost estimation and project reporting. Details of current unit prices and their respective sources are provided in the appendices.

Market Survey Locations

For the development of the 2025 Cost Estimation Manual (CEM), survey areas were strategically selected to ensure comprehensive national coverage and representation of diverse geographic, economic, and infrastructural conditions. A total of ten (10) regions were identified jointly by the Consultant and the Kenya Roads Board (KRB) team.

These regions reflect Kenya's key road maintenance zones and were used to capture variations in material availability, labour costs, equipment access, terrain, and climatic conditions.

In total, seventy (70) towns and cities across the ten regions were surveyed. This broad and balanced selection provides a reliable data foundation for deriving regionalised unit rates, ensuring that the manual reflects actual market conditions and supports realistic and equitable budgeting.

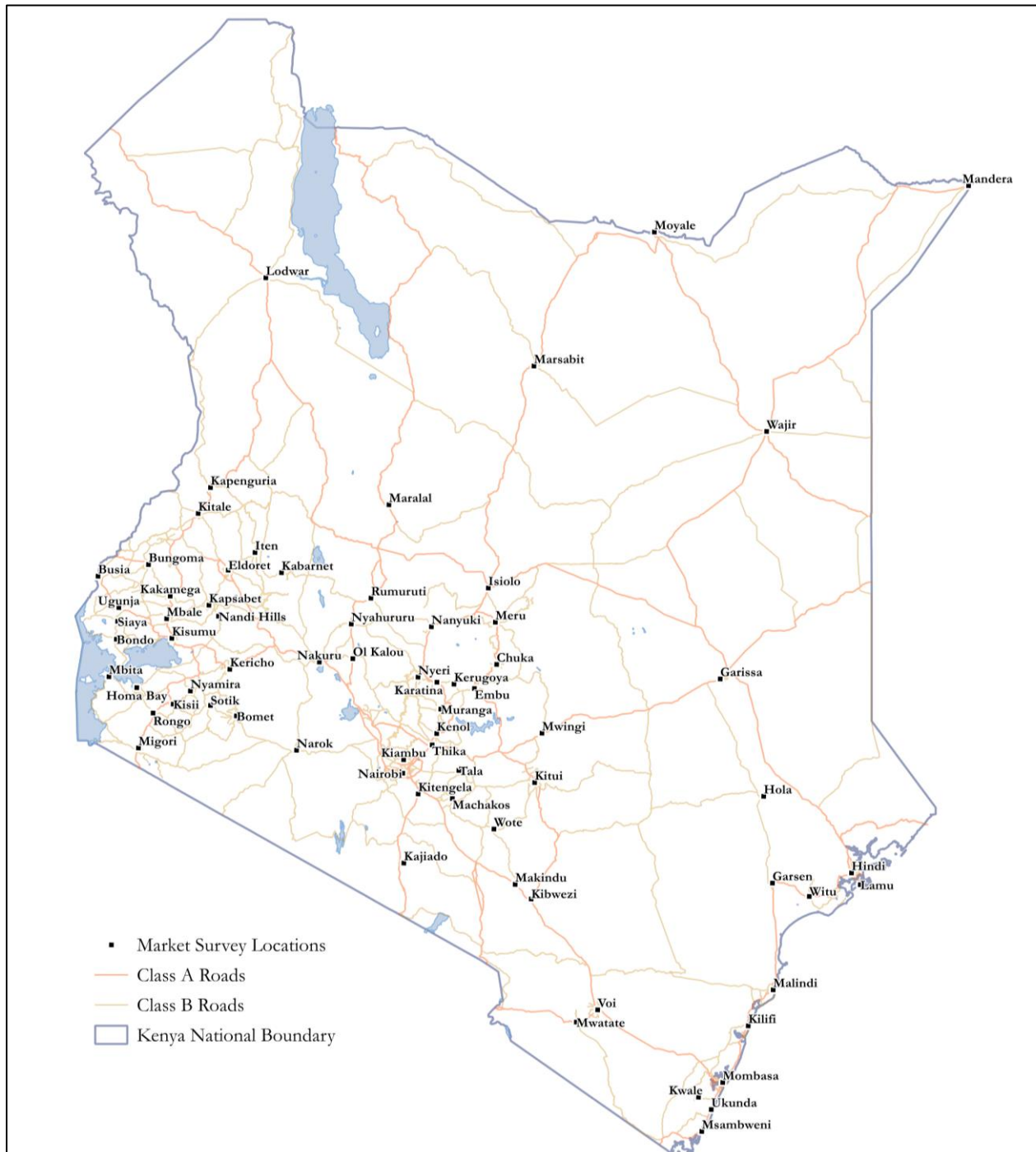


Figure 2-2 Figure 2 2: Market Survey Locations

Survey Methods

To ensure the reliability and accuracy of the 2025 Cost Estimation Manual (CEM), both primary and secondary data collection methods were employed. The approach was designed to capture prevailing market conditions while incorporating official benchmarks for national consistency.

Primary Data Collection

In each of the selected cities/towns, information was gathered through visits to: wholesale suppliers, major hardware shops, warehouses, road contractors, items manufacturers etc.

Additionally, online market surveys were carried out using publicly available price lists. These were verified during field visits to ensure consistency with actual market prices.

Secondary Data Collection

Recognised official sources were used to supplement and validate the field data. These sources provided baseline rates to be used where market data was inconsistent, outdated, or unavailable.

Unit Price Analysis

Labour

Contractors were selected based on prior road agency project experience. Labour unit rates were primarily obtained from these contractors. However, where market rates were lower than the government-mandated minimums, the Regulation of Wages (General) (Amendment) Order, 2024 was applied to ensure compliance.

Priority	Survey Data Source	Target Trade
1.	Contractor	Road Construction
2.	Documented Labour Law	Building and Construction

Material

Suppliers were selected randomly, based on material availability and accessibility. Data collection was conducted through field visits, phone interviews, emails, internet research, and recommendations from contractors and Road Agencies.

The procedure to determine the unit price is as follows:

1. Market survey prices were prioritised.
2. Prices were collected from at least three suppliers and averaged.
3. Outlier prices (too low or too high) were excluded from the average.
4. If the item was unavailable in the current market, the 2022 rate was adjusted and used.

Priority	Source of Data
1.	Market Survey
2.	Kenya National Bureau of Statistics (KNBS)
3.	Road Authorities e.g. KeNHA, KURA, KeRRA

Equipment

Suppliers of equipment hire services were identified through online research and recommendations from Road Agency regional offices and contractors. Market survey rates were prioritised, but official rates from the Mechanical and Transport Division (MTD) were used where necessary.

