



Díli, 13 de Maio de 2025

Publicação de ata de conferência prévia

Prezados Candidatos,

Tornamos, por este meio, pública a ata de conferência prévia referente ao processo de aprovisionamento para o projeto de **DESENHO, CONSTRUÇÃO E FINANCIAMENTO DO PROJETO DE AUTOESTRADA DA ZUMALAI A NATARBORA (TENDER/040/MPRM-2025)** que decorreu nas instalações da Comissão Nacional de Aprovisionamento no dia 5 de Maio de 2025 pelas 14:30 horas.

Publication of Minutes of Pre-Bid Meeting

Dear Bidders,

We hereby publish the minutes of Pre-Proposal Meeting regarding the procurement process for **DESIGN, BUILD AND FINANCE (DBF) OF ZUMALAI TO NATARBORA HIGHWAY PROJECT (TENDER/040/MPRM-2025)** which was held at National Procurement Commission's premises on the 5 May 2025 at 2:30 pm.


Hermingardo Albano Soares
Diretor-Executivo da CNA

MINUTES N°1
TENDER/040/MPRM-2025
PRE-PROPOSAL MEETING

1. The pre-proposal meeting was held at 14:30 hours local time on 5 May 2025 at the Leadership Room of the City 8 at Rua Has Laran, Manleuana, Dili, Timor-Leste. This meeting was attended by representatives from the National Procurement Commission (NPC), Project Owner-Ministry of Petroleum and Mineral Resources (MPRM) and prospective bidders.

a- Project identification: Tender/040/MPRM-2025

b - Project owner: Ministry of Petroleum and Mineral Resources (MPRM)

c- Name of the project: Design, Build and Finance (DBF) for Zumalai to Natarbora Highway Project

2 - The meeting was followed by a brief presentation on the RFP Document by Mr. Valdo Cruz, Coordinator of works of NPC and by Mr. João Camara of Timor-Gap. The presentation slides are enclosed in Annex-1.

3 - The questions-and-answers session of the pre-proposal meeting took place immediately after the presentation. The questions-and-answer are enclosed in Annex-2 (Clarification No. 1).

4. The pre-proposal meeting was concluded at 15:30 hours. Mr. Valdo Cruz thanked all the participating bidders for their active participation in the pre-proposal meeting.

Dili, 5 May 2025

By the jury.

No	Name	Position	Signature
1.	Abdul Basit	President	Abdul Basit
2.	Alexandre Soares Cristóvão	Effective Member	
3.	Donísio dos Santos	Effective Member	
4.	Tonia Carne	Effective Member	
5.	Valdo Sope Cruz	Effective Member	
6.	Andréias Tani	Effective Member	
7.	Vitor Manuel Pereira Botas dos Santos Paiva	Effective Member	

Annexes:

1. Pre-proposal Presentation;
2. Clarification No.1

ATA Nº1
TENDER/040/MPRM-2025
CONFERÊNCIA PRÉVIA

1. Aos 5 dias do mês de Maio de 2025, pelas 14h30m, na sala de direção do City 8, sita na Rua Has Laran, Manleuana, Dili, Timor-Leste o júri reuniu com a Entidade adjudicante (Ministério do Petróleo e Recursos Minerais) e os concorrentes para proceder à conferência prévia.








a – Identificação do procedimento: Tender/040/MPRM-2025

b – Entidade adjudicante: Ministério do Petróleo e Recursos Minerais

c– Objeto do procedimento: Desenho, Construção e Financiamento do Projeto de Autoestrada da Zumalai a Natarbora
2. De seguida, foi ministrada uma breve apresentação referente ao Programa de Procedimento e Caderno de Encargos pelo Sr. Valdo Cruz, Coordenador de Aprovisionamento de Obras de CNA e pelo Sr. João Camara, representante da Timor-Gap. Apresentamos no Anexo 1 os respetivos slides da apresentação.
3. A sessão de perguntas e repostas teve lugar imediatamente após a supracitada apresentação cujo registo se encontra no Anexo 2 (Esclarecimento nº 1).
4. Por nada mais haver a tratar, a conferência prévia foi encerrada às 15h30m pelo Sr. Valdo Cruz que agradeceu a presença de todos os participantes na mesma.

Dili, 5 de Maio de 2025

O Júri.

No	Name	Position	Signature
1.	Abdul Basit	Presidente	
2.	Alexandre Soares Cristóvão	Vogal Efetivo	
3.	Dionísio dos Santos	Vogal Efetivo	
4.	Tonia Carne	Vogal Efetivo	
5.	Valdo Sope Cruz	Vogal Efetivo	
6.	Andreias Tani	Vogal Efetivo	
7.	Vitor Manuel Pereira Botas dos Santos Paiva	Vogal Efetivo	

Anexos:

1. Apresentação de Conferência Prévia;
2. Esclarecimento nº1

Annex-1: Presentation Slides



**MINISTÉRIO DO PLANEAMENTO
E INVESTIMENTO ESTRATÉGICO
IX GOVERNO CONSTITUCIONAL**



Comissão Nacional de Aprovisionamento

PRE-PROPOSAL CONFERENCE

DESIGN, BUILD AND FINANCE (DBF) FOR ZUMALAI TO NATARBORA HIGHWAY PROJECT

LOT 1 : Section 1 - Zumalai – Betano Highway (STA. 34+155 - STA. 59+767)

LOT 2 : Section 2 - Betano – Uma Berloic Highway (STA. 59+767 - STA 85+259)

LOT 3 : Section 3 – Uma Berloic – Natarbora Highway (STA. 85+259 - STA. 110+787)

TENDER/040/MPRM-2025

5 MAY 2025, 14:30 PM HOURS



Important Points

CLAUSE	
ITP & PDS 1.1	Employer: Ministry of Petroleum and Mineral Resources (MPRM)
ELIGIBILITY	Participation in this process is open to all interested international and national proposers
ITP & PDS 4.1	Maximum number of members in the JV shall be: 3 (three)
ITP & PDS 11.1	Language The Language of the Proposal is: <u>English</u> All correspondence exchange shall be in the <u>English</u> Language for translation of supporting documents and printed literature is <u>English</u>
ITP & PDS 33.1	Proposal Validity Proposal must remain valid <u>90 calendar days</u> after the proposal submission deadline



Important Points

CLAUSE	
ITP & PDS 7.1	<p>Clarification of Proposal Purposes:</p> <p>The contact information for requesting clarification is: National Procurement Commission (NPC) Attention: Mr. Hermingardo Albano Soares, Executive Director of NPC Email: tc@cna.gov.tl Cc: as@cna.gov.tl; ns@cna.gov.tl; ab@cna.gov.tl at@cna.gov.tl vc@cna.gov.tl rv@cna.gov.tl ddsantos@mprm.gov.tl and alexandre.cristovao@timorgap.com</p> <p>Deadline for Clarification Date: 8 June 2025, 17:00hrs (Timor-Leste Time)</p>
ITP & PDS 7.4	<p>Site visit is <u>MANDATORY</u></p> <p>Date: 07 May 2025 Time: 10:00am local time (the registration for site visit start from 9:00am to 10:00am). Timor Gap Fuel Station, Suai, Covalima, Google Map Geolocation: https://goo.gl/maps/bDoQykFEMcfcWL3S9?g_st=aw</p>



Important Points

CLAUSE	
ITP & PDS 32.1 & 32.3	<p>Proposal Security is required with amount of US\$ 2,000,000 (two million US dollar)</p> <p>Proposal Security Valid 118 days</p> <p>The proposal security in the form of unconditional guarantee shall be issued by an international bank with either:</p> <ul style="list-style-type: none">• a Moody's credit rating of not less than Baa2; or• a Standard and Poor's credit rating of not less than BBB; or• other Equivalent Standard approved by the Employer. <p>and shall be in the form provided or on another form agreed by the Employer..</p>
ITP & PDS 36.1 & 22.1	<p>The deadline for proposal submission shall take place at: Conference Room of National Procurement Commission, Rua Avenida de Balide, Dili, Timor-Leste :</p> <p>Date: 8 July 2025</p> <p>Time: 15:00PM Timor-Leste time</p> <p>Opening of Technical Proposal should be immediately after the time for the submission deadline</p> <p>Proposers <i>Shall Not</i> have the option of submitting their Proposals Electronically</p>



Important Points

CLAUSE	
ITP & PDS 30.1	<p>Proposals are being invited for individual lots (contracts):</p> <ul style="list-style-type: none">a. Proposers are permitted to bid and submit proposal for ONE LOT ONLY;b. If Proposers bid and submit proposal for more than ONE LOT, than shall be DISQUALIFIED. <p>Evaluation will be using criteria as specified in Section III of Evaluation Criteria.</p>
ITP & PDS 35.1 (a) & (b)	<p>Submission of Proposal</p> <p>The proposer must submit:</p> <ul style="list-style-type: none">(a) Technical Proposal: one (1) Original and five (5) copies and 1 soft copy(b) Financial Proposal: one (1) Original and five (5) copies



Evaluation Criteria

Performance Qualification

Clause ITP 24.1 and Section III EQC

24.1	Pass or Fail Criteria
1.1	Historical Non-Performing Contracts
1.2	Suspension based on execution of Bid or Proposal Securing Declaration by the Employer
1.3	Pending Litigation
1.4	Litigation History
1.5	Declaration: Environmental, Social, Health and Safety (ESHS) past performance

Failure to meet one of the above essential criteria will considered non-responsive proposal and shall not consider for next steps



Evaluation Criteria

Technical Part

Item	Criteria	Weight
(A)	Proposer Qualification	
	I. Technical Experience II. Financial Capability	70
(B)	Key Personnel/Expert	
	I. Key Personnel	45
(C)	Technical Competence	
	I. Proposed Works II. Approach and Methodology III. Key Equipment IV. Project Schedule	80
(D)	Local participation, Local development and Community Relation Plans	
	I. Local Participation II. Local Development III. Community relation plans IV. Local materials	30
Total Evaluation Weight		225

Evaluation Criteria

Technical Part Cont..

