

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

MINISTRY OF IRRIGATION



PROJECT MANAGEMENT UNIT

Integrated Watershed & Water Resources Management Project

PROCUREMENT OF WORKS UNDER OPEN COMPETITIVE BIDDING - NATIONALLY

Bidding Documents

for

REHABILITATION OF WELIMARUTHAMADU TANK DOWNSTREAM

Contract No: LK-MoMDE-317179-CW-RFB

Issued: 17th February, 2025

<i>Bidder Number</i>	
<i>Name</i>	
<i>Address</i>	

For Reference Only



MINISTRY OF AGRICULTURE, LIVESTOCK, LANDS AND
IRRIGATION



INVITATION FOR BIDS

Integrated Watershed and Water Resources Management Project (IWWRMP)

Project No: P166865, Loan No: IDA-6621-LK

1. The Government of the Democratic Socialist Republic of Sri Lanka has applied for financing from the International Development Association (World Bank) towards the cost of **Integrated Watershed and Water Resources Management Project (IWWRM Project)** and it intends to apply part of the proceeds of this credit to payment under the contracts mentioned in the schedule below.
2. Project Director of IWWRM Project, invites sealed bids from eligible and qualified bidders for the following **works** as given in the Table 01, on behalf of the Chairman, Project Procurement Committee of Integrated Watershed and Water Resources Management Project.

Table 01

No.	Contract No.	Description of Work	Experience / CIDA Registration	Bid Security and Validity Period	Non-Refundable Bidding Document Fee (Rs.)	Average annual volume of construction work & The minimum amount of liquid assets and/or credit facilities (Rs.)
1	LK-MOMDE-465688-CW-RFB	Strengthening of tank bund of Sagamam tank including Rip-Rap Protection and Improvements to Sillikody Anicut in Sagamam Irrigation Scheme (Contract Period: 365 days)	Grade: C5 or above Specialty: Irrigation & Drainage Canals	Bid security value: Rs. 1,350,000.00 Validity: Up to 13.08.2025 (147 days)	18,500.00	135.00 Mn & 22.5 Mn
2	LK-MOMDE-465689-CW-RFB	Reconstruction of Panichchayady Anicut in Sagamam Irrigation Scheme (Contract Period: 365 days)	Grade: C6 or above Specialty: Irrigation & Drainage Canals	Bid security value: Rs. 720,000.00 Validity: Up to 13.08.2025 (147 days)	12,100.00	72.00 Mn & 12 Mn
3	LK-MOMDE-465690-CW-RFB	Construction of Uruhudamoolai branch anicut in Sagamam Irrigation Scheme (Contract Period: 365 days)	Grade: C6 or above Specialty: Irrigation & Drainage Canals	Bid security value: Rs. 555,000.00 Validity: Up to 13.08.2025 (147 days)	9,600.00	55.50 Mn & 9.2 Mn
4	LK-MOMDE-465692-CW-RFB	Modernization and Instrumentation to channel system of Sagamam Irrigation Scheme (Contract Period: 365 days)	Grade: C6 or above Specialty: Irrigation & Drainage Canals	Bid security value: Rs. 750,000.00 Validity: Up to 13.08.2025 (147 days)	12,500.00	75.00 Mn & 12.5 Mn

No.	Contract No.	Description of Work	Experience / CIDA Registration	Bid Security and Validity Period	Non-Refundable Bidding Document Fee (Rs.)	Average annual volume of construction work & The minimum amount of liquid assets and/or credit facilities (Rs.)
5	LK-MOMDE-317179-CW-RFB	Rehabilitation of Welimaruthamadu Tank Downstream (Contract Period: 180 Days)	Grade: C6 or above Specialty: Irrigation & Drainage Canals	Bid security value: Rs. 690,000.00 Validity: Up to 12.08.2025 (147 days)	11,600.00	69.00 Mn & 11.5 Mn
6	LK-MOMDE-463537-CW-RFB	Improvements of Ponnalai SWE Bund – Retender (Contract Period: 180 days)	Grade: C6 or above Specialty: Irrigation & Drainage Canals	Bid security value: Rs. 258,000.00 Validity: Up to 01.07.2025 (105 days)	5,100.00	26.00 Mn & 4.3 Mn

- To be eligible for a contract award, the successful bidder shall not have been blacklisted and shall meet the requirements in the Bidding Document. Further the successful bidder shall have valid registration Grade in Construction Industry Development Authority (CIDA) as mentioned in above Table. Bidders are free to bid for more than one package, but selections will be made according to the capacity limits in CIDA registration.
- The Bidding documents may be available for inspection in the <https://www.iwrrmp.lk/web/procurement/section/procurement-notice> website for references.
- Interested bidders may obtain further information from **Senior Project Specialist (Procurement & Contracts)**, IWWRM Project, 2nd Floor, Mahaweli Centre Building, No. 96, Ananda Cumaraswamy Mawatha, Colombo 07 and inspect the bidding documents at the same address given above during 9.00 a.m. to 3.00 p.m. from **17.02.2025 to 18.03.2025** (on working Days) by prior notification. (**Contact No: 0112691163**).
- Prospective Bidders can obtain the Bidding Documents by a written request on a company/firm letter head, addressed to the Project Director, IWWRM Project, 2nd Floor, Mahaweli Centre Building, No. 96, Ananda Cumaraswamy Mawatha, Colombo 07. from **17.02.2025** up to **18.03.2025** from **9.30 hrs. to 15.00 hrs.** only on working days by **prior notification** (Contact No. 011-2691163), on payment of a non-refundable bid document fee as given above per set of Bidding Documents (Please refer Table: 01 for the amount) on Cash or sending the written request by email to iwrrmp@sltnet.lk with the scan copy of Bank Payment Slip paid the non-refundable bidding documents fee to the Integrated Watershed and Water Resources Management Project Bank Account no. of **7042633** at Bank of Ceylon, Hyde Park Branch.
- The pre-bid meeting and site visit will be conducted as mentioned in table 02. Bidders are requested to inspect the sites with the assistance of the relevant officer.

Table 02

No.	Contract No.	Site visit	Pre-bid meeting	Bid Closing and Opening (Date & Time)
1	LK-MOMDE-465688-CW-RFB	Date: 06/03/2025 Time: 10.00 a.m.	Date: 07/03/2025 Time: 2.00 p.m. Conference room, IWWRMP 2 nd Floor, Mahaweli Centre Building, No. 96, Ananda Cumaraswamy Mawatha, Colombo 07.	Date: 19/03/2025 Time: 2.00 p.m.
2	LK-MOMDE-465689-CW-RFB	<u>Location:</u> Divisional Irrigation Engineer,		
3	LK-MOMDE-465690-CW-RFB	Divisional Irrigation Engineer's Office, Thambiluvil Division,		
4	LK-MOMDE-465692-CW-RFB	Pottuvil Road, Thambiluvil		
5	LK-MOMDE-317179-CW-RFB	Date: 05/03/2025 Time: 10.00 a.m. <u>Location:</u> Divisional Irrigation Engineer, Divisional Irrigation Engineer's Office, Mannar Division, A32 Road, Pallamadu, Mannar.	Date: 06/03/2025 Time: 10.00 a.m. Conference room, IWWRMP 2 nd Floor, Mahaweli Centre Building, No. 96, Ananda Cumaraswamy Mawatha, Colombo 07.	Date: 18/03/2025 Time: 2.00 p.m.
6	LK-MOMDE-463537-CW-RFB	Date: 04/03/2025 Time: 10.00 a.m. <u>Location:</u> Irrigation Engineer, Irrigation Engineer's Office, Jaffna Division, Provincial Irrigation Department, Pannai Road, Jaffna	Date: 05/03/2025 Time: 2.00 p.m. Conference room, IWWRMP 2 nd Floor, Mahaweli Centre Building, No. 96, Ananda Cumaraswamy Mawatha, Colombo 07.	Date: 18/03/2025 Time: 2.00 p.m.

8. All pages of the Bidding Documents shall be signed by the bidder and affixed to his seal.
9. Completed Sealed Bid with **duplicate**, clearly marked the contract name and the number on the top left corner of the envelope may be dispatched either by Registered Post or hand delivered or courier to the **Project Director, IWWRM Project, 2nd Floor, Mahaweli Centre Building, No. 96, Ananda Coomaraswamy Mawatha, Colombo 07** as specified in the **Table 02**. Bids will be opened immediately thereafter. Bidders or their authorized representatives, not exceeding two (2) in numbers, are permitted to be present at the opening of bids.

Project Director,
Integrated Watershed and Water Resources Management Project
2nd Floor, Mahaweli Centre Building,
No.96, Ananda Coomaraswamy Mawatha,
Colombo 07.
13.02.2025

For Reference Only

Section - 1

Instructions to Bidders (ITB)

**Available in ICTAD Publication Number ICTAD/SBD/02
Second Edition January 2007**

Instruction to Bidders shall be read in conjunction with Bidding Data under Section 2

For Reference Only

Section - 2

Bidding Data

**Available in ICTAD Publication Number ICTAD/SBD/02
Second Edition January 2007**

This section shall be read in conjunction with Section 1 – Instructions to Bidders, and is intended to provide specific information in relation to corresponding clauses in Section 1. Whenever there is a discrepancy, the provisions in Section 2- Bidding Data shall supersede those provided in the Section 1 – Instruction to Bidders

For Reference Only

Section 2 - Bidding Data

Instructions to Bidders Clause Reference	Entry
1.1	<p>Employer's Name and Address</p> <p>Name: Project Director, Integrated Watershed & Water Resources Management Project</p> <p>Address: 2ndFloor, No.96, Ananda Kumaraswamy Mawatha, Colombo 07.</p>
1.1	<p>Scope of Works</p> <p>The works consists of Rehabilitation of Welimaruthamadu Tank Downstream</p> <p>which including</p> <ul style="list-style-type: none"> i. Improvement to Shinnapulaveli Road (1420m) and Periyapulaveli to Ilavakulam Road (400m) ii. Improvement to Training Bund of Welimaruthamadu Tank iii. Improvement of Ilavakulam Tank iv. Repairs of Achadiveambu Anicut v. Improvement of Maruthamadu Anicut and Inter Canal vi. Improvement of Paddanikaddu Anicut, Pulakadu Road and Construction of Pulakadu Anicut vii. Improvement of Puliyaikulam Tank viii. Improvement of Maruthamadu Tank <p>Located at Welimaruthamadu in Mannar District</p>
1.2	<p>Time for Completion</p> <p>The Time for Completion for the whole of works shall be 180 Calendar Days</p>
2.1	<p>Source of funds</p> <p>The source of funds is International Development Association (IDA) – World Bank</p>
3	<p>Substitute by the following:</p> <p>3.1 The World Bank requires that the Government of Sri Lanka (including beneficiaries of World Bank financing); bidders (applicants/proposers), consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of World Bank-financed contracts, and refrain from Fraud and Corruption.</p> <p>3.2 The World Bank requires compliance with its policy in regard to corrupt and</p>

	<p>fraudulent practices as set forth below.</p> <p>3.3 In pursuance to this policy, The World Bank:</p> <p>a. Defines, for the purposes of this provision, the terms set forth below as follows:</p> <ul style="list-style-type: none"> i. “Corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party; ii. “Fraudulent practice” is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation; iii. “Collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party; iv. “Coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party; v. “Obstructive practice” is: <ul style="list-style-type: none"> a. deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a World Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or b. acts intended to materially impede the exercise of the World Bank’s inspection and audit rights provided for under paragraph 3.4 below. <p>b. rejects a proposal for award if the World Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its subconsultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;</p> <p>c. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring mis-procurement, if the World Bank determines at any time that representatives of the Government of Sri Lanka or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without taking timely and appropriate action satisfactory to the World Bank to address such practices when they occur, including by failing to inform the World Bank in a timely manner at the time they knew of the practices;</p> <p>d. Sanctions, pursuant to the World Bank’s Anti-Corruption Guidelines and in accordance with its prevailing sanctions policies and procedures as set forth in the WBG’s Sanctions Framework any firm or individual – determined at any time by the World Bank to have engaged in Fraud and Corruption in connection with the procurement process, selection and/or execution of a World Bank-</p>
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	<p>financed contract;</p> <p>e. Requires that, for World Bank-financed operations to be implemented utilizing national procurement arrangements, as well as PPPs, agreed by the World Bank, bidders (applicants/proposers) and consultants submitting bids/proposals will be required to accept the application of, and agree to comply with, the Anti-Corruption Guidelines during the procurement process, selection and/or contract execution, including the World Bank's right to sanction as set forth in paragraph 2.2 d., and the World Bank's inspection and audit rights as set forth in paragraph 3.4. The Employer shall consult and apply the World Bank Group's lists of firms and individuals suspended or debarred. In the event the Employer signs a contract with a firm or an individual suspended or debarred by the World Bank Group, the World Bank does not finance the related expenditures and may apply other remedies as appropriate; and</p> <p>g. Requires that, when a United Nations (UN) agency is selected to provide goods, works, non-consulting services and technical assistance, the above provisions regarding sanctions on Fraud and Corruption shall apply in their entirety to all contractors, consultants, sub-contractors, sub-consultants, service providers, suppliers, and their employees, that signed contracts with the UN agency.</p> <p>3.4 In further pursuance of this policy, Bidders shall permit and shall cause its agents (whether declared or not), sub-contractors, sub-consultants, service providers, or suppliers and any personnel thereof, to permit the World Bank to inspect all accounts, records and other documents relating to any prequalification process, bid submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the World Bank.</p>
4.1	<p>Qualification Information</p> <p>The following information shall be provided in Section 9 - Schedules:</p> <ul style="list-style-type: none"> • ICTAD registration <ul style="list-style-type: none"> Registration number Grade Specialty Expiry date • VAT registration number • Attach construction program • Attach legal status (Sole proprietor, Partnership, Company etc.) • Attach authentication for signatory • Total monetary value of construction work performed for each of the last five years • Experience in works of a similar nature and size for each of the last five years • Construction equipment • Staffing • Attach Work plan and methods;
4.2 (a)	<p>CIDA registration required</p> <p>The registration required;</p>

	Specialty: Irrigation and Drainage Canals Grade: C6 or above																																										
4.2 (b)	Average annual volume of construction work performed in last 5 years Average annual volume of construction work performed in last five years shall be at least Rs.69 million																																										
4.2 (c)	At least one works of a nature and complexity similar to the workover the last 10 years shall be Rs. 31.5 million (Excluding VAT).																																										
4.2 (d)	Essential equipment Proposals for the timely acquisition (own, lease, hire, etc.) of the following essential equipment shall be; <table><tr><th>No.</th><th>Equipment Type and Characteristics</th><th>Min. Number Required</th></tr><tr><td>1</td><td>Crawler excavator - 120 HP, Bucket capacity 1.0 m³</td><td>2</td></tr><tr><td>2</td><td>Dozer D4D, D6</td><td>1</td></tr><tr><td>3</td><td>Loader backhoe</td><td>1</td></tr><tr><td>4</td><td>Concrete mixers 1 m³</td><td>2</td></tr><tr><td>5</td><td>Tractor with trailers</td><td>2</td></tr><tr><td>6</td><td>Porker vibrators</td><td>2</td></tr><tr><td>7</td><td>Transport equipment / Tipper</td><td>2</td></tr><tr><td>8</td><td>Water Bowser with sprinkler 5000 L Capacity</td><td>2</td></tr><tr><td>9</td><td>Mobile Generator</td><td>2</td></tr><tr><td>10</td><td>Plate Compactor</td><td>1</td></tr><tr><td>11</td><td>Rammer</td><td>1</td></tr><tr><td>12</td><td>Vibrating Sheep foot roller not less than 10 Ton</td><td>1</td></tr><tr><td>13</td><td>Water pump 2 inch dia</td><td>1</td></tr></table>	No.	Equipment Type and Characteristics	Min. Number Required	1	Crawler excavator - 120 HP, Bucket capacity 1.0 m ³	2	2	Dozer D4D, D6	1	3	Loader backhoe	1	4	Concrete mixers 1 m ³	2	5	Tractor with trailers	2	6	Porker vibrators	2	7	Transport equipment / Tipper	2	8	Water Bowser with sprinkler 5000 L Capacity	2	9	Mobile Generator	2	10	Plate Compactor	1	11	Rammer	1	12	Vibrating Sheep foot roller not less than 10 Ton	1	13	Water pump 2 inch dia	1
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4.2 (e)	Qualifications and experience of the Contract Manager and other Key personnel <table><tr><th>Key personnel</th><th>Qualifications</th><th>No. of Position</th><th>Experience</th><th>Similar work Experience</th></tr><tr><td>1. Project Manager</td><td>Engineering Degree or equivalent qualification in Relevant field</td><td>1</td><td>08 yrs</td><td>03 yrs</td></tr></table>	Key personnel	Qualifications	No. of Position	Experience	Similar work Experience	1. Project Manager	Engineering Degree or equivalent qualification in Relevant field	1	08 yrs	03 yrs																																
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1. Project Manager	Engineering Degree or equivalent qualification in Relevant field	1	08 yrs	03 yrs																																							

Section 2 – Bidding Data

	2. Site Engineer	B.Sc. (Civil Engineering) degree or equivalent-Full time	1	05 yrs	03 yrs
	3. Environmental and Social Officer	Degree or equivalent qualification in Relevant field-Part time	1	02 yrs	01 yr
	4. Health and Safety Officer	Degree or equivalent qualification in Relevant field-Part time	1	02 yrs	01 yr
	5. Engineering Assistant (Civil)	NDT or equivalent	2	03 yrs	01 yrs
	6. Work Supervisor (Civil)	NCT	2	03 yrs	01 yrs
	The Bidder must demonstrate that it will have suitably qualified Project Manager and suitably qualified other key personnel in adequate numbers, as described in the table above.				
4.2 (f)	Liquid assets and/or credit facilities required The minimum amount of liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, shall be not less than Rs. 11.5 million				
8.3	The employer may conduct a site visit concurrently with the pre-bid meeting referred to in Clause 19. The site visit will be conduct as follow. Date & Time: 05th March 2025 at 10.00 a.m Commencing Venue: Irrigation Engineer's Office, A32 Road, Pallamadu, Mannar				
10.1	Clarification of Bidding Documents Employer's address for clarification of bidding documents is: Name of Officer: Project Director, IWWRMP Address: 2nd Floor, Mahaweli Centre Building, No. 96, Ananda Cumaraswamy Mawatha, Colombo 07. Phone: 0112691163 Facsimile: 0112691163 E-mail: iwwrmp@sltnet.lk				

<p>13.1(A) (j) 13.1(B) (d)</p>	<p>The Bidder shall submit the following additional documents in its Bid:</p> <p>Code of Conduct (ESHS)</p> <p>The Bidder shall submit its Code of Conduct that will apply to Contractor’s Personnel (as defined in Sub-clause 1.1.2.7 of the GC), to ensure compliance with its Environmental, Social, Health and Safety (ESHS) obligations under the contract. <i>[Note: Complete and include the risks to be addressed by the Code in accordance with Schedule 10, e.g. risks associated with: labor influx, spread of communicable diseases, sexual harassment, gender-based violence, sexual exploitation and abuse, illicit behavior and crime, and maintaining a safe environment etc.]</i></p> <p>In addition, the Bidder shall detail how this Code of Conduct will be implemented. This will include: how it will be introduced into conditions of employment/engagement, what training will be provided, how it will be monitored and how the Contractor proposes to deal with any breaches.</p> <p>The Contractor shall be required to implement the agreed Code of Conduct.</p> <p>Management Strategies and Implementation Plans (MSIP) to manage the (ESHS) risks</p> <p>The Bidder shall submit Management Strategies and Implementation Plans (MSIP) to manage the following key Environmental, Social, Health and Safety (ESHS) risks.</p> <p>The Contractor shall be required to submit for approval, and subsequently implement, the Contractor’s Environment and Social Management Plan (C-ESMP), in accordance with the Particular Conditions of Contract Sub-Clause 4.1, that includes the agreed Management Strategies and Implementation Plans described here.</p> <p><i>[Note: The extent and scope of these requirements should reflect the significant ESHS risks or requirements set out in Schedule 10 as advised by Environmental/Social specialist/s. The key risks to be addressed by the Bidder should be identified by Environmental/Social specialist/s, for example, from the Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plan (ESMP), Resettlement Action Plan (RAP), and/or Consent Conditions (regulatory authority conditions attached to any permits or approvals for the project), up to a maximum of four. The risks may arise during mobilization or construction phases, and may include construction traffic impacts on the community, pollution of drinking water, depositing on private land and impacts on rare species etc. The management strategies and/or implementation plans to address these could include, as appropriate: mobilization strategy, strategy for obtaining consents/permits, traffic management plan, water resource protection plan, bio-diversity protection plan and a strategy for marking and respecting work site boundaries etc.]</i></p>
<p>14.4</p>	<p>Adjustments for change in cost</p> <p>The Contract is subjected to price adjustment</p>
<p>15.1</p>	<p>Currency of Bid</p> <p>Rates and prices shall be quoted by the bidders entirely in <i>Sri Lankan rupees.</i></p>
<p>16.1</p>	<p>Period of Bid validity:</p> <p>The Bid shall be valid up to 119 Days from the bid submission deadline date 15th July 2025</p>

17.1	<p>Amount of Bid security:</p> <p>The amount of Bid Security is Sri Lanka Rupees: Six Hundred and Ninety Thousand Sri Lanka Rupees (LKR 690,000.00)</p> <p>The Bid security shall, be in the form of an unconditional bank guarantee issued from a reputed bank recognized by the Central Bank of Sri Lanka bank located in Sri Lanka. The format of the bid security should be in accordance with the specimen form of bid security included in the bidding document (Section 11).</p>
17.2	<p>Validity of Bid Security</p> <p>The Bid Security shall be valid up to 147 Days from the date of closing of the bids (including closing date) 12th August 2025.</p>
17.5	<p>The bid security of the successful bidder will be returned when the bidder has signed the Agreement and furnished the required Performance Securities including the Environmental, Social, Health and Safety (ESHS) Performance Security pursuant to ITB 35.1.</p>
17.6 (c) (ii)	<p>Furnish the required Performance Securities including the Environmental, Social, Health and Safety (ESHS) Performance Security pursuant to ITB 35.1.</p>
19.1	<p>Pre-Bid meeting</p> <p>Pre-Bid meeting <i>will be held</i>.</p> <p>Venue, time, and date of the pre-bid meeting.</p> <p>Date: 06th March 2025 Time: 10.00 am Venue: PMU Conference room, Integrated Watershed & Water Resources Management Project 2nd Floor, Mahaweli Centre Building, No.96, Ananda Kumaraswamy Mawatha, Colombo 07.</p>
21.2 (a)	<p>Employer's Address for Bid Submission</p> <p>Employer's Address for the purpose of bid submission is:</p> <p>Project Director Integrated Watershed & Water Resources Management Project 2nd Floor, Mahaweli Centre Building, No.96, Ananda Kumaraswamy Mawatha, Colombo 07.</p>
21.2 (b)	<p>Identification number of Contract</p> <p>Identification Number of the Contract is:</p> <p>LK-MoMDE-317179-CW-RFB</p>

22.1	<p>Deadline for submission of Bids</p> <p>Deadline for submission of Bids: 18th March 2025 Time: 2.00 PM</p>
25.1	<p>Bid opening</p> <p>Venue, time, and date of bid opening.</p> <p>Venue: PMU Conference Room, IWWRM Project, 2nd Floor, Mahaweli Centre Building, No.96, Ananda Kumaraswamy Mawatha, Colombo 07.</p> <p>Time: 2:00 PM Date: 18th March 2025.</p>
31.1	<p>Preference for Domestic Bidders: Not Applicable</p>
32	<p>If the Procurement is within the authority limit of a MPC:</p> <p>After evaluation of Bids in accordance with the procedures described under Clauses 28, 29, 30 and 31, the Employer will inform to all the bidders in writing the selection of the successful bidder and the intention of contract award to such bidder. The unsuccessful bidders if they so wish, within one week of such notice may make representation to the Secretary to the Line Ministry at the address given below. Such representation shall be self-contained to enable the Secretary to arrive at a conclusion and a cash deposit to amount given below shall be made. The Employer may request the bidder who had made representation to submit further evidence during the investigation of such representation. The cash deposit will be forfeited unless the Employer has changed the original contract award decision in favour of the bidder who has made such representation.</p> <p>Address:</p> <p>Cash Deposit: Rupees 25,000/=</p> <p>If the Procurement is within the authority limit of PPC:</p> <p>After evaluation of Bids in accordance with the procedures described under Clauses 28, 29, 30 and 31, the Employer will inform to all the bidders in writing the selection of the successful bidder and the intention of contract award to such bidder. The unsuccessful bidders if they so wish, within one week of such notice may make representation to the Secretary to the Line Ministry at the address given below. Such representation shall be self-contained to enable the Secretary to arrive at a conclusion and a cash deposit to amount given below shall be made. The Employer may request</p>

	<p>the bidder who had made representation to submit further evidence during the investigation of such representation. The cash deposit will be forfeited unless the Employer has changed the original contract award decision in favour of the bidder who has made such representation.</p> <p>Address:</p> <p>Cash Deposit: Rupees 10,000/=</p>
35.1	<p>Amount of Performance Security</p> <p>The Standard Form of Performance Security acceptable to the Employer shall be a Guarantee from an Agency accepted and stated in the Procurement Guidelines.</p> <p>The amount of the Performance Security is 7% of the Initial Contract Price.</p> <p>The Performance Security shall be valid until 28 Days beyond the Time for Completion (<i>date</i>).</p> <p>In addition, the successful Bidder <i>shall</i> submit an Environmental, Social, Health and Safety (ESHS) Performance Security within 14 Days of receipt of the Letter of Acceptance.</p> <p>The amount of the Environmental, Social, Health and Safety (ESHS) Performance Security is 3% of the initial Contract Price.</p> <p>The Environmental, Social, Health and Safety (ESHS) Performance Security shall be valid until 28 days beyond the defects liability period (<i>date</i>).</p> <p>Bid security shall only be an unconditional guarantee issued by a bank recognized by the Central Bank of Sri Lanka or Construction Guarantee Fund (CGF) in accordance with the format given.</p>
37	<p>Fees and types of reimbursable expenses to be paid to the Adjudicator shall be on a case to case basis and shall be shared equally by the Contractor and the Employer.</p>

For Reference Only

Section - 3

Conditions of Contract

**Available in ICTAD Publication Number ICTAD/SBD/02
Second Edition January 2007**

Condition of Contract shall be read in conjunction with the
Section 4 – Contract Data

For Reference Only

Section - 4

Contract Data

This section shall be read in conjunction with Section 3 – Condition of Contract, and is intended to provide specific information in relation to corresponding clauses in Section 3. Whenever there is a discrepancy, the provisions in Section 4- Contract Data shall supersede these provided in the Section 3 – Condition of Contract

For Reference Only

Section 4 – Contract Data

Conditions of Contract Clause Number/s		
(*) 1.1.2.2 & 1.3	Employer's name and address	<p>Name: Project Director, Integrated Watershed & Water Resources Management Project.</p> <p>Address: 2nd Floor, Mahaweli Centre Building, No.96, Ananda Kumaraswamy Mawatha, Colombo 07.</p>
1.3	Contractor's name and address	<p>Name:</p> <p>Address:</p>
(*) 1.1.2.4 & 1.3	Engineer's name and address	<p>Name: Deputy Director of Irrigation, Vavuniya Range</p> <p>Address: Office of the Deputy Director of Irrigation, Vavuniya Range, Provincial Irrigation Department - NP, Station Road, Vavuniya</p>
	Engineer's Representative name and address	<p>Name: Divisional Irrigation Engineer, Mannar Division.</p> <p>Address: Divisional Irrigation Engineer's Office, Mannar Division, A32 Road, Pallamadu, Mannar.</p>
1.1.2.5	Key Personnel	
Contractor's Personnel	<p>The following is added at the end of the sub-clause:</p> <p>“Contractor's Personnel includes Key Personnel as named in the Contract.”</p>	
1.1.2.5 Contractor's Representative	<p>Name:.....</p> <p>Address:.....</p>	
1.1.2.9	<p>Replace existing Clause 1.1.2.9 with following:</p> <p>“Dispute Adjudication Board” (DAB) means three persons appointed under Sub-Clause 19.2 [Appointment of the Dispute Adjudication Board] or Sub-Clause 19.3 [Failure to Agree on the Composition of the Dispute Adjudication Board] of the Conditions of Contract.</p>	
(*) 1.1. 3.3	Time for Completion of the Works	Time for Completion is 180 calendar Days from the commencement date.

(*) 1.1.3.7	Defects Notification Period	Defects Notification Period is 365 Days
1.1.6.8	<p>The following is added after Sub-Clause 1.1.6.7</p> <p>“ESHS” means environmental, social (including sexual exploitation and abuse (SEA) and gender-based violence (GBV)), health and safety.</p>	
(*) 2. 1	Right to access to the Site	14 Days after Letter of Acceptance
(*) 3.1	Engineer’s Duties and Authority	<p>The Engineer shall obtain the specific approval of the Employer before taking action under the following Sub-Clauses of these Conditions:</p> <p>(a) Clause 13, where the final effect of the variations exceed 5% of the Contract Price</p>
4.1 Contractor’s General Obligations	<p>Insert in the fifth paragraph after the words “<i>The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works.</i>”</p> <p>“Notwithstanding Sub-Clause 8.1, the Contractor shall not carry out any Works, including mobilization and/or pre-construction activities (e.g. limited clearance for haul roads, site accesses and work site establishment, geotechnical investigations or investigations to select ancillary features such as quarries and borrow pits), unless the Engineer is satisfied that appropriate measures are in place to address environmental, social, health and safety risks and impacts. At a minimum, the Contractor shall apply the Management Strategies and Implementation Plans and Code of Conduct, submitted as part of the Bid and agreed as part of the Contract. The Contractor shall submit, on a continuing basis, for the Engineer’s prior approval, such supplementary Management Strategies and Implementation Plans as are necessary to manage the ESHS risks and impacts of ongoing works. These Management Strategies and Implementation Plans collectively comprise the Contractor’s Environmental and Social Management Plan (C-ESMP). The C-ESMP shall be approved prior to the commencement of construction activities (e.g. excavation, earth works, bridge and structure works, stream and road diversions, quarrying or extraction of materials, concrete batching and asphalt manufacture). The approved C-ESMP shall be reviewed, periodically (but not less than every six (6) months), and updated in a timely manner, as required, by the Contractor to ensure that it contains measures appropriate to the Works activities to be undertaken. The updated C-ESMP shall be subject to prior approval by the Engineer.</p>	

(*) 4.2	Amount of Performance Security	<p>7 % of the Initial Contract Price, in the currencies and proportions in which the Contract Price is payable. The acceptable form is Unconditional Guarantee.</p> <p>Performance Security shall only be an unconditional guarantee issued by a bank recognized by the Central Bank of Sri Lanka in accordance with the format given including construction period, defect Liability period and additional 28 days.</p> <p>3 % of the Initial Contract Price</p> <p>The ESHS Performance Security will be in the form of a “demand guarantee” in the amount(s) of 3% percent of the Accepted Contract Amount and in the same currency (ies) of the Accepted Contract Amount including construction period, defect Liability period and additional 28 days.</p>
4.2 Performance Security	<p>Add the following</p> <p>The Contractor shall obtain (at his cost) an Environmental, Social, Safety and Health (ESHS) Performance Security for compliance with the Contractor’s ESHS obligations, for 3% of Initial Contract Price.</p> <p>The Contractor shall deliver ESHS Performance Security to the Employer within 14 days after receiving the Letter of Acceptance, and shall send a copy to the Engineer. The ESHS Performance Security shall be issued by a reputable bank selected by the Contractor, and shall be in the form annexed to the Particular Conditions, as stipulated by the Employer in the Contract Data, or in another form approved by the Employer.</p> <p>The Contractor shall ensure that the ESHS Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the ESHS Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate (which, if applicable, includes satisfactory performance of the ESHS obligations), by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the ESHS Performance Security until the Works have been completed and any defects have been remedied.</p> <p>The Employer shall return the ESHS Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate.</p>	

<p>4.14 Progress Reports</p>	<p>Sub-Clause 4.21 (g) is replaced by the following:</p> <p>“4.14 (g) the Environmental, Social, Health and Safety (ESHS) metrics set out in Appendix B”</p> <p>At the end of, and as part of Sub-Clause 4.14 add a new paragraph as follows:</p> <p>“The Contractor shall provide immediate notification to the Engineer of incidents in the following categories. Full details of such incidents shall be provided to the Engineer within the timeframe agreed with the Engineer.</p> <ul style="list-style-type: none"> (a) confirmed or likely violation of any law or international agreement; (b) any fatality or serious (lost time) injury; (c) significant adverse effects or damage to private property (e.g. vehicle accident, damage from fly rock, working beyond the boundary) (d) major pollution of drinking water aquifer or damage or destruction of rare or endangered habitat (including protected areas) or species; or (e) any allegation of gender-based violence (GBV), sexual exploitation or abuse, sexual harassment or sexual misbehavior, rape, sexual assault, child abuse, or defilement, or other violations involving children.
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6.8 Contractor's Personnel	Key Personnel				
	Key personnel	Qualifications	No. of Position	Experience	Similar work Experience
	1.Project Manager	Engineering Degree or equivalent qualification in Relevant field	1	08 yrs	03 yrs
	2.Site Engineer	B.Sc. (Civil Engineering) degree or equivalent-Full time	1	05 yrs	03 yrs
	3.Environmental and Social Officer	Degree or equivalent qualification in Relevant field-Part time	1	02 yrs	01 yr
	4.Health and Safety Officer	Degree or equivalent qualification in Relevant field-Part time	1	02 yrs	01 yr
	5.Engineering Assistant (Civil)	NDT or equivalent	2	03 yrs	01 yrs
	6.Work Supervisor (Civil)	NCT	2	03 yrs	01 yrs
<p>Sub-Clauses 6.8 (d) is amended by inserting “or” at the end:</p> <p>“6.9 (d).....; or”</p> <p>Sub-Clauses 6.8 (e) is inserted as follows:</p> <p>“6.9 (e) undertakes behavior which breaches the Code of Conduct (ESHS) (e.g. spreading communicable diseases, sexual harassment, gender-based violence, (GBV), sexual exploitation or abuse, illicit activity or crime).”</p> <p>After the sentence: <i>“If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.”</i> the following is added as a new paragraph:</p> <p><i>“The Contractor’s Personnel includes Key Personnel. If the Contractor intends to replace a Key Personnel, the Contractor shall, not less than 30 days before the intended date of replacement, give notice to the Engineer, the name, address, academic qualifications and relevant experience of the intended replacement Key Personnel. The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Key Personnel or appoint a replacement.”</i></p>					

	As per the approved work, plan by the Engineer the appointed staff (Key personal fully deployed to the site to make sure the close monitoring and Quality requirement.			
(*) 8.7	Liquidated damages for the Works	0.05 % of the Initial Contract Price per Day.		
(*) 8.7	Maximum amount of liquidated damages	5 % of the Initial Contract Price		
12.2 (b)	Method of Measurement	The Method of Measurement shall be joint measurement and annexed in Section 8		
13.3 Variation procedure	Sub-Clause 13.3. (a) is replaced with the following: “(a) a description of the proposed work to be performed, a programme for its execution and sufficient ESHS information to enable an evaluation of ESHS risks and impacts;”			
(*) 13.4(b)	Percentage for adjustment of Provisional Sums	10 %		
13.7 Adjustment for changes in Cost	Last paragraph “The weightings for each of the inputs of cost” shall be substituted by the following: “The weightings for each of the inputs of cost given in this Clause shall be adjusted only if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations.”			
13.7	Weightings of Inputs	Indices No	Input Name	Input Percentage
		M8	Sand	22.72
		P3	Fuel	19.89
		L2	Unskilled Labour	13.27
		P1	Small Equipment	12.55
		P2	Heavy Equipment	12.04
		M44	Hume pipes	4.14
		M3	Cement	3.27
		M7	Metal	1.51
		L1	Skilled Labour	0.61
		Total		90%
Nonadjustable element shall be: All P.sum & L.sum items				
(*) 14.2	Total Advance Payment	20 % of the Initial Contract Price excluding provisional sums and contingencies.		
(*) 14.3(c)	Percentage of retention	10 %		

(*) 14.3(c)	Limit of Retention Money	5 % of the Initial Contract Price
14.5	Minimum amount of Interim Payment Certificates.	5% of the Initial Contract Price
(*) 14.5 Issue of Interim Payment Certificate	<p>The following is added to the third paragraph as (c):</p> <p>i. if the Contractor was, or is, failing to perform any ESHS obligations or work under the Contract, the value of this work or obligation, as determined by the Engineer, may be withheld until the work or obligation has been performed, and/or the cost of rectification or replacement, as determined by the Engineer, may be withheld until rectification or replacement has been completed. Failure to perform includes, but is not limited to the following:</p> <p>a) failure to comply with any ESHS obligations or work described in the Works' Requirements which may include: working outside site boundaries, excessive dust, failure to keep public roads in a safe usable condition, damage to offsite vegetation, pollution of water courses from oils or sedimentation, contamination of land e.g. from oils, human waste, damage to archeology or cultural heritage features, air pollution as a result of unauthorized and/or inefficient combustion;</p> <p>b) failure to regularly review C-ESMP and/or update it in a timely manner to address emerging ESHS issues, or anticipated risks or impacts;</p> <p>c) failure to implement the C-ESMP e.g. failure to provide required training or sensitization;</p> <p>d) failing to have appropriate consents/permits prior to undertaking Works or related activities;</p> <p>e) failure to submit ESHS report/s (as described in Appendix B), or failure to submit such reports in a timely manner;</p> <p>f) Failure to implement remediation as instructed by the Engineer within the specified timeframe (e.g. remediation addressing non-compliance/s).</p>	
(*)14.8	Alternative method for Payment of Retention	On reaching the limit of retention, stated in the Contract Data under Sub-Clause 14.3, the Contractor may substitute full retention money with an unconditional guarantee acceptable to the Employer to a value equal to the full retention money, and valid up to 28 Days beyond the end of Defect Notification Period. On receipt of such guarantee the Employer shall repay the full retention money. The guarantee will be released to the Contractor upon the certification of the Engineer that all Defects notified by the Engineer to the Contractor before the end of this period have been corrected.

(*) 18.2	Third Party Insurance	<p>This Amount of insurance per occurrence is:</p> <table border="1"> <thead> <tr> <th></th><th>Minimum Insurance Amount</th><th>Maximum Deductible</th></tr> </thead> <tbody> <tr> <td>(a) for the works, Plant and materials:</td><td>110% of the contract Price</td><td>Rs 50,000/-</td></tr> <tr> <td>(b) For loss or damage to equipment</td><td>Replacement value of the Equipments</td><td>Rs 50,000/-</td></tr> <tr> <td>(c) for losses or damage to property (except the works, plant, Materials, and Equipment) in connection with Contract</td><td>Rs 1.0 million</td><td>Rs 50,000/-</td></tr> <tr> <td>(d) for personal injury or death:</td><td>Rs 1,000,000 per employee</td><td>No Deductible</td></tr> <tr> <td>(i) of the Contractor's employees per event</td><td></td><td></td></tr> <tr> <td>(ii) of other people per event</td><td>Rs 1,000,000 per person</td><td>No Deductible</td></tr> </tbody> </table>		Minimum Insurance Amount	Maximum Deductible	(a) for the works, Plant and materials:	110% of the contract Price	Rs 50,000/-	(b) For loss or damage to equipment	Replacement value of the Equipments	Rs 50,000/-	(c) for losses or damage to property (except the works, plant, Materials, and Equipment) in connection with Contract	Rs 1.0 million	Rs 50,000/-	(d) for personal injury or death:	Rs 1,000,000 per employee	No Deductible	(i) of the Contractor's employees per event			(ii) of other people per event	Rs 1,000,000 per person	No Deductible
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	<p><u>Clause 19.0 Claims, Disputes and Arbitration</u> Delete existing sub-clause 19.2 (Dispute Resolution), Delete existing sub-clause 19.3 (Procedure for Adjudication), Delete existing sub-clause 19.4 (Replacement of Adjudicator), Delete existing sub-clause 19.5 (Arbitration), and insert the following new sub-clauses;</p> <p>19.2 Appointment of the Dispute Adjudication Board 19.3 Failure to Agree on the Composition of the Dispute Adjudication Board 19.4 Obtaining Dispute Adjudication Board's Decision 19.5 Failure to Comply with Dispute Adjudication Board's Decision 19.6 Expiry of Dispute Adjudication Board's Appointment 19.7 Arbitration</p>																						

19.2	Appointment of the Dispute Adjudication Board	<p>Any dispute of whatever nature arising out of or in relation to this agreement shall in the first instance be referred to a Dispute Adjudication Board (DAB) for decision in accordance with Sub-Clause 19.4 [Obtaining Dispute Adjudication Board's Decision]. The Parties shall appoint a DAB within 28 Days from the Commencement Date.</p> <p>The DAB shall comprise, three suitably qualified persons ("the members"), who shall be professionals experienced in the type of construction involved in the Works and with the interpretation of contractual documents, one of whom shall serve as chairman.</p> <p>Within 28 Days from the Commencement Date each of the Parties shall appoint one member to serve on the Dispute Adjudication Board (DAB). The Parties shall consult both these members and shall agree upon the third member, who shall be appointed to act as the chairman.</p> <p>The agreement between the Parties and each of the three members shall incorporate by reference the General Conditions of Dispute Adjudication Agreement contained in the Appendix to these Contract Data, with such amendments as are agreed between them.</p> <p>The terms of the remuneration of the three members, including the remuneration of any expert whom the DAB consults, shall be mutually agreed upon by the Parties when agreeing the terms of appointment of the member or such expert (as the case may be). Each Party shall be responsible for paying one-half of this remuneration</p> <p>If a member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, a replacement shall be appointed in the same manner as the replaced person was required to have been nominated or agreed upon, as described in this Sub-Clause.</p> <p>The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the appointment of the DAB (including each member) shall expire when the discharge referred to in Sub-Clause 14.11 [Discharge] shall have become effective.</p>
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19.3	Failure to Agree on the Composition of the Dispute Adjudication Board	<p>If any of the following conditions apply, namely:</p> <ul style="list-style-type: none"> (a) either Party fails to nominate a member of a DAB by such date, (b) the Parties fail to agree upon the appointment of the third member (to act as chairman) of the DAB by such date, or (c) the Parties fail to agree upon the appointment of a replacement person within 42 Days after the date on which the one of the three members declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, <p>Then Institute for Construction Training and Development (ICTAD) shall, upon the request of either or both of the Parties and after due consultation with both Parties, appoint this member of the DAB. This appointment shall be final and conclusive. Each Party shall be responsible for paying one-half of the expenses / disbursements incurred by ICTAD.</p>
19.4	Obtaining Dispute Adjudication Board's Decision	<p>If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Engineer, either Party may refer the dispute in writing to the DAB for its decision, with copies to the other Party and the Engineer. Such reference shall state that it is given under this Sub-Clause.</p> <p>The DAB shall be deemed to have received such reference on the date when it is received by the chairman of the DAB.</p> <p>Both Parties shall promptly make available to the DAB all such additional information, further access to the Site, and appropriate facilities, as the DAB may require for the purposes of making a decision on such dispute. The DAB shall be deemed to be not acting as arbitrator(s).</p>

		<p>Within 84 Days after receiving such reference, or within such other period as may be proposed by the DAB and approved by both Parties, the DAB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.</p> <p>If either Party is dissatisfied with the DAB's decision, then either Party may, within 28 Days after receiving the decision, give notice to the other Party of its dissatisfaction and intention to commence arbitration. If the DAB fails to give its decision within the period of 84 Days (or as otherwise approved) after receiving such reference, then either Party may, within 28 Days after this period has expired, give notice to the other Party of its dissatisfaction and intention to commence arbitration.</p> <p>In either event, this notice of dissatisfaction shall state that it is given under this Sub-Clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in Sub-Clause 19.5 [Failure to Comply with Dispute Adjudication Board's Decision] and Sub-Clause 19.6 [Expiry of Dispute Adjudication Board's Appointment], neither Party shall be entitled to commence arbitration of a dispute unless a notice of dissatisfaction has been given in accordance with this Sub-Clause.</p> <p>If the DAB has given its decision as to a matter in dispute to both Parties, and no notice of dissatisfaction has been given by either Party within 28 Days after it received the DAB's decision, then the decision shall become final and binding upon both Parties.</p>
19.5	Failure to Comply with Dispute Adjudication Board's Decision	<p>In the event that a Party fails to comply with a DAB decision which has become final and binding, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under Sub-Clause 19.7 [Arbitration]. Sub-Clause 19.4 [Obtaining Dispute Adjudication Board's Decision] shall not apply to this reference.</p>

19.6	Expiry of Dispute Adjudication Board's Appointment	<p>If a dispute arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works and there is no DAB in place, whether by reason of the expiry of the DAB's appointment or otherwise:</p> <p>(a) Sub-Clause 19.4 [Obtaining Dispute Adjudication Board's Decision] shall not apply, and</p> <p>(b) the dispute may be referred directly to arbitration under Sub-Clause 19.7 [Arbitration].</p>
19.7	Arbitration	<p>(a) Any dispute of whatever nature arising from, out of or in connection with this agreement, on the interpretation thereof, or the rights, duties, obligations or liabilities of any Party, or the operation, breach, termination, abandonment, foreclosure or invalidity thereof, shall be referred to by either Party to arbitration for final settlement, in accordance with the Arbitration Act No. 11 of 1995, or any amendment thereof.</p> <p>(b) Pending the award in any arbitration proceedings hereunder,</p> <p>(i) this Contract and the rights and obligations of the Parties shall remain in full force and effect and</p> <p>(ii) each of the Parties shall continue to perform their respective obligations under this Contract. The termination of this Contract shall not result in the termination of any arbitration proceedings pending at the time of such termination nor otherwise affect the rights and obligations of the Parties under or with respect to such pending arbitration.</p> <p>(c) Any award rendered by the arbitral tribunal shall determine the extent to which the cost of arbitration is to be borne by each Party. The arbitration centre charges and the compensation to the arbitrator shall be equally shared by the Parties initially.</p>

		<p>Composition of the Arbitral Tribunal: The arbitral tribunal shall consist of a sole arbitrator who shall be appointed in the manner provided in the Selection Procedure as given below.</p> <p>Selection Procedure: The Party desiring arbitration shall nominate three arbitrators out of which one to be selected by the other Party within 21 Days of the receipt of such nomination. If the other Party does not select one to serve as Arbitrator within the stipulated period then the Arbitrator shall be appointed in accordance with the Arbitration Act No. 11 of 1995, or any amendments thereof.</p> <p>Venue & Language: The venue of arbitration shall be in Sri Lanka. Unless otherwise agreed to by the Parties the proceedings shall be conducted and the award shall be rendered in the English language.</p>
	<p>In the following sub-clauses the term “Performance Security” is replaced with: “Performance Security and, if applicable, an Environmental, Social, Health and Safety (ESHS) Performance Security”:</p> <p>2.1- Right of Access to the Site 14.2- Advance Payment 14.5- Issue of Interim Payment Certificate 14.11- Discharge 15.5- Employer’s Entitlement to Termination for Convenience 16.4(a)- Payment on termination”</p>	

APPENDIX TO CONTRACT DATA

APPENDIX A

A General Conditions of Dispute Adjudication Agreement

1. Definitions

Each “Dispute Adjudication Agreement” is a tripartite agreement by and between:

- (a) the “Employer”;
- (b) the “Contractor”; and
- (c) the “Member” who is defined in the Dispute Adjudication Agreement as being one of the three persons who are jointly called the “DAB” (or “Dispute Adjudication Board”) and, where this is the case, the other two persons are called the “Other Members.”

The Employer and the Contractor have entered (or intend to enter) into a contract, which is called the “Contract” and is defined in the Dispute Adjudication Agreement, which incorporates this Appendix. In the Dispute Adjudication Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

2. General Provisions

Unless otherwise stated in the Dispute Adjudication Agreement, it shall take effect on the latest of the following dates:

- (a) the Commencement Date defined in the Contract,
- (b) when the Employer, the Contractor and the Member have each signed the Dispute Adjudication Agreement, or
- (c) when the Employer, the Contractor and each of the Other Members have respectively each signed a Dispute Adjudication Agreement.

This employment of the Member is a personal appointment. At any time, the Member may give not less than 70 Days notice of resignation to the Employer and to the Contractor, and the Dispute Agreement shall terminate upon the expiry of this period.

3. Warranties

The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor and the Engineer. The Member shall promptly disclose, to each of them and to the Other Members, any fact or circumstance which might appear inconsistent with his/her warranty and agreement of impartiality and independence.

When appointing the Member, the Employer and the Contractor relied upon the Member’s representations that he/she is:

- (a) experienced in the work which the Contractor is to carry out under the Contract,
- (b) experienced in the interpretation of contract documentation, and
- (c) fluent in the language for communications defined in the Contract.

**4. General
Obligations of the
Member**

The Member shall:

- (a) have no interest financial or otherwise in the Employer, the Contractor or Engineer, nor any financial interest in the Contract except for payment under the Dispute Adjudication Agreement;
- (b) not previously have been employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Adjudication Agreement;
- (c) have disclosed in writing to the Employer, the Contractor and the Other Members, before entering into the Dispute Adjudication Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Employer, the Contractor or the Engineer, and any previous involvement in the overall project of which the Contract forms part;
- (d) not, for the duration of the Dispute Adjudication Agreement, be employed as a consultant or otherwise by the Employer, the Contractor or the Engineer, except as may be agreed in writing by the Employer, the Contractor and the Other Members;
- (e) comply with the annexed procedural rules and with Sub-Clause 19.4 (Obtaining Dispute Adjudication Board's Decision) of the Conditions of Contract;
- (f) not give advice to the Employer, the Contractor, the Employer's Personnel or the Contractor's Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;
- (g) not while a member enters into discussions or make any agreement with the Employer, the Contractor or the Engineer regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Adjudication Agreement;
- (h) ensure his/her availability for all site visits and hearings as are necessary;
- (i) become conversant with the Contract and with the progress of the Works (and of any other parts of the project of which the Contract form's part) by studying all documents received which shall be maintained in a current working file;
- (j) treat the details of the Contract and all the DAB's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor and the Other Members; and
- (k) be available to give advice and opinions, on any matter relevant to the Contract when requested by both the Employer and the Contractor, subject to the agreement of the Other Members.

**5. General
Obligations of the
Employer and the
Contractor**

The Employer, the Contractor, the Employer's Personnel and the Contractor's Personnel shall not request advice from or consultation with the Member regarding the Contract, otherwise than in the normal course of the DAB's activities under the Contract and the Dispute Adjudication Agreement. The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer's Personnel and the

Contractor's Personnel respectively.

The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor, the Member and the Other Members:

- (a) be appointed as an arbitrator in any arbitration under the Contract;
- (b) be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or
- (c) be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member's functions, unless the act or omission is shown to have been in bad faith.

The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he is relieved from liability under the preceding paragraph.

Whenever the Employer or the Contractor refers a dispute to the DAB under Sub-Clause 19.4 (Obtaining Dispute Adjudication Board's Decision) of the Conditions of Contract, which will require the Member to make a site visit and attend a hearing, the Employer or the Contractor shall provide appropriate security for a sum equivalent to the reasonable expenses to be incurred by the Member. No account shall be taken of any other payments due or paid to the Member.

6. Payment

The Member shall be paid as follows:

- (a) a retainer fee per calendar month, which shall be considered as payment in full for:
 - (i) being available on 28 Days' notice for all site visits and hearings;
 - (ii) becoming and remaining conversant with all project developments and maintaining relevant files;
 - (iii) all office and overhead expenses including secretarial services, photocopying and office supplies incurred in connection with his duties; and
 - (iv) all services performed hereunder except those referred to in subparagraphs (b) and (c) of this Clause.

The retainer fee shall be paid with effect from the last day of the calendar month in which the Dispute Adjudication Agreement becomes effective; until the last day of the calendar month in which the Taking-Over Certificate is issued for the whole of the Works.

With effect from the first day of the calendar month following the month in which the Taking-Over Certificate is issued for the whole of the Works, the retainer fee shall be reduced by 50%. This reduced fee shall be paid until the first day of the calendar month in which the Member resigns or the Dispute Adjudication Agreement is otherwise terminated.

- (b) a daily fee which shall be considered as payment in full for:
 - (i) each day or part of a day up to a maximum of two Days travel time in each direction for the journey between the Member's home and the site, or another location of a meeting with the Other Members;
 - (ii) each working day on Site visits, hearings or preparing decisions; and
 - (iii) each day spent reading submissions in preparation for a hearing.
- (c) all reasonable expenses including necessary travel expenses (hotel and subsistence and other direct travel expenses) incurred in connection with the Member's duties, as well as the cost of telephone calls, courier charges, and faxes: a receipt shall be required for each item in excess of five percent of the daily fee referred to in sub-paragraph (b) of this Clause.

The retainer and daily fees shall be as specified in the Dispute Adjudication Agreement. Unless it specifies otherwise, these fees shall remain fixed for the entire duration of the Contract.

The Member shall submit invoices for payment of the monthly retainer quarterly in advance. Invoices for other expenses and for daily fees shall be submitted following the conclusion of a site visit or hearing. All invoices shall be accompanied by a brief description of activities performed during the relevant period and shall be addressed to the Contractor.

The Contractor shall pay each of the Member's invoices in full within 56 calendar days after receiving each invoice and shall apply to the Employer (in the Statements under the Contract) for reimbursement of one-half of the amounts of these invoices. The Employer shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Adjudication Agreement, the Employer shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the DAB; and without prejudice to the Employer's rights or remedies. In addition to all other rights arising from this default, the Employer shall be entitled to reimbursement of all sums paid in excess of one-half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Sub-Clause 14.7 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 70 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice under Clause 7.

7. Termination

At any time: (i) the Employer and the Contractor may jointly terminate the Dispute Adjudication Agreement by giving 42 Days' notice to the Member; or (ii) the Member may resign as provided for in Clause 2.

If the Member fails to comply with the Dispute Adjudication Agreement, the Employer and the Contractor may, without prejudice to their other rights, terminate it by notice to the Member. The notice shall take effect when received by the Member.

If the Employer or the Contractor fails to comply with the Dispute Adjudication Agreement, the Member may, without prejudice to his other rights, terminate it by notice to the Employer and the Contractor. The notice shall take effect when received by them both.

Any such notice, resignation and termination shall be final and binding on the Employer, the Contractor and the Member. However, a notice by the Employer or the Contractor, but not by both, shall be of no effect.

8. Default of the Member

If the Member fails to comply with any of his obligations under Clause 4 (a) - (d) above, he shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members, for proceedings or decisions of the DAB which are rendered void or ineffective by the said failure to comply.

If the Member fails to comply with any of his obligations under Clause 4 (e) - (k) above, he shall not be entitled to any fees or expenses hereunder from the date and to the extent of the non-compliance and shall, without prejudice to their other rights, reimburse each of the Employer and the Contractor for any fees and expenses already received by the Member, for proceedings or decisions of the DAB which are rendered void or ineffective by the said failure to comply.

9. Disputes

Any dispute or claim arising out of or in connection with this Dispute Adjudication Agreement, or the breach, termination or invalidity thereof, shall be finally settled in accordance with Arbitration Act No 11, 1995 of Sri Lanka with a sole Arbitrator..

PROCEDURAL RULES

1. Unless otherwise agreed by the Employer and the Contractor, the DAB shall visit the site at intervals of not more than 70 days, including times of critical construction events, at the request of either the Employer or the Contractor. Unless otherwise agreed by the Employer, the Contractor and the DAB, the period between consecutive visits shall not be less than 35 days, except as required to convene a hearing as described below.
2. The timing of and agenda for each site visit shall be as agreed jointly by the DAB, the Employer and the Contractor, or in the absence of agreement, shall be decided by the DAB. The purpose of site visits is to enable the DAB to become and remain acquainted with the progress of the Works and of any actual or potential problems or claims, and, as far as reasonable, to endeavor to prevent potential problems or claims from becoming disputes.
3. Site visits shall be attended by the Employer, the Contractor and the Engineer and shall be co-ordinated by the Employer in co-operation with the Contractor. The Employer shall ensure the provision of appropriate conference facilities and secretarial and copying services. At the conclusion of each site visit and before leaving the site, the DAB shall prepare a report on its activities during the visit and shall send copies to the Employer and the Contractor.
4. The Employer and the Contractor shall furnish copy each to the members of the DAB all documents which the DAB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the performance of the Contract. All communications between the DAB and the Employer or the Contractor shall be copied to the other Party.
5. If any dispute is referred to the DAB in accordance with Sub-Clause 19.4 (Obtaining Dispute Adjudication Board's Decision) of the Conditions of Contract, the DAB shall proceed in accordance with Sub-Clause 19.4 (Obtaining Dispute Adjudication Board's Decision) and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DAB shall:
 - (a) act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case, and
 - (b) adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.
6. The DAB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.
7. Except as otherwise agreed in writing by the Employer and the Contractor, the DAB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer, the Contractor and the Engineer, and to proceed in the absence of any party who the DAB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.
8. The Employer and the Contractor empower the DAB, among other things, to:
 - (a) establish the procedure to be applied in deciding a dispute,
 - (b) decide upon the DAB's own jurisdiction, and as to the scope of any dispute referred to it,
 - (c) conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Guidelines,

- (d) take the initiative in ascertaining the facts and matters required for a decision,
 - (e) make use of its own specialist knowledge, if any,
 - (f) decide upon the payment of financing charges in accordance with the Contract,
 - (g) decide upon any provisional relief such as interim or conservatory measures, and
 - (h) open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute.
9. The DAB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DAB shall make and give its decision in accordance with Sub-Clause 19.4 (Obtaining Dispute Adjudication Board's Decision), or as otherwise agreed by the Employer and the Contractor in writing. The DAB:
- (a) shall convene in private after a hearing, in order to have discussions and prepare its decision;
 - (b) shall endeavor to reach a unanimous decision: if this proves impossible the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and
 - (c) Member fails to attend a meeting or hearing, or to fulfill any required function, the other two Members may nevertheless proceed to make a decision, unless:
 - (i) either the Employer or the Contractor does not agree that they do so, or
 - (ii) the absent Member is the chairman and he/she instructs the other Members to not make a decision.

DISPUTE ADJUDICATION AGREEMENT

[for each member of a three - person DAB]

Name and details of Contract
Name and address of Employer
Name and address of Contractor
Name and address of Member

Whereas the Employer and the Contractor have entered into the Contract and desire jointly to appoint the Member to act as one of the three persons who are jointly called the Dispute Adjudication Board (DAB) [and desire the Member to act as chairman of the DAB]

The Employer, Contractor and Member jointly agree as follows:

1. The conditions of this Dispute Adjudication Agreement comprise the “General Conditions of Dispute Adjudication Agreement” which is appended to the General Conditions of the “Standard Bidding Document, Procurement of Works, Major Contracts - Second Edition, January 2007” and the following provision. In these provisions, which include amendments and additions to the General Conditions of Dispute Adjudication Agreement, words and expressions shall have the same meanings as are assigned to them in the General Conditions of Dispute Adjudication Agreement.
2. [Details of amendments to the General Conditions of Dispute Adjudication Agreement, if any

For example:

In the procedural rules annexed to the General Conditions of Dispute Adjudication Agreement, Rule _____ is deleted and replaced by: “.....”]
3. In accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement the Member shall be paid as follows:

A retainer fee of _____ per calendar month,
plus a daily fee of _____ per day.
4. In consideration of these fees and other payments to be made by the Employer and the Contractor in accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement, the Member undertakes to serve, as described in this Dispute Adjudication Agreement, as one of the three persons who are jointly to act as the DAB.
5. The Employer and the Contractor jointly and severally undertake to pay the Member, in consideration of the carrying out of these services, in accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement.
6. This Dispute Adjudication Agreement shall be governed by the law of _____

SIGNED by: _____

for and on behalf of the employer
in the presence of

Witness: _____

Name: _____

Address: _____

Date: _____

SIGNED by: _____

for and on behalf of the Contractor
in the presence of

Witness: _____

Name: _____

Address: _____

Date: _____

SIGNED by: _____

the Member
in the presence of

Witness : _____

Name : _____

Address : _____

Date: _____

APPENDIX B

Environmental, Social, Health and Safety (ESHS)

Metrics for Progress Reports

Metrics for regular reporting:

- a. environmental incidents or non-compliances with contract requirements, including contamination, pollution or damage to ground or water supplies;
- b. health and safety incidents, accidents, injuries and all fatalities that require treatment;
- c. interactions with regulators: identify agency, dates, subjects, outcomes (report the negative if none);
- d. status of all permits and agreements:
 - i. work permits: number required, number received, actions taken for those not received;
 - ii. status of permits and consents:
 - List areas/facilities with permits required (quarries, asphalt & batch plants), dates of application, dates issued (actions to follow up if not issued), dates submitted to resident engineer (or equivalent), status of area (waiting for permits, working, abandoned without reclamation, decommissioning plan being implemented, etc.);
 - list areas with landowner agreements required (borrow and spoil areas, camp sites), dates of agreements, dates submitted to resident engineer (or equivalent);
 - identify major activities undertaken in each area in the reporting period and highlights of environmental and social protection (land clearing, boundary marking, topsoil salvage, traffic management, decommissioning planning, decommissioning implementation);
 - for quarries: status of relocation and compensation (completed, or details of activities and current status in the reporting period).
- e. health and safety supervision:
 - i. safety officer: number days worked, number of full inspections & partial inspections, reports to construction/project management;
 - ii. number of workers, work hours, metric of PPE use (percentage of workers with full personal protection equipment (PPE), partial, etc.), worker violations observed (by type of violation, PPE or otherwise), warnings given, repeat warnings given, follow-up actions taken (if any);
- f. worker accommodations:
 - i. number of expats housed in accommodations, number of locals;

- ii. date of last inspection, and highlights of inspection including status of accommodations' compliance with national and local law and good practice, including sanitation, space, etc.;
- iii. actions taken to recommend/require improved conditions, or to improve conditions.
- g. HIV/AIDS: provider of health services, information and/or training, location of clinic, number of non-safety disease or illness treatments and diagnoses (no names to be provided);
- h. gender (for expats and locals separately): number of female workers, percentage of workforce, gender issues raised and dealt with (cross-reference grievances or other sections as needed);
- i. training:
 - i. number of new workers, number receiving induction training, dates of induction training;
 - ii. number and dates of toolbox talks, number of workers receiving Occupational Health and Safety (OHS), environmental and social training;
 - iii. number and dates of HIV/AIDS sensitization and/or training, no. workers receiving training (in the reporting period and in the past); same questions for gender sensitization, flag person training.
 - iv. number and date of GBV /SEA sensitization and/or training, number of workers receiving training on code of conduct (in the reporting period and in the past), etc.
- j. environmental and social supervision:
 - i. environmentalist: days worked, areas inspected and numbers of inspections of each (road section, work camp, accommodations, quarries, borrow areas, spoil areas, swamps, forest crossings, etc.), highlights of activities/findings (including violations of environmental and/or social best practices, actions taken), reports to environmental and/or social specialist/construction/site management;
 - ii. sociologist: days worked, number of partial and full site inspections (by area: road section, work camp, accommodations, quarries, borrow areas, spoil areas, clinic, HIV/AIDS center, community centers, etc.), highlights of activities (including violations of environmental and/or social requirements observed, actions taken), reports to environmental and/or social specialist/construction/site management; and
 - iii. Community liaison person(s): days worked (hours community center open), number of people met, highlights of activities (issues raised, etc.), reports to environmental and/or social specialist /construction/site management.
- k. Grievances: list new grievances (e.g. allegations of GBV / SEA) received in the reporting period and unresolved past grievances by date received, complainant, how received, to whom referred to for action, resolution and date (if completed), data resolution reported to complainant, any required follow-up (Cross-reference other sections as needed):
 - i. Worker grievances;

- ii. Community grievances
- l. Traffic and vehicles/equipment:
 - i. traffic accidents involving project vehicles & equipment: provide date, location, damage, cause, follow-up;
 - ii. accidents involving non-project vehicles or property (also reported under immediate metrics): provide date, location, damage, cause, follow-up;
 - iii. overall condition of vehicles/equipment (subjective judgment by environmentalist); non-routine repairs and maintenance needed to improve safety and/or environmental performance (to control smoke, etc.).
- m. Environmental mitigations and issues (what has been done):
 - i. dust: number of working bowsters, number of waterings/day, number of complaints, warnings given by environmentalist, actions taken to resolve; highlights of quarry dust control (covers, sprays, operational status); % of rock/spoil lorries with covers, actions taken for uncovered vehicles;
 - ii. erosion control: controls implemented by location, status of water crossings, environmentalist inspections and results, actions taken to resolve issues, emergency repairs needed to control erosion/sedimentation;
 - iii. quarries, borrow areas, spoil areas, asphalt plants, batch plants: identify major activities undertaken in the reporting period at each, and highlights of environmental and social protection: land clearing, boundary marking, topsoil salvage, traffic management, decommissioning planning, decommissioning implementation;
 - iv. blasting: number of blasts (and locations), status of implementation of blasting plan (including notices, evacuations, etc.), incidents of off-site damage or complaints (cross-reference other sections as needed);
 - v. spill cleanups, if any: material spilled, location, amount, actions taken, material disposal (report all spills that result in water or soil contamination);
 - vi. waste management: types and quantities generated and managed, including amount taken offsite (and by whom) or reused/recycled/disposed on-site;
 - vii. details of tree plantings and other mitigations required undertaken in the reporting period;
 - viii. details of water and swamp protection mitigations required undertaken in the reporting period.
- n. compliance:
 - i. compliance status for conditions of all relevant consents/permits, for the Work, including quarries, etc.): statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance;
 - ii. compliance status of C-ESMP/ESIP requirements: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance

- iii. compliance status of GBV/SEA prevention and response action plan: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance
- iv. compliance status of Health and Safety Management Plan re: statement of compliance or listing of issues and actions taken (or to be taken) to reach compliance
- v. other unresolved issues from previous reporting periods related to environmental and social: continued violations, continued failure of equipment, continued lack of vehicle covers, spills not dealt with, continued compensation or blasting issues, etc. Cross-reference other sections as needed.

For Reference Only

For Reference Only

Section - 5

Standard Forms (Contract)

- Letter of Acceptance
- Agreement
- Performance Security
- ESHS Performance Security
- Advance Payment Security
- Retention Money Guarantee
- ESHS Declaration

Notes on Form of Letter of Acceptance

The Letter of Acceptance will be the basis for formation of the Contract as described in Clause 34 of the Instructions to Bidders. This Form of Letter of Acceptance should be filled in and sent to the successful bidder only after evaluation of Bids and after obtaining approval from the relevant authority.

FORM OF LETTER OF ACCEPTANCE

[Letter heading paper of the procuring entity]

..... *[date]*

To: *[name and address of the Contractor]*

This is to notify you that your bid dated *[insert date]* for the construction and remedying defects of the **Rehabilitation of Welimaruthamadu Tank Downstream. LK-MoMDE-317179-CW-RFB** for the Contract price of*[name of currency]*.....
.....*[amount in figures and words]* as corrected in accordance with Instructions to Bidders and/or modified by a Memorandum of Understanding, is hereby accepted.