Priority	Source of Data
1.	Market Survey
2.	Mechanical and Transport Division (MTD)

2.4. Haulage cost

The location of a project site significantly influences the unit cost of work due to transportation expenses. Accordingly, haulage costs must be carefully estimated as they form a key component of the total cost.

In this manual, haulage costs are calculated using a standardized approach as outlined in Table 2-1, which considers the operating costs of transport vehicles (both dry hire and fuel), driver and turn boy wages, distance, and number of trips.

The total haulage cost is divided by the quantity of the material or equipment transported and added to the unit work price, forming the complete unit cost of the work item. Where a verifiable and current haulage quotation is available, it may be used in place of the manual's estimation formula.

Table 2-1: Estimation of Haulage Price

Type of Vehicle:	(specify)	
Vehicle price per hour (or dry hire rate) = A		Ksh/hr
Fuel price per hour, $B = C/D * E$		Ksh/hr
Fuel cost per litre = C		Ksh/litre
Fuel consumption rate = D		km/litre
Average speed during transport = E		km/hr
Driver wage per hour, $F = G/8hr$		Ksh/hr
Wage per day = G		Ksh/day
Turn boy wage per hour, $H = I/8hr$		Ksh/hr
Wage per day = I		Ksh/day
Total price per hour of transport, $J = A+B+F+H$		Ksh/hr
Distance of transport (one way) = K		km
Frequency of transport (no. of round trip) = L		times
Distance of transport (by round trip), $M = 2*K$		km
Total Distance of transport, $N = L*M$		km
Total time of Transport, $O = N/E$		hr
Total Haulage Price, $P = J*O$		Ksh

2.5. Unit quantity and productivity

To compute accurate cost estimates, unit quantities and productivity rates for materials, labour, and machinery must be clearly defined:

- Unit quantity refers to the amount of material required per unit of work.
- Labour productivity is the amount of labour effort (e.g., person-hours) needed per unit of work.
- Machinery productivity is the operational time (e.g., machine-hours or days) required per unit of work.

The sources used to determine these quantities and productivity benchmarks include:

- The Standard Specifications for Road and Bridge Construction (1986) by the Ministry of Transport and Communications;
- Official standard drawings; and,
- Average rates obtained from site surveys and past engineering experience.

2.6. Indirect work costs

Indirect work costs represent expenses that are not directly attributable to specific work items but are essential to project execution. These include:

- Human Resource Management costs (recruitment, welfare, insurance, transport, uniforms);
- Site staff allowances;
- Site-level management and administration (office setup, utilities, communication);
- Implementation of occupational safety and health measures; and,
- Social charges (local taxes, public fees, staff welfare costs).

These costs are incorporated as a ratio of direct work costs in the cost configuration model.

2.7. Overheads and Profit

Overheads and profit reflect costs incurred at the organizational level, as well as the contractor's expected return. These include:

- Head office salaries and allowances;
- Corporate administration and support services;
- Company-level social charges (insurance, taxes, and staff welfare);
- Research, development, and innovation;
- Marketing and publicity activities;
- Depreciation of company assets and facilities; and,
- Profit margin (bonuses, shareholder dividends, and retained earnings).

Given the variability and complexity in estimating these figures precisely, a standardised ratio to the total direct work cost is applied to account for these elements in the overall cost estimation.

2.8. Revision Highlights

2011	
	<ol style="list-style-type: none"> 1. Developed and published using Japanese productivity rates for labour, machinery and materials multiplied by a factor. 2. Unit rates used are for only two regions i.e. Nairobi, Mombasa and Kisumu as one region and “all other areas” as the other. 3. Unit prices were obtained from the Kenyan market.
2017	
	<ol style="list-style-type: none"> 1. Update of Unit prices for Nairobi, Mombasa and Kisumu and All other areas. 2. Update of quantities for the following work items: <ul style="list-style-type: none"> – Gabion Installation; and, – Pothole Repair. 3. Miscellaneous costs are adjusted as follows: <ul style="list-style-type: none"> – 20% for Concrete works, Structural Works and complicated street furniture works reduced to 10%; and, – 10% for Clearing, cleaning, earthwork, base and surfacing works and simple street furniture works reduced to 5%.
2019	
	<ol style="list-style-type: none"> 1. Update of unit prices for Nairobi, Mombasa and Kisumu. 2. Update of unit rate calculation tables for the following: <ul style="list-style-type: none"> – Labour-based works: Ditch cleaning (Manual) and culvert cleaning; – On-carriageway works including pothole repair, headwall repair, re-gravelling and road marking; and, – Cement/ lime mixing. 3. Addition of guardrail repair. 4. Indirect costs were reduced from 30% to 20%.
2022	
	<ol style="list-style-type: none"> 1. Update of unit prices collected from eight (8) regions (19 towns and 3 cities) i.e. Nairobi/ Central, Coast, Nyanza/Western, North Rift, South Rift, Upper Eastern, Lower Eastern and North Eastern. 2. Update of productivity rates for the following equipment: <ul style="list-style-type: none"> – Water tanker; – Motor grader; and, – Pneumatic roller.
2025	
	<ol style="list-style-type: none"> 1. Update of unit prices collected from ten (10) regions (5 cities and 65 towns) i.e. Nairobi, Central, Coast, Nyanza, Western, North Rift, South Rift, Upper Eastern, Lower Eastern and North Eastern.