- Comparison of Technical Proposal Score

$$T_P = \left[\left(\frac{Q}{Q_{highest}} * PW1 \right) + \left(\frac{S}{S_{highest}} * PW2 \right) \right] * 100$$

Where:

T_P = Technical Proposal Score

Q = Qualification criteria score by the Proposer under consideration/evaluation (A)

$Q_{highest}$ = Qualification criteria that was scored highest/best among all responsive Proposer (A)

S = the total Technical Competence by the Proposer under consideration/evaluation (B to D)

$S_{highest}$ = the Technical Competence that was scored the highest/best among all responsive Proposer (B to D)

$PW1$ = weight for Qualification factor (A) is 0.1

$PW2$ = weight for Technical Competence factor (B to D) is 0.5

Evaluation Criteria Technical Part Cont..

- The Technical Score points for the technical evaluation

Technical Score = Sub-Criteria evaluation Weight X Minimum point of compliance

Maximum Technical (Smax) score: $225 \times 10 = 2,250$ for total evaluation weight of 250 and maximum point of compliance 10.

Minimum Technical Passing Score 80% of Smax Score or 1,800

Financial Proposal Evaluation Price Comparison

$$\text{Price Comparison} = \left[\left(\frac{C_{lowest}}{C} * FW1 \right) \right] * 100$$

Where:

C = the Total Proposal Price of proposed by the Proposer under consideration/evaluation

C_{lowest} = the lowest of all Evaluated Proposal Price among responsive Proposer

$FW1$ = weight for Cost/Proposal Price which is 0.2



Financial Proposal Evaluation

Financing Solution/offer comparison

No	Financial solution/offer	Weight
1.	Propose Financial arrangement (loan etc.)	
1.1	Grace period of minimum 3 years	20
1.2	Annual Interest rate is not more than average TLS Petroleum Fund Interest to date (e.g. 4.7 % - as per BCTL December 2024 Report – to be confirmed by the Proposer)	
1.3	Re-payment Period Minimum 15 Years	
1.4	Principal Re-payment Flexibility	
1.5	Guarantee	
1.5.1	No additional Guarantee required (Contract only)	5
1.5.2	Future Petroleum Revenues Guarantee	
1.5.3	Annual State Budget Guarantee	

Note: The weight for Guarantee in original RFP is 4 which will be change to 5 through addendum and the total score financial offer in the original RFP is 39 and will be change to 40 through addendum

Financial Proposal Evaluation

Financing Solution/offer comparison cont..

No	Financial solution/offer	Weight
2.	Sources of Fund	
2.1	Require maximum 10% Employer contribution (lesser % of project cost will get higher mark)	15
2.2	Proposer/Contractor Self Financing (the higher amount with lesser % of project cost will get higher mark)	
2.3	Financial institution/Bank through Loan (lesser amount with lesser % of project cost will get higher mark)	
	<i>Proposer to provide an Official confirmation Letter from Bank/Financial institution of accepting to provide loan to Financing the Project using FORM FIN - 4 Bank Loan Confirmation Letter provided in this Proposal</i>	
Total Score for financial Solution/Offer		40

Financial Proposal Evaluation Financing Solution/offer comparison

$$\text{Financing Solution/Offer comparison} = \left[\left(\frac{f}{f_{\text{highest}}} * FW2 \right) \right] * 100$$

Where:

f = Financial Factor of proposed by the Proposer under consideration/evaluation

f_{highest} = the financial factor Score that was scored highest/best among all responsive Proposer.

$FW2$ = weight for financial factor (f) which is 0.2

Financial Proposal Score Comparison

$$F_P = \left[\left(\frac{f}{f_{\text{highest}}} * FW2 \right) + \left(\frac{C_{\text{lowest}}}{C} * FW1 \right) \right] * 100$$

Where:

C = the Total Proposal Price of proposed by the Proposer under consideration/evaluation

C_{lowest} = the lowest of all Evaluated Proposal Price among responsive Proposer

$FW1$ = weight for Cost/Proposal Price which is 0.2

Evaluation Criteria (Combined)

Weighted Quality (Technical) is 0.6 with detail:

PW1= weight for Qualification is 0.1

PW2= weight for Technical competence is 0.5

Weighted (Finance) is 0.4 with detail:

FW1= weight for Proposal price which is 0.2

FW2= weight for Financing Solution/Offer which is 0.2

Refer to Part I Bidding Procedures Section 3 for more details, particularly for JV requirements.



Financial Model

Annex7-A1

ANNEX 7-A1 - FINANCIAL MODEL

1.1. - Payment Schedule of Government/Employer Financing

No	Year	Source of Fund	Amount (USD)	Payment - (USD)	Balance
		Government/Employer Financing	\$ -		
	2025				\$ -
1	2026				\$ -
2	2027				\$ -
3	2028				\$ -
4	2029				\$ -
5	2030				\$ -
6	2031				\$ -
7	2032				\$ -
8	2033				\$ -
9	2034				\$ -
TOTAL GOVERNMENT FINANCING			\$ -	\$ -	\$ -



Financial Model

Annex7-A1 cont..

1.2 - Payment Schedule of Bidder/Contractor Self Financing									
No	Year	Bidder/Contractor Self Financing				Employer Payment			
		Source of Fund	Amount (USD)	Annual Interest (%)	Annual Interest Amount (USD)	Principal Amount (PA)	Payment of Annual Interest (USD)	Principal Re-payment Amount (USD)	Balance Owe by Employer
		Bidder/Contractor Self Financing	\$ -			\$ -			
1	2025			0%	\$ -	\$ -	\$ -		0.00
2	2026			0%	\$ -	\$ -	\$ -	\$ -	0.00
3	2027			0%	\$ -	\$ -	\$ -	\$ -	0.00
4	2028			1%	\$ -	\$ -	\$ -	\$ -	0.00
5	2029			1%	\$ -	\$ -	\$ -	\$ -	0.00
6	2030			1%	\$ -	\$ -	\$ -	\$ -	0.00
7	2031			1%	\$ -	\$ -	\$ -	\$ -	0.00
8	2032			1%	\$ -	\$ -	\$ -	\$ -	0.00
9	2033			1%	\$ -	\$ -	\$ -	\$ -	0.00
10	2034			1%	\$ -	\$ -	\$ -	\$ -	0.00
11	2035			1%	\$ -	\$ -	\$ -	\$ -	0.00
12	2036			1%	\$ -	\$ -	\$ -	\$ -	0.00
13	2037			1%	\$ -	\$ -	\$ -	\$ -	0.00
14	2038			1%	\$ -	\$ -	\$ -	\$ -	0.00
15	2039			1%	\$ -	\$ -	\$ -	\$ -	0.00
16	2040			1%	\$ -	\$ -	\$ -		0.00
17	2041			1%	\$ -	\$ -	\$ -		0.00
18	2042			1%	\$ -	\$ -	\$ -		0.00
19	2043			1%	\$ -	\$ -	\$ -		0.00
20	2044			1%	\$ -	\$ -	\$ -		0.00
21	2045			1%	\$ -	\$ -	\$ -		0.00
22	2046			1%	\$ -	\$ -	\$ -		0.00
23	2047			1%	\$ -	\$ -	\$ -		0.00
24	2048			1%	\$ -	\$ -	\$ -		0.00
25	2049			1%	\$ -	\$ -	\$ -		0.00
26	2050			1%	\$ -	\$ -	\$ -		0.00
27	2051			1%	\$ -	\$ -	\$ -		0.00
TOTAL BIDDER SELF FINANCING			\$ -		\$ -		\$ -	\$ -	\$ -
		Grace period		Payment of annual Interest only		Re-Payment of DPA			



Financial Model

Annex7-A1 cont..

1.3. - Payment Schedule of Bidder/Contractor financing through borrow/loans

No	Year	Bidder/Contractor financing through borrow/loans					Employer Payment		
		Source of Fund	Amount (USD)	Annual Interest (%)	Annual Interest Amount (USD)	Principal Amount (PA)	Payment of Annual Interest (USD)	Principal Re-payment Amount (USD)	Balance Owe by Employer
		Bidder/Contractor financing through borrow/loans	\$ -			\$ -			
1	2025			0%	\$ -	\$ -	\$ -		0.00
2	2026			0%	\$ -	\$ -	\$ -	\$ -	0.00
3	2027			0%	\$ -	\$ -	\$ -	\$ -	0.00
4	2028			1%	\$ -	\$ -	\$ -	\$ -	0.00
5	2029			1%	\$ -	\$ -	\$ -	\$ -	0.00
6	2030			1%	\$ -	\$ -	\$ -	\$ -	0.00
7	2031			1%	\$ -	\$ -	\$ -	\$ -	0.00
8	2032			1%	\$ -	\$ -	\$ -	\$ -	0.00
9	2033			1%	\$ -	\$ -	\$ -	\$ -	0.00
10	2034			1%	\$ -	\$ -	\$ -	\$ -	0.00
11	2035			1%	\$ -	\$ -	\$ -	\$ -	0.00
12	2036			1%	\$ -	\$ -	\$ -	\$ -	0.00
13	2037			1%	\$ -	\$ -	\$ -	\$ -	0.00
14	2038			1%	\$ -	\$ -	\$ -	\$ -	0.00
15	2039			1%	\$ -	\$ -	\$ -	\$ -	0.00
16	2040			1%	\$ -	\$ -	\$ -		0.00
17	2041			1%	\$ -	\$ -	\$ -		0.00
18	2042			1%	\$ -	\$ -	\$ -		0.00
19	2043			1%	\$ -	\$ -	\$ -		0.00
20	2044			1%	\$ -	\$ -	\$ -		0.00
21	2045			1%	\$ -	\$ -	\$ -		0.00
22	2046			1%	\$ -	\$ -	\$ -		0.00
23	2047			1%	\$ -	\$ -	\$ -		0.00
24	2048			1%	\$ -	\$ -	\$ -		0.00
25	2049			1%	\$ -	\$ -	\$ -		0.00
26	2050			1%	\$ -	\$ -	\$ -		0.00
27	2051			1%	\$ -	\$ -	\$ -		0.00
	BIDDER/CONTRACTOR FINANCING THROUGH BANK BORROW/LOAN ©		\$ -		\$ -		\$ -	\$ -	\$ -
	Grace period			Payment of annual Interest only		Start Re-Payment Schedule			