You are hereby instructed to proceed with the execution of the said Works in accordance with the Contract documents.

The Commencement Date shall be: *(fill the date as per Clause 8.1 of Conditions of Contract).*

The amount of Performance Security is : *(fill the amount as per Clause 4.2 of Conditions of Contract).*

The Performance Security shall be submitted on or before *(fill the date as per Clause 4.2 of Conditions of Contract).*

Authorized Signature :

Name and title of Signatory :

FORM OF AGREEMENT

This Agreement made the [day] of [month] 200..... [year], between [name and address of Employer] (hereinafter called and referred to as “the Employer”), of the one part, and [name and address of Contractor] (hereinafter called and referred to as “the Contractor”), of the other part:

Whereas the Employer desires that the Contractor execute **Rehabilitation of Welimaruthamadu Tank Downstream. LK-MoMDE-317179-CW-RFB** (hereinafter called and referred to as “the Works”) and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and remedying of any defects therein.

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract.
2. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execute and complete the Works and remedy any defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

In Witness whereof the parties hereto have caused this Agreement to be executed the day and year aforementioned in accordance with laws of Sri Lanka.

.....

Authorized signature of Contractor

.....

Authorized signature of Employer

COMMON SEAL

COMMON SEAL

In the presence of
Witnesses :

1. Name and NIC No.
Signature
Address
2. Name and NIC No.
Signature
Address

**FORM OF PERFORMANCE SECURITY
(Unconditional)**

----- *[Issuing Agency's Name, and Address of Issuing Branch or Office]* -----

Beneficiary: ----- *[Name and Address of Employer]*

Date: -----

PERFORMANCE GUARANTEE No.: -----

We have been informed that ----- *[name of Contractor]* (hereinafter called "the Contractor") has entered into Contract No. **LK-MoMDE-317179-CW-RFB** dated ----- with you, for the ----- *[insert "construction"]* of **Rehabilitation of Welimaruthamadu Tank Downstream**. (hereinafter called "the Contract").

Furthermore, we understand that, according to the Conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we ----- *[name of Agency]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ----- *[amount in figures]* (-----) *[amount in words]*, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the day of, 20.. *[insert date, 28 days beyond the Time for Completion]* and any demand for payment under it must be received by us at this office on or before that date.

[signature(s)]

Form of Environmental, Social, Health and safety (ESHS) Performance Security

ESHS Demand Guarantee

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[insert name and Address of Employer]*

Date: *_ [Insert date of issue]*

ESHS PERFORMANCE GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that _____ (hereinafter called "the Applicant") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____),¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its Environmental and/or Social and/or Health and/or Safety (ESHS) obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the Day of, 2...², and any demand for payment under it must be received by us at this office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

¹ The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency (cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.

² Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Employer should note that in the event of an extension of this date for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

[signature(s)]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

For Reference Only

FORM OF ADVANCE PAYMENT SECURITY

----- [Name and address of Agency, and Address of Issuing Branch or Office] -----

Beneficiary: ----- [Name and Address of Employer]

Date: -----

ADVANCE PAYMENT GUARANTEE No.: -----

We have been informed that ----- [name of Contractor] (hereinafter called "the Contractor") has entered into Contract No. **LK-MoMDE-317179-CW-RFB** dated ----- with you, for the ----- construction of **Rehabilitation of Welimaruthamadu Tank Downstream**. (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum ----- [amount in figures] (-----) [amount in words] is to be made against an advance payment guarantee.

At the request of the Contractor, we ----- [name of issuing agency] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ----- [amount in figures] (-----) [amount in words] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation in repayment of the Advance Payment under the Contract.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor.

This guarantee shall expire on [Insert the date, 28 days beyond the Time of Completion]

Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

[signature(s)]

FORM OF RETENTION MONEY GUARANTEE

----- *[Issuing Agency's Name, and Address of Issuing Branch or Office]* -----

Beneficiary: ----- *[Name and Address of Employer]* -----

Date: -----

RETENTION MONEY GUARANTEE No.: -----

We have been informed that ----- *[name of Contractor]* (hereinafter called "the Contractor") has entered into Contract No. **LK-MoMDE-317179-CW-RFB** *[reference number of the contract]* dated ----- with you, for the execution of **Rehabilitation of Welimaruthamadu Tank Downstream**. (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, when the works have being taken over and the first half of the Retention Money has been certified for payment, payment of the second half of the Retention Money may be made against a Retention Money guarantee.

At the request of the Contractor, we ----- *[name of agency]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ----- *[amount in figures]* (-----) *[amount in words]* upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor has not attended to the defects in accordance with the Contract..

This guarantee shall expire, at the latest, ----- *[insert 28 Days after the end of the Defects Liability Period]*. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

[signature(s)]

Form of ESHS Declaration

Date: _____
 Bid No.: _____

To: _____

We, the undersigned, declare that civil work contracts *have/ have not been* suspended or terminated and/or performance security called by an employer for reasons related to the non-compliance of any environmental, or social, (including sexual exploitation and abuse (SEA) and gender based violence (GBV)), or health or safety requirements or safeguard in the past five years.

(Note: If suspended, terminated or Performance Security is called give details)

Year	Suspended or terminated portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and US\$ equivalent)
[insert year]	[insert amount and percentage]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Employer: [insert full name] Address of Employer: [insert street/city/country] Reason(s) for suspension or termination: [indicate main reason(s) e.g. for GBV/ SEA breaches]	[insert amount]
...	...	[list all applicable contracts]	...
Performance Security called by an employer(s) for reasons related to ESHS performance			
Year	Contract Identification		Total Contract Amount (current value, currency, exchange rate and US\$ equivalent)
[insert year]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Employer: [insert full name] Address of Employer: [insert street/city/country] Reason(s) for calling of performance security: [indicate main reason(s) e.g. for GBV/ SEA breaches]		[insert amount]

Signed: _____

In the capacity of _____

Name: _____

Duly authorized to sign the bid for and on behalf of: _____

Dated on _____ day of _____, _____

Corporate Seal (where appropriate)

For Reference Only

Section - 6

Specifications

For Reference Only

For Reference Only

Specifications

Technical Specifications relevant to this contract consist of two parts.

Part 1 - General Technical Specifications

CIDA/SP/102 [1st Edition – January 2017] – ‘Specifications for Irrigation and Drainage Works’, are applicable as the general specifications for the Civil Works of this Contract.

These publications are not issued with the Bidding Document package and the Bidder/Contractor should obtain them from a suitable source.

Part 2 - Particular Technical Specifications

Particular Technical Specifications includes project specific specifications and conditions of particular specification which includes modifications and amplifications to the Standard Specifications given in General Technical Specifications.

1. Introduction

The following Particular Technical Specifications are part of the requirements for the work related to the Civil Works which are to be provided according to the stipulation of the Contract. Hence, the instructions given herein form an integral part of the, and are applicable to, all technical and Contract documents issued for Works. Addenda to these specifications may be issued as required during construction phase with both party agreements.

These Particular Technical Specifications shall be read in conjunction with the General Technical Specifications (ICTAD), the Conditions of Contract and the Bidding Drawings. The Contractor shall comply with all provisions contained within Contract documents.

The General Technical specifications and the Particular Technical Specifications in conjunction with the Bidding drawings define the technical standard and quality to be achieved during construction.

The Particular Technical Specifications relevant to this contract are given in the following Sub Sections.

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It is the intent of these Specifications, together with other relevant documents issued as part of the Contract Documents or to follow later on, to provide the Contractor with complete and detailed information and subsequent instructions necessary to enable him to carry out the design, where and when required, and to execute properly the work prescribed.

It is the intent of these Particular Specifications to establish acceptable standards of quality. On the other hand, they shall also allow the construction of the Works in an efficient and economical way. Minor deviations in details due to selected work procedures and due to the manufacturer's standard shop process will be considered for acceptance provided that, in the opinion of the Engineer, the proposed substitutions are equal in quality to those specified.

The Drawings available shall serve as a basis for detail design drawings to be produced by the Contractor. All work shall be executed according to the Drawings and requirements released for construction, in a professional and diligent manner, and all supplies and work shall comply with the quality requirements defined in the relevant Sections of these Specifications and other Contract Documents. The Contractor shall provide all necessary efforts to comply with the intent of the General and Particular Specifications to the satisfaction of the Engineer.

CONTRACTOR'S SUBMITTALS AND ENGINEER'S APPROVAL

The Contractor shall provide the Engineer with all submittals as requested in these Specifications and other Contract Documents. Although their extent shall be to the discretion of the Contractor, they shall be complete enough to illustrate adequately their intent and facilitate full for the understanding of the Engineer.

At any time, the Engineer may call for additional information, completion of the submittals. The Contractor shall submit these documents to the Engineer so that, even if not specifically expressed, reasonable time will be given to the Engineer to comment or approve the submittals.

The approval of the Engineer shall always be given in written form prior to the commencement of any work under this Contract and the Contractor shall not be paid for any work that is performed without the express written approval or instruction by the Engineer.

CONTRACTOR'S QUALITY ASSURANCE SYSTEM

As per Clause 4.17 General Conditions of Contract, the Contractor shall institute a quality assurance system to demonstrate that the Works are being carried out in compliance with the requirements of the Contract. The Contractor shall, within 28 days from the receipt of Letter of Acceptance, submit the quality assurance system he is proposing to adopt in the Contract.

The Contractor shall build the quality assurance system for all his activities from the commencement to completion of the Contract. The system shall include but not limited to the following.

- Contractors site management
- Topographic surveys and setting out
- Construction Drawings
- Safety measures adopted
- Environmental Management
- Traffic Management
- Maintenance of Roads
- Construction Methods adopted
- Quality Control
- Progress monitoring
- Monthly Bills

The quality assurance system instituted by the Contractor is a requirement under the Contract and no payment will be made to the Contractor for this work.

SITE INSTALLATION, SERVICES AND ENVIRONMENTAL OBLIGATIONS

Scope of work

The Contractor shall be responsible for providing plant, equipment, materials and labour for the provision of all necessary site installations, temporary works and services adequate for the realization of the works under this Contract.

The Contractor shall design, furnish, install, maintain and operate all site installations, temporary works and Contractor's equipment for his own use and for the use of the Engineer and Subcontractors, and as required for third parties, including workshops, warehouses, storage and assembly areas, all machinery, vehicles, scaffolding, equipment, water and power supply, etc.

Site installations, temporary works and services provided by the Contractor for his own use as well as for that of the Engineer or for third parties shall conform to the applicable standards, codes and sanitary requirements set down by the Sri Lankan authorities for such purpose.

The construction, operation and maintenance of the Contractor's site installations, temporary works and services shall be subject to inspection and written consent by the Engineer.

The scope of the works includes but is not limited to following site installation parts:

- a) All temporary structures required for the performance of the works such as access roads, temporary construction roads or temporary working platforms.
- b) Stores, Warehouses, Materials Yards.
- c) Materials testing laboratory.
- d) Construction equipment.
- e) Power supply and illumination.
- f) Water supply.
- g) Sanitation, sewerage and waste disposal.
- h) Communication System.
- i) Site security

All installations of any Subcontractors shall comply with these Specifications.

Submittals

Within 30 days from the date of contract award the Contractor shall submit to the Engineer updated layout plans showing, at adequate scale, the locations and arrangement of all site installations. These plans shall be consistent with the plan submitted by the Contractor with his Bid as well as with any amendments and additions.

Within 14 days from the date of contract award the Contractor shall submit to the Engineer an updated project schedule showing all the activities he intends to perform to meet his obligations in his contract and to complete the works within its stipulated time for completion. This baseline schedule will be used for monitoring progress each month and for evaluating the impacts of any departures from the baseline schedule.

Prior to construction works

The Contractor shall carry out all necessary surveying work required for the approved performance of the works and shall ensure that the position and elevation of all works thus constructed are correct. The measuring methods and devices used must meet the standard of accuracy required for this purpose.

ACCESS WORKS

The construction and maintenance of permanent and temporary access roads or access ramps from public roads to the sites, including crossings, shall be the Contractor's responsibility to the approval of the Engineer.

In general, all roads within the site area shall be the Contractor responsibility, construction and maintenance, during the works until final handover to the Engineer.

Proper maintenance of all roads being used by the Contractors during the entire construction period, both permanent existing ones as well as temporary roads, shall be the Contractor's responsibility.

Additional roads and ramps which have to be built to transport equipment and materials shall be constructed by the Contractor at his own expense and with the Engineer's prior approval, and the maintenance of such roads during the construction period shall also be at the Contractor's expense. The same applies for existing public roads and bridges used by the Contractor in the vicinity of the site for the execution of the works.

Any work, improvement or modification at the existing access roads made by the Contractor, for his own convenience, and without being ordered by the Engineer, shall be at the Contractor's own risk and expense.

If any damage or pollution occurs during the execution of the works, the Contractor must restore and clean the roads immediately at his own cost.

After completion of the Contract and before delivering the work to the Engineer (final takeover), all temporary structures shall be removed to the satisfaction of the Engineer.

ROAD ACCESS TO THE SITE

Transport of Materials

Prior to moving any heavy construction traffic onto highways, roads and bridges, the Contractor shall make suitable arrangements with the appropriate Government Authorities and obtain their approval for the passage of such traffic.

Special Protection

Where Government Authorities require and specify any special protection or strengthening of highways, roads and bridges. The Contractor shall submit to the Engineer his proposals for such work after their approval by the authority concerned and shall carry-out this work as directed.

Tracked Vehicles

The Contractor shall not travel tracked vehicles or plant on any bituminous sealed road surface. Rubber-tired vehicles conforming to applicable load restrictions will be permitted to use bituminous sealed roads.

CONSTRUCTION OF ADDITIONAL ROADS

The Contractor shall design, construct, and maintain all temporary access and haul roads to, in, and around his camp area, the various working sites and designated borrow and disposal areas, required for the Works. These roads shall include all associated drainage and stream crossing facilities. The location of these roads shall be in accordance with the Contractor's proposals submitted with his Tender.

During the period of the Contract, the Contractor shall allow the Employer and such other parties free and unrestricted use of all access and haul roads and shall not restrict the access of authorized persons to these roads, look-outs or viewing points as may be instructed.

CONTRACTOR'S OFFICES, CAMP AND FACILITIES

General

The Contractor shall provide a main office and site offices for his staff. The main office shall be located in the vicinity of the dam site. Site offices may be mobile field offices so that, when work at one site is complete, the office may be moved to another site. The Engineer will allocate a portion of the Works area at the dam site where the Contractor shall provide and maintain such offices, stores, workshops, housing and adequately fenced store and delivery compounds as are necessary for the execution of the Works,

including all necessary services for water supply, drainage, lighting, roads, paths, parking places, sewerage and garbage disposal.

Construction Camp

The Contractor shall set up his camp as proposed in his Tender for housing, camps and for other required facilities and amenities for his employees and for the employees of his sub-contractors.

The Contractor shall be deemed to have inspected these sites and made his own evaluation as to their adequacy and suitability for the development of the required camp facilities.

The Contractor shall appoint a Camp Manager who shall be responsible for the administration and maintenance, and for all matters relating to the allocation of space, discipline and use of buildings and facilities.

All buildings shall always be open to inspection by the Engineer. Any instruction given by the Engineer for the proper cleaning, disinfection and general maintenance of any building in the sanitary and hygienic condition of any building must be forthwith carried-out by the Contractor. Before any buildings are occupied the Contractor shall draw up a code of rules and regulations for their control which shall be approved by the Engineer.

Stores, warehouse, workshops, and material yards

The Contractor shall provide and equip, for his own and his Subcontractors' use, warehouses, materials storage areas and fuel storage areas, all of which shall be maintained in good condition until the completion of works.

Listed hereunder are the buildings, workshops and warehouses expected to be constructed and equipped by the Contractor for use in the performance of the work under this Contract, in addition to facilities explicitly specified elsewhere in these specifications:

- a) Workshop and service facilities for vehicles and construction equipment
- b) Main warehouse and parts store
- c) Storage facilities for all materials applied within the conduction of the rehabilitation works

TEMPORARY WORKS

General

The Contractor shall execute, erect, maintain and remove upon completion of the Works, all Temporary Works in accordance with the proposals submitted with the Tender or with such modifications as approved by the Engineer from time to time.

Approval of Temporary Works

The Contractor shall submit to the Engineer for approval drawings and full particulars of all Temporary Works which he intends to construct at least 30 days before he desire to commence constructing such works.

The submission to, or approval by, the Engineer of any such proposals by the Contractor shall not relieve the Contractor of any of his responsibility for the sufficiency of the Temporary Works for their intended purpose.

The Contractor shall also obtain any necessary approval from local statutory or other Government authorities before commencing construction. Such work shall not be started without prior approval.

CONTRACTOR'S EQUIPMENT

The Contractor shall supply, install, operate, maintain, and subsequently remove all the Contractor's equipment required for the execution of the Works. In particular, the Contractor shall supply all those items listed on the Technical Proposal in the Contract at the time stated therein or at such other time as may be deemed necessary in the opinion of the Engineer.

The Contractor's equipment shall not be removed from the Site without the written approval of the Engineer. If during the execution of the Works any item of the Contractor's equipment in the opinion of the Engineer, is unsuitable so as to fail to perform the services required in the execution of the Works, the Contractor shall replace such construction equipment with another suitable one at his own cost.

The Engineer may, if he considers it necessary for the execution of the Works in accordance with the Contract, order the Contractor to supply additional items of Contractor's equipment or extend the period for which the Contractor's equipment is required. The Contractor shall supply and stock all essential spare parts for his equipment to ensure the efficient execution of the Works.

The Contractor shall submit a Monthly Equipment Report, which lists the following information about the Contractor's equipment.

- a. List of all equipment located at the Site.
- b. Daily working and operation record of each item of equipment.
- c. Inspection, repair and maintenance records.
- d. Quality of work.
- e. Quantities of fuel, lubricant, oil and tires consumed.
- f. Overhauling record.
- g. Accident report.
- h. List of unserviceable equipment and action being taken to put back in operation

UTILITIES

Power supply and illumination

The Contractor shall supply, install, operate and maintain an adequate power supply system and illumination for running the site and other site installation facilities during the whole construction period. The concept shall be approved by the Engineer.

Water supply

The Contractor shall provide, install, operate and maintain adequate and suitable water supplies for the works within the contract including storage for drinking purposes, sanitation, construction, cleaning, testing and commissioning of the various equipment items and plant components of the construction lot.

The water supplies shall be continuously available during working hours and rated to meet the maximum demand required during construction on the basis of 'firm supply' and shall supply all temporary installations.

The drinking water provided shall at all times meet the criteria of the local health authority.

Sanitation, sewerage, and waste disposal

The installations shall meet the requirements of the local health authorities and environmental regulations.

The Contractor shall collect waste material and garbage from the site on a daily basis and transport it to an approved area where it shall be treated and disposed of in accordance with local environmental requirements.

The Site shall be always kept clean and free of refuse. No waste shall be dumped in areas other than those approved by the Engineer for waste disposal. No waste of any kind shall be deposited in any water courses.

DEMOBILIZATION/ REMOVAL OF TEMPORARY WORKS

On completion of the Works, all Temporary Works constructed by the Contractor or handed-over to the Contractor by the Engineer, unless otherwise specified or instructed by the Engineer, shall be removed from the Site, as approved by the Engineer.

The Contractor shall make safe all areas affected by Temporary Works and reinstate natural drainage. The Contractor shall finish, reinstate, clean up and relinquish parts of the Site at the end of the Defects Liability Period or such earlier times as instructed by the Engineer.

Buildings and facilities removed from the Site will become the Contractor's property. Foundations of buildings and structures shall be broken up and removed from the Site.

ENVIRONMENTAL OBLIGATIONS

The Contractor shall, during the whole period of the works comply fully with all national Sri Lankan laws and regulations relating to environmental protection, mitigating measures for reducing environmental impacts and remedial works on completion of the works. This obligation shall extend to the construction sites themselves and all of the Contractor's site installations.

Notwithstanding any specific obligations as these may be specified in prevailing Sri Lankan laws and regulations, the Contractor shall at all times comply with the following particular requirements for the protection of the environment, the local population and the workers at the construction site:

Collect, treat, remove from site and dispose of in accordance with the regulations and to the satisfaction of the Engineer all domestic and industrial waste and excess construction materials (both solid and liquid), fuel, chemicals and other matter.

All excavated areas shall be filled, graded, and dressed in a clean and orderly condition acceptable to the Engineer. As far as possible such areas should conform to the natural appearance of the landscape.

- Make every effort to minimize the harmful effects of transport to and from the site, in particular vehicle emissions and noise and the control of dust on roads.
The Contractor shall maintain close contact with local representatives and government institutions in addressing issues arising from the construction activities. Such issues needing particular attention are the following.
- Pollution caused by construction work.
- Disruption to the local community
- Disputes related to the use of land for construction activities and/or site installations etc.
- Disputes arising from traffic congestion and restrictions on the use of the main project access road and roads in the project area.
- All matters relating to road safety and the reduction to a minimum of the risk of traffic accidents.

SOCIAL OBLIGATIONS

As far as may be reasonably practicable, the Contractor shall recruit his unskilled labour from those persons from the local community who may apply for work. Suitably skilled workers in the local community should also be recruited wherever practicable.

SAFETY AND HEALTH PRECAUTIONS

General

This section covers the precautions that have to be taken for the health and safety of all personnel on Site that the Contractor and his Sub-Contractors shall apply in all civil construction and equipment erection works during the construction time.

Safety precautions

SAFETY PROGRAMME AND ITS IMPLEMENTATION

A safety program shall detail policies, procedures, and plans which the Contractor intends to implement to ensure the safety and health of his employees. It shall comply with the standards and regulations in force in the country of the works applicable to construction safety.

The Contractor shall designate a competent employee specially trained and experienced to act as Safety Officer, who will administer and be responsible for the implementation of the safety program. He shall carry out frequent and regular safety inspections of the working areas, materials, and equipment. The name and qualifications of the Safety Officer shall be submitted for approval to the Engineer prior to his appointment.

The Contractor shall be responsible for the implementation of health and safety provisions for his subcontractors employed at Site.

All serious and fatal injuries and diseases caused by the progress of work shall be immediately investigated by the Contractor and a comprehensive report shall be submitted to the Engineer.

In case of a fatal accident, only rescue and emergency teams and operations shall be permitted at the place of the occurrence until the Engineer gives permission to resume normal operations.

SAFETY STANDARDS

In addition to the requirements of the following specified herein, the Contractor shall comply with all currently applicable safety documents and/or organizations:

SAFETY OF PERSONNEL

The Contractor shall be responsible for the safety of all personnel on the Site and shall provide his employees and his sub-contractors employees working on the Site, the Engineer's staff and all visitors to the Site with safety equipment appropriate to the tasks upon which they are engaged, including helmets, high visibility vests or jackets, safety footwear and, where required, gloves, lamps, waterproof clothing, dust masks and/or safety belts. The use of such safety equipment shall be compulsory, as deemed necessary by the Engineer.

During drilling works and in areas where the personnel are exposed to harmful noise levels and dust, ear protectors and masks shall be furnished and required to wear.

Employees engaged in work having an inherent danger of eye or face injury shall be furnished and required to wear protective glasses, goggles or masks. Where irritant or toxic substances may come in contact with the skin or clothing, employees shall be wearing protective clothing or shall be required to apply a protective ointment by a competent physician.

Personnel working on steep slopes or otherwise subject to possible falls from levels not protected by fixed guardrails or safety nets, shall be secured by safety belts and lifelines.

Portable ladders shall be wooden or steel ladders sufficiently strong and of suitable size for the use intended. Wooden ladders shall have the steps fixed to the longitudinal posts by assembly. The use of ladders with steps nailed or wired along the longitudinal posts is not permitted.

SECURITY OF PERSONNEL AND WORKING AREAS

The Contractor shall always take the necessary measures to ensure the safety and security of all persons, work, and property. This shall include but not be limited to the following:

- Access control to all areas related to the works
- Installation of fences
- Security patrols

MAINTENANCE OF TRAFFIC AND SAFETY ON ROADS AND SITE

The Contractor shall be responsible for the safety on the roads related to the Site. He shall take all necessary precautions for the protection of the work and the safety of the public on the roads affected by his activities. Where the work will be carried out at the site of, or close to an existing road, the Contractor shall maintain the vehicular and pedestrian traffic safe at all times. If his operations can cause traffic hazards, he shall repair or fence or take other measures for ensuring safety which are satisfactory to the Engineer.

Roads subjected to interference with the work shall be kept open or suitable detours shall be provided and maintained by the Contractor, who shall provide, erect, and maintain all necessary barricades, suitable and sufficient flashlights, flagmen, danger signals, and signs.

Roads which will be closed to traffic shall be protected by effective barricades on which acceptable warning and detour signs shall be placed. All barricades and all lights shall be kept burning from sunset to sunrise.

The Contractor shall provide all necessary signs for the Works. These shall include, but not be limited to;

- Standard road signs
- Warning signs
- Danger signs
- Safety signs
- Control signs; and
- Direction signs

Wording on all signs shall be in the English, Tamil and Sinhalese languages. The size, colour, lettering and location of all signs will be subject to approval of the Engineer and the international sign convention shall, where applicable, be followed.

The Contractor shall maintain all signs placed by himself as well as those placed by the Employer.

The Contractor shall submit his weekly activities schedule and the locations of his work along the existing public roads to the authorities concerned and obtain all necessary approvals prior to commencement of the respective work.

The Contractor shall provide temporary passes and bridges to give an access to the existing villages, houses, etc., to the satisfaction of the Engineer and the authorities concerned whenever he disturbs such existing ways during the execution of the works.

WEATHER PRECAUTIONS

In order that the works may proceed according to the programme, the Contractor is to undertake at his expense all necessary precautions for protection against inclement weather, which shall be subject to the approval of the Engineer.

Health precautions

FIRST AID

Prior to the commencement of construction, the Contractor shall organize and train a first aid team composed of his employees. This team shall be capable of rendering help after accidents.

The first aid team shall be organized in such a way that sufficient number of members will be ready for action at any time until the completion of the work.

The team members shall be instructed and trained for their task by a qualified and experienced person. Each team member shall be skilled in giving first aid, dealing with appliances for artificial respiration, and firefighting equipment.

and shall possess a good local knowledge. Adequate equipment for reaching even the remotest working area shall be at their disposal.

The Contractor shall submit the details of the proposed first aid team organization to the Engineer for approval.

NOISE CONTROL

The Contractor shall take the provisions required to assure that noise from his construction activities and from the operations of any plants are within the limits established by the WHO for the health of his personnel or shall provide his personnel with ear protectors. Ear protectors shall be provided to all personnel subject to noise levels above 85 dB on a continuous basis during work shifts.

DESIGN DOCUMENTS AND CONSTRUCTION DRAWINGS

Contract Documents

The Contractor will be provided with one set of the Contract Documents for his own use. A complete set of Contract Documents supplied by the Employer and all further instructions issued by him shall be always kept by the Contractor on the Site and made available to the Engineer and his staff.

Construction Drawings

Based on the Bidding drawings assigned design engineers shall develop designs and prepare associated design documents and construction drawings to be approved by the Engineer. The Contractor shall ensure that design work is only allocated to personnel with adequate qualifications and relevant experience to perform the required tasks whereby drawings and calculations shall be signed by qualified personnel responsible for the design. All drawings and calculations submitted for approval shall be signed, checked, and signed by the Contractor prior to submission.

All Contractor's working drawings and shop drawings required to be submitted for approval in accordance with the Specification, shall be provided in electronic format (AutoCAD computer software)

and 03 printed copies, plus copies of design calculations where required, specification and parts catalogues in duplicate. Within 30 days after receiving such designs, design calculations, parts catalogues, specifications and detailed drawings, the Engineer shall give his approval or request modifications. The Contractor shall modify the design and drawings as may be required by the Engineer. The Contractor will be responsible for the control of the design activities performed as well as their verification. The Contractor shall control and document any revised information in the same manner as drawings and specifications, to assure correct communication through the design interfaces.

The work shall be constructed in accordance with the approved drawings, and a copy of such drawings shall be kept on the Site at all times until the completion of the Contract. All drawings on which changes are made shall have the revisions clearly marked.

Construction, fabrication or manufacture of any portion of the Works shall not commence until the design and drawings have been approved in writing by the Engineer and thereafter no change shall be made to any drawings so approved without the permission of the Engineer. Permission to make such changes shall be requested by sending 01 electronic copy and 01 print of each revised drawing to the Engineer for approval.

As-built Drawings

The Contractor shall submit the 4 copies of "As-built Drawings" on a format agreed between the Contractor and Engineer.

During the construction and commissioning period any variations between the "Construction Drawings" and the "As-built Drawings" shall be agreed between the Contractor and Engineer at site. These As-built drawings shall be prepared from the Construction drawings incorporating any authorized changes carried out during construction. Once completed these drawings shall become the property of the Employer and shall be submitted before issue of the Taking-over certificate.

All agreed modifications will be marked up by the Contractor's draughtsman and included on the originals at site. A complete set of these mark ups shall remain at site. The Contractor shall allow for the provision of a draughtsman as required at site to co-ordinate and include all modifications on the drawings. The originals shall then be returned to the Contractor's head office, and these shall form the basis of the "As-built Drawings".

The Contractor shall submit to the Engineer all final revisions of all original drawings depicting the "As-built" situation for the works. All drawings and documents prepared exclusively for the project shall become the property of the Engineer.

Final drawing prints shall be size A1 or smaller. Reproducible of the final drawings shall be supplied as follows:

- 2 prints of each drawing to the Engineer.
- 2 CDs with original AutoCAD drawing files to the Engineer.

Where drawings are reduced, an appropriate scale shall be included on the reduced print. To accompany the drawings, the Contractor shall provide a Master Schedule of "As Built" drawings.

SITE SUPERVISION, CONSTRUCTION PROGRAMME AND REPORTS

Site supervision

The Contractor is responsible for providing proper supervision of his site activities by employing suitably qualified and experienced site management and supervisory personnel so that he can carry out his obligations under the Contract.

For the Contractor's information, the Engineer has issued a Construction Supervision Manual, which is intended for use by the Engineer and his staff for the supervision of the works. This manual includes standard forms which will be used during construction for control of the work. It is available to view in the office of the Engineer.

Construction and Contractual Program

- a. Within 01 month of the award of Contract, the Contractor shall submit a revision of the construction program attached to the Tender, for approval.
 - ✓ The construction program shall be prepared using the latest computer software such as MS Project or other similar software approved by the Engineer. This program in Gantt chart form shall outline the Contractor's activities necessary to complete the Works within the stipulated time period. The program shall show the following minimum details:
 - ✓ The duration, sequence and logic links between major activities and any other activities or group of activities which comprise the Works, necessary to define the critical path and logic of the program required for completion and to achieve the Time for Completion. For the purpose of this clause, major activities are those which are greater than one percent of the Contract Price;
 - ✓ The planned dates for start and completion of the Works and each Section of the Works;
 - ✓ The critical path(s) for the Works and each Section of the Works;
 - ✓ Information on shutdown periods, vacation days and other non-working time periods;
 - ✓ The estimated value of work to be done each month;
 - ✓ Reasons for any changes to timing, work order, method, or resources from the program submitted at the time of tender, or if submitting an updated construction program, reasons for such changes from the previously submitted program.

The construction program submitted in accordance with the provisions of this clause shall in the opinion of the Engineer be reasonable in all respects. The Contractor's program, when approved, shall be known as the Contractual Program.

- b. Whenever the Contractor proposes to change the Contractual Program, he shall immediately advise the Engineer in writing and if the Engineer considers the change is a major one, the Contractor shall submit a revised program for approval. If such a change in the program affects the Engineer's design and the drawing approval program, the Employer will not be responsible for the consequences of the late issue of any drawings, which are attributable to that change.

- c. If the Contractor falls behind the revised Contractual Program he shall, within 14 days of the date of such default, submit for approval a revision of the program showing the proposed measures, including additional plant, labour and material resources, to complete the Permanent Works on time.
- d. When instructed, the Contractor shall promptly furnish a detailed sub-program of the Contractual Program for particular sections of the Permanent Works.
- e. The Contractor shall also attend weekly meetings with the Engineer and provide, not less than 2 days prior to each meeting as required by the Engineer, detailed programs showing separately the various activities of the Contractor anticipated over the forthcoming two-week period as well as the progress achieved over the preceding week relative to the program applicable to that period.

Monthly Progress Report

Before the tenth day of each month, the Contractor shall submit three copies of a monthly progress report in a form acceptable to the Engineer detailing the progress during the preceding month. The monthly progress report shall show the amount of work completed, materials actually used, materials in storage and the cumulative results of all operations completed or in progress and shall be summarized in terms of percentage of completion referenced to the approved programme for the works.

The monthly progress report shall include at least the following:

- ✓ Total percentage of work completed, and total percentage programmed to be completed by the end of the reporting period.
- ✓ Actual percentage of each main work items completed including temporary works, as well as their scheduled percentage, both total and for the reporting period together with the estimated quantities.
- ✓ List of manpower by trade and by position for the reporting period.
- ✓ List of equipment and operational days for the reporting period and materials on site at the end of the period.
- ✓ Description of weather conditions for the period including records of each rainfall duration and recorded water levels of the Tank.
- ✓ List of any accident except of minor nature and any damage that occurred.
- ✓ Any matter which affected or may affect the progress of the work, problems encountered and proposed remedial measures.
- ✓ Colour photographs with imprinted date, not smaller than 100 mm by 150 mm of the work progress during the period for all major components of the Works. The Contractor shall also provide digital versions as well as 5 sets of hard copies of these photographs in albums with titles.

Further the Contractor shall submit financial statements, purchasing and expediting reports, shipping reports, and any other data which the Engineer may reasonably ask for. Additional to the photographs included in the progress reports, the Contractor shall arrange for the taking of progress colour photographs every month, covering all aspects of the work. Two copies of such photographs, suitably dated and captioned, shall be submitted to the Engineer, plus a CD with all relevant files.

The Contractor shall submit the final report not later than one month after completion of the work. This report shall include all relevant information related to the works in a format approved by the Engineer. The Contractor shall submit to the Engineer one copy of the draft report. The final report shall be submitted in triplicate. The final report shall also be made available electronically in pdf format or alternative approved format. The submission of the final report shall follow within one week of acceptance of the draft report.

Dealing with Water

General

Where it is required that construction shall proceed with flow of water in streams and/or issue of irrigation water to canals, it shall be necessary to isolate the site of the structure to be constructed from the flow of water by the construction of suitable cofferdams, canals, flumes, drains, swamps and/or other temporary diversion and protective works without interruption or interference with the flow of water in the streams and/or issue in the canal. The contractor shall construct sufficient temporary works as described above to deal adequately with surface and ground water sources to enable the construction of the permanent works to the satisfaction of the Engineer.

The Contractor shall submit for the approval of the Engineer the location, size and other relevant details including the materials proposed for the construction of the temporary works described above. The contractor shall protect the works during the entire construction period from damage due to rains, surface run-off, floods, etc. and from failure of the temporary protective works constructed by him. Any damage to the works or delay to his operations from such events, whether due to his failure to adequately take such factors into consideration or not shall be corrected by the contractor and will not constitute a basis for claims for additional payment or extension of time. The Contractor shall furnish, maintain, and operate all necessary pumps and other equipment for removal of water from the various parts of the works free from water as required for construction. After having served their purpose, all temporary protective works, unless otherwise directed, shall be removed, or levelled to give a sightly appearance, so as not to interfere with the operation of the other related works.

Unless specifically provided for in the Bill of Quantities, no separate payment will be made for dealing with water. The cost of all operations required for dealing with water shall be included in the respective items of work for which dealing with water is required.

APPROVAL OF PROPOSALS FOR DEALING WITH WATER

Prior to commencement of any works, the Contractor shall submit a Plan for Dealing with Water with full details of the construction, operation, maintenance, and removal of the temporary protective works.

Right of Use water in the reservoir for cultivation

The farmers will cultivate both Maha and Yala during construction period without foregoing any season. The contractor shall prepare the construction program based on the cultivation pattern and the instruction given by the engineer to Contract. Irrigators and farmers shall have the right to use, without charge, the reservoir water for cultivation as per the cultivation meeting decisions and the access facilities of which the Engineer has given possession to the Contractor or which have been constructed or acquired by the Contractor for use in constructing the Works.

REMOVAL OF WATER FROM FOUNDATIONS

The Contractor's method of removal of water from foundation excavations shall be subject to the approval of the Engineer. Where the excavation for foundations extends below the water table in common material, the portion below the water table shall be de-watered in advance of excavation. The de-watering shall be accomplished in a manner that will maintain the stability of the excavated slopes and the bottom of the excavation and will result in all construction operations being performed in the dry.

The Contractor shall be required to ensure that the bottom of the excavation is free of water prior to placement of concrete or filling material. Such control may require supplementing approved de-watering methods by the use of perforated pipe under-drains leading to sums from which the water shall be pumped. The pipe drains shall be of uniform diameter for each run and provided with grout connections and returns at about 15-meter intervals and shall be embedded in reasonable well graded gravel or similar filter material.

During the placing and compacting of fill material in an excavated cut off trench, the water level at every point in the cut off trench shall be maintained below the bottom of the cut off trench until the compacted fill in the cut off trench at the point has reached a height of 3 meters. Therefore, the water level shall be maintained at 1.5 meters below the top of the compaction fill. When the fill has reached an elevation which will permit the de-watering systems to maintain the water level at or below the designated elevations as determined to the Engineer, the pipe drains, if any, and surrounding filter material shall be filled with approved grout composed of water and cement or clay.

CARE OF WATER

Scope of work

The Contractor shall provide all methods, procedures, labour and materials necessary to protect all existing works under construction and all personnel and equipment. Further he shall design, build, install, operate, maintain, and dismantle any temporary dewatering facilities required to remove service water and natural surface flow or groundwater seepage from the working areas.

Submittals

After the date of issue of the Notice to Commence, the Contractor shall present the Engineer with conceptual details, designs, method statements, procedures and emergency plans for all required protection and dewatering systems.

Extent of the works

The work under “Care of Water” to be performed under this Contract shall include but not be limited to:

- Construction and maintenance of temporary cofferdams, drains and other protective works;
- Supply and installation, operation and maintenance of pumping systems for dewatering;
- Control and drainage of the water inflows on surfaces against which concrete shall be poured; and
- Handling of the water supply to areas downstream of the dam during construction.

Care of water during construction comprises all necessary measures to protect the works from the effects of water from any source during the construction period. The Contractor shall be fully responsible for the care of water during the construction of the works, including the construction of the upstream and downstream cofferdams, the sealing of their foundation and the handling of the water supply during construction.

The Contractor shall submit with his Tender his proposal and method statement for taking care of water during construction including quantity, type, capacity, arrangement, location, etc., of all required equipment.

The Contractor shall also submit with his Tender his proposal and method statement for the design and construction of the cofferdams and the handling of the water supply for the downstream users during construction.

All works shall be executed in accordance with the specifications of this Contract and in agreement with the Engineer. The approval given by the Engineer shall not relieve the Contractor from being fully responsible for the protection of the works.

Execution

DRAINAGE AND DEWATERING SYSTEMS

The Contractor shall design, furnish, construct and install, operate and maintain all care of water facilities, including cofferdams, drainage systems etc. necessary to maintain all work areas as free as possible from water during construction. This shall include all necessary labour, materials, equipment, power supplies and auxiliary works as required for a safe and dry construction of the works.

The water inflow existing on surfaces or against which concrete shall be poured shall be collected through steel and/or plastic pipes or other approved methods and conveyed to drainage ditches and pits. These water collectors shall be sufficient to drain all concentrated water inflows and also possible scattered water inflow that can affect the quality of concrete at the moment of pouring.

The Engineer's approval of any care of water facility under the Contractor's responsibility shall not relieve the Contractor of the full responsibility for any adverse event which may result from the inadequacy of failure of the protective structures.

DEWATERING

General

The Contractor shall furnish, operate and maintain all necessary pumps, pipes and other dewatering devices as necessary for keeping all work areas free from water. The Contractor shall be held liable for any damage caused by the failure of the drainage and dewatering systems.

The Contractor shall prepare and submit to the Engineer the design of all temporary drainage and dewatering systems and all auxiliary works required for safe and continuous operation of the drainage and dewatering system throughout the period of the works.

The design and installation shall be such that alterations and extensions of the system during operation are possible.

Diverted or pumped water shall be discharged at locations from which it cannot re-enter the work areas and in a manner which does not cause erosion, pollution, or nuisance to other persons within or adjacent to the site.

Duration of drainage and dewatering

Drainage and dewatering shall continue until construction works are completed to a stage where drainage and dewatering are no longer necessary to prevent damage to the works or neighboring works whether from flooding, hydrostatic pressures, flotation or by any other means to prevent hindrances of any kind.

The ceasing of drainage and dewatering measures requires the approval of the Engineer. The removal of dewatering systems and the abandoning, removal or closing of drainage systems requires the express permission of the Engineer.

Pumping systems and power supply

To remove water from various sections of the work and to handle the water supply to areas downstream of the site, pumping systems of sufficient capacity shall be provided. This shall include the supply, installation, operation and maintenance of all items comprising the pumping system.

The Contractor shall seize his power supply and distribution system to have sufficient standby capacity to continue necessary dewatering work in case of failure of his main generating system.

Ready for service condition

The Contractor shall maintain ready for service and regularly clean all dewatering equipment and accessories and shall keep all accesses clear so that they can safely be used without the risk of accidents.

COFFERDAMS

All cofferdams shall be designed, constructed, and maintained by the Contractor. The complete design of the cofferdams including all calculations, specifications of materials, proposed construction procedures, provisions for protection of existing or already completed works, provisions for protection against erosion, any necessary support work shall be submitted for the approval of the Engineer prior to the commencement of the work. No work shall be started without the written approval of the Engineer.

The Contractor shall be entirely responsible for the water tightness and maintenance of the cofferdams, care of water as well as safety of the works including sole liability for damages due to erosion and/or piping inside the cofferdam.

Where required by the different phases of the work, the Contractor shall modify, remove, or dismantle and reconstruct the cofferdams as approved or directed by the Engineer.

On completion of the works, the Contractor shall remove or dismantle all cofferdams as approved or directed by the Engineer. The materials shall be brought to the approved location and according to the requirements of paragraph 3 of this specification.

Setting out Works

Existing Survey Data

The Tender drawings included in the bidding document are prepared based on the surveys carried-out by the Engineer during the design stage.

Responsibility for Setting Out

The Contractor shall be solely responsible for the correct setting-out of the Works and shall employ experienced qualified surveyors acceptable to the Engineer for this purpose.

The Contractor shall furnish all materials, labor and equipment including stakes, templates, patterns, platforms and special labor that may be required by the Contractor in setting out any part of the Works.

The Contractor shall give the Engineer not less than 24 hours' notice of his intention to set out, survey or give levels for any part of the Works in order that arrangements can be made for checking the accuracy of the setting out, survey or levels. In order that the Engineer can expedite such checking the Contractor shall as soon as practical supply the Engineer with records in an approved form relating to all reference pegs and benchmarks in connection to the set out, survey or levels for any part of the Works which are required to be checked.

Contractor's Site Staff

The Contractor shall provide competent qualified survey technicians and the necessary support teams to carry-out all survey necessary to set out the Works in a neat and workmanlike manner.

Survey Operatives for the Engineer

The Contractor shall supply chainmen and laborers as required by the Engineer who are well experienced in such work. Chainmen shall be experienced in assisting Engineer in survey work.

It shall be the discretion of the Engineer to select chainmen and laborers whom he considers reliable and suitable and the Contractor shall maintain the continuity of this staff.

Permanent Survey Pillars

Using the existing temporary benchmarks shown on the Drawings the Contractor shall establish permanent survey pillars sufficient to define the control survey and as directed. The permanent survey pillars shall be linked to the national map grid and their coordinates shall be shown on the As-Built Drawings.

Establishment of these permanent survey pillars shall be undertaken before any of the existing survey point markers are destroyed by the Contractor's operations.

Detailed Survey

The Contractor shall perform all calculations, surveying and setting out necessary to establish the accurate location of the structures to be constructed.

The Contractor shall submit for the review of the Engineer the methods he intends to employ and the precision he will attain for the setting-out of the Works.

The Contractor shall, under guidance and in the presence of the Engineer, carry-out surveys and measurements for record and payment purposes in accordance with the Conditions of Contract.

In the Engineer's own surveying for checking the Contractor's survey results, the Contractor shall render the Engineer all necessary assistance and services for such check surveys.

SURFACE EXCAVATION

Scope of work

This section covers all surface excavation work to be performed under this Contract, which shall consist of removing all existing material of whatever nature to the lines and grades shown on the drawings or as otherwise directed by the Engineer in writing. This work shall include excavating, ripping, loading, hauling, double handling and disposal of materials in designated spoil or stockpile areas, according to these Specifications.

Submittals

Prior to the commencement of any surface excavation, the Contractor shall submit in writing to the Engineer details of the proposed excavation methods and sequences, including necessary safety precautions. Prior to dumping or stockpiling any material, the Contractor shall submit in writing the layout of spoil or stockpile areas to the Engineer and wait the approval in writing. All pertinent data of working methods and provisions for the security, stability and temporary and permanent drainage of the areas shall be included by the Contractor. Details of volumes, material types, heights and grades shall be provided.

Lines and grades

The final excavation grades shall in general be rock of specified quality. However, where the final excavation grades are defined by line and grade, the Contractor shall take every precaution and use the most appropriate method of excavation, to avoid the loosening of material or the breaking of rock beyond the lines and grades shown on the drawings. Loose weathered rock shall be removed.

The bottoms of all excavations shall be trimmed to line and grade to the satisfaction of the Engineer.

If, for any reason, excavation is carried out beyond the lines and grades shown on the drawings, the Contractor shall remove the excess material and take the necessary measures to restore the required lines and grades with approved backfill or concrete, at his own expense.

Should the Contractor wish to excavate beyond the limits given on the drawings for his own convenience, he may do so, at his own expense but only with the prior written approval of the Engineer.

Slopes, slides, geological overbreak and unsuitable foundations

If geological conditions during the performance of the work do not permit excavation of slopes as shown on the drawings, or where the material is unsuited to forming a firm foundation for the structures, the Contractor shall modify the drawings accordingly or issue a direct request to the Engineer to change the grades. The prior written approval of the Engineer is mandatory.

If, in the Contractor's opinion the slopes as shown on the drawings are objectionable, and in his opinion should be changed, he shall obtain the written agreement of the Engineer prior to starting the work on such modified excavation.

If overbreak, slides or rock falls occur, which are due to improper working methods or negligence by the Contractor, and the effective excavated surfaces are beyond the excavation lines shown on the drawings, the Contractor shall remove all excessive material and place suitable and approved backfill material in the excavated voids. This work and material shall not be paid.

Execution

The surface excavation shall be performed by any approved method using any excavating and hauling equipment suitable for the work in accordance with the submitted detailed plans and time schedule or approved modifications thereof. The work areas shall be kept dry and drained.

The work areas shall be kept dry and drained at all times during construction.

All final or remaining surfaces shall be protected against damage by erosion and travel of the construction equipment with methods proposed by the Contractor and approved by the Engineer in writing. Any damage caused shall be repaired by the Contractor.

The Contractor shall exercise particular care when excavating in the vicinity of existing structures or those under construction. He shall reinstate any damage to structures or equipment caused by his operations, at his own cost.

The Contractor shall protect the subsoil and particularly the ground water from contamination by fuel or oil from his equipment.

CLEARING AND GRUBBING.

Clearing means the removal, transport and appropriate disposal of all trees, brush, stumps, fences, existing structures, spoil, debris and other obstructions in the areas to be occupied by the Permanent works, surfaces of borrow and quarry areas, spoil and stockpile areas, and where interfering with the procedure or functioning of the work.

Grubbing means the removal, transport and disposal of all roots, buried logs, foundations of structures (except concrete or masonry in mortar) and other materials foreign to the natural topsoil in the areas to be occupied by Permanent works and surfaces of borrow and quarry areas.

Clearing and grubbing work shall be performed either manually or with mechanical equipment. The Contractor shall make every reasonable effort to salvage such material which may be put to beneficial use.

All materials from clearing and grubbing work shall remain the Employer's property but the Contractor may, subject to written approval from the Engineer, retain any material for his use. Materials which the Contractor does not wish to use shall be disposed of in an approved manner.

Materials to be burnt shall be piled neatly in such a manner and in such locations as to not cause any fire risk and shall be burnt completely so that all material is reduced to ashes.

The Contractor shall have suitable equipment and supplies for fighting fire during the burning of material and shall take all necessary precautions to prevent fire from spreading. Toxic materials such as tyres etc. shall not be burnt but disposed of in the approved manner.

STRIPPING AND LOOSE EXCAVATION

Stripping consists of removing all rubbish, humus, vegetable material and all or part of the organic topsoil in the areas and to the depth as indicated on the drawings or as otherwise directed by the Engineer.

Loose Excavation means general excavation of material such as organic topsoil, clay, silt, sand, gravel, and boulders of up to 75mm thickness and soft or disintegrated rock, which can be removed by common earth moving equipment without ripping or blasting.

Stripping and loose excavation shall be accomplished by proper excavation and hauling equipment suitable for the work which allows for an efficient work progress adopted to the soil conditions encountered.

ROCK EXCAVATION BY RIPPING.

Rippable material is defined as rock which can be loosened or broken down by a bulldozer capable of developing 220 kW (300 PS) of continuous power equipped with a single shank rear-mounted, heavy-duty rock ripper, operating in low gear.

Material which in the opinion of the Contractor should be removed by ripping shall be exposed, and the Engineer notified before proceeding further.

The top of the rock surface shall be surveyed by the Contractor. The survey and classification is subject to the written approval of the Engineer.

Contractor's failure to follow the procedure outlined above will forfeit his right to claim any classification other than that allowed by the Engineer, who, in such case, will classify the excavated quantities.

Ripping shall be performed in such manner that the ripper tooth does not damage the material lying beyond the final excavation lines. Any material remaining to the final excavation lines shall be removed by wedging, barring, broaching or other suitable methods approved by the Engineer.

Excavated materials

All suitable materials from the excavations shall be utilized to the fullest extent practicable as construction materials in permanent and temporary works, subject to the written approval of the Engineer.

The Contractor's excavating techniques shall be such, that as much as practicable, construction materials will be yielded.

The suitable material shall be stockpiled. If the moisture content of excavated materials suitable for embankments or backfill is too high after excavation, the material shall be drained and dried in the stockpile until the moisture content is sufficiently reduced to allow placement, or vice versa moistened if too dry.

Disposal of excavated materials

Excavated material, which is not suitable for, or are in excess of the construction requirements shall be disposed of in the spoil area as directed or approved by the Engineer.

The spoil tips shall be located where they will not interfere with the natural flow of streams or rivers or other works. No rock material may be dumped into the river bed.

The Contractor shall shape and trim the stockpiles to the lines and grades as directed. Adequate diversion of water courses in such areas and proper drainage shall be provided as proposed by the Contractor and

approved by the Engineer. The Contractor shall be liable for any damage to the works or to the property of third parties caused by poor drainage in the spoil or stockpile areas.

Particular excavation applications

EXCAVATION OF PARTS OF AN EXISTING EMBANKMENT

The excavation of part of an existing embankment such as the removal of a distinct part of the crest requires special care to be taken by the Contractor. In this respect the Contractor has to take all precautions to avoid the following:

- To destroy the existing structure to a larger extent than required;
- To demolish the function of any detail of the structure; and
- To be able to re-construct the particular part.

Prior to the start of any work the Contractor shall submit to the Engineer for written approval a method statement describing the procedure required to carry out the specific excavation. The method statement shall include but not be limited to the following:

- Excavation method (including the applied equipment, materials etc.).
- Storage procedure for the excavated materials and details regarding the protection of these.
- Description of all temporary support measures to ensure that the remaining embankment is kept unchanged, if applicable.
- Preparatory works (such as shaping of the slope) required for the reconstruction of the excavated part of the embankment.
- Reconstruction procedure in respect to the different material to be backfilled.

EXCAVATION OF TRENCHES IN EXISTING EMBANKMENTS

The excavation of trenches such as for the removal and/or reconstruction of sluices barrels require special consideration and attention.

The excavation shall be wide enough to allow for backfill compaction parallel to the structure using heavy rolling compaction equipment. The inclination of the embankment slopes shall be as flat as possible to reduce differential strain. The final slope inclinations shall be determined by the Contractor. He shall provide evidence to the Engineer that the inclination he intends to use is sufficiently stable. No work shall start before the Contractor receives the written approval of the Engineer.

The embankment material of the previously excavated slopes shall be cut back to well-compacted material that has not been affected by wetting or drying.

Excavation shall extend to rock foundation, where line, grade and density are uniform. Rocks and/or irregularities at the foundation contact that might create stress concentration should be removed. Cleaning and backfilling should treat existing defects such as soft or pervious soil filling in the rock, fault gouges, fractures, erosion channels or solution cavities that cannot be removed. These defects require removal to an adequate depth and replacement with lean concrete slush grout, dental concrete or specially compacted earth fill as specified or directed by the Engineer.

MISCELLANEOUS EARTH FILL WORKS AND RIP-RAP FOR EMBANKMENTS

General

The following paragraph deals with general requirements governing the execution of miscellaneous earth fill works and rehabilitation measures for embankment structures. The rehabilitation works for the embankment structure shall include but not be limited to the following:

- Reconstruction of existing layers of an embankment (particularly after the performance of other remedial measures).
- Backfilling of construction trenches
- Filling of existing cracks.
- Other remedial measures within this context as directed by the Engineer.

Standards and codes

Except as otherwise specified in this Specification, all materials and workmanship shall comply in all respects with the requirements of the appropriate standard of code issued by the British Standards Institution, American Society of Testing and Materials, US Corps of Engineers, Technical Methods for Highways, or such other standard as the Engineer may approve, current at the date of Invitation to Tender. If, after the date of Invitation to Tender, there is an amendment to a standard relevant to the Contract, the Engineer will direct whether the amendment is to apply.

The Contractor shall have available in his site office at all times at least one copy of every standard or code referred to in this Specification, and any additional standard or code which may be referred to therein and shall make these available for reference by the Engineer upon request.

The work included in this section shall comply with the requirements of the following standards and codes, except where this specification differs from these standards and codes, in which case the requirements of the Specification shall take precedence:

- ❖ Earth Manual of “Bureau of Reclamation” – US Department of the Interior.
- ❖ All standards of the American Society for Testing and Materials (ASTM)
- ❖ British Standards (BS)
- ❖ US Corps of Engineers
- ❖ Technical methods for highways

Submittals

Prior to the start of any works described herein, the Contractor shall submit to the Engineer details of the proposed excavation methods, placement procedures and main equipment for all fill materials. Daily report forms in agreed format detailing the activities shall be submitted to the Engineer for signature.

Sources of Fill Material, Stockpiling and Disposal To Spoil

BORROW AREAS AND QUARRIES

The Contractor shall explore, locate, investigate, and develop such borrow areas and quarries that he may require to meet the requirements under the Contract. Such development shall include, where applicable, construction, operation and maintenance of the required access roads and haulage arrangements, removal and stockpiling of unsuitable material, processing, stockpiling and transport of suitable material and all related material handling operations including testing.

The Contractor shall be fully responsible for the provision of the fill materials as specified and required for the Works in accordance with the Contract, as well as for the selection of all borrow areas and quarries which may be necessary to satisfy that requirement. The location and extent of the selected borrow areas and quarries for the provision of selected fill material in accordance with the requirements of this Section shall be subject to the approval of the Engineer. The Contractor may develop and/or use the borrow areas and quarries or, subject to the prior approval of the Engineer, develop and/or use other borrow areas and quarries or other sources of excavation materials to meet the requirement of this Specification. Not later than 14 days prior to the commencement of any work for the development of a borrow area or quarry and the provision of fill material from that location the Contractor shall submit details to the Engineer for his approval including the results of field investigations and laboratory tests, if relevant, on the proposed material together with a detailed method statement of all activities required for achieving access to and developing and excavating from the borrow area or quarry. The Contractor shall not commence any work necessary for the development of the area or obtaining the material prior to receiving this approval. Together with his approval of the Contractor's proposed details of any borrow area the Engineer shall notify the Contractor whether that borrow area will have to be backfilled after use for construction. Borrow areas which are not required to be backfilled and which are no longer required, or else within which the supply of suitable fill material has become exhausted, shall be immediately cleared of all debris, and graded and finished, and if required grassed. Unless otherwise agreed by the Engineer, final profiles within each borrow area and associated spoil tips shall be such that in the finished borrow area ponding of water cannot occur, no vertical faces remain, and all slopes are shaped to a finished angle to the horizontal of not greater than 25°.

The cost of all requirements and work specified herein for borrow areas and quarries is deemed to be included in the rates and prices in the Bill of Quantities.

TESTS FOR BORROW AREAS AND QUARRIES

General

All borrow areas and quarries where materials are to be used for permanent construction works shall be subjected to approval of the Engineer. The Engineer may cause any or all of the under-mentioned tests to be done in the Contractor's Laboratory with the supervision of Engineer and/or in the Engineer's Laboratory of the Irrigation Department-Eastern Province.

Tests on Soils

From areas approved out for exploitation the following tests (ASTM or BS) shall be conducted on a sample from the quantum that would be required for exploitation from such areas for placement in different parts of the embankment regularly as determined by the Engineer.

- (i) In-situ Moisture Content
- (ii) Atterberg Limits
- (iii) Sieve Analysis, and
- (iv) Standard Proctor Compaction

The particle size grading for the fill materials is generally specified by limiting the range of the grading results obtained for each sieve. Material outside the limits will be accepted or rejected at the Engineer's discretion according to the location on the embankment where the material is to be placed, volume required and the nature of the circumstances for the use of such material.

Tests on Gravel

Materials from approved gravel quarries shall be tested periodically for the following characteristics:

- (i) In-situ Moisture Content
- (ii) Atterberg Limits
- (iii) Sieve Analysis, and
- (iv) Standard Proctor Compaction
- (v) Field Compaction (Required degree of compaction more than 90)

Tests on Sand

Materials from approved sand quarries shall be tested periodically for the following characteristics:

- (i) Sieve Analysis
- (ii) Specific Gravity, and
- (iii) Organic Content

Tests on Rock/Boulders

Rock samples from approved quarries shall be tested periodically for the following characteristics:

- (i) Sieve Analysis
- (ii) Specific Gravity
- (iii) Los Angeles Abrasion Test, and
- (iv) Sodium or Magnesium Sulphate Soundness Test

Material

Before the final selection of the appropriate borrow areas and quarried the Contractor shall make any tests required to demonstrate to the Engineer the suitability of the material.

Prior to the placement of any embankment material at least 2 series of material tests as determined by the Engineer shall be performed.

Testing shall be performed in continuous intervals to reflect the rate of the various materials placed. The schedule of material testing presented by the Contractor shall be approved by the Engineer.

Material for the rehabilitation of embankments shall be equivalent to the existing surrounding material, unless agreed otherwise by the Engineer.

Material to be double handed shall be investigated carefully in regard to possible contamination during the time of storage. If the material is considered to be inappropriate for further use, the Contractor shall propose to the Engineer details of the material he intends to use. In both cases, either the reinstatement or use of new material, the Contractor shall not be allowed to carry out any works prior to the written approval of the Engineer.

All applied materials shall be well graded. Material re-excavated for placement in the embankment will be subject to the same inspection as materials obtained directly from the quarry or excavation.

Preparation required to produce the materials shall include but not be limited to the combination of sieving, crushing, washing, separation and remixing of materials.

Materials shall be obtained, prepared, processed and stockpiled in such a manner that the rehabilitation works shall proceed without delay. The Contractor shall organize his operations taking into account all factors that may delay the work so that the approved schedule of the works is kept.

All applied material shall be well graded and shall be processed to be within the limits of the existing materials, unless otherwise approved by the Engineer.

The tabulation below is a guide for the selection of materials for an embankment.

Grading and Plasticity Limits for Earth Embankments

Zone	Characteristics	Absolute Minimum (%)	Absolute Maximum (%)
Low Permeability	Passing 75 micron sieve	30	70
	Liquid Limit	20	50
	Plasticity Index	8	30
Medium or High Permeability	Passing 75 micron sieve	-	70
	0.355 mm sieve	8	-
	2.36 mm sieve	50	-
	25.0 mm sieve	100	100
	Liquid Limit	0	50
	Plasticity Index	0	30

Stockpiling of Materials

Materials obtained from excavations for the Works and from borrow areas intended for subsequent use as fill in the Works, and which cannot be used immediately, shall be placed in temporary stockpiles nearby. The manner of stockpiling shall be such as to avoid segregation and damage to the materials, and the areas on which the material is stockpiled shall be cleaned and levelled in order to avoid contamination of stockpiled materials as well as any mixing of different materials which are to be stockpiled separately. Excavated materials with similar characteristics shall be stored, wherever practical, in the same place and separately from those with different characteristics, except where different materials are being specifically placed together to obtain a required mix of different materials. The temporary stockpiles shall be clearly signed to indicate the type of material, its source and designated use.

The material shall not be placed in the stockpiles at a density greater than that required subsequently as fill in the Permanent Works.

Placing Fill

GENERAL

The Contractor shall not commence or perform any fill work using equipment or working methods which deviate in any way from the equipment and methods of execution which have already been approved in writing by the Engineer.

All vegetation, topsoil and any other unsuitable overburden shall be removed from areas on which fill is to be placed. Following the preparation of the commencing surface as specified the surface levels shall be surveyed and the results of the survey including drawings submitted to the Engineer for agreement. The Contractor shall not begin to place fill material until the Engineer has approved the preparation of the commencing surface and the survey results.

If filled areas contain material which is susceptible to deterioration due to the excessive absorption or loss of water, it may be necessary to protect such areas by covering with further Permanent Works construction or else with a temporary layer of fill of sufficient thickness to prevent penetration of water into or loss from the permanent fill. Alternatively, a suitable impermeable membrane may be used to protect the permanent fill. Where fill is to be placed in trenches, pits and other places the sides of which are supported, those supports which are to be removed shall as far as practicable be withdrawn ahead of the layer of fill to be compacted and all voids left by the supports shall be filled with fully compacted material.

PLACING, MOISTURE CONTROL AND COMPACTION

The fill shall be placed in uniform layers across the full width and length of the area to be filled so that the area is built up evenly and shall be compacted as soon as practicable after deposition. The width of an embankment layer shall not be extended by means of the deposition of loose materials from the top of the embankment. Materials of differing characteristics shall not be mixed in any one layer and each layer shall be free from lenses and pockets of such material.

Fill material shall be deposited in such a manner that does not cause segregation.

The fill shall be placed so that the surface is sufficiently even, and the surface shall be graded generally level before compaction operations commence while still having sufficient camber to shed surface water and to avoid ponding. The surface on which fill is to be placed shall be scarified if it is too smooth for proper bonding with the layer of fill to be placed. The moisture content of embankment fill material shall be adjusted by suitable conditioning to be within a range of the optimum moisture content required by this Specification or determined by the Engineer, depending on the characteristics of the material, and then compacted.

Compaction equipment shall be capable of achieving the required compaction without having any detrimental effects on the fill material. The equipment shall be carefully controlled to ensure that all areas are uniformly compacted for their full width and depth.

BACKFILLING

Unless otherwise shown on the Drawings or specified or instructed by the Engineer, excavations which are to be backfilled shall be filled with suitable material, as defined obtained from the excavations or from approved borrow areas.

When placing fill as backfill the Contractor shall make due allowance for settlement and shall ensure that the final lines and levels are as shown in the Drawings. Any areas which subside shall be made good without delay up to the end of the Defects Notification Period. Suitable measures shall be taken to minimize erosion of the refilled excavations during wet weather, including sufficient specific measures to shed runoff water to the downslope side of trenches and avoid the formation of waterways along or parallel to the trenches. No payment will be made for making good any deficiency in refilling or banking material due to the negligence of the Contractor.

REFILLING OR BANKING AGAINST STRUCTURES

The Contractor shall, before the work of backfilling to structures commences, obtain the approval of the Engineer for the material to be used and the methods of the work execution. Prior to the commencement of placing backfilling materials adjacent to structures the location shall be cleared of all remaining concrete forms and other temporary works and shall be subject to the approval of the Engineer. Unless otherwise instructed by the Engineer, backfilling to structures shall not commence until at least 14 days have elapsed after concrete work has been completed. Refilling or banking against water retaining structures will only be permitted after completing testing of the water tightness of the structure to the satisfaction of the Engineer. Wherever practicable backfill shall be placed and compacted evenly on all sides of Permanent Works structures to minimize unbalanced loads on the structures. Such fill shall not contain boulders or any other hard material of a size which in the opinion of the Engineer may result in damage to the structures or incomplete compaction of the fill. The suitable depth of each layer of backfill shall be subject to agreement by the Engineer and shall be dependent on the material source, the

placement location and the type of compaction equipment to be used. The moisture content shall be adjusted by suitable conditioning to be within the range + 2% to - 2% of the optimum moisture content, or else within some other range determined by the Engineer depending on the characteristics of the material and compacted to not less than 98% of the maximum dry density "Standard Proctor" (using Method 3.3 or Method 3.4 of Part 4 of BS 1377). Compaction of backfilling materials above structures shall not be permitted with vibrating rollers within 500 mm vertically of the surface of the concrete except with the prior approval of the Engineer. Backfilling materials shall be placed in such a manner that ensures that they can be satisfactorily compacted without damage to the structures.

REFILLING OF TRENCHES

Refilling around pipes is to be carried out as pipe laying proceeds, however no material shall be filled in over the joints or around specials until these have been inspected, tested and approved by the Engineer and permission has been given by him for this refilling to commence. Specially selected soft material without stones shall be used for filling in around the pipework and to a height of at least 150 mm above the top of the pipe, and this material shall be thoroughly and evenly compacted to 98% of the maximum dry density "standard Proctor" (using Method 3.3 or Method 3.4 of Part 4 of BS 1377) unless otherwise required in the Technical Specification or instructed by the Engineer. Unless otherwise specified, in open country away from roads, accesses or built-up areas or where approved by the Engineer the Contractor may then refill the remainder of an excavation from 150 mm above the top of the pipe to the surface of the ground with light compaction. On completion of backfilling the excavation shall be banked to a height of up to 500 mm above the general ground level to allow for settlement, and the Contractor shall be responsible for making good in any area where the back filling subsides below ground level when called upon to do so at any time up to the expiry of the Defects Notification Period without additional payment. Where selected fill is to be placed below the required grade of the underside of the pipe, the amount of selected suitable fill must be sufficient for a layer slightly thicker than that specified to remain after compaction so that after trimming the pipe can be laid true to line and level.

Compaction of Fill

DEFINITIONS

The specified thickness of a layer of fill is the thickness after compaction has been completed. Unless otherwise instructed by the Engineer:

(i) the maximum dry density (MDD) "standard Proctor" and the optimum moisture content at which this density is achieved are the values obtained by BS 1377: Part 4 – Methods 3.3 or 3.4; and

The field density tests called for in the Specification are those described under BS 1377: Part 9 – Methods 2.1, 2.2, or 2.4.