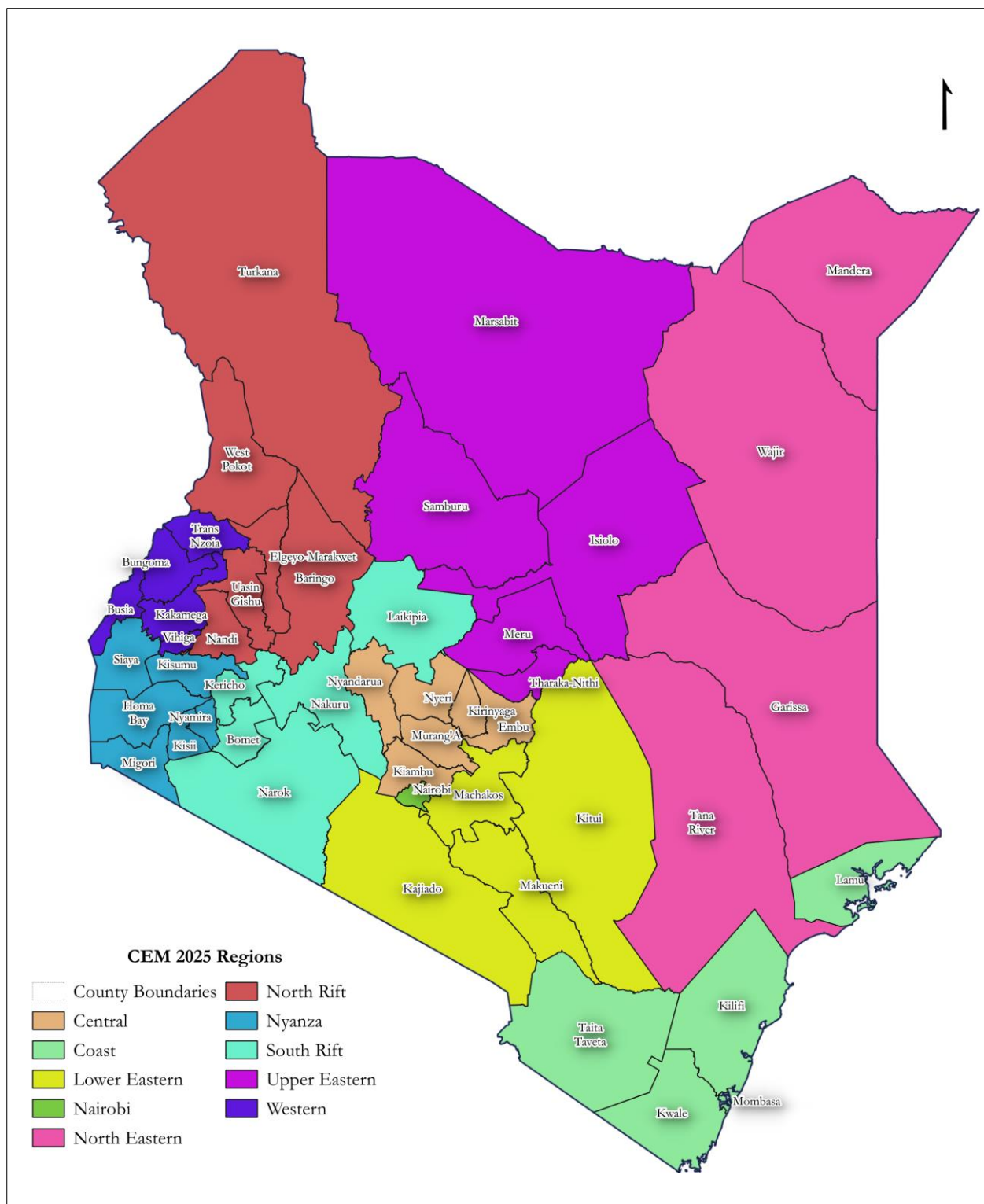


Figure 2-3 CEM 2025 Regions

3. List of Unit Rates and Work Descriptions

3.1. Upper Eastern Region

4. SITE CLEARANCE AND TOPSOIL STRIPPING

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
1	Bush Clearing	04.50.001	Mechanical mowing	Cut grass by machine along the side of the road or on slopes.	m ²	6	7
2		04.50.002	Grass cutting (manual)	Cut grass manually along the side of the road or on slopes.	m ²	4	5
3		04.50.003	Heavy bush clearing	Cut, remove and dispose bushes along the side of the road, slopes or alongside ditches.	m ²	19	25
4		04.50.004	Light bush clearing	Cut grass by hand from shoulders, slopes, inlet ditches, and side ditches including back slopes, turnouts and culvert outlet.	m ²	11	14
5		04.50.005	Pruning of tree branches	Cut, remove and dispose branches of trees along the side of the road, slopes or alongside ditches.	m ²	106	140
6		04.50.006	Tree cutting and stump removal (200 -450 mm)	Cut, remove and dispose whole trees of 200 - 450mm in girth including their stumps along the side of the road, slopes or alongside ditches.	No	235	310
7		04.50.007	Tree cutting and stump removal (>450 mm)	Cut, remove and dispose whole trees of above 450mm in girth including their stumps along the side of the road, slopes or alongside ditches.	No	1,304	1,721
8	Site Clearing and Backfill	04.50.008	Clearing obstructions (mechanical)	Mechanically clear any obstruction including boulders and debris out of road reserve.	m ²	38	50
9		04.50.008a	Clearing obstructions (manual)	Manually clear any obstruction including boulders and debris out of road reserve.	m ³	275	363

4. SITE CLEARANCE AND TOPSOIL STRIPPING

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
10		04.50.009	Stripping and grubbing (mechanical)	Clear site on road reserve mechanically by stripping and grubbing roots.	m ²	115	152
11		04.50.009a	Stripping and grubbing (manual)	Clear site on road reserve manually by stripping and grubbing roots.	m ²	187	247
12		04.60.001	Clearing trees, hedges, bushes, vegetation and deleterious materials (mechanical)	Clear site on road reserve mechanically by removal of trees, hedges, bushes, vegetation and other deleterious materials.	m ²	83	110
13		04.60.001a	Clearing trees, hedges, bushes, vegetation and deleterious materials (manual)	Clear site on road reserve manually by removal of trees, hedges, bushes, vegetation and other deleterious materials.	m ²	90	119
14	Concrete Demolition	04.50.010	Excavate remove & disposal of concrete structures	Demolish reinforced or mass concrete structures and cart to spoil or stockpile for re-use.	m ³	1,199	1,583
15	Top Soil Stripping	04.80.002	Removal of overburden	Remove topsoil to a maximum depth of 200mm.	m ³	275	363
16	Pipe Culvert Removal	04.60.005	Removal of cracked small pipe culverts below 600mm	Excavate, remove and dispose cracked pipe culverts below 600mm in diameter.	m	442	583
17		04.60.005a	Removal of cracked large pipe culverts above 600mm	Excavate, remove and dispose cracked pipe culverts above 600mm in diameter.	m	665	878

5. EARTH WORKS

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
18	Material Filling	05.50.006	Fill in soft material and compact	Provide, place and compact soft patching material to surface defects or gravel road. It is assumed that soil to be filled is on the site or provided from cut area.	m ³	494	652
19		05.50.006a	Fill in soft material and compact (soil purchased)	Provide, place and compact soft purchased patching material to surface defects or gravel road.	m ³	1,424	1,880
20		05.50.007	Fill in hard material and compact	Provide, place and compact hard patching material to surface defects or gravel road. It is assumed that soil to be filled is on the site or provided from cut area.	m ³	580	766
21		05.50.007a	Fill in hard material and compact (soil purchased)	Provide, place and compact hard purchased patching material to surface defects or gravel road.	m ³	1,534	2,025
22	Material Cutting	05.50.008	Cut to spoil in soft	Cut manually soft material to spoil	m ³	570	752
23		05.50.008a	Cut to spoil in soft (mechanical)	Cut mechanically soft material to spoil	m ³	268	354
24		05.50.009	Cut to spoil in hard	Cut manually hard material to spoil	m ³	1,059	1,398
25		05.50.009a	Cut to spoil in hard (mechanical)	Cut mechanically hard material to spoil	m ³	536	708
26	Concrete Demolition	05.50.012	Rock fill to swamp	Manually provide and place rock fill to swamp	m ³	3,082	4,068
27		05.50.125	Rock fill to embankment construction	Manually provide and place rock fill to construct embankment.	m ³	3,444	4,546
28	Planting	05.50.014	Grassing	Plant grass on the slope and inverts of ditches to reduce scour effects, or on slopes to reduce soil erosion and to improve stability.	m ²	1,386	1,830
29	Pipe Culvert Replacement	05.60.012	Compaction of subgrade in cut	Trim and compact.	m ²	38	50
30		05.60.014	Compaction of subgrade in fill	Compaction of subgrade in fill.	m ³	2,023	2,670