Summary for Financial Model

GRAND TOTAL SUMMARY OF BID PRICE				
No	Source of Funds	Total Project Cost (USD)	Total of Annual Interest (USD)	Grand Total
1.1	GOVERNMENT/EMPLOYER FINANCING (A)	\$ -	\$ -	\$ -
1.2	BIDDERS/CONTRACTOR SELF FINANCING (B)	\$ -	\$ -	\$ -
1.3	BIDDER FINANCING THROUGH BANK BORROW/LOAN (C)	\$ -	\$ -	\$ -
	GRAND TOTAL (D)	\$ -	\$ -	\$ -
	10% WH Tax (E)	\$ -	\$ -	\$ -
	GRAND TOTAL (D + E) - BID PRICE	\$ -	\$ -	\$ -

Contracting

- **Defects Notification Period [PCC 1.1.27]:** 365 Days
- **Time for Completing (PCC 1.1.86&8.2):** 913 days (thirty months)
- **Performance Security [PCC 4.2]:**
 - 5% of Accepted Contract Amount or (10% for Abnormally Low Price)
 - Must be in the form of First Demand Bank Guarantee
- **Advance Payment [PCC 14.2]:** 10% of Accepted Contract Amount
- Payable in the US Dollar (Local currencies), subject to the financial arrangement
- **Retention Money Security [PCC14.3 (iii)]:** 5% of Accepted Contract Amount (10% for Abnormally Low Price)
- **Damages for non-compliance [PCC 23.7]:** 15% of the amount of the shortfall in the Local Participation content.

Contracting cont..

- **Delay Damages for works (PCC 8.8)**
 - Day 1-60: 0.01% of the final contract price/day
 - Days 61-180: 0.02% of the final contract price /day
 - Days 181-365: 0.03% of the final contract price /day
 - From 366 days onwards: 0.05% of the final contract price /day
 - Maximum amount of delay damages = 10% of the acceptance contract amount
- **Nominated Sub-Contractor (PCC 4.5)**
 - TIMOR GAP, E.P for fuel supply as per employer requirement

Design, Build and Finance (DBF) for Zumalai to Natarbora Highway

TECHNICAL PRESENTATION

CONTENT OF HIGHWAY BIDDING DOCUMENTS

Volume 1 - Request for proposal procedures and Conditions of Contract and Contract Forms

Volume 2 to 6 – Employer's Requirements

- Indicative Bill Of Quantity
- Scope of Works
- Design Criteria
- Specifications
- Drawings

Volume 7 to 10 – Complementary Reports; Surveys, Reconnaissance's, etc.

VOLUME 3 – PART II SCOPE OF WORKS

TECHNICAL DATA

The number and identification of lots (contracts) comprising this RFP is 3 (three):

- **LOT 1 : Section 1**
Zumalai – Betano
(STA. 34+155 - STA. 59+767)
- **LOT 2 : Section 2**
Betano – Uma Berloic
(STA. 59+767 - STA 85+259)
- **LOT 3 : Section 3**
Uma Berloic – Natarbora
(STA. 85+259 - STA. 110+787)

▪ Total Length	: 76,632 km
	: Sta 34+155 – Sta 110+787
▪ Interchange & On-Off Ramp	: 7 Locations
1. On, Off Ramp	: <u>Fatukai/Mola</u>
2. On, Off Ramp	: <u>Betano</u>
3. Interchange	: <u>Betano</u>
4. On, Off Ramp	: Escola Primaria EP Mota Kelan
5. On, Off Ramp	: Uma <u>Berloic</u>
6. On, Off Ramp	: <u>Fatuberliu</u>
7. Intersection	: <u>Natarbora</u>
▪ Designed speed	: 80 km/hour (hilly)
	: 100 - 120 km/hour (flat)
▪ Number of lanes	: 4 Lane 2 Way Divided (4/2D)
▪ Lane width	: 3.6 meters
▪ Outer shoulder width	: 3.0 meters
▪ Inner shoulder width	: 1.5 meters
▪ Median width	: 2.5 meters
▪ Box Crossing/Underpass	: 28 (<u>incl IC/Ramp</u>)
▪ Bridge	: 19 (<u>incl IC <u>Betano</u></u>)
▪ Box Culvert	: 107

VOLUME 3 – PART II **SCOPE OF WORKS**

The scope of works, which will become the responsibility of the Design & Build (DB) Contractor, includes the Detailed Engineering Design and Construction of the road, as well as a one-year maintenance period following completion during Defects Liability Period.

Project Schedule:

- A period of 6 months is allocated for Engineering Planning, including subsequent surveys and the execution and approval of the detailed engineering design. This shall be followed by a 24-month construction period.
- Maintenance of the road shall be carried out over a period of 1 year after the Initial Provisional Handover is completed.

TOTAL DESIGN + BUILD = 913 DAYS

TOTAL DEFECTS LIABILITY PERIOD + MAINTENANCE = 365 DAYS

VOLUME 3 – PART II **SCOPE OF WORKS**

Minimum Requirement of Expertise:

- Team Leader (Highway Engineer)
- Contract Specialist
- Planning Specialist
- Highway Engineer
- Construction Manager
- Structure Engineer
- Hydrology & Drainage Engineer
- Pavement Engineer
- Traffic Engineer
- Geodetic Engineer
- Geotechnical & Geological Engineer
- Mechanical & Electrical Engineer
- Environmental, Health and Safety (EHS) Manager
- Landscape Specialist
- Quantity Engineer
- Document Specialist
- Facilities Engineer /Architect

Minimum Requirement of Equipment:

- Concrete Batching Plant
- Washing and Screening Plant
- Asphalt Sensor Paver (3.5-5.0 width screed)
- Asphalt Distributor, 3,000 gal
- Power Broom Self Propelled, 90 Hp
- Transit Mixer, 5 cu.m.
- Bulldozer with Ripper 185 Hp
- Bulldozer 140 Hp
- Bored Piling Machine
- Crane Mechanical/Hydraulic 20 Tons
- Wheel Loader, 1.8 cu.m. bucket capacity, 160 hp
- Motor Grader with Ripper, 160 Hp
- Excavator, 0.90 cu.m.
- Excavator with Attachment Breaker, 100Hp
- Tandem Roller, 8-10T
- Vibratory Drum Roller, 10-12T
- Pneumatic Tyre Roller, 15-20T
- Dump truck, 25 cu.m. capacity
- Water Truck with Pump, 500-1,000 gal
- Stake Truck, 10-12T
- Concrete Pump
- Generator, 251-3,000w

VOLUME 4 – PART II DESIGN CRITERIA

TYPICAL DESIGN CRITERIA

No.	Elements of Technical Geometric Design Criteria		Criteria Value
1.	V _D (kph) *)	Flat Terrain Hilly & Mountainous Terrain	100-120 80
2.	Grade Max. (%)	Flat Terrain Hilly & Mountainous Terrain	4.0 6.0
3.	Maximum Skid Resistance (f_{max})		0.12
4.	Maximum Superelevation (e_{max}) %		6.0
5.	Minimum Horizontal Curve Radius (m)		200
6.	Minimum Vertical Curve Radius (m) or K value		120m $K_{crest} > 11$ and $K_{sag} > 17$
7.	Maximum Length of Straight Road Section (m)		2,500
8.	Type of Road and Road Dimension	Type of Road	(4 lanes/2 routes) divided
		Width of Lanes (m)	3.60
		Width of Shoulder (m)	2.20
		Width of Raised Median	3.80
		Side Ditch; V Type (m)	1.50
9.	Crossways Slope	Lane (%)	2%
		Shoulder (%)	4%
10.	Type of Pavement		Asphalt Concrete
11.	Road Space	Road Utility Space (m)	28
		Road Right of Way (m)	38
12.	Minimum Distance for Intersection (km)		5

*) The Design Speed will be developed by the DB Contractor

DESIGN LIFE

Table 4-9 Pavement Design Life

No.	Type of Pavement	Lifetime	Notes
1.	Flexible Pavements (Asphalt)	15- 20 years	- The design life takes into account factors such as traffic load, environmental conditions, and the properties of the asphalt mix. - With proper maintenance, they can last longer
2.	Rigid Pavements (Concrete)	30 – 40 years	Concrete roads are more resistant to deformation and require less maintenance over time.
3.	Composite Pavements	20 – 30 years	Depending on the materials used and the expected traffic load

Table 4-15 Bridges Design Life

No.	Type of Bridges	Lifetime	Notes
1.	Concrete Bridges	50 -100 years	They can last longer with regular maintenance and refurbishment
2.	Steel Bridges	50- 75 years	

Table 4-16 Drainage Design Life

No.	Type of Drainage	Lifetime	Notes
1.	Surface Drainage	20 -30 years	With regular maintenance to prevent blockages and erosion
2.	Subsurface Drainage	50 years	These systems are critical in preventing water from weakening the road structure and should be durable and resistant to corrosion and clogging

Table 4-19 Lighting and Electrical Design Life

No.	Type of Item	Lifetime	Notes
1.	Lighting	20 -30 years	With components like light bulbs needing more frequent replacement (e.g., every 5 to 10 years)
2.	Electrical Systems		

VOLUME 4 – PART II DESIGN CRITERIA

Design Standards are described in the Design Criteria for the following:

- **Geometric Design Standards;**
- **Hydrology and Drainage System Standards;**
- **Road Signs and Road Markings Standards;**
- **Bridge Design Standards; and**
- **Public Street Lighting Standards.**

OTHER STANDARDS PROPOSED BY THE DBF CONTRACTOR MAY BE USED, SUBJECT TO EMPLOYER APPROVAL, E.G. EUROPEAN, AUSTRALIA OR JAPANESE STANDARDS.