GENERAL REQUIREMENTS

Suitable fill shall be compacted to a dry density not less than 98% maximum dry density "modified Proctor", or else as indicated on the Drawings or directed by the Engineer, expressed as a fraction of the maximum dry density and measured by field density tests. If fill has a moisture content too low to permit the specified dry density to be achieved, the Contractor shall incorporate sufficient water by a method acceptable to the Engineer to permit compliance with the Specification. Such operations shall be included in the Contractor's rates. If fill becomes sufficiently wet to cause serious rutting by construction traffic or heaving under compaction plant and to an extent that the required dry density cannot be obtained, placing and compaction shall forthwith cease and shall not be resumed until the Contractor has taken whatever action may be necessary in accordance with Sub-Clause 1.5.4.3 to restore the fill to a proper condition for compaction.

COMPACTIVE EFFORT

Fill shall be compacted using the approved type of equipment (Such as Sheet foot Roller), the depth of layer and the number of passes determined in accordance with this Technical Specification provided that the required dry density is obtained. If the dry density is not obtained, the depth of layer shall be decreased or the number of passes shall be increased, or the type of equipment shall be changed until the required dry density is achieved.

COMPACTING EQUIPMENT

The type of compact equipment used for embankments, fills and backfills shall be proposed by the Contractor and approved in writing by the Engineer. Only after compaction tests have demonstrated the effectiveness of the equipment, it will be approved by the Engineer.

Compaction of material in areas where it is impracticable to use large equipment shall be performed by approved suitably sized small rollers, vibrating plates or hand power tampers. Vibrating plate mechanical tampers weighing 600 – 800 kg will be required for compacting fills not accessible to the larger equipment. The tampers shall be capable of compacting layer thicknesses up to 50 cm.

Spreading and grading equipment

The Contractor shall provide and maintain in perfect working condition adequate equipment for spreading and grading of all fill materials in accordance with the specifications.

The number and capacity of the equipment shall be sufficient to fulfill the construction schedule requirements.

Water supply and sprinkling equipment

The Contractor shall provide and maintain in perfect working condition suitable equipment such as pumps, tanks, hoses, etc. to provide water for dust prevention, for adjusting the water content of the materials and to wash in any material into cracks amounting up to 200 l per m³ of fill placed or as directed by the Engineer.

Testing of Materials and Field Control of Compaction

Testing of embankment and backfill material before it is used in construction, and control tests during construction, shall be carried out by the Contractor using his own Site laboratory or an independent laboratory approved by the Engineer. The Contractor shall ensure that the Engineer is informed sufficiently in advance of any tests to be carried out on embankment and backfill material such that the Engineer has the opportunity to witness the test. If so directed by the Engineer, the Contractor shall, in the presence of the Engineer, carry out field density tests at the bottom of excavations for structures in order to investigate the suitability of the foundation material before any concrete works commence. The hole left by the excavation of the sample shall be backfilled with suitable material and compacted to a density no less than the surrounding material, or else shall be backfilled with soil-cement. Laboratory test results of any material that the Contractor proposes to use in the Works shall be submitted to the Engineer for his review and approval before such material is used in the Works. The tests to be carried out by the Contractor, the standard test methods to be used and the testing frequency for materials used during construction and upon completion shall be as detailed in the table below unless an abnormal variability of the results requires a higher frequency. Tests for the maximum dry density and optimum moisture content, the Atterberg limits and particle size analysis shall be made when the placing of fill commences and subsequently in accordance with the minimum test frequencies stipulated in the table below. As a general requirement in addition to the minimum test frequencies given in the table below, not less than three tests of each type shall be performed at each separate fill area.

Test	Test Standard	Minimum Test Frequency
Moisture content	ASTM D 2216	1. Before filling material from any source is used. 2. Thereafter, whichever of the following occurs first: (i) for every 1000 m ³ placed, or (ii) for every 100 m compacted length (iii) at each change of borrow pit source, or (iv) at each change of material, or (v) 21 days after the last test conducted (where the fill location is still active).
Grain size distribution	ASTM D 422	
Specific gravity & absorption	ASTM C 127	
Specific gravity of soils	ASTM D 854	
Atterberg's limits	ASTM D 4318	
Standard Proctor Compaction Test	BS 1377-4	
	ASTM D 698	

Field density test	USBR Earth Manual E-24/ BS 1377-9 Method 2.1, 2.2 or 2.4	Twice each day (morning and afternoon) at each work location, but at least once for every 100 m ³ placed or in each layer, whichever is more frequent. If directed by the Engineer, at the bottom of excavations for structures.
California Bearing Ratio (CBR)	BS 1377-4	Road subgrade: once for every 1 km of road alignment constructed, or at least once for each section of road. Granular subbase/ base/ wearing courses: (i) for every new source of material, and (ii) (ii) at least once a month.

COSTS

The tests required by the Technical Specifications or by the Engineer will be carried out by the Contractor in the either Material Testing Laboratory or in other Laboratories proposed by the Contractor and approved by the Engineer. The cost of such tests, including the preparation and transportation of the samples shall be borne by the contractor if not stated otherwise.

FACILITIES FOR ENGINEER TO TAKE SAMPLES

The Contractor shall provide facilities for the Engineer to take samples for testing of any of the fill, concrete or other materials to be incorporated in the Works. Such samples may be taken before or after incorporation into the Works or at any stage during construction at the discretion of the Engineer.

Rehabilitation of cracks in the existing embankment

The Contractor shall with the Engineer investigate all existing cracks in the embankment. He shall document the findings of this investigation and submit them to the Engineer. During a site investigation the Contractor shall present all observed deficiencies to the Engineer and explain the rehabilitation methods to be applied. These measures shall be subject to the written approval of the Engineer.

The method statement proposed by the Contractor shall include but not be limited to the following:

- **Removal of any loose or foreign material:** With respect to the location and the extent of the affected area, “removal” of material will refer to any measures starting from cleaning of the crack surface up to the excavation of parts of the embankment (e.g. in case the deficiency is caused by an instability of the slope).
- **Re-profiling of the temporary slope:** In the case that parts of the embankment must be removed, the Contractor shall prepare the temporary construction slope by appropriate methods such as cut steps in the remaining embankment material to improve proper compaction.
- **Re-grading of the affected embankment area** with approved methods independent of the extent of the relevant area.
- **Re-construction of the slope protection layer.**

The material to be applied shall conform to the materials used during initial construction. The filter criteria must be maintained for all materials to be applied. It is the Contractor’s responsibility to carry out the required measurements and calculations and present these to the Engineer for approval.

No material shall be placed in any section until the foundation of this section has been dewatered (if required) and the temporary construction slope has been adequately prepared and approved by the Engineer.

Methods for re-profiling of the embankment shall be presented by the Contractor for the approval of the Engineer. Various methods may apply. For smaller cracks or openings, “washing-in” of approved material carried out under controlled conditions might apply. In that respect, the Contractor shall take all precautions not to cause any harm to the existing dam structure. Any destruction caused by the works must be repaired at the expense of the Contractor.

Reconstruction of embankment layers after performance of remedial measures

GENERAL

The Contractor shall propose methods and procedures how he intends to carry out the required remedial measures prior to the commencement of any work. The work shall not be started without the written approval of the Engineer.

Any works to be carried out for the reconstruction of the embankment shall be conducted also under the provisions presented in the relevant technical specification. The Contractor shall consider all methods and requirements described herein.

MATERIAL

All materials the Contractor intends to use shall conform to the specification presented in this section. Any material to be applied throughout the works shall be approved in writing by the Engineer.

The material used to reconstruct the embankment shall be well graded, have a maximum particle size not larger than 5 cm including earth clods and a minimum of 40 percent by weight passing a no. 200 sieve.

The Engineer may change the range of acceptable gradation without any extra compensation to the Contractor to suit the material found at site.

Throughout the works the Contractor shall take strict precautions to avoid any contamination of any material to be used. The material shall be free from injurious amounts of brush, sod, roots or any other unsuitable material. Material which is unsuitable in the opinion of the Engineer shall be removed.

If the natural moisture content deviates more than $\pm 3\%$ of the optimum moisture content, moisture correction measures shall be performed on the stockpiles.

Execution

No embankment shall be reconstructed until that portion has been inspected and approved in writing by the Engineer.

The thickness of the layers to be placed and the compaction required shall be determined by the Contractor and approved by the Engineer.

The placing of embankment material shall be such as to guarantee a homogeneous fill. The material shall be placed in layers having a thickness of about 30 cm and compacted with adequate equipment.

Careful control shall be exercised over the water content of the material by means of regular testing by the Contractor to ensure that adequate compaction is attainable. Water content limits shall be established as part of the field and laboratory testing both prior to and during construction.

100% of all densities of the material in place after compaction shall have a dry density equal or above 98% of the maximum Proctor Standard dry density value (ASTM D698). The maximum water content of the material in place after compaction shall be within a range of $\pm 3\%$ of the optimum Proctor Standard moisture content.

The placed layers may have to be scarified to guarantee a good bond with the next layer.

Particular attention shall be given to spreading and compacting of material in the vicinity of concrete structures, instrumentation or other equipment. Spreading and compaction shall be performed with adequate equipment and in such a manner that no damage occurs to concrete, instrumentation or other structures. Any damage shall be repaired by the Contractor at his own expense.

When directed by the Engineer, the Contractor shall remove and dispose of unsuitable material placed in the reconstruction area and material rendered unsuitable after being placed.

Rip Rap Protection for Dam Embankments

GENERAL

Rip-rap required for protection of embankment shall consist of selected hard, durable rock fragments from quarried rock obtained from approved quarries and excavations, and individual stone having any one dimension not less than as specified on the drawings and/or as directed by the Engineer. Rip-rap shall consist of individual rock fragments, dense, sound, unweathered (only materials not susceptible to weathering shall be accepted), resistant to abrasion and free of cracks, seams and other defects that would tend to increase unduly their susceptibility to destruction by water action. Angular rock fragments shall

preferably be used. Well-rounded cobbles and boulders will not be accepted except on very flat slopes. The minimum dimension of any single rock shall not be less than one-third to one-fourth of its maximum dimension.

PARTICLE SIZE DISTRIBUTION

Rip-rap shall be roughly graded to the specified thickness in such a way to ensure that larger rock fragments are uniformly distributed with the smaller rocks filling the remaining spaces. Pockets of small stones shall be removed and replaced with larger material. Riprap shall be reasonably graded. Sand and rock dust may not exceed 5% of the total weight of the rip-rap material. The maximum size of the boulder shall be limited to the nominal thickness of the riprap. The size of Rubbles in the specified thickness (450 mm) of rip-rap shall be reasonably well grades with passing d15 – 175mm to 250 mm, d50 – 275mm – 350 mm & d85 – 375 mm – 450mm.

QUALITY OF BOULDERS/ RUBBLES

The Rip-rap material shall have specific gravity (saturated surface dry) greater than 2.60. Soundness (sodium sulphate method) less than 5% loss by weight after 5 cycles and Abrasion (Los Angeles Abrasion using grading A) less than 60% loss by weight after 500 revolutions.

TESTING OF MATERIALS

The particle size distribution of rockfill and rip rap material shall be tested in a manner agreed by the Engineer.

The determination of the bulk density of rockfill material after placement and compaction shall be by re-excavating a sample of not less than 3 m³ as directed by the Engineer, determining the volume of the hole, and then weighing the excavated material.

FREQUENCY OF TESTING

The testing specified below shall be performed by the Contractor for his routine quality assurance for the slope protection works prior to placing. The volume of material to be sampled for testing shall be appropriate and sufficient for the respective type of test to be performed. The minimum number of samples which are to be tested shall be one representative sample for each volume of material as stipulated below for each type of test:

Test	Standard	Test frequency
Particle size distribution immediately prior to placement	Visual Inspection	Continuously
Bulk density after placement and compaction	As proposed above	For each 500 m3
Particle mass distribution	ASTM D 422	For each 500 m3 or at every location where the material quality is considered doubtful by the engineer
Sodium Sulphate Soundness	ASTM C88	
Los Angels Abrasion Value	ASTM C535	
Porosity, Water absorption, Specific Gravity	ASTM C 127	

Rip Rap shall be placed to the full layer thickness in one operation starting from the bottom of the slope and progressing to the top. Rip-Rap shall be placed in a such manner as to minimize segregation and avoid displacing the underlying filter or transition/bedding material. The finished layer shall be free from pockets of small stones, clusters of large stones, and excessive voids.

Rip-rap shall be well keyed uniform, and dense and stable mass with adjacent stones in close contact but without alignment of longer faces so that open joints are formed. Stones shall have their greatest dimension across the slope and the smaller spaces between stones shall be left open. End tipping from lorries or dumpers is not permitted.

Prior to the following filling works, the contractor shall close all existing voids on the horizontal surface of the upper boulder layer by hand placing smaller rocks with a maximum diameter of 100mm.

PLACEMENT OF BOULDERS BELOW MINIMUM WATER LEVEL

If placement of material below the minimum water level is required, the Contractor shall place boulders with a diameter of 500 to 700 mm by carefully dumping the material into the water. Placement of boulders shall continue up to 50 cm above the minimum water level. Prior to the following filling works, the Contractor shall close all existing voids on the horizontal surface of the upper boulder layer by hand placing smaller rocks with a maximum diameter of 100 mm.

For Reference Only

ENVIRONMENT AND SOCIAL MANAGEMENT PLAN (ESMP)

The Contractor shall comply with the provisions in the **Environment and Social Management Plan (ESMP)** annexed in this section without any cost to Employer. (Annexure I)

Environmental Control

The Contractor shall :-

- Comply with the provisions of this Section and other environmental protection provisions in the Contract and with the requirements of any statute, by-law, standard and the like related to environmental protection.
- Arrange all work to cause the least possible disturbance to the environment.
- Submit proposals for traffic movement, temporary structures, cleaning up, storage of materials, demolition and the like. Observe the agreed proposals.
- Dispose of all spoil and unsuitable material in accordance with the provisions given in EMP.

Monitoring

The Contractor shall monitor the environmental aspects of the construction and the control measures implemented to minimize any adverse environmental impact. Should the control measures put in place be found to be unsatisfactory as a result of the monitoring then the Contractor shall amend the control measures to provide a satisfactory result.

Environmental Complaints

The Contractor shall maintain a register of all environmental complaints received and shall notify the Engineer of each complaint. Complaints received by the Engineer and referred to the Contractor shall also be recorded in the register.

The Contractor shall investigate all environmental complaints received and where necessary, undertake measures to address the complaint. All measures undertaken to address complaints shall be detailed in the register.

ENVIRONMENTAL INCIDENTS

Should an environmental incident (being environmental nuisance, medium environmental harm, or serious environmental harm) occur during any construction phase, the Contractor shall immediately take the appropriate action to minimize any impact and inform the Engineer. The Contractor shall carry out any instructions received from the Engineer.

The Contractor shall be responsible for the cleanup of any contamination caused by the construction works and no additional payment will be made in this regard.

ENVIRONMENTAL TRAINING

The Contractor shall be responsible for ensuring that all employees (including subcontractors) have received training in relation to the Contractor's environmental operating guidelines.

The Contractor shall ensure that any machinery on site is operated within the appropriate guidelines so as to minimize environmental impact in relation to noise, air and water quality, waste control and

contamination. All construction materials used on site shall be utilized in a manner to similarly limit environmental impact.

No additional payment shall be paid to the Contractor and the cost of environmental control measures shall be deemed to have been included in the rates tendered for the Works.

Standard Procedure for Ensuring Occupational Health and Safety When working in Wildlife Area

The Contractor shall comply with the provisions in the Standard Procedure for Ensuring **Occupational Health and Safety When working in Wildlife Area** annexed in this section without any cost to Employer. (Annexure II)

Standard Procedure for Assessing the Requirement of Tree Removals

The Contractor shall comply with the provisions in the **Standard Procedure for Assessing the Requirement of Tree Removals** annexed in this section without any cost to Employer. (Annexure III)

LABOR MANAGEMENT PLAN (INCLUDING SITE MANAGEMENT AND CAMP MANAGEMENT MEASURES)

The Contractor shall comply with the provisions in the **Labor Management Plan (Including site management and camp management measures)** annexed in this section without any cost to Employer. (Annexure IV)

For Reference Only



Environmental Social Screening Report (ESSR) and Environmental and Social Management Plan (ESMP)

Rehabilitation of Welimaruthamadu Tank Downstream

**Integrated Watershed & Water Resources Management Project
(IWWRMP)**

Ministry of Agriculture, Livestock, Lands and Irrigation



November 2024

Environmental Social Screening Report (ESSR) and Environmental and Social Management Plan (ESMP)

Rehabilitation of Welimaruthamadu Tank Downstream

6. Environmental and Social Screening Checklist (Table 08)

	Screening question	Yes	No	Significance of the effect	Remarks
Project Design					
a. General					
1	Will the sub project include any physical construction work?	√		Moderate	Mostly rehabilitation work including, improvements to concrete structures, training bund, culverts, turnouts, spillways etc. This project undertakes separate 08 interventions at separate locations.
2	Does the project include upgrading or rehabilitation of existing physical facilities?	√		Moderate	-DO-
b. Rehabilitation of irrigation infrastructure					
3	Will improvements to proposed structures require the water level in the tank to be artificially drawn down?		√	Low	The interventions planned to conduct in dry season. Hence the planned work may not require any additional lowering of water. However, if the works go beyond the dry season, lowering of water level would be required.
4	Will repairs to irrigation structures require temporary suspension of water issuance in order to facilitate civil works? Can this lead to diminishing of other downstream water uses that can result in social issues such as community bathing, drinking water supplies, irrigation of home gardens etc.		√		This work is also planned for the off season. Rehabilitation of spillways may affect to the accessibility of the community, but there are some alternative routes in the area.
5	Will civil works lead to diminishing of other downstream water uses as a result of water quality impairment?	√		Low	Most of the places where the structures located are almost dry and water flows only in rainy and water issuing periods. Civil works planned to conduct in off season. Therefore, the water quality issue is low.
6	Will there be changes to original design levels of the head works that will result in inundation of new land in the catchment		√		There will be no changes to design levels of the dam crest, spill crest or any other structure. Hence there will be no inundation of additional areas.

	Screening question	Yes	No	Significance of the effect	Remarks
7	Will the rehabilitated scheme serve new areas of paddy under its command?		✓		The extent of paddy cultivation in the command area will remain the same. But slightly can change.
c. Additional supplementary facilities					
8	Will there be construction of new irrigation or drainage canals or widening of existing canals?		✓		Only the rehabilitation works doing in the project.
8(i)	If yes, will new/modified canal trace/alignments interfere with existing land uses (habitats, home gardens) in a negative way?		N/A		No
8(ii)	If yes, will the trace interfere with other sensitive infrastructure such as roads, pedestrian paths, schools and temples?		✓		No
Project Construction					
9	Will construction and operation of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in waterbodies, etc)		✓		No
10	Will construction of the project cause soil erosion within the site due to steep grade or soil content?	✓		Low	The soil excavation needs at all sites. This needs to be managed with a soil cover or limited exposure through work scheduling. However, the general terrain is flat and since the construction work is under taken during the dry season soil erosion is expected to be controlled.
11	Will the Project involve dredging and disposal of dredge material as well as other solid wastes during construction?	✓		Low	Excavated soil can be used for backfilling and there is no significant dredging is identified for the rehabilitation work. however, there will be the demolished waste.
12	Will the Project release pollutants or any hazardous, toxic or noxious substances to air?		✓	Low	There will be no hazardous, toxic or noxious substances released into the air, other than fumes emanated by a few construction vehicles. Further, construction activities that would produce airborne dust are temporary and limited to short durations and will be restricted to a small area.

	Screening question	Yes	No	Significance of the effect	Remarks
13	Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?	√		Low	Noise and vibration is expected to be very low due to the small-scale and geographically widespread nature of construction activities and the largely rural setting. There can be insignificant levels of noise produced during material transportation and construction work. The sound of the small machinery there may be temporary disturbances to the animals inhabiting the area but the impact will be very low.
14	Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, groundwater?	√		Low	Other than pollutants such as petroleum, oil and grease that can be released from construction vehicles and machinery, no other sources of pollution with the potential to cause land and water pollution are envisaged. <u>Domestic solid waste generated by the contractors will be collected and handed over to the local authority and therefore avoid any possible impact.</u>
15	Will the project cause localized flooding and poor drainage during construction? Is the project area located in a flooding location?		√		The project is not in a known flooding area.
16	Are there any areas or features of high landscape or scenic value on or around the location which could be affected by construction activity?		√		No such location has been identified in the project area.
17	Are there any other areas on or around the location which are important or sensitive for reasons of their ecology e.g. wetlands, watercourses or other waterbodies, the coastal zone, mountains, forests which could be affected by the project?		√		No such location has been identified in the project area.
18	Are there any areas on or around the location which are used by protected, important or sensitive species of fauna or flora e.g. for		√		No. The trees existing along the bund could be seasonal roosting sites for many of the avifauna in the area. However, no sensitive species have been recorded and no trees will be removed. In the

	Screening question	Yes	No	Significance of the effect	Remarks
	breeding, nesting, foraging, resting, migration, which could be affected by the project?				chance of removal of any tree the other trees in the area will compensate for the loss of possible roosting, nesting grounds.
19	Will any part of the project's construction activities be located in a previously undeveloped area where there will be loss of greenfield land?		√		No. This is a rehabilitation project, hence no new areas will be opened up.
d. Land related impacts					
20	Will the sub-project require acquisition of land and or other assets?		√		No
21	Is land for material mobilization or transport for the civil work available within the identified work site / Right of way?	√		Low	Materials required for civil works will be transported along the Pradeshiya Sabha road, and permission will be obtained accordingly. Material will be stored within the IA's land areas near the civil works sites.
22	Is the site chosen for this work free from any encumbrances (e.g. squatters, encroachers)?	√			There are no encumbrances in the site chosen for this work.
23(i)	If the land parcel is to be acquired, is the actual plot size and ownership status known? If so, how much?		√		No acquisition will take place under this project.
23(ii)	Will the affected land/structure owners likely to lose less than 10% of their land/structures area?		N/A		
23(iii)	If any land required for the work is privately owned, will this be purchased or obtained through voluntary donation?		N/A		
23(iv)	Are the land/structure owners willing to voluntarily donate the required land for this sub- project?		N/A		
24	Is the project likely to cause partially or fully damage to, or loss of housing, shops, or other resource use?		√		No
25	Are there any routes or facilities on or around the location which are used by the public for		√		There are no such sites, facilities or routes with main access through the tanks and its village.

	Screening question	Yes	No	Significance of the effect	Remarks
	access to recreation or other facilities, which could be affected by the project?				
e. Livelihoods Related Impacts					
26	Are there any non-titled people (squatters) who are living/ or doing business who may be partially or fully affected because of the civil works?		√		No.
27	Will there be damage to agricultural lands, standing crops, trees, etc.?		√		There will be no tree removals for any of the interventions and NPC-ID will ensure that no standing crops will be affected.
28	Will there be any permanent or temporary loss of income and livelihoods as a result of the civil works? If so, for what period?		√		The construction works has planned to take over in the off season and there are no significant livelihood losses.
28(i)	Have these people/ businesses who may suffer temporary loss of incomes or livelihoods been surveyed and identified for payment of any financial assistance?		N/A		
28(ii)	Are there any vulnerable households affected?		√		No damages will occur.
28(iii)	Will people permanently or temporarily lose access to facilities, services, or natural resources?	√			Under the spillway rehabilitation works will create accessibility issues and there are alternative routes of the sites.
f. Impacts on community resources, public services, cultural/historical sites, etc					
29	Are there any areas on or around the location which are densely populated or built-up, which could be affected by the project?		√		The project site is in a rural setting with sparse populations and spaced out dwellings with generally large homesteads.
30	Are there any areas or features of historic or cultural importance on or around the location which could be affected by the project?		√		No such places are found within the project area.
31	Are there any areas on or around the location which are occupied by sensitive land uses e.g. hospitals, schools, places of worship, community facilities, which could be affected by the project		√		No such sensitive receptors in the zone of influence.

	Screening question	Yes	No	Significance of the effect	Remarks
32	Are there any areas on or around the location which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?		√		Not as per the information available and site observations.
33	Will the project cause the removal of trees in the locality?		√		No removal of trees identified so far.
34	Are there existing land uses or socio-economic activities on or around the location which could be affected by the project?		√		Only agricultural and fishing activity as identified above.
34(i)	Are there bathing spots that will be unusable during the construction period?		√		No.
34(ii)	Is there subsistence fishing taking that will get disturbed due to canal rehabilitation		√		No.
34(iii)	Are there any home gardening and other industrial, agricultural activities that will get disturbed due to construction activity		√		No.
34(iv)	Are there drinking water supply sources located in the project area that may be rendered unusable during construction period?		√		No.
34(v)	Are there tourism activities taking place in the project area that will get disturbed by construction activity?		√		No.
g. Construction related impacts (labor influx, community health and safety, etc)					
35	Will there be any risks and vulnerabilities to public safety due to physical hazards during construction of the Project?	√		Low	There will be to some extent with operation of heavy machinery in the project area and with material haulage along transport routes. However, this is not a major issue and can be avoided by adopting safety regulations at construction sites.
36	Are there local village roads that will become unsafe due to contractor's usage	√		Low	Material transportation can be creating road safety issues.

	Screening question	Yes	No	Significance of the effect	Remarks
					The elevated traffic issues and airborne dust and noise will disturb the existing community around the village area and along the road. In addition, the bund road will be either fully or partially closed during rehabilitation work and that is likely to affect local people.
37	Are there any transport routes on or around the location which are susceptible to congestion or which cause social and environmental problems, which could be affected due to construction work?	√		Moderate	Material transport, stockpiling of construction material on the rehabilitation sites will impact the neighboring communities and accesses temporarily. Most of the rehabilitation places are remote. <u>Transport route falls through the army camp must upon the approves of the Officer in Charge of the camp.</u> All details of the vehicles, drivers and supporting staffs must provide for the relevant approvals. <u>Prior approvals must be obtained before the commencement of works.</u>
38	Will the project require significant number of workers (skilled and unskilled)	√		Low	
38(i)	Will the project attract significant number of migrant workers to the area?		√		Large influx of labours are not expected to be fielded for rehabilitation work at a given time. Also, the general practice is for most of the unskilled labor to be sourced from the local area.
39	Will construction activity lead to burrowing of earth, gravel and sand? And/or quarrying for rock?	√		Moderate	Burrow materials sourced from the approved suppliers.
40	Will the project increase the risk of introduction of alien invasive species to the locality	√		Low	The canal sites are already invaded by several common terrestrial and aquatic invasive species so a significant impact is not expected especially since burrow material will be sourced from similar locations except for sand.
Operational Impacts					
41	Will the project lead to stagnant water and drainage problems causing increased mosquito breeding	√		Low	No new burrow sites will be opened up for this project. All will be sourced from existing pits with licenses. When the spillway rehabilitations, water can be stagnant and this is manageable.
42	Will the project involve removal and disposal of aquatic invasive species?	√			This will be minimal if at all. Removal of aquatic invasive are carried out regularly through the FO maintenance program.

	Screening question	Yes	No	Significance of the effect	Remarks
43	Will the project involve regular maintenance dredging of the canal/ downstream network		√		
44	Will the scheme after rehabilitation serve a larger command area?		√		Command area will remain same. Slightly may change.

Significance of impact = Low, Moderate, High

For Reference Only

7. Environmental and Social Management Plan (Table 09)

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
Design Stage					
1	Incorporation of Environmental Design Recommendations	<ul style="list-style-type: none">■ The following will be maintained at minimum for flow structures:<ul style="list-style-type: none">○ Culverts designs will be considered to allow overland flow and sheet flow from paved areas, cross drainage without any blocking and also designed and placed in order to ensure hydrological continuity for fish passage.○ Bridges designs will be considered to allow overland flow and cross waterways without any blockage○ Silt traps designs will be considered for trapping of silt in proper manner with facilities for easy removal of silt, if any.○ For catch pits appropriate designs will be considered in order to drain out rain water without blocking/flooding○ Designed drainage facilities will be made capable of disposing of the runoff generated in a given water catchment without inundating the surrounding land for a selected rainfall event.	Design Cost	IA the Site in collaboration with the IA/PMU	IA/PMU
2	Design Considerations for conservation of habitats	<ul style="list-style-type: none">■ Design rehabilitation work to minimize the removal of large trees. As much as possible, large trees will be incorporated into the rehabilitation design■ The final footprint will be discussed with the safeguards team of the PMU and be approved.	Design Cost	IA the Site in collaboration with the IA/PMU	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
3	Incorporation of Green Design	<ul style="list-style-type: none"> Green infrastructure guidelines will be followed in designing and construction whenever possible. The use of natural material sourced from sustainable sources, such as natural rocks, choir, soil strengthening grasses etc. may be used for design of bank protection infrastructure and will be used where suitable. No material will be sourced from within any protected area. Structures built will incorporate earthy and natural colors that will mingle in with the natural scape and not hinder the aesthetic value of the area. Where possible the use of alternate energy sources will be explored. 	Design Cost	IA the Site in collaboration with the IA/PMU	IA/PMU
4	Assistance for impacts on livelihoods during project implementation (This is not a LSA site)	<ul style="list-style-type: none"> Wage assistance under the LSA program, Reasonable time shall be given to harvest the crops, Assistance in vegetable cultivation on permanent terraces and floriculture, Assistance to adopt precision agriculture. Opportunities will be provided for involvement in the labour force during rehabilitation work, including for women. Provide training especially for women on various entrepreneurship such as mushroom rearing, plant rearing and handloom, water systems and knowledge on drip irrigation systems. Support farmers to access markets to market their products. 	Design Cost	IA the Site in collaboration with the IA/PMU	IA/PMU
Pre-Construction/Site preparation phase					
1	Site Access Closure	<ul style="list-style-type: none"> All public access to the site will be prohibited or controlled via (especially the excavated areas/pits) 	Engineering Cost	IA the Site in collaboration	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>adequate fencing and signage in order to avoid risk to the public.</p> <ul style="list-style-type: none"> ■ The site entrance will include adequate signage indicating the details of the proposed sub-project, implementing agencies etc, as well as safety signage to keep public away. ■ A fence shall be erected to cover the working area, where possible, using cost effective fence materials consisting of chain link fence fabric, concrete post, etc. in order to ensure, animals and public are unable to freely access the site. <ul style="list-style-type: none"> ○ To avoid land disturbance and movement, the fence shall generally follow the contour of the ground. ○ Grading shall be performed where necessary to provide a neat appearance. 		with the IA/PMU	
2	Material Sourcing	<ul style="list-style-type: none"> ■ The contractor is required to ensure that all construction materials, including gravel, and earth is sourced from sites that are identified in collaboration with the IA and the PMU through the site Engineer. ■ Any change to these sites and the identification of new sites will require prior safeguards approval via the engineer. ■ Quarry material and sand shall be purchased from licensed operators. If the contractor operates his own quarry site, he will be required to obtain all licenses. ■ The contractor is required to maintain the necessary licenses and environmental clearances for all burrow and quarry material they are using –including soil, fine aggregate and coarse aggregate. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> Sourcing of any material from protected areas and/or designated natural areas, including tank beds, are strictly prohibited. If the contractor uses a non-commercial burrow/quarry sites, the sites will be developed and remediated per the guidance provided in this ESMP. The contractor is required to submit in writing all the relevant copies, numbers and relevant details of all pre-requisite licenses etc. and report of their status to the engineer on a quarterly basis. 			
3	Coffer Dams	<ul style="list-style-type: none"> The contractor will prepare the method statement for coffer damming (for sluice gate repairs) where relevant and have it approved by the engineer prior to commencement of work or use the method statement provided by the project proponent with designs. 	Engineering Cost	Contractor	IA/PMU
4	Work Site Management	<ul style="list-style-type: none"> The contractor will identify an area onsite to store construction materials and equipment which will be approved by the engineer and demarcated for material storage as per the site plan. Minimum safeguards protection such as covering, fencing of material storage areas would be required. Parking, repairing vehicles, machinery and equipment shall be done stationed only at the work site and/or in any other designated areas by the engineer. The contractor will provide instruction and advice will be given to drivers and operators (both company-owned and hired) to park vehicles and store equipment at this designated area. 	Engineering Cost	Contractor	IA/PMU
5	Labour Camps	<ul style="list-style-type: none"> The location, layout and basic facility provision of labour camps, site offices and resting facilities to be set up will be submitted to the Engineer prior to establishment. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> ■ The establishment of labour camps will commence only upon the written approval of the Engineer. ■ Resting and sanitary facilities will be provided separately for both men and women laborers. ■ The contractor will maintain necessary living accommodation and ancillary facilities in functional and hygienic manner and as approved by the Engineer. ■ All temporary accommodation will be established and maintained in such a fashion that uncontaminated water is available for drinking, cooking and washing. ■ The sewage system for the camp, if not available, will be planned & implemented with concurrence from the Local Public Health Officer (PHI) 			
6	Labor Training and Code of Conduct	<ul style="list-style-type: none"> ■ The contractor will be required to develop a labour code of conduct and translated it in to local languages upon clearance from the Engineer. The code of conduct must be made available to all staff and displayed in the work site in local languages. ■ Labour awareness programs to educate the laborers about the code of conduct, general conduct, on Gender Based Violence (GBV) the Environmental and Social Management Plan, Occupational Health and Safety etc. will be conducted throughout the contract period as agreed in the contracts Environmental and Social Management Plan. ■ <u>No labour under the age of 18 will be hired for work under this contract.</u> 	Engineering Cost	Contractor	IA/PMU
7	Tree Removal	<ul style="list-style-type: none"> ■ Only trees required along the distribution canals/adjacent to the structures that impinge on the construction footprint will be removed. There is no tree removal identified at the site so far. The need for removal of these 	Engineering Cost	Contractor	IA/ Divisional Secretariat of Manthai West /PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>trees should be re-evaluated in consultation with the safeguards team.</p> <ul style="list-style-type: none"> ■ The contractor will prepare a list of the trees to be removed and seek the approval of the Engineer for their removal. ■ Contractor will adhere to the guidelines and recommendations made by the safeguards staff of the project and the CEA/Divisional Secretariat, if any, with regard to felling of trees and removal of vegetation. ■ The following will be conducted at minimum: <ul style="list-style-type: none"> ○ Contractor will make every effort to avoid removal and/or destruction of trees of religious, cultural aesthetic and environmental significance. ○ If such action is unavoidable, the Engineer will be informed in advance and carry out public consultation and report on the same will be submitted to the Engineer. ○ Tree removals need to take place with government tree removal procedure with prior approvals of GN, DSD, FD and CEA ○ Tree removal shall be done by the STC ○ During removing, attention will be paid to maintaining minimum disturbances to soil cover and also care will be taken not to damage adjoining trees. ○ Masonry tree guards, Low level RCC tree guards, Circular Iron Tree Guard with Bars, use of plate compactors near trees may also be considered where necessary ○ The following procedure will be followed: Remove the logs, branches of trees; Stack them properly until removal; Remove roots and rehabilitate the canal banks where trees were uprooted. 			

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> ○ The easily decomposable vegetation could either be utilized as a soil conditioner after drying or be composted in a proper manner. Large vegetation parts could be sold or else be used as firewood. ○ Removed trees of economic value will be handed over to the State Timber Corporation. ■ Compensatory Planting <ul style="list-style-type: none"> ○ Compensatory plantation by way of re-plantation of at least twice the number of trees cut will be carried out in the project area. The location of replanting sites will be worked out in close collaboration with the safeguards team of the PMU. ○ All planted trees will be native species to match removed ones where possible. ○ Growth and survival of trees planted shall be ensured and monitoring done at least for a period of 3 years. ○ Survival status shall be reported on monthly basis to Engineer in charge. ■ Additional Tree Removal <ul style="list-style-type: none"> ○ Additional trees and vegetation will be felled/removed only if that impinges directly on the permanent works or necessary temporary works. In all such cases contractor shall take prior approval from the Engineer. ○ If any trimming/pruning of roots of existing trees anticipated during construction, it will be consulted with the Safeguards Team of the PMU, prior to undertaking the identified trimming of roots. ○ This will be to ensure that the health and stability of the tree will not be impacted from trimming. 			

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
8	Information Disclosure among Stakeholders	<ul style="list-style-type: none"> ■ Discussions will be held with identified female headed households and female farming community on impacts of the project. ■ Further discussion will be held to determine potable water security during project implementation. ■ Discussions will be conducted with the residents who reside along the vicinity of the project site <ul style="list-style-type: none"> ○ Residents will be briefed of the project, purpose and design and outcomes via a documented community consultation session ○ This will be done immediately once the contractor is mobilized. ○ The contractor will take note of all impacts, especially safety hazards that will be of concern to the residents and take necessary measures as stipulated in the ESMP to mitigate them. ■ The contractor will maintain a log of any grievances/complaints and actions taken to resolve them. ■ A copy of the ESMP will be available always at the project supervision office on site with along with Sinhala and Tamil translations. 	Engineering Cost	Contractor/IA/IA/PMU	IA/PMU
9	Waste management	<ul style="list-style-type: none"> ■ Initiate discussions with Local Authority to provide solution to waste disposal (solid waste and liquid) problem in the irrigation scheme area to prevent further pollution of the tank and the irrigation canal system. 	Engineering Cost	IA/PMU/Local Authority	IA/PMU
10	Water quality surveillance and awareness on CKDu and household water purification methods	<ul style="list-style-type: none"> ■ Initiate discussions with the Water Board to carryout water quality surveillance to understand issues related to water quality and create awareness on CKDu and household level water purification methods among communities. 	Engineering Cost	IA/PMU/Local Authority	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
Construction/Intervention Phase					
1	Site Clearance and Land Development	<ul style="list-style-type: none">■ Guidelines stated with regard to removal of trees will be adhered to as far as possible.■ During removing, attention will be paid to maintaining minimum disturbances to soil cover and also care will be taken not to damage adjoining trees.■ <u>Trees removed will need to be compensated at the minimum of a 1:2 at basis. Planting locations could be either onsite or in the tank catchment, as practical and suitable.</u>■ Water spraying will be done at a regular interval to avoid dust generation due to site clearance.	Engineering Cost	Contractor	IA/PMU
2	Disposal of Debris and Spoil	<ul style="list-style-type: none">■ All debris and residual spoil material including any left earth shall be disposed only at locations approved by the engineer for such purpose and subjected to the following clauses:■ Canal bed excavations will be reused on site for embankments as much as possible.■ The contractor shall obtain the approval from the relevant Local Authority for disposal of spoil at the specified location, as directed by the Engineer■ Private land that will be selected for disposal will also require written consent from the land owner■ The debris and spoil shall be disposed in such a manner that;<ul style="list-style-type: none">○ Waterways and drainage paths are not blocked○ The disposed material will not be washed away by runoff○ Will not be a nuisance to the public○ Will not create vector breeding habitats	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> ■ All material that is reusable or recyclable shall be used for such purposes either by the contractor or through dealers. ■ The debris and residual spoil material including any left earth shall be used, to refill the burrow areas as directed by the engineer, subjected to laying of topsoil as per recommendations for conservation and reuse of top soil provided below. ■ Excavated earth materials and all debris materials shall be disposed immediately without allowing to stockpile at identified locations for debris disposal, recommended by the engineer. During transportation, dispose materials will be covered with tarpaulin. ■ If approved by the engineer, contractor can dispose the debris and spoil as a filling material provided that the contractor can ensure that such material is used for legally acceptable purposes with disposed in an environmentally acceptable manner. 			
3	Conservation and Reuse of Topsoil	<ul style="list-style-type: none"> ■ Top soil of productive areas where it must be removed for the purpose of this project shall be stripped to a specified depth of 50 mm and stored in stockpiles of height not exceeding 2 m, if directed by the engineer. If the contractor is in any doubt on whether to conserve the topsoil or not for any given area he/she shall obtain the direction from the engineer in writing ■ Removed top soil could be used as a productive soil when replanting/establishing vegetation ■ Stockpiled topsoil must be returned to cover the areas where the topsoil has been removed due to project activities. Residual topsoil must be distributed on adjoining/proximate barren areas as identified by the engineer in a layer of thickness of 75 mm – 150 mm. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> Topsoil thus stockpiled for reuse shall not be surcharged or overburdened. As far as possible multiple handling of topsoil stockpiles will be kept to a minimum. 			
4	Transport and Storage of construction materials	<ul style="list-style-type: none"> The contractor will avoid over loading trucks that transport material to construction sites. <u>During transportation, materials will be covered with tarpaulin.</u> Peak hours in roads with moderate to high traffic will be avoided. The contractor shall minimize possible public nuisance due to dust, traffic congestion, air pollution, etc., due to such haulage; If local roads are used, routes are to be selected based on the truck load; loads will be divided to prevent damages to local roads and bridges. Speed limits as nationality stipulated for haulage must be maintained. All vehicles used for haulage will be in good condition. If there are damages to local roads and other utilities due to hauling in roads caused by the contractor. The contractor shall attend to repair all damaged infrastructure/ roads, if needed through relevant authorities 	Engineering Cost	Contractor	IA/PMU
5	Emission of Dust during cover application and construction.	<ul style="list-style-type: none"> All construction materials such as sand, soil, metal, etc. will be transported under cover to the site and stored under cover at the sight. Plastic sheeting (of about 6 mm minimum thickness) can be used and held in place with weights, such as cinder blocks, with the edges of the sheeting buried, or by the use of other anchoring systems, in order to minimize the levels of airborne dust. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> ■ Mud patches caused by material transporting vehicles in the access road will be cleaned immediately. ■ Continual water sprinkling will be carried out in the construction areas and the access road if dust stir is observed. ■ Water sprinkling will be done more frequently on days that are dry and windy (at least four time's day) as the levels of dust can be elevated during dry periods. ■ <u>Dust masks will be provided to all laborers for the use at required times.</u> 			
6	Prevention of soil erosion during site preparation	<ul style="list-style-type: none"> ■ Debris material shall be disposed in such a manner that waterways, drainage paths would not get blocked. ■ Drainage paths associated with the infrastructure will be improved/erected to drain rain water properly. ■ Silt traps will be constructed to avoid siltation into water ways where necessary. ■ To avoid siltation, drainage paths will not be directed to any waterway directly and they will be separated. ■ Barricades such as humps will be erected at excavated areas for culverts, silt traps, toe walls, filling and lifting with proper sign boards, (all work will be carried out during the dry season). To prevent soil erosion in these excavated areas, proper earth drain system will be introduced. ■ Embankment slopes, slopes of cuts, etc. shall not be unduly exposed to erosive forces. These exposed slopes shall be graded and covered by grass or other suitable materials per the specifications. ■ All fills, back fills and slopes will be compacted immediately to reach the specified degree of compaction and establishment of proper mulch. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> All work will be carried out during the dry season. If such activities need to be continued during rainy season prior approval must be obtained from the Engineer by submitting a proposal on actions that will be undertaken by the contractor to prevent erosion. The work, permanent or temporary shall consist of measures as per design or as directed by the engineer to control soil erosion, sedimentation and water pollution to the satisfaction of the engineer. Typical measures include the use of berms, dikes sediment basins, fiber mats, mulches, grasses, slope drains and other devices. All sedimentation and pollution control works and maintenance thereof are deemed, as incidental to the earthwork or other items of work and no separate payment will be made for their implementation. 			
7	Burrowing of Earth and Management of Self Operated Burrow Sites	<ul style="list-style-type: none"> Earth burrowing identified from tank bed – exact location will be identified by the ID prior to implementation and the safeguards team should be informed. <u>Borrow site in the tank bed must be utilized based on the determination of a safe depth for excavation and should be rehabilitated prior to site closure.</u> Any change in the sites during implementation will have to be informed to the project Engineer and identification of new areas will need to be reviewed by the safeguards staff. In the event the contractor will use a self-operated burrow site: Approval from the Geological Survey and Mines Bureau will have to be sought for extraction and transport. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>Burrow areas shall not be opened without having a valid mining license from the GSMB¹.</p> <ul style="list-style-type: none"> ■ A site operational plan for opening and closing the burrow site, for any burrow site, will be prepared and submitted to the engineer for clearance. Refer guidelines for burrow site provided in the ESMF. ■ The contractor shall comply with the environmental requirements/guidelines issued by the Central Environmental Authority (CEA), GSMB and the respective local authorities with respect to locating new burrow areas (in addition to what has been identified) and with regard to all operations related to excavation and transportation of earth from such sites. ■ No burrow-sites be used (current approved) or newly established within areas protected under FFPO² and FO³ ■ The location, depth of excavation and the extent of the pit or open cut area shall be as approved by the engineer. ■ All burrow pits/areas will be rehabilitated at the end of their use by the contractor in accordance with the requirements/guidelines issued by the CEA and the respective local authority and guidelines presented in the ESMF. ■ Establishment of burrow pits/areas and its operational activities shall not cause any adverse impact to the near-by properties and people. ■ Contractor shall take all steps necessary to ensure the stability of slopes including those related to temporary works and burrow pits. 			

¹ GSMB- Geological Survey and Mines Bureau

² FFPO- Fauna and Flora Protection Ordinance

³ FO-Forest Ordinance

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> The burrow sites will be temporarily fenced off using an inexpensive material to ensure that wild animals will not stray in and fall. 			
8	Quarry Operations and Management of Self Operated Quarry Sites	<ul style="list-style-type: none"> In the event the contractor manages a self-owned existing quarry sites available in the project area the following will be followed: <ul style="list-style-type: none"> A site operational plan for opening and closing the quarry site, for any new quarry site, will be prepared and submitted to the engineer for clearance. This will be approved by GSMB with valid Environmental Protection License (EPL) and Industrial Mining Licenses; Prior approval will be obtained from GSMB, CEA and local authorities such as Pradeshiya Sabha. Selected quarry sites will have proper safety measures such as warnings, safety nets etc., and third-party insurance cover to protect external parties that may be affected due to blasting. Quarry sites will not be established within protected sites identified under the FFPO and FO. It is recommended not to seek material from quarries that have ongoing disputes with community. The maintenance and rehabilitation of the access roads in the event of damage by the contractor's operations shall be a responsibility of the contractor. Copies of all relevant licenses will be maintained by the contractor for review and documentation by the engineer 	Engineering Cost	Contractor	IA/PMU
9	Machinery Operation	<ul style="list-style-type: none"> Only experienced and well-trained workers will be used for the handling of machinery, equipment and material processing plants. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
10	Noise from vehicles, machinery, equipment and construction activities.	<ul style="list-style-type: none"> Noise generating work will be limited to day time (6:00 AM to 6:00 PM). <u>No work that generates excessive noise will be carried out during night hours (from 6:00 PM to 6:00 AM on the following day).</u> All equipment and machinery will be operated at noise levels that do not exceed the permissible level of 75 dB⁴ (during construction) for the day time. For all construction activities undertaken during the night time, the noise level will be maintained at below 50 dB as per the CEA noise control regulations All equipment will be in good serviced condition. Regular maintenance of all construction vehicles and machinery to meet noise control regulations stipulated by the CEA in 1996 (Gazette Extra Ordinary, No. 924/12) must be conducted for vehicles/machinery that will be used in construction on site and for transport. Ideally noise generating work will not be carried out during public holidays and religious days. Laborers will be advised to work with minimum noise. Strict labor supervision will be undertaken in this respect. No night time residency of laborers on site will be encouraged, post work hours. Idling of temporary trucks or other equipment will not be permitted during periods of loading/unloading or when they are not in active use. This practice will be ensured especially near residential and sensitive areas. Stationary construction equipment will be kept at least 100 m from the site periphery, which has proximity to households. All possible and practical measures to control noise emissions during drilling shall be employed. 	Engineering Cost	Contractor	IA/PMU

⁴ dB-Decibels

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> Contractor will submit the list of high noise/vibration generating machinery & equipment to the engineer for approval. Servicing of all construction vehicles and machinery must be done regularly and during routine servicing operations, the effectiveness of exhaust silencers will be checked and if found defective will be replaced. Maintenance of vehicles, equipment and machinery will be regular and up to the satisfaction of the Engineer to keep noise levels at the minimum. 			
11	Pollution of Soil and Water via Fuel and Lubricants	<ul style="list-style-type: none"> The contractor will ensure that all construction vehicle parking locations, fuel/lubricants storage sites, vehicle, machinery and equipment maintenance and refueling site shall be located away from the canal that is adjacent to the site by least 200 m away. Contractor will ensure that all vehicle/machinery and equipment operation, maintenance and refueling will be carried out in such a fashion that spillage of fuels and lubricants does not further contaminate the ground. Contractor will arrange for collection, storing and disposal of oily wastes to the pre-identified disposal sites (list to be submitted to Engineer) and approved by the Engineer. All spills and collected petroleum products will be disposed of in accordance with standards set by the CEA. Engineer will certify that all arrangements comply with the guidelines of CEA or any other relevant laws. 	Engineering Cost	Contractor	IA/PMU
12	Preventing loss of minor water sources and disruption to water users	<ul style="list-style-type: none"> The Contractor will make employees aware on water conservation and waste minimization in the construction process by: <ul style="list-style-type: none"> Arrange adequate supply of water for the project purpose throughout the construction period. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> ○ Not obtain water for project purposes, including for labor camps, from public or community water supply schemes without a prior approval from the relevant authority. ○ Not extract water from ground water or surface water bodies without the permission from engineer & relevant authority. ○ Obtain the permission for extracting water prior to the commencing of the project, from the relevant authority. ○ Apply best management practices to control contamination of run-off water during maintenance & operation of equipment. ○ Maintain adequate distance between stockpiles & water bodies to control effects to natural drainage paths. ■ Contractor will protect sources of water (potable or otherwise) such as water sources used by the community so that continued use of these water sources will not be disrupted by the work. In case closure of such sources is required on temporary basis, the contractor will provide alternative arrangement for supply. Alternative sources such as wells thus provided will be within acceptable distance to the original sources and accessible to the affected community. ■ In case the contractor's activities adversely affect the quantity or quality of water, the contractor will serve notice to the relevant authorities and downstream users of water sufficiently in advance. 			
13	Preventing siltation into water bodies	<ul style="list-style-type: none"> ■ Contractor will take measures to prevent siltation of water bodies because of construction work including, construction of temporary/permanent devices to prevent 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>water pollution due to siltation and increase of turbidity. These shall include the measures against erosion highlighted in this ESMP</p> <ul style="list-style-type: none"> ■ Construction materials containing small/fine particles will be stored in places not subjected to flooding and in such a manner that these materials will not be washed away by runoff. ■ Temporary soil dumps will be placed at least 200 m away from all water bodies ■ If temporary soil piles are left at the site for a long time those piles will be covered with thick polythene sheets ■ All fills, back fills and slopes will be compacted immediately to reach the specified degree of compaction and establishment of proper mulch 			
14	Preventing contamination of water from construction wastes	<ul style="list-style-type: none"> ■ Measures as stipulated in this ESMP shall be taken to prevent the wastewater produced in construction from entering the water bodies or the irrigation systems directly. ■ The discharge standards promulgated under the National Environmental Act shall be strictly adhered to. 	Engineering Cost	Contractor	IA/PMU
15	Managing alteration of drainage paths	<ul style="list-style-type: none"> ■ Contractor shall not close or block existing canals and streams permanently. If diversion or closure or blocking of canals and streams is required for the execution of work (e.g. for construction of bypass), contractor must first obtain the Engineers approval in writing. ■ Contractor shall carry out an investigation and report to the Engineer, if an investigation is requested by the Engineer. ■ Contractor shall also obtain the approval from the relevant agencies such as ID/Divisional Secretary prior to such action is taken. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> Contractors shall restore the drainage path back to its original status once the need for such diversion or closure or blockage is no longer required. All work interfering with water supply will only be undertaken during the dry season. 			
16	Public Safety	<ul style="list-style-type: none"> At all times the site will restrict the entry of public on to the site. Safety signboards and signboards prohibiting entrance and risks, will be displayed at all necessary locations. The contractor will obtain a Third-party insurance to compensate any damages, injuries caused to the public or laborers during the construction period. All construction vehicles will be operated by experienced and trained operators under supervision. Material loading and unloading will be done only within the project site. 	Engineering Cost	Contractor	IA/PMU
17	Safety of Workers	<ul style="list-style-type: none"> Contractor will comply with the requirements for safety of the workers as per the ILO Convention No. 62 and Safety & Health Regulations of the Factory Ordinance of Sri Lanka to the extent that those are applicable to this contract. <u>The contractor will supply all necessary safety measures at site- including provision of first aid kits and fire extinguishers.</u> Signage providing instructions on first aid management, emergency contact and emergency operational procedures in local languages will be displayed at the site office. Basic onsite safety training will be conducted for all laborers during the ESMP training prior to the start of the construction activities. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> ■ The training to laborers will also include a brief on the risks of working on a dam rehabilitation site. ■ <u>The contractor will obtain a Third-party insurance to compensate any damages, injuries caused to laborers during the construction period.</u> ■ <u>Protective footwear and protective goggles will be provided to all workers employed on mixing of materials like cement, concrete etc.</u> ■ Welder's protective eye-shields will be provided to workers who are engaged in welding works. ■ Earplugs will be provided to workers exposed to loud noise, and workers working in crushing, compaction, or concrete mixing operation. ■ <u>The contractor shall supply all necessary safety equipment such as safety goggles, helmets, safety belts, ear plugs, mask etc. to workers and staff.</u> ■ In addition, the contractor shall maintain in stock at the site office, gloves, ear muffs, goggles, dust masks, safety harness and any other equipment considered necessary. ■ A safety inspection checklist will be prepared taking into consideration what the workers are supposed to be wearing and monitored monthly and recorded. 			
18	Prevention of accidents	<ul style="list-style-type: none"> ■ <u>Prevention of accidents involving human beings or vehicles or accidents during construction period will be done via adequate training and guidance to all workers.</u> ■ Contractor should require a qualified safety officer and he/she should maintain the labour safety and occupational health and safety. ■ <u>A readily available first aid unit including an adequate supply of sterilized dressing materials and first aid supplies will always be available at the site office.</u> 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> ■ Availability of suitable transport always to take injured or sick person(s) to the nearest hospital will also be insured. ■ <u>Names and contact information for emergency services such as Ambulance services, hospitals, police and the fire brigade will be prepared as a sign board and displayed at the work site.</u> 			
19	Operation of labor camps	<ul style="list-style-type: none"> ■ A supply of sufficient quantity of potable water will be provisioned for in every workplace/labor camp site at suitable and easily accessible places, and regular maintenance of such provisions will be carried out. ■ The sewage system for the offsite labor camp, if newly established, will be designed, built and operated in such a fashion that no health hazards occurs and no pollution to the air, ground water or adjacent water courses take place. ■ <u>Adequate water supply will be provided in all toilets and urinals.</u> ■ Contractor will provide garbage bins in the camps and ensure that these are regularly emptied and disposed of in a hygienic manner. 	Engineering Cost	Contractor	IA/PMU
20	Handling of environmental and social issues during construction	<ul style="list-style-type: none"> • <u>The Contractor will appoint a suitably qualified Environmental and Social Officer following the award of the contract.</u> The Environmental and Social Officer will be the primary point of contact for assistance with all environmental issues during the pre-construction and construction phases. He/She will be responsible for ensuring the implementation of ESMP. • The Contractor will appoint a person responsible for community liaison and to handle public complaints regarding environmental/social related matters. All public complaints will be entered into the Complaints Register. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>The Environmental Officer will promptly investigate and review environmental complaints and implement the appropriate corrective actions to arrest or mitigate the cause of the complaints. A register of all complaints is to be passed to the Engineer within 24 hrs. They are received, with the action taken by the Environmental Officer on complains thereof.</p> <ul style="list-style-type: none"> Contractor shall prepare detailed Environmental Method Statement (EMS) clearly stating the approach, actions and way the ESMP is implemented. The EMS shall be updated regularly and submit for Engineers review. 			
21	Management of chance find of Archaeological Property	<ul style="list-style-type: none"> All fossils, coins, articles of value of antiquity and structures and other remains or things of geological or archaeological interest etc. discovered on the site and/or during construction work shall be the property of the Government of Sri Lanka, and shall be dealt with as per provisions of Antiquities Ordinance of 1940 (Revised in 1956 & 1998) The contractor shall take reasonable precaution to prevent his workmen or any other persons from removing and damaging any such article or thing and shall, immediately upon discovery thereof and before removal acquaint the Engineer of such discovery and carry out the Engineer's instructions for dealing with the same, awaiting which all work shall be stopped within 100 m in all directions from the site of discovery. If directed by the Engineers, the Contractor will obtain advice and assistance from the Department of Archaeological (DOA) of Sri Lanka on conservation measures to be taken with regard to the artifacts prior to recommencement of work in the area. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
22	Chance find of important Flora/Fauna	<ul style="list-style-type: none"> ■ Flora <ul style="list-style-type: none"> ○ While any rare/threatened/endangered flora species will be identified and removed prior to construction, during construction if by chance such species are found, it shall be immediately informed to the PMU by the contractor. ○ All activities that could destroy such flora and/or its habitat shall be stopped with immediate effect. Such activities shall be started only after obtaining the Engineer's approval. Contractor shall carry out all activities and plans that the Engineer instructed him to undertake to conserve such flora and/or its habitat. ■ Fauna <ul style="list-style-type: none"> ○ All works shall be carried out in such a manner that the destruction or disruption to the fauna and their habitats is minimum. ○ Construction workers shall be instructed to protect fauna including birds and aquatic life as well as their habitats. ○ Chance found important Fauna ○ During construction, if any faunal species is found, it shall be immediately informed to the PMU by the contractor. All activities that could destroy such fauna and/or its habitat shall be stopped with immediate effect. Such activities shall be started only after obtaining the Engineer's approval. Contractor shall carry out all activities and plans that the Engineer instructed him to undertake to conserve such fauna and/or its habitat. 	Engineering Cost	Contractor	IA/PMU

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
23	Site Closure and Demobilization	<ul style="list-style-type: none"> The contractor will remove all excess material, equipment, vehicles from the project site prior to completing demobilization from the site. Coffer dams, if erected need to be completely removed and associated debris has to be cleared from the. All temporary site offices will be dismantled and removed from the site. If the parking site has been dilapidated in any way as per the evaluation of the engineer, the contractor will reinstate it to the original condition prior to demobilization. 	Engineering Cost	Contractor	IA/PMU
24	Prevention of issues (e.g. GBV) related to labor influx	<ul style="list-style-type: none"> Avoid or reduce labour influx where possible Contractors to implement robust measures to prevent sexual harassment, gender-based violence (GBV) Raising awareness of workforce – on unacceptable conduct and national laws related to GBV Worker Code of Conduct will form part of the employment contract Introduce sanctions for non-compliance (e.g. termination) Cooperation with law enforcement agencies Contractor will have his/her own GRM/GBV mechanism to deal with their grievances – this will be separate from the Project GRM/GBV. 			
Post Construction/Operation and Maintenance Phase					
1	Greening and maintenance of earthen embankment	<ul style="list-style-type: none"> Only native species of plants may be used for the planting process- Vetiver grass is recommended as a suitable species that grows well on sandy loam soils and toxic conditions and has good potential to control soil erosion. Attempts will be made to also identify suitable “living filter” plant species that are known to minimize the amounts of toxins in a given environment. 	Operational Cost	Facility Operator	IA, CEA

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> ■ A supply of water will be available for the routine maintenance of the vegetation until it succeeds naturally. ■ Routine maintenance of planted species will be conducted to identify issues with establishment on site. ■ Replacement planting will be conducted as appropriate. 			
2	Flood management infrastructure	<ul style="list-style-type: none"> ■ Routine desilting and clearing of sediment traps, waste traps and silt traps, if any, will be included in the operations and maintenance plan for the sites. ■ Routine clearing and removal of aquatic alien invasive plants to ensure smooth flow and prevent blockages of waste traps etc. 	Operational Cost	Facility Operator	IA, CEA
3	Income generation for beneficiaries during construction periods	<ul style="list-style-type: none"> ■ Providing labor and other services for construction units can be allocated to local communities after providing required training to ensure enough income for local communities. Priority will also be given for female community members to secure employment opportunities with the contractor and related services linked to the project to ensure gender equality and inclusiveness. 	Operational cost	Contractor	IA, PMU
4	Provide adequate support for social organizations of the community	<ul style="list-style-type: none"> ■ To maintain the goodwill of the community and to pursue undisturbed operations during construction, it is recommended to provide some beneficiary services to community organizations through cooperate social responsibility budgets. 	Operational cost	Contractor	IA, PMU
5	Controlling pollution sources to the irrigation canals	<ul style="list-style-type: none"> ■ Identify sources of pollution discharging to the canals ■ Identify feasible mechanisms to address the discharge of pollution into the canals 	Operational cost	NPC-ID	IA, PMU

9. Special Information

a) Required Officers for the Work Site for Maintain Environmental and Social Safeguard

No	Officer's Designation	Service arrangement
1	Environmental and Safety Officer	Full time
2	Social Officer	Full time

The Environmental, Safety Officer and Social Officer are responsible to maintain environmental and social safety of the work site and maintain grievances. Also, he/she responsible to conduct environmental and social monthly monitoring and timely report to the PMU (Monthly monitoring format will be provided by the PMU).

The Health and Safety Officer should maintain Occupational Health and Safety (OHS) throughout the project period and ensure the safety of workers/officers/visitors and the community who are living adjacent project sites.

b) Important Documents Should Maintain at the Work Site

- Environment and Social Management Plan (ESMP)
- Relevant guidelines
- Tree Removal Guideline
- Labour Camp Guideline
- Guideline on Occupational Health and Safety and Working in Wildlife Area
- Covid 19 Health Guideline
- Signed Code of Conducts
- Log Book
- Complain/Grievances Record Book
- Accident Record Book
- Borrow Material Licenses

c) Special Training Needs

The proposed project area is a wildlife area and the workers must aware on prevention of wildlife attacks, prevention of snake bites etc. The contractor should facilitate for this trainings and safeguard officers of the PMU will coordinate relevant trainings periodically.

d) Special Approvals

Contractor should obtain necessary approvals form OIC of the army camp before enter to the work sites and all necessary information needs to be submitted.

e) Budget

Most of the mitigation measures described in the ESMP are deemed as incidental to construction work and included in the contract. However, the costs provided in the ESMP need to be considered as specific mitigation costs.

Description	Cost (Rs.)
Environmental and Safety Officer for 12 months (Rs. 100,000.00 x 12)	1,200,000.00
Social Officer for 12 months (Rs. 100,000.00 x 12)	1,200,000.00
General mitigation works (including safety measures, signage, GRM operations etc.)	1,000,000.00
Total	3,400,000.00

10. Public consultation and disclosure

10.1. Community Consultation under Phase 1

It is accepted by the majority that following of “Participatory Management Approach” is more appropriate for making decisions in respect of rehabilitation of irrigation infrastructure.

Client confirmed that the scope of work to be implemented under the project has been decided in accordance with the “Participatory Management Approach” concept basis. Awareness programmes were conducted among all stakeholders. Transect walks were carried out with the participation of PID official, farmers and others concerned. After discussions, decisions were taken in accordance with the consensus arrived at.

Consultant also visited the site, conducted awareness meetings, discussions and inspected the site while conducting transect walks with the participation of concerned officials of the PID and farmer leaders in order to prepare ESMP and ESSR.

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The consultant also visited the site, conducted awareness meetings, and discussions, and inspected the site while conducting transect walks with the participation of concerned officials of the PID and farmer leaders to prepare ESMP and ESSR.

A consultation was carried out by the National Involuntary Resettlement Policy (NIRP) and World Bank Policy. The stakeholders consulted during the ESMP preparation process are affected persons, residents, fishing societies, and relevant government agency representatives.

10.2. Grievance Redress Mechanism

A three-tier grievance redress system has been envisaged for the IWWRMP that will function at local (GN level) and regional level (Divisional level), with recourse to a national-level body for appeal and for ensuring high-level government commitment, policy support and coordination for the process. At the site level, grievances of the project will be addressed by

the local (GN level) GRM. The national level GRC will only be convened when a complaint or grievance is raised by an affected person that cannot be resolved at the lower levels. Accordingly, the following measures will be taken:

- The environmental and social officers of the, PMU and the Irrigation Engineer of will be responsible for creating awareness about the GRM, including its structure, functionalities of the GRM, mechanisms for registering complaints, and the procedures that would have to be followed by the different tiers of the GRM.
- The GRM process/procedures will be publicized among the General Public, Public Officers, Social Organizations, Contractors and Divisional Secretaries in the respective areas. A variety of methods will be adopted for communicating information to the relevant stakeholders. These methods will include display of posters in public places such as in government offices, project offices, community centers, hospitals and health clinics of the area.
- The performance of the GRM will be monitored as part of the project's monitoring system. All complaints will be registered and tracked in the system. The system will quarterly and annual summaries of: the number of complaints raised & resolved, and the time taken to resolve them. A bi-annual evaluation would also be conducted to assess the effectiveness and efficiency of the GRM to improve the performance of the GRM.
- The contractor will also create awareness grievance redress mechanism (GRM) established by the PMU for the project

- **Composition of Grievance Redress Committee (GRC) – Grama Niladhari Level**

This is the most basic, first level committee that will operate at site level, most likely as a committee at GN Division level. The Committee will try to resolve the grievances of persons who live in the immediate project area. The proposed composition of the committee would include a combination of government and community representatives who would try to resolve grievances in an amicable manner through a process aimed at achieving consensus.

Grama Niladhari of the area	Chairman
Representative from the local PMU Site Office	Secretary
Technical Officer (NPC-ID) from Welimaruthamdu Scheme	Member
Representative of Contractor (if required)	Member
Representative of a local social organization (NGO/CBO)	Member
A representative of the community or local religious leader	Member

- **Composition of Grievance Redress Committee (GRC) – Divisional Secretary Level**

This committee is expected to address complaints and disputes that cannot be resolved by the Grama Niladhari level committee. In addition to hearing appeal cases coming from lower level (GN level) committees, this committee could support the national level committee, providing information and administrative support. This committee will review decisions coming from GN level committees within 15 working days and will communicate its decision

to the claimants and GN level committee within five working days for follow-up actions. The committee consists of following members:

Divisional Secretary of the area or a representative nominated by the DS	Chairman
Representative from the PMU Head Office	Secretary
Grama Niladhari of the area from which the grievance was registered	Member
Irrigation Engineer (NPC-ID) of Welimaruthamadu scheme	Member
A representative from an NGO/CBO operative in the area	Member
A respected religious leader/clergy of the area or Community Leader	Member

- **Composition of Grievance Redress Committee (GRC) - National level**

This GRC should be located in the Ministry of Agriculture, Livestock, Lands and Irrigation and shall be chaired by an Additional Secretary of the Ministry or a designated representative. The Project Director would serve as the secretary to the committee. As well as guiding and supervising the grievance system, this committee would review appeals from people who are not satisfied with the decisions of the lower level committees. The committee would comprise the following members:

Additional Secretary/MI	Chairman
Project Director (of the PMU)	Secretary
Representative of the NPC-ID	Member
Representative from construction firm (if necessary)	Member
District Secretary of the District or a representative nominated by the DS	Member
Divisional Secretary of the area or a representative nominated by the DSD	Member
Representatives from a Social Organization (if necessary) (A national level NGO/CBO operating in the field and have operations in project area)	Member

- **Handling GVB cases in GRM:**

For GBV complaints, there are risks of stigmatization, rejection and reprisals against survivors. This creates and reinforces a culture of silence so survivors may be reticent to approach the project directly. The GRM will have multiple channels through which complaints can be registered in a safe, ethical and confidential manner keeping survivor information confidential and anonymous. The GRM committee will be trained on how to respond to GBV cases in a sensitive manner. During community consultations, effective channels will be identified (e.g. local community organizations, health providers, etc.) and GBV Service Providers will be mapped and identified in order to refer cases as required. Thus, the role of the GRM will be to refer cases to the service providers and to the police to investigate the cases and provide appropriate services to the survivors. The GBV Services Provider, and IA representatives involved in the GBV case resolution may report GBV cases to Police in accordance with the law. In the case of a child abuse, the incident will also be reported to the NCPA (National Child Protection Authority).