5. EARTH WORKS

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
31		05.60.016	Compaction of original ground level	Compact the top 150 mm layer of existing ground below fills and cuts to 95% MDD (AASHTO T99)	m ³	49	65
31a		05.60.016a	Compaction of the 300 mm below formation level in cutting to 100% MDD (AASHTO T99)	Compaction of the top 300mm below formation level in cuts and fills (subgrade) to 100% MDD	m ³	1,668	2,202

7. EXCAVATION AND FILLING FOR STRUCTURE

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
32	Material Excavation for Structures	07.50.001	Excavate for structure in soft material (manual)	Excavate manually soft material for structures.	m ³	570	752
33		07.50.001a	Excavate for structure in soft material (mechanical)	Excavate mechanically soft material for structures.	m ³	268	354
34		07.50.002	Excavate for structure in hard material (manual)	Excavate manually in hard material for structures.	m ³	1,059	1,398
35		07.50.002a	Excavate for structure in hard material (mechanical)	Excavate mechanically in hard material for structures.	m ³	536	708
36	Gabion	07.70.004	Gabion Installation	Provide and place Macaferri or equivalent gabion boxes (2m * 1m * 1m).	m ²	486	642
37		07.70.005	Rock fill to Gabions	Provide and place rock fill to gabions.	m ³	2,807	3,705
38	Stone Pitching	07.70.001	Stone pitching	Provide stone pitching including grouting of ratio 1:4 cement to mortar.	m ²	1,881	2,483

8. CULVERTS AND DRAINAGE WORKS

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
39	Ditch Cleaning	08.50.002a	Ditch cleaning - mechanical	Mechanically desilt, shape inlets outfalls, side drains to free flow conditions	m	31	41
40		08.50.002	Ditch cleaning - manual	Manually desilt, shape inlets outfalls, side drains to free flow conditions.	m	19	25
41	Culvert Cleaning	08.60.002	Small culvert cleaning-partially blocked-below 450mm	Clean culverts of below 450mm in diameter to free flow conditions	m	438	578
42		08.60.003	Medium culvert cleaning-partially blocked-600mm	Clean culverts of 600mm in diameter to free flow conditions	m	336	444
43		08.60.004	Large culvert cleaning-partially blocked-900 mm and above	Clean culverts of 900mm and above in diameter to free flow conditions	m	234	309
44		08.50.025	Manhole cleaning	Remove all silt and debris and wash out manhole to free flow conditions.	No	834	1,101
45		08.50.016	Gulley pot cleaning	Clean siltation and debris from gulley pot to good impoundment conditions.	No	158	209
46		08.50.009	Covered (slotted) lined drain cleaning	Remove all silt and debris and wash out covered lined drain to free flow conditions	m	93	123
47		08.50.005a	Ditch/mitre drain excavation in soft (mechanical)	Excavate mechanically for inlet, outfall, mitre and catchwater drains in soft material	m ³	328	433
48		08.50.005	Ditch/mitre drain excavation in soft (manual)	Excavate manually for inlet, outfall, mitre and catchwater drains in soft material	m ³	326	430
49		08.50.005b	Ditch/mitre drain excavation in hard (mechanical)	Excavate mechanically in hard material for inlet, outfall, mitre and catchwater drains.	m ³	548	723
50		08.50.005c	Ditch/mitre drain excavation in hard (manual)	Excavate manually in hard material for inlet, outfall, mitre and catchwater drains	m ³	1,834	2,421
51		08.60.021	Culvert installation-300mm with surround	Provide, lay and joint pipe culvert of 300mm in diameter with surround	m	6,685	8,824

8. CULVERTS AND DRAINAGE WORKS

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
52	Pipe Culvert Installation	08.60.020	Culvert installation-300mm without surround	Provide, lay and joint unhounded pipe culvert of 300mm in diameter without surround	m	2,653	3,502
53		08.60.023	Culvert installation-450mm with surround	Provide, lay and joint pipe culvert of 450mm in diameter with surround.	m	9,045	11,939
54		08.60.022	Culvert installation-450mm without surround	Provide, lay and joint pipe culvert of 450mm in diameter without surround.	m	3,284	4,335
55		08.60.025	Culvert installation-600mm with surround	Provide, lay and joint pipe culvert of 600mm in diameter with surround	m	14,394	19,000
56		08.60.024	Culvert installation-600mm without surround	Provide, lay and joint pipe culvert of 600mm in diameter without surround	m	4,504	5,945
57		08.60.027	Culvert installation-900mm with surround	Provide, lay and joint pipe culvert of 900mm in diameter with surround.	m	16,104	21,257
58		08.60.026	Culvert installation-900mm without surround	Provide, lay and joint pipe culvert of 900mm in diameter without surround	m	6,413	8,465
59		08.60.028	Culvert installation-1200mm with surround	Provide, lay and joint pipe culvert of 1200mm in diameter with surround	m	26,272	34,679
60		08.60.029	Culvert installation-1200mm without surround	Provide, lay and joint culvert of 1200mm in diameter without surround	m	10,516	13,881
61		08.60.030	Excavate in soft material for culverts	Excavation manually in soft material for culvert in any size.	m ³	326	430
62		08.60.031	Excavate in hard material for culverts	Excavation manually in hard material for culvert in any size.	m ³	1,834	2,421
63	Headwall Construction	08.60.019	Headwall construction for 450mm pipe culvert	Reconstruct or repair damaged headwall (wingwall and apron) for 450mm pipe culvert to prevent the collapse and the potential	No	21,795	28,769