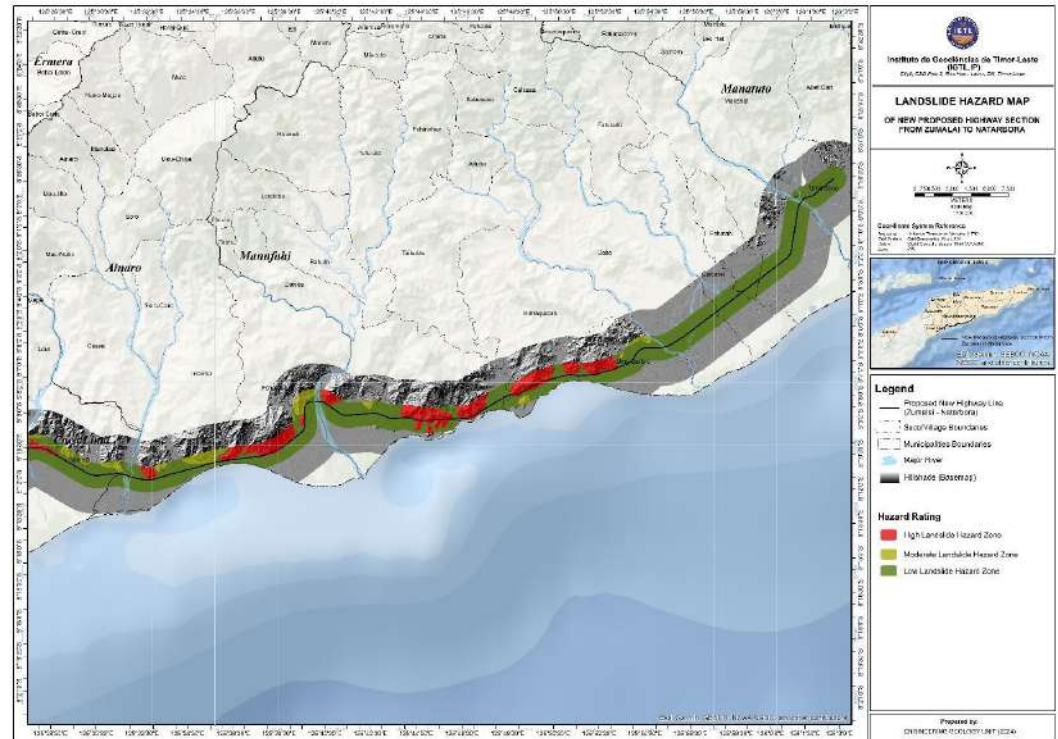
ASSESSMENT BY IGTL I.P. (Instituto de Geociências de Timor-Leste)

IGTL conducted a Site Survey all along the Existing and the New Highway routes, together with TIMOR GAP GIS Team and has identified all potential GEOHAZARD:

- **LANDSLIDE;**
- **FLOODING;**
- **COASTAL EROSION; and**
- **RIVERBANK SCOURING.**

**VOLUME 8 - ANNEXURE 2 -
Reconnaissance Geological Survey of
the existing Suai-Zumalai Highway
and the new proposed Zumalai-
Natarbora Highway; and**

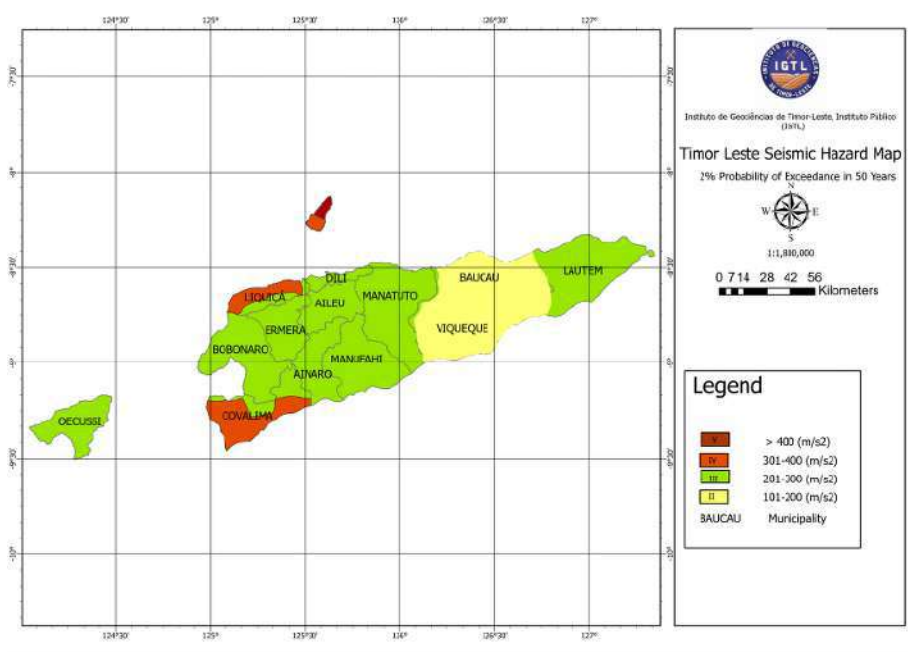
**VOLUME 9 - ANNEXURE 3 -
Reconnaissance Survey for Geohazard
Assessment on the proposed Highway
route from Zumalai to Natarbora**



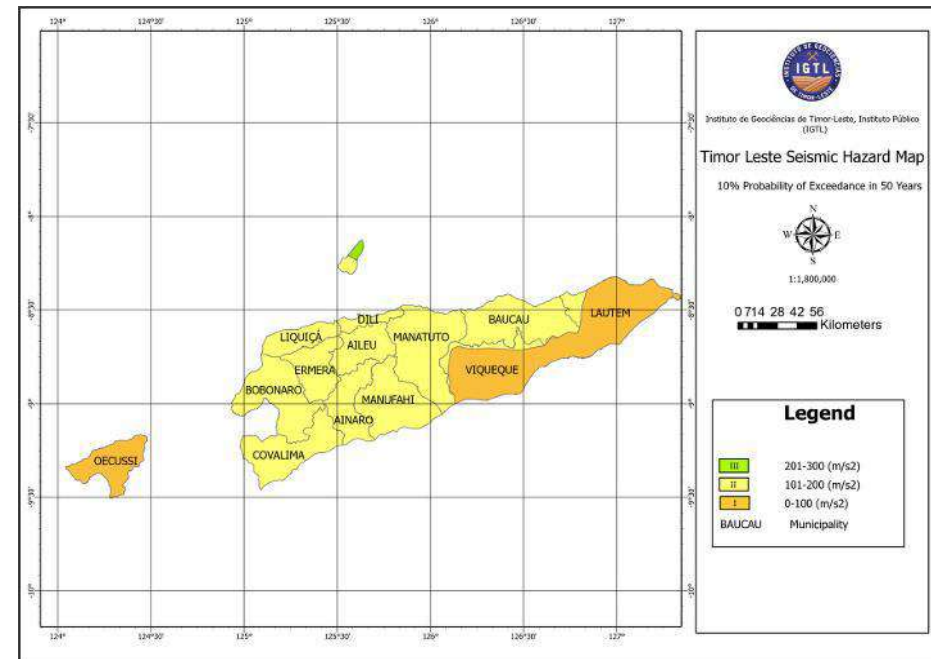
Landslide hazard map from Zumalai to Natarbora

SEISMIC CRITERIA FOR HIGHWAY

1. **Seismic Zone Classification:** Higher seismic zones indicate higher potential for earthquakes
2. **Peak Ground Acceleration (PGA):** minimum peak ground acceleration (pga) of 0.40g in the design of the works.
3. **DBF CONTRACTOR** will have to conduct a dedicated Probabilistic Seismic Hazard Assessment.