The GRM will also have in place processes to immediately notify both the IA and the World Bank of any GBV complaints with the consent of the survivor. If the investigations revealed that the probability of the incident of GBV occurring was either created or exacerbated by the project, then corrective actions would be taken by the Borrower and the World Bank to increase safety and security in the site locations.

The identified GBV Services Provider will have its own case management process which will be used to gather the necessary detailed data to support the complainant and facilitate resolution of the case referred by the GRM operator. This information should not go beyond the resolution of the incident, the date the incident was resolved, and that the case is closed. Service providers are under no obligation to provide case data to anyone without the survivor's consent. If the survivor consents to case data being shared the service provider can share information when and if doing so is safe, meaning the sharing of data will not put the survivor or service provider at risk for experiencing more violence.

To measure the effectiveness of the GRM addressing GBV-related complaints, data will be gathered for the following indicators: number of GBV grievances that have been referred to GBV Service Providers disaggregated by adult/children, the number of cases closed, and the average time they were open.

- **Contractor's GRM process to deal with the grievances related to labour and working conditions**

The contractor's will be required to provide a Grievance Redress mechanism for all direct workers and contracted workers (and, where relevant, their organizations) to raise workplace concerns related to labor and working conditions. Contractor's grievance mechanism will be a separate one to the one established for PAPs and other stakeholders because workplace concerns are usually different from issues raised by project affected parties and other stakeholders. However, this parallel GRM operated by the contractor will include processes to refer complaints to the project GRM so as to ensure that an accurate understanding of the project's complaints is always available.

Workers will be informed of the grievance mechanism at the time of recruitment and the measures put in place to protect them against reprisal for its use. The contractor then will be required to make available relevant information throughout project duration in manner that is clear, understandable, and accessible to workers, for example by including it in workers' handbooks, on notice boards, or similar communication mechanisms.

The Contractor's will be required to address concerns promptly, using an understandable and transparent process that provides timely feedback to those concerned in a language they understand, without any retribution, and will operate in an independent and objective manner. It is important that the grievance mechanism be accessible to all direct and contracted workers, taking into account their different characteristics, for example female

workers, migrant workers or workers with disabilities. Where appropriate, consideration can be given to allowing concerns to be raised anonymously and/or to a person other than an immediate supervisor.

The grievance mechanism may utilize existing grievance mechanisms, providing that they are properly designed and implemented, address concerns promptly, and are readily accessible to such project workers. Hence, existing grievance mechanisms may be supplemented as needed with project-specific arrangements. The grievance mechanism will not impede access to other judicial or administrative remedies that might be available under the law or through existing arbitration procedures, or substitute for grievance mechanisms provided through collective agreements.

10.3. Implementation Arrangements and Monitoring Plans

The Project Director for IWWRRMP will be the overall in-charge of the project management team.

The overall responsibility of ensuring compliance with safeguard requirements lie with the PMU supported by the WB while the contractor will be responsible for implementing the provisions in the ESMP that are related to the construction stage. In addition, the contractor will be directly responsible for developing and implementing the contractor's ESMP. The overall supervision will be carried out by the Irrigation Engineer of the Northern Provincial Council-Irrigation Department (NPC-ID) and the PMU that is responsible for the overall design and supervision of the proposed sub-project. Any consequent design modifications will be reflected in the project cost.

Environmental and monitoring will be carried out largely through compliance monitoring using the checklist provided in the ESMF by the Environmental Specialist of the PMU and the contractor jointly. **The Environment and social Specialist of the PMU will visit the site on a regular basis and report to PMU on the contractor's performance on the implementation of the ESMP.**

In addition, the contractor shall inform the progress of EMP implementation formally through a monthly monitoring report submit to the PMU through the engineer. The contractor will hire a Social, Environmental and Social officer and Health and Safety Officer to plan and manage the implementation of the ESMP



Integrated Watershed and Water Resources Management Project (IWWRMP)

**Standard Procedure for Ensuring Occupational
Health and Safety When working in Wildlife
Area**



February, 2025

Content

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1. Purpose

Workers who are working in wildlife or forest areas can be exposed to wildlife threats. Therefore, persons working in these areas need to strictly follow the guidelines and regulations given by the relevant authority. To fulfill this requirement, contractors and workers will have to follow the occupational health and safety guideline covered in this document during their working period in the wildlife/ forest areas.

2. Common hazards that may occur when working in Wildlife areas

1. Infectious diseases transmission from mosquito or small animal bites.
2. Swelling, mild or severe allergic reactions from stinging insects.
3. Swelling, mild or severe allergic reactions or death from snake bites.
4. Serious injury or death from contact with large mammals or reptiles.

3. Planning for Occupational Health and Safety (OHS).

1. Review identified area, its nature, jurisdiction, conservation status and relevant authority.
2. Plan to get relevant authorization and get clear idea about given conditions and required OHS measures.
3. Purchasing of relevant safety equipment. (Example – Personal Protective Equipment)
4. Provide necessary trainings to staff. (Example – First Aid, emergency protocols)
5. Appoint a person to supervise OHS.

4. Safe Operating Procedure

4.1 General procedures

- 4.1.1 Obtain conditional approval from authorized agency (Example – Department of Wildlife Conservation / Forest Department).
- 4.1.2 Understand the given conditions and take action to aware all workers (including drivers and supporting staff) on the given conditions.
- 4.1.3 Obtain the service of 01 or 02 officers from relevant authorized agency and always accompany them to relevant sites and work under their supervision and guidance.
- 4.1.4 If any risks or danger is anticipated , felt or identified in the area of work, immediately take action to inform authorized persons and get their direction.

4.2 Common preparedness

- 4.2.1 Be aware of working area and current conditions and history. (Example –elephant attacks / crocodile attacks)
- 4.2.2 Always carry a mobile phone or some communication system. (In some protected areas of Sri Lanka, there is no mobile phone coverage).
- 4.2.3 Select suitable vehicles, at least two vehicles should be mobilized (good condition, 4-wheel, toolbox, tire ropes and winch, etc.). Persons will not engage in any activities alone.
- 4.2.4 Always bring a first aid box/ stretcher.
- 4.2.5 Be aware of nearest hospital and nearest route.
- 4.2.6 Be equipped with enough clean drinking water for workers.

5. Common protocol to follow

- 1. Be aware of your surroundings, and note any wild or suspicious acting animals in your working area.
- 2. Identify and be aware about wild animal active times and try to avoid those times.
- 3. Avoid reaching or stepping into or over hidden areas that may contain wildlife.
- 4. Be aware of signs that indicate above or below ground animal nests. Also take appropriate action to prevent contaminations of these areas.
- 5. Avoid direct contact with birds, bats, or other animal droppings.
- 6. Avoid direct contact with animal blood. If contact cannot be prevented, wear rubber gloves and dispose properly.
- 7. Do not feed any wild animal.
- 8. Do not capture / harm wild life or plant species and do not collect any thing from protected area. (Example fallen animal horns, bones, tusks (ivory), etc).
- 9. Set fire under (if necessary) should do under supervision of wildlife officers and after use take action to completely extinguish it.
- 10. Allocate one person to be on guard/vigilance while other workers are at work

6. Precautional actions

6.1 Precautions against bees/ wasp stings/bites

- 6.1.1 Awareness about working areas and presence of bee hives or wasp nests .
- 6.1.2 Do not wear perfumes, colognes, scented soaps or powders.
- 6.1.3 Tuck pants into your socks or working boots.
- 6.1.4 Wear safety hats with face protecting net.
- 6.1.5 Do not make more noise than necessary when working.
- 6.1.6 Establish safety cage with enough space. (If possible)
- 6.1.7 Provide safety kit for workers
- 6.1.8 If you decided to remove bee/ wasp nest from working site, the authorized agency (example Department of Wildlife Conservation -DWLC) should be informed and their concurrence and assistance should be sought prior to implementation.
- 6.1.9 Always consult and take a service from qualified pest-removal expert. (Example – Bee conservation Society of Sri Lanka)

6.2 Precautions against large mammal attacks

- 6.2.1 Be aware of working site, access routes etc.
- 6.2.2 Be aware on animal movement routes, times, nature of the animals etc.
- 6.2.3 Try to avoid contact with wild animals. (Example – use an alternative route)
- 6.2.4 Request wildlife officers to bring/provide safety equipment (Example - Thunder-flashes).

6.3 Precautions for prevention of snake bites

- 6.3.1 Be vigilant and aware of working area.
- 6.3.2 Always wear safety boots.
- 6.3.3 Do not put hands or legs into hidden holes, anthills or any hidden spots.
- 6.3.4 Do not touch dead or live snakes.

6.4 Precautions for prevention of crocodile attacks

- 6.4.1 Be vigilant and aware of working area on crocodile signs (Example – foot prints, scats, hiding holes etc) and if those signs are available immediately inform to authorized officials and get their advises.
- 6.4.2 Do not put your hands or legs in to crocodile hiding holes / do not enter into crocodile hiding holes.
- 6.4.3 Do not enter into unsafe water.
- 6.4.4 If you need to work in open waters, establish protective cages.
- 6.4.5 Observe the working area thoroughly before entering in to open waters or protective cages.

7. General Conditions of workers

- 1. Workers should be in good health condition.
- 2. Should agree to follow given conditions and safety measures given from time to time and unexpected conditions.
- 3. Do not consume alcohol while working.
- 4. Always pay attention to surroundings.
- 5. Always stay as a group.
- 6. Do not litter.
- 7. Aware of all Do's and Don'ts. (contractor and supervision officers are responsible for this).
- 8. Establish temporary signboards on Do's and Don'ts at working sites.

8. Personal Protective Equipment need to used

- 1. Insect repellant
- 2. Long-sleeved shirts and pants (Jungle green/ dark colour)
- 3. Safety boots
- 4. Insect spray designed for bees/wasps/hornets
- 5. Safety hats with face protector (specially protect from bees and wasps)
- 6. Life jackets/ raincoats.
- 7. Life saving equipment for working in water.
- 8. Re-chargeable torches / lighting equipment.



Integrated Watershed and Water Resources Management Project (IWWRMP)

Standard Procedure for Assessing the Requirement of Tree Removals



February, 2025

Standard Procedure for Assessing the Requirement of Tree Removals

1. Planning Stage

- 1.1 Consultancy teams should be appraised by the PMU to pay attention and document the requirement of tree removals at each site.
- 1.2 Consultancy team should discuss with officials of relevant implementing agency on proposed tree removals to identify exact requirement and alternatives explored.
- 1.3 Ground verification on tree removals should be done by team of IA and PMU. Officials from implementing agency and representatives from community organizations shall also participate and records with attendance list be taken. All trees identified for removal should be measured for their Diameter at Breast Height (DBH).
- 1.4 Special attention shall be given if any of the selected trees are considered rare, endemic, religiously, historically or culturally important, or are in roosting/ nesting sites etc. The removal of these trees should be avoided and alternatives sought. Unavoidable removals shall be supported with sufficient justification.
- 1.5 Proposed unavoidable tree removal identified and confirmed at ground verification should be declared and requirement explained to the public at community consultative meetings. The removal should be comprehensive justified with scientific/ engineering support. Sufficient time for community public feedback shall be provided. All suggestions provided shall be given due consideration.
- 1.6 If public raise key concerns/questions/ protests/ alternatives, the proposed list of tree removal shall be revisited with the relevant implement agency.
- 1.7 Include finalized tree list in to draft ESMP (scientific justification need for each tree which has identified to be removed). All mitigations and compensatory tree planting activities shall be presented explicitly in the ESMP.
- 1.8 Submit draft ESMP to PMU with all required information and photos on proposed tree removals.

2. Reviewing Stage

- 2.1 ESMPs shall be reviewed by PMU and further discussion with consultancy team will be conducted if necessary.

- 2.2 Field visit will be conducted by the PMU further verify of the requirement of proposed tree removals with officials of relevant implementing agency and representatives of community organizations.
- 2.3 The proposed tree removal list in the ESMP will be revisited post field visit and any necessary amendments will be made if necessary in concurrence with the implementing agency.
- 2.4 The final stage shall be to obtain the recommendations of DSRP (SPELL OUT) on tree removals and further amend list according to the recommendations of DSRP

3. Obtaining Clearance / approvals (responsibility of Implement Agency)

- 3.1 The finalized tree removal list shall be shared with relevant approving officers/ agencies like Grama Niladhari, Divisional Secretariat, District Secretariat, Forest Department, State Timber Corporation, Central Environment Authority/ Provincial Environmental Authority etc. The obtaining of the clearances, where required, will be the responsibility of the implementing agency will be done prior to any removal of trees.
- 3.2 All clearances shall be shared with the PMU and endorsed before the tree removal activities are commenced. If any conflicts arise, the PMU will bring it to the notice of the World Bank E&S team immediately.

4. Awareness program (Implementation Agency / PMU)

- 4.1 Awareness programs for selected contractors shall be conducted on environmental and social impact mitigation measures with special attention on tree protection/removal guidelines.
- 4.2 Contractors shall be strictly advised not to remove trees unless essential. They shall be instructed to follow the ESMP strictly and any deviations shall be notified to the implementing agency and the PMU in advance for necessary action.
- 4.3 The removal of trees will be presented at the project introductory meeting and any other community level meetings.
- 4.4 Continuous field inspection and monitoring shall be conducted with a more concerted focus during land preparation and tree removal period.
- 4.5 Public complaints shall be attended to without delay adopting the protocols in place for GRM

5. Ecosystem restoration (Contractor)

5.1 Contractor shall carry out recommendations provided in the ESMP on remedial mitigation involving planting and maintenance of suitable tree species (as identified in the ESMP).

6. Monitoring and Evaluation (PMU/ Implementing agency)

6.1 Field inspection and monitoring will be carried out at regular intervals by the implementing agency and the PMU. Photographic evidence will be recorded for all tree removal activities.

6.2 Upon completion of required tree removal activities, site shall be evaluated to ensure that no further destruction has occurred. If satisfied, final clearance to proceed will be granted by the PMU.

6.2 If not satisfied, the contractor will be directed to utilize retention fund to carry out ecosystem restoration to the satisfaction of the implementing agency and the PMU. The WB E&S team shall also be notified under such circumstances.

For Reference Only

Integrated Watershed and Water Resources Management Project (IWWRMP)

Checklist for Tree Removals.

Name of the Site

Date

No	Item/ Activity	YES	NO	Remarks
1	Tree removal has been identified in ESMP			
2	List of tree removals with justification has been included in to ESMP (approved by WB			
3	Ground verification done by PMU			
4	Ground verification done by DSRP			
5	According to no 3 &4, Amendments included in to final tree removal list			
6	Conduct final community consultancy and briefing on tree removals by IA/PMU			
7	According to no 6, Any disagree / not at			
8	If disagree, did any change in the list			
9	Obtained necessary clearance			
	GN Di.S DS FD CEA P.EA A.Dep.			
10	Written inform to authorized officers/institutes			
	GN Di.S DS FD CEA P.EA A.Dep.			
11	IA agreed to closely monitor of tree removals (in written)			
12	Awareness on tree removals carried out for contractor to the satisfaction of PMU.			

GN- Grama Niladhari, Di.S – Divisional Secretary, DS – District Secretary, FD – Forest Department, CEA- Central Environment Authority, P.EA- Provincial Environment Authority, A.Dep. – Archeology Department, IA- Implementing Agency, PMU – Project management Unit. (Use “√” mark in relevant box)

.....

According to the checklist, proposed tree removal is in order.

Signature / Date

Environment Specialist (IWWRMP)

.....

Signature /Date

Project Director (IWWRMP)

Declaration of Implementing Agency

I hereby certify that, proposed tree removal will be done under my direct supervision and responsible to maintain and follow required condition given by authorized / approving agencies.

.....

Signature /Date

Officer In-charge/ IA

For Reference Only



Integrated Watershed and Water Resources Management Project (IWWRMP)

Ministry of Irrigation

Labor Management Plan
(Including site management and camp
management measures)



February, 2025

Abbreviations

IA	-	Implementing Agency
IWWRMP	-	Integrated Watershed and Water Resources Management Project
LMP	-	Labor Management Plan
PMU	-	Project Management Unit
PHI	-	Public Health Inspector
GBV	-	Gender Based Violence

For Reference Only

Introduction

Labor Management Plan (LMP) of the Integrated Watershed and Water Resources Management Project (IWWRMP) provides basic guidance to contractors to smoothly operate project activities without creating harm to workers and communities. Selected contractors shall follow this plan including relevant national labor management laws, regulations and practices. The labor management plan consists of site management measures and camp management measures which outlines a range of mitigation measures designed to avoid or reduce undesired labor management, site management and camp management impacts during construction.

The plan has been prepared by structuring relevant major subject areas that need to be paid attention to and providing mitigation measures including details of responsible entities for implementation and frequency of monitoring to the identified risks and potential impacts.

Objectives of the plan

The objectives of the labor management Plan are:

- Avoid or reduce negative impacts on environment due to establishment of project sites.
- Establish standards on worker welfare and living conditions at the camps that provide a healthy, safe and comfortable environment.
- Avoid or reduce negative impact on community and maintain constructive relationships between local communities and workers' camps.

Roles and responsibilities

- Contractor shall ensure sufficient resources are allocated on an ongoing basis to meet the requirements of this Plan.
- Contractor shall strictly adhere to national labor acts, rules and regulations pertaining to terms and conditions of employment and labor management.
- The Contractor shall pay attention to implement labor management plan monitor the progress.
- Contractor shall facilitate to PMU or IA to monitor the progress of LMP.
- Contractor shall comply to make necessary amendments to the LMP after the site inspections of PMU, IA or authorized entity.
- Contractor shall comply to ensure that all workers sign the GBV Code of Conduct (CoC), provide necessary awareness and trainings to laborers about rules and regulations, guidelines and general information time to time.

No	Major field	Sub field	Mitigation and management measures	Responsibility	Monitoring frequency
1	Plan basic arrangements of worksite management	Site identification and demarcation	Contractor should identify the exact area of work site before start project activities.	Site engineer & Contractor	-
			Contractor should plan the work site to identify appropriate places for site office, labor camps, yards, stores, parking areas etc.	Site engineer & Contractor	-
			Contractor should obtain relevant approvals from IA and site engineer.	Contractor	-
			Fence or protective measure should be placed around the work site.	Contractor	-
		Control public access to work site	All public access to the work site should be prohibited or controlled to avoid risk to the public.	Contractor	Monthly
			Signboards should be displayed at all entry points which indicating “Authorized entries only” or “prohibited to public entrance”.	Contractor	Monthly
			Contractor shall take action to establish a temporary security point at the entrance and assigned a person to duty for 24 hrs. for security of the site and monitor vehicle and monitoring transfer of goods into and out of camps.	Contractor	Weekly
			A register shall be maintained at the security point to register all labors/ officers/vehicles which enter / departure to/from the work site.	Contractor	Weekly
		Disclose of basic information to workers and interest groups	Contractor should established signboards at the main entry point to display detailed information of the proposed project.	Contractor	Monthly
			Safety signs should be displayed at the entrance and other necessary places at the work site.	Contractor	Monthly
			Contractor should established a notice boards at the work site and necessary information should be displayed in time to time.	Contractor	Monthly
			Contractor should establish a notice board on COVID 19 health guideline at the entrance.	Contractor	Monthly
		Establishment of site office	Contractor should established a site office according to the site plan and should maintain appropriate working condition.	Contractor/ Site engineer	-

No	Major field	Sub field	Mitigation and management measures	Responsibility	Monitoring frequency
			Necessary documents (guidelines, ESMP, copy of approvals etc.) should be placed at the site office.	Contractor	Monthly
			First aid box with essential drugs should be placed at the site office.	Contractor	weekly
			Fire protection equipment should be placed at the site office.	Contractor	Monthly
			Contractor should maintain an extra stock of safety equipment at site office to issue when necessary.	Contractor	Monthly
			Hazards, explosives or any harmful chemicals should not stock in the site office.	Contractor	weekly
2	Plan work site arrangement	Readiness for emergency response	Contractor shall develop an emergency response plan that meets requirements of emergency situation.	Contractor	-
		Ensure the safety of workers	Contractor should be placed temporary fences/ barricade tapes or protective measures to identify working areas, heavy machinery operating areas and areas where having deep excavations and activities of hazardous nature for the workers.	Contractor	Every 2 weeks
			Specific area in the site should be reserved to store construction materials.	Contractor	Monthly
			Specific area /place/ rooms should be reserved for store Hazards, explosives or harmful materials or chemicals.	Contractor	Weekly
			Materials should stock piled without exceeding approved height.	Contractor	Monthly
			Areas should be demarcated to park vehicles/ heavy machines or vehicle repairing and relevant sign boards should be displaced.	Contractor	Monthly
			All vehicles used by any contractor for the purpose of the project will have valid registration, insurance and road worthiness.	Contractor	Daily
			Fire protection equipment should be established in the work site at most essential places.	Contractor	Every 2 weeks
			The contractor shall take action to strictly follow the COVID 19 operational guideline declared by the Ministry of Health at work site.	Contractor	Once a week

No	Major field	Sub field	Mitigation and management measures	Responsibility	Monitoring frequency
			Workshops, Stores, should establish according to the approved site plan.	Contactor	-
			Equipment (including power tools) should store properly, listed and assigned a person to issuing and receiving.	Contractor	Weekly
3	Establishment of Pollution Control measures	Control of Dust and emission,	Stock piled materials should be covered with appropriate cover or sprinkling water to control dust emission.	Contractor / Site engineer	Daily
			Dust emission form earth works (when operating) should controlled by sprinkling water.	Contractor / Site engineer	Daily
			Contractor should take action to transport excavated debris to approved dumping sites and should not store at work site.	Contractor / Site engineer	Daily
		Control of noise and vibration	Contractor shall adhere to strictly follow given condition for noise limits and vibration limits. (far day and night)	Contractor / Site engineer	Daily
		Control of water pollution	Silt traps should be established in relevant places.	Contractor / Site engineer	Monthly
			Proper solid waste management mechanism should be established in the work site.	Contractor / Site engineer	Daily
			Precautions should be established to avoid oil, fuel or lubricant contamination.	Contractor / Site engineer	Daily
		Final clearance and restoration of worksite	After the completion of project activities contractor shall carefully remove all temporary buildings, huts, stocked piled materials, temporary blocks of streams etc. form the work site and follow up the approved site restoration actions.	Contractor / Site engineer/PMU	-
4C	Labor management measures	Adhere to laws and regulations	No labor under the age of 18 will be hired for work under this contract.	Contractor	Daily
			Contractor shall strictly follow relevant national labor laws and acts related to terms and conditions of employment (i.e. related to salary payments, working hours, leave etc.) and issue employment letters/contracts to workers with details of the employment terms/conditions.	Contractor	-
			Contractor shall obtain necessary approval when increased the number of workers in labor camps	Contractor	-

No	Major field	Sub field	Mitigation and management measures	Responsibility	Monitoring frequency
			Contractor shall maintain a log of any grievances/complaints and actions taken to resolve them.	Contractor	Weekly
			Any complaints related to sexual harassment / gender based violence should be immediately reported to the PMU who in turn will report to World Bank for necessary guidance on the actions to be taken.	Contractor	
			Workers shall abide by camp rules which includes a disciplinary process.	Contractor	Daily
			Contractor shall limit workers interaction with community when outside the camp.	Contractor	Daily
			Contractor's personnel shall not engage in any discrimination or harassing behavior.	Contractor	Daily
		Arrangement for conduct basic awareness for workers	Contractor shall take action to develop a labor code of conduct and translated it in to local languages upon clearance from the Engineer. The code of conduct must be made available to all staff and displayed in the work site in local languages. All workers will required to sign the Code of Conduct.	Contractor	Monthly
			Contractor shall give necessary advices and instructions to all labors and drivers of the site to follow code of conducts.	Contractor/Site engineer/IA/PMU	When necessary
			Contractor shall take action to conduct labor awareness programs to educate the laborers about the code of conduct, general conduct, the Environmental and Social Management Plan, Occupational Health and Safety etc.	Contractor/Site engineer/IA/PMU	When necessary
		Labor safety and welfare facilities	Contractor shall provide sufficient safety gears to labors and need to monitor the utilization.	Contractor/ Site engineer	Daily
			Contractor shall take action to follow safety measures specially in handling of explosives, hazard chemicals, electricity etc.	Contractor/ Site engineer	Daily
			Contractor shall provide equal facilities / standards for all labor camps in the site and do not make any differences on worker's race, gender or nationality.	Contractor/ Site engineer	Daily
			Contractor, as appropriate, shall provide adequate recreation facilities for workers to reduce incentive for leaving camps during leisure time.	Contractor/ Site engineer	Monthly

No	Major field	Sub field	Mitigation and management measures	Responsibility	Monitoring frequency
			Contractor shall pay more attention and provide better quality safety equipment to the workers who are engaging with danger/ risk activities.	Contractor	Daily
		Recognition of cultural, nationality, religion rights.	Contractor may provide prayer rooms and other facilities, as necessary and to the extent practicable, to satisfy the religious needs and customs of its workforce. (if necessary)	Contractor	Monthly
5	Labor Camp management	Planning of Labor camps	Labor camps shall be established according to the approved site plan.	Contractor/ Site engineer	-
		Address community grievances	PMU or IA may request that camp related activities/operations be amended to address community grievances. Contractor shall comply with these requests.	Contractor	-
			Establishment of labor camps shall be commenced only upon the written approval of the Engineer.	contractor	-
			IA/ PMU may request that camp related activities/operations be amended to address community grievances. Contractor shall comply with these requests.	Contractor	-
		Maintain health condition	Contractor shall comply with the minimum health requirements for project execution and the community Health and Safety Management Plan which set out requirements and management measures on controlling communicable diseases within camps and to outside communities.	Contractor	Daily
			Contractor shall routinely monitor the quality and supply of water and other health related facilities.	contractor	Monthly
		Maintain Living and hygienic conditions	Contractor shall be maintained necessary living accommodation and ancillary facilities in functional and hygienic manner and as approved by the Engineer.	Contractor	Monthly
			Contractor should provide separate resting and sanitary facilities for both men and women laborers.	Contractor	Monthly
			All temporary accommodation should be established and maintained in such a fashion that uncontaminated water is available for drinking, cooking and washing.	Contractor	Monthly
			Washrooms should have sufficient and proper water supply.	Contractor	Weekly

No	Major field	Sub field	Mitigation and management measures	Responsibility	Monitoring frequency
			Drinking water facility should be provided to labor camps.	Contractor	Daily
			COVID-19 health guideline shall be applied at the labor camps and throughout the work site.	Contractor	Daily
			Adequate Personal protective equipment (PPE) will be provided to workers, including: Facemasks, gloves, etc., if possible, to prevent COVID-19 spread	Contractor	Daily
		Application of Waste management measures	The sewage system for the camp, if not available, shall be planned & implemented with concurrence from the Local Public Health Officer (PHI).	Contractor/ Site engineer	-
			Proper solid waste management system (waste collection method/ separation method and final disposal method) should be established at labor camps.	Contractor	Weekly
			Waste water (from kitchen, washrooms, canteen etc.) should not release into open water bodies or streams.	Contractor	Weekly
		Final clearance and camp demolishing	After the completion of project activities contractor shall carefully remove all temporary buildings, huts, labor camps, toilets form the work site. Temporary toilet pits should treat and demolish accordance to approved health guidelines. Approved site restoration actions should implement.	Contractor/IA/ PMU	-

For Reference Only

Sample Code of Conduct

Individual Code of Conduct

Implementing ESHS and OHS Standards

Preventing Gender Based Violence

I, _____, acknowledge that adhering to environmental, social, health and safety (ESHS) standards, following the project's occupational health and safety (OHS) requirements, and preventing Gender Based Violence (GBV) is important. The Company considers that failure to follow ESHS and OHS standards, or to partake in activities constituting GBV—be it on the work site, the work site surroundings, at workers' camps, or the surrounding communities—constitute acts of gross misconduct and are therefore grounds for sanctions, penalties or potential termination of employment. Prosecution by the Police of those who commit GBV may be pursued if appropriate.

I agree that while working on the project I will:

1. Consent to Police background check.
2. Attend and actively partake in training courses related to ESHS, OHS, and GBV as requested by my employer.
3. Will wear my personal protective equipment (PPE) at all times when at the work site or engaged in project related activities.
4. Take all practical steps to implement the contractor's environmental and social management plan (C-ESMP).
5. Implement the OHS Management Plan.
6. Adhere to a zero-alcohol policy during work activities, and refrain from the use of narcotics or other substances which can impair faculties at all times.
7. Treat women, children (persons under the age of 18), and men with respect regardless of race, color, language, religion, political or other opinion, national, ethnic or social origin, property, disability, birth or other status.
8. Not use language or behavior towards women, children or men that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate.
9. Not sexually exploit or abuse project beneficiaries and members of the surrounding communities.

10. Not engage in sexual harassment of work personnel and staff—for instance, making unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature is prohibited. E.g. looking somebody up and down; kissing, howling or smacking sounds; hanging around somebody; whistling and catcalls; in some instances, giving personal gifts.
11. Not engage in sexual favors—for instance, making promises of favorable treatment (e.g. promotion), threats of unfavorable treatment (e.g. loss of job) or payments in kind or in cash, dependent on sexual acts—or other forms of humiliating, degrading or exploitative behavior.
12. Not use prostitution in any form at any time.
13. Not participate in sexual contact or activity with children under the age of 18—including grooming, or contact through digital media. Mistaken belief regarding the age of a child is not a defense. Consent from the child is also not a defense or excuse.
14. Unless there is the full consent¹ by all parties involved, I will not have sexual interactions with members of the surrounding communities. This includes relationships involving the withholding or promise of actual provision of benefit (monetary or non-monetary) to community members in exchange for sex (including prostitution). Such sexual activity is considered “non-consensual” within the scope of this Code.
15. Consider reporting through the GRM or to my manager any suspected or actual GBV by a fellow worker, whether employed by my company or not, or any breaches of this Code of Conduct.

With regard to children under the age of 18:

16. Bring to the attention of my manager the presence of any children on the construction site or engaged in hazardous activities.
17. Wherever possible, ensure that another adult is present when working in the proximity of children.
18. Not invite unaccompanied children unrelated to my family into my home, unless they are at immediate risk of injury or in physical danger.
19. Not use any computers, mobile phones, video and digital cameras or any other medium to exploit or harass children or to access child pornography (see also “Use of children's images for work related purposes” below).
20. Refrain from physical punishment or discipline of children.
21. Refrain from hiring children for domestic or other labor below the minimum age of 14 unless national law specifies a higher age, or which places them at significant risk of injury.

¹ **Consent** is defined as the informed choice underlying an individual’s free and voluntary intention, acceptance or agreement to do something. No consent can be found when such acceptance or agreement is obtained using threats, force or other forms of coercion, abduction, fraud, deception, or misrepresentation. In accordance with the United Nations Convention on the Rights of the Child, the World Bank considers that consent cannot be given by children under the age of 18, even if national legislation of the country into which the Code of Conduct is introduced has a lower age. Mistaken belief regarding the age of the child and consent from the child is not a defense.

22. Comply with all relevant local legislation, including labor laws in relation to child labor and World Bank's safeguard policies on child labor and minimum age.

Use of children's images for work related purposes

When photographing or filming a child for work related purposes, I must:

23. Before photographing or filming a child, assess and endeavor to comply with local traditions or restrictions for reproducing personal images.
24. Before photographing or filming a child, obtain informed consent from the child and a parent or guardian of the child. As part of this I must explain how the photograph or film will be used.
25. Ensure photographs, films, videos and DVDs present children in a dignified and respectful manner and not in a vulnerable or submissive manner. Children should be adequately clothed and not in poses that could be seen as sexually suggestive.
26. Ensure images are honest representations of the context and the facts.
27. Ensure file labels do not reveal identifying information about a child when sending images electronically.

Sanctions

I understand that if I breach this Individual Code of Conduct, my employer will take disciplinary action which could include:

1. Informal warning.
2. Formal warning.
3. Additional Training.
4. Loss of up to one week's salary.
5. Suspension of employment (without payment of salary), for a minimum period of 1 month up to a maximum of 6 months.
6. Termination of employment.
7. Report to the Police if warranted.

I understand that it is my responsibility to ensure that the environmental, social, health and safety standards are met. That I will adhere to the occupational health and safety management plan. That I will avoid actions or behaviors that could be construed as GBV. Any such actions

will be a breach this Individual Code of Conduct. I do hereby acknowledge that I have read the foregoing Individual Code of Conduct, do agree to comply with the standards contained therein and understand my roles and responsibilities to prevent and respond to ESHS, OHS, GBV issues. I understand that any action inconsistent with this Individual Code of Conduct or failure to act mandated by this Individual Code of Conduct may result in disciplinary action and may affect my ongoing employment.

Signature: _____

Printed Name: _____

Title: _____

Date: _____

For Reference Only

For Reference Only

For Reference Only

Section - 7

Form of Bid

For Reference Only

FORM OF BID

Name of Contract: **Rehabilitation of Welimaruthamadu Tank Downstream**

Contract No.: **LK-MoMDE-317179-CW-RFB**

To: Project Director, Integrated Watershed & Water Resources Management Project

Gentlemen:

1. Having examined the Standard Bidding Document - Procurement of Works – Major Contracts [ICTAD/SBD/02 - Second Edition, January 2007], Specifications, Drawings and Bills of Quantities and Addenda for the execution of the above-named Works, we the undersigned, offer to execute and complete such Works and remedy any defect therein in conformity with the aforesaid Conditions of Contract, Specifications, Drawings, Bills of Quantities and addenda for the sum of Sri Lankan Rupees (LKR) or such other sums as may be ascertained in accordance with the said Conditions.
2. We acknowledge that the Contract Data forms part of our Bid.
3. We undertake, if our Bid is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Engineer's notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Contract Data.
4. We agree to abide by this Bid until the date specified in ITB Clause 16 [insert date], and it shall remain binding upon us and may be accepted at any time before that date.
5. Unless and until a formal Agreement is prepared and executed this Bid, together with your written acceptance thereof, shall constitute a binding Contract between us.
6. We understand that you are not bound to accept the lowest or any bid you may receive.
7. We declare that civil work contracts *have/ have not been* suspended or terminated and/or performance security called by an employer for reasons related to the non-compliance of any environmental, or social, (including sexual exploitation and abuse (SEA) and gender based violence (GBV)), or health or safety requirements or safeguard in the past five years.
(*Note: If suspended, terminated or Performance Security is called give details*)

Year	Suspended or terminated portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and US\$ equivalent)
[insert year]	[insert amount and percentage]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Employer: [insert full name] Address of Employer: [insert street/city/country] Reason(s) for suspension or termination: [indicate main reason(s) e.g. for GBV/ SEA breaches]	[insert amount]

...	...	[list all applicable contracts]	...
Performance Security called by an employer(s) for reasons related to ESHS performance			
Year	Contract Identification	Total Contract Amount (current value, currency, exchange rate and US\$ equivalent)	
[insert year]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Employer: [insert full name] Address of Employer: [insert street/city/country] Reason(s) for calling of performance security: [indicate main reason(s) e.g. for GBV/ SEA breaches]	[insert amount]	

8. We certify/confirm that we comply with the eligibility requirements as per ITB Clause 3 of the bidding documents.

Dated this day of 20.....

Signature in the capacity of

duly authorized to sign bids for and on behalf of
[in block capitals or typed]

Address:

Witness:

Section – 8
Bill of Quantities

For Reference Only

Schedules

Preamble to the Bill of Quantities
Description of Items and Measurement Methods
Bill of Quantities

Preamble to the Bill of Quantities

- 1.1 The Bill of Quantities shall be read in conjunction with all parts of this entire Bidding Document; the Instructions to Bidders, General and Particular Conditions of Contract, Technical Specifications, Drawings, and supplementary information.
- 1.2 The Bill of Quantities includes lump sum items, unit price items and provisional sum items. The lump sum price quoted will be deemed to be full compensation for completion of work items and paid in full when the work is completed. The quantities given in the Bill of Quantities for the unit price items are estimated and provisional, and are given to provide a common basis for bidding. They are not intended to be the maximum or minimum quantities for payment. The unit prices will be considered full compensation for those work items. The basis of payment will be the actual quantities of work carried out under the provisions of the Contract, measured and valued at the applicable rates and prices in the priced Bill of Quantities.
- 1.3 The rates and prices bid in the priced Bill of Quantities shall, except as otherwise provided under the Contract, include all construction plant, equipment, labour, supervision, materials, transport, erection, maintenance, testing, insurance, overheads, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.
- 1.4 A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
- 1.5 The rates and prices entered in the Bill of Quantities shall be full compensation for completed work and shall have taken full account of all requirements and obligations, covered by all parts of the contract, including but not limited to, the following, unless expressly stated otherwise:
 - a. All setting out and survey works including Pre and Post Construction Surveys.
 - b. All additional site surveys and investigations, preparation of field amendment drawings, shop drawings and as-built drawings.
 - c. Mobilization and Demobilization of labour, all construction plant and equipment.
 - d. Establishment, Maintenance and Removal of all temporary facilities (Contractor's and Engineer's) including offices, workshops, houses, labour camps construction and storage yards, Laboratory facilities and Equipment, Transport for staff and labour etc.
 - e. Labour and all costs in connection therewith, including but not limited to social charges or fringe benefits.
 - f. The supply of material and goods, storage and costs in connection therewith including delivery to site and handling material within the site/sites.
 - g. Taking delivery of materials and goods supplied by others, unloading, storage, handling materials within site, and costs in connection therewith.
 - h. Construction Plant & Equipment and all costs in connection therewith.

- i. Fixing, erecting and installing or placing of materials and goods in position, including usual auxiliary material etc.
 - j. Temporary Works.
 - k. Complying with any limitations and constraints on the use of the site/sites including coordinating with other Contractor's, with regard to site access, security etc., maintenance of access to households and other users, maintenance of existing roads, waterways etc.
 - l. Dealing with the existing flow of water from any source including irrigation flow requirement, rainfall and surface runoff, groundwater, wave action and the like. This includes all and any dewatering operations necessary for the execution of the Works as well as coffer damming if required.
 - m. General obligations, liabilities and risks involved in the execution of the Works set forth or reasonably implied in the documents on which the tender is based.
 - n. Overheads and profit.
 - o. Waste of material.
 - p. Attendance and transport for surveys including provision of boats and survey instruments, sampling and testing carried out by the Engineer.
 - q. Performing all sampling and testing which are required to be carried out by the Contractor, and supplying results of such tests.
 - r. Providing required material delivery certificates.
 - s. Coordination with Regulatory Institutes & all stake holders.
 - t. Disposal of all waste material.
 - u. Complying with all requirements in Specifications and Conditions of Contract where separate items have not been provided.
- 1.6 Where Bill of Quantities items describe the replacement of existing equipment or components, including mechanical and electrical equipment, the equipment removed remains the property of the Employer, unless stated otherwise in the contract documents. The rates entered shall include for delivery of such equipment to the Employer or for disposal if so directed by the Employer.
- 1.7 The whole cost of complying with the provisions of the Contract (excluding VAT) shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.**
- 1.8 General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.
- 1.9 Provisional Sums included and so designated in the Bill of Quantities shall be expended in whole or in part or not at all at the direction and discretion of the Engineer and in accordance with the Conditions of Contract. Where the expenditure against a Provisional Sum is made in the form of a Variation, the payment for the work will be made in accordance with Clause 37 of the Conditions of Contract.

- 1.10 The method and unit of measurement of completed work for payment shall be in accordance with the method described in the specifications for each item or in the Bill of Quantities. For Lump Sum items, measurements for Interim Payment Certificates shall be based on percentage completion of such item of work or milestone as per the Contractor's proposed schedule of monthly payments, as approved by the Engineer.

For Reference Only

Descriptions of Items and Measurement Methods

INTRODUCTION

The descriptions of the different items in the Bills of Quantities and the method adopted for measurements are indicated in the following paragraphs.

The quantities shall be computed using dimensions from the drawings based on the pre-construction surveys or as varied by the Engineer, except where clearly stated otherwise under the following individual items. No allowance shall be made for settlement, bulking, shrinkage, or waste.

1 BILL NO 1 - PRELIMINARIES

1.1 Insurances and Securities

Sub Item 1.1.1– Provisional Sum for Providing a Performance Security and Advance Payment Security

This item covers the provision of Performance Security as required under Clause 49.1 of the General Conditions of Contract (GCC) as a Provisional Sum item. Payment for this item will be certified once the Performance Security, in the specified format, has been provided and accepted by the Employer.

Additionally, this item includes the provision of Advance Payment Security as required in the Contract, also as a Provisional Sum item. Payment for each item will be certified once the respective Advance Payment Security, in the specified format, has been provided and accepted by the Employer.

Amount of Payment for each shall be actual cost (Bank Charges) on the submission of the relevant document acceptable to the Engineer plus 5 % of the actual cost

Sub Item 1.1.2- Provisional Sum for Insurance of works, Machinery & Equipment, Plant, Materials, third party persons & property and Employer's personal & property at site and against accidents and injury to contractor's personal as per the contracts per contract

This sub-item covers the provision of various types of insurances as required under Clause 13 of the General Conditions of Contract (GCC) as Provisional Sum items.

Payment for each type of insurance will be certified once the respective insurance policies, issued by acceptable insurance companies, along with proof of full premium payment, have been submitted to and accepted by the Employer.

Amount of Payment for each shall be actual cost (premium payment) on the submission of the relevant document acceptable to the Engineer plus 5 % of the actual cost

1.2 Contractor's Requirements

Sub Item 1.2.1 & 1.2.2 – Lump Sum for Establishment, Maintenance, and Removal of Contractor's Site Facilities

This sub item outlines the requirements for establishing, maintaining, and removing all site facilities required by the contractor to execute the contract works. This includes facilities such as offices, stores, workshops, housing, and any other necessary infrastructure.

Requirements:

Establishment of Facilities:

Details Required: The contractor must provide detailed plans and layouts of the facilities with their tender submission. This helps ensure that the facilities meet the project's needs and are aligned with the contract specifications.

Submission of Breakdown: A breakdown of costs associated with this provisional sum item must be included in the tender. This allows for better cost management and financial planning.

Payment Structure:

50% of the Lump Sum: This portion will be certified and paid upon the successful establishment of all planned facilities. This means that once the facilities are set up as per the submitted plans and are ready for use, half of the agreed amount for this item will be paid.

25% for Maintenance: This portion is intended for the ongoing upkeep and maintenance of the facilities from the time they are established until the completion of the work. Maintenance costs should be included in the monthly payment certificates.

25% for Removal and Site Clean-up: The remaining amount will be paid once all facilities have been removed and the site has been cleaned up upon completion of the project.

Ownership and Property:

All facilities established under this item will remain the property of the contractor. This means the contractor is responsible for their upkeep, removal, and any associated costs.

Inclusion in Payment Certificates:

Maintenance costs should be included in the monthly payment certificates, ensuring that the contractor is compensated for the ongoing costs of maintaining the site facilities throughout the project's duration.

By adhering to these requirements, the contractor ensures that the site facilities are properly managed throughout the project, with clear financial arrangements in place for their establishment, maintenance, and eventual removal.

1.3 Quality and Standards

Sub Item 1.3.1– Provisional sum for all cost in connection with preparing samples for testing, making arrangements for testing of Materials, Goods etc, as stipulated in the specification, obtaining test reports and submitting the same to the Engineer.

This sub-item covers the cost of any special testing of materials and goods etc. as per the requirement of the Engineer. which are not coming and the quality assurance system and specification and requested by the Engineer.

Amount of Payment for each shall be actual cost for testing on the submission of the relevant document acceptable to the Engineer plus 5 % of the actual cost

Sub Item 1.3.2- Lump sum for providing of progress reports including photographic records and other schedules included in the CIDA publication Guidelines for Effective Construction Management. (CIDA/CM/01), relevant to contract administration as directed by the Engineer.

The sub item is provided for the submission of Monthly Progress Reports and photographs, schedules etc.

Payments will be certified on submission and acceptance of the required documents.

Sub Item 1.3.3 – Allow lump sum for provision of 2 sets of (hard copies and soft copies) as-built drawing of all services for Engineer's approval.

The sub item is provided on a Lump sum basis for the submission of as-built Drawings as specified in the Contract and requested by the Engineer.

Payments will be certified on submission and acceptance of the required drawings and documents.

1.4 Health and Safety

Sub Item 1.4.1. - Allow lump sum for providing and maintaining health, safety & Environment throughout the period of construction according to the ESMP as directed by the Engineer.

The sub item is provided on a lump sum basis to ensure the Standard Procedure on Occupational Health and Safety When working as per the regulations and guidelines given in the contract agreement

Payments will be certified on compliance and acceptance of Engineer and the submission of necessary report and documents as per agreement and regulations.

1.5 Miscellaneous

Sub Item 1.5.1 – Allow lump sum for providing and maintaining a Name Board 1650 x 1050 mm in size fixed to G.I pipe frame work at 2100 mm height as per the drawing and as directed by Engineer.

This sub item covers the supply, erection, maintenance, and removal of a Notice Board, which must be at least 1650 x 1050 mm in size and mounted on a 50 mm GI pipe as per drawing. The Notice Board should display details about the Project, Employer, Contractor, and any other information specified by the Engineer. Payment for this item will be certified upon the successful erection of the Notice Board and the submission of the required documentation, provided these are accepted by the Engineer.

Sub Item 1.5.2– Employers share of Adjudicator's fees and expenses

This sub item provides for a provisional sum intended to cover the Employer's share of the fees and expenses paid to the Adjudicator by the Contractor. Payments will be certified upon the submission and acceptance of the required documentation by the Engineer.

2 IMPROVEMENTS TO SHINNAPULAVELI ROAD

Sub Item 2.1 - Shrub & thorny jungle clearing manually along the Road reservation

This sub-item includes the clearing of shrubs and thorny vegetation, including uprooting, within the road reservation area. Payment for this work will be based on the number of labour days spent for this works. Measurement shall be recorded jointly by Engineer and Contractor. The boundaries of the road reservation area must be approved by the Engineer before commencing work.

Sub Item 2.2 -Stripping top soil

This sub-item covers the removal of topsoil from the upstream slope, downstream slope, and the top of the bund to a thickness of 0.075 meters. The stripped topsoil will be set aside to receive new earth, and the spoils must be disposed of outside the reservation area as directed. Payment will be based on the actual volume of topsoil stripped, as measured from the level approved by the Engineer.

Sub Item 2.3 – Furnishing, transporting, placing, spreading, watering and compaction of earth as surfacing material for access road

This sub-item includes the furnishing, transporting, placing, spreading, watering, and compaction of an earth layer to be used as surfacing material for the access road. The rate covers the identification of suitable borrow areas, removal of overburden, extraction of well-graded earth, and transportation to the site.

Payment will be based on the volume of compacted earth placed in position, as measured from the construction drawings.

Sub Item 2.4 – Furnishing, transporting, placing, spreading, watering and compaction of 150mm graded gravel layer as surfacing material for access road

The sub item provides for Furnishing, transporting, placing, spreading, watering and compaction of 150mm graded gravel layer as surfacing material for access road. The rate also includes cost for identifying suitable borrow areas, removal of overburden, extraction of well graded gravel, transport to site, reinstatement of borrow areas.

The measurement for payment shall be the volume of compacted gravel placed in position measured from the as per construction drawings

Sub Item 2.5 – Furnishing, transporting, placing, spreading, watering and compaction of graded gravel layer as surfacing material for access road

This sub-item covers the furnishing, transporting, placing, spreading, watering, and compaction of a graded gravel layer for surfacing the access road. The rate includes the costs for identifying suitable borrow areas, removing overburden, extracting well-graded gravel, transporting it to the site, and reinstating the borrow areas.

Payment will be based on the volume of compacted gravel as measured from the joint measurement.

2.6 Construction of 150mm Dia. Hume Pipe Culvert

Sub Item 2.6.1 – Excavation of foundation material

This sub-item includes the excavation of foundation material and the disposal of spoils to waste or a designated dump site. The rate also covers the management of water and the compaction of the foundation surface.

Payment will be based on the volume of material excavated to the design levels specified in the construction drawings.

Sub Item 2.6.2 – Supplying and laying 1:3:6 (40mm) concrete (mixing manually).

The sub item provides for Supplying and laying 1:3:6 (40mm) concrete with

formwork mixing by Mixture at site. Rate includes cost of dewatering of foundations, placing, compacting and curing of concrete including filling of over-excavations.

The measurement for payment shall be the volume of concrete measured from the construction drawings.

Sub Item 2.6.3 Supplying, laying and jointing 150 mm dia hume pipe

This sub-item includes the supply, laying, and jointing of 150 mm diameter Hume pipes with collars in the specified position.

Payment will be based on the linear meter of pipe installed, as measured from the construction drawings.

2.7 Construction of 300mm Dia. Hume Pipe Culvert

Sub Item 2.7.1 – Excavation of foundation material

The sub item provides for excavation of foundation material and spoils to waste or dump. Rate include dealing with water and compacting of foundation surface.

The measurement for payment shall be the volume excavated in place to the design levels shown on construction drawings.

Sub Item 2.7.2 – Supplying and laying 1:3:6 (40mm) concrete (mixing manually).

The sub item provides for Supplying and laying 1:3:6 (40mm) concrete with formwork mixing by Mixture at site. Rate includes cost of dewatering of foundations, placing, compacting and curing of concrete including filling of over-excavations.

The measurement for payment shall be the volume of concrete measured from the construction drawings.

Sub Item 2.7.3 Supplying, laying and jointing 300 mm dia hume pipe

The sub item provides for Supplying, laying and jointing 300 mm dia hume pipe with collar in position

The measurement for payment shall be the linear meter measured from the construction drawings

2.8 Construction of 600mm Dia. Hume Pipe Culvert

Sub Item 2.8.1 – Excavation of foundation material

The sub item provides for excavation of foundation material and spoils to waste or dump. Rate include dealing with water and compacting of foundation surface.

The measurement for payment shall be the volume excavated in place to the design levels shown on construction drawings.

Sub Item 2.8.2 – Supplying and laying 1:3:6 (40mm) concrete (mixing manually).

The sub item provides for Supplying and laying 1:3:6 (40mm) concrete with formwork mixing by Mixture at site. Rate includes cost of dewatering of foundations, placing, compacting and curing of concrete including filling of over-excavations.

The measurement for payment shall be the volume of concrete measured from the construction drawings.

Sub Item 2.8.3 Supplying, laying and jointing 600 mm dia hume pipe

The sub item provides for Supplying, laying and jointing 600 mm dia hume pipe with collar in position

The measurement for payment shall be the linear meter measured from the construction drawings

2.9 Construction of 3 Row 600mm Dia. Hume Pipe Culvert

Sub Item 2.9.1 – Excavation of foundation material

This sub-item covers the excavation of foundation material and the disposal of spoils to a waste or dump site. The rate includes backfilling, managing water and compacting the foundation surface.

Payment will be based on the volume of material excavated to the design levels, as indicated in the construction drawings.

Sub Item 2.9.2 – Supplying and laying 1:3:6 (40mm) concrete (mixing manually).

The sub item provides for Supplying and laying 1:3:6 (40mm) concrete with formwork mixing by Mixture at site. Rate includes cost of dewatering of foundations, placing, compacting and curing of concrete including filling of over-excavations.

The measurement for payment shall be the volume of concrete measured from the as construction drawings.

Sub Item 2.9.3 – Supplying and laying 1:1 1/2:3 (20mm) concrete (mixing manually).

The sub item provides for Supplying and laying 1:1 1/2:3 (20mm) concrete with

formwork mixing by Mixture at site. Rate includes cost of dewatering of foundations, placing, compacting and curing of concrete including filling of over-excavations.

The measurement for payment shall be the volume of concrete measured from the as construction drawings.

Sub Item 2.9.4 – Supplying, cutting, bending & placing 10mm QT rib bar as reinforcement

This sub-item covers the supply, cutting, bending, and fixing of reinforcement bars, including cover blocks. The reinforcement bars must meet the standards specified in SLS 375:2009 (equivalent to BS 4449:2005).

Payment will be based on the weight of the QT rib bars, as determined from the construction drawings.

Sub Item 2.9.5 Supplying, laying and jointing 600 mm dia hume pipe

The sub item provides for Supplying, laying and jointing 600 mm dia hume pipe with collar in position

The measurement for payment shall be the linear meter measured from the construction drawings

Sub Item 2.9.6 – Construction of guard stones

The sub item provides for construction of guard stones on edge of the culvert as per the drawing.

The measurement for payment shall be the number of guard stones construction in position.

2.10 Improvement of Periyapulaveli to Ilavakulam Road

Sub Item 2.10.1 – Shrub & thorny jungle clearing

This sub-item includes shrub and thorny clearing, including uprooting stumps, along the road way area. Payment will be based on the actual area cleared.

Sub Item 2.10.2 – Trimming & cambering along the toe road by motor grader

This sub-item covers the trimming and cambering of the toe road using a motor grader. The work includes all operations necessary for the proper cutting and shaping of the road surface. Payment will be based on the area of work completed, as measured from the actual work done.

3 IMPROVEMENTS TO TRAINING BUND OF WELIMARUTHAMADU TANK

3.1 Improvement of Training Bund

Sub Item 3.1.1 - Shrub & thorny jungle clearing by machinery along the Training bund

This sub-item involves the clearing of shrubs and thorny vegetation, including uprooting, along the tank bund and its reservations and removing outside and burning to ashes as directed.

Payment will be based on the actual area cleared, measured by the bed width of the tank bund, and the linear meter as indicated in the construction drawings.

Sub Item 3.1.2 – Supplying and laying 1:3:6 (40mm) concrete (mixing machinery).

This sub-item includes the supply and laying of 1:3:6 concrete with a 40mm aggregate, using formwork and mixing by a concrete mixer. The rate covers dewatering of foundations, placing, compacting, curing of concrete, and filling of over-excavations.

Payment will be based on the volume of concrete, as measured from the construction drawings.

3.2 Re Construction of Hume Pipe Type 600mm Dia Sluice for Illavakulam & Sinnal pulaveli and periyapulaveli land

Sub Item 3.2.1 – Cut Open the Bund and Refilling demolished existing structure

The bund will first be cut open to begin the construction process. Next, the existing structure will be demolished, and all debris will be removed from the site. Once the new sluice structure is constructed, the bund will be filled and reinstated to its original form.

The scope includes managing water during the process and compacting the refilled material to ensure a stable foundation surface.

Payment for this work will be based on the volume of material excavated and refilled, measured according to the design levels outlined in the construction drawings.

Sub Item 3.2.2 – Excavation of foundation material

This sub-item covers the excavation of foundation material and the disposal of spoils to a waste or dump site. The rate includes managing water and compacting the foundation surface.

Payment will be based on the volume of material excavated to the design levels specified in the construction drawings.

Sub Item 3.2.3 – Supplying and laying 1:3:6 (40mm) concrete (mixing machinery).

This sub-item involves the supply and placement of 1:3:6 concrete with 40mm aggregate, mixed on-site using a concrete mixer. The scope includes all associated costs such as formwork, dewatering of foundations if required, and the entire process of placing, compacting, and curing the concrete. It also covers the filling of any over-excavations. Payment for this work will be based on the volume of concrete as measured from the construction drawings.

Sub Item 3.2.4 – Supplying and laying 1:2:4 (20mm) concrete (mixing machinery).

This sub-item covers the supply and placement of 1:2:4 concrete with 20mm aggregate, mixed on-site using a concrete mixer. The scope includes all costs associated with formwork, dewatering of foundations as necessary, and the complete process of placing, compacting, and curing the concrete. It also includes the filling of any over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub Item 3.2.5 – Supplying, cutting, bending & placing 10mm QT rib bar as reinforcement

This sub-item includes the supply, cutting, bending, and placement of 10mm QT rib bars as reinforcement. The scope of work encompasses the cost of providing, cutting, bending, and fixing the reinforcement bars, as well as the inclusion of cover blocks. The reinforcement bars must conform to the standards specified in SLS 375:2009 (equivalent to BS 4449:2005). Payment will be based on the weight of the QT rib bars, as measured from the construction drawings.

Sub Item 3.2.6 Supplying, laying and jointing 1200 mm dia hume pipe

This sub-item covers the supply, laying, and jointing of 1200 mm diameter Hume pipe in the specified position. Payment will be based on the linear meter of pipe installed, as measured from the construction drawings.

Sub Item 3.2.7 Supplying, laying and jointing 600 mm dia hume pipe

This sub-item involves the supply, laying, and jointing of 600 mm diameter Hume pipe with collar in the designated position. Payment will be based on the linear meter of pipe installed, as measured from the construction drawings.

Sub Item 3.2.8 Supplying and fixing 600mm Dia C.I Gate with complete set

This sub-item includes the supply and installation of a 600 mm diameter cast iron gate with a complete set, which comprises a 3.6-meter long spindle with a 1.5-inch diameter, including the required threaded brass nuts, base plate, rag bolts, and other associated components. The base plate bolts and nuts must be welded as directed by the Engineer. Payment will be based on the number of cast iron gates installed in position.

4 IMPROVEMENT OF ILAVAKULAM TANK

4.1 Improvement of Tank Bund

Sub Item 4.1.1 - Light jungle clearing by machinery along the Tank bund

This sub-item involves light jungle clearing, including the uprooting of vegetation along the tank bund and reservations and removing outside and burning to ashes as directed. Payment will be based on the actual area cleared, measured along the slope of the tank bund from the upstream (U/S) to the downstream (D/S) reservation. The area at the toe line of the tank must be approved by the Engineer.

Sub Item 4.1.2 – Borrowing earth from identified borrow areas

This sub-item covers the provision of earth fill for improving bund slopes, using material from designated borrow areas. The work includes stripping and benching the slopes to accommodate the new fill, excavating from the borrow areas, transporting, spreading (in layers' average thickness not more than 225mm), watering, compacting by sheep foot roller (to 98% Proctor Density), and conducting any specified or directed material testing. The rate also includes stripping and removing topsoil from the borrow areas and reinstating it as directed by the Engineer. Additionally, the rate encompasses all associated charges, levies, license fees, and other costs related to borrowing and transporting the fill material. Payment will be based on the volume of earth fill, measured from the levels established by pre-construction surveys and construction drawings.

Sub Item 4.1.3 – Trimming & cambering along the toe road by motor grader

This sub-item covers the trimming and cambering of the toe road using a motor grader. The work includes all operations necessary for the proper cutting and shaping of the road surface. Payment will be based on the area of work completed, as measured from the actual work done.

Sub Item 4.1.4 – Furnishing placing spreading, watering and compaction of 150mm

graded gravel layer as surfacing material for bund top

This sub-item involves furnishing, placing, spreading, watering, and compacting a 150mm thick graded gravel layer as a surfacing material for the bund top. The scope includes identifying suitable borrow areas, removing overburden, extracting well-graded gravel, transporting it to the site, and reinstating the borrow areas. Payment will be based on the volume of compacted gravel placed in position, as measured from the construction drawings.

4.2 Improvement of sluice

Sub Item 4.2.1 – Cut Open the Bund and Refilling demolished existing structure

This sub-item covers the cutting open of the bund and refilling the area with material and debris, which are to be disposed of as waste or dumped. The scope includes managing any water encountered and compacting the foundation surface. Payment will be based on the volume of material excavated and refilled, measured to the design levels shown on the construction drawings.

Sub Item 4.2.2 – Excavation of foundation material

This sub-item involves the excavation of foundation material and the disposal of spoils as waste or dump. The scope includes managing any encountered water and compacting the foundation surface. Payment will be based on the volume of material excavated, measured to the design levels indicated on the construction drawings.

Sub Item 4.2.3 – Supplying and laying 1:3:6 (40mm) concrete (mixing machinery).

This sub-item includes the supply and placement of 1:3:6 concrete with 40mm aggregate, mixed on-site using a concrete mixer. The scope covers all associated costs, including formwork, dewatering of foundations, placing, compacting, and curing the concrete, as well as filling any over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub Item 4.2.4 – Supplying and laying 1:2:4 (20mm) concrete (mixing manually).

This sub-item involves the supply and placement of 1:2:4 concrete with 20mm aggregate, mixed on-site using a concrete mixer. The scope includes all associated costs such as formwork, dewatering of foundations, placing, compacting, and curing the concrete, as well as filling any over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub Item 4.2.5 – Supplying, cutting, bending & placing 10mm QT rib bar as reinforcement

The sub-item covers the cost of supplying, cutting, bending, and fixing reinforcement bars, including cover blocks. The reinforcement bars must conform to SLS 375:2009 standards (equivalent to BS 4449:2005). Payment will be based on the weight of the QT rib bars, as measured from the construction drawings.

Sub Item 4.2.6 Supplying, laying and jointing 1200 mm dia hume pipe

This sub-item covers the supply, installation, and jointing of 1200 mm diameter Hume pipes. Payment will be based on the linear meter of pipe as measured from the construction drawings.

Sub Item 4.2.7 Supplying, laying and jointing 600 mm dia hume pipe

This sub-item includes the supply, installation, and jointing of 600 mm diameter Hume pipes with collars. Payment will be based on the linear meter of pipe, as measured from the construction drawings.

Sub Item 4.2.8 Supplying and fixing 600mm Dia C.I Gate with complete set

This sub-item covers the supply and installation of a 600 mm diameter cast iron (C.I.) gate with a complete set, including a 3.6-meter long, 1.5-inch diameter spindle with the required threading and brass nut, base plate, and rag bolts. The bolts and nuts for the base plate must be welded as directed by the Engineer. Payment will be based on the number of C.I. gates installed in position.

4.3 Improvement of Spill

4.3.1 Construction works to raise the existing spill crest level

Sub Item 4.3.1.1 Supplying and fixing steel dowel

This sub-item includes the supply and installation of 12 mm diameter, 0.45 meter long rib bars as steel dowels to raise the crest level. Each dowel should be inserted 150 mm (6 inches) into the existing structure, and the holes must be filled with cement grout as directed by the Engineer. Payment will be based on the number of steel dowels fixed in position.

Sub Item 4.3.1.2 – Supplying, cutting, bending & placing 10mm QT rib bar as reinforcement

This sub-item covers the supply, cutting, bending, and placing of 10 mm QT rib bars for reinforcement. The reinforcement bars must conform to SLS 375:2009 standards (equivalent to BS 4449:2005). Payment will be based on the weight of the QT rib bars, as measured from the construction drawings.

Sub Item 4.3.1.3 – Supplying and laying 1:2:4 (20mm) concrete (mixing manually).

This sub-item covers the supply and laying of 1:2:4 (20mm) concrete, including formwork and mixing on-site using a mixer. The rate includes dewatering of foundations, placing, compacting, and curing of concrete, as well as filling of over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub Item 4.3.1.4 – Supplying and Fixing timber Planks

This sub-item includes the supply and installation of 300 mm wide and 37.5 mm thick Maruthu/Naval timber planks to fit the existing groove. The rate covers the application of two coats of wood preservative as directed by the Engineer. Payment will be based on the area of timber planks, as measured from the construction drawings.

Sub Item 4.3.1.5 – Supplying and installing locking arrangement.

This sub-item covers the supply and installation of a locking arrangement to secure the planks. The arrangement includes a 50 mm x 6 mm flat iron bar (with a length varying from 1.6 m to 1.9 m) and necessary locking hardware, including a 50 mm padlock, as specified in the drawing and directed by the Engineer. Payment will be based on the number of locking arrangements installed in position.

4.3.2 Construction of Cutoff Wall

Sub Item 4.3.2.1 – Excavation of foundation material

This sub-item covers the excavation of foundation material, including the removal and disposal of spoils to waste or dump sites. The rate includes handling water and compacting the foundation surface. Payment will be based on the volume excavated to the design levels specified in the construction drawings.

Sub-Item 4.3.2.2: Supplying and Laying 1:3:6 (40mm) Concrete (mixing machinery).

This sub-item covers the supply and laying of 1:3:6 (40mm) concrete, including formwork and on-site mixing using a mixer. The rate includes dewatering of foundations, placing, compacting, and curing the concrete, as well as filling over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 4.3.2.3: Supplying, Cutting, Bending, and Placing 10 mm QT Rib Bar as Reinforcement

This sub-item includes the supply, cutting, bending, and placing of 10 mm QT rib bars for reinforcement. The bars must conform to SLS 375:2009 standards (equivalent to BS 4449:2005). The rate covers all costs associated with these activities. Payment will be based on the weight of the QT rib bars, as measured from the construction drawings.

Sub-Item 4.3.2.4: Supplying and Laying 1:2:4 (20mm) Concrete (mixing machinery).

This sub-item involves supplying and laying 1:2:4 (20mm) concrete, including formwork and on-site mixing using a mixer. The rate includes dewatering of foundations, placing, compacting, curing the concrete, and filling over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 4.3.2.5: Supplying and Placing 225-300 mm Rubble Packing

This sub-item covers the supply and placement of 225-300 mm well-graded rubble packing between the cut-off wall and the silting basin, as directed by the Engineer. It includes excavation, obtaining rubble from approved sources, transport to the site, and manual packing with minimal voids. Payment will be based on the volume of rubble placed in position, as measured from the construction drawings.

4.4 Improvement of Spill Way

Sub-Item 4.4.1: Light Jungle Clearing Along the Spill Tail Canal

This sub-item covers light jungle clearing, including the uprooting of vegetation along the spill tail canal and reservations. Payment will be based on the actual area of clearing as measured along the spill tail canal and reservations. The toe line area of the spill tail canal must be approved by the Engineer.

Sub-Item 4.4.2: Earth Excavation Along the Spill Tail Canal

This sub-item includes excavation of earth along the spill tail canal and disposal of the excavated material as directed by the Engineer. The rate encompasses all costs associated with excavation, handling various materials, and off-site disposal of the excavated material. Payment will be based on the volume of excavation, as measured from the levels established by pre-construction surveys and construction drawings.

Sub-Item 4.4.3: Supplying and Fixing Water Level Measuring Gauge

This sub-item covers the supply and installation of a 0.2 m x 3 m stainless steel plate with printed water level measuring gauge in an approved color, as directed by the Engineer. Payment will be based on the area of the gauge, as measured from the construction drawings.

4.5 Improvement to Illavakulam Tank Access Road

Sub-Item 4.5.1: Shrub and Thorny Clearing Along the Road Reservation

This sub-item covers the clearing of shrubs and thorny vegetation, including uprooting, along the road reservations. Payment will be based on the actual area cleared, as measured along the road reservation.