8. CULVERTS AND DRAINAGE WORKS

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
				slippage of the material and pavement above the culvert.			
64		08.60.019a	Headwall construction for 600mm pipe culvert	Reconstruct or repair damaged headwall (wingwall and apron) for 600mm pipe culvert to prevent the collapse and the potential slip of the material and pavement above the culvert.	No	25,493	33,651
65		08.60.019b	Headwall construction for 900mm pipe culvert	Reconstruct or repair damaged headwall (wingwall and apron) for 900mm pipe culvert to prevent the collapse and the potential slip of the material and pavement above the culvert.	No	33,376	44,057
66		08.60.019c	Headwall construction for 1200mm pipe culvert	Reconstruct or repair damaged headwall (wingwall and apron) for 1200mm pipe culvert to prevent the collapse and the potential slip of the material and pavement above the culvert.	No	44,885	59,249
67	Manhole installation	08.50.024	Manhole construction less than 1m	Install new small manhole of less than 1m in depth (900-1200mm in inner diameter)	No	33,271	43,918
68		08.50.024a	Manhole construction more than 1m	Install new large manhole of more than 1m in depth (900-1200mm in inner diameter)	No	54,962	72,550
69	Gulley Pot installation	08.50.015	Gulley pot construction	Provide and place gulley pots including grating (H=900mm) for inlet structures as directed by the Engineer.	No	10,709	14,136
70	Drain Lining	08.50.032	Lay drain lining with concrete	Place concrete lining to the slopes and invert of the ditch to prevent the scour.	m ²	2,264	2,988

8. CULVERTS AND DRAINAGE WORKS

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
71		08.50.022a	Laying of dressed stones	Place dressed stone lining to the slopes and invert of the ditch to prevent the scour.	m ²	2,266	2,991
72		08.50.022	Laying of side slabs	Place side slab lining to the slopes and invert of the ditch to prevent the scour.	m ²	2,945	3,887
73		08.70.036	Laying of 300mm invert block drain	Provide, lay and joint invert block drain of 300mm in diameter	m	1,892	2,497
74		08.70.037	Laying of 750mm invert block drain	Provide, lay and joint invert block drain of 750mm in width	m	2,196	2,899

9. PASSAGE OF TRAFFIC

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
75	Traffic Control	09.50.004	Traffic Control	Place warning signs, barriers and cones around the working lane on the carriageway and guide the passage of traffic through the works	Day	2,037	2,689
76		09.50.005	Watchman	Provide watchman for all round surveillance.	No	1,946	2,569
77		09.50.006	Watering	Sprinkle water to control dust for passage of traffic through the works or compaction at earth works	m ²	13	17

10. GRADING AND GRAVELLING WORKS

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
78	Grading	10.50.001	Heavy grading without watering or compaction	Trim with Motor Grader or heavy towed grader existing carriageway surface to camber, including slopes and ditches without providing watering and compaction	m ²	7	9
79		10.50.002	Heavy grading with watering and compaction	Trim with Motor Grader or heavy towed grader existing carriageway surface to camber, including slopes and ditches providing watering and compaction	m ²	11	15
80		10.50.003	Light grading	Trim with motor grader existing carriageway to camber, including slopes and ditches.	m ²	6	7
81		10.50.004	Reshaping	Restore manually the camber on earth or gravel roads by returning material from road sides and shoulder toward road centre.	m ²	16	21
82		10.50.005	Dragging	Remove manually loose material from the surface to delay the formation of corrugations	m ²	16	21
83	Gravelling	10.60.001	Regravelling	Prepare for road formation and provide, place spread, shape and compact with watering gravel of not less than CBR 20%	m ³	2,219	2,929
84		10.60.001a	Regravelling without watering	Prepare for road formation and provide, place spread, shape and compact without watering gravel of not less than CBR 20%	m ³	2,204	2,909

11. PAVED ROADS - SHOULDER MAINTENANCE AND REPAIRS

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
86	Shoulder Rebuilding	11.50.002	Shoulder repairing	Prepare surface of existing shoulders, accesses and bus bays, water process and compact	m ²	3	4
87	Shoulder Gravelling	11.50.003	Shoulder gravelling with natural gravel	Provide, place, spread, shape and compact 150mm of natural gravel of CBR 30% to shoulders, accesses and bus bays	m ³	2,238	2,954
88		11.50.003a	Shoulder gravelling with quarry waste	Provide, place and compact quarry waste material to shoulders, accesses and bus bays	m ³	2,715	3,584

12. NATURAL MATERIAL BASE AND SUBBASE

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
89	Pavement Removal	12.70.001	Scarify existing pavement to form subbase	Break or scarify mechanically the existing pavement layer, and compact.	m ³	1,109	1,464
90	Subbase/Base Rebuilding	12.50.001	Handpacked stone paving	Provide, lay, and compact hand packed stone material including filling of voids with stone dust	m ³	4,267	5,632
91		12.50.002	Provide, place and compact quarry waste	Provide, spread, shape and compact approved quarry waste of CBR 30% and above for 5cm in thickness.	m ³	5,736	7,572
92		12.50.003	Provide, place, spread and compact natural gravel	Provide, spread, shape and compact approved natural gravel of CBR 30% and above for 15cm in thickness.	m ³	2,235	2,950

13. GRADED CRUSHED STONE BASE AND SUBBASE

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
93	Graded Crushed Stone	13.50.001	Graded Crushed Stone for subbase	Provide, place and spread approved graded crushed stone for subbase.	m ³	2,977	3,930
94		13.60.001	Graded Crushed Stone for base	Provide, place and spread approved graded crushed stone for base.	m ³	2,977	3,930

14. CEMENT AND LIME TREATED SUBGRADE, SUBBASE AND BASE

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
95	Cement/Lime Stabilization	14.50.001	Provision of Cement for treatment of material	Provide, spread cement on natural gravel or graded crushed stone	ton	16,393	21,639
96		14.50.002	Provision of Lime for treatment of material	Provide, spread lime on natural gravel or graded crushed stone	ton	31,489	41,565
97		14.50.003	Cement/lime mixing	Mixing in cement/lime into natural gravel or graded crushed stone	m ³	76	100
98		14.50.004	Curing and protection of treated layers	Cure and protect layers treated with cement or lime stabilizers	m ²	245	324