Seismic Hazard Map of Timor-Leste for 2% Probabilistic of Exceedance in 50 Years



Seismic Hazard Map of Timor-Leste for 10% Probabilistic of Exceedance in 50 Years

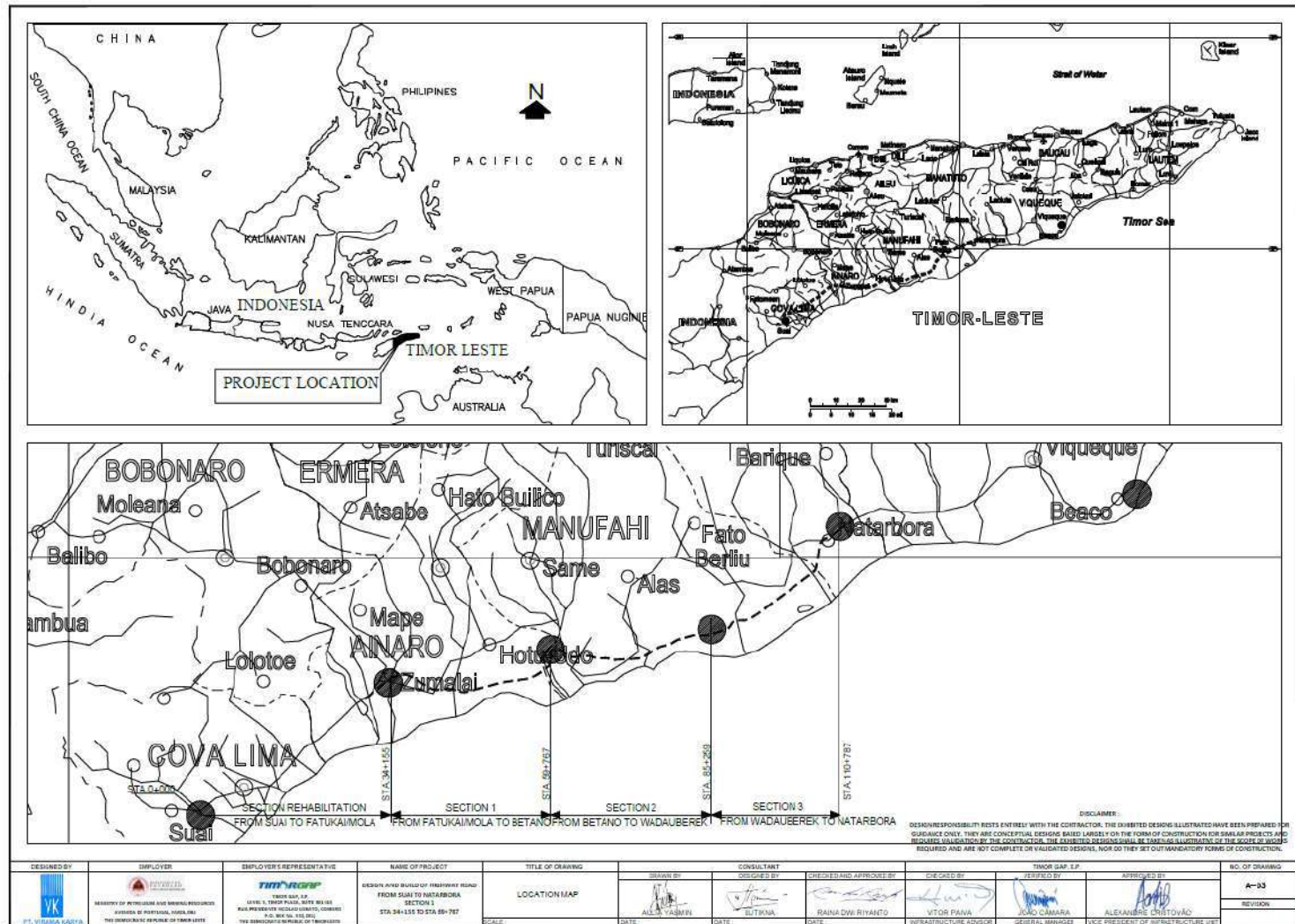
VOLUME 5 – PART II SPECIFICATIONS

SPECIFICATIONS DETAILED IN THIS DOCUMENT:

- DIVISION 1 - GENERAL
- DIVISION 2 - SITE CLEARING
- DIVISION 3 - DEMOLITION
- DIVISION 4 - ROAD EARTH WORK AND GEOSYNTHETICS WORK
- DIVISION 5 - STRUCTURE EXCAVATION
- DIVISION 6 - DRAINAGE
- DIVISION 7 - SUBGRADE
- DIVISION 8 - AGGREGATE BASE AND CEMENT TREATED BASE
- DIVISION 9 - PAVEMENTS
- DIVISION 10 - CONCRETE STRUCTURES
- DIVISION 11 - MISCELLANEOUS
- DIVISION 12 - LIGHTINGS, TRAFFIC SIGNALS & ELECTRICAL WORKS
- DIVISION 13 - RELOCATION OF EXISTING UTILITIES & SERVICES
- DIVISION 14 - DAYWORK
- DIVISION 15 - QUALITY, HEALTH & SAFETY, AND ENVIRONMENT

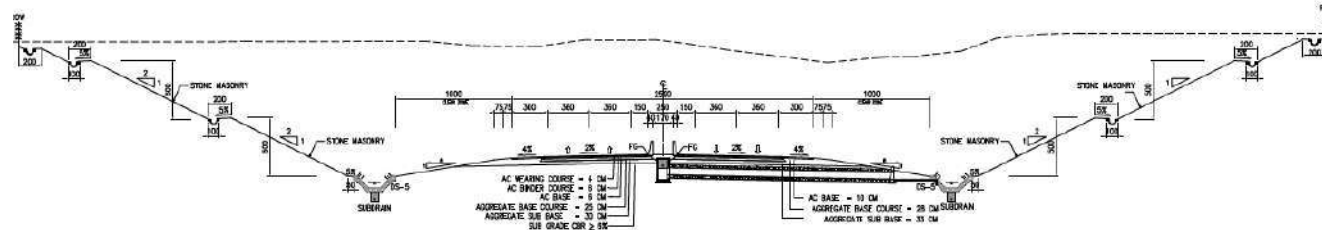
In the event of a conflict between any specifications, rules, or standards referenced in this document and this Specification, the most stringent requirement shall prevail.

VOLUME 6 – PART II DRAWINGS

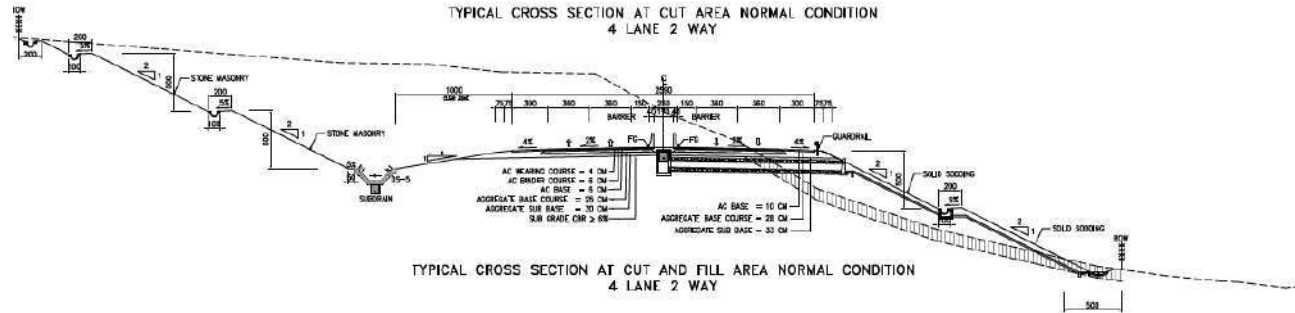


VOLUME 6 – PART II DRAWINGS

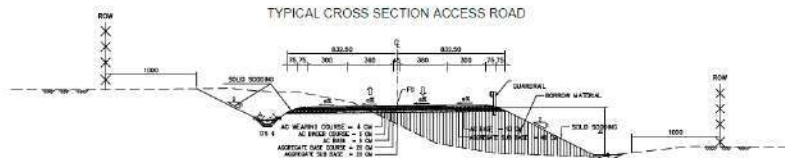
TYPICAL CROSS SECTION



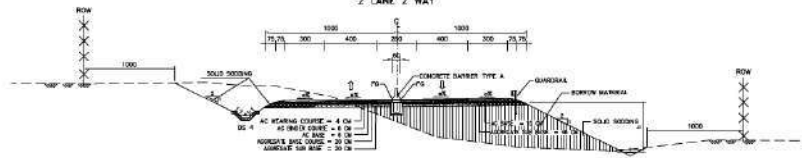
TYPICAL CROSS SECTION AT CUT AREA NORMAL CONDITION
4 LANE 2 WAY



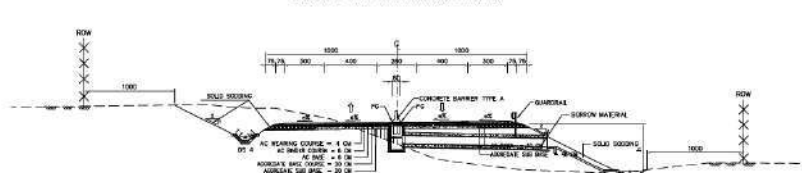
TYPICAL CROSS SECTION AT CUT AND FILL AREA NORMAL CONDITION
4 LANE 2 WAY



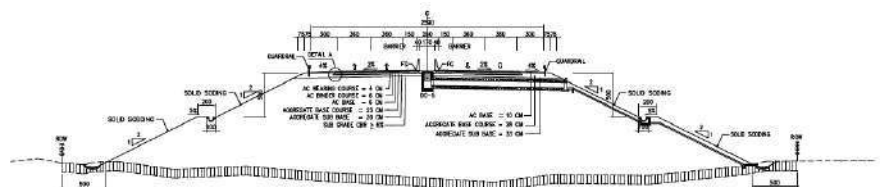
TYPICAL CROSS SECTION AT CUT & FILL SUPERELEVATION CONDITION
2 LANE 2 WAY



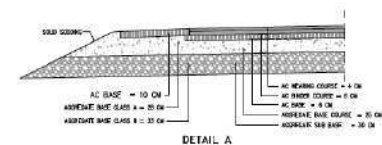
TYPICAL CROSS SECTION AT CUT & FILL SUPERELEVATION CONDITION
2 LANE 2 WAY WITH CONCRETE BARRIER