Sub-Item 4.5.2: Stripping top soil along the top of the Road

This sub-item includes stripping topsoil along the upstream slope, downstream slope, and top of the bund to a thickness of 0.075 m to prepare for new earth. Spoils must be disposed of outside the reservation as directed by the Engineer. Payment will be based on the actual volume of topsoil stripped, as measured from the levels approved by the Engineer.

Sub-Item 4.5.3: Furnishing, Placing, Spreading, Watering, and Compaction of Earth for Access Road Surfacing

This sub-item involves furnishing, placing, spreading, watering, and compacting an earth layer as surfacing material for the access road. The rate includes costs for identifying suitable borrow areas, removing overburden, extracting well-graded earth, and transporting it to the site. Payment will be based on the volume of compacted earth placed in position, as measured from the construction drawings.

Sub-Item 4.5.4: Furnishing, Placing, Spreading, Watering, and Compaction of 150 mm Graded Gravel Layer for Access Road Surfacing

This sub-item covers furnishing, placing, spreading, watering, and compacting a 150 mm graded gravel layer as surfacing material for the access road. The rate includes costs for identifying suitable borrow areas, removing overburden, extracting well-graded gravel, transporting it to the site, and reinstating the borrow areas. Payment will be based on the volume of compacted gravel placed in position, as measured from the construction drawings.

4.5.5 Construction of 600 mm Diameter Hume Pipe Culvert

Sub-Item 4.5.5.1: Excavation of Foundation Material

This sub-item includes the excavation of foundation material and disposal of spoils to waste or dump sites. The rate covers dealing with water and compacting the foundation surface. Payment will be based on the volume excavated to the design levels shown on the construction drawings.

Sub-Item 4.5.5.2: Supplying and Laying 1:3:6 (40mm) Concrete (mixing manually).

This sub-item covers the supply and laying of 1:3:6 (40mm) concrete, including formwork and on-site mixing using a concrete mixer. The rate includes dewatering of foundations, placing, compacting, curing the concrete, and filling over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 4.5.5.3: Supplying, Laying, and Jointing 600 mm Diameter Hume Pipe

This sub-item involves supplying, laying, and jointing 600 mm diameter Hume pipes with collars. Payment will be based on the linear meter of pipe installed, as measured from the construction drawings.

4.5.6 Construction of 3-Row 600 mm Diameter Hume Pipe Culvert

Sub-Item 4.5.6.1: Excavation of Foundation Material

This sub-item includes the excavation of foundation material and disposal of spoils to waste or dump sites. The rate covers dealing with water and compacting the foundation surface. Payment will be based on the volume excavated to the design levels shown on the construction drawings.

Sub-Item 4.5.6.2: Supplying and Laying 1:3:6 (40mm) Concrete (mixing manually).

This sub-item covers the supply and laying of 1:3:6 (40mm) concrete, including formwork and on-site mixing using a concrete mixer. The rate includes dewatering of foundations, placing, compacting, curing the concrete, and filling over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 4.5.6.3: Supplying and Laying 1:1½:3 (20mm) Concrete (mixing manually).

This sub-item involves supplying and laying 1:1½:3 (20mm) concrete, including formwork and on-site mixing using a mixer. The rate includes dewatering of

foundations, placing, compacting, curing the concrete, and filling over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 4.5.6.4: Supplying, Cutting, Bending, and Placing 10 mm QT Rib Bar as Reinforcement

This sub-item covers the supply, cutting, bending, and placing of 10 mm QT rib bars for reinforcement. The bars must conform to SLS 375:2009 standards (equivalent to BS 4449:2005). The rate includes all associated costs. Payment will be based on the weight of the QT rib bars, as measured from the construction drawings.

Sub-Item 4.5.6.5: Supplying, Laying, and Jointing 600 mm Diameter Hume Pipe

This sub-item involves supplying, laying, and jointing 600 mm diameter Hume pipes with collars. Payment will be based on the linear meter of pipe installed, as measured from the construction drawings.

Sub-Item 4.5.6.6: Construction of Guard Stones

This sub-item covers the construction of guard stones at the edge of the culvert, as shown in the drawings. Payment will be based on the number of guard stones constructed in position.

5 REPAIR OF ACHADIVEAMBU ANICUT

5.1 Renovation Works of Achadiveambu Anicut

Sub-Item 5.1.1: Demolishing the Existing Structure Partially

This sub-item involves the partial demolition of the existing structure and disposal of the debris away from the site as directed by the Engineer. Payment will be based on the Day Work Schedule. The demolition area must be approved by the Engineer.

Sub-Item 5.1.2: Excavation of Foundation Material

This sub-item covers the excavation of foundation material and disposal of spoils to waste or dump sites. The rate includes managing water and compacting the foundation surface. Payment will be based on the volume excavated to the design levels specified in the construction drawings.

Sub-Item 5.1.3: Supplying and Fixing Steel Dowels

This sub-item includes supplying and fixing 12 mm diameter, 0.45 m long rib bars as steel dowels to raise the crest level. Six inches of each rib bar must be embedded into

the existing structure, with the holes filled with cement grout as directed by the Engineer. Payment will be based on the number of steel dowels fixed in position.

Sub-Item 5.1.4: Supplying and Laying 1:2:4 (20mm) Concrete (mixing machinery).

This sub-item covers the supply and laying of 1:2:4 (20mm) concrete, including formwork and on-site mixing. The rate includes dewatering foundations, placing, compacting, curing the concrete, and filling over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 5.1.5: Supplying and Fixing Timber Planks

This sub-item involves supplying and fixing 300 mm wide and 37.50 mm thick Maruthu/ Naval timber planks to fit the existing groove. The rate includes applying two coats of wood preservative as directed by the Engineer. Payment will be based on the area of timber planks, as measured from the construction drawings.

Sub-Item 5.1.6: Supplying and Installing Locking Arrangement

This sub-item covers supplying and installing a locking arrangement to secure the planks using a 50 mm x 6 mm flat iron bar (length may vary from 1.6 m to 1.9 m) with a necessary locking system and a 50 mm padlock, as per the drawing and directions from the Engineer. Payment will be based on the number of locking arrangements installed.

Sub-Item 5.1.7: Chipping the Existing Concrete Surface

This sub-item involves chipping the existing concrete surface to prepare it for plastering as directed by the Engineer. Payment will be based on the area chipped, as measured from the construction drawings. The chipping area must be approved by the Engineer.

Sub-Item 5.1.8: Cleaning, Preparing the Surface, and Applying Barra Emulsion

This sub-item includes cleaning and preparing the surface, followed by the application of Barra emulsion for plastering as directed by the Engineer. Payment will be based on the area treated, as measured from the construction drawings.

Sub-Item 5.1.9: Supplying and Making 16 mm Thick Plaster

This sub-item involves supplying and applying 16 mm thick plaster to the external structure, with a cement-sand ratio of 1:3, as directed by the Engineer. Payment will be based on the area plastered, as measured from the construction drawings. The plastering area must be approved by the Engineer.

Sub-Item 5.1.10: Clearing the River Bed and Embankment, Landscaping the River Bed

This sub-item covers clearing the river bed and embankment, and landscaping the river bed, including uprooting stumps, removing and burning debris where necessary, using a 120 hp excavator as directed by the Engineer. Payment will be based on the Day Work Schedule. The clearing area of the river bed must be approved by the Engineer.

5.2 Improvement of Training Bund

Sub-Item 5.2.1: Shrub & thorny jungle clearing by machinery along the Training bund

This sub-item includes shrub and thorny clearing, including uprooting, along the Training Bund and reservations. Payment will be based on the actual area cleared, as measured along the bed width of the Training Bund.

Sub-Item 5.2.2: Furnishing, Placing, Spreading, Watering, and Compaction of Earth for Training Bund Surfacing

This sub-item covers furnishing, placing, spreading, watering, and compacting an earth layer as surfacing material for the Training Bund. The rate includes costs for identifying suitable borrow areas, removing overburden, extracting well-graded earth, and transporting it to the site. Payment will be based on the volume of compacted earth placed, as measured from the construction drawings.

Sub-Item 5.2.3: Supplying and Placing Turf on the Slopes of the Training Bund

This sub-item includes supplying and placing turf on the slopes of the Training Bund, including transporting and watering until the turf takes root. Payment will be based on the actual area of turf installed, as approved by the Engineer.

5.3 Construction of Turn Out Structure

Sub-Item 5.3.1: Excavation of Foundation Material

This sub-item involves excavation of foundation material and disposal of spoils to waste or dump sites. The rate includes managing water and compacting the foundation surface. Payment will be based on the volume excavated to the design levels shown in the construction drawings.

Sub-Item 5.3.2: Supplying and Laying 1:3:6 (40mm) Concrete (mixing machinery)

This sub-item covers the supply and laying of 1:3:6 (40mm) concrete, including formwork and on-site mixing. The rate includes dewatering foundations, placing, compacting, curing the concrete, and filling over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 5.3.3: Supplying and Fixing Timber Planks

This sub-item involves supplying and fixing 300 mm wide and 37.50 mm thick Maruthu/ Naval timber planks to fit the existing groove. The rate includes applying two coats of wood preservative as directed by the Engineer. Payment will be based on the area of timber planks, as measured from the construction drawings.

Sub-Item 5.3.4: Supplying and Installing Locking Arrangement

This sub-item includes supplying and installing a locking arrangement to secure the planks using a 50 mm x 6 mm flat iron bar (length may vary from 1.6 m to 1.9 m) with a necessary locking system and a 50 mm padlock, as per the drawing and directions from the Engineer. Payment will be based on the number of locking arrangements installed.

6 IMPROVEMENT OF MARUTHAMADU ANICUT AND INLET CANAL

6.1 Improvement of Maruthamadu Anicut

Sub-Item 6.1.1: Supplying and Fixing Timber Planks

This sub-item covers the supply and installation of 300 mm wide and 37.50 mm thick Maruthu/ Naval timber planks to fit the existing groove. The rate includes applying two coats of wood preservative as directed by the Engineer. Payment will be based on the area of timber planks, as measured from the construction drawings.

Sub-Item 6.1.2: Supplying and Installing Locking Arrangement

This sub-item involves supplying and installing a locking arrangement to secure the planks using a 50 mm x 6 mm flat iron bar (length may vary from 1.6 m to 1.9 m) with a necessary locking system and a 50 mm padlock, as specified in the drawing and directed by the Engineer. Payment will be based on the number of locking arrangements installed.

6.2 Improvement of Maruthamadu Tank Inlet Canal

Sub-Item 6.2.1: Shrub and thorny jungle clearing manually along the Canal and reservations

This sub-item includes clearing shrubs and thorny vegetation, including uprooting, along the canal and reservations. Payment will be based on the actual area cleared, measured along the canal and reservations. The measurement for payment will be based on the linear meter, as recorded in the construction drawings.

Sub-Item 6.2.2: Furnishing, Placing, Spreading, Watering, and Compaction of Earth for Canal Bund Surfacing

This sub-item covers the furnishing, placing, spreading, watering, and compacting of an earth layer for surfacing the canal bund. The rate includes costs for identifying suitable borrow areas, removing overburden, extracting well-graded earth, and transporting it to the site. Payment will be based on the volume of compacted earth placed, as measured from the construction drawings.

7 Improvement Works

7.1 Landscaping Works for River Bed

Sub-Item 7.1.1: Clearing the River Bed and Embankment, and Landscaping

This sub-item covers the clearing of the river bed and embankment, including landscaping, uprooting stumps, removing them from the site, and burning them to ashes if necessary, as directed by the Engineer. The work will be executed using a 120 hp excavator. Payment will be based on the Day Work Schedule. The clearing area must be approved by the Engineer.

Sub-Item 7.1.2: Clearing the River Bed and Embankment, and Landscaping (Manual)

This sub-item involves clearing the river bed and embankment and landscaping using manual methods, including uprooting stumps, removing them from the site, and burning them to ashes if necessary, as directed by the Engineer. Payment will be based on the Day Work Schedule. The clearing area must be approved by the Engineer.

7.2 Renovation Works of Paddanicaddu Anicut

Sub-Item 7.2.1: Demolishing the Existing Structure Partially

This sub-item includes the partial demolition of the existing structure and disposal of debris away from the site, as directed by the Engineer. Payment will be based on the Day Work Schedule. The area to be demolished must be approved by the Engineer.

Sub-Item 7.2.2: Supplying and Laying 1:2:4 (20mm) Concrete (mixing manually).

This sub-item covers the supply and laying of 1:2:4 (20mm) concrete, including formwork and mixing at the site. The rate includes dewatering of foundations, placing, compacting, curing of concrete, and filling of over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 7.2.3: Supplying and Laying 1:2:4 (20mm) Concrete (mixing manually).

This sub-item also covers the supply and laying of 1:2:4 (20mm) concrete, with the same inclusions as Sub-Item 7.2.2. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 7.2.4: Chipping the Existing Concrete Surface

This sub-item involves chipping the existing concrete surface to prepare it for plastering, as directed by the Engineer. Payment will be based on the area chipped, as measured from the construction drawings. The chipping area must be approved by the Engineer.

Sub-Item 7.2.5: Cleaning and Preparing the Surface and Applying Barra Emulsion

This sub-item covers cleaning and preparing the surface and applying barra emulsion to facilitate plastering, as directed by the Engineer. Payment will be based on the area prepared, as measured from the construction drawings.

Sub-Item 7.2.6: Supply and Making 16 mm Thick Plaster

This sub-item involves supplying and applying 16 mm thick plaster on the external structure, with a cement-sand ratio of 1:3, as directed by the Engineer. Payment will be based on the area plastered, as measured from the construction drawings. The plastering area must be approved by the Engineer.

Sub-Item 7.2.7: Supplying and Fixing Timber Planks

This sub-item covers the supply and fixing of 1.6m length 300 mm wide and 37.50 mm thick Maruthu/ Naval timber planks to fit the existing groove. The rate includes applying two coats of wood preservative as directed by the Engineer. Payment will be based on the area of timber planks, as measured from the construction drawings.

Sub-Item 7.2.8: Supplying and Installing Locking Arrangement

This sub-item involves supplying and installing a locking arrangement to secure the planks, using a 50 mm x 6 mm flat iron bar (length may vary from 1.6 m to 1.9 m) and a 50 mm padlock, as per the drawing and directed by the Engineer. Payment will be based on the number of locking arrangements installed.

7.3 Improvement of Paddanikaddu and Mayilapanitharai Feeder Canal and Control Structure

Sub-Item 7.3.1: Furnishing, Placing, Spreading, Watering, and Compaction of Earth for Canal Bund

This sub-item covers the furnishing, placing, spreading, watering, and compaction of earth for surfacing the canal bund. The rate includes identifying suitable borrow areas, removing overburden, extracting well-graded earth, and transporting it to the site.

Payment will be based on the volume of compacted earth placed, as measured from the construction drawings.

Sub-Item 7.3.2: Supplying and Laying 1:2:4 (20mm) Concrete (mixing manually).

This sub-item involves supplying and laying 1:2:4 (20mm) concrete, including formwork and mixing at the site. The rate includes dewatering of foundations, placing, compacting, curing of concrete, and filling of over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 7.3.3: Chipping the Existing Concrete Surface

This sub-item covers chipping the existing concrete surface to prepare it for plastering, as directed by the Engineer. Payment will be based on the area chipped, as measured from the construction drawings. The chipping area must be approved by the Engineer.

Sub-Item 7.3.4: Cleaning and Preparing the Surface and Applying Barra Emulsion

This sub-item involves cleaning and preparing the surface and applying barra emulsion to facilitate plastering, as directed by the Engineer. Payment will be based on the area prepared, as measured from the construction drawings.

Sub-Item 7.3.5: Supply and Making 16 mm Thick Plaster

This sub-item covers the supply and application of 16 mm thick plaster on the external structure, with a cement-sand ratio of 1:3, as directed by the Engineer. Payment will be based on the area plastered, as measured from the construction drawings. The plastering area must be approved by the Engineer.

Sub-Item 7.3.6: Supplying and Fixing Timber Planks

This sub-item involves supplying and fixing 300 mm wide and 37.50 mm thick Maruthu/ Naval timber planks to fit the existing groove. The rate includes applying two coats of wood preservative as directed by the Engineer. Payment will be based on the area of timber planks, as measured from the construction drawings.

Sub-Item 7.3.7: Supplying and Installing Locking Arrangement

This sub-item includes supplying and installing a locking arrangement to secure the planks, using a 50 mm x 6 mm flat iron bar (length may vary from 1.6 m to 1.9 m) with a necessary locking system and a 50 mm padlock, as per the drawing and directed by the Engineer. Payment will be based on the number of locking arrangements installed.

7.4 Improvement of Pulakadu Road

Sub-Item 7.4.1: Furnishing, Placing, Spreading, Watering, and Compaction of Earth for Access Road

This sub-item covers the furnishing, placing, spreading, watering, and compaction of an earth layer for surfacing the access road. The rate includes identifying suitable borrow areas, removing overburden, extracting well-graded earth, and transporting it to the site. Payment will be based on the volume of compacted earth placed, as measured from the construction drawings.

Sub-Item 7.4.2: Furnishing, Placing, Spreading, Watering, and Compaction of 150mm Graded Gravel Layer for Access Road

This sub-item includes furnishing, placing, spreading, watering, and compaction of a 150 mm graded gravel layer for surfacing the access road. The rate includes identifying suitable borrow areas, removing overburden, extracting well-graded gravel, transporting it to the site, and reinstating borrow areas. Payment will be based on the volume of compacted gravel placed, as measured from the construction drawings.

Sub-Item 7.4.3: Construction of 600mm Dia. Hume Pipe Culvert (2 Nos)

Sub-Item 7.4.3.1: Excavation of Foundation Material

This sub-item covers the excavation of foundation material and disposal of spoils to waste or dump. The rate includes dealing with water and compacting the foundation surface. Payment will be based on the volume excavated in place, as shown on the construction drawings.

Sub-Item 7.4.3.2: Supplying and Laying 1:3:6 (40mm) Concrete (mixing manually).

This sub-item involves supplying and laying 1:3:6 (40mm) concrete with formwork and mixing at the site. The rate includes dewatering of foundations, placing, compacting, curing of concrete, and filling of over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 7.4.3.3: Supplying, Laying, and Jointing 600 mm Dia. Hume Pipe

This sub-item covers supplying, laying, and jointing a 600 mm diameter hume pipe with a collar in position. Payment will be based on the linear meter of hume pipe installed, as measured from the construction drawings.

Sub-Item 7.4.3.4: Furnishing, Placing, Spreading, Watering, and Compaction of Earth for Canal Bund

This sub-item includes furnishing, placing, spreading, watering, and compacting an earth layer for surfacing the canal bund. The rate covers identifying suitable borrow areas, removing overburden, extracting well-graded earth, and transporting it to the site. Payment will be based on the volume of compacted earth placed, as measured from the construction drawings.

7.5 Construction of Pulakadu Anicut

Sub-Item 7.5.1: Excavation of Foundation Material

This sub-item covers the excavation of foundation material and disposal of spoils to waste or dump. The rate includes dealing with water and compacting the foundation surface. Payment will be based on the volume excavated in place, as shown on the construction drawings.

Sub-Item 7.5.2: Supplying and Laying 1:2:4 (20mm) Concrete (mixing manually).

This sub-item involves supplying and laying 1:2:4 (20mm) concrete, including formwork and mixing at the site. The rate includes dewatering of foundations, placing, compacting, curing of concrete, and filling of over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

7.5.3 Construction of Training Bund

Sub-Item 7.5.3.1: Shrub and Thorny Clearing Along the Training Bund

This sub-item covers clearing shrubs and thorny vegetation along the training bund and reservations, including uprooting. Payment will be based on the actual area cleared, as measured along the bed width of the training bund. Measurement for payment will be based on the linear meter, as recorded in the construction drawings.

Sub-Item 7.5.3.2: Furnishing, Placing, Spreading, Watering, and Compaction of Earth for Training Bund

This sub-item includes furnishing, placing, spreading, watering, and compacting an earth layer for surfacing the training bund. The rate covers identifying suitable borrow areas, removing overburden, extracting well-graded earth, and transporting it to the site. Payment will be based on the volume of compacted earth placed, as measured from the construction drawings.

Sub-Item 7.5.3.3: Supplying and Placing Full Turf on the Slopes of Training Bund

This sub-item covers supplying and placing full turf on the slopes of the training bund, including transporting and watering until the turf takes root. Payment will be based on the actual area of turf, as approved by the Engineer.

8. IMPROVEMENT OF PULIYAKULAM TANK

Sub-Item 8.1: Light jungle clearing by machinery along the Tank bund

This sub-item covers the clearing of light jungle, including uprooting vegetation along the tank bund and reservations. The measurement for payment will be based on the actual area of clearing measured along the slope of the tank bund on the upstream (U/S) side and from the toe to the downstream (D/S) reservation. The toe line area of the tank must be approved by the Engineer.

Sub-Item 8.2: Water Level Measuring Gauge

This sub-item involves supplying and fixing a 0.2m x 3m stainless steel plate, with an approved color and printing for the water level measuring gauge, as directed by the Engineer. Payment will be based on the area measured from the construction drawings.

8.3 Improvement to Canal System

Sub-Item 8.3.1: Shrub and Thorny Clearing Along the Canal and Reservations

This sub-item provides for clearing shrubs and thorny vegetation, including uprooting, along the canal and reservations. Payment will be based on the actual area of clearing measured along the canal and reservations, as detailed in the construction drawings.

Sub-Item 8.3.2: Stripping top soil along the the Canal area

This sub-item involves stripping topsoil along the canal bund to a thickness of 0.075 meters, to prepare for the new earth. Spoils must be disposed of outside the reservation as directed. Payment will be based on the actual volume of stripped soil, measured from the level approved by the Engineer.

Sub-Item 8.3.3: Earth Cutting in Canal

This sub-item covers excavation of earth for the canal and disposal of the excavated material as directed by the Engineer. The rate includes excavation in various materials

and disposal off-site. Payment will be based on the volume of excavation measured from the pre-construction surveys and construction drawings.

Sub-Item 8.3.4: Furnishing, Placing, Spreading, Watering, and Compaction of Earth for Canal Bund

This sub-item includes furnishing, placing, spreading, watering, and compacting an earth layer as surfacing material for the canal bund. The rate includes identifying suitable borrow areas, removing overburden, extracting well-graded earth, and transporting it to the site. Payment will be based on the volume of compacted earth placed, as measured from the construction drawings.

8.4 Construction of 150mm Dia. Hume Pipe Farm Turnout (4 Nos)

Sub-Item 8.4.1: Excavation of Foundation Material

This sub-item covers the excavation of foundation material and disposal of spoils to waste or dump. The rate includes dealing with water and compacting the foundation surface. Payment will be based on the volume excavated to the design levels shown on the construction drawings.

Sub-Item 8.4.2: Supplying and Laying 1:3:6 (40mm) Concrete (mixing manually).

This sub-item involves supplying and laying 1:3:6 (40mm) concrete with formwork and mixing at the site. The rate includes dewatering of foundations, placing, compacting, curing of concrete, and filling of over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 8.4.3: Supplying, Laying, and Jointing 150mm Dia. Hume Pipe

This sub-item provides for supplying, laying, and jointing 150mm diameter hume pipe with collar in position. Payment will be based on the linear meter of hume pipe installed, as measured from the construction drawings.

8.5 Reconstruction of 375mm Dia. Sluice

Sub-Item 8.5.1: Demolition of Existing Structure

This sub-item involves the demolition of the existing structure and disposal of debris away from the site as directed by the Engineer. Payment will be based on the Day Work Schedule. The demolition area of the structure must be approved by the Engineer.

Sub-Item 8.5.2: Excavation of Foundation Material

This sub-item covers the excavation of foundation material and disposal of spoils to waste or dump. The rate includes dealing with water and compacting the foundation surface. Payment will be based on the volume excavated to the design levels shown on the construction drawings.

Sub-Item 8.5.3: Supplying and Laying 1:2:4 (20mm) Concrete (mixing machinery).

This sub-item involves supplying and laying 1:2:4 (20mm) concrete with formwork and mixing at the site. The rate includes dewatering of foundations, placing, compacting, curing of concrete, and filling of over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 8.5.4: Supplying, Cutting, Bending, and Placing 10mm QT Rib Bars as Reinforcement

This sub-item provides for supplying, cutting, bending, and fixing 10mm QT rib bars as reinforcement. The rate includes the cost for all related activities. Payment will be based on the weight of QT rib bars, as measured from the construction drawings.

Sub-Item 8.5.5: Supplying and Fixing 375mm Dia. C.I. Gate with Complete Set

This sub-item involves supplying and fixing a 375mm diameter C.I. gate with a complete set, including a 3.6m long and 1.5" diameter spindle with the required size of thread, brass nuts, base plate, rag bolts, etc., in position. The bolt and nut of the base plate should be welded as directed by the Engineer. Payment will be based on the number of C.I. gates fixed in position.

Sub-Item 8.5.6: Provisional sum for Supplying and Fixing 3.6m Long and 1.5" Dia. Spindle

This sub-item covers supplying and fixing a 3.6m long and 1.5" diameter spindle with the required size of thread and brass nuts in position. The bolt and nut of the base plate should be welded as directed by the Engineer. Payment will be paid on Satisfactorily completion of the item.

8.6 Improvement to Drainage Canal System

Sub-Item 8.6.1: Shrub and Thorny Clearing Along the Canal and Reservations

This sub-item involves clearing shrubs and thorny vegetation, including uprooting, along the canal and reservations. Payment will be based on the actual area of clearing measured along the canal and reservations, as detailed in the construction drawings.

Sub-Item 8.6.2: Stripping Top Soil

This sub-item covers stripping topsoil along the canal bund to a thickness of 0.075 meters, in preparation for receiving new earth. Spoils must be disposed of outside the reservation as directed. Payment will be based on the actual volume of stripped soil, measured from the level approved by the Engineer.

Sub-Item 8.6.3: Earth Cutting in Canal

This sub-item provides for the excavation of earth for the canal and disposal of the excavated material as directed by the Engineer. The rate includes excavation in various materials and disposal off-site. Payment will be based on the volume of excavation measured from the pre-construction surveys and construction drawings.

Sub-Item 8.6.4: Spreading, Watering, and Compaction of Earth for Canal Bund

This sub-item involves spreading, watering, and compacting an earth layer as surfacing material for the canal bund. Payment will be based on the volume of compacted earth placed, as measured from the construction drawings.

Sub-Item 8.6.5: Furnishing, Placing, Spreading, Watering, and Compaction of Earth for Canal Bund

This sub-item covers furnishing, placing, spreading, watering, and compacting an earth layer as surfacing material for the canal bund. The rate includes identifying suitable borrow areas, removing overburden, extracting well-graded earth, and transporting it to the site. Payment will be based on the volume of compacted earth placed, as measured from the construction drawings.

8.7 Construction of 600mm Hume Pipe Culvert (3 Nos)

Sub-Item 8.7.1: Excavation of Foundation Material

This sub-item involves the excavation of foundation material and disposal of spoils to waste or dump. The rate includes dealing with water and compacting the foundation surface. Payment will be based on the volume excavated to the design levels shown on the construction drawings.

Sub-Item 8.7.2: Supplying and Laying 1:3:6 (40mm) Concrete

This sub-item covers supplying and laying 1:3:6 (40mm) concrete with formwork and mixing at the site. The rate includes dewatering of foundations, placing, compacting,

curing of concrete, and filling of over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 8.7.3: Supplying, Laying, and Jointing 600mm Dia. Hume Pipe

This sub-item provides for supplying, laying, and jointing 600mm diameter hume pipe with collar in position. Payment will be based on the linear meter of hume pipe installed, as measured from the construction drawings.

9. IMPROVEMENT OF MARUTHAMADU TANK

9.1 Light Jungle Clearing Along the Tank Bund

This sub-item involves light jungle clearing, including uprooting vegetation along the tank bund and reservations. Payment will be based on the actual area cleared, measured on the slope of the tank bund on the upstream (U/S) side and from the toe to the downstream (D/S) reservation. The toe line area of the tank must be approved by the Engineer.

9.2 Supplying and Fixing Timber Planks

This sub-item covers supplying and fixing 300mm wide and 37.50mm thick Maruthu/ Naval timber planks to suit the existing groove. The rate includes two coats of wood preservative as directed by the Engineer. Payment will be based on the area of timber planks, measured from the construction drawings.

9.3 Supplying and Installing Locking Arrangement

This sub-item involves supplying and installing a locking arrangement to secure the planks using a 50mm x 6mm flat iron bar (length may vary from 1.6m to 1.9m) with necessary locking provisions, including a 50mm padlock as per the drawing and Engineer's instructions. Payment will be based on the number of locking arrangements installed.

9.4 Supplying and Fixing Water Level Measuring Gauge

This sub-item provides for supplying and fixing a 0.2m x 2.5m stainless steel plate with an approved color and printing for the water level measuring gauge, as directed by the Engineer. Payment will be based on the area of the gauge, as measured from the construction drawings.

9.5 Provision sum of Supplying and Fixing 3.6m Long and 1.5" Dia. Spindle

This sub-item involves supplying and fixing a 3.6m long and 1.5" diameter spindle with the required size of thread and brass nuts. The bolt and nut of the base plate must be welded as directed by the Engineer. Payment will be paid on Satisfactorily completion of the item.

9.6 Improvement to Canal System

Sub-Item 9.6.1: Shrub and Thorny Clearing Along the Canal and Reservations

This sub-item provides for clearing shrubs and thorny vegetation, including uprooting, along the canal and reservations. Payment will be based on the actual area cleared, measured along the canal and reservations, as detailed in the construction drawings.

Sub-Item 9.6.2: Stripping top soil along the canal area

This sub-item involves stripping top soil along the canal bund to a thickness of 0.075 meters to prepare for new earth. Spoils must be disposed of outside the reservation as directed. Payment will be based on the actual volume of stripped soil, measured from the level approved by the Engineer.

Sub-Item 9.6.3: Earth Cutting in Canal

This sub-item covers excavation of earth for the canal and disposal of the excavated material as directed by the Engineer. The rate includes excavation in various materials and disposal off-site. Payment will be based on the volume of excavation, as measured from the levels established by pre-construction surveys and construction drawings.

Sub-Item 9.6.4: Furnishing, Placing, Spreading, Watering, and Compaction of Earth for Canal Bund

This sub-item involves furnishing, placing, spreading, watering, and compacting an earth layer as surfacing material for the canal bund. The rate also includes identifying suitable borrow areas, removing overburden, extracting well-graded earth, and transporting it to the site. Payment will be based on the volume of compacted earth placed, as measured from the construction drawings.

9.7 Construction of 150mm Dia. Hume Pipe Farm Turnout (4 Nos)

Sub-Item 9.7.1: Excavation of Foundation Material

This sub-item provides for excavation of foundation material and disposal of spoils to waste or dump. The rate includes dealing with water and compacting the foundation

surface. Payment will be based on the volume excavated to the design levels shown on the construction drawings.

Sub-Item 9.7.2: Supplying and Laying 1:3:6 (40mm) Concrete

This sub-item involves supplying and laying 1:3:6 (40mm) concrete with formwork, mixed on-site. The rate includes dewatering of foundations, placing, compacting, curing of concrete, and filling of over-excavations. Payment will be based on the volume of concrete, as measured from the construction drawings.

Sub-Item 9.7.3: Supplying, Laying, and Jointing 150mm Dia. Hume Pipe

This sub-item covers supplying, laying, and jointing 150mm diameter hume pipe with collar in position. Payment will be based on the linear meter of hume pipe installed, as measured from the construction drawings.

10. DAY WORKS PAYMENTS

Labour

Payment in respect of labour employed on a day work basis shall be made at the average daily wage rates (inclusive of contractor's overheads and profits) in construction as entered by the Bidder in the relevant BOQ. Payment shall be made on the basis of the actual time worked excluding travelling time.

The rates shall be deemed to include the costs of the Contractor's Site Supervisory and Administrative Staff (including supervising Foremen) and all other costs in respect to the employment of labour on a day work basis. Rates for types of labour not listed will be determined by the Engineer by reference to the listed rates.

Materials

Payment in respect of materials used in the execution of work on day work basis shall be the cost of the materials delivered to store or stockpile on the site, including all overheads and profit. Rates should be entered by the Bidder in the relevant BOQ.

Rates shall be deemed to cover the costs of taking delivery and putting into store or stockpile, storage, overheads, profit and all other charges and costs in respect of the procurement and handing of such materials. Rates for other materials will be determined by the Engineer with reference to the listed rates entered in the BOQ.

Construction Plant and Equipment

Payment in respect of constructional plant deployed on a day work basis shall be made at the rates entered by the Bidder in the relevant BOQ. These rates shall be deemed to include all cost in respect of fuel and consumable stores, maintenance, operators and

attendants, contractor's site supervisory and administrative staff, overheads, profit and all other charges and costs in respect of the deployment of constructional plant and equipment on a day work basis.

Payment shall be made on the basis of the actual time worked including such reasonable travelling time as the Engineer may allow, but excluding idle time (except under the orders of the Engineer.) and time during which such constructional plant/equipment is broken down or undergoing maintenance. Rates for other plant/equipment will be determined by the Engineer with reference to the listed rates entered in the BOQ.

For Reference Only

Bill of Quantities

No	Description	Amount
1	Preliminaries	
2	Improvements to Shinnapulaveli Road	
3	Improvements to Training Bund	
4	Improvement of Ilavaikulam Feeder Tank	
5	Improvement of Achadiveambu Anicuts	
6	Improvement of Maruthamadu Anicut and Inlet Canal	
7	Improvement of Paddanikaddu Anicut and Pulakadu Road	
8	Improvement of Puliyakulam Tank	
9	Improvement of Maruthamadu Tank tank	
A	Sub Total 1 (1+2+3+4+5+6+7+8+9)	
B	Ddt. Provisional Sums	1,388,320.00
C	Sub Total 2 (A-B)	
D	Discount (if any)	
E	Sub Total 3 (C-D+B)	
F	Physical Contingencies [10% of E]	
G	Price Contingencies [4% of E]	
H	TOTAL BID PRICE CARRIED TO LETTER OF BID (E+F+G)	
Total Bid Price (Amount in words)		
I	VAT- 18% of Bid Price (I x 18%)	
GRAND TOTAL INCLUDING (H+I)		
J	Total for Day Works	
Bid Price with Day Works (H+J) (Will be considered only for Evaluation Purpose)		

Signature of Bidder :-.....

Bill of Quantities

SI.No	Description of Work	Unit	Qty	Rate (LKR)	Amount
Bill No 1: Preliminaries					
Note 1: The Engineer / Consultant may modify or amended any item, or add new item/s, or delete inappropriate item/s, depending the nature of the proposed work					
Note 2: Mode of Payment are as below					
	Mode of Payment	Category			
	Reimbursement of actual cost on submission of the relevant document acceptable to the Engineer plus 5% of the actual cost of obtaining the insurance policies.	A			
	To be paid on Signing of the formal Contract Agreement	B			
	60% on Completion of temporary buildings or structures. 30% in equal instalments over the contract period and balance 10% on dismantling and removal on completion	C			
	Paid on Satisfactorily completion of the item	D			
	In equal instalments over the contract period	E			
	Mode of payment to be mutually agreed between Contractor and the Employer at the Commencement of contract in relation to the programme of work	F			
	On the Completion of works	G			
1.1	Insurances and Securities	Unit	Mode of Payment		Amount
1.1.1	Provisional Sum for Providing a Performance Security and Advance Payment Security	P.Sum	A		98,495.00
1.1.2	Provisional Sum for Insurance of works, Machinery & Equipment, Plant, Materials, third party persons & property and Employer's personal & property at site and against accidents and injury to contractor's personal as per the contract as per contract	P.Sum	A		164,160.00
1.2	Contractors Requirements				

1.2.1	Allow lump sum for constructing maintaining, dismantling and removal on completion of the Works, a temporary site office of adequate size including staff rest room and toilets and other facilities for the Contractor's site management staff in accordance with the plans prepared by the Contractor and concurred by the Engineer.	L.Sum	C	
1.2.2	Allow lump sum for constructing maintaining, dismantling and removal on completion of the Works, buildings to be used as workshops and stores for perishable materials. Buildings shall be constructed in accordance with the drawings prepared by the Contractor and concurred by the Engineer. The lump sum shall also include for altering, modifying, or dismantling and re-erecting within the site all temporary buildings/structures if required.	L.Sum	C	
1.3	Quality and Standards			
1.3.1	Provisional sum for all cost in connection with preparing samples for testing, making arrangements for testing of Materials, Goods etc, as stipulated in the specification, obtaining test reports and submitting the same to the Engineer.	P.Sum	A	65,665.00
1.3.2	Providing of progress reports including photographic records and other schedules included in the CIDA publication Guidelines for Effective Construction Management. (CIDA/CM/01), relevant to contract administration as directed by the Engineer.	L.Sum	D	
1.3.3	Allow lump sum for provision of 2 sets of (hard copies and soft copies) as-built drawing of all services for Engineer's approval.	L.Sum	D	
1.4	Health and Safety			
1.4.1	Allow lump sum for providing and maintaining health, safety & Environment throughout the period of construction according to the ESMP as directed by the Engineer.	L.Sum	E	
1.5	Miscellaneous			
1.5.1	Allow lump sum for providing and maintaining a Name Board 1650 x 1050 mm in size fixed to G.I pipe frame work at 2100 mm height as per the drawing and as directed by Engineer.	L.Sum	D	

1.5.2	Employers share of Adjudicators fees and expenses	P.Sum	D	1,000,000.00
Total for Bill No 1 (Carried to Summary of Bills)				
Bill No: 2 Improvements to Shinnapulaveli Road (As Per Dwg No. :- IWWRMP/WM.DS/SINNAPULAVELI/ROAD/LSS-01,02& 03, IWWRMP/WM.DS/SINNAPULAVELI/ROAD/CSS-01,02,03,04,05,06&07 IWWRMP/WM.DS/SINNAPULAVELI/ROAD/STR-01&02)				
2.1	Shrub & thorny jungle clearing manually along the Road reservation both side including uprooting stumps removing outside and burning to ashes as directed.	Lday	15.00	
2.2	Stripping top soil along the top of the Road to a thickness of 0.075 meters in order to receive new earth and spoils to be disposed outside the reservation as directed	m ³	543.25	
2.3	Furnishing, transporting, placing and spreading (by Motor grader) of earth on the road way and forming Road way as per drawing including watering and compaction by vibrating roller above 6 Ton	m ³	3,045.85	
2.4	Furnishing, transporting, placing and spreading (by Motor grader) of gravel on the road way as per drawing including watering and compaction by vibrating roller above 6 Ton	m ³	685.86	
2.5	Furnishing, transporting, placing and spreading of gravel on pot holes directed by Engineer. Rates includes watering and compaction by manual	m ³	18.89	
2.6	Construction of 150mm Dia. 4.88m long Hume Pipe Culvert – 04 Nos			
2.6.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	0.21	
2.6.2	1:3:6(40) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	0.59	
2.6.3	Supplying, laying and jointing 150 mm dia hume pipe in position.	Lm	19.52	
2.7	Construction of 300mm Dia. 4.88m long Hume Pipe Culvert – 02 Nos			
2.7.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	0.22	

2.7.2	1:3:6(40) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	0.67		
2.7.3	Supplying , laying and jointing 300 mm dia hume pipe in position.	Lm	9.76		
2.8	Construction of 600mm Dia. 4.88m long Hume Pipe Culvert – 01 Nos				
2.8.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	0.37		
2.8.2	1:3:6(40) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	1.02		
2.8.3	Supplying , laying and jointing 600 mm dia hume pipe in position.	Lm	4.88		
2.9	Construction of 3 Row 600mm Dia. 4.88m long Hume Pipe Culvert – 01 Nos				
2.9.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	4.50		
2.9.2	1:3:6(40) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	5.84		
2.9.3	1:1 1/2:3(20) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	4.60		
2.9.4	Supplying bending and placing QT Rib bar as reinforcement as per drawing. The rate includes lappings and wastage	kg	176.85		
2.9.5	Supplying , laying and jointing 600 mm dia hume pipe in position.	Lm	14.64		
2.9.6	Construction of guard stones as per drawing	Nos	8.00		
2.10	Improvement of Periyapulaveli to Ilavakulam Road				
2.10.1	Shrub & thorny jungle clearing along the road way area including uprooting stumps removing outside and burning to ashes as directed.	Ha	0.24		
2.10.2	Trimming and cambering road way by Motor grader directed by Engineer	m ²	1,600.00		
Total for Bill No 2 (Carried to Summary of Bills)					

Bill No: 3 Improvements to Training Bund of Welimaruthamadu Tank					
3.1	Improvement of Training Bund				
3.1.1	Shrub & thorny jungle clearing by machinery along the Training bund area including uprooting stumps removing outside and burning to ashes as directed.	Ha	6.10		
3.1.2	1:3:6(40) Ct. sand concrete using concrete mixer and compacting with porker vibrator. Rates includes curing and form work for closing the existing sluice as directed by the Engineer.	m ³	0.15		
3.2	Re Construction of Hume Pipe Type 600mm Dia Sulice for Illavakulam & Sinnal pulaveli and periyapulaveli land (IWWRMP/WM.DS/TRAINING BUND/TURNOUT/STR-01&02)				
3.2.1	Cut Open the Bund and Refilling including watering and compaction by machinery and existing structure should be demolished and debris should be taken away from the site as directed by Engineer	m ³	418.69		
3.2.2	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	8.85		
3.2.3	1:3:6(40) Ct. sand concrete using concrete mixer and compacting with porker vibrator. Rates includes curing and form work.	m ³	20.78		
3.2.4	1:2:4(20) Ct. sand concrete using concrete mixer and compacting with porker vibrator. Rates includes curing and form work.	m ³	0.27		
3.2.5	Supplying bending and placing QT Rib bar as reinforcement as per drawing. The rate includes lappings and wastage	kg	9.83		
3.2.6	Supplying , laying and jointing 1200 mm dia hume pipe in position	Lm	4.88		
3.2.7	Supplying , laying and jointing 600 mm dia hume pipe in position	Lm	26.84		
3.2.8	Supplying and fixing 600mm Dia C.I Gate with complete set including 3.6 m long and 1.5" Dia spindle with required size of threat and Brass nut, base plate, Rag Bolts etc. in position the bolt & nut of the base plate should be welded as directed by Engineer	Nos	2.00		

Total for Bill No 3 (Carried to Summary of Bills)					
Bill No: 4 Improvement of Ilavakulam Tank (IWRMP/WM.DS/ILLAVAKULAM /SPILL/STR-01, IWRMP/WM.DS/ILLAVAKULAM /SLUICE/STR-01)					
4.1	Improvement of Tank Bund				
4.1.1	Light jungle clearing by machinery along the Tank bund including uprooting stumps removing outside and burning to ashes where ever necessary as directed.	Ha	2.00		
4.1.2	Furnishing, transporting, placing and spreading of earth in layers average thickness not more than 225mm as earth filling in existing bund embankment and picking roots, watering as directed, compacting by Sheep foot roller (The quantity will be determined from the leveling process after tank bund clearing)	m ³	324.00		
4.1.3	Trimming and cambering road way by Motor grader directed by Engineer	m ²	3,450.00		
4.1.4	Furnishing, transporting, placing and spreading (by Motor grader)of gravel on the bund top as per drawing including watering and compaction by vibrating roller above 6 Ton	m ³	233.00		
4.2	Improvement of Sluice				
4.2.1	Cut open the bund and refilling including watering and compaction by machinery and the existing hume pipe should be removed from the site as directed by Engineer	m ³	274.05		
4.2.2	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	4.43		
4.2.3	1:3:6(40) Ct. sand concrete using concrete mixer and compacting with porker vibrator. Rates includes curing and form work.	m ³	10.70		
4.2.4	1:2:4(20) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	0.14		
4.2.5	Supplying bending and placing QT Rib bar as reinforcement as per drawing. The rate includes lapping and wastage	kg	4.91		

4.2.6	Supplying , laying and jointing 1200 mm dia hume pipe in position	Lm	2.44		
4.2.7	Supplying , laying and jointing 600 mm dia hume pipe in position	Lm	18.30		
4.2.8	Supplying and fixing 600mm Dia C.I Gate with complete set including 3.6 m long and 1.5" Dia spindle with required size of threat and Brass nut, base plate, Rag Bolts, etc. in position the bolt & nut of the base plate should be welded as directed by Engineer	Nos	1.00		
4.3	Improvement of Spill				
4.3.1	Construction works to raise the existing spill crest level				
4.3.1.1	Supplying and fixing of 12mm dia. 0.45 m long Rib bar for steel dowel to arise the crest level. The 150mm of the rib bar should be inserted into the existing structure and the holes should be filled by cement grout directed by Engineer	Nos	24.00		
4.3.1.2	Supplying bending and placing QT Rib bar as reinforcement as per drawing. The rate includes lapping and wastage	kg	15.99		
4.3.1.3	1:2:4(20) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	2.51		
4.3.1.4	Supplying and Fixing 300mm width & 37.50mm thick Maruthu / Naval timber Planks for suite to existing grove. Rate includes two coats of wood preservative as directed by the Engineer.	m ²	4.68		
4.3.1.5	Supplying and installing locking arrangement to stop planks with 50mm x 6mm flat iron bar(length of iron bar may be vary from 1.6m to 1.9m) with necessary locking arrangement with 50mm padlock as per drawing and as directed by the Engineer.	Nos	12.00		
4.3.2	Construction of Cut off Wall				
4.3.2.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump for cutoff wall as per drawing	m ³	2.34		

4.3.2.2	1:3:6(40) Ct. sand concrete using concrete mixer and compacting with porker vibrator. Rates includes curing and form work for cutoff wall as per drawing	m ³	0.18		
4.3.2.3	Supplying bending and placing QT Rib bar as reinforcement as per drawing. The rate includes lapping and wastage	kg	104.61		
4.3.2.4	1:2:4(20) Ct. sand concrete using concrete mixer and compacting with porker vibrator. Rates includes curing and form work as per drawing	m ³	3.96		
4.3.2.5	Supplying and placing 225-300mm rubble packing in between cutoff wall and Silting basin as directed by the Engineer.(Rate includes the necessary internal transport and loading)	m ³	5.96		
4.4	Improvement of Spill Way				
4.4.1	Light jungle clearing manually along the Spill tail canal and reservations including uprooting stumps removing outside and burning to ashes where ever necessary as directed by the Engineer	Ha	0.10		
4.4.2	Earth deduction along spill tail canal and spoil to waste as directed by the Engineer(The quantity will be determined from the leveling process after spill way clearing)	m ³	750.00		
4.4.3	Supplying and fixing 0.2m x 3m Stainless steel plate in approved colour printing of water level measuring gauge as directed by Engineer	m ²	0.60		
4.5	Improvement to Illavakulam Tank Access Road(IWWRMP/WM.DS/ILLAVAIAKULAM /RD/LSS-01,02,03&04,IWWRMP/WM.DS/ILLAVAIAKULAM /RD/CSS-01,02,03,04,05,06,07,08,09&10,IWWRMP/WM.DS/ILLAVAIAKULAM /RD/CULVERT/STR-01)				
4.5.1	Shrub & thorny jungle clearing manually along the Road reservation both side including uprooting stumps removing outside and burning to ashes as directed.	Lday	20.00		
4.5.2	Stripping top soil along the top of the Road to a thickness of 0.075 meters in order to receive new earth and spoils to be disposed outside the reservation as directed	m ³	699.71		

4.5.3	Furnishing, transporting, placing and spreading (by Motor grader) of earth on the road way and forming Road way as per drawing including watering and compaction by vibrating roller above 6 Ton	m ³	2,167.44		
4.5.4	Furnishing, transporting, placing and spreading (by Motor grader) of gravel on the road way as per drawing including watering and compaction by vibrating roller above 6 Ton	m ³	1,070.44		
4.5.5	Construction of 600mm Dia. 4.88m long Hume Pipe Culvert – 02 Nos				
4.5.5.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	0.73		
4.5.5.2	1:3:6(40) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	2.03		
4.5.5.3	Supplying , laying and jointing 600 mm dia hume pipe in position.	Lm	9.76		
4.5.6	Construction of 3 Row 600mm Dia. 4.88m long Hume Pipe Culvert -01 Nos				
4.5.6.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	4.45		
4.5.6.2	1:3:6(40) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	6.24		
4.5.6.3	1:1 1/2:3(20) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	4.60		
4.5.6.4	Supplying bending and placing QT Rib bar as reinforcement as per drawing. The rate includes lapping and wastage	kg	176.85		
4.5.6.5	Supplying , laying and jointing 600 mm dia hume pipe in position.	Lm	14.64		
4.5.6.6	Construction of guard stones as per drawing	Nos	8.00		
Total for Bill No 4 (Carried to Summary of Bills)					

Bill No: 5 Repair of Achadiveambu Anicut (IWWRMP/WM.DS/ACHANKADU /ANICUT/STR-01&02)					
5.1	Renovation works of Achadiveambu Anicut				
5.1.1	Demolishing the existing structure partially and spoil to away from the site as direct by Engineer	Lday	6.00		
5.1.2	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	1.00		
5.1.3	Supplying and fixing of 12mm dia. 0.45 m long Rib bar for steel dowel to arise the crest level. The 150mm of the rib bar should be inserted into the existing structure and the holes should be filled by cement grout directed by Engineer	Nos	20.00		
5.1.4	1:2:4(20) Ct. sand concrete using concrete mixer and compacting with porker vibrator. Rates includes curing and form work as per drawing	m ³	4.60		
5.1.5	Supplying and Fixing 300mm width & 37.50mm thick Maruthu / Naval timber Planks for suite to existing grove. Rate includes two coats of wood preservative as directed by the Engineer.	m ²	16.80		
5.1.6	Supplying and installing locking arrangement to stop planks with 50mm x 6mm flat iron bar(length of iron bar may be vary from 1.6m to 1.9m) with necessary locking arrangement with 50mm padlock as per drawing and as directed by the Engineer.	Nos	10.00		
5.1.7	Chipping the existing concrete surface for plastering as directed by Engineer.	m ²	16.90		
5.1.8	Cleaning and preparing the surface and applying barra emulsion for plastering as directed by Engineer(8 m ² per Liter)	m ²	16.90		
5.1.9	Supply and make plastering 16 mm thick plaster on external structure Cement Sand Ratio (1:3) as directed by Engineer	m ²	16.90		
5.1.10	Clearing the river bed and embankment, landscaping the River bed including uprooting stumps removing outside and burning to ashes where ever necessary as directed by Engineer.(120hp Excavator)	Hrs	25.00		
5.2	Improvement of Training Bund				

5.2.1	Shrub & thorny jungle clearing by machinery along the Training bund area including uprooting stumps removing outside and burning to ashes as directed.	Ha	1.00		
5.2.2	Furnishing, transporting, placing and spreading of earth to forming Training bund including Compaction by Machinery and shaping by manual(The quantity will be determined from the leveling process after Training bund area clearing)	m ³	3,240.00		
5.2.3	Supplying turf sods (approved by the Engineer) to site, preparation and dressing of surface, firmly placing and full turfing to new fill earth and watering and kept moist till grass root up as directed by the Engineer.	m ²	2,690.00		
5.3	Construction of Turn Out Structure				
5.3.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ²	2.40		
5.3.2	1:3:6(40) Ct. sand concrete using concrete mixer and compacting with poker vibrator. Rates includes curing and form work.	m ³	4.97		
5.3.3	Supplying and Fixing 300mm width & 37.50mm thick Maruthu / Naval timber Planks for suite to existing grove. Rate includes two coats of wood preservative as directed by the Engineer.	m ²	3.36		
5.3.4	Supplying and installing locking arrangement to stop planks with 50mm x 6mm flat iron bar(length of iron bar may be vary from 1.6m to 1.9m) with necessary locking arrangement with 50mm padlock as per drawing and as directed by the Engineer.	Nos	2.00		
Total for Bill No 5 (Carried to Summary of Bills)					
Bill No: 6 Improvement of Maruthamadu Anicut and Inlet Canal (IWWRMP/WM.DS/PADDANIKADU/ANICUT/STR-01)					
6.1	Improvement of Maruthamadu Anicut				
6.1.1	Supplying and Fixing 300mm width & 37.50mm thick Maruthu / Naval timber Planks for suite to existing grove. Rate includes two coats of wood preservative as directed by the Engineer.	m ²	19.20		

6.1.2	Supplying and installing locking arrangement to stop planks with 50mm x 6mm flat iron bar(length of iron bar may be vary from 1.6m to 1.9m) with necessary locking arrangement with 50mm padlock as per drawing and as directed by the Engineer.	Nos	10.00		
6.2	Improvement of Maruthamadu Tank Inlet Canal				
6.2.1	Shrub and thorny jungle clearing manually along the Canal and reservations including uprooting stumps removing outside and burning to ashes where ever necessary as directed.	Ha	1.30		
6.2.2	Furnishing, transporting, placing and spreading of earth to forming canal bund including Compaction by Machinery and shaping by manual for Breaching sections in Maruthamadu feeder canal	m ³	131.63		
Total for Bill No 6 (Carried to Summary of Bills)					
Bill No: 7 Improvement of Paddanikaddu Anicut, Pulakadu Road and Construction of Pulakadu Anicut(IWWRMP/WM.DS/PADDANIKADU/ANICUT/STR-01)					
7.1	Landscaping works for River bed				
7.1.1	Clearing the river bed and embankment, landscaping the River bed including uprooting stumps removing outside and burning to ashes where ever necessary as directed by Engineer.(120hp Excavator)	Hrs	25.00		
7.1.2	Clearing the river bed and embankment, landscaping the River bed including uprooting stumps removing outside and burning to ashes where ever necessary as directed by Engineer.	Lday	10.00		
7.2	Renovation works of Paddanikaddu Anicut				
7.2.1	Demolishing the existing structure partially and spoil to away from the site as direct by Engineer	Lday	6.00		
7.2.2	1:2:4(20) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work as per drawing	m ³	3.82		

7.2.3	1:2:4(20) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work for repair the structure as directed by Engineer	m ³	2.00		
7.2.4	Chipping the existing concrete surface for plastering as directed by Engineer.	m ²	24.96		
7.2.5	Cleaning and preparing the surface and applying barra emulsion for plastering as directed by Engineer(8 m ² per Liter)	m ²	24.96		
7.2.6	Supply and make plastering 16 mm thick plaster on external structure Cement Sand Ratio (1:3) as directed by Engineer	m ²	24.96		
7.2.7	Supplying and Fixing 1.60m long, 300mm width & 37.50mm thick Maruthu / Naval timber Planks arrangement (two set) work with two coats of wood preservative as directed by the Engineer.	m ²	5.76		
7.2.8	Supplying and installing locking arrangement (two set) to stop planks with 50mm x 6mm flat iron bar with necessary locking arrangement with 2" padlock as per drawing and as directed by the Engineer.	Nos	4.00		
7.3	Improvement of Paddanikaddu and Mayilapanitharai Feeder Canal and Control Structure				
7.3.1	Furnishing, transporting, placing and spreading of earth to forming canal bund including Compaction by Machinery and shaping by manual for Breaching sections in Mayilampanitharai and Paddanikadu	m ³	175.50		
7.3.2	1:2:4(20) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work for repair the structure as directed by Engineer	m ³	0.20		
7.3.3	Chipping the existing concrete surface for plastering as directed by Engineer.	m ²	5.20		
7.3.4	Cleaning and preparing the surface and applying barra emulsion for plastering as directed by Engineer(8 m ² per Liter)	m ²	5.20		
7.3.5	Supply and make plastering 16 mm thick plaster on external structure Cement Sand Ratio (1:3) as directed by Engineer	m ²	5.20		

7.3.6	Supplying and Fixing 300mm width & 37.50mm thick Maruthu / Naval timber Planks for suite to existing grove. Rate includes two coats of wood preservative as directed by the Engineer.	m ²	1.44		
7.3.7	Supplying and installing locking arrangement to stop planks with 50mm x 6mm flat iron bar(length of iron bar may be vary from 1.6m to 1.9m) with necessary locking arrangement with 50mm padlock as per drawing and as directed by the Engineer.	Nos	1.00		
7.4	Improvement of Pulakadu Road				
7.4.1	Furnishing, transporting, placing and spreading of earth on the road way and forming Road way as directed by the Engineer including watering and compaction by vibrating roller above 6 Ton	m ³	60.00		
7.4.2	Furnishing, transporting, placing and spreading of gravel on the road way directed by Engineer. Rates includes watering and compaction by manual	m ³	18.89		
7.4.3	Construction of 600mm Dia. 4.88m long, 600mm Dia. 2.44m long Hume Pipe Culvert - 02 Nos				
7.4.3.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	0.73		
7.4.3.2	1:3:6(40) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	2.03		
7.4.3.3	Supplying , laying and jointing 600 mm dia hume pipe in position.	Lm	7.32		
7.4.3.4	Furnishing, transporting, placing and spreading of earth to forming canal bund including Compaction by Machinery and shaping by manual for Pulakaadu Canal	m ³	70.20		
7.5	Construction of Pulakadu Anicut				
7.5.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump as per drawing	m ³	29.49		

7.5.2	1:2:4(20) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work for repair the structure as per drawing.	m ³	16.87		
7.5.3	Construction of Training Bund				
7.5.3.1	Shrub & thorny jungle clearing by machinery along the proposed training bund area including uprooting stumps removing outside and burning to ashes as directed.	Ha	0.20		
7.5.3.2	Furnishing, transporting, placing and spreading of earth to forming Training bund including Compaction by Machinery and shaping by manual(The quantity will be determined from the leveling process after Training bund area clearing)	m ³	486.00		
7.5.3.3	Supplying turf sods (approved by the Engineer) to site, preparation and dressing of surface, firmly placing and full turfing to new fill earth and watering and kept moist till grass root up as directed by the Engineer.	m ²	538.00		
Total for Bill No 7 (Carried to Summary of Bills)					
Bill No: 8 Improvement of Puliyakulam Tank (IWRMP/WM.DS/PULIYAKULAM/CANAL/LSS & CSS					
8.1	Light jungle clearing by machinery along the Tank bund including uprooting stumps removing outside and burning to ashes where ever necessary as directed.	Ha	3.00		
8.2	Supplying and fixing 0.2m x 2.5m Stainless steel plate in approved colour printing of water level measuring gauge as directed by Engineer	m ²	0.60		
8.3	Improvement to Canal System				
8.3.1	Shrub & thorny jungle clearing manually along the canal width of 6m including uprooting stumps removing outside and burning to ashes as directed by Engineer	Lday	20.00		
8.3.2	Stripping top soil along the Canal area to a thickness of 0.075 meters in order to receive new earth and spoils to be disposed outside the reservation as directed	m ³	163.32		

8.3.3	Earth cutting in canal as per drawing and spoil to waste as directed by Engineer	m ³	17.63		
8.3.4	Furnishing, transporting, placing and spreading of earth to forming canal bund including Compaction by Machinery and shaping by manual as per drawing	m ³	765.52		
8.4	Construction of 150mm dia. 2.44m long Hume Pipe Farm Turnout – 04 Nos				
8.4.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	0.13		
8.4.2	1:3:6(40) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	0.32		
8.4.3	Supplying , laying and jointing 150 mm dia hume pipe in position.	Lm	9.76		
8.5	Reconstruction of 375mm Dia. Sluice				
8.5.1	Demolishing the existing whole structures and removing the debris from the site as directed by Engineer	Lday	4.00		
8.5.2	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump as per drawing	m ³	0.17		
8.5.3	1:2:4(20) Ct. sand concrete using concrete mixer and compacting with porker vibrator. Rates includes curing and form work as per drawing	m ³	0.78		
8.5.4	Supplying bending and placing QT Rib bar as reinforcement as per drawing the rate should be included lappings and wastage	kg	34.37		
8.5.5	Supplying and fixing 375mm Dia C.I Gate with complete set including 3.6 m long and 1.5" Dia spindle with required size of threat and Brass nut, base plate, Rag Bolts, etc. in position the bolt & nut of the base plate should be welded as directed by Engineer	Nos	1.00		
8.5.6	Supplying and fixing 3.6 m long and 1.5" Dia spindle with required size of threat and Brass nut in position the bolt & nut of the base plate should be welded as directed by Engineer	Item	Allow	P.Sum	30,000.00
8.6	Improvement to Drainage Canal System				

8.6.1	Shrub & thorny jungle clearing manually along the canal width of 6m including uprooting stumps removing outside and burning to ashes as directed.	Lday	20.00		
8.6.2	Stripping top soil along the canal area to a thickness of 0.075 meters in order to receive new earth and spoils to be disposed outside the reservation as directed	m ³	144.98		
8.6.3	Earth cutting in canal as per drawing and spoil to waste as directed by Engineer	m ³	359.20		
8.6.4	Spreading of earth to forming canal bund including Compaction by Machinery and shaping by manual as per drawing	m ³	359.20		
8.6.5	Furnishing, transporting, placing and spreading of earth to forming canal bund including Compaction by Machinery and shaping by manual as per drawing	m ³	181.35		
8.7	Construction of 600mm Dia. 2.44m long Hume Pipe Culvert – 03 Nos				
8.7.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	1.10		
8.7.2	1:3:6(40) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	3.04		
8.7.3	Supplying , laying and jointing 600 mm dia hume pipe in position.	Lm	14.64		
Total for Bill No 8 (Carried to Summary of Bills)					
Bill No: 9 Improvement of Maruthamadu Tank (IWWRMP/WM.DS/MARUTHAMADU/CANAL- LSS & CSS					
9.1	Light jungle clearing by machinery along the Tank bund including uprooting stumps removing outside and burning to ashes where ever necessary as directed.	Ha	1.80		
9.2	Supplying and Fixing 300mm width & 37.50mm thick Maruthu / Naval timber Planks for suite to existing grove. Rate includes two coats of wood preservative as directed by the Engineer.	m ²	9.60		

9.3	Supplying and installing locking arrangement to stop planks with 50mm x 6mm flat iron bar(length of iron bar may be vary from 1.6m to 1.9m) with necessary locking arrangement with 50mm padlock as per drawing and as directed by the Engineer.	Nos	4.00		
9.4	Supplying and fixing 0.2m x 2.5m Stainless steel plate in approved colour printing of water level measuring gauge as directed by Engineer	m ²	0.50		
9.5	Supplying and fixing 3.6 m long and 1.5" Dia spindle with required size of threath and Brass nut in position the bolt & nut of the base plate should be welded as directed by Engineer	P.Sum	Allow	Item	30,000.00
9.6	Improvement to Canal System				
9.6.1	Shrub & thorny jungle clearing manually along the canal width of 6m including uprooting stumps removing outside and burning to ashes as directed.	Lday	10.00		
9.6.2	Stripping top soil along the canal area to a thickness of 0.075 meters in order to receive new earth and spoils to be disposed outside the reservation as directed	m ³	97.58		
9.6.3	Earth cutting in canal as per drawing and spoil to waste as directed by Engineer	m ³	139.44		
9.6.4	Furnishing, transporting, placing and spreading of earth to forming canal bund including Compaction by Machinery and shaping by manual as per drawing	m ³	273.23		
9.7	Construction of 150mm dia. 2.44m long Hume pipe farm turnout – 04 Nos				
9.7.1	Earth Excavation in foundation and back filling including watering and compaction / spoil to waste / dump.	m ³	0.13		
9.7.2	1:3:6(40) Ct. sand concrete mixing manually and compacting with porker vibrator. Rates includes curing and form work.	m ³	0.32		
9.7.3	Supplying , laying and jointing 150 mm dia hume pipe in position.	Lm	9.76		
Total for Bill No 9 (Carried to Summary of Bills)					

10.0 DAYWORKS SCHEDULE

	Description	Unit	Qty.	Rate (LKR)	Amount (LKR)	Amount in Words
	Labour					
1	Skilled labour	hr	50.00			
2	Unskilled labour	hr	60.00			
3	Mason	hr	20.00			
4	Carpenter	hr	10.00			
5	Plumber, Electrician	hr	15.00			
6	Mechanic	hr	15.00			
7	Welder, Fitter	hr	15.00			
8	Steel fixer	hr	15.00			
9	Driver	hr	50.00			
	Total for Labour					
	Material					
1	Cement (50 Kg bags)	Nos	100.00			
2	Sand	m ³	30.00			
3	Mild steel reinforcement	t	0.30			
4	Tor steel reinforcement	t	0.30			
5	Mild Steel Plate	t	0.15			
6	Stainless Steel Plate	t	0.15			
7	Fabricated Steelwork	t	0.15			
8	Timber Ply Sheet 12mm	m ²	30.00			
9	Gravel	m ³	50.00			
	Total for Material					
	Equipment					
1	Backhoe/Loader 100 HP	hr	20.00			
2	Mobile crane 30T	hr	10.00			
3	Dump truck / Tipper 20T	hr	10.00			
4	Tractor/Trailer 100HP	hr	10.00			
5	Concrete Mixer 1 m ³	hr	10.00			
6	Air Compressor 3-Tool	hr	5.00			
7	Welding Set 10KVA	hr	10.00			
8	Sandblasting Equipment	hr	15.00			
9	Diesel Generator 20KVA	hr	15.00			
10	Water Pumps 50mm	hr	25.00			
11	Excavator	hr	25.00			
	Total for Equipment					
Total for Bill No 08						

Technical Proposal

Forms for personnel

Forms for equipment

Site organisation

Method statements

Mobilisation and construction schedule

For Reference Only

Forms for Personnel

Form PER – 1: Proposed Personnel

Bidders should provide the names of suitably qualified personnel to meet the specified requirements for each of the positions listed in Section III (Evaluation and Qualification Criteria). The data on their experience should be supplied using the form below for each candidate.

1.	Title of position Name
2.	Title of position Name
3.	Title of position Name
4.	Title of position Name
5.	Title of position Name
6.	Title of position Name
etc.	Title of position Name

Forms for Equipment

The Bidder shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section III (Evaluation and Qualification Criteria). A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder. The Bidder shall provide all the information requested below, to the extent possible. Fields with asterisk (*) shall be used for evaluation.

Type of Equipment*		
Equipment Information	Name of manufacturer	Model and power rating
	Capacity*	Year of manufacture*
Current Status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

The following information shall be provided only for equipment not owned by the Bidder.

Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	Telex
Agreements	Details of rental / lease / manufacture agreements specific to the project	

Site Organisation

The Bidder shall provide a personnel chart for the proposed site organization, indicating the key positions as given in Section III (Evaluation and Qualification Criteria) and other positions, with names of personnel proposed and a description of the tasks assigned for such positions.

For Reference Only

Method Statements

The Bidder shall provide a method statement describing the methodology proposed to be adopted in the execution of the contract.

For Reference Only

Mobilisation and Construction Schedule

The Bidder shall provide a detailed mobilization and construction schedule indicating the sequence of all main operations and identifying critical activities.