15. BITUMINOUS SURFACE TREATMENT & SURFACE DRESSING

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
99	Prime Coat	15.50.002	Prime Coat (MC-30 cutback bitumen)	Prepare surface of carriageway, bus bays and repair areas, provide and spray MC-30 cutback bitumen at a rate of 0.8-1.2 litre/m ² as prime coat	litre	182	240
100	Tack Coat	15.50.003	Tack Coat (grade bitumen cutback)	Prepare surface of carriageway and bus bays, provide and spray 80/100 penetration grade bitumen cut back using 5-15% kerosene as tack coat for asphalt concrete wearing course at a spray rate of 0.5-0.7 litre/m ²	litre	223	294
101		15.50.003a	Tack Coat (bitumen emulsion)	Prepare surface of repair areas provide and spray KI-60 bitumen emulsion as tack coat or seal to repair areas at a spray rate of 0.8-1.0 litre/m ²	litre	176	232
102	Surface Dressing	15.70.001	Resealing	Reseal a bituminous surface dressed or an asphaltic concrete carriageway or shoulder using chippings and bitumen emulsion to improve skid resistance and eliminate the effects of wear, oxidation, ravelling, fretting, stripping and bleeding.	m ²	165	218
103		15.60.002	Construct surface dressing using 3/6 mm precoated chippings and 80/100 penetration grade bitumen.	Treat worn surface with graded aggregates of 3 to 6mm precoated with bitumen to recover adequate surface texture	m ²	118	156
104		15.60.003	Construct surface dressing using 6/10 mm precoated chippings and 80/100 penetration grade bitumen.	Treat worn surface with graded aggregates of 6 to 10mm precoated with bitumen to recover adequate surface texture	m ²	193	255

15. BITUMINOUS SURFACE TREATMENT & SURFACE DRESSING

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
105		15.60.004	Construct surface dressing using 10/14 mm precoated chippings and 80/100 penetration grade bitumen.	Treat worn surface with graded aggregates of 10 to 14mm precoated with bitumen to recover adequate surface texture	m ²	252	333
106		15.60.005	Construct surface dressing using 14/20 mm precoated chippings and 80/100 penetration grade bitumen.	Treat worn surface with graded aggregates of 14 to 20mm precoated with bitumen to recover adequate surface texture	m ²	272	359

16. BITUMINOUS MIXES

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
107a	Pavement Repairing	16.50.001a	Pothole Cutting and Cleaning	Trim, cut and clean failed bituminous surface	m ³	2,625	3,465
107		16.50.001	Pothole patching - hot mix	Provide, place and compact asphaltic concrete to repair areas and for regulation to carriageway	m ³	33,194	43,816
108		16.50.002	Pothole patching - cold mix	Repair defects on bituminous surface by cold bituminous mixture	m ³	58,263	76,907
109		16.50.004	Crack sealing	Repair transverse or longitudinal cracking on surface dressed or asphalt concrete	m	235	310
110		16.60.001	Asphalt concrete for surfacing - hot mix.	Overlay or continuously repave surface by hot bituminous mixture	m ³	33,652	44,421
111		16.70.001	Base repair - Dense Bitumen Macadam (DBM)	Place dense bitumen macadam for base material and roll	m ³	29,858	39,413
112	Milling and Paving	16.80.010	Milling the existing bituminous layer to spoil	Mill mechanically the existing bituminous layer to spoil	m ³	3,929	5,186
113		16.80.015	Milling the existing bituminous layer for reuse	Mill mechanically the existing bituminous layer and stockpile for reuse or recycle	m ³	12,948	17,091

17. CONCRETE WORKS

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
114	Concrete Work	17.60.001	Concrete work (class 15/20)	Provide, place and compact class 15/20 concrete mixture for blinding.	m ³	15,190	20,051
115		17.60.002	Concrete work (class 20/20)	Provide, place and compact class 20/20 concrete mixture.	m ³	16,648	21,975
116		17.60.002a	Concrete work (class 25/20)	Provide, place and compact class 25/20 concrete mixture.	m ³	18,380	24,262
117	Formwork	17.60.003	Vertical formwork class F2 finish	Provide and erect formwork of class F2 finish to the vertical direction	m ²	1,306	1,724
118		17.60.004	Horizontal formwork class F2 finish	Provide and erect formwork of class F2 finish to the horizontal direction	m ²	1,208	1,595
119	Reinforcement	17.80.004	Reinforcement work (below 16mm)	Provide, cut bend and fix into position high yield reinforcement bar below 16mm	ton	138,374	182,654
120		17.80.005	Reinforcement work (above 16mm)	Provide, cut bend and fix into position high yield reinforcement bar above 16mm	ton	143,790	189,803

20. ROAD FURNITURE REPAIR AND MAINTENANCE

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
121	Boundary posts	20.50.001	Road reserve boundary posts	Provide and erect road reserve boundary posts (size 1.2 x 0.2 x 0.2)	No	2,820	3,722
122		20.50.004	Edge marker posts	Provide and erect edge marker posts	No	3,649	4,817
123	Road Marking	20.50.007	Roads markings - white paint	Provide reflectorized white paint for road markings (w = 10cm)	m ²	1,138	1,502
124		20.70.011	Road markings - white thermoplastic material	Renew faded or missing white road markings (w = 10cm) with thermoplastic material	m ²	3,064	4,044
124a		20.70.011a	Road markings on surface dressed pavement- white thermoplastic material	Renew faded or missing white road markings on surface dressed pavement (w = 10cm) with thermoplastic material	m ²	3,377	4,458
125		20.50.006	Road markings - yellow paint	Provide reflectorized yellow paint for road markings (w = 10cm)	m ²	1,138	1,502
126		20.70.010	Road markings - yellow thermoplastic material	Upgrade faded or missing yellow road markings (w = 10cm) with thermoplastic material	m ²	3,255	4,297
126a		20.70.010a	Road markings on surface dressed pavement- yellow thermoplastic material	Renew faded or missing yellow road markings on surface dressed pavement (w = 10cm) with thermoplastic material	m ²	3,594	4,744
127		20.50.107	Road marking black paint	Provide reflectorized black paint for road markings (w = 10cm)	m ²	1,185	1,564
128		20.70.002	Warning signs	Provide and erect priority, prohibitory or mandatory signs	No	18,580	24,526
129	Road Sign Erection	20.70.005	Priority, prohibitory or mandatory signs	Priority, prohibitory or mandatory signs	No	18,633	24,596
130		20.70.004	Standard informatory signs	Provide and erect informatory signs	No	21,599	28,511
131		20.70.006	Non-standard informatory signs <2m ²	Provide and erect non-standard informatoty signs < 2m ²	No	22,946	30,289