TYPICAL CROSS SECTION AT CUT & FILL SUPERELEVATION CONDITION
2 LANE 2 WAY WITH CONCRETE BARRIER



TYPICAL CROSS SECTION AT EMBANKMENT AREA NORMAL CONDITION
4 LANE 2 WAY



DETAIL A

SECTION 1 - ZUMALAI – BETANO - DETAILS

BOX TRAFFIC

BOX TRAFFIC (UNDERPASS)				
CROSSING ROAD - SECTION 1				
No	Sta	Type of Structure	Crossing Road	Dimension/Width
1	34+267,220	Box Underpass	National Road	2x8.0x5.5
2	35+744,250	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
3	36+467,036	Box Underpass	National Road	2x8.0x5.5
4	37+483,620	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
5	40+246,329	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
6	44+834,905	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
7	46+984,059	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
8	50+061,471	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
9	50+317,970	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
10	55+534,361	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
11	58+684,509	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0

BRIDGES

LIST OF BRIDGES						
No	Sta	Type of Structure	Crossing	Dimension (m)	Length T Span (m)	Span (m)
1	40+925	Main Bridge	River	2 x 12.7	100	30 + 40 + 30
2	42+500 - 42+750	Main Bridge	River	2 x 12.7	280	7 x 40
3	50+225	Main Bridge	River	2 x 12.7	70	40 + 30
4	54+050 - 54+250	Main Bridge	River and Road	2 x 12.7	160	4 x 40
5	57+400 - 57+600	Main Bridge	River and Road	2 x 12.7	112	5 x 40
6	59+090	Main Bridge	River	2 x 12.7	120	3 x 40

BOX CULVERT

NO.	STATION	LOCATION		STREAMLINE	CROSSING STRUCTURE	DIMENSION				SKEW	INVERT SLOPE	HWL (m)
		EASTING	NORTHING			PC	WIDTH	HEIGHT	LENGTH			
1	34+282	769959.23	8984745.77	DRAIN	BOX CULVERT	1	2.00	2.00	58.75	53°	1.50%	0.72
2	34+594	770260.17	8984823.82	IRRIGATION	BOX CULVERT	1	1.50	2.00	69.45	79°	1.00%	0.71
3	34+779	770443.80	8984850.76	BALANCE	BOX CULVERT	1	2.00	2.00	73.10	48°	1.50%	0.63
4	35+210	770873.58	8984853.18	DRAIN	BOX CULVERT	1	6.00	3.00	44.30	52°	2.00%	0.98
5	35+584	771241.81	8984787.19	BALANCE	BOX CULVERT	1	2.00	2.00	75.60	122°	1.00%	0.72
6	35+735	771386.28	8984743.00	ROAD CHANNEL	BOX CULVERT	1	2.00	2.00	43.70	90°	1.00%	0.70
7	36+357	771942.21	8984467.33	DRAIN	BOX CULVERT	1	6.00	3.00	81.20	67°	1.00%	1.17
8	36+547	772106.18	8984371.06	DRAIN	BOX CULVERT	2	6.00	5.00	45.50	90°	2.00%	2.11
9	37+225	772690.54	8984027.95	BALANCE	BOX CULVERT	1	2.00	2.00	83.60	34°	1.00%	0.70
10	37+490	772919.47	8983893.54	DRAIN	BOX CULVERT	1	2.00	2.00	56.10	63°	2.00%	0.70
11	37+882	773257.23	8983695.23	BALANCE	BOX CULVERT	1	2.00	2.00	76.00	118°	1.00%	0.70
12	38+287	773606.26	8983490.30	IRRIGATION	BOX CULVERT	1	1.50	2.00	61.30	69°	2.00%	0.70
13	38+673	773939.19	8983294.82	DRAIN	BOX CULVERT	2	6.00	5.00	160.00	161°	0.50%	2.05
14	38+965	774190.77	8983147.10	DRAIN	BOX CULVERT	2	10.00	5.00	77.60	42°	1.50%	3.50
15	39+527	774675.94	8982862.24	IRRIGATION	BOX CULVERT	1	1.50	2.00	45.55	101°	2.00%	0.37
16	40+261	775363.71	8982628.29	DRAIN	BOX CULVERT	1	6.00	3.00	54.90	94°	2.00%	0.71
17	40+535	775637.95	8982630.01	DRAIN	BOX CULVERT	1	6.00	3.00	66.75	122°	2.00%	1.20
18	41+650	776746.66	8982747.22	IRRIGATION	BOX CULVERT	1	1.50	2.00	53.10	112°	2.00%	0.70
19	42+278	777372.43	8982779.40	IRRIGATION	BOX CULVERT	1	6.00	3.00	57.60	112°	2.00%	0.71
20	43+260	778320.67	8982529.17	IRRIGATION	BOX CULVERT	1	1.50	2.00	61.60	63°	1.50%	0.70
21	43+830	778869.38	8982374.93	IRRIGATION	BOX CULVERT	1	1.50	2.00	64.10	38°	1.50%	0.70
22	44+307	779340.04	8982303.79	DRAIN	BOX CULVERT	2	6.00	3.00	40.35	87°	1.50%	1.00
23	45+325	780348.31	8982404.01	IRRIGATION	BOX CULVERT	1	1.50	2.00	88.10	135°	1.00%	0.70
24	45+921	780922.80	8982565.01	IRRIGATION	BOX CULVERT	1	1.50	2.00	54.80	96°	1.50%	0.62
25	46+992	781953.99	8982852.80	DRAIN	BOX CULVERT	1	2.00	2.00	55.90	83°	1.50%	0.70
26	47+414	782361.57	8982963.65	BALANCE	BOX CULVERT	1	6.00	3.00	49.20	68°	2.00%	0.70
27	48+242	783160.92	8983181.07	DRAIN	BOX CULVERT	1	2.00	2.00	78.05	41°	1.00%	1.15
28	48+833	783730.41	8983335.95	DRAIN	BOX CULVERT	1	6.00	3.00	48.75	75°	2.00%	0.70
29	49+197	784082.72	8983429.52	BALANCE	BOX CULVERT	1	2.00	2.00	57.45	90°	1.00%	0.76
30	49+581	784452.47	8983532.36	BALANCE	BOX CULVERT	2	6.00	3.00	45.55	113°	2.00%	0.70
31	50+985	785817.69	8983827.14	BALANCE	BOX CULVERT	1	6.00	5.00	64.85	104°	1.50%	2.21
32	52+013	786842.12	8983959.51	DRAIN	BOX CULVERT	2	6.00	5.00	76.65	129°	1.50%	1.86
33	53+112	787942.57	8984101.71	DRAIN	BOX CULVERT	1	2.00	2.00	74.20	53°	1.50%	0.70
34	53+438	788255.39	8984142.13	DRAIN	BOX CULVERT	1	6.00	3.00	48.25	108°	2.00%	0.65
35	53+725	788540.47	8984182.30	DRAIN	BOX CULVERT	1	6.00	3.00	71.50	133°	1.50%	1.20
36	54+265	789066.12	8984299.32	BALANCE	BOX CULVERT	1	6.00	5.00	72.60	107°	1.50%	3.00
37	54+436	789229.92	8984348.23	BALANCE	BOX CULVERT	1	2.00	2.00	110.40	128°	1.00%	0.96
38	54+638	789421.61	8984413.41	DRAIN	BOX CULVERT	1	6.00	5.00	75.10	98°	1.00%	1.96
39	54+904	789668.73	8984510.60	DRAIN	BOX CULVERT	1	6.00	3.00	102.50	144°	1.00%	1.83
40	55+499	790201.85	8984775.51	DRAIN	BOX CULVERT	1	6.00	3.00	62.10	85°	1.50%	0.80
41	55+686	790362.20	8984871.59	BALANCE	BOX CULVERT	1	2.00	2.00	71.80	116°	1.50%	0.70
42	56+001	790624.00	8985046.90	BALANCE	BOX CULVERT	1	2.00	2.00	77.05	131°	1.50%	0.70
43	56+276	790843.05	8985212.09	BALANCE	BOX CULVERT	1	2.00	2.00	75.80	109°	1.50%	0.70
44	56+653	791141.65	8985443.01	BALANCE	BOX CULVERT	1	2.00	2.00	68.70	90°	1.50%	0.70
45	57+010	791424.08	8985661.42	DRAIN	BOX CULVERT	1	6.00	3.00	64.10	136°	1.50%	1.24
46	58+170	792188.63	8986499.85	DRAIN	BOX CULVERT	2	6.00	5.00	82.50	100°	1.50%	1.74
47	58+514	792224.58	8986840.27	DRAIN	BOX CULVERT	1	6.00	3.00	77.55	114°	1.50%	0.77
48	59+254	792190.94	8987579.89	DRAIN	BOX CULVERT	1	6.00	5.00	104.60	136°	1.50%	1.12
49	52+627	792183.27	8987952.40	DRAIN	BOX CULVERT	2	6.00	5.00	77.00	132°	1.50%	2.81

SECTION 2 - BETANO – UMA BERLOIC - DETAILS

BOX TRAFFIC

BOX TRAFFIC (UNDERPASS)				
CROSSING ROAD - SECTION 2				
No	Sta	Type of Structure	Crossing Road	Dimension/ Width
1	60+269,342	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
2	61+285,297	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
3	63+378,354	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
4	65+266,158	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
5	67+263,509	Box Underpass	National Road	2x8.0x5.5
6	67+825,251	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
	70+801,827	Bridge	IC-Betano	
7	75+411,618	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
8	76+614,687	Box Underpass	National Road	2x8.0x5.5
9	80+958,067	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
10	84+300,000	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0