For Reference Only

Section 9 - Schedules

Schedule 1 – General Information			
<p>(i) If pre-qualification is done the bidders are required to include information subsequent to that submitted with the pre-qualification application.</p> <p>(ii) For joint ventures, each joint venture partner shall furnish information separately.</p>			
ITB Clause reference	Description	Information (to be filled by the Bidder)	Remarks
4.1 (a)	Legal Status		<i>Provide certified copies of Registration</i>
	Written power of attorney of the signatory to the Bid	<i>Provide original or certified copy of the power of Attorney attested by a Notary and label as attachment to Clause 4.1(a)</i>	
	If a Joint Venture, names and addresses of Joint Venture Partners	1. 2. 3.	<i>Provide a draft copy of the Joint Venture Agreement or alternatively the memorandum of understanding</i>
	If a Joint Venture, name of Lead Partner		
	<i>For joint ventures, each joint venture partner shall furnish Legal Status separately</i>		
	Name (Lead partner)		<i>Provide certified copies and label as attachment to Clause 4.1(a)</i>
	Legal status		
	Place of registration		
	Principle place of business		
	Written power of attorney of the signatory to the Bid	<i>Provide original or certified copy of the power of attorney attested by a Notary and label as attachment to Clause 5.1</i>	
	VAT Registration Number		
	Name (Partner 2)		<i>Provide certified copies and label as attachment to Clause 4.1 (a)</i>
	Legal status		
	Place of registration		
	Principle place of business		

	Written power of attorney of the signatory to the Bid	<i>Provide original or certified copy of the power of attorney attested by a Notary and label as attachment to Clause 4.1 (a)</i>	
	VAT Registration Number		
	Name (Partner 3)		<i>Provide certified copies and label as attachment to Clause 4.1 (a)</i>
	Legal status		
	Place of registration		
	Principle place of business		
	Written power of attorney of the signatory to the Bid	<i>Provide original or certified copy of the power of attorney attested by a Notary and label as attachment to Clause 4.1 (a)</i>	
	VAT Registration Number		
4.2 (a)	ICTAD Registration		<i>Provide certified copies and label as attachment to Clause 4.2(a)</i>
	Registration number		
	Grade		
	Specialty		
	Expiry Date		

**Schedule 2 – Annual Turn-over Information
(Construction only – Last five years)**

- (i) *If pre-qualification is done the bidders are required to include information subsequent to that submitted with the pre-qualification application.*
- (ii) *For joint ventures, each joint venture partner shall furnish information separately.*

Year	Turn-over	Remarks
1		<i>Attach audited reports and label as attachment to Clause 4.2</i>
2		
3		
4		
5		

Schedule 3 – Adequacy of Working Capital

If pre-qualification is done the bidders are required to include information subsequent to that submitted with the pre-qualification application

Source of credit line	Amount	Remarks
		<i>Provide documentary evidence and label as attachment to Clause 4.2</i>
Total		

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Schedule 5 – Major Items of Construction Equipment Proposed	
Type	Capacity

For Reference Only

Schedule 6 – Construction Management Staff		
A. Key Professionals		
Name	Position	Task
B. Support Staff		
Name	Position	Task

Schedule 7 – Time Schedule for Key Staff	
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[illegible]

Full-time: _____ Part-time:

Sheet 1 of

[1st, 2nd, etc. are months from the Start Date.]

[illegible]

Schedule 9 – Input percentages for Price Adjustment Formula		
Input Name <i>(Include major materials below the list, together with percentages for all inputs)</i>	ICTAD Reference for Indices	Percentage <i>(percentages listed should added to 90.0)</i>
Total		

Nonadjustable element shall be:
All P sum & L sum items

Schedule 9 - Works in Hand

Contract	Name of the Employer	Description of work (attach a copy of letter of award)	Date of award of contract	Value of contract (Rs.)	Contract period	Whether extension of time has been granted	Percentage completion as at present
Contract 1							
Contract 2							
Contract 3							
Contract 4							
Contract 5							

Schedule 11: ESHS Management Strategies and Implementation Plans

(ESHS-MSIP)

The Bidder shall submit comprehensive and concise Environmental, Social, Health and Safety Management Strategies and Implementation Plans (ESHS-MSIP) as required by ITB 13.1 A (j) and 13.1 B (d). These strategies and plans shall describe in detail the actions, materials, equipment, management processes etc. that will be implemented by the Contractor, and its subcontractors.

Code of Conduct: Environmental, Social, Health and Safety (ESHS)

The Bidder shall submit the Code of Conduct that will apply to the Contract Manager and other key personnel as required by ITB 13.1 A (j) and 13.1 B (d) and subcontractors. The Code of Conduct shall ensure compliance with the ESHS provisions of the Contract.

In addition, the Bidder shall submit an outline of how this Code of Conduct will be implemented. This will include: how it will be introduced into conditions of employment/engagement, what training will be provided, how it will be monitored and how the Contractor proposes to deal with any breaches.

Environmental, social, health and safety requirements

The Employer should use the services of a suitably qualified environmental, social, health and safety specialist/s to prepare the specifications for ESHS working with a procurement specialist/s.

The Employer should attach or refer to the Employer's environmental, social, health and safety policies that will apply to the project. If these are not available, the Employer should use the following guidance in drafting an appropriate policy for the Works.

SUGGESTED CONTENT FOR AN ENVIRONMENTAL AND SOCIAL POLICY (STATEMENT)

The Works' policy goal, as a minimum, should be stated to integrate environmental protection, occupational and community health and safety, gender, equality, child protection, vulnerable people (including those with disabilities), sexual harassment, gender-based violence (GBV), sexual exploitation and abuse (SEA), HIV/AIDS awareness and prevention and wide stakeholder engagement in the planning processes, programs, and activities of the parties involved in the execution of the Works. The Employer is advised to consult with the World Bank to agree the issues to be included which may also address: climate adaptation, land acquisition and resettlement, indigenous people, etc. The policy should set the frame for monitoring, continuously improving processes and activities and for reporting on the compliance with the policy.

The policy shall include a statement that, for the purpose of the policy and/or code of conduct, the term "child" / "children" means any person(s) under the age of 18 years.

The policy should, as far as possible, be brief but specific and explicit, and measurable, to enable reporting of compliance with the policy in accordance with the Particular Conditions of the Contract Sub-Clause 4.21 and Appendix C to the General Conditions of Contract.

As a minimum, the policy is set out to the commitments to:

- 1. apply good international industry practice to protect and conserve the natural environment and to minimize unavoidable impacts;*
- 2. provide and maintain a healthy and safe work environment and safe systems of work;*
- 3. protect the health and safety of local communities and users, with particular concern for those who are disabled, elderly, or otherwise vulnerable;*
- 4. ensure that terms of employment and working conditions of all workers engaged in the Works meet the requirements of the ILO labour conventions to which the host country is a signatory;*
- 5. be intolerant of, and enforce disciplinary measures for illegal activities. To be intolerant of, and enforce disciplinary measures for GBV, inhumane treatment, sexual activity with children, and sexual harassment;*
- 6. incorporate a gender perspective and provide an enabling environment where women and men have equal opportunity to participate in, and benefit from, planning and development of the Works;*
- 7. work co-operatively, including with end users of the Works, relevant authorities, contractors and local communities;*
- 8. engage with and listen to affected persons and organizations and be responsive to their concerns, with special regard for vulnerable, disabled, and elderly people;*
- 9. provide an environment that fosters the exchange of information, views, and ideas that is free of any fear of retaliation, and protects whistleblowers;*
- 10. minimize the risk of HIV transmission and to mitigate the effects of HIV/AIDS associated with the execution of the Works;*

The policy should be signed by the senior manager of the Employer. This is to signal the intent that it will be applied rigorously.

MINIMUM CONTENT OF ESHS REQUIREMENTS

In preparing detailed specifications for ESHS requirements, the specialists should refer to and consider:

- project reports e.g. ESIA/ESMP*
- consent/permit conditions*
- required standards including World Bank Group EHS Guidelines*
- relevant international conventions or treaties etc., national legal and/or regulatory requirements and standards (where these represent higher standards than the WBG EHS Guidelines)*
- relevant international standards e.g. WHO Guidelines for Safe Use of Pesticides*
- relevant sector standards e.g. EU Council Directive 91/271/EEC Concerning Urban Waste Water Treatment*
- Grievance redress mechanism including types of grievances to be recorded and how to protect confidentiality e.g. of those reporting allegations of GBV/SEA.*
- GBV/SEA prevention and management.*

- *The detail specification for ESHS should, to the extent possible, describe the intended outcome rather than the method of working*

The ESHS requirements should be prepared in manner that does not conflict with the relevant General Conditions of Contract and Particular Conditions of Contract, and in particular:

General Conditions of Contract

Sub-clause 1.13 Compliance with Laws

Sub-clause 2.2 Permits, Licenses and Approvals

Sub-clause 4.1 Contractor's General Obligations

Sub-clause 4.4 Subcontractors

Sub-clause 4.8 Safety Procedures

Sub-clause 4.19 Avoidance of Interference

Sub-clause 4.13 Protection of the Environment

Sub-clause 4.15 Contractor's Operations on the Site

Sub-clause 4.16 Fossils

Section 6 Staff and Labour (includes health and safety)

Sub-clause 7.1 Manner of Execution

Sub-clause 10 Clearance of Site

Sub-clause 12.3 Evaluation (reference ITB 14.2 "Items against which no rate or price is entered by the Bidder shall be deemed to be covered by the rates for other items in the Bill of Quantities and will not be paid separately by the Employer.")

MINIMUM REQUIREMENTS FOR THE BIDDER'S CODE OF CONDUCT

[A minimum requirement for the Code of Conduct should be set out by the Employer, taking into consideration the issues, impacts, and mitigation measures identified, for example, in:

- *project reports e.g. ESIA/ESMP*
- *any particular GBV/SEA requirements*
- *consent/permit conditions (regulatory authority conditions attached to any permits or approvals for the project)*
- *required standards including World Bank Group EHS Guidelines*
- *relevant international conventions, standards or treaties, etc., national legal and/or regulatory requirements and standards (where these represent higher standards than the WBG EHS Guidelines)*
- *relevant standards e.g. Workers' Accommodation: Process and Standards (IFC and EBRD)*
- *relevant sector standards e.g. workers' accommodation*
- *Grievance redress mechanisms.*

The types of issues identified could include. Risks associated with: labor influx, spread of communicable diseases, sexual harassment, gender based violence, illicit behavior and crime, and maintaining a safe environment etc.

[Amend the following instructions to the Bidder taking into account the above considerations.]

A satisfactory code of conduct will contain obligations on all Contractor's Personnel project staff (including sub-contractors and day workers) that are suitable to address the following issues, as a minimum. Additional obligations may be added to respond to particular concerns of the region, the location and the project sector or to specific project requirements. The code of conduct shall contain a statement that the term "child" / "children" means any person(s) under the age of 18 years.

The issues to be addressed include:

1. Compliance with applicable laws, rules, and regulations
2. Compliance with applicable health and safety requirements to protect the local community (including vulnerable and disadvantaged groups), the Employer's Personnel, and the Contractor's Personnel (including wearing prescribed personal protective equipment, preventing avoidable accidents and a duty to report conditions or practices that pose a safety hazard or threaten the environment)
3. The use of illegal substances
4. Non-Discrimination in dealing with the local community (including vulnerable and disadvantaged groups), the Employer's Personnel, and the Contractor's Personnel (for example on the basis of family status, ethnicity, race, gender, religion, language, marital status, age, disability (physical and mental), sexual orientation, gender identity, political conviction or social, civic, or health status)
5. Interactions with the local community(ies), members of the local community (ies), and any affected person(s) (for example to convey an attitude of respect, including to their culture and traditions)
6. Sexual harassment (for example to prohibit use of language or behavior, in particular towards women and/or children, that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate)
7. Violence, including sexual and/or gender based violence (for example acts that inflict physical, mental or sexual harm or suffering, threats of such acts, coercion, and deprivation of liberty)
8. Exploitation including sexual exploitation and abuse (for example the prohibition of the exchange of money, employment, goods, or services for sex, including sexual favors or other forms of humiliating, degrading behavior, exploitative behavior or abuse of power)
9. Protection of children (including prohibitions against sexual activity or abuse, or otherwise unacceptable behavior towards children, limiting interactions with children, and ensuring their safety in project areas)
10. Sanitation requirements (for example, to ensure workers use specified sanitary facilities provided by their employer and not open areas)
11. Avoidance of conflicts of interest (such that benefits, contracts, or employment, or any sort of preferential treatment or favors, are not provided to any person with whom there is a financial, family, or personal connection)
12. Respecting reasonable work instructions (including regarding environmental and

social norms)

13. Protection and proper use of property (for example, to prohibit theft, carelessness or waste)
14. Duty to report violations of this Code
15. Non retaliation against workers who report violations of the Code, if that report is made in good faith.

The Code of Conduct should be written in plain language and signed by each worker to indicate that they have:

- received a copy of the code;
- had the code explained to them;
- acknowledged that adherence to this Code of Conduct is a condition of employment; and
- Understood that violations of the Code can result in serious consequences, up to and including dismissal, or referral to legal authorities.

A copy of the code shall be displayed in a location easily accessible to the community and project affected people. It shall be provided in languages comprehensible to the local community, Contractor's Personnel, Employer's Personnel, and affected persons.

PAYMENT FOR ESHS REQUIREMENTS

The Employer's ESHS and procurement specialists should consider how the Contractor will cost the delivery of the ESHS requirements. In the majority of cases, the payment for the delivery of ESHS requirements shall be a subsidiary obligation of the Contractor covered under the prices quoted for other Bill of Quantity items. For example, normally the cost of implementing work place safe systems of work, including the majors necessary for ensuring traffic safety, shall be covered by the Bidder's rates for the relevant works. Alternatively, provisional sums could be set aside for discrete activities for example for HIV counselling service, and, GBV/SEA awareness and sensitization or to encourage the contractor to deliver additional ESHS outcomes beyond the requirement of the Contract.

Section - 10

Drawings

Description	Drawing No	Sheet No
IMPROVEMENTS TO SHINNAPULAVELI ROAD LONGITUDINAL SECTION	DRW NO: -IWWRMP/WM.DS/ SHINNAPULAVELI /ROAD/LSS-01	Page 01 of 51
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IMPROVEMENTS TO SHINNAPULAVELI ROAD LONGITUDINAL SECTION	DRW NO: -IWWRMP/WM.DS/ SHINNAPULAVELI /ROAD/LSS-03	Page 03 of 51
IMPROVEMENTS TO SHINNAPULAVELI ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ SHINNAPULAVELI /ROAD/CSS-01	Page 04 of 51
IMPROVEMENTS TO SHINNAPULAVELI ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ SHINNAPULAVELI /ROAD/CSS-02	Page 05 of 51
IMPROVEMENTS TO SHINNAPULAVELI ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ SHINNAPULAVELI /ROAD/CSS-03	Page 06 of 51
IMPROVEMENTS TO SHINNAPULAVELI ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ SHINNAPULAVELI /ROAD/CSS-04	Page 07 of 51
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IMPROVEMENTS TO SHINNAPULAVELI ROAD HUME PIPE CULVERTS	DRW NO: -IWWRMP/WM.DS/ SHINNAPULAVELI /ROAD/STR-01	Page 11 of 51
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Section 10 - Drawings

IMPROVEMENTS TO TRAINING BUND RE CONSTRUCTION OF HUME PIPE TURNOUT FOR ILLAVAIKULAM & SULTHANKAMAM FEEDER TANK	DRW NO: -IWWRMP/WM.DS/ TRAINING BUND / TURNOUT /STR-01	Page 13 of 51
IMPROVEMENTS TO TRAINING BUND RE CONSTRUCTION OF HUME PIPE TURNOUT FOR ILLAVAIKULAM & SULTHANKAMAM FEEDER TANK	DRW NO: -IWWRMP/WM.DS/ TRAINING BUND / TURNOUT /STR-02	Page 14 of 51
IMPROVEMENTS OF SPILL AND RE CONSTRUCTION OF ILLAVAIKULAM SLUICE	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / SPILL /STR-01	Page 15 of 51
IMPROVEMENTS OF SPILL AND RE CONSTRUCTION OF ILLAVAIKULAM SLUICE	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / SLUICE /STR-01	Page 16 of 51
IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD LONGITUDINAL SECTION	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / RD /LSS-01	Page 17 of 51
IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD LONGITUDINAL SECTION	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / RD /LSS-02	Page 18 of 51
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IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD LONGITUDINAL SECTION	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / RD /LSS-04	Page 20 of 51
IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / RD /CSS-01	Page 21 of 51
IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / RD /CSS-02	Page 22 of 51

Section 10 - Drawings

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IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / RD /CSS-04	Page 24 of 51
IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / RD /CSS-05	Page 25 of 51
IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / RD /CSS-06	Page 26 of 51
IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / RD /CSS-07	Page 27 of 51
IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / RD /CSS-08	Page 28 of 51
IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / RD /CSS-09	Page 29 of 51
IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM / RD /CSS-10	Page 30 of 51
IMPROVEMENT TO ILLAVAIKULAM TANK ACCESS ROAD HUMEPipe CULVERTS	DRW NO: -IWWRMP/WM.DS/ ILLAVAIKULAM /CULVERT /STR-01	Page 31 of 51
REPAIR OF ACHCHADIVEMBU ANICUT	DRW NO: -IWWRMP/WM.DS/ ACHADIVEAMBU /ANICUT /STR-01	Page 32 of 51
IMPROVEMENT OF ACHCHADIVEMBU ANICUT	DRW NO: -IWWRMP/WM.DS/ ACHADIVEAMBU /ANICUT /STR-02	Page 33 of 51
IMPROVEMENT OF PADDANIKADU ANICUT,PULAKADU ROAD	DRW NO: -IWWRMP/WM.DS/ PADDANIKADU /ANICUT /STR-01	Page 34 of 51

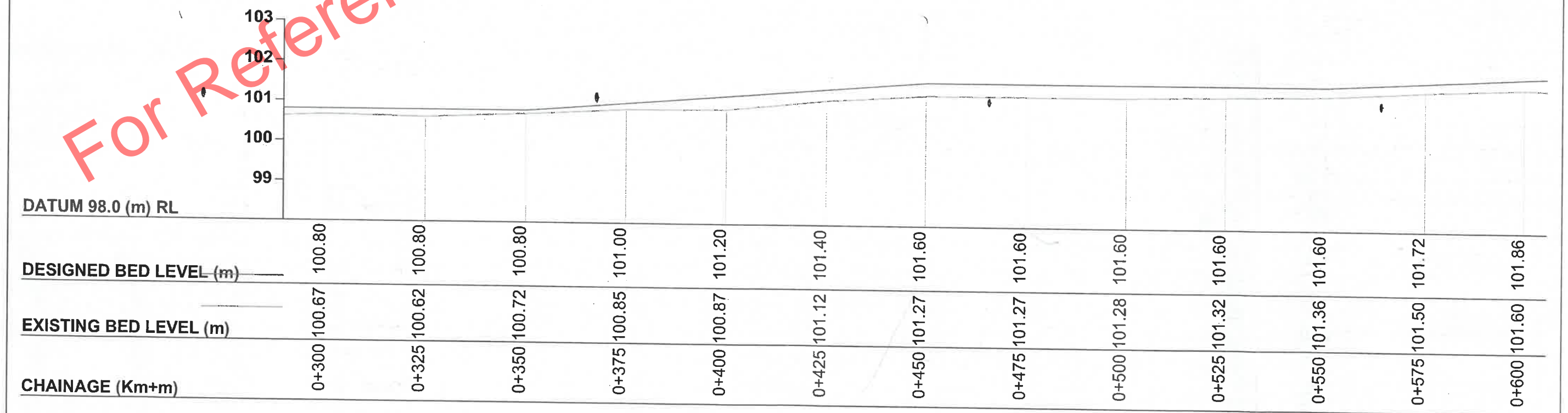
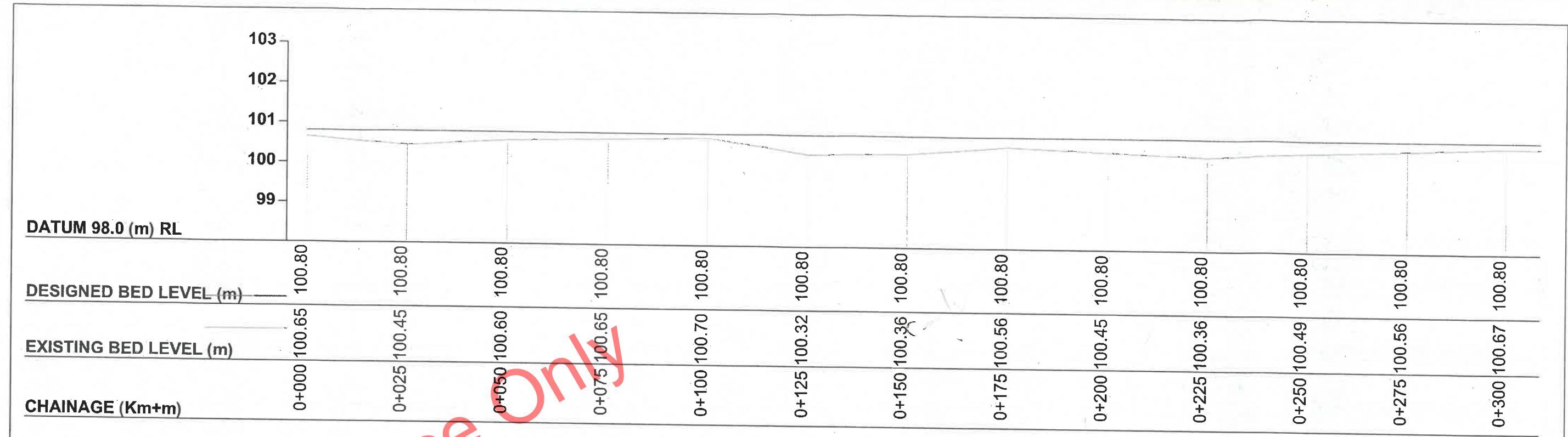
Section 10 - Drawings

AND CONSTRUCTION OF PULAKKADU ANICUT		
IMPROVEMENT OF PADDANIKADU ANICUT,PULAKADU ROAD AND CONSTRUCTION OF PULAKKADU ANICUT	DRW NO: -IWWRMP/WM.DS/ PULAKKADU /ANICUT /STR-01	Page 35 of 51
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Section 10 - Drawings

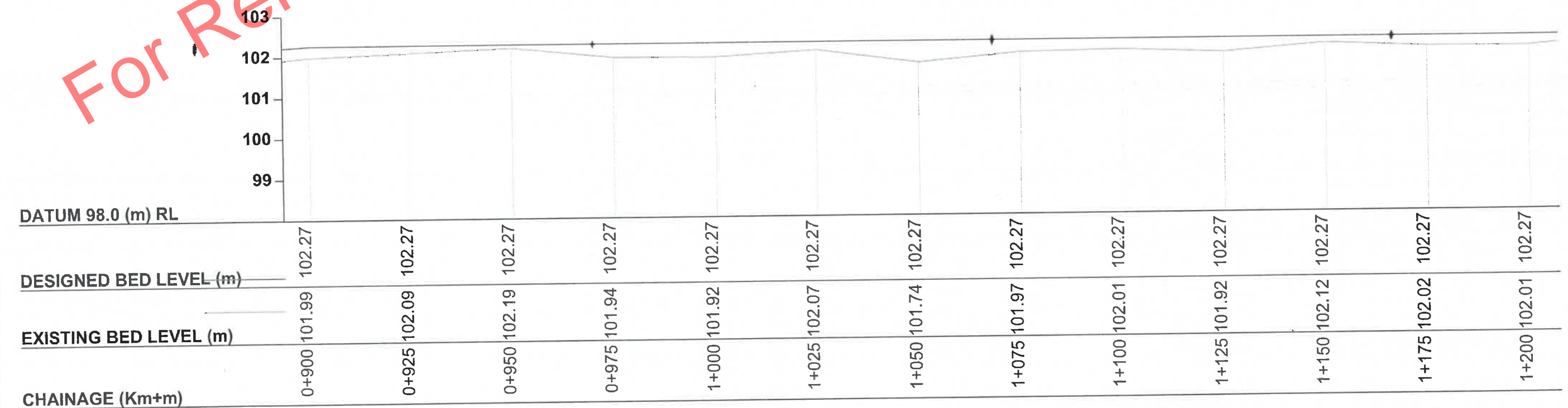
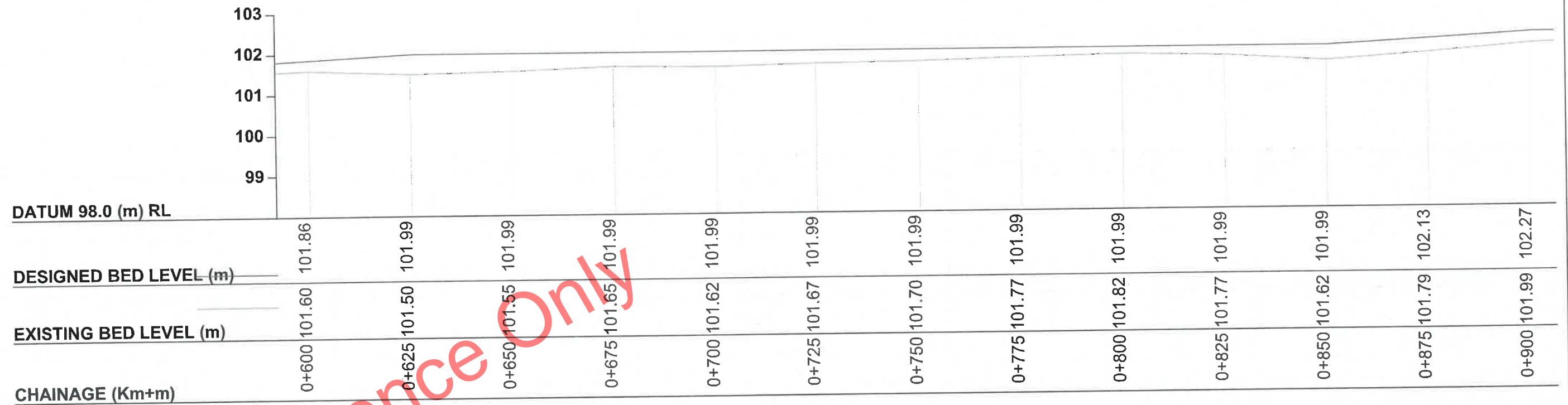
IMPROVEMENT OF PULIYAKULAM TANK CANAL SYSTEM CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ PULIYAKULAM /DRAINAGE CANAL /CSS-03	Page 45 of 51
IMPROVEMENT OF PULIYAKULAM TANK CANAL SYSTEM CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ PULIYAKULAM /DRAINAGE CANAL /CSS-04	Page 46 of 51
IMPROVEMENT OF MARUTHAMADU TANK CANAL SYSTEM LONGITUDINAL SECTION	DRW NO: -IWWRMP/WM.DS/ MARUTHAMADU/ CANAL-1 /LSS-01	Page 47 of 51
IMPROVEMENT OF MARUTHAMADU TANK CANAL SYSTEM CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ MARUTHAMADU/ CANAL-1 /CSS-01	Page 48 of 51
IMPROVEMENT OF MARUTHAMADU TANK CANAL SYSTEM LONGITUDINAL SECTION	DRW NO: -IWWRMP/WM.DS/ MARUTHAMADU/ CANAL-2 /LSS-01	Page 49 of 51
IMPROVEMENT OF MARUTHAMADU TANK CANAL SYSTEM CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ MARUTHAMADU/ CANAL-2 /CSS-01	Page 50 of 51
IMPROVEMENT OF MARUTHAMADU TANK CANAL SYSTEM CROSS SECTION	DRW NO: -IWWRMP/WM.DS/ MARUTHAMADU/ CANAL-2 /CSS-02	Page 51 of 51

For Reference Only



IWWRMP -2024 DEPARTMENT OF IRRIGATION - NP MANNAR DIVISION VAVUNIYA RANGE	REHABILITATION OF WELIMARUTHAMADU TANK DOWN STREAM Improvements to Shinnapulaveli Road Longitudinal Section of Shinnapulaveli Road			CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY	
				NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIDAYARAVI	ENG.T.RAJAGOBU
				DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
				SIGNATURE						
IWWRMP/WM.DS/SINNAPULAVELI/ROAD/LSS-01				SCALE : V-1:100, H-1:1000	SHEET NO - 01 OFF 51	A3	DATE			

Eng. T. Rajagobu
 Deputy Director of Irrigation
 Vavuniya Range



IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE






REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvements to Shinnapulaveli Road
Longitudinal Section of Shinnapulaveli Road

IWWRMP/WM.DS/SINNA PULAVELI/ROAD/LSS-02

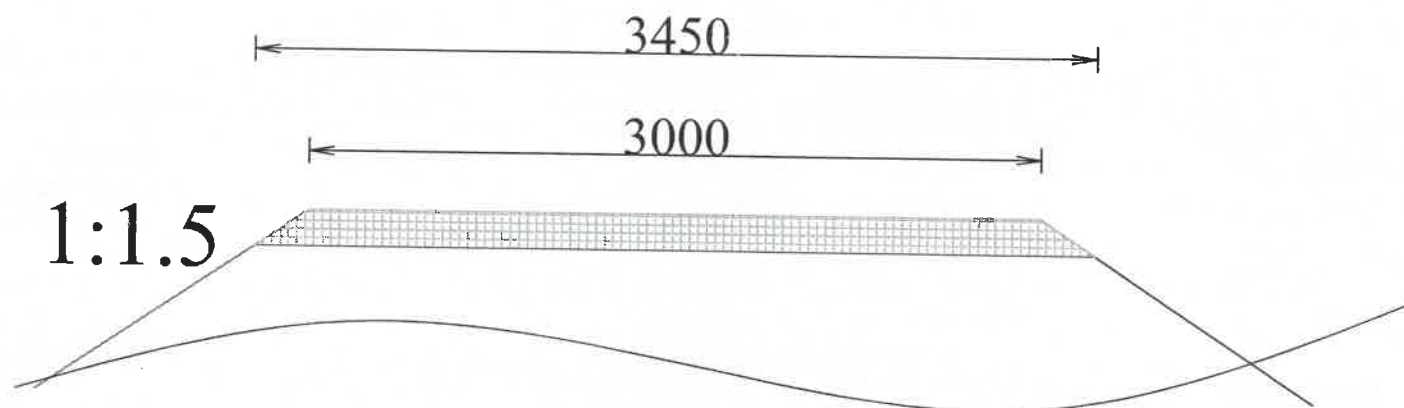
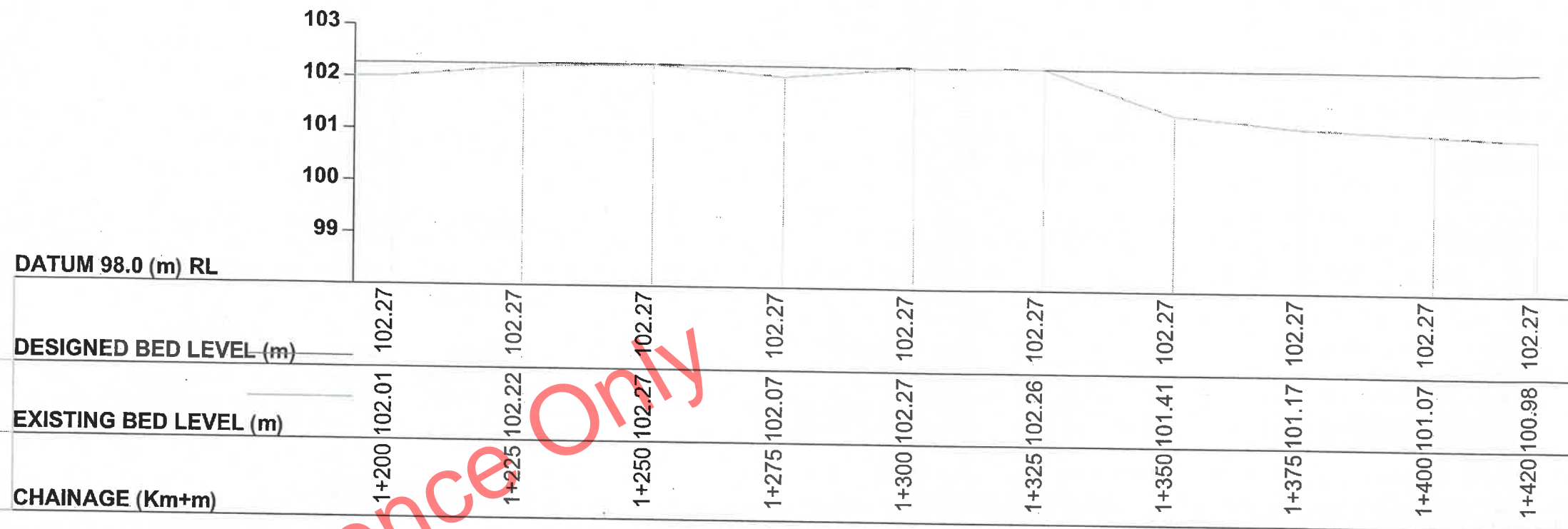
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A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range



Profile of Road

IWWRMP -2024		REHABILITATION OF WELIMARUTHAMADU TANK DOWN STREAM Improvements to Shinnapulaveli Road Longitudinal Section & Profile of Shinnapulaveli Road				<table border="1"> <tr> <td>CAD BY</td> <td>CHECKED BY</td> <td>SUBMITTED BY</td> <td>DRAWN CHECKED BY</td> <td>DESIGN CHECKED BY</td> <td>APPROVED BY</td> </tr> <tr> <td>S.PRATHEEP</td> <td>V.J.C.PERIES</td> <td>ENG.R.THARAKAN</td> <td>S.KUGATHASAN</td> <td>ENG.N.VIJAYARAVI</td> <td>ENG.T.RAJAGOBU</td> </tr> <tr> <td>DESIGNATION</td> <td>TECHNICAL OFFICER</td> <td>DRAUGHTSMAN</td> <td>IRRIGATION ENGINEER</td> <td>DRAUGHTSMAN</td> <td>IRRIGATION ENGINEER</td> </tr> <tr> <td>SIGNATURE</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>DATE</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU	DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	SIGNATURE						DATE					
CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY																																				
S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU																																				
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER																																				
SIGNATURE																																									
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DEPARTMENT OF IRRIGATION - NP MANNAR DIVISION VAVUNIYA RANGE		IWWRMP/WM.DS/SINNAPULAVELI/ROAD/LSS-03				SCALE : V-1:100, H-1:1000		SHEET NO - 03 OFF 51		A3																															

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.799m
Earth Filling : 1.284m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 50m

Stripping : 4.821m
Earth Filling : 1.739m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 25m

Stripping : 5.055m
Earth Filling : 1.047m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 0m

Stripping : 5.147m
Earth Filling : 2.295m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 125m

Stripping : 4.312m
Earth Filling : 0.554m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 100m

Stripping : 4.154m
Earth Filling : 0.672m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 75m

Stripping : 5.260m
Earth Filling : 1.949m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 200m

Stripping : 5.036m
Earth Filling : 1.159m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 175m

Stripping : 5.095m
Earth Filling : 2.096m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 150m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvements to Shinnapulaveli Road
Cross Section of Shinnapulaveli Road

IWWRMP/WM.DS/SINNAPULAVELI/ROAD/CSS-01

SCALE : V-1:100, H-1:1000

SHEET NO - 04 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	SKUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.771m
Earth Filling : 1.123m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 275m

Stripping : 4.943m
Earth Filling : 1.384m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 250m

Stripping : 5.230m
Earth Filling : 2.326m²
Gravel Filling : 0.483m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 225m

Stripping : 4.692m
Earth Filling : 0.893m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 350m

Stripping : 4.900m
Earth Filling : 1.121m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 325m

Stripping : 4.531m
Earth Filling : 0.762m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 300m

Stripping : 4.778m
Earth Filling : 1.540m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 425m

Stripping : 5.077m
Earth Filling : 1.662m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 400m

Stripping : 5.104m
Earth Filling : 1.027m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 375m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP

MANNAR DIVISION

VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvements to Shinnapulaveli Road







Cross Section of Shinnapulaveli Road

IWWRMP/WM.DS/SINNAPULAVELI/ROAD/CSS-02

SCALE : V-1:100, H-1:1000

SHEET NO - 05 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.725m
Earth Filling : 1.393m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)	101.00	101.22	101.28	101.32	100.98
EXISTING GL (m)	101.00	101.22	101.28	101.32	100.98
DISTANCE (m)	2.50	1.30	0.00	1.30	2.60

CS AT 500m
Stripping : 5.007m
Earth Filling : 1.620m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)	100.96	101.23	101.27	101.22	100.98
EXISTING GL (m)	100.96	101.23	101.27	101.22	100.98
DISTANCE (m)	2.70	1.20	0.00	1.20	2.70

CS AT 475m
Stripping : 5.281m
Earth Filling : 1.766m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)	100.82	101.20	101.27	101.19	100.77
EXISTING GL (m)	100.82	101.20	101.27	101.19	100.77
DISTANCE (m)	2.70	1.30	0.00	1.30	2.70

CS AT 450m

Stripping : 5.762m
Earth Filling : 1.666m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)	100.95	101.43	101.50	101.34	101.00
EXISTING GL (m)	100.95	101.43	101.50	101.34	101.00
DISTANCE (m)	2.90	1.10	0.00	1.10	2.90

CS AT 575m
Stripping : 5.020m
Earth Filling : 1.352m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)	100.90	101.32	101.36	101.30	100.94
EXISTING GL (m)	100.90	101.32	101.36	101.30	100.94
DISTANCE (m)	2.60	1.00	0.00	1.00	2.70

CS AT 550m
Stripping : 4.974m
Earth Filling : 1.427m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)	100.94	101.26	101.32	101.30	100.93
EXISTING GL (m)	100.94	101.26	101.32	101.30	100.93
DISTANCE (m)	2.60	1.10	0.00	1.10	2.70

CS AT 525m

Stripping : 4.923m
Earth Filling : 1.911m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)	101.49	101.53	101.55	101.52	101.47
EXISTING GL (m)	101.49	101.53	101.55	101.52	101.47
DISTANCE (m)	3.00	2.00	0.00	2.00	3.00

CS AT 650m
Stripping : 5.640m
Earth Filling : 2.588m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)	101.00	101.41	101.50	101.43	101.03
EXISTING GL (m)	101.00	101.41	101.50	101.43	101.03
DISTANCE (m)	2.90	1.20	0.00	1.20	2.90

CS AT 625m
Stripping : 5.019m
Earth Filling : 1.424m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)	101.04	101.53	101.60	101.51	101.02
EXISTING GL (m)	101.04	101.53	101.60	101.51	101.02
DISTANCE (m)	2.70	1.30	0.00	1.30	2.60

CS AT 600m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP

MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvements to Shinnapulaveli Road
Cross Section of Shinnapulaveli Road

IWWRMP/WM.DS/SINNAPULAVELI/ROAD/CSS-03

SCALE : V-1:100, H-1:1000

SHEET NO - 06 OFF 51

A3

CAD BY	S.PRATHEEP	CHECKED BY	V.J.C.PERIES	SUBMITTED BY	ENG.R.THARAKAN	DRAWN CHECKED BY	S.KUGATHASAN	DESIGN CHECKED BY	ENG.N.VIYARAVI	APPROVED BY	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	DRAUGHTSMAN	IRRIGATION ENGINEER	IRRIGATION ENGINEER	DRAUGHTSMAN	DRAUGHTSMAN	IRRIGATION ENGINEER	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION	DEP. DIR. OF IRRIGATION
SIGNATURE											
DATE											

Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.970m
Earth Filling : 1.533m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 725m

Stripping : 5.063m
Earth Filling : 1.868m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 700m

Stripping : 5.771m
Earth Filling : 1.976m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 675m

Stripping : 4.790m
Earth Filling : 1.035m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 800m

Stripping : 5.542m
Earth Filling : 1.558m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 775m

Stripping : 4.904m
Earth Filling : 1.529m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 750m

Stripping : 5.704m
Earth Filling : 2.050m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 875m

Stripping : 4.896m
Earth Filling : 1.738m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 850m

Stripping : 5.022m
Earth Filling : 1.305m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 825m

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MANNAR DIVISION VAVUNIYA RANGE




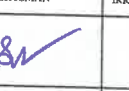
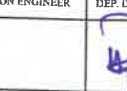
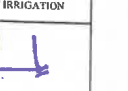
REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvements to Shinnapulaveli Road
Cross Section of Shinnapulaveli Road

IWWRMP/WM.DS/SINNAPULAVELI/ROAD/CSS-04

SCALE : V-1:100, H-1:1000

SHEET NO - 07 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.834m
Earth Filling : 0.761m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)				
	101.64	102.14	102.19	102.27
EXISTING GL (m)				
	101.64	102.14	102.19	102.11
DISTANCE (m)				
	2.60	1.00	0.00	1.00
				2.70

CS AT 950m

Stripping : 4.755m
Earth Filling : 1.035m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)				
	101.55	102.04	102.09	102.03
EXISTING GL (m)				
	101.55	102.04	102.09	102.03
DISTANCE (m)				
	2.70	1.10	0.00	1.10
				2.60

CS AT 925m

Stripping : 5.135m
Earth Filling : 1.525m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)				
	101.42	101.94	101.99	102.27
EXISTING GL (m)				
	101.42	101.94	101.99	101.93
DISTANCE (m)				
	2.60	1.10	0.00	1.10
				2.70

CS AT 900m

Stripping : 5.004m
Earth Filling : 1.231m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)				
	101.39	102.03	102.07	102.27
EXISTING GL (m)				
	101.39	102.03	102.07	102.01
DISTANCE (m)				
	2.70	0.90	0.00	0.90
				2.70

CS AT 1025m

Stripping : 5.065m
Earth Filling : 1.777m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)				
	101.29	101.87	101.92	102.27
EXISTING GL (m)				
	101.29	101.87	101.92	101.86
DISTANCE (m)				
	2.60	1.00	0.00	1.00
				2.60

CS AT 1000m

Stripping : 5.072m
Earth Filling : 1.689m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)				
	101.69	101.91	101.94	102.27
EXISTING GL (m)				
	101.69	101.91	101.94	101.89
DISTANCE (m)				
	2.70	0.90	0.00	0.90
				2.70

CS AT 975m

Stripping : 4.875m
Earth Filling : 1.432m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)				
	101.61	101.97	102.01	102.27
EXISTING GL (m)				
	101.61	101.97	102.01	101.90
DISTANCE (m)				
	2.60	1.00	0.00	1.00
				2.60

CS AT 1100m

Stripping : 5.642m
Earth Filling : 1.820m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)				
	101.57	101.91	101.97	102.27
EXISTING GL (m)				
	101.57	101.91	101.97	101.92
DISTANCE (m)				
	2.70	1.00	0.00	1.00
				2.70

CS AT 1075m

Stripping : 5.201m
Earth Filling : 2.425m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)				
	101.44	101.70	101.74	102.27
EXISTING GL (m)				
	101.44	101.70	101.74	101.72
DISTANCE (m)				
	2.60	1.00	0.00	1.00
				2.80

CS AT 1050m

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DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvements to Shinnapulaveli Road
Cross Section of Shinnapulaveli Road

IWWRMP/W.M.DS/SINNA PULAVELI/ROAD/CSS-05

SCALE : V-1:100, H-1:1000

SHEET NO - 08 OFF 51

A3

CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIAYARAVI
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER
SIGNATURE					
DATE					

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 5.582m
Earth Filling : 1.574m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)	102.27	102.02	101.97	101.59
EXISTING GL (m)	101.55	101.98	102.02	101.97
DISTANCE (m)	2.90	1.00	0.00	1.00

CS AT 1175m
Stripping : 5.095m
Earth Filling : 1.141m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)	102.27	102.12	102.01	101.45
EXISTING GL (m)	101.40	102.03	102.12	102.01
DISTANCE (m)	2.60	1.10	0.00	1.10

CS AT 1150m
Stripping : 5.172m
Earth Filling : 1.874m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)	102.27	101.83	101.36
EXISTING GL (m)	101.39	101.86	101.92
DISTANCE (m)	2.70	1.00	0.00

CS AT 1125m

Stripping : 4.399m
Earth Filling : 0.269m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)	102.27	102.23	101.43
EXISTING GL (m)	101.46	102.22	102.27
DISTANCE (m)	2.70	1.20	0.00

CS AT 1250m
Stripping : 4.898m
Earth Filling : 0.514m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)	102.27	102.18	101.55
EXISTING GL (m)	101.50	102.16	102.22
DISTANCE (m)	2.60	1.30	0.00

CS AT 1225m
Stripping : 5.062m
Earth Filling : 1.529m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)	102.27	101.94	101.40
EXISTING GL (m)	101.37	101.93	102.01
DISTANCE (m)	2.70	0.90	0.00

CS AT 1200m

Stripping : 4.701m
Earth Filling : 0.422m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)	102.27	102.22	101.55
EXISTING GL (m)	101.60	102.19	102.26
DISTANCE (m)	2.50	1.10	0.00

CS AT 1325m
Stripping : 4.437m
Earth Filling : 0.397m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)	102.27	102.19	101.64
EXISTING GL (m)	101.61	102.18	102.27
DISTANCE (m)	2.70	1.10	0.00

CS AT 1300m
Stripping : 5.770m
Earth Filling : 1.503m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)	102.27	101.98	101.57
EXISTING GL (m)	101.50	101.99	102.07
DISTANCE (m)	2.90	1.10	0.00

CS AT 1275m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvements to Shinnapulaveli Road
Cross Section of Shinnapulaveli Road

IWWRMP/WM.DS/SINNAPULAVELI/ROAD/CSS-06

SCALE : V-1:100, H-1:1000

SHEET NO - 09 OFF 51

A3

CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	SKUGATHASAN	ENG.N.VIJAYARAVI
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER
SIGNATURE					
DATE					

Eng.T.Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 7.139m
Earth Filling : 6.408m²
Gravel Filling : 0.483m²



DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 1400m

Stripping : 6.824m
Earth Filling : 5.722m²
Gravel Filling : 0.483m²



DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 1375m

Stripping : 6.133m
Earth Filling : 4.182m²
Gravel Filling : 0.483m²



DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 1350m

Stripping : 7.440m
Earth Filling : 7.171m²
Gravel Filling : 0.483m²



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)

DISTANCE (m)

CS AT 1420m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP

MANNAR DIVISION

VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvements to Shinnapulaveli Road

Cross Section of Shinnapulaveli Road

IWWRMP/W.M.DS/SINNAPULAVELI/ROAD/CSS-07

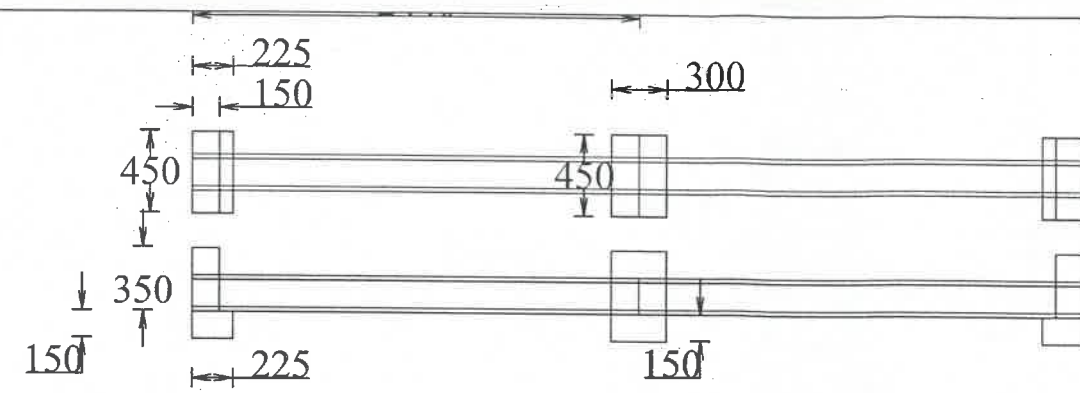
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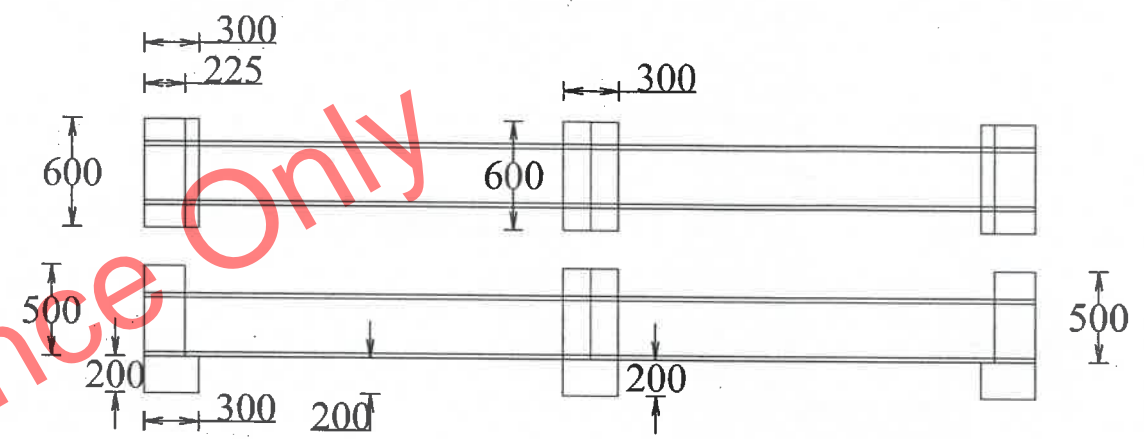
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	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEPT. DIR. OF IRRIGATION
SIGNATURE						
DATE						

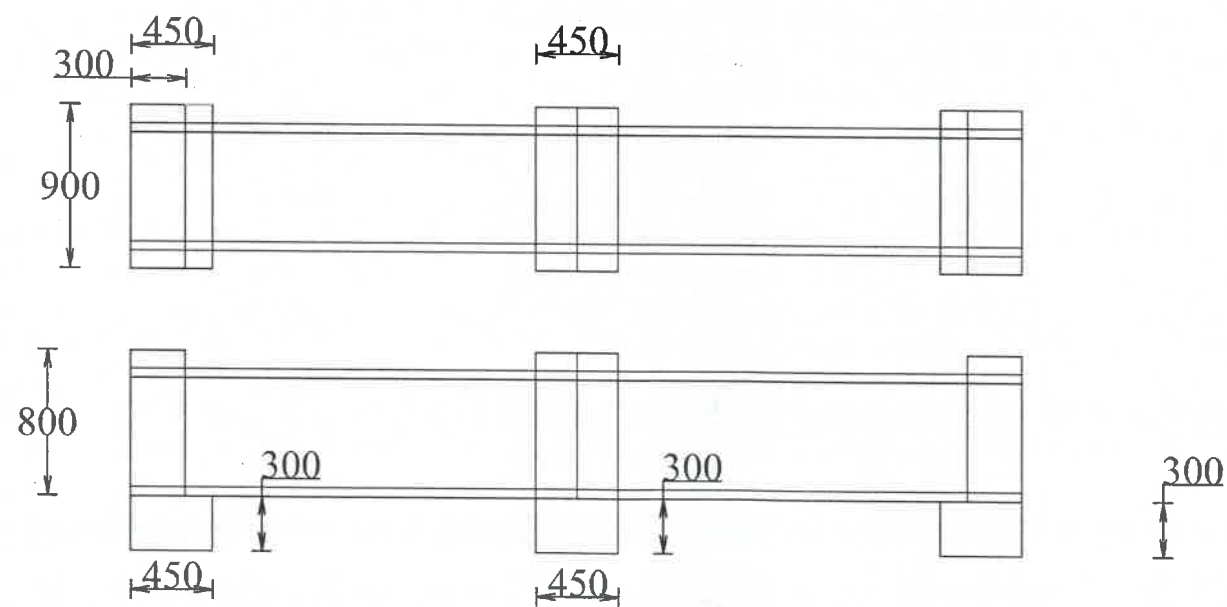
Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range



150mm Hume Pipe Culvert Details



300mm Hume Pipe Culvert Details



600mm Hume Pipe Culvert Details

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvements to Shinnapulaveli Road
Hume Pipe Culverts in Shinnapulaveli Road

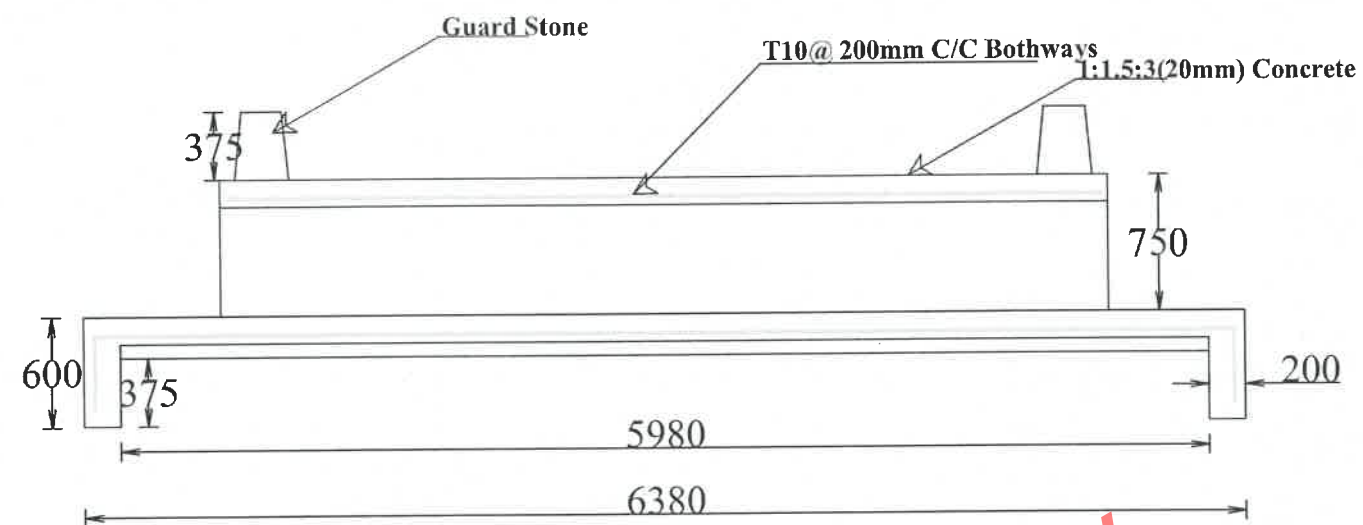
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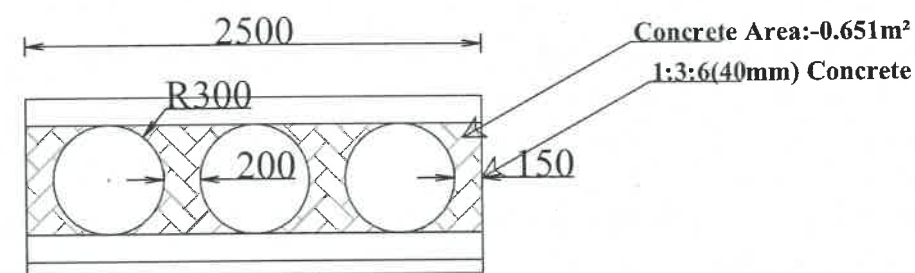
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	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

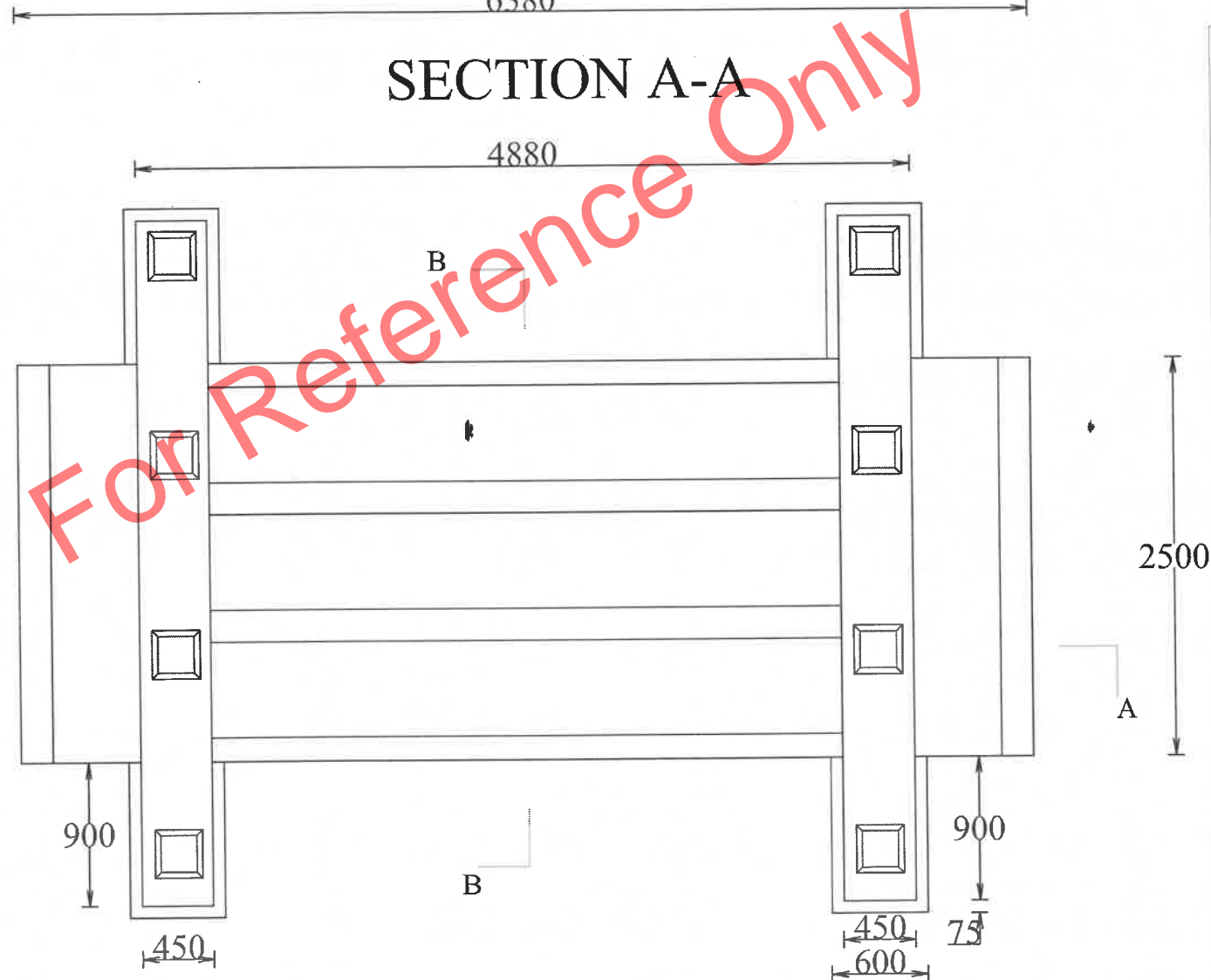
Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range



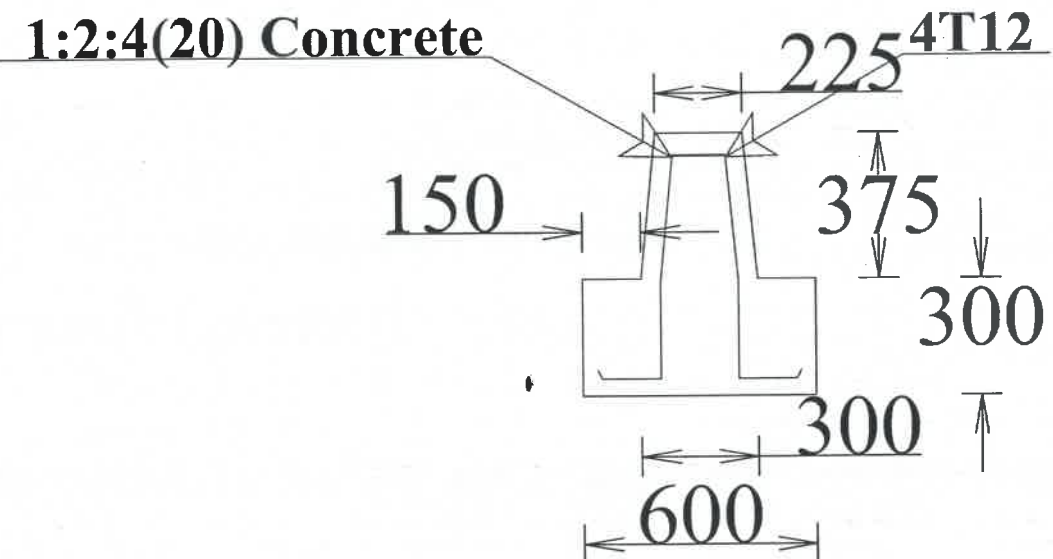
SECTION A-A



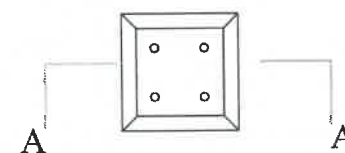
SECTION B-B



PLAN



SECTION A-A



PLAN
DETAIL OF GUARD STORN

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP

MANNAR DIVISION

VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvements to Shinnapulaveli Road

Hume Pipe Culverts in Shinnapulaveli Road

IWWRMP/WM.DS/SINNAPULAVELI/ROAD/STR-02

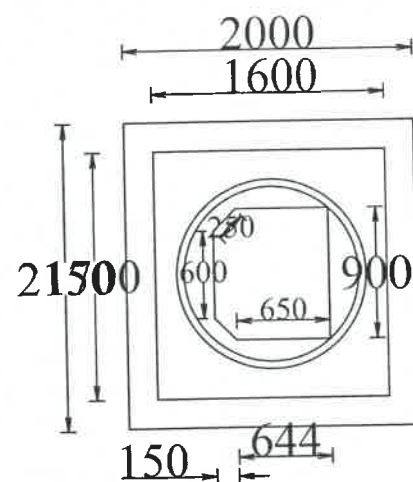
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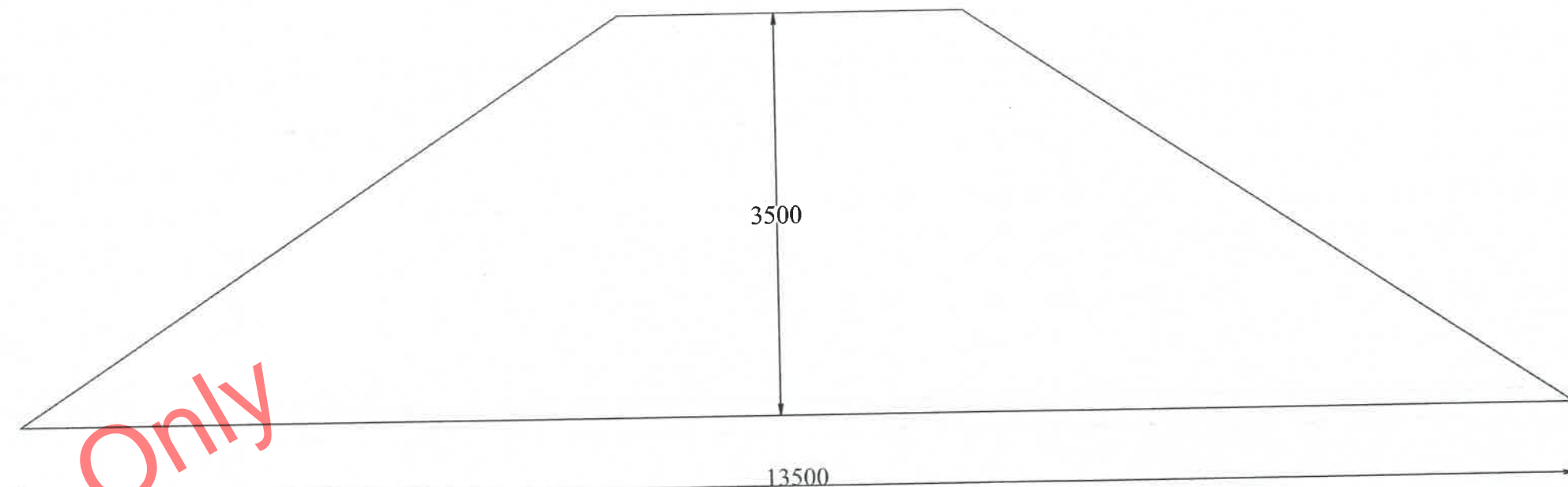
A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

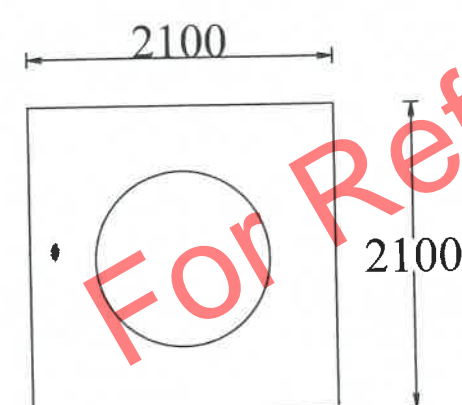
Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range



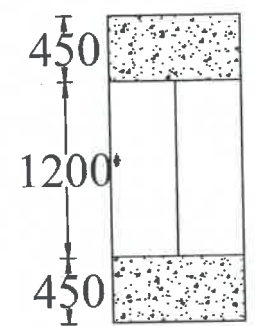
Detail Plan for A



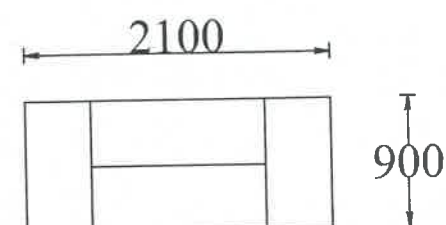
Cut open bund section



Elevation



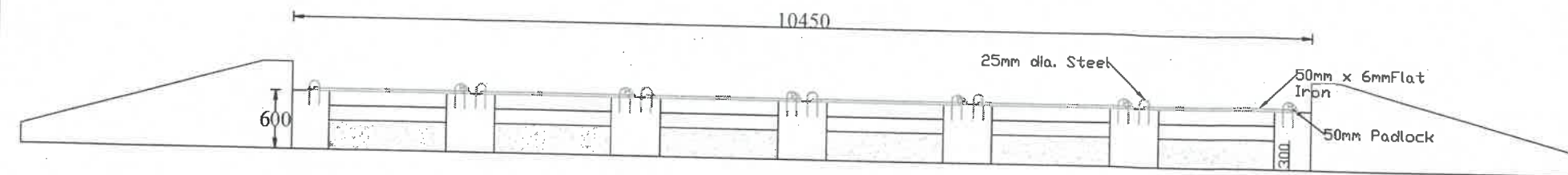
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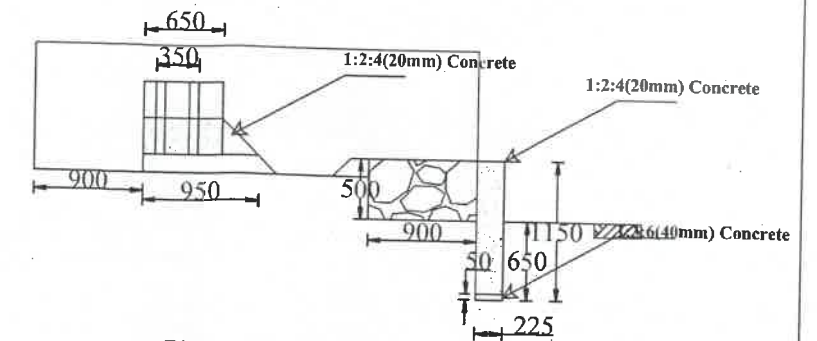
Detail Plan for Collor Joint