20. ROAD FURNITURE REPAIR AND MAINTENANCE

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
131b		20.70.006b	Non-standard informatory signs (2-5m ²)	Provide and erect non-standard informatoty signs (2-5m ²)	No	45,295	59,789
131c		20.70.006c	Non-standard informatory signs (5-8m ²)	Provide and erect non-standard informatoty signs (5-8m ²)	No	83,226	109,858
132	Kerb Installation	20.50.012	Kerbs	Provide lay and joint concrete class 20/20 kerbs in support to carriageway, bus bays and junctions	m	1,993	2,631
133	Kilometre marker post Installation	20.50.013	Kilometre marker posts	Kilometre marker post Installation.	No	11,703	15,448
134	Bollard Installation	20.50.017	Concrete bollards	Concrete bollard Installation (diameter 0.2m, length 0.9m, embedded depth 0.45m)	No	3,296	4,351
135		20.50.021	Steel bollards	Place and provide gauge 16 steel pipe Bollards of diameter 150 mm and 1.05m above above the ground embedded to a depth of 0.45m at place	No	2,010	2,653
136	Reflective Stud Installation	20.50.019	Reflective studs	Install reflective studs along the centre line	No	1,148	1,515
137	Microtunneling	20.60.002	Microtunneling for a 150mm diameter PVC (polyvinyl chloride) duct	Conduct microtunneling with a 150mm dia PVC duct (under silt or sand condition)	m	72,116	95,193
138		20.60.002a	Horizontal drilling	Conduct horizontal drilling for 150mm hole in diameter (under gravel condtion)	m	45,802	60,459
139	Street light Installation	20.60.017	Street lighting pole (7.6m)	Provide and install 7.6m street lighting pole including cables accessories and lamp.	No	72,874	96,194
140		20.60.018	Street lighting pole (10m)	Provide and install 10.0m street lighting pole including cables accessories and lamp.	No	136,214	179,802

20. ROAD FURNITURE REPAIR AND MAINTENANCE

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
141		20.60.016	Street lighting control panel	Provide and install 10.0m street lighting pole including cables accessories and lamp.	No	94,922	125,297
142		20.60.315	Electric cable	Provide and install supply cables between the street lighting poles.	m	1,581	2,087
143	Guardrail Repair	20.70.023a	Guardrail Repair Level 1	Removal of damaged guardrail and replacement with straightened beam	m	1,422	1,877
144		20.70.023b	Guardrail Repair Level 2	Removal of damaged guardrail, replacement with a straightened beam and realignment of posts	m	2,314	3,055
145		20.70.023c	Guardrail Repair Level 3	Complete removal of damaged guardrail beam and installation with new beam, posts and spacers	m	10,249	13,528

23. CONCRETE PAVING BLOCKS

No	Work Category	Code	Work Items		Unit	Unit Rate	
			Work Item	Work Description		Direct Cost	+ Indirect Costs (Profits & Overheads)
146	Concrete Paving Blocks	23.70.001	Interlocking - Heavy duty - plain (Deformed) 60mm	Provide and lay 60mm Interlocking - Heavy duty - plain (Deformed) paving blocks	m ²	1,218	1,608
147		23.70.002	Interlocking - Heavy duty - plain (Deformed) 80mm	Provide and lay 80mm Interlocking - Heavy duty - plain (Deformed) paving blocks	m ²	1,557	2,055

APPENDIX

Appendix I: Price List – Labour, Machinery and Material (Upper Eastern Region)

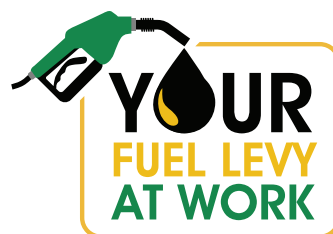
Item	Code	Name	Type	Unit	Unit Price 2025
Labour	22.50.001	Support Staff		Person Day	775
	22.50.002	Unskilled labour		Person Day	775
	22.50.005	Artisans G2		Person Day	1,725
	22.50.007	Skilled Labour: Overseer		Person Day	2,331
	22.50.101	Skilled Labour: Operator		Person Day	2,385
Machinery	22.61.101	Truck Flat bed : 2.5 - 5 Tonnes		Hour	1,990
	22.61.102	Truck with crane	4t	Hour	2,723
	22.62.015	Water Tanker : 6000 - 8000 Lt.		Hour	1,980
	22.63.012	Motor Grader (e.g. CAT 112F): 100 - 130 HP		Hour	6,912
	22.63.101	Bulldozer	BD65EX	Hour	7,515
	22.63.102	Excavator	130-150hp	Hour	8,298
	22.63.103	Backhoe loader	130-150hp	Hour	5,343
	22.64.001	Pedestrian Roller : 700 - 1000 Kg.		Hour	1,175
	22.64.004	Single drum steel Vibrator roller: 9-10T, 130 HP		Hour	3,126
	22.64.005	Pneumatic Roller: 10T, 130HP		Hour	3,669
	22.65.008	Road Marking Machine		Hour	2,043
	22.65.101	Melting pod (for paint)	200 - 350kg	Hour	3,168
	22.67.001	Grass cutter	150cm, 35hp	Hour	120
	22.67.004	Bitumen Sprayer H/Operated	200L	Hour	749
	22.67.004b	Bitumen Distributor	7000 litres	Hour	7,000
	22.67.005	Vibrator P/Tamper		Hour	633
	22.67.005a	Plate compactor		Hour	300
	22.67.005b	Block cutter		Hour	100
	22.67.101	Milling machine	197hp	Hour	3,489
	22.67.102	Resurface machine	120hp	Hour	33,264
	22.67.103	Road heater	63hp	Hour	27,038
	22.67.104	Asphalt finisher	37H	Hour	7,198
	22.67.105	Power suction car	4t	Hour	7,613
	22.67.106	Muddy water processing machine		Day	53,778
	22.67.107	Boring machine	81kw	Day	60,000
	22.67.108	Air compressor	150CFM, 4250LPM	Day	10,073

Item	Code	Name	Type	Unit	Unit Price 2025
	22.67.109	Asphalt/Bitumen cutter		Hour	1,564
	22.67.110	Chip spreader		Hour	250
Material	22.69.009	Fine aggregates(sand)		m ³	2,135
	22.70.001	Fine aggregates(stone dust)		m ³	2,493
	22.70.002	Graded aggregates (ballast)		m ³	2,351
	22.70.003	water		m ³	311
	22.70.004	Cement (ordinary portland)		Kg	15
	22.70.006	Hydrated lime		Kg	28
	22.71.012	Square twisted bars 16mm		t	105,955
	22.71.012b	Deformed reinforcement bar 12mm		t	104,657
	22.72.001	Precast concrete culvert - 450mm		m	2,256
	22.72.002	Precast concrete culvert - 600mm		m	3,186
	22.72.003	Precast concrete culvert - 900mm		m	4,599
	22.72.004	Precast concrete culvert - 1200mm		m	7,957
	22.72.016	Coarse aggregates(chippings) - 3/6mm		m ³	2,003
	22.72.017	Coarse aggregates(chippings) - 6/10mm		m ³	2,315
	22.72.018	Coarse aggregates(chippings) - 10/14mm		m ³	2,502
	22.72.019	Coarse aggregates(chippings) - 14/20mm		m ³	2,588
	22.72.020	Stone dust		m ³	1,939
	22.72.021	Gravel material (murrum)		m ³	1,580
	22.72.022	Hardcore		m ³	1,728
	22.72.023	Crusher run material (Graded crushed stone)		m ³	2,169
	22.72.024	Quarry waste material		m ³	1,851
	22.72.101	Precast concrete culvert - 300mm		m	1,767
	22.72.102	Stone		m ³	1,728
	22.72.103	Gully pot with grating		Set	12,814
	22.72.104	Invert block drain	600*330*355	No.	675
	22.72.105	Invert block drain	600*760*190	No.	733
	22.72.106	Side Slab concrete block	3'*9"*24"	No.	234
	22.72.107	Manhole cover slab	1220*150	No.	6,102
	22.72.108	Soil (soft)		m ³	738