BRIDGES

No	Sta	Type of Structure	Crossing	Dimension (m)	Length T Span (m)	Span (m)
1	60+700-61+150	Main Bridge	River	2 x 12.7	480	12 x 40
2	66+250	Main Bridge	River	2 x 12.7	100	30 + 40 + 40
3	67+700	Main Bridge	River	2 x 12.7	100	30 + 40 + 30
4	70+800	Main Bridge	Interchange Betano	2 x 12.7	220	40+40+60+4 0+40
5	72+750	Main Bridge	River	2 x 12.7	120	3 x 40
6	77+280	Main Bridge	River	2 x 12.7	140	30 + 40 + 40 + 30
7	81+850	Main Bridge	River and Road	2 x 12.7	120	3 x 40

BOX CULVERT

NO.	STATION	LOCATION		STREAMLINE	CROSSING STRUCTURE	DIMENSION (m)				SKEW	INVERT SLOPE	HWL (m)
		EASTING	NORTHING			PC	WIDTH	HEIGHT	LENGTH			
1	60+230	792499.35	8988440.58	DRAIN	BOX CULVERT	1	6.00	3.00	64.55	72"	1.00%	1.33
2	61+298	793550.24	8988503.13	IRRIGATION	BOX CULVERT	1	6.00	3.00	73.30	80"	1.00%	1.23
3	62+028	794185.14	8988160.67	IRRIGATION	BOX CULVERT	1	1.50	2.00	67.65	133"	2.00%	0.69
4	63+393	795341.54	8987445.95	DRAIN	BOX CULVERT	1	6.00	3.00	51.70	82"	1.00%	1.10
5	64+105	796049.38	8987456.16	DRAIN	BOX CULVERT	1	6.00	3.00	55.95	102"	1.00%	1.56
6	64+564	796506.01	8987496.94	IRRIGATION	BOX CULVERT	1	6.00	3.00	49.10	77"	1.00%	1.55
7	65+274	797213.79	8987560.13	DRAIN	BOX CULVERT	1	2.00	2.00	47.65	79"	1.00%	0.63
8	66+090	798025.56	8987572.35	DRAIN	BOX CULVERT	1	6.00	3.00	64.10	121"	1.00%	1.14
9	68+017	799892.66	8987236.41	DRAIN	BOX CULVERT	2	10.00	5.00	78.20	72"	1.50%	2.87
10	68+337	800212.19	8987250.01	BALANCE	BOX CULVERT	1	6.00	5.00	65.40	66"	1.50%	2.11
11	68+648	800523.29	8987253.37	BALANCE	BOX CULVERT	1	6.00	5.00	65.35	111"	1.50%	1.78
12	69+080	800941.10	8987150.66	DRAIN	BOX CULVERT	1	6.00	3.00	103.00	126"	1.50%	1.30
13	69+341	801187.18	8987063.04	BALANCE	BOX CULVERT	2	10.00	5.00	87.35	55"	1.50%	1.78
14	69+951	801790.20	8987004.90	BALANCE	BOX CULVERT	2	10.00	5.00	173.10	134"	1.50%	2.47
15	70+353	802191.60	8987029.36	BALANCE	BOX CULVERT	2	6.00	5.00	95.00	68"	1.50%	1.25
16	71+771	803607.28	8987115.65	BALANCE	BOX CULVERT	1	10.00	5.00	138.55	34"	1.50%	2.48
17	73+729	805539.08	8987311.39	BALANCE	BOX CULVERT	1	6.00	5.00	84.40	80"	1.50%	2.49
18	73+835	805644.18	8987358.69	BALANCE	BOX CULVERT	2	6.00	5.00	129.55	137"	1.50%	2.61
19	74+435	806163.08	8987659.93	BALANCE	BOX CULVERT	1	6.00	5.00	78.75	61"	1.50%	1.24
20	76+270	807743.75	8988590.78	DRAIN	BOX CULVERT	2	10.00	5.00	58.70	70"	1.50%	3.12
21	78+120	809469.89	8989204.07	BALANCE	BOX CULVERT	1	6.00	5.00	109.10	48"	1.50%	1.86
22	78+259	809599.49	8989253.83	BALANCE	BOX CULVERT	1	6.00	5.00	89.80	89"	1.50%	1.86
23	78+756	810037.14	8989489.26	BALANCE	BOX CULVERT	2	6.00	5.00	95.65	67"	1.50%	1.32
24	79+083	810322.82	8989647.91	BALANCE	BOX CULVERT	1	6.00	5.00	93.40	94"	1.50%	1.24
25	79+731	810889.24	8989962.12	BALANCE	BOX CULVERT	1	6.00	5.00	121.50	84"	1.50%	1.24
26	80+081	811215.35	8990089.09	BALANCE	BOX CULVERT	2	6.00	5.00	88.25	91"	1.50%	2.48
27	80+858	811964.49	8990294.43	DRAIN	BOX CULVERT	1	6.00	5.00	84.20	118"	1.50%	1.46
28	83+151	814202.90	8990573.85	DRAIN	BOX CULVERT	1	2.00	2.00	54.20	83"	1.50%	0.43
29	83+680	814730.69	8990617.24	DRAIN	BOX CULVERT	1	2.00	2.00	30.15	97"	1.50%	0.98
30	84+965	815990.45	8990827.88	DRAIN	BOX CULVERT	1	2.00	2.00	41.20	95"	1.50%	0.47

SECTION 3 - UMA BERLOIC – NATARBORA - DETAILS

BOX TRAFFIC

BOX TRAFFIC (UNDERPASS)				
CROSSING ROAD - SECTION 3				
No	Sta	Type of Structure	Crossing Road	Dimension/Width
1	86+626,356	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
2	89+166,021	Box Underpass	National Road On & Off Ramp	2x8.0x5.5
3	94+997,877	Frontage Road	Local Road (Jalan Desa)	1+4.5+1
4	98+092,232	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
5	102+257,692	Box Underpass	On & Off Ramp	2x8.0x5.5
6	106+446,586	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
7	109+213,898	Box Underpass	Local Road (Jalan Desa)	1x6.5x5.0
	110+787,252	Intersection End of Design	Natarbora	

BOX CULVERT

NO.	STATION	LOCATION		STREAMLINE	CROSSING STRUCTURE	DIMENSION (m)				SKEW	INVERT SLOPE	HWL (m)
		EASTING	NORTHING			PC	WIDTH	HEIGHT	LENGTH			
1	85+625	816627.08	8990999.01	DRAIN	BOX CULVERT	1	2.00	2.00	60.15	57°	1.00%	0.72
2	86+000	816981.31	8991121.62	BALANCE	BOX CULVERT	1	2.00	2.00	64.40	112°	1.50%	0.49
3	86+370	817327.33	8991252.67	RIVER	BOX CULVERT	1	6.00	3.00	82.00	128°	1.00%	1.58
4	86+830	817757.37	8991415.55	RIVER	BOX CULVERT	1	6.00	3.00	37.45	115°	1.00%	1.48
5	87+100	818010.00	8991511.24	BALANCE	BOX CULVERT	1	2.00	2.00	36.95	90°	1.50%	0.56
6	87+535	818387.01	8991723.12	IRRIGATION	BOX CULVERT	1	1.50	2.00	51.20	102°	1.00%	0.49
7	88+400	818863.63	8992436.95	BALANCE	BOX CULVERT	1	2.00	2.00	51.75	90°	1.50%	0.70
8	89+191	819550.78	8992794.03	ROAD CANAL	BOX CULVERT	1	2.00	2.00	70.35	129°	1.00%	1.06
9	91+734	821976.27	8993317.07	RIVER	BOX CULVERT	1	6.00	3.00	75.25	55°	2.00%	1.46
10	92+225	822399.52	8993566.69	BALANCE	BOX CULVERT	1	2.00	2.00	55.22	90°	1.50%	1.01
11	93+032	823048.24	8994046.48	RIVER	BOX CULVERT	2	6.00	5.00	44.45	94°	1.00%	2.64
12	94+675	824360.18	8995035.55	BALANCE	BOX CULVERT	1	2.00	2.00	44.55	90°	1.50%	0.80
13	95+695	825174.65	8995649.59	RIVER	BOX CULVERT	1	5.00	3.00	88.50	126°	1.00%	1.33
14	97+212	826385.83	8996562.70	RIVER	BOX CULVERT	1	6.00	3.00	68.60	57°	2.00%	1.00
15	97+825	826875.46	8996931.84	RIVER	BOX CULVERT	2	6.00	5.00	67.10	48°	2.00%	3.00
16	98+085	827083.07	8997088.35	ROAD CANAL	BOX CULVERT	1	2.00	2.00	60.35	119°	1.00%	0.64
17	98+975	827793.73	8997624.13	RIVER	BOX CULVERT	2	6.00	5.00	59.10	67°	1.00%	1.27
18	99+850	828492.42	8998150.87	BALANCE	BOX CULVERT	1	2.00	2.00	37.40	90°	1.50%	0.52
19	100+772	829228.40	8998705.74	IRRIGATION	BOX CULVERT	1	1.50	2.00	64.90	90°	1.00%	0.50
20	101+187	829560.02	8998955.74	DRAIN	BOX CULVERT	1	6.00	3.00	83.10	60°	1.00%	1.04
21	101+775	830029.53	8999309.71	IRRIGATION	BOX CULVERT	1	1.50	2.00	78.35	61°	1.00%	0.46
22	102+790	830839.69	8999921.15	BALANCE	BOX CULVERT	1	2.00	2.00	58.40	100°	1.50%	0.58
23	103+250	831120.09	9000280.68	RIVER	BOX CULVERT	2	10.00	5.00	48.75	90°	1.00%	3.51
24	103+540	831202.19	9000557.50	RIVER	BOX CULVERT	2	10.00	5.00	48.45	115°	1.00%	3.50
25	105+633	831536.10	9002624.10	IRRIGATION	BOX CULVERT	1	1.50	2.00	89.25	148°	1.00%	0.63
26	109+680	833818.58	9005519.57	IRRIGATION	BOX CULVERT	1	1.50	2.00	49.75	80°	1.00%	0.52
27	110+215	834233.01	9005857.90	BALANCE	BOX CULVERT	1	2.00	2.00	45.55	90°	1.50%	0.56
28	110+400	834376.29	9005974.87	DRAIN	BOX CULVERT	1	2.00	2.00	34.10	72°	1.00%	1.53