IWWRMP -2024		REHABILITATION OF WELIMARUTHAMADU TANK DOWN STREAM			CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
DEPARTMENT OF IRRIGATION - NP		Improvements to Training Bund			NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAJI
MANNAR DIVISION		Re construction of Hume pipe Type 600mm Dia Turnout for Illavaikulam & Sulthankamam Feeder Tank			DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER
VAVUNIYA RANGE					SIGNATURE					
					DATE					

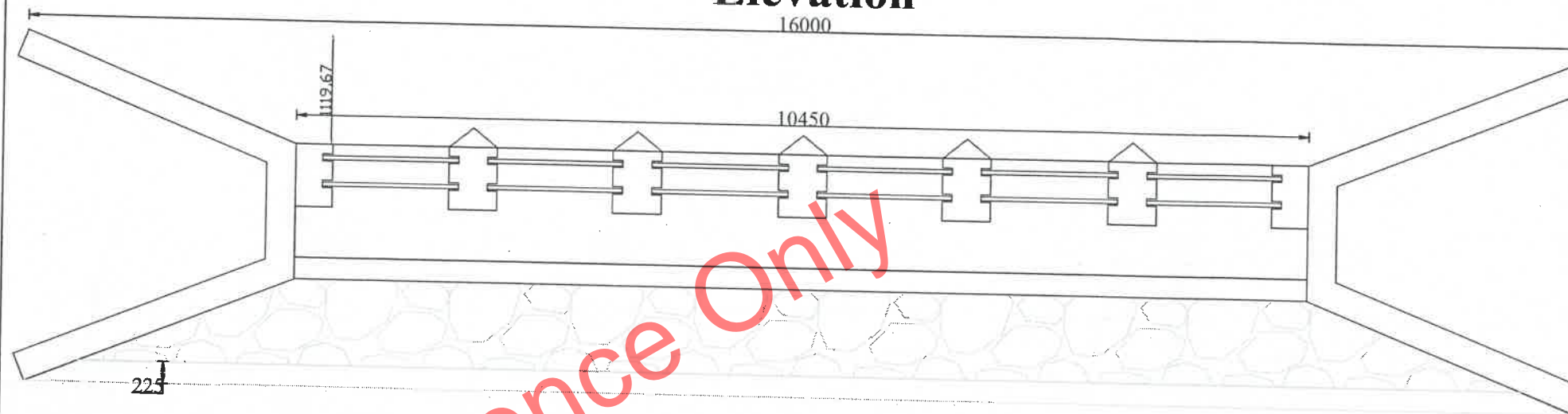
Eng.T.Rajagobu
Deputy Director of Irrigation
Vavuniya Range



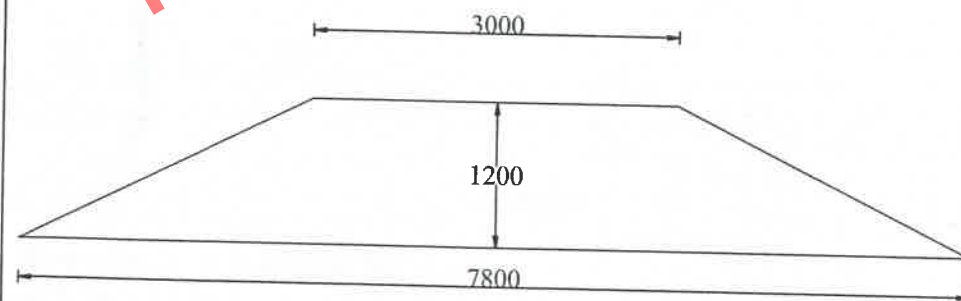
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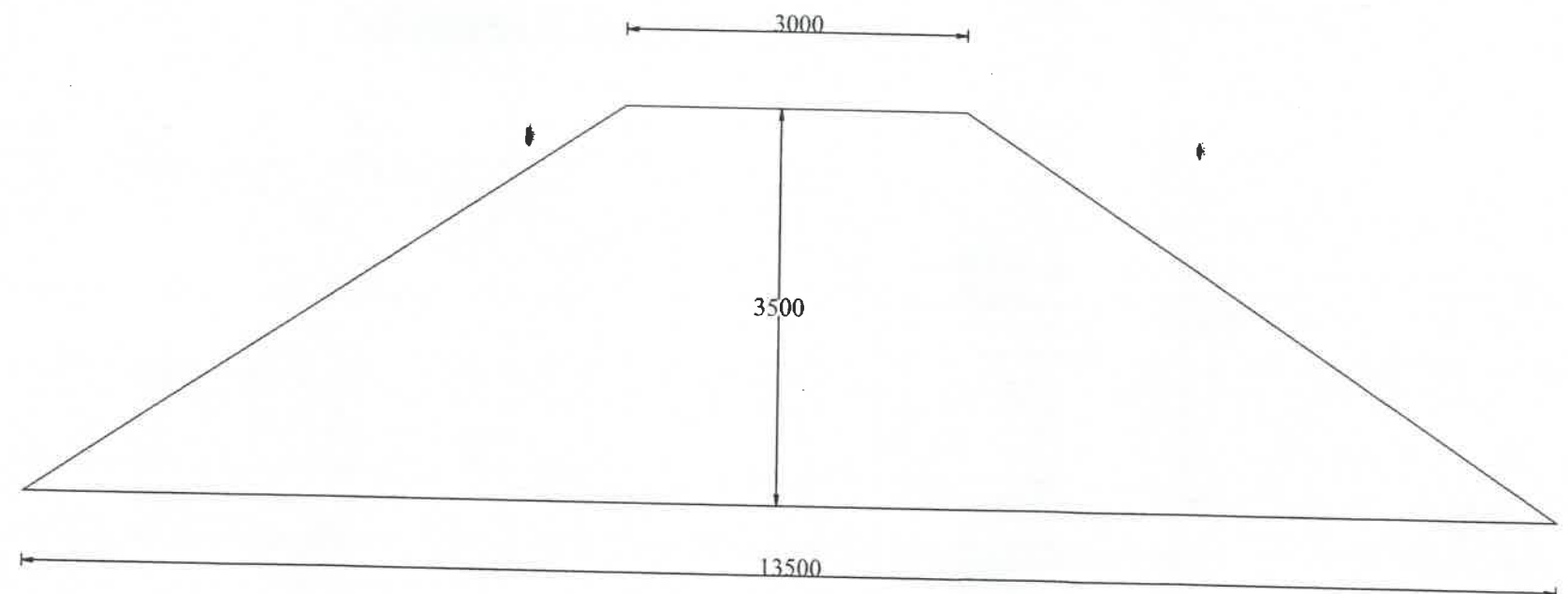
Section



Plan



Profile of Tank Bund



Cut open bund section

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Ilavaikulam Tank
Improvement of Spill and Reconstruction of Ilavaikulam Sluice

IWWRMP/WM.DS/ILLAVAIKULAM /SPILL/STR-01

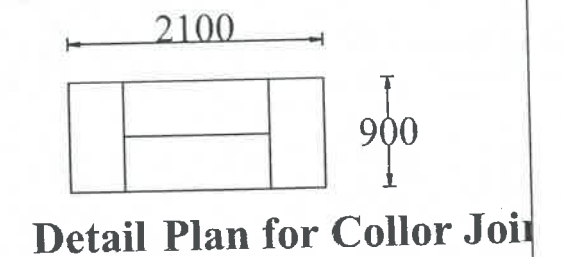
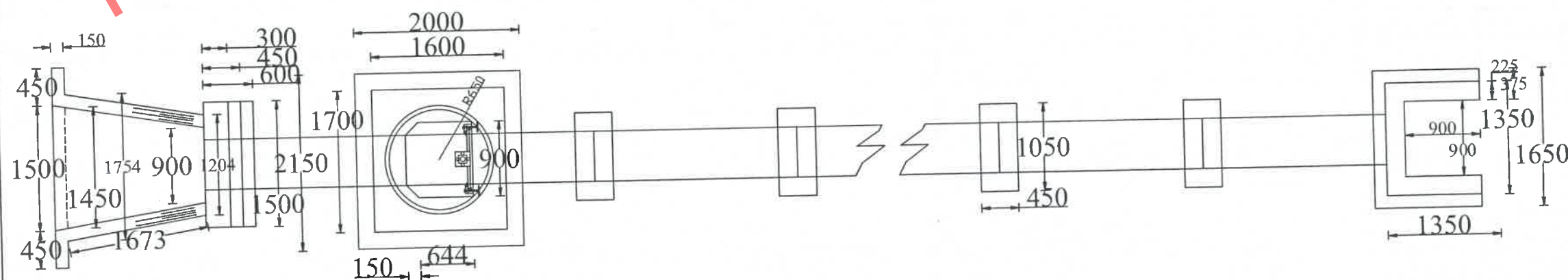
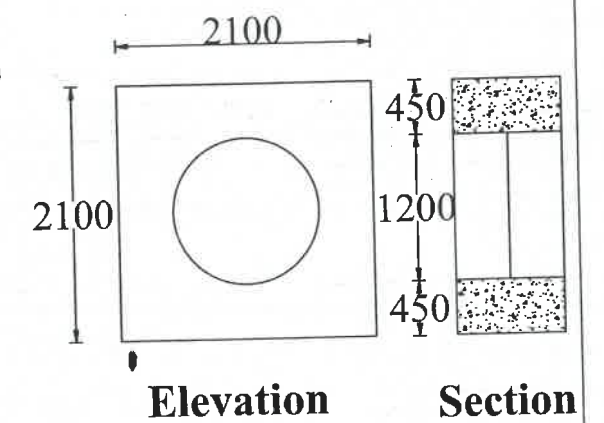
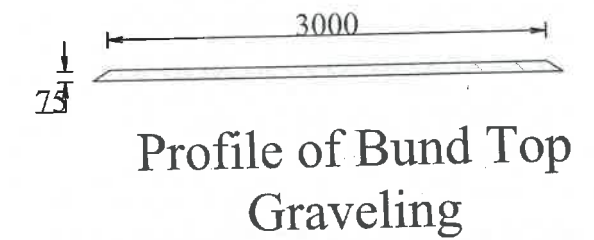
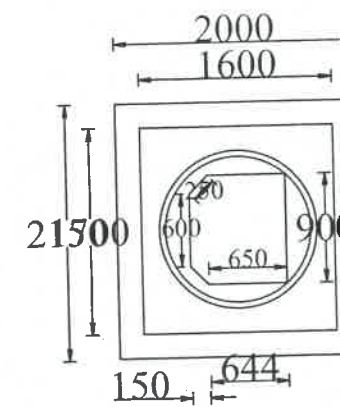
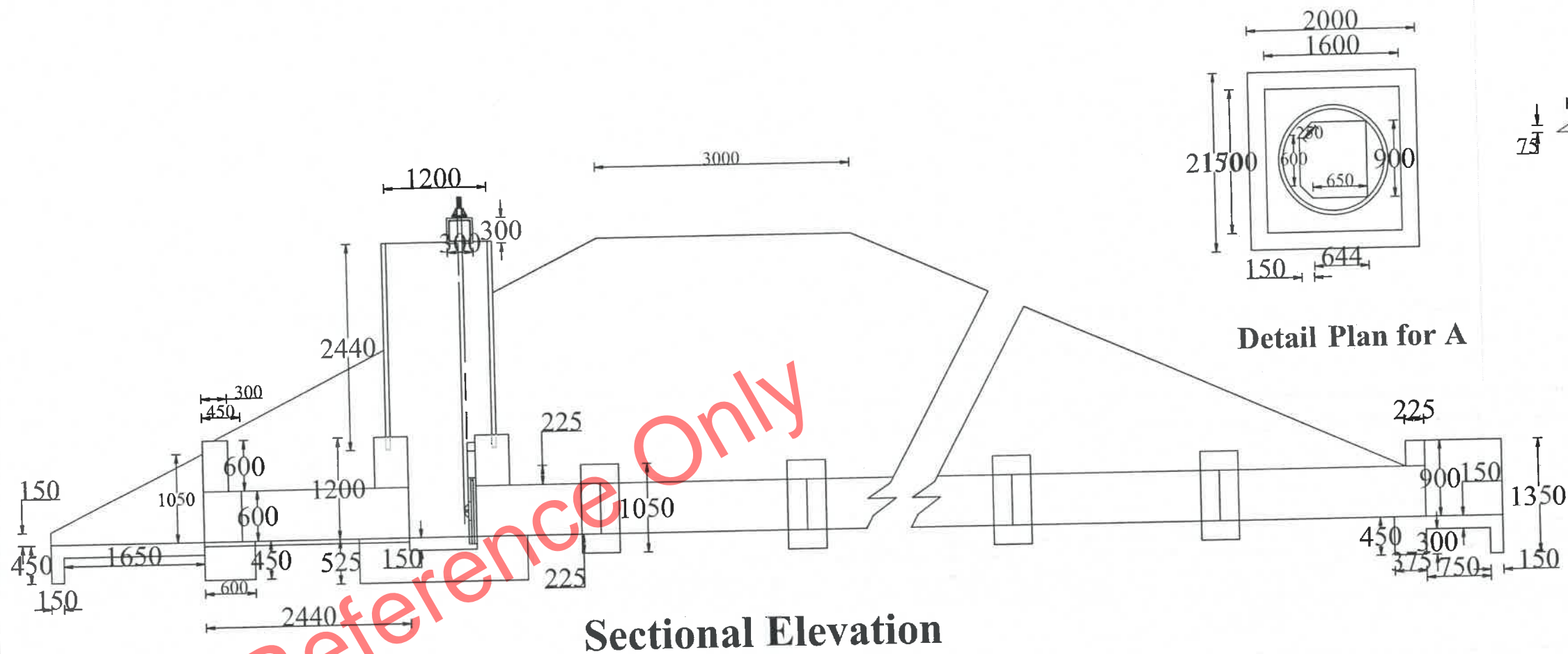
SCALE : V-1:50, H-1:50

SHEET NO - 15 OFF 51







A3

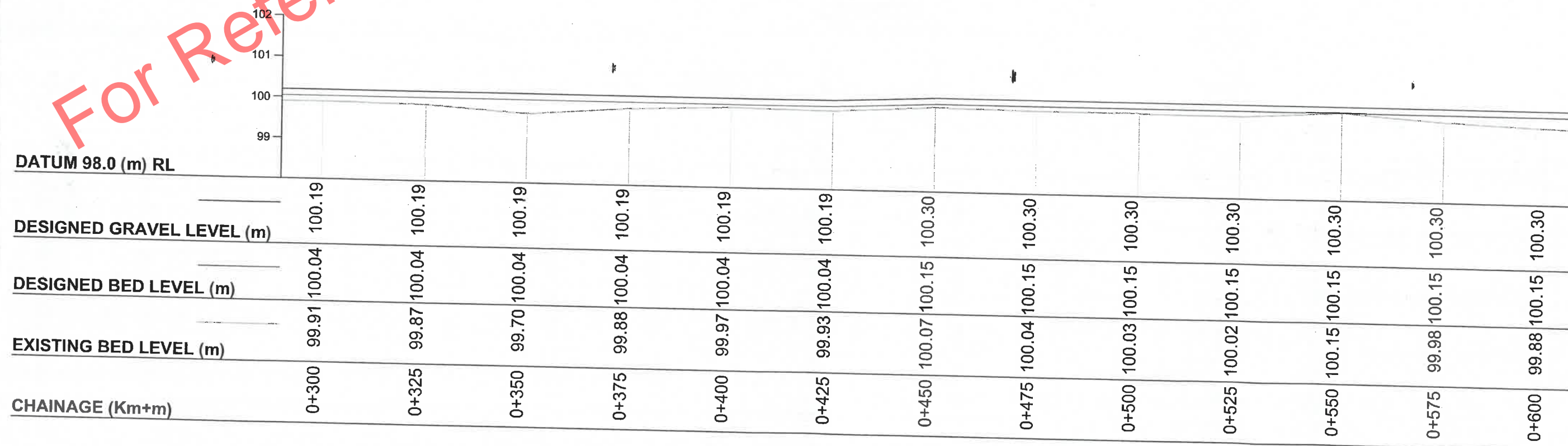
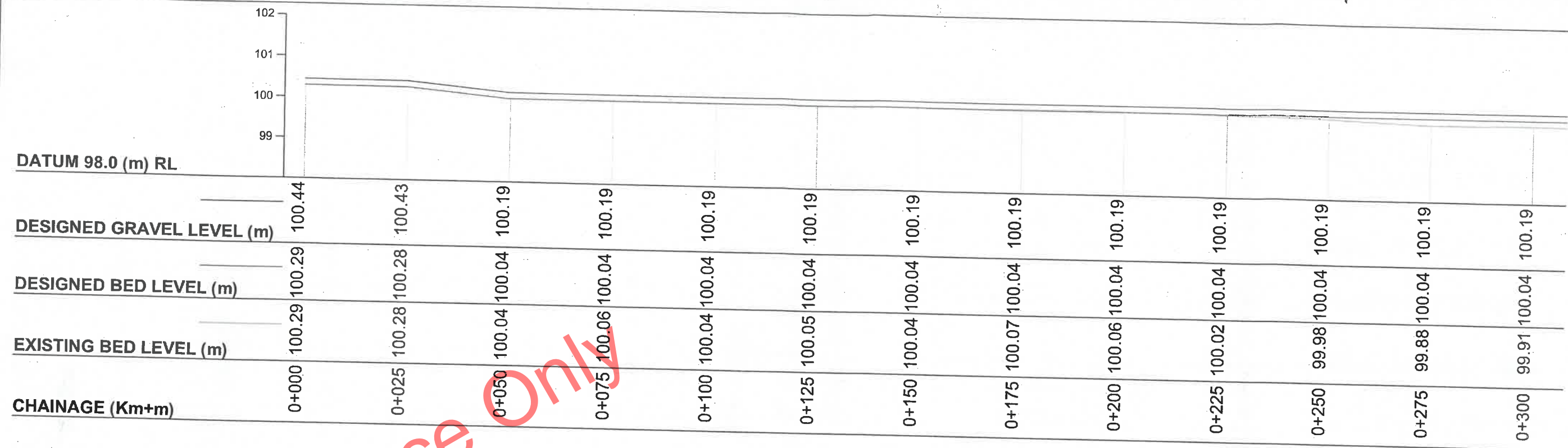
	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range



Plan

<div>IWWRMP -2024</div> <div>DEPARTMENT OF IRRIGATION - NP</div> <div>MANNAR DIVISION VAVUNIYA RANGE</div>	<div>REHABILITATION OF WELIMARUTHAMADU TANK</div> <div>DOWN STREAM</div> <div>Improvement of Illavaikulam Tank</div> <div>Improvement of Spill and Reconstruction of Illavaikulam Sluice</div>			CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY	
				NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
				DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
				SIGNATURE						
	DATE									
	IWWRMP/WM.DS/ILLAVA IKULAM /SLUICE/STR-01	SCALE : V-1:50, H-1:50	SHEET NO - 16 OFF 51	A3	<div>Eng.T.Rajagobu</div> <div>Deputy Director of Irrigation</div> <div>Vavuniya Range</div>					



IWWRMP -2024		REHABILITATION OF WELIMARUTHAMADU TANK DOWN STREAM				CAD BY		CHECKED BY		SUBMITTED BY		DRAWN CHECKED BY		DESIGN CHECKED BY		APPROVED BY	
DEPARTMENT OF IRRIGATION - NP		Improvement of Ilavakulam Tank Improvement to Ilavakulam Tank Access Road				NAME		S.PRATHEEP		V.J.C.PERIJS		ENG.R.THARAKAN		S.KUGATHASAN		ENG.N.VIJAYARAVI	
MANNAR DIVISION		Longitudinal Section Ilavakulam Tank Access Road				DESIGNATION		TECHNICAL OFFICER		DRAUGHTSMAN		IRRIGATION ENGINEER		DRAUGHTSMAN		IRRIGATION ENGINEER	
VAVUNIYA RANGE						SIGNATURE											
						DATE											

Eng. T. Rajagobu
 Deputy Director of Irrigation
 Vavuniya Range

DATUM 98.0 (m) RL

DESIGNED GRAVEL LEVEL (m)

DESIGNED BED LEVEL (m)

EXISTING BED LEVEL (m)

CHAINAGE (Km+m)

DATUM 98.0 (m) RL

DESIGNED GRAVEL LEVEL (m)

DESIGNED BED LEVEL (m)

EXISTING BED LEVEL (m)

CHAINAGE (Km+m)

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP

MANNAR DIVISION

VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvement of Ilavakulam Tank
Improvement to Ilavakulam Tank Access Road





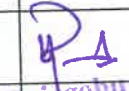
Longitudinal Section Ilavakulam Tank Access Road

IWWRMP/WM.DS/ILLAVAIAKULAM /RD/LSS-02

SCALE : V-1:50, H-1:50

SHEET NO - 18 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP.DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng.T.Rajagobu
Deputy Director of Irrigation
Vavuniya Range

DATUM 98.0 (m) RL

DESIGNED GRAVEL LEVEL (m)

DESIGNED BED LEVEL (m)

EXISTING BED LEVEL (m)

CHAINAGE (Km+m)

101
100
99

1+200	100.42	100.42	100.57
1+225	100.40	100.42	100.57
1+250	100.34	100.42	100.57
1+275	100.53	100.61	100.76
1+300	100.60	100.80	100.95
1+325	100.60	100.80	100.95
1+350	100.57	100.80	100.95
1+375	100.63	100.80	100.95
1+400	100.51	100.80	100.95
1+425	100.57	100.80	100.95
1+450	100.80	100.80	100.95
1+475	100.79	100.80	100.95
1+500	100.70	100.80	100.95

DATUM 98.0 (m) RL

DESIGNED GRAVEL LEVEL (m)

DESIGNED BED LEVEL (m)

EXISTING BED LEVEL (m)

CHAINAGE (Km+m)

102
101
100
99

1+500	100.70	100.80	100.95
1+525	100.68	100.80	100.95
1+550	100.67	100.80	100.95
1+575	100.52	100.80	100.95
1+600	100.61	100.80	100.95
1+625	100.55	100.80	100.95
1+650	100.54	100.80	100.95
1+675	100.60	100.80	100.95
1+700	100.66	100.80	100.95
1+725	100.80	100.98	101.13
1+750	100.85	101.15	101.30
1+775	100.99	101.15	101.30
1+800	101.13	101.15	101.30

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM







Improvement of Ilavakulam Tank
Improvement to Ilavakulam Tank Access Road
Longitudinal Section Ilavakulam Tank Access Road

IWWRMP/WM.DS/ILLAVA KULAM /RD/LSS-03

SCALE : V-1:50, H-1:50

SHEET NO - 19 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C PERIES	ENG.R.THARAKAN	SKUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

DATUM 98.0 (m) RL

DESIGNED GRAVEL LEVEL (m)

DESIGNED BED LEVEL (m)

EXISTING BED LEVEL (m)

CHAINAGE (Km+m)

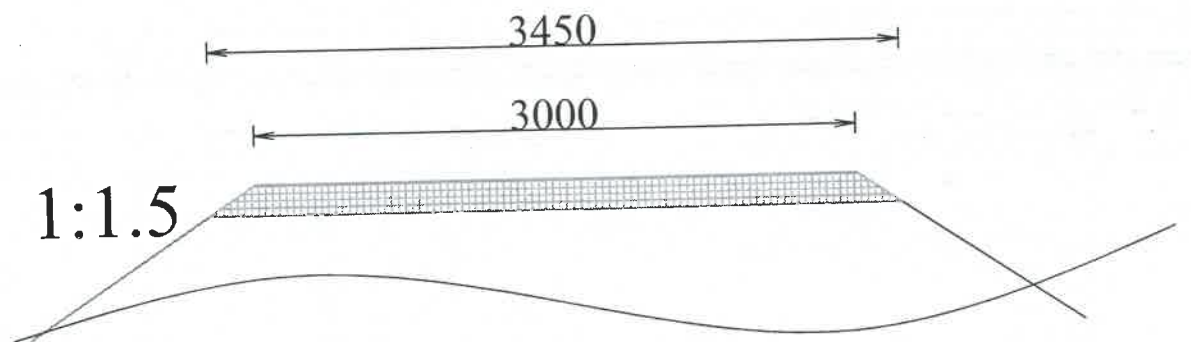
DATUM 98.0 (m) RL

DESIGNED GRAVEL LEVEL (m)

DESIGNED BED LEVEL (m)

EXISTING BED LEVEL (m)

CHAINAGE (Km+m)



Profile of Road

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP

MANNAR DIVISION

VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvement of Ilavaikulam Tank
Improvement to Ilavakulam Tank Access Road
Longitudinal Section & Profile of Ilavakulam Tank Access Road

IWWRMP/WM.DS/ILLAVA KULAM /RD/LSS-04

SCALE : V-1:50, H-1:50

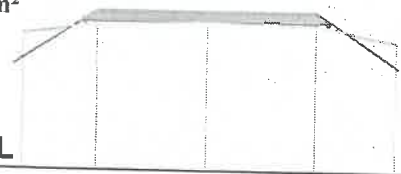
SHEET NO - 20 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEPT. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 3.768m
Earth Filling : 0.088m²
Gravel Filling : 0.483m²



DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.86	100.01	100.04	100.00	99.78
DISTANCE (m)	2.50	1.50	0.00	1.50	2.60

Stripping : 4.379m
Earth Filling : 0.533m²
Gravel Filling : 0.483m²

CS AT 50m



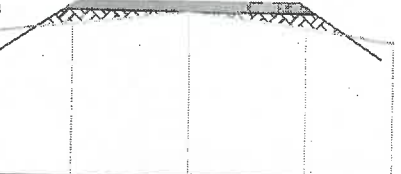
DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.93	100.07	100.28	100.06	99.91
DISTANCE (m)	2.60	1.50	0.00	1.50	2.80

Stripping : 4.247m
Earth Filling : 0.442m²
Gravel Filling : 0.483m²

CS AT 25m



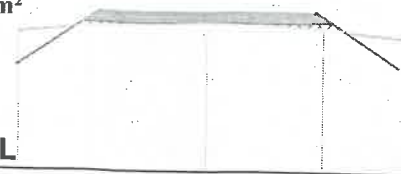
DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.97	100.11	100.29	100.10	99.91
DISTANCE (m)	2.80	1.60	0.00	1.60	2.80

CS AT 0m

Stripping : 3.706m
Earth Filling : 0.108m²
Gravel Filling : 0.483m²



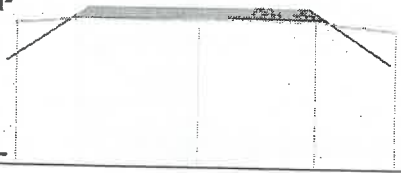
DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.90	99.99	100.05	99.97	99.86
DISTANCE (m)	2.60	1.60	0.00	1.60	2.70

Stripping : 3.567m
Earth Filling : 0.049m²
Gravel Filling : 0.483m²

CS AT 125m



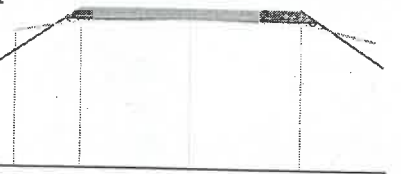
DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.97	100.02	100.04	100.01	99.91
DISTANCE (m)	2.50	1.60	0.00	1.60	2.70

Stripping : 3.791m
Earth Filling : 0.071m²
Gravel Filling : 0.483m²

CS AT 100m



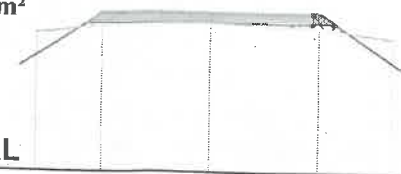
DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.87	100.00	100.06	100.01	99.78
DISTANCE (m)	2.40	1.50	0.00	1.50	2.50

CS AT 75m

Stripping : 3.729m
Earth Filling : 0.084m²
Gravel Filling : 0.483m²



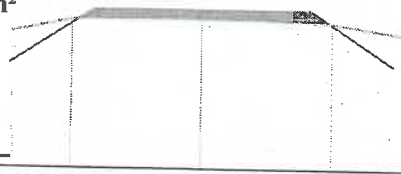
DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.90	100.01	100.06	99.98	99.85
DISTANCE (m)	2.40	1.50	0.00	1.50	2.50

Stripping : 3.493m
Earth Filling : 0.011m²
Gravel Filling : 0.483m²

CS AT 200m



DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.87	100.05	100.07	100.01	99.85
DISTANCE (m)	2.60	1.80	0.00	1.80	2.90

Stripping : 3.674m
Earth Filling : 0.080m²
Gravel Filling : 0.483m²

CS AT 175m



DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.90	100.01	100.04	100.00	99.87
DISTANCE (m)	2.50	1.50	0.00	1.50	2.60

CS AT 150m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvement of Ilavakulam Tank
Improvement to Ilavakulam Tank Access Road

Cross Section of Ilavakulam Tank Access Road

IWWRMP/WM.DS/ILLAVAUKULAM /RD/CSS-01

SCALE : V-1:50, H-1:50

SHEET NO - 21 OFF 51

A3

CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER
SIGNATURE					
DATE					

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.252m
Earth Filling : 0.691m²
Gravel Filling : 0.483m²



DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.74	99.85	99.88	99.87	99.71
DISTANCE (m)	2.50	1.40	0.00	1.40	2.60

DISTANCE (m)

Stripping : 3.997m
Earth Filling : 0.369m²
Gravel Filling : 0.483m²

CS AT 275m



DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.81	99.93	99.98	99.91	99.78
DISTANCE (m)	2.60	1.50	0.00	1.50	2.50

DISTANCE (m)

Stripping : 3.575m
Earth Filling : 0.088m²
Gravel Filling : 0.483m²

CS AT 250m



DATUM 98.0 (m) RL

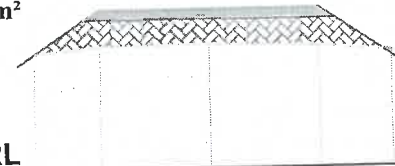
DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.85	100.02	100.02	100.00	99.90
DISTANCE (m)	2.80	1.70	0.00	1.70	2.60

DISTANCE (m)

CS AT 225m

Stripping : 4.775m
Earth Filling : 1.479m²
Gravel Filling : 0.483m²



DATUM 98.0 (m) RL

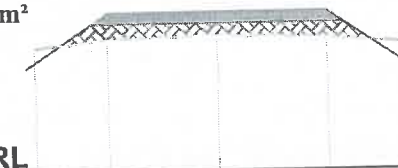
DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.60	99.68	99.70	99.67	99.59
DISTANCE (m)	2.40	1.50	0.00	1.50	2.50

DISTANCE (m)

Stripping : 4.252m
Earth Filling : 0.691m²
Gravel Filling : 0.483m²

CS AT 350m



DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.71	99.83	99.87	99.82	99.74
DISTANCE (m)	2.50	1.50	0.00	1.50	2.60

DISTANCE (m)

Stripping : 3.984m
Earth Filling : 0.508m²
Gravel Filling : 0.483m²

CS AT 325m



DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.85	99.91	99.91	99.90	99.81
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

CS AT 300m

Stripping : 3.955m
Earth Filling : 0.475m²
Gravel Filling : 0.483m²



DATUM 98.0 (m) RL

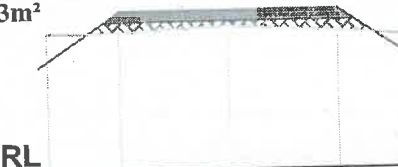
DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.86	99.90	99.93	99.91	99.83
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

Stripping : 3.958m
Earth Filling : 0.429m²
Gravel Filling : 0.483m²

CS AT 425m



DATUM 98.0 (m) RL

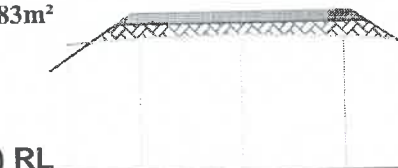
DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.88	99.90	99.97	99.89	99.81
DISTANCE (m)	2.50	1.50	0.00	1.50	2.60

DISTANCE (m)

Stripping : 4.181m
Earth Filling : 0.720m²
Gravel Filling : 0.483m²

CS AT 400m



DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.79	99.85	99.88	99.83	99.76
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

CS AT 375m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP

MANNAR DIVISION

VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvement of Ilavakulam Tank
Improvement to Ilavakulam Tank Access Road

Cross Section of Ilavakulam Tank Access Road

IWWRMP/W.M.DS/ILLAVAIAKULAM /RD/CSS-02

SCALE : V-1:50, H-1:50

SHEET NO - 22 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PEERES	ENG R.THARAKAN	S.KUGATHASAN	ENG N.VIJAYARAVI	ENG T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.072m
Earth Filling : 0.529m²
Gravel Filling : 0.483m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.90	100.00	100.03	100.01	99.89
DISTANCE (m)	2.50	1.40	0.00	1.40	2.60

Stripping : 3.970m
Earth Filling : 0.457m²
Gravel Filling : 0.483m²

CS AT 500m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.95	100.03	100.04	100.02	99.93
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

Stripping : 3.897m
Earth Filling : 0.344m²
Gravel Filling : 0.483m²

CS AT 475m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.97	100.06	100.07	100.05	99.93
DISTANCE (m)	2.50	1.40	0.00	1.40	2.50

CS AT 450m

Stripping : 4.260m
Earth Filling : 0.739m²
Gravel Filling : 0.483m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.86	99.96	99.98	99.95	99.84
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

Stripping : 3.650m
Earth Filling : 0.103m²
Gravel Filling : 0.483m²

CS AT 575m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.06	100.10	100.15	100.11	100.03
DISTANCE (m)	2.96	1.40	0.00	1.40	2.50

Stripping : 4.319m
Earth Filling : 0.705m²
Gravel Filling : 0.483m²

CS AT 550m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.83	99.96	100.02	99.94	99.82
DISTANCE (m)	2.50	1.40	0.00	1.40	2.50

CS AT 525m

Stripping : 4.788m
Earth Filling : 1.313m²
Gravel Filling : 0.483m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.70	99.84	99.86	99.82	99.69
DISTANCE (m)	2.50	1.40	0.00	1.40	2.50

Stripping : 4.585m
Earth Filling : 1.332m²
Gravel Filling : 0.483m²

CS AT 650m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.77	99.83	99.83	99.81	99.75
DISTANCE (m)	2.60	1.30	0.00	1.30	2.50

Stripping : 4.776m
Earth Filling : 1.330m²
Gravel Filling : 0.483m²

CS AT 625m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.70	99.80	99.88	99.82	99.69
DISTANCE (m)	2.50	1.40	0.00	1.40	2.60

CS AT 600m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvement of Ilavaikulam Tank
Improvement to Ilavakulam Tank Access Road
Cross Section of Ilavakulam Tank Access Road

IWWRMP/WM.DS/ILLAVAikulam /RD/CSS-03

SCALE : V-1:50, H-1:50

SHEET NO - 23 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PEERIS	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.233m
Earth Filling : 0.720m²
Gravel Filling : 0.483m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.89	99.95	100.02	99.92	99.84
DISTANCE (m)	2.50	1.40	0.00	1.40	2.60

Stripping : 4.888m
Earth Filling : 1.084m²
Gravel Filling : 0.483m²

CS AT 725m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.68	99.88	99.96	99.87	99.66
DISTANCE (m)	2.50	1.40	0.00	1.40	2.40

DISTANCE (m)

Stripping : 4.298m
Earth Filling : 0.840m²
Gravel Filling : 0.483m²

CS AT 700m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.86	99.93	99.96	99.92	99.84
DISTANCE (m)	2.40	1.40	0.00	1.40	2.40

DISTANCE (m)

CS AT 675m

Stripping : 4.197m
Earth Filling : 0.776m²
Gravel Filling : 0.483m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.89	99.95	99.96	99.94	99.87
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

Stripping : 3.523m
Earth Filling : 0.016m²
Gravel Filling : 0.483m²

CS AT 800m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.10	100.14	100.15	100.15	100.08
DISTANCE (m)	2.50	1.40	0.00	1.40	2.40

DISTANCE (m)

Stripping : 3.566m
Earth Filling : 0.015m²
Gravel Filling : 0.483m²

CS AT 775m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.08	100.15	100.19	100.14	100.03
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

CS AT 750m

Stripping : 3.609m
Earth Filling : 0.108m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.08	100.12	100.13	100.11	100.05
DISTANCE (m)	2.60	1.40	0.00	1.40	2.50

DISTANCE (m)

Stripping : 3.961m
Earth Filling : 0.274m²
Gravel Filling : 0.483m²

CS AT 875m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.93	100.07	100.11	100.06	99.90
DISTANCE (m)	2.50	1.40	0.00	1.40	2.60

DISTANCE (m)

Stripping : 4.596m
Earth Filling : 0.928m²
Gravel Filling : 0.483m²

CS AT 850m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.76	99.91	99.97	99.90	99.73
DISTANCE (m)	2.50	1.40	0.00	1.40	2.60

DISTANCE (m)

CS AT 825m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvement of Ilavakulam Tank
Improvement to Ilavakulam Tank Access Road

Cross Section of Ilavakulam Tank Access Road

IWWRMP/WM.DS/ILLAVAKULAM/RD/CSS-04

SCALE : V-1:50, H-1:50

SHEET NO - 24 OFF 51

A3

CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER
SIGNATURE					
DATE					

Eng.T.Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 3.639m
Earth Filling : 0.092m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.01	100.12	100.14	100.11	100.05
DISTANCE (m)	2.50	1.50	0.00	1.50	2.50

Stripping : 3.582m
Earth Filling : 0.012m²
Gravel Filling : 0.483m²

CS AT 950m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.02	100.15	100.19	100.16	100.01
DISTANCE (m)	2.60	1.40	0.00	1.40	2.50

Stripping : 3.912m
Earth Filling : 0.255m²
Gravel Filling : 0.483m²

CS AT 925m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.92	100.09	100.10	100.06	99.88
DISTANCE (m)	2.50	1.50	0.00	1.50	2.60

CS AT 900m

Stripping : 4.124m
Earth Filling : 0.608m²
Gravel Filling : 0.483m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.92	99.98	100.01	99.99	99.86
DISTANCE (m)	2.50	1.40	0.00	1.40	2.50

Stripping : 4.343m
Earth Filling : 0.780m²
Gravel Filling : 0.483m²

CS AT 1025m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.82	99.95	99.97	99.94	99.79
DISTANCE (m)	2.50	1.50	0.00	1.50	2.60

Stripping : 3.768m
Earth Filling : 0.217m²
Gravel Filling : 0.483m²

CS AT 1000m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.05	100.09	100.12	100.06	99.96
DISTANCE (m)	2.50	1.40	0.00	1.40	2.60

CS AT 975m

Stripping : 3.803m
Earth Filling : 0.186m²
Gravel Filling : 0.483m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.00	100.09	100.13	100.08	99.98
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

Stripping : 4.055m
Earth Filling : 0.422m²
Gravel Filling : 0.483m²

CS AT 1100m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.90	100.04	100.06	100.03	99.89
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

Stripping : 4.421m
Earth Filling : 1.040m²
Gravel Filling : 0.483m²

CS AT 1075m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.82	99.88	99.90	99.89	99.80
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

CS AT 1050m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvement of Ilavakulam Tank
Improvement to Ilavakulam Tank Access Road





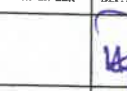
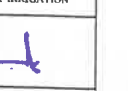
Cross Section of Ilavakulam Tank Access Road

IWWRMP/WM.DS/ILLAVAIKULAM /RD/CSS-05

SCALE : V-1:50, H-1:50

SHEET NO - 25 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIDYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.758m
Earth Filling : 1.057m²
Gravel Filling : 0.483m²



DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.96	100.17	100.22	100.13	99.95
DISTANCE (m)	2.60	1.40	0.00	1.40	2.60

DISTANCE (m)

Stripping : 4.802m
Earth Filling : 1.134m²
Gravel Filling : 0.483m²

CS AT 1175m



DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.97	100.16	100.19	100.12	99.95
DISTANCE (m)	2.50	1.40	0.00	1.40	2.50

DISTANCE (m)

Stripping : 4.518m
Earth Filling : 0.860m²
Gravel Filling : 0.483m²

CS AT 1150m



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.06	100.21	100.24	100.19	100.02
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

CS AT 1125m

Stripping : 4.269m
Earth Filling : 0.560m²
Gravel Filling : 0.483m²



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.12	100.26	100.34	100.24	100.10
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

Stripping : 3.942m
Earth Filling : 0.207m²
Gravel Filling : 0.483m²

CS AT 1250m



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.16	100.36	100.40	100.35	100.17
DISTANCE (m)	2.50	1.40	0.00	1.40	2.60

DISTANCE (m)

Stripping : 4.021m
Earth Filling : 0.189m²
Gravel Filling : 0.483m²

CS AT 1225m



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.13	100.35	100.42	100.36	100.15
DISTANCE (m)	2.50	1.40	0.00	1.40	2.50

DISTANCE (m)

CS AT 1200m

Stripping : 4.488m
Earth Filling : 0.951m²
Gravel Filling : 0.483m²



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.45	100.57	100.60	100.53	100.42
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

Stripping : 4.820m
Earth Filling : 1.034m²
Gravel Filling : 0.483m²

CS AT 1325m



DATUM 99.0 (m) RL

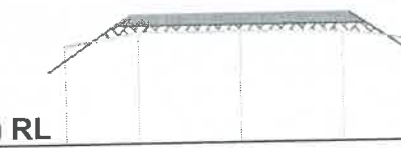
DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.35	100.56	100.60	100.53	100.32
DISTANCE (m)	2.50	1.40	0.00	1.40	2.50

DISTANCE (m)

Stripping : 4.043m
Earth Filling : 0.386m²
Gravel Filling : 0.483m²

CS AT 1300m



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.35	100.51	100.53	100.50	100.36
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

CS AT 1275m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvement of Ilavaikulam Tank
Improvement to Ilavakulam Tank Access Road






Cross Section of Ilavakulam Tank Access Road

IWWRMP/WM.DS/ILLAVAIAKULAM /RD/CSS-06

SCALE : V-1:50, H-1:50

SHEET NO - 26 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						Eng. T. Rajagobu

Eng.T.Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.799m
Earth Filling : 1.294m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.36	100.49	100.51	100.50	100.35
EXISTING GL (m)	100.36	100.49	100.51	100.50	100.35
DISTANCE (m)	2.40	1.30	0.00	1.30	2.40

DISTANCE (m)

Stripping : 4.519m
Earth Filling : 0.892m²
Gravel Filling : 0.483m²

CS AT 1400m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.44	100.57	100.63	100.55	100.42
EXISTING GL (m)	100.44	100.57	100.63	100.55	100.42
DISTANCE (m)	2.40	1.40	0.00	1.40	2.40

DISTANCE (m)

Stripping : 4.887m
Earth Filling : 1.277m²
Gravel Filling : 0.483m²

CS AT 1375m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.33	100.48	100.57	100.46	100.31
EXISTING GL (m)	100.33	100.48	100.57	100.46	100.31
DISTANCE (m)	2.50	1.40	0.00	1.40	2.50

DISTANCE (m)

CS AT 1350m

Stripping : 3.803m
Earth Filling : 0.097m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.60	100.77	100.79	100.78	100.58
EXISTING GL (m)	100.60	100.77	100.79	100.78	100.58
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

Stripping : 3.880m
Earth Filling : 0.150m²
Gravel Filling : 0.483m²

CS AT 1475m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.60	100.75	100.80	100.74	100.57
EXISTING GL (m)	100.60	100.75	100.80	100.74	100.57
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

Stripping : 4.672m
Earth Filling : 1.145m²
Gravel Filling : 0.483m²

CS AT 1450m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.40	100.52	100.57	100.50	100.37
EXISTING GL (m)	100.40	100.52	100.57	100.50	100.37
DISTANCE (m)	2.50	1.30	0.00	1.30	2.40

DISTANCE (m)

CS AT 1425m

Stripping : 4.067m
Earth Filling : 0.583m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.60	100.64	100.67	100.63	100.54
EXISTING GL (m)	100.60	100.64	100.67	100.63	100.54
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

Stripping : 4.054m
Earth Filling : 0.516m²
Gravel Filling : 0.483m²

CS AT 1550m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.59	100.66	100.68	100.65	100.53
EXISTING GL (m)	100.59	100.66	100.68	100.65	100.53
DISTANCE (m)	2.50	1.50	0.00	1.50	2.50

DISTANCE (m)

Stripping : 4.643m
Earth Filling : 0.594m²
Gravel Filling : 0.483m²

CS AT 1525m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.37	100.66	100.70	100.65	100.40
EXISTING GL (m)	100.37	100.66	100.70	100.65	100.40
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

CS AT 1500m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvement of Illavakulam Tank
Improvement to Illavakulam Tank Access Road






Cross Section of Illavakulam Tank Access Road

IWWRMP/WM.DS/ILLAVAIKULAM /RD/CSS-07

SCALE : V-1:50, H-1:50

SHEET NO - 27 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEPUTY DIRECTOR OF IRRIGATION
SIGNATURE						
DATE						

Eng.T.Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.761m
Earth Filling : 1.273m²
Gravel Filling : 0.483m²



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.34	100.47	100.55	100.47	100.33
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

Stripping : 4.427m
Earth Filling : 0.822m²
Gravel Filling : 0.483m²

CS AT 1625m



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.44	100.59	100.61	100.60	100.42
DISTANCE (m)	2.50	1.40	0.00	1.40	2.60

DISTANCE (m)

Stripping : 4.578m
Earth Filling : 1.178m²
Gravel Filling : 0.483m²

CS AT 1600m



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.41	100.51	100.52	100.50	100.39
DISTANCE (m)	2.50	1.50	0.00	1.50	2.60

DISTANCE (m)

CS AT 1575m

Stripping : 4.258m
Earth Filling : 0.608m²
Gravel Filling : 0.483m²



DATUM 99.0 (m) RL

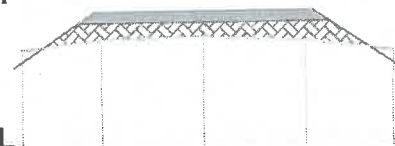
DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.47	100.65	100.66	100.63	100.46
DISTANCE (m)	2.50	1.50	0.00	1.50	2.60

DISTANCE (m)

Stripping : 4.508m
Earth Filling : 0.944m²
Gravel Filling : 0.483m²

CS AT 1700m



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.44	100.57	100.60	100.54	100.39
DISTANCE (m)	2.50	1.40	0.00	1.40	2.60

DISTANCE (m)

Stripping : 4.586m
Earth Filling : 1.161m²
Gravel Filling : 0.483m²

CS AT 1675m



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.40	100.50	100.54	100.51	100.42
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

DISTANCE (m)

CS AT 1650m

Stripping : 4.135m
Earth Filling : 0.690m²
Gravel Filling : 0.483m²



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.92	100.97	100.99	100.95	100.87
DISTANCE (m)	2.50	1.40	0.00	1.40	2.60

DISTANCE (m)

Stripping : 4.535m
Earth Filling : 1.251m²
Gravel Filling : 0.483m²

CS AT 1775m



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.79	100.84	100.85	100.83	100.77
DISTANCE (m)	2.50	1.40	0.00	1.40	2.40

DISTANCE (m)

Stripping : 4.704m
Earth Filling : 0.861m²
Gravel Filling : 0.483m²

CS AT 1750m



DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.55	100.78	100.80	100.77	100.53
DISTANCE (m)	2.50	1.40	0.00	1.40	2.50

DISTANCE (m)

CS AT 1725m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvement of Ilavakulam Tank
Improvement to Ilavakulam Tank Access Road

Cross Section of Ilavakulam Tank Access Road

IWWRMP/WM.DS/ILLAVAUKULAM /RD/CSS-08

SCALE : V-1:50, H-1:50

SHEET NO - 28 OFF 51

A3

CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	ENG.N.VIAYARAVI	ENG.T.RAJAGOBUR
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER
SIGNATURE					
DATE					

Eng.T.Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 3.541m
Earth Filling : 0.014m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

	101.04	101.14	101.15	101.16	101.03
EXISTING GL (m)	101.04	101.14	101.15	101.16	101.03
DISTANCE (m)	2.60	1.50	0.00	1.50	2.50

Stripping : 4.132m
Earth Filling : 0.592m²
Gravel Filling : 0.483m²

CS AT 1850m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.88	101.01	101.03	101.00	100.85
EXISTING GL (m)	100.88	101.01	101.03	101.00	100.85
DISTANCE (m)	2.50	1.50	0.00	1.50	2.50

Stripping : 3.886m
Earth Filling : 0.209m²
Gravel Filling : 0.483m²

CS AT 1825m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.95	101.09	101.13	101.07	100.93
EXISTING GL (m)	100.95	101.09	101.13	101.07	100.93
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

CS AT 1800m

Stripping : 4.745m
Earth Filling : 1.265m²
Gravel Filling : 0.483m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.84	100.90	101.10	100.89
EXISTING GL (m)	100.84	100.90	101.10	100.89
DISTANCE (m)	2.50	1.40	0.00	2.40

Stripping : 4.165m
Earth Filling : 0.636m²
Gravel Filling : 0.483m²

CS AT 1925m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.89	100.98	101.01	100.97	100.87
EXISTING GL (m)	100.89	100.98	101.01	100.97	100.87
DISTANCE (m)	2.40	1.40	0.00	1.40	2.50

Stripping : 4.670m
Earth Filling : 1.358m²
Gravel Filling : 0.483m²

CS AT 1900m

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

	100.75	100.78	100.88	100.78	100.72
EXISTING GL (m)	100.75	100.78	100.88	100.78	100.72
DISTANCE (m)	2.60	1.50	0.00	1.50	2.60

CS AT 1875m

Stripping : 4.055m
Earth Filling : 0.521m²
Gravel Filling : 0.483m²

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

	101.39	101.47	101.50	101.46	101.35
EXISTING GL (m)	101.39	101.47	101.50	101.46	101.35
DISTANCE (m)	2.50	1.30	0.00	1.30	2.60

Stripping : 4.781m
Earth Filling : 1.285m²
Gravel Filling : 0.483m²

CS AT 2000m

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

	101.15	101.29	101.36	101.28	101.16
EXISTING GL (m)	101.15	101.29	101.36	101.28	101.16
DISTANCE (m)	2.50	1.30	0.00	1.30	2.60

Stripping : 4.533m
Earth Filling : 1.204m²
Gravel Filling : 0.483m²

CS AT 1975m

DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

	101.09	101.14	101.20	101.15	101.08
EXISTING GL (m)	101.09	101.14	101.20	101.15	101.08
DISTANCE (m)	2.60	1.30	0.00	1.30	2.60

CS AT 1950m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvement of Ilavaikulam Tank
Improvement to Ilavaikulam Tank Access Road







Cross Section of Ilavaikulam Tank Access Road

IWWRMP/WM.DS/ILLAVAIKULAM/RD/CSS-09

SCALE : V-1:50, H-1:50

SHEET NO - 29 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PEERIS	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEPUTY DIRECTOR OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.273m
Earth Filling : 0.864m²
Gravel Filling : 0.483m²



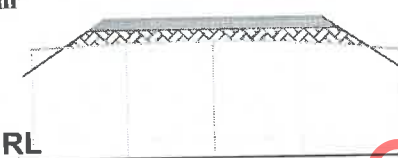
DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	101.65	101.71	101.73	101.70	101.62
DISTANCE (m)	2.50	1.20	0.00	1.20	2.60

Stripping : 4.211m
Earth Filling : 0.734m²
Gravel Filling : 0.483m²

CS AT 2075m



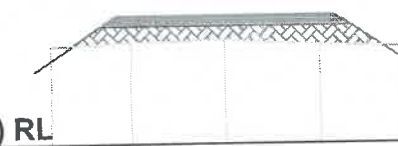
DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	101.53	101.58	101.61	101.57	101.45
DISTANCE (m)	2.50	1.20	0.00	1.20	2.60

Stripping : 4.271m
Earth Filling : 0.875m²
Gravel Filling : 0.483m²

CS AT 2050m



DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	101.34	101.39	101.42	101.35	101.31
DISTANCE (m)	2.40	1.30	0.00	1.30	2.50

CS AT 2025m

Stripping : 5.159m
Earth Filling : 2.259m²
Gravel Filling : 0.483m²



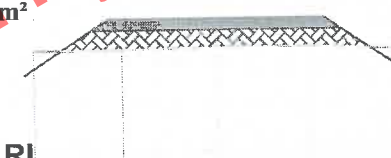
DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	101.37	101.40	101.42	101.42	101.36
DISTANCE (m)	2.60	1.40	0.00	1.40	2.60

Stripping : 4.269m
Earth Filling : 0.967m²
Gravel Filling : 0.483m²

CS AT 2150m



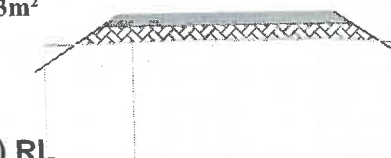
DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	101.66	101.67	101.69	101.70	101.64
DISTANCE (m)	2.50	1.30	0.00	1.30	2.60

Stripping : 4.206m
Earth Filling : 0.849m²
Gravel Filling : 0.483m²

CS AT 2125m



DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	101.68	101.71	101.72	101.72	101.65
DISTANCE (m)	2.50	1.30	0.00	1.30	2.60

CS AT 2100m

Stripping : 10.392m
Earth Filling : 0.759m²
Gravel Filling : 1.466m²



DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	102.55	103.15	103.25	103.10	103.20	103.14	102.66
DISTANCE (m)	7.50	5.00	2.50	0.00	2.50	6.00	7.50

CS AT 2203m

Stripping : 3.913m
Earth Filling : 0.041m²
Gravel Filling : 0.483m²



DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	101.61	101.73	101.95	101.93	101.95	101.75	101.37
DISTANCE (m)	3.50	2.00	1.40	0.00	1.40	2.40	3.50

Stripping : 4.883m
Earth Filling : 1.421m²
Gravel Filling : 0.483m²

CS AT 2190m



DATUM 100.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	101.47	101.59	101.62	101.60	101.44
DISTANCE (m)	2.50	1.40	0.00	1.40	2.50

CS AT 2175m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM

Improvement of Ilavaikulam Tank
Improvement to Ilavakulam Tank Access Road






Cross Section of Ilavakulam Tank Access Road

IWWRMP/WM.DS/ILLAVAikulam /RD/CSS-10

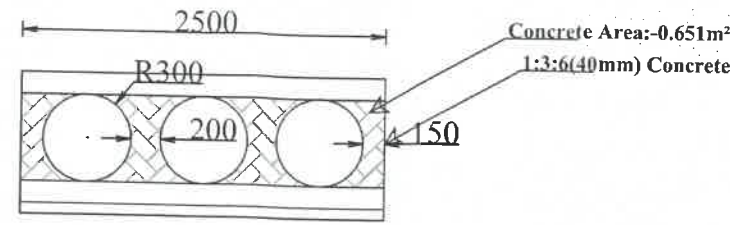
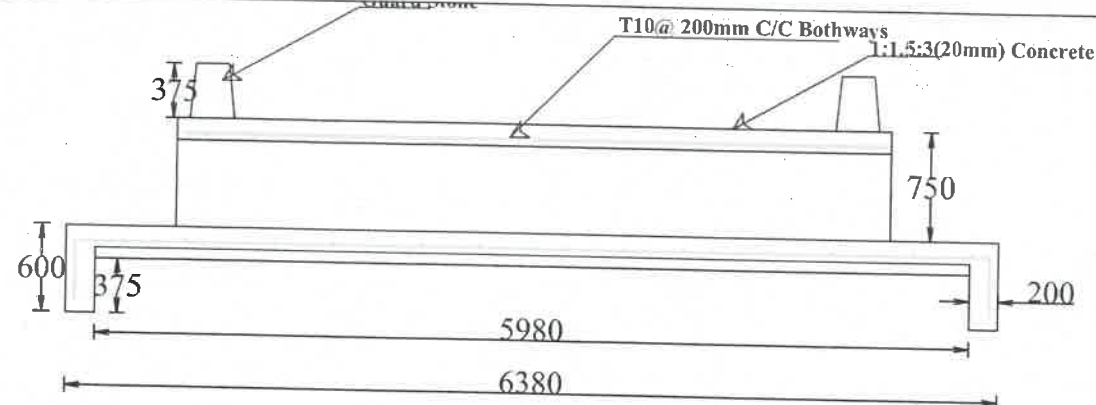
SCALE : V-1:50, H-1:50

SHEET NO - 30 OFF 51

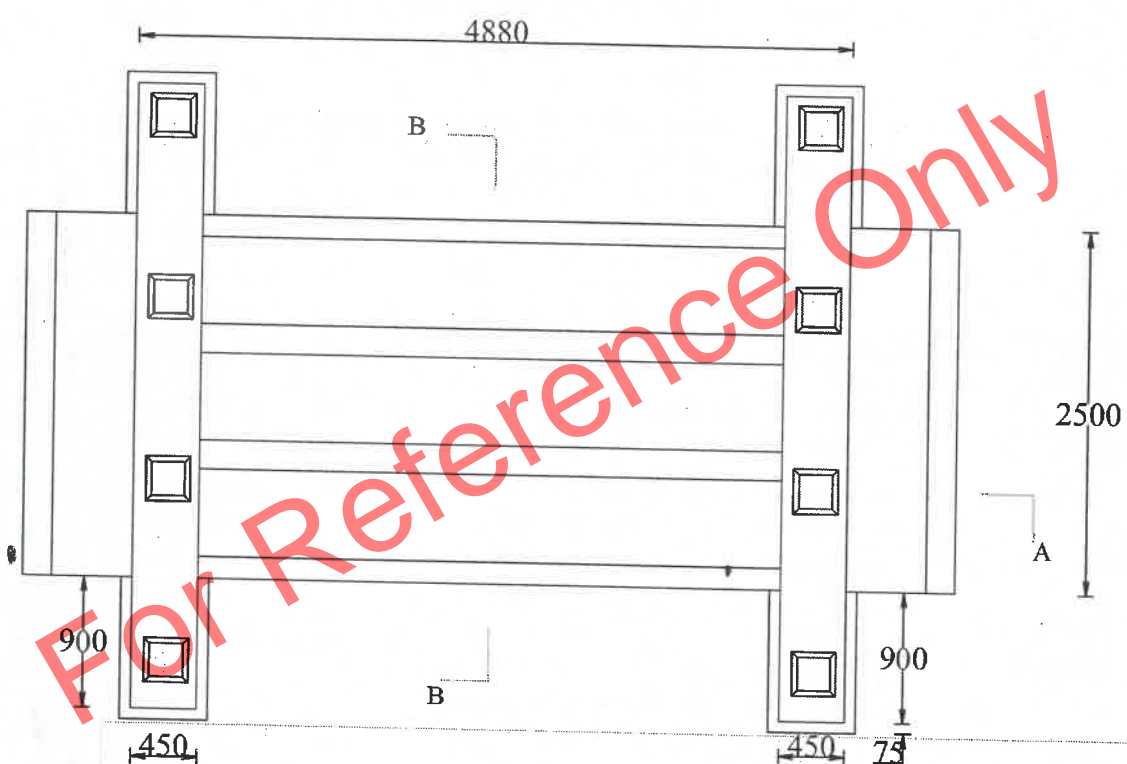
A3

CS AT 2175m						
	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						Eng. T. Rajagobu

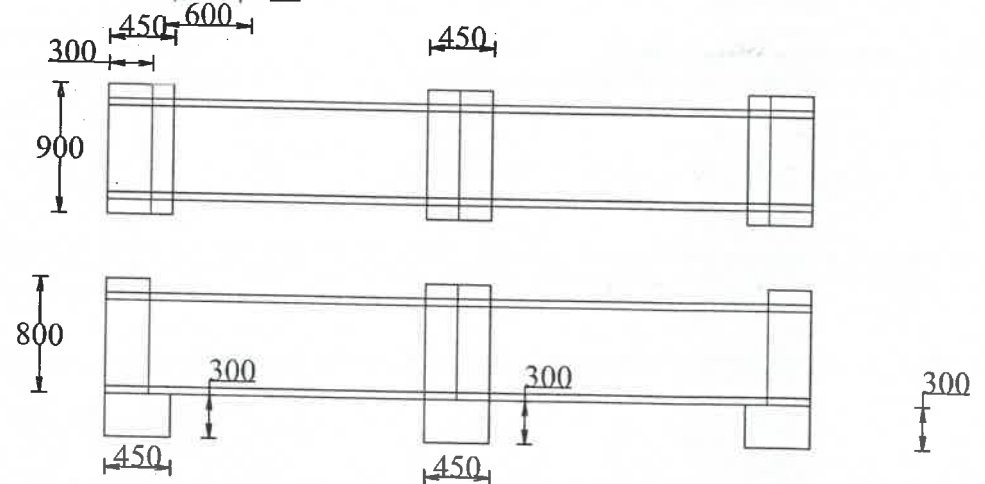
Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range



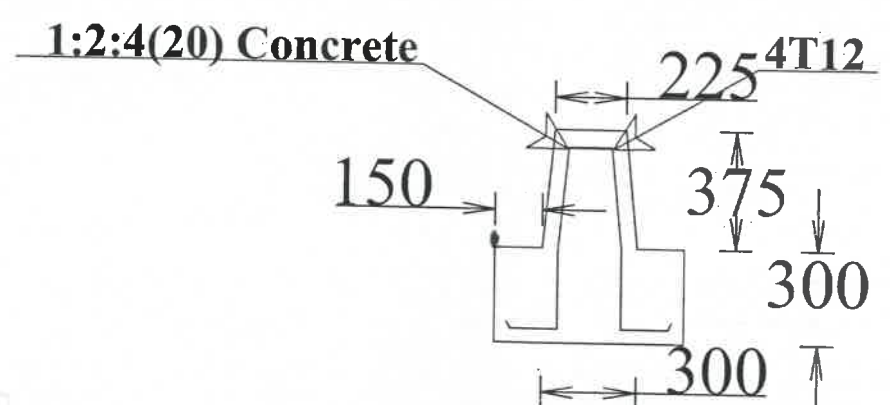
SECTION B-B



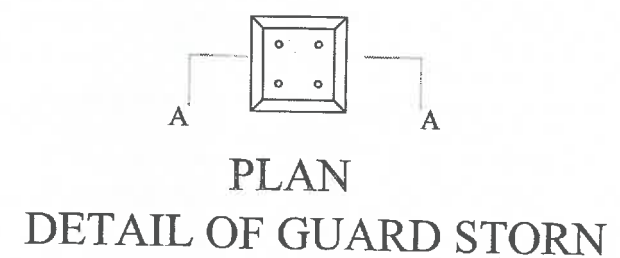
PLAN








600mm Hume Pipe Culvert Details

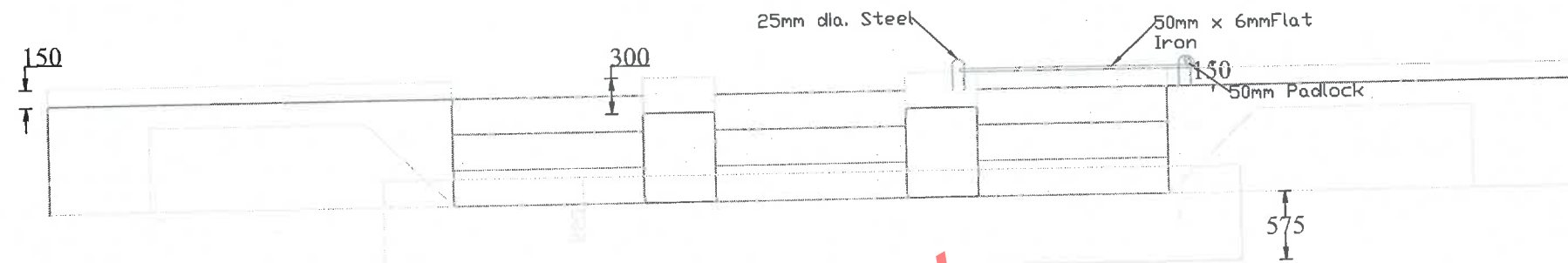


SECTION A-A

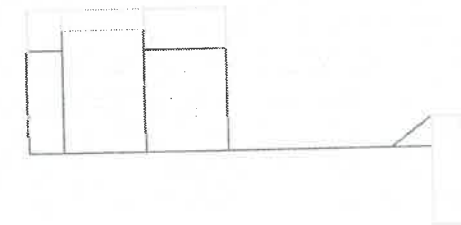


PLAN
DETAIL OF GUARD STORN

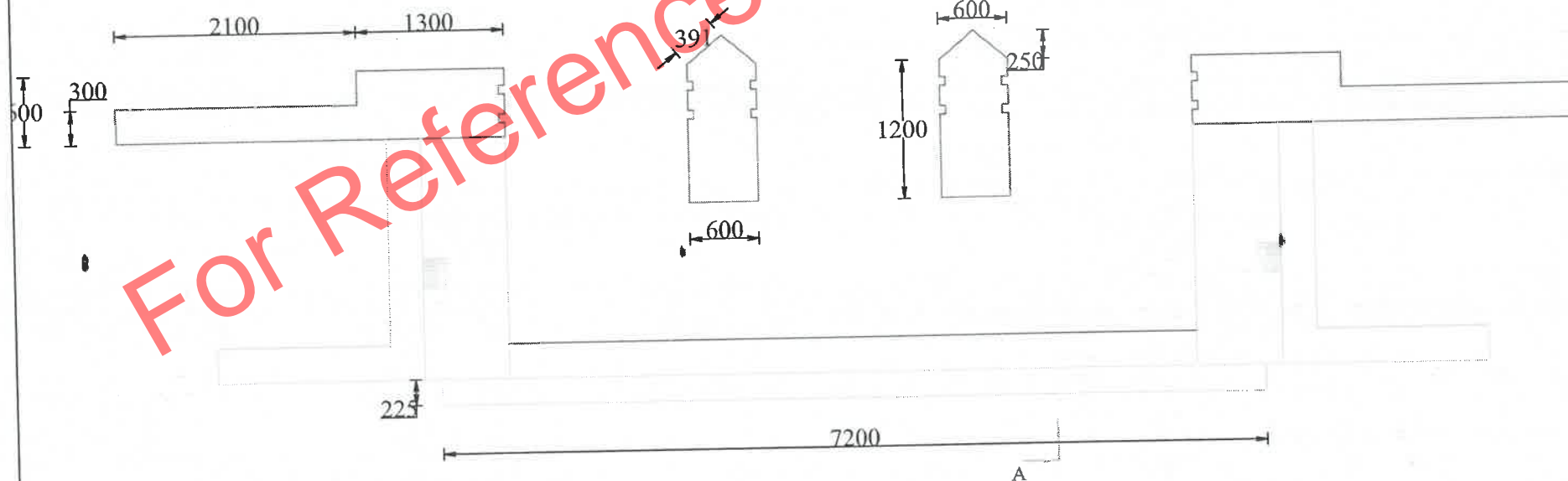
IWWRMP -2024		REHABILITATION OF WELIMARUTHAMADU TANK DOWN STREAM				CAD BY		CHECKED BY		SUBMITTED BY		DRAWN CHECKED BY		DESIGN CHECKED BY		APPROVED BY			
DEPARTMENT OF IRRIGATION - NP MANNAR DIVISION VAVUNIYA RANGE		Improvement of Ilavaikulam Tank Improvement to Ilavakulam Tank Access Road Humepipe Culverts in Ilavakulam Tank Access Road				NAME		S.PRATHEEP		V.J.C.PERIES		ENG.R.THARAKAN		S.KUGATHASAN		ENG.N.VUJAYARAVI		ENG.T.RAJAGOBU	
						DESIGNATION		TECHNICAL OFFICER		DRAUGHTSMAN		IRRIGATION ENGINEER		DRAUGHTSMAN		IRRIGATION ENGINEER		DEP.DIR. OF IRRIGATION	
						SIGNATURE													
						DATE													
		IWWRMP/WM.DS/ILLAVAUKULAM /RD/CULVERT/STR-01				SCALE : V-1:50, H-1:50				SHEET NO - 31 OFF 51				A3					