Item	Code	Name	Type	Unit	Unit Price 2025
	22.72.109	Soil (hard)		m ³	757
	22.73.002	Premix - AC Type I (cold)		m ³	47,247
	22.73.003	Premix - AC Type I (hot)		m ³	25,699
	22.73.004	Dense Bitumen Macadam		m ³	22,414
	22.73.006	Bituminous sealant (K-160)		m ³	115,661
	22.73.012	MC 30 Bitumen		litre	124
	22.73.013	80/100 Pen grade bitumen		litre	138
	22.74.002	Fuel	Diesel	litre	147
	22.77.001	Mesh wire 8' x 4' gauge 18		m ²	959
	22.77.101	Gabion mesh	2m*1m = 2m ²	No.	3,819
	22.77.102	Gabion Mattress	10mm	m ²	3,725
	22.77.103	Flat metal plate	1/16-1/18	m ²	1,166
	22.77.104	Steel pipe	2inch	m	766
	22.77.105	Bolts with nuts	8cm	Set	291
	22.77.106	Brackets		No	196
	22.77.107	Steel angle	125*5mm	kg	534
	22.77.108	Steel plate	450*3mm	kg	214
	22.77.109	Steel bollard	SGP. 5B. 125A	kg	667
	22.77.110	Mesh wire	A142	m ²	282
	22.77.111	Cast iron manhole cover	600*450 heavy duty with frame	No.	4,504
	22.78.101	Cypress	for fixed deck	m ³	71,452
	22.78.102	Wooden formwork panel		m ²	841
	22.79.003	Road marking paint yellow		litre	833
	22.79.004	Road marking paint white		litre	817
	22.79.005	Thermoplastic paint yellow	premixed with primer and glass beads	Kg	454
	22.79.006	Thermoplastic paint white	premixed with primer and glass beads	Kg	426
	22.79.012	Reflective 'cat' eyes		No	830
	22.79.013	Reflective mark posts	White PVC post 1400	No.	3,103
	22.79.101	Road marking paint black		litre	854
	22.79.104	Reflective paint		litre	862
	22.79.105	White paint		litre	655
	22.79.106	Black paint		litre	670
	22.79.107	Road Kerb	12.25*24.5	No.	477
	22.79.108	Road channel	9.8*12.25	No.	333
	22.79.109	Duct Pipe (PVC 150)		m	592
	22.79.110	Equipment for lead pipe jacking	196kN	Day	31,551

Item	Code	Name	Type	Unit	Unit Price 2025
	22.79.111	Equipment for lead pipe jacking (fixing part)		Day	1,389
	22.79.112	Equipment for lead pipe jacking (moving part)		m	148
	22.79.113	Equipment for Underground pipe jacking	196kN	Day	19,631
	22.79.114	Equipment for Underground pipe jacking (fixing part)		Day	12,634
	22.79.115	Equipment for Underground pipe jacking (moving part)		m	9,369
	22.79.116	Water stopper		No.	2,421
	22.79.117	Concrete anchor		No.	249
	22.79.118	Water stop cement		Kg	180
	22.79.119	Aggregation(jacking)		kg	11
	22.79.120	Aggregation(washing)		kg	11
	22.79.121	Shank-rod	90mm	No.	295,730
	22.79.122	Driving-adapter		No.	1,593
	22.79.123	drilling-pipe		No.	51,495
	22.79.124	Ring-bit		No.	101,418
	22.79.125	Water-swivel		No.	95,412
	22.79.126	Cutter-set		No.	45,798
	22.79.127	Core-tube		No.	46,480
	22.79.128	Magnifying-bit		No.	503,707
	22.79.129	Earth bar	10*1500mm	No.	803
	22.79.130	Lighting pole	7.6m	No.	27,087
	22.79.131	Lighting pole	10.0m	No.	78,169
	22.79.132	Cable	for light	m	243
	22.79.133	Accessories	for light	Set	6,716
	22.79.134	Lamp		No.	14,944
	22.79.135	Control panel		No.	37,412
	22.79.136	Cable	for control panel	m	1,208
	22.79.137	Accessories	for control panel	Set	40,861
	22.79.138	Meter		No.	3,772
	22.79.139	Grass		m ²	862
	22.79.140	Red soil		m ³	2,637
	22.79.141	Manure		m ³	6,384
	22.79.142	Warning triangular sign	600mm	No.	14,546
	22.79.143	Priority triangular sign	600mm	No.	14,546
	22.79.144	Standard informatory sign		No.	17,241
	22.79.145	Non-standard informatory sign	less than 1m ²	No.	17,241
	22.79.150	Guardrail Beam	4m	No.	11,713

Item	Code	Name	Type	Unit	Unit Price 2025
	22.79.151	Guardrail Post	140 mm dia, 6 gauge	m	4,793
	22.79.152	Bolts with nuts and washers (short)		No.	173
	22.79.153	Bolts with nuts and washers (long)		No.	258
	22.79.154	Fuel	Petrol	litre	155
	22.79.155	Pick up truck		day	10,880
	22.79.156	Truck	2 ton	day	17,737
	22.79.157	Thinner		litre	434
	22.79.158	Cement (OPC)		kg	15
	22.79.159	Pulveriser		Hour	5,022
	22.79.160	Hessian cloth		m ²	222
	22.79.161	K-160		litre	116
	22.79.162	Reflecting Glass Beads		kg	214
	22.79.163	Electricity		Kw/h	29
	22.79.164	Beam Straightener		Hour	11,586
	New	Geotextiles		m ²	200
	New	Reflective 'cat' eyes	Adhesive glue	No.	66
	23.70.001	Paving blocks	Interlocking - Heavy duty - plain (Deformed) 60mm	m ²	862
	23.70.002	Paving blocks	Interlocking - Heavy duty - plain (Deformed) 80mm	m ²	1,121



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