BRIDGES

No	Sta	Type of Structure	Crossing	Dimension (m)	Length T Span (m)	Span (m)
1	90+650 - 90+850	Main Bridge	River	2 x 12.7	200	5 x 40
2	92+525	Main Bridge	River	2 x 12.7	70	40 + 30
3	93+400	Main Bridge	River	2 x 12.7	110	30 + 40 + 40
4	96+400-96+650	Main Bridge	River	2 x 12.7	280	7 x 40
5	98+275	Main Bridge	River	2 x 12.7	100	30 + 40 + 30
6	107+200-107+550	Main Bridge	River	2 x 12.7	360	9 x 40

VOLUME 2 – PART I INDICATIVE BILL OF QUANTITIES

Bill of Quantities

The format of this Bill of Principal Quantities (BoPQ) is intended as illustration only and shall not be a limitation to the Proposer's submission. The Proposers are expected to submit their specific and more detailed BoPQ in the form and format consistent with their proposed design and scope of the Works, including the estimated quantities, unit rates and price of the work items.

Volume 2 Part I - Bill of Quantity (BOQ)
Zunlai - Natarbora Highway Project
Section-1 (Sta 34+155 - Sta 59+767)

Recapitulation

Division	Description	Price (USD)
Division 1	General	
Division 2	Site Clearing	
Division 3	Demolition	
Division 4	Road Earthwork	
Division 5	Structure Excavation	
Division 6	Drainage	
Division 7	Subgrade	
Division 8	Aggregate Base and Cement Treated Base	
Division 9	Pavements	
Division 10	Concrete Structures	
Division 11	Miscellaneous	
Division 12	Lighting, Traffic Signal and Electrical Works	
Division 13	Relocating of Existing Utilities and Services	
Division 14	Dayworks	
Division 15	Quality, Health and Safety Environment	
Total Division 1 - Division 15		
Value Added Tax (10%)		
Grand Total		

Volume 2 Part I - Bill of Quantity (BOQ)
Suai - Natarbora Highway Project
Section-1 (Sta 34+155 - Sta 59+767)

Per Item Break Down

Per Item Number	Description	Unit	Volume	Unit Price (USD)	Total Price (USD)
(1)	(2)	(3)	(4)	(5)	(6)
DIVISION 1	GENERAL				
1.16	Traffic Management and Safety	Lump sum	1.00		
1.17	Mobilization	Lump sum	1.00		
1.18	Detailed Engineering Design	Lump sum	1.00		
					Sub Total Division 1
DIVISION 2	SITE CLEARING				
2.01 (1)	Site Clearing	m ²	1,073,181.50		
					Sub Total Division 2
DIVISION 3	DEMOLITION				
					Sub Total Division 3
DIVISION 4	ROAD EARTHWORK				
4.02 (1)	Concrete Excavation to Subgrade	m ³	7,084,053.89		
4.02 (2)	Concrete Excavation to Work Material	m ³	8,799,845		
4.04	Back Excavation	m ³	51,534.30		
4.05 (1)	Concrete Retainement	m ³	5,369,980.77		
4.08	Geotextile Reinforce	m ²	33,974,500		
					Sub Total Division 4
DIVISION 5	STRUCTURE EXCAVATION				
5.01 (1)	Structure Excavation - 0 - 2 meter depth	m ³	24,490.33		
5.01 (2)	Structure Excavation - 2 - 4 meter depth	m ³	15,478.87		
5.01 (3)	Structure Excavation - 4 - 6 meter depth	m ³	4,994.23		
5.01 (4)	Blinding Stone	m ³	99,125.00		
					Sub Total Division 5
DIVISION 6	DRAINAGE				
6.02 (1)	R/C Spig Pipe Type B (dia 40 cm)	m	92.0		
6.02 (2)	R/C Spig Pipe Type B (dia 100 cm)	m	1,078.76		
6.06 (1)	Precast U-Drain Type D5-2	m	49,084.00		
6.06 (2)	Precast U-Drain Type D5-3	m	24,542.00		
6.06 (3)	Concrete Drain Type D5-3	m	4,590.00		
6.08 (1E)	Curbside, Type D5-3	Each	892.00		
					Sub Total Division 6
DIVISION 7	SUBGRADE				
7.01	Subgrade Preparation	m ²	31,347.47		
					Sub Total Division 7
DIVISION 8	AGGREGATE BASE AND CEMENT TREATED BASE				
8.01 (1)	Aggregate Base Class A	m ³	18,563.89		
8.01 (2)	Aggregate Base Class B	m ³	269,078.01		
					Sub Total Division 8
DIVISION 9	PAVEMENTS				
9.04	Bituminous Prime Coat	kg	667,363.51		
9.05	Bituminous Tack Coat	kg	216,512.54		
9.07 (1)	Asphalt Concrete Base Course	Ton	49,817.98		
9.07 (2)	Asphalt Concrete Binder Course	Ton	38,536.62		
9.07 (3)	Asphalt Concrete Wearing Course	Ton	48,398.83		
					Sub Total Division 9

Volume 2 Part I - Bill of Quantity (BOQ)
Suai - Natarbora Highway Project
Section-1 (Sta 34+155 - Sta 59+767)

Per Item Break Down

Per Item Number	Description	Unit	Volume	Unit Price (USD)	Total Price (USD)
(1)	(2)	(3)	(4)	(5)	(6)
DIVISION 10	CONCRETE STRUCTURES				
10.01 (4A)	Structural Concrete Class B-1-a (R/C Deck Slabs of PCU/PC-Grids)	m ³	6,932.50		
10.01 (5)	Structural Concrete Class B-1-b	m ³	2,412.50		
10.01 (5A)	Structural Concrete Class B-1-b (R/C Box Road)	m ³	12,861.80		
10.01 (7C)	Structural Concrete Class B-1-4C (R/C Columns of Piers)	m ³	1,373.00		
10.01 (10)	Structural Concrete Class C-1 (Approach, Pier Footings, Retaining Walls, Approach Slabs, Paving Bed)	m ³	13,167.24		
10.01 (11)	Structural Concrete Class C-2 (Bent Columns and Bent Underpass)	m ³	15,058.00		
10.01 (12)	Structural Concrete Class D	m ³	236.25		
10.01 (14)	Structural Concrete Class E	m ³	57,854.00		
10.02 (2)	Reinforcing Steel (Deformed Bars R15-40)	kg	7,687,434.40		
10.08 (10)	PC-4 (Center Normal) Span of 30 (m to 33.80m, 35+1.70m, finished+excavated)	Each	12.00		
10.01 (16A)	PC-1 (Center Normal) Span of 30 (m to 41.0m, 10+2.10m, finished+excavated)	Each	176.00		
10.07 (7)	Cast-in-Place R/C Pile D=120cm, Class M30 with Ultrasonic Monitoring	m	5,796.00		
10.10 (8A)	Expansion Joint Type D-1 (Reinforced Bitumen Binder Type 40 cm)	m	608.00		
10.10 (9A)	Expansion Joint Type D-4 (Reinforced Bitumen Binder Type 10 cm)	m	608.00		
10.11 (21)	Electromechanical Bearing Pad 400 x 400 x 52	Each	34.00		
10.11 (22A)	Electromechanical Bearing Pad 400 x 400 x 52	Each	952.00		
10.11 (23A)	Anchor Bar with Accessories (750)	kg	1,817.28		
10.11 (23B)	Anchor Bar with Accessories (M200)	kg	1,817.28		
10.12 (2)	Deck Pipe (D=15cm with Fitting and Supports)	m	156.00		
10.12 (3)	Deck Drain Type 1 with Accessories	Each	156.00		
					Sub Total Division 10

HIGH LEVEL MASTER SCHEDULE

ACTIVITIES	2025			2026	2027	2028	2029
	Q2	Q3	Q4				
HIGHWAY							
TENDER ADVERTISEMENT	◆						
TENDER PERIOD	■						
PROPOSER SUBMISSION / OPENING		◆					
PROPOSER EVALUATION		■					
NEGOTIATIONS			■				
CONTRACT SIGNING			◆				
AUDIT COURT APPROVAL			■				
ENVIRONMENTAL LICENSE	■	■	■				
MOBILIZATION			■				
ENGINEERING AND DESIGN				■	■		
CONSTRUCTION				■	■	■	
DEFECTS LIABILITY PERIOD							■

Contract Period = 913 days + 365 days Defects Liability Period



**MINISTÉRIO DO PLANEAMENTO
E INVESTIMENTO ESTRATÉGICO
IX GOVERNO CONSTITUCIONAL**



Comissão Nacional de Aprovisionamento

THANK YOU!