ELEVATION



SECTION A-A



PLAN

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Repair of Achadiveambu Anicut

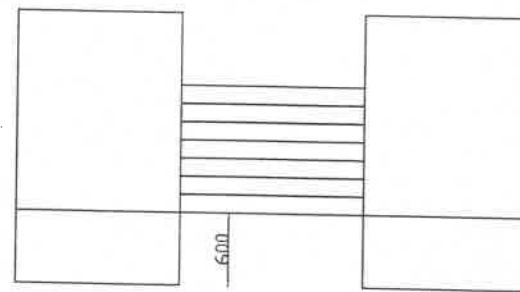
IWWRMP/WM.DS/ACHADIVEAMBU /ANICUT/STR-01

SCALE : V-1:50, H-1:50

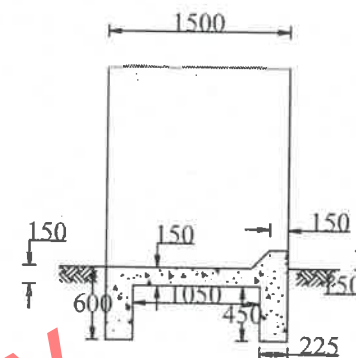
SHEET NO - 32 OFF 51 A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PRIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

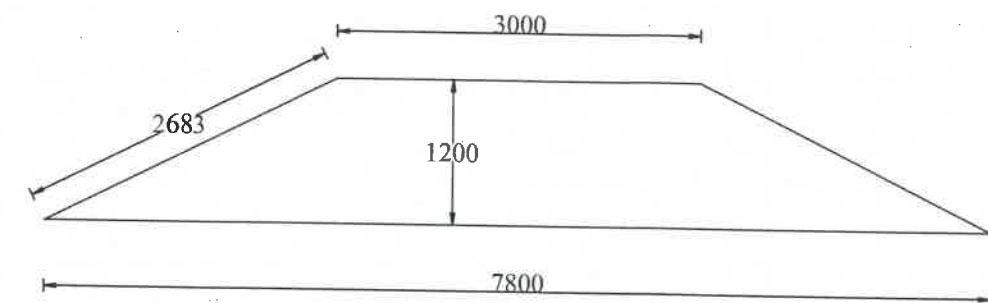
Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range



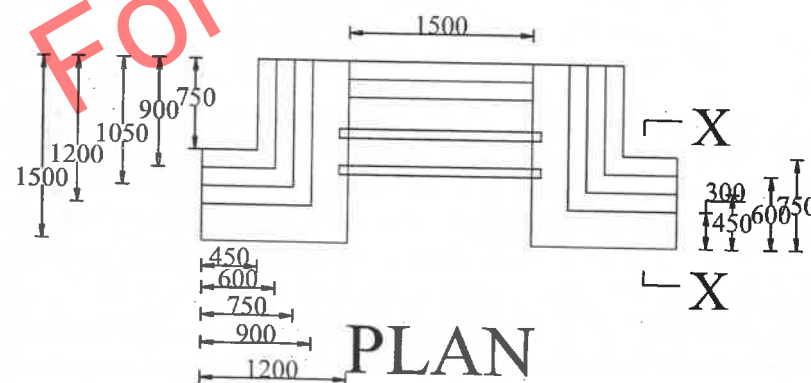
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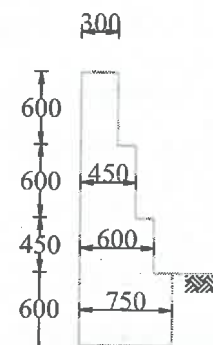
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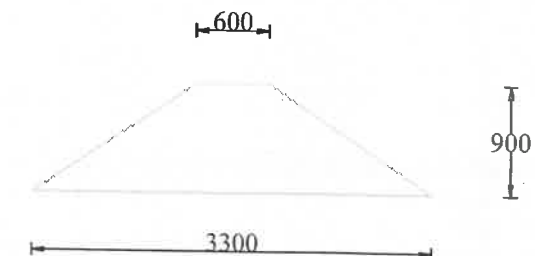
Training Bund Section



PLAN



SECTION X - X



Pulakadu Canal
Breaching section Profile

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Achankadu Anicuts
Construction of Turn out Structure & Improvement of Training bund

IWWRMP/WM.DS/ACHANKADU/ANICUT/STR-02

SCALE : V-1:50, H-1:50

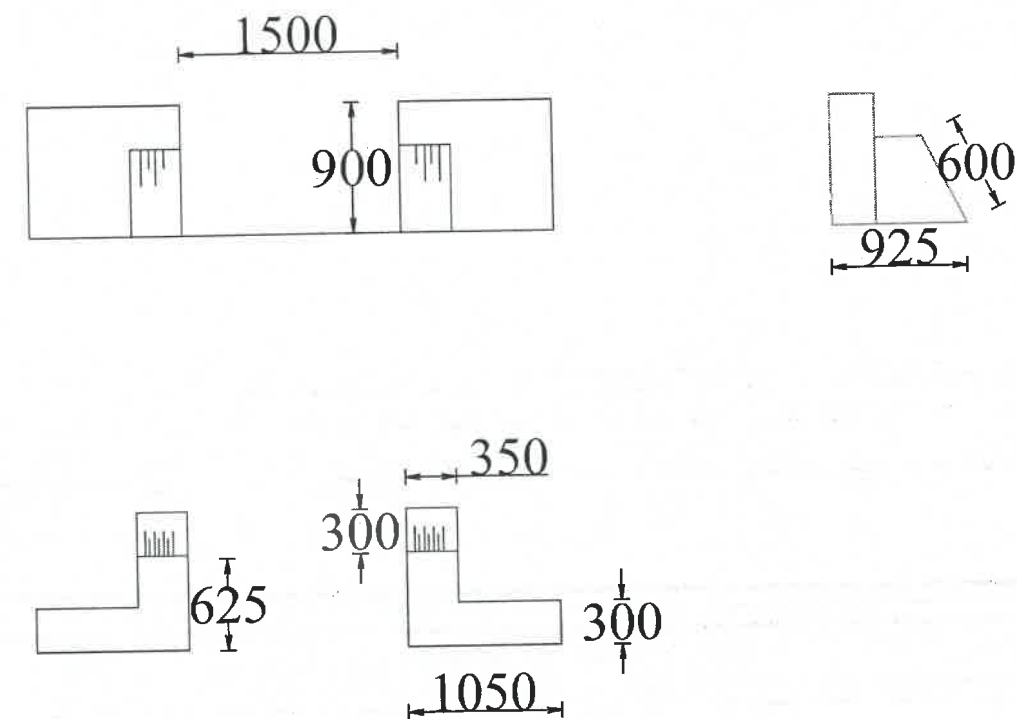
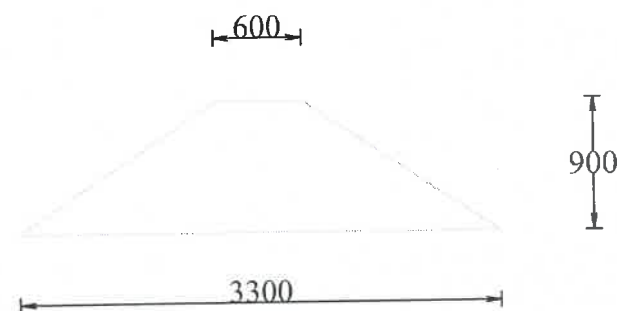
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A3

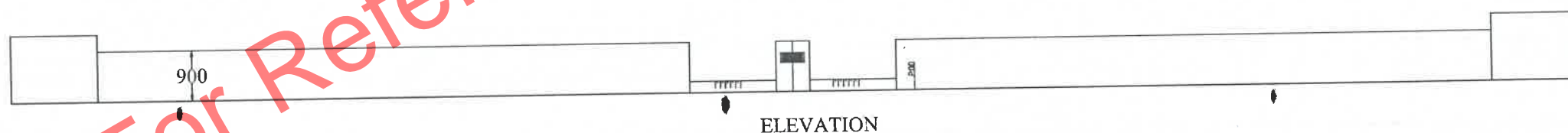
	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C. PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	OFFICER OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

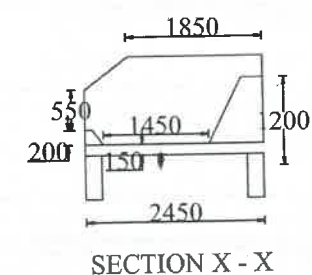
Maruthamadu , Paddanikadu & Mayilapanikantharai
Feeder Canal Breaching section Profile



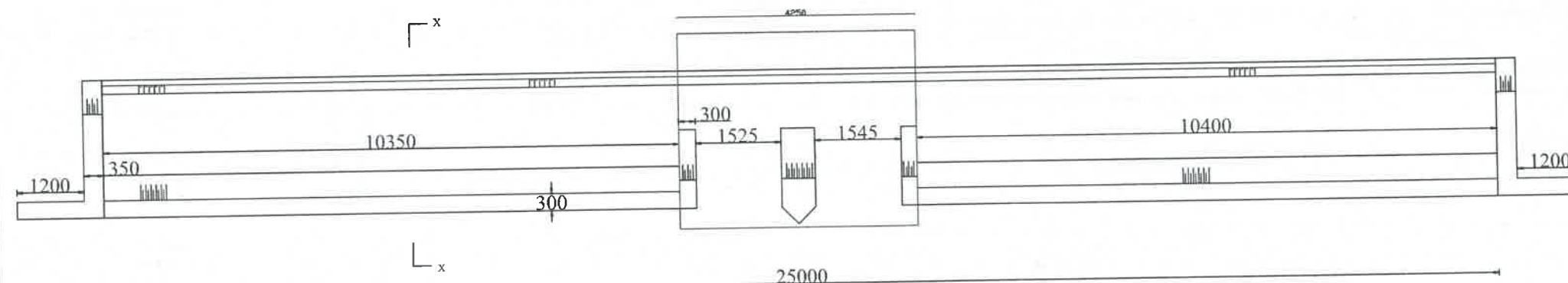
Plan for Cntrol structure



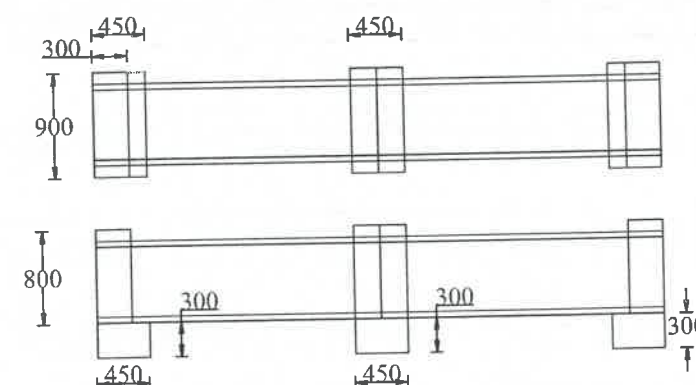
ELEVATION



SECTION X - X



PLAN



600mm Hume Pipe Culvert Details

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE






REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Paddanikaddu Anicut, Pulakadu Road and Construction of Pulakadu Anicut
Repair of Anicut Structure

IWWRMP/WM.DS/PADDANIKADU/ANICUT/STR-01

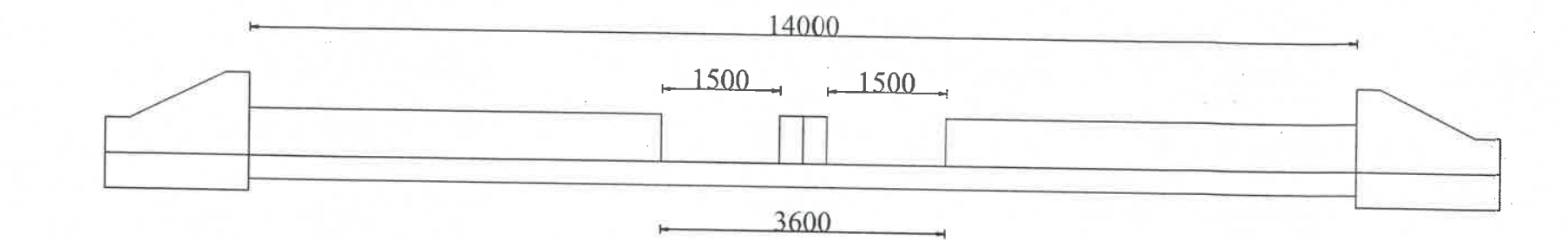
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SHEET NO - 34 OFF 51

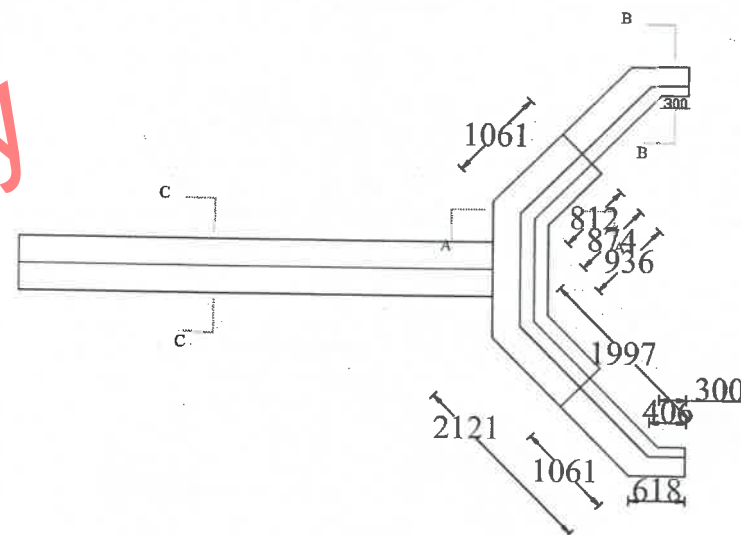
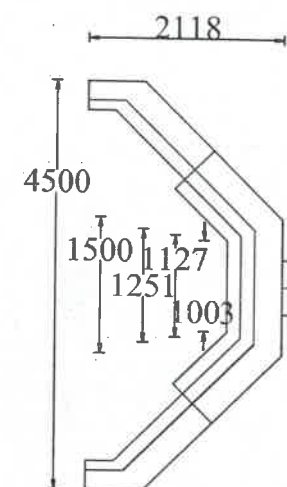
A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY	
	NAME	S.FRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
t	DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
	SIGNATURE						
	DATE						Eng. T. Rajagobu

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

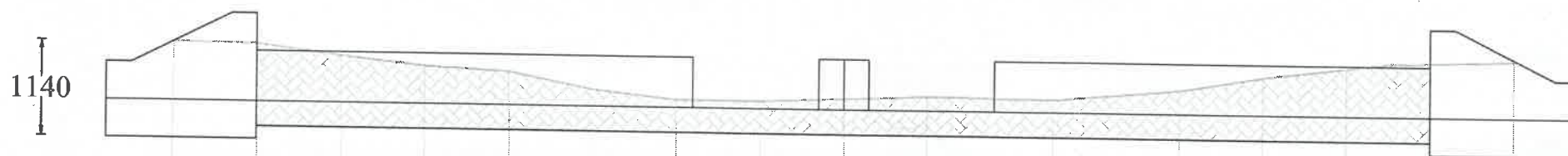


ELEVATION



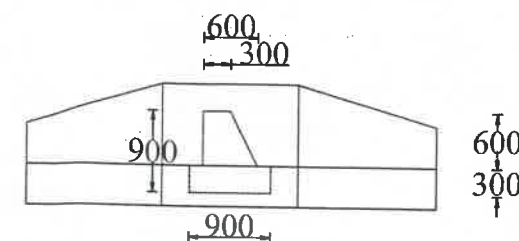
PLAN

Earth Excavating Area:-8.606m²

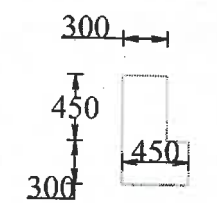


DATUM 97.0 (m) RL

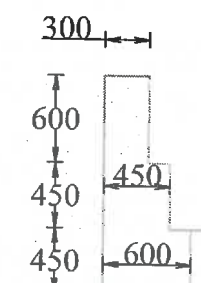
EXISTING GL (m)	99.48	99.47	99.34	99.23	99.18	98.98	98.87	98.87	98.91	98.95	98.93	99.06	99.23	99.35	99.43	99.46
DISTANCE (m)	8.00	7.00	6.00	5.00	4.00	3.00	2.00	1.00	0.00	1.00	2.50	4.00	5.00	6.00	7.00	8.00



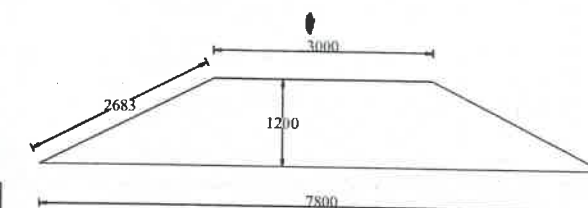
SECTION C-C



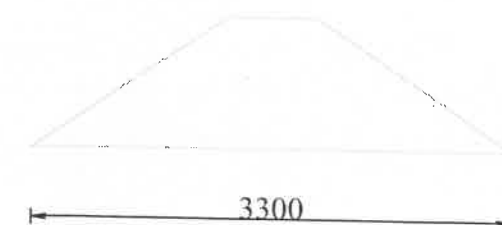
SECTION B - B



SECTION A - A



Training Bund Section



Pulakadu Canal Breaching section Profile

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Paddanikaddu Anicut, Pulakadu Road and Construction of Pulakadu Anicut
Construction of Pulakadu Anicut

IWWRMP/WM.DS/PULAKADU/ANICUT/STR-01

SCALE : V-1:50, H-1:50

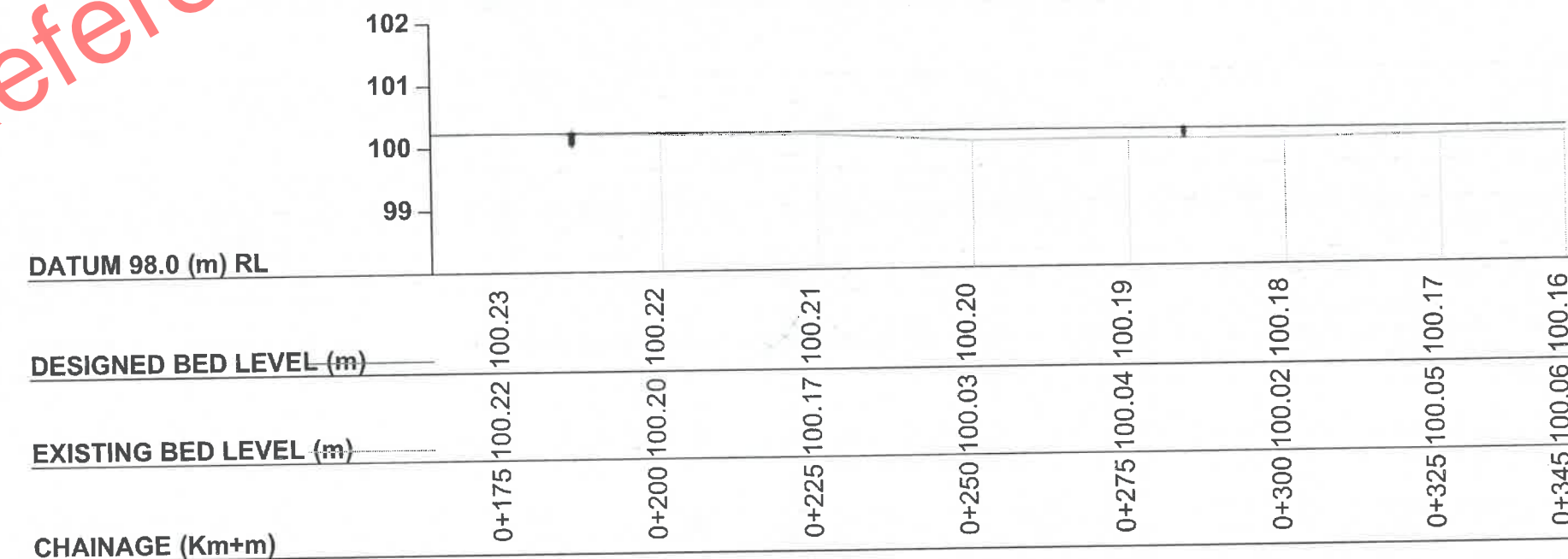
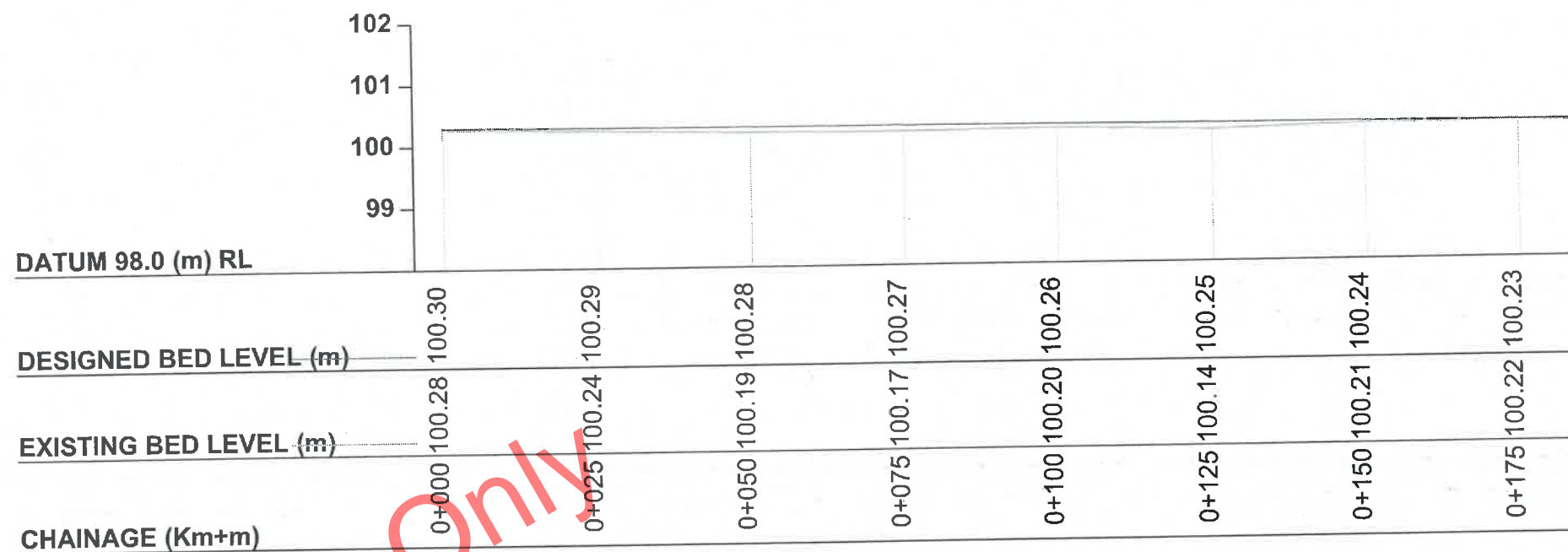
SHEET NO - 35 OFF 51

A3

NAME	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAJI	ENG.T.RAJAGOBU	
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEPUTY DIRECTOR OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

For Reference Only



IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE






REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Puliyakulam Tank
Improvement to Canal System

IWWRMP/WM.DS/PULIYAKULAM/CANAL-1/LSS-01

SCALE : V-1:100, H-1:1000

SHEET NO - 36 OFF 51

A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping 1 : 2.012m
Stripping 2 : 2.090m
Earth Filling : 1.183m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.41	100.38	100.37	100.39
DISTANCE (m)	2.50	0.40	0.50	2.50

CS AT 50m
Stripping 1 : 2.099m
Stripping 2 : 2.551m
Earth Filling : 1.456m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.39	100.32	100.29	100.35
DISTANCE (m)	2.50	0.50	0.50	2.50

CS AT 25m
Stripping 1 : 1.831m
Stripping 2 : 1.686m
Earth Filling : 0.876m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.49	100.48	100.48	100.52
DISTANCE (m)	2.50	0.60	0.50	2.50

CS AT 0m

Stripping 1 : 4.692m
Stripping 2 : 0.000m
Earth Filling : 1.183m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.39	100.37	100.36	100.36
DISTANCE (m)	2.50	0.50	0.40	2.50

CS AT 125m
Stripping 1 : 1.876m
Stripping 2 : 1.997m
Earth Filling : 1.136m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.39	100.38	100.38	100.38
DISTANCE (m)	2.50	0.40	0.40	2.50

CS AT 100m
Stripping 1 : 4.696m
Stripping 2 : 0.000m
Earth Filling : 1.242m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.39	100.37	100.35	100.38
DISTANCE (m)	2.50	0.50	0.40	2.50

CS AT 75m

Stripping 1 : 1.909m
Stripping 2 : 1.825m
Earth Filling : 0.955m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.40	100.38	100.39	100.41
DISTANCE (m)	2.50	0.60	0.50	2.50

CS AT 200m
Stripping 1 : 1.980m
Stripping 2 : 1.790m
Earth Filling : 1.077m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.39	100.29	100.38	100.42
DISTANCE (m)	2.50	0.50	0.50	2.50

CS AT 175m
Stripping 1 : 1.777m
Stripping 2 : 2.485m
Earth Filling : 1.077m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.42	100.38	100.37	100.40
DISTANCE (m)	2.50	0.40	0.50	2.50

CS AT 150m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE






REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Puliyakulam Tank
Improvement to Canal System

IWWRMP/W.M.DS/PULIYAKULAM/CANAL-1/CSS-01

SCALE : V-1:100, H-1:1000

SHEET NO - 37 OFF 51

A3

CS AT 150m						
	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEPUTY DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping 1 : 4.977m
Stripping 2 : 0.000m
Earth Filling : 1.596m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.20	100.25
DISTANCE (m)	2.50	2.50

CS AT 275m

Stripping 1 : 5.002m
Stripping 2 : 0.000m
Earth Filling : 1.649m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.16	100.30
DISTANCE (m)	2.50	2.50

CS AT 250m

Stripping 1 : 1.899m
Stripping 2 : 1.835m
Earth Filling : 1.014m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.40	100.37
DISTANCE (m)	2.50	2.50

CS AT 225m

Stripping 1 : 1.792m
Stripping 2 : 1.669m
Earth Filling : 0.931m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.34	100.38
DISTANCE (m)	2.50	2.50

CS AT 345m

Stripping 1 : 4.590m
Stripping 2 : 0.000m
Earth Filling : 1.109m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.33	100.34
DISTANCE (m)	2.50	2.50

CS AT 325m

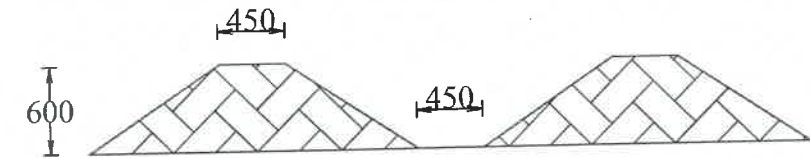
Stripping 1 : 4.788m
Stripping 2 : 0.000m
Earth Filling : 1.456m²

DATUM 99.0 (m) RL

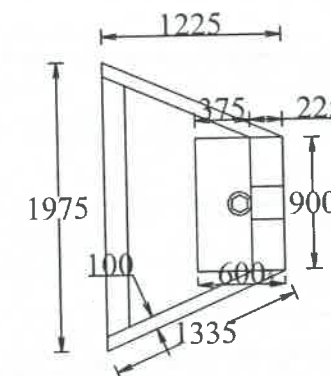
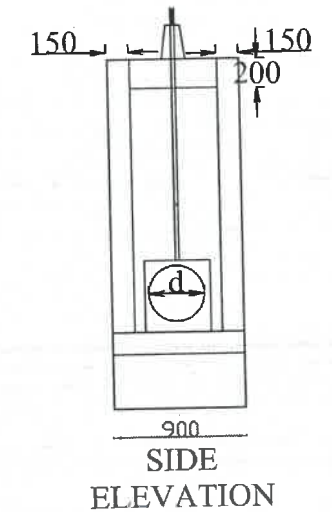
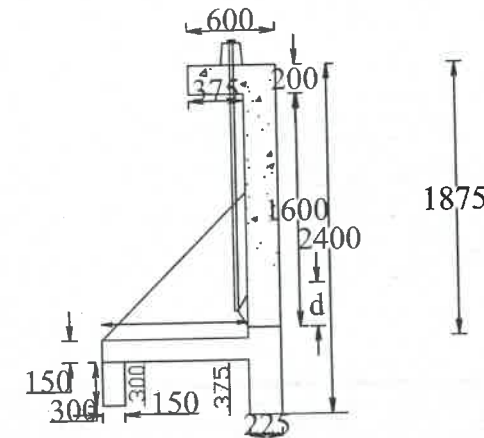
DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.24	100.30
DISTANCE (m)	2.50	2.50

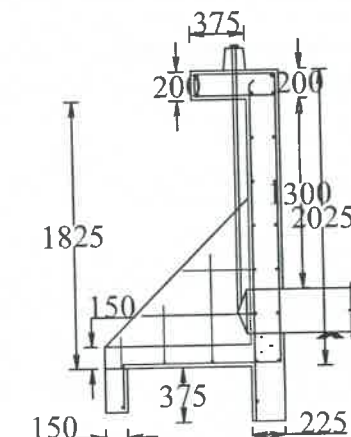
CS AT 300m



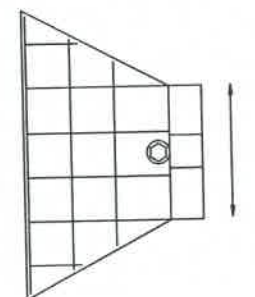
Canal Profile



PLAN



R/F Details



R/F Details

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Puliakulam Tank
Improvement to Canal System & Reconstruction of Sluice

IWWRMP/WM.DS/PULIYAKULAM/CANAL-1/CSS-02

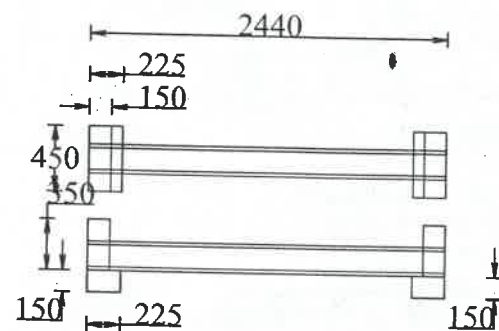
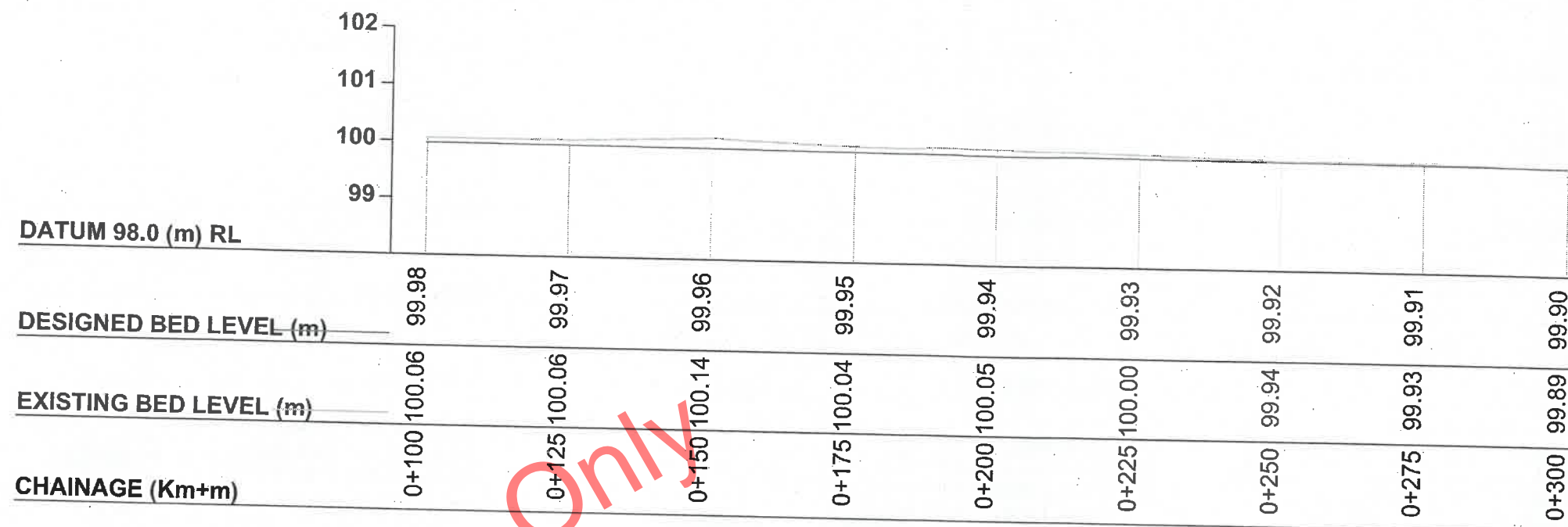
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SHEET NO - 38 OFF 51

A3

CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER
SIGNATURE					
DATE					

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range



150mm Hume Pipe farm Turnout
Details

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Puliyakulam Tank
Improvement to Canal System

IWWRMP/WM.DS/PULIYAKULAM/CANAL-2/LSS-01

SCALE : V-1:100, H-1:1000

SHEET NO - 39 OFF 51

A3

CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER
SIGNATURE					
DATE					

Eng.T.Rajagobu
Deputy Director of Irrigation

Stripping 1 : 1.384m
Stripping 2 : 1.452m
Earth Cutting : 0.198m²
Earth Filling : 0.603m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.26	100.24	100.23	100.22
DISTANCE (m)	2.50	0.50	0.50	2.50

CS AT 150m

Stripping 1 : 1.707m
Stripping 2 : 1.580m
Earth Cutting : 0.111m²
Earth Filling : 0.834m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.14	100.16	100.18	100.21
DISTANCE (m)	2.50	0.40	0.40	2.50

CS AT 125m

Stripping 1 : 1.816m
Stripping 2 : 1.713m
Earth Cutting : 0.082m²
Earth Filling : 0.971m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.13	100.12	100.15	100.17
DISTANCE (m)	2.50	0.40	0.40	2.50

CS AT 100m

Stripping 1 : 1.812m
Stripping 2 : 1.777m
Earth Cutting : 0.068m²
Earth Filling : 0.989m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.09	100.07	100.08	100.12
DISTANCE (m)	2.50	0.50	0.60	2.50

CS AT 225m

Stripping 1 : 1.612m
Stripping 2 : 1.579m
Earth Cutting : 0.124m²
Earth Filling : 0.778m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.17	100.14	100.15	100.19
DISTANCE (m)	2.50	0.50	0.60	2.50

CS AT 200m

Stripping 1 : 1.659m
Stripping 2 : 1.696m
Earth Cutting : 0.090m²
Earth Filling : 0.859m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.17	100.14	100.11	100.18
DISTANCE (m)	2.50	0.60	0.60	2.50

CS AT 175m

Stripping 1 : 1.954m
Stripping 2 : 2.012m
Earth Cutting : 0.010m²
Earth Filling : 1.182m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.04	100.00	99.97	100.03
DISTANCE (m)	2.50	0.50	0.50	2.50

CS AT 300m

Stripping 1 : 1.832m
Stripping 2 : 1.948m
Earth Cutting : 0.029m²
Earth Filling : 1.074m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.09	100.04	100.02	100.04
DISTANCE (m)	2.50	0.50	0.60	2.50

CS AT 275m

Stripping 1 : 1.942m
Stripping 2 : 1.819m
Earth Cutting : 0.039m²
Earth Filling : 1.089m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.04	100.02	100.05	100.10
DISTANCE (m)	2.50	0.50	0.50	2.50

CS AT 250m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE






REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Puliyakulam Tank
Improvement to Canal System

IWWRMP/WM.DS/PULIYAKULAM/CANAL-2/CSS-01

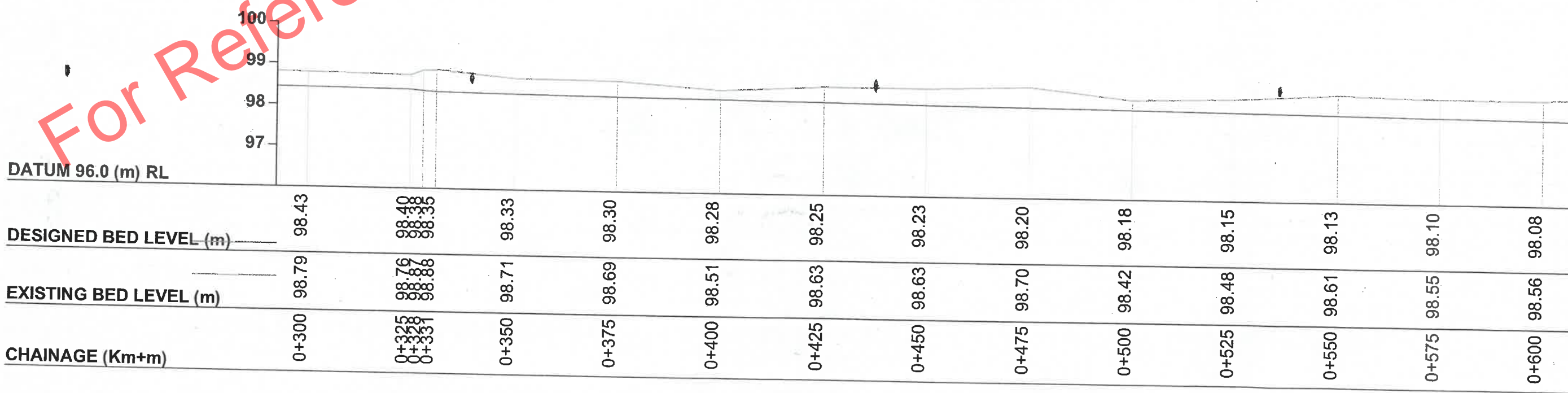
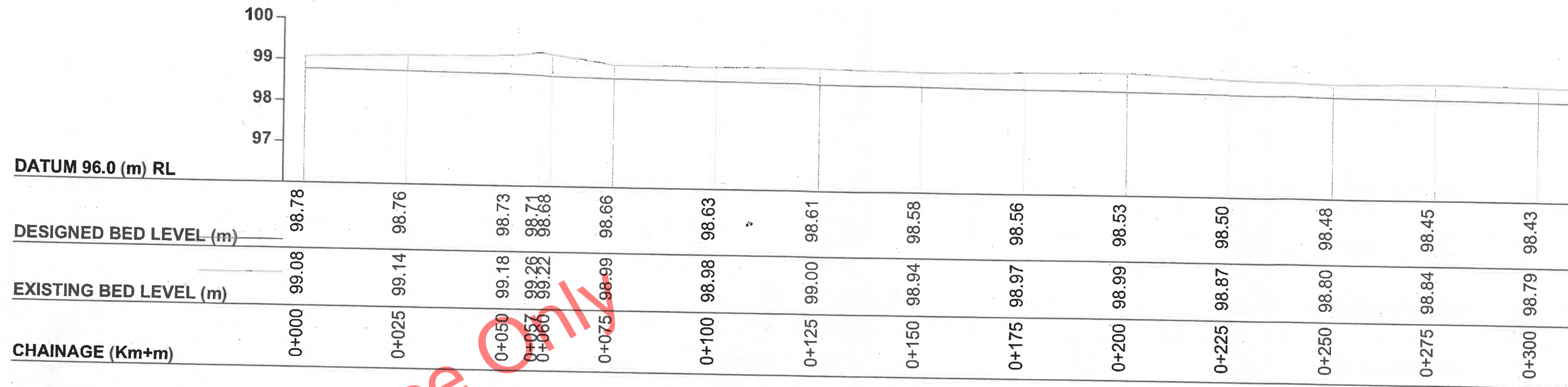
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SHEET NO - 40 OFF 51

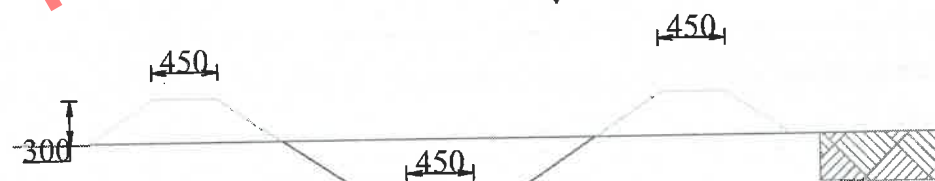
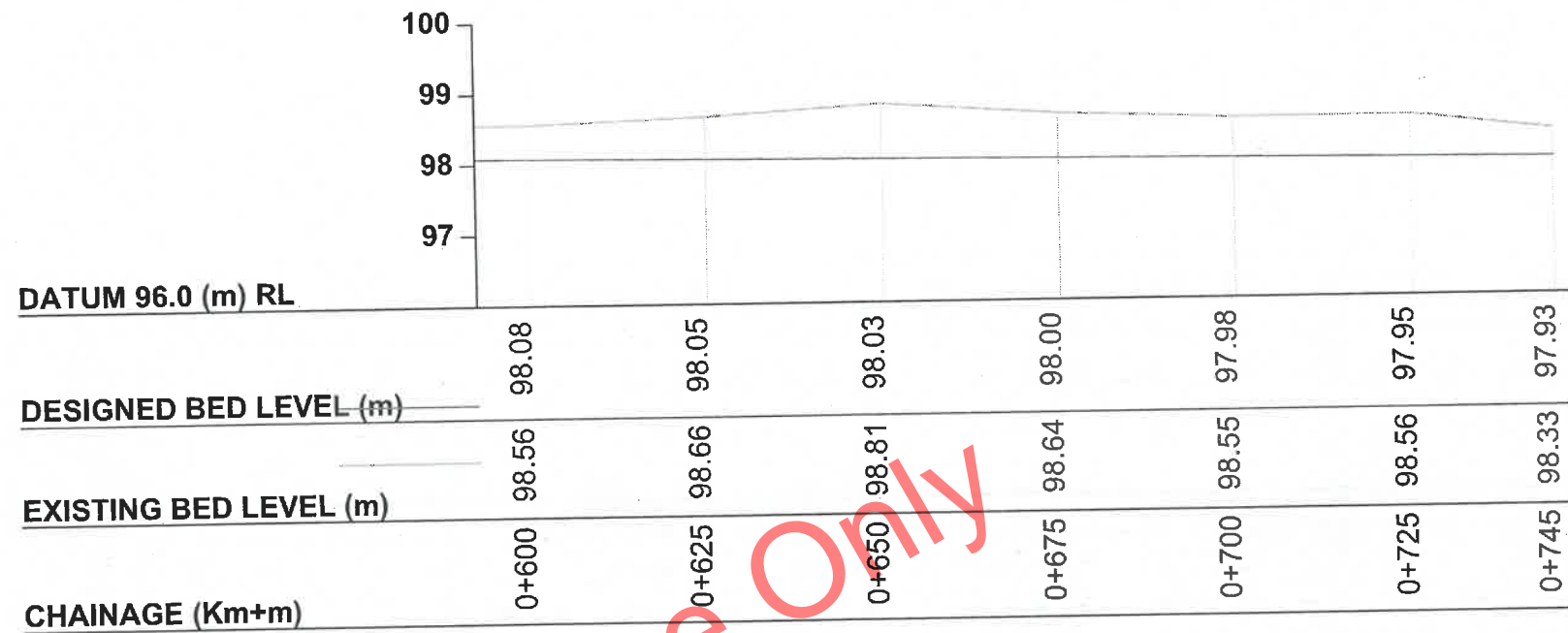
A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBURU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEPUTY DIR. OF IRRIGATION
SIGNATURE						
DATE						Eng. T. Rajagoburu Deputy Director of Irrigation

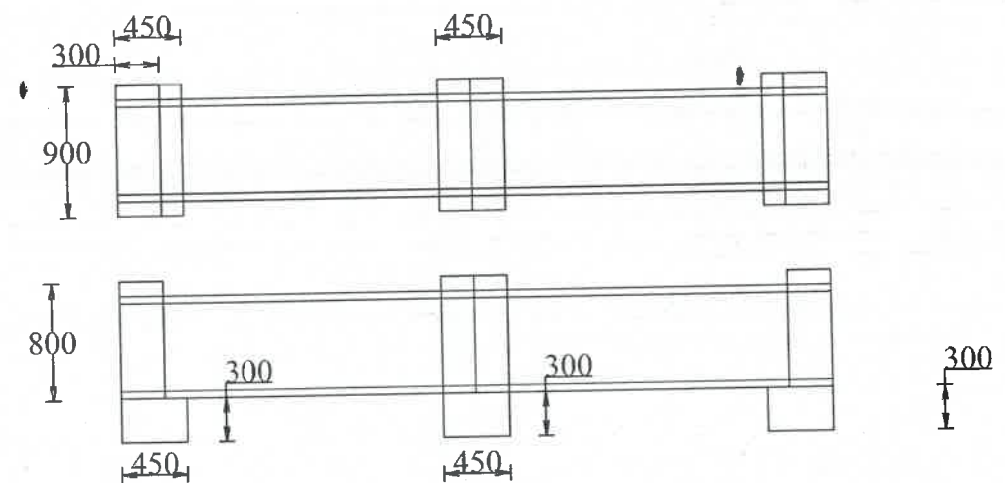
Eng.T.Rajagobu
Deputy Director of Irrigation
Vavuniya Range



IWWRMP -2024 DEPARTMENT OF IRRIGATION - NP MANNAR DIVISION VAVUNIYA RANGE		REHABILITATION OF WELIMARUTHAMADU TANK DOWN STREAM Improvement of Puliyakulam tank Improvement to Canal System				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>CAD BY</td><td>CHECKED BY</td><td>SUBMITTED BY</td><td>DRAWN CHECKED BY</td><td>DESIGN CHECKED BY</td><td>APPROVED BY</td></tr> <tr> <td>NAME</td><td>S.PRATHEEP</td><td>V.J.C.PERIES</td><td>ENG.R.THARAKAN</td><td>S.KUGATHASAN</td><td>ENG.N.VIJAYARAVI</td></tr> <tr> <td>DESIGNATION</td><td>TECHNICAL OFFICER</td><td>DRAUGHTSMAN</td><td>IRRIGATION ENGINEER</td><td>DRAUGHTSMAN</td><td>IRRIGATION ENGINEER</td></tr> <tr> <td>SIGNATURE</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td>DATE</td><td></td><td></td><td></td><td></td><td></td></tr> </table>						CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY	NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	SIGNATURE						DATE					
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IWWRMP/WM.DS/PULIYAKULAM/DRAINAGE CANAL/LSS-01		SCALE : V-1:100, H-1:1000		SHEET NO - 41 OFF 51		A3		Eng. T. Rajagobu Deputy Director of Irrigation Vavuniya Range																																	



Drainage Canal Profile



600mm Hume Pipe Culvert Details

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Puliyakulam Tank
Improvement to Canal System

IWWRMP/WM.DS/PULIYAKULAM/DRAINAGE CANAL/LSS-03 SCALE : V-1:100, H-1:1000 SHEET NO - 42 OFF 51 A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG N.VIJAYARAVI	ENG T.RAJAGOBUR
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping 1 : 1.358m
Stripping 2 : 1.371m
Earth Cutting : 0.608m²
Earth Filling : 0.548m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.33	99.28	99.36
DISTANCE (m)	2.50	0.40	2.50

Stripping 1 : 0.000m
Stripping 2 : 0.000m
Earth Cutting : 0.524m²
Earth Filling : 0.000m²

CS AT 50m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.72	99.17	99.24	99.23
DISTANCE (m)	1.50	0.40	0.50	2.00

Stripping 1 : 0.000m
Stripping 2 : 0.000m
Earth Cutting : 0.425m²
Earth Filling : 0.000m²

CS AT 25m

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.67	99.15	99.20	99.22
DISTANCE (m)	1.50	0.40	0.40	2.00

CS AT 0m

Stripping 1 : 1.335m
Stripping 2 : 1.365m
Earth Cutting : 0.326m²
Earth Filling : 0.540m²

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.02	99.01	99.00	98.99	98.98
DISTANCE (m)	2.50	1.00	0.00	1.00	2.50

Stripping 1 : 1.325m
Stripping 2 : 1.335m
Earth Cutting : 0.267m²
Earth Filling : 0.522m²

CS AT 125m

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.01	98.99	98.98	98.99	99.00
DISTANCE (m)	2.50	1.00	0.00	1.00	2.50

Stripping 1 : 1.360m
Stripping 2 : 1.345m
Earth Cutting : 0.241m²
Earth Filling : 0.544m²

CS AT 100m

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.98	98.99	98.99	98.98	98.99
DISTANCE (m)	2.50	1.00	0.00	1.00	2.50

CS AT 75m

Stripping 1 : 1.307m
Stripping 2 : 1.357m
Earth Cutting : 0.386m²
Earth Filling : 0.525m²

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.02	98.98	98.99	99.01	99.00
DISTANCE (m)	2.50	1.00	0.00	1.00	2.50

Stripping 1 : 1.291m
Stripping 2 : 1.984m
Earth Cutting : 0.268m²
Earth Filling : 1.085m²

CS AT 200m

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	99.02	98.96	98.97	98.45	98.96
DISTANCE (m)	2.50	1.00	0.00	1.00	2.50

Stripping 1 : 1.386m
Stripping 2 : 1.335m
Earth Cutting : 0.276m²
Earth Filling : 0.547m²

CS AT 175m

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.90	98.93	98.94	98.95	98.96
DISTANCE (m)	2.50	1.00	0.00	1.00	2.50

CS AT 150m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Puliyakulam Tank
Improvement to Canal System

IWWRMP/WM.DS/PULIYAKULAM/DRAINAGE CANAL/CSS-01

SCALE : V-1:100, H-1:1000

SHEET NO - 43 OFF 51

A3

CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHIEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER
SIGNATURE					
DATE					

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Eng. T. Rhjagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping 1 : 1.427m
Stripping 2 : 1.327m
Earth Cutting : 0.166m²
Earth Filling : 0.416m²

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.58	98.57	98.47	98.42	98.48	98.75
DISTANCE (m)	2.50	0.80	0.40	0.00	0.40	2.50

CS AT 500m

Stripping 1 : 1.338m
Stripping 2 : 1.394m
Earth Cutting : 0.512m²
Earth Filling : 0.405m²

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.75	98.74	98.73	98.65	98.81
DISTANCE (m)	2.50	0.70	0.30	0.30	2.50

CS AT 475m

Stripping 1 : 1.329m
Stripping 2 : 1.381m
Earth Cutting : 0.343m²
Earth Filling : 0.544m²

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.70	98.68	98.66	98.74	98.71
DISTANCE (m)	2.50	0.60	0.20	0.50	2.50

CS AT 450m

Stripping 1 : 1.360m
Stripping 2 : 1.360m
Earth Cutting : 0.668m²
Earth Filling : 0.540m²

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.84	98.85	98.57	98.33	98.86	98.87
DISTANCE (m)	2.50	0.70	0.20	0.60	2.50	

CS AT 575m

Stripping 1 : 1.359m
Stripping 2 : 1.321m
Earth Cutting : 0.812m²
Earth Filling : 0.530m²

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.94	95.64	95.66	98.92	98.94
DISTANCE (m)	2.50	0.60	0.25	0.60	2.50

CS AT 550m

Stripping 1 : 1.308m
Stripping 2 : 1.338m
Earth Cutting : 0.316m²
Earth Filling : 0.415m²

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.73	98.69	98.51	98.67	98.68
DISTANCE (m)	2.50	0.60	0.20	0.70	2.50

CS AT 525m

Stripping 1 : 1.342m
Stripping 2 : 0.326m
Earth Cutting : 1.138m²
Earth Filling : 0.525m²

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.88	98.88	98.88	98.88	98.90
DISTANCE (m)	2.70	0.50	0.50	0.50	2.50

CS AT 650m

Stripping 1 : 1.331m
Stripping 2 : 1.309m
Earth Cutting : 0.919m²
Earth Filling : 0.512m²

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.87	98.85	98.88	98.88	98.93
DISTANCE (m)	2.65	0.70	0.25	0.60	2.70

CS AT 625m

Stripping 1 : 1.371m
Stripping 2 : 1.327m
Earth Cutting : 0.599m²
Earth Filling : 0.539m²

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.75	98.77	98.57	98.75	98.77
DISTANCE (m)	2.50	0.60	0.25	0.70	2.50

CS AT 600m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Puliakulam Tank
Improvement to Canal System

IWWRMP/WM.DS/PULIYAKULAM/DRAINAGE CANAL/CSS-01 SCALE : V-1:100, H-1:1000 SHEET NO - 45 OFF 51 A3

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEP. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng.T.Rajagobu
Deputy Director of Irrigation

Stripping 1 : 1.289m
Stripping 2 : 1.340m
Earth Cutting : 0.778m²
Earth Filling : 0.508m³

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.69	98.63	98.71
DISTANCE (m)	2.50	0.60	2.50

CS AT 725m

Stripping 1 : 1.360m
Stripping 2 : 1.301m
Earth Cutting : 0.694m²
Earth Filling : 0.522m³

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.66	98.63	98.68
DISTANCE (m)	2.50	0.50	2.50

CS AT 700m

Stripping 1 : 1.377m
Stripping 2 : 1.332m
Earth Cutting : 0.821m²
Earth Filling : 0.543m³

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.69	98.63	98.75
DISTANCE (m)	2.50	0.40	2.50

CS AT 675m

Stripping 1 : 1.320m
Stripping 2 : 1.257m
Earth Cutting : 0.343m²
Earth Filling : 0.484m³

DATUM 97.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	98.44	98.41	98.46
DISTANCE (m)	2.50	0.50	2.50







CS AT 745m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

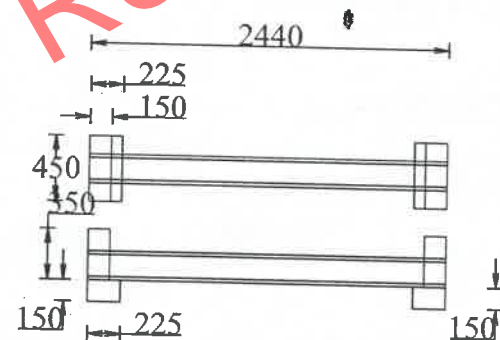
REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Puliyaikulam Tank
Improvement to Canal System

IWWRMP/WM.DS/PULIYAKULAM/DRAINAGE CANAL/CSS-04 SCALE : V-1:100, H-1:1000 SHEET NO - 46 OFF 51 A3

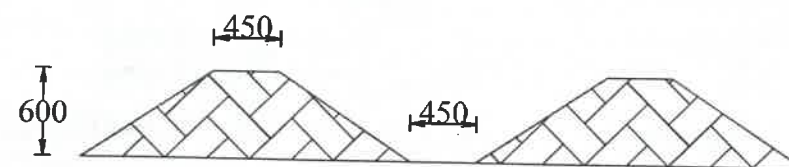
	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAJU	ENG.T.RAJAGORU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEPT. DIR. OF IRRIGATION
SIGNATURE						
DATE						

Eng. T. Rajagoru
Deputy Director of Irrigation
Vavuniya Range

	101								
	100								
	99								
DATUM 98.0 (m) RL									
DESIGNED BED LEVEL (m)	101.31	101.30	101.29	101.28	101.27	101.26	101.25	101.23	
EXISTING BED LEVEL (m)	100.41	100.31	100.28	100.29	100.14	100.09	100.11	100.09	
CHAINAGE (Km+m)	0+000	0+025	0+050	0+075	0+100	0+125	0+150	0+185	



150mm Hume Pipe Pam Turnout
Details



Canal Profile

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Maruthamadu Tank
Improvement to Canal System

IWWRMP/WM.DS/MARUTHAMADU/CANAL-1/LSS-01

SCALE : V-1:100, H-1:1000

SHEET NO - 47 OFF 51

A3

CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER
SIGNATURE					
DATE					

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping : 4.680m
Earth Filling : 1.125m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.52	100.54	100.54	100.55
DISTANCE (m)	2.50	0.60	0.50	2.50

CS AT 50m

Stripping : 4.614m
Earth Filling : 1.080m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.56	100.54	100.56	100.55
DISTANCE (m)	2.50	0.50	0.60	2.50

CS AT 25m

Stripping 1 : 1.745m
Stripping 2 : 1.669m
Earth Filling : 0.904m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.60	100.57	100.60	100.62
DISTANCE (m)	2.50	0.40	0.50	2.50

CS AT 0m

Stripping : 5.050m
Earth Filling : 1.762m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.37	100.34	100.36	100.40
DISTANCE (m)	2.50	0.50	0.40	2.50

CS AT 125m

Stripping : 5.092m
Earth Filling : 1.852m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.34	100.35	100.36	100.38
DISTANCE (m)	2.50	0.50	0.60	2.50

CS AT 100m

Stripping : 4.660m
Earth Filling : 1.153m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.55	100.49	100.51	100.49
DISTANCE (m)	2.50	0.50	0.40	2.50

CS AT 75m

Stripping : 5.214m
Earth Filling : 2.104m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.25	100.24	100.25	100.28
DISTANCE (m)	2.50	0.50	0.60	2.50

CS AT 185m

Stripping : 5.020m
Earth Filling : 1.709m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.41	100.40	100.30	100.35
DISTANCE (m)	2.50	0.40	0.50	2.50

CS AT 150m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Maruthamadu Tank
Improvement to Canal System

IWWRMP/WM.DS/MARUTHAMADU/CANAL-1/CSS-01

SCALE : V-1:100, H-1:1000

SHEET NO : 48 OFF 51

A3

CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIDYARAWI
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER
SIGNATURE					
DATE					

Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range

Stripping 1 : 0.894m
Stripping 2 : 0.940m
Earth Cutting : 0.348m²
Earth Filling : 0.213m²

DATUM 98.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.22	100.18	100.02	100.17	100.20
DISTANCE (m)	2.50	0.50	0.20	0.60	2.50

CS AT 200m

Stripping 1 : 0.841m
Stripping 2 : 0.769m
Earth Cutting : 0.440m²
Earth Filling : 0.149m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.23	100.22	100.09	100.24	100.26
DISTANCE (m)	2.50	0.40	0.50	0.50	2.50

CS AT 175m

Stripping 1 : 0.751m
Stripping 2 : 0.000m
Earth Cutting : 0.568m²
Earth Filling : 0.061m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.28	100.25	100.13	100.39	100.41
DISTANCE (m)	2.50	0.50	0.50	0.60	2.50

CS AT 156m

Stripping 1 : 0.724m
Stripping 2 : 0.612m
Earth Cutting : 1.067m²
Earth Filling : 0.091m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.23	100.21	100.08	100.66	100.24
DISTANCE (m)	2.50	1.00	0.40	0.40	2.50

CS AT 275m

Stripping 1 : 0.844m
Stripping 2 : 0.812m
Earth Cutting : 0.462m²
Earth Filling : 0.161m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.20	100.18	100.09	100.19	100.21
DISTANCE (m)	2.50	0.50	0.50	0.60	2.20

CS AT 250m

Stripping 1 : 0.996m
Stripping 2 : 0.922m
Earth Cutting : 0.368m²
Earth Filling : 0.239m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.16	100.14	100.05	100.16	100.19
DISTANCE (m)	2.50	0.60	0.20	0.50	2.50

CS AT 225m

Stripping 1 : 0.829m
Stripping 2 : 0.933m
Earth Cutting : 0.431m²
Earth Filling : 0.191m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.18	100.15	100.09	100.10	100.17
DISTANCE (m)	2.50	0.40	0.50	0.50	2.50

CS AT 325m

Stripping 1 : 0.810m
Stripping 2 : 0.851m
Earth Cutting : 0.709m²
Earth Filling : 0.188m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.20	100.18	100.09	100.14	100.12
DISTANCE (m)	2.50	0.50	0.50	0.50	2.50

CS AT 315m

Stripping 1 : 0.853m
Stripping 2 : 0.755m
Earth Cutting : 0.932m²
Earth Filling : 0.195m²

DATUM 99.0 (m) RL

DESIGNED BED LEVEL (m)

EXISTING GL (m)	100.12	100.11	100.05	100.07	100.12	100.15
DISTANCE (m)	2.50	1.20	0.80	0.50	0.60	1.30

CS AT 300m

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Maruthamadu Tank
Improvement to Canal System

IWWRMP/WM.DS/MARUTHAMADU/CANAL-2/CSS-01

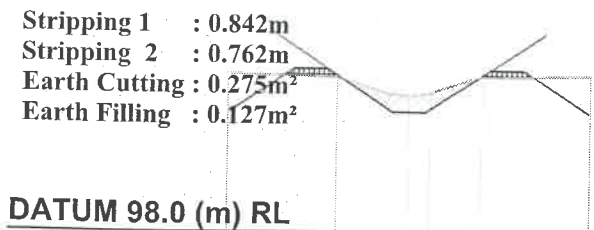
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SHEET NO - 50 OFF 51

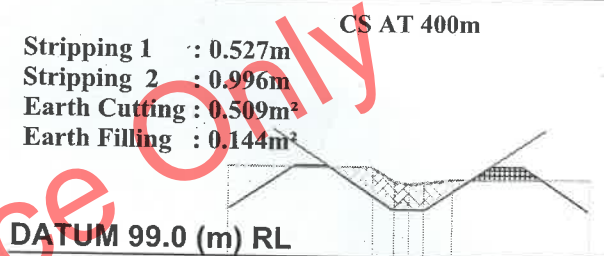
A3

CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER
SIGNATURE					
DATE					

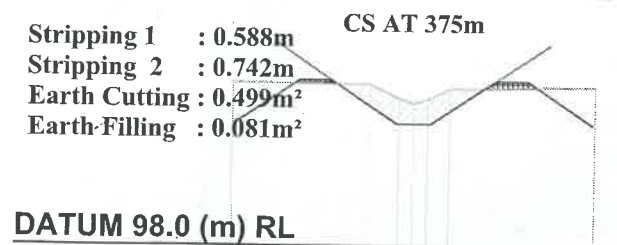
Eng. T. Rajagobu
Deputy Director of Irrigation
Vavuniya Range



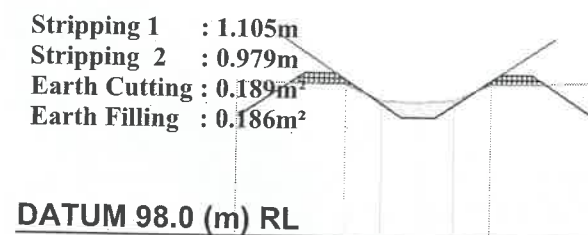
DESIGNED BED LEVEL (m)				
	100.17	100.14	99.83	100.16
EXISTING GL (m)	100.17	100.14	99.83	100.16
DISTANCE (m)	2.50	1.00	0.30	1.00



DESIGNED BED LEVEL (m)				
	100.25	100.24	100.04	100.10
EXISTING GL (m)	100.25	100.24	100.04	100.10
DISTANCE (m)	2.50	0.50	0.60	2.50



DESIGNED BED LEVEL (m)				
	100.24	100.23	100.02	100.20
EXISTING GL (m)	100.24	100.23	100.02	100.20
DISTANCE (m)	2.50	0.60	0.50	2.50



DESIGNED BED LEVEL (m)				
	100.12	100.10	99.86	100.14
EXISTING GL (m)	100.12	100.10	99.86	100.14
DISTANCE (m)	2.50	1.00	0.50	2.50

IWWRMP -2024

DEPARTMENT OF IRRIGATION - NP
MANNAR DIVISION VAVUNIYA RANGE

REHABILITATION OF WELIMARUTHAMADU TANK
DOWN STREAM
Improvement of Maruthamadu Tank
Improvement to Canal System

IWWRMP/MM.DS/MARUTHAMADU/CANAL-2/CSS-02

SCALE : V-1:100, H-1:1000

SHEET NO - 51 OFF 51

A3

CS AT 420m

	CAD BY	CHECKED BY	SUBMITTED BY	DRAWN CHECKED BY	DESIGN CHECKED BY	APPROVED BY
NAME	S.PRATHEEP	V.J.C.PERIES	ENG.R.THARAKAN	S.KUGATHASAN	ENG.N.VIJAYARAVI	ENG.T.RAJAGOBU
DESIGNATION	TECHNICAL OFFICER	DRAUGHTSMAN	IRRIGATION ENGINEER	DRAUGHTSMAN	IRRIGATION ENGINEER	DEPUTY DIRECTOR OF IRRIGATION
SIGNATURE						
DATE						

Eng.T.Rajagobu
Deputy Director of Irrigation
Vavuniya Range

For Reference Only

Section - 11

STANDARD FORMS (BID)

For Reference Only

For Reference Only

FORM OF BID SECURITY

[this Guarantee form shall be filled in accordance with the instructions indicated in brackets]

----- [insert issuing agency's name, and address of issuing branch or office]

Beneficiary: *Project Director
Integrated Watershed & Water resources Management Project,
2nd Floor, Mahaweli Centre Building,
No. 96, Ananda Kumaraswamy Mawatha
Colombo 07.*

Date: ----- [insert (by issuing agency) date]

BID GUARANTEE No.: ----- [insert (by issuing agency) number]

We have been informed that ----- [insert (by issuing agency) name of the Bidder] (hereinafter called "the Bidder") has submitted to you its bid dated ----- [insert (by issuing agency) date] (hereinafter called "the Bid") for the execution of '**Rehabilitation of Welimaruthamadu Tank Downstream**' under Invitation for Bids No. **LK-MoMDE-317179-CW-RFB** ("the IFB").

Furthermore, we understand that, according to your conditions, Bids must be supported by a Bid Guarantee.

At the request of the Bidder, we ----- [insert name of issuing agency] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ----- [insert amount in figures] ----- [insert amount in words]) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn its Bid during the period of bid validity specified; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB") of the IFB; or
- (c) having been notified of the acceptance of its Bid by the Employer/Purchaser during the period of bid validity, (i) fails or refuses to execute the Contract Form, if required, or (ii) fails or refuses to furnish the Performance Security, in accordance with the ITB.

This Guarantee shall expire: (a) if the Bidder is the successful bidder, upon our receipt of copies of the Contract signed by the Bidder and of the Performance Security issued to you by the Bidder; or (b) if the Bidder is not the successful bidder, upon the earlier of (i) the successful bidder furnishing the performance security, otherwise it will remain in force up to ----- (insert date)

Consequently, any demand for payment under this Guarantee must be received by us at the office on or before that date -----