

THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
MINISTRY OF AGRICULTURE, LIVESTOCK, LAND AND IRRIGATION



PROJECT MANAGEMENT UNIT

Integrated Watershed & Water Resources Management Project

PROCUREMENT OF WORKS UNDER OPEN COMPETITIVE BIDDING - NATIONALLY

Bidding Documents
For

**REHABILITATION OF TANK BUND (1 KM) INCLUDING RIP RAP, SPILL AND
SLUICE TO ADACHACHAKAL SCHEME - RETENDER**

Contract No: LK-MOMDE-499678-CW-RFB

Issued: May 2026

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



INVITATION FOR BIDS

Integrated Watershed and Water Resources Management Project (IWWRMP)

Project No: P166865, Loan No: IDA-6619-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 **work** 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-499678-CW-RFB	Rehabilitation of Bank Bund (1 km) including Rip Rap, Spill and Sluice to Adachachakal Scheme - Retender (Contract Period: 365days)	Grade: C4 or above Specialty: Irrigation & Drainage Canals	Bid security value: Rs. 3.4 Mn Validity: Up to 24.09.2026	40,000.00	Rs. 317 Mn & Rs. 66 Mn

3. 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 and Grade in Construction Industry Development Authority (CIDA) as mentioned in above Table.
4. The Bidding documents may be available for inspection in the <https://www.iwwrmp.lk/web/procurement/section/procurement-notice> website for references.
5. Interested bidders may obtain further information from **Senior Project Specialist (Procurement & Contracts)**, IWWRM Project, 2nd Floor, Mahaweli Centre Building, No. 96, Ananda Coomaraswamy 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 **25.05.2026 to 12.06.2026** (on working Days) by prior notification. (**Contact No: 0112691163**).
6. 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 Coomaraswamy Mawatha, Colombo 07. from **25.05.2026** up to **12.06.2026** 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 iwwrmp@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.
7. 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-499678-CW-RFB	Date: 03/06/2026 Time: 10.00 a.m. Location: Deputy Director's office, Batticaloa Range, Provincial Irrigation Department, Yard Road, Batticaloa.	Date: 05/06/2026 Time: 2.00 p.m. Conference Room, IWWRMP 2 nd Floor, Mahaweli Centre Building, No. 96, Ananda Coomaraswamy Mawatha, Colombo 07.	Date: 15/06/2026 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.
22.05.2025

Reference Only -IWWRMP

Section - 1

Instructions to Bidders (ITB)

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

Reference Only WWRMP

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

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 Section 1 – Instruction to Bidders

Section 2 - Bidding Data

Instructions to Bidders Clause Reference	Entry
1.1	<p>Employer’s Name and Address</p> <p>Name: <i>Project Director,</i> <i>Integrated Watershed & Water Resources Management Project</i></p> <p>Address: <i>2nd Floor, No.96, Ananda Coomaraswamy Mawatha, Colombo 07.</i></p>
1.1	<p>Scope of Works</p> <p>The works consist of the Rehabilitation of Tank Bund (1.2 Km) including RIP-RAP, Spill and Sluice to Adachchakal Scheme which including</p> <ol style="list-style-type: none"> i. Improvement to bund by Earth work and RIP RAP protection work. ii. Toe filter arrangement iii. Improvements to sluice barrel and abutment of spill <p>Located at <i>Adachchakal Tank in Batticaloa District</i></p>
1.2	<p>Time for Completion</p> <p>The Time for Completion of the whole work shall be 365 Calendar Days</p>
2.1	<p>Source of funds</p> <p>The source of funds is <i>International Development Association (IDA) – World Bank</i></p>
3	<p>Substitute by the following:</p> <ol style="list-style-type: none"> 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. 3.2 The World Bank requires compliance with its policy in regard to corrupt and fraudulent practices as set forth below. 3.3 In pursuance to this policy, The World Bank: <ol style="list-style-type: none"> a. Defines, for the purposes of this provision, the terms set forth below as follows: <ol 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

	<p>to mislead, a party to obtain financial or other benefit or to avoid an obligation;</p> <p>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;</p> <p>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;</p> <p>v. “obstructive practice” is:</p> <p>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</p> <p>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> <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 sub-consultants, 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-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</p>
--	---

Section 2 – Bidding Data

	<p>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>
<p>4.1</p>	<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 (Power of attorney etc.) • Total monetary value of construction work performed for each of the last five years • Experience in works of a similar nature and Complexity for each of the last ten years • Construction equipment • Staffing • Attach Work plan and methods;
<p>4.2 (a)</p>	<p>CIDA registration required The registration required; Specialty: <i>Irrigation and Drainage Canals</i> Grade: <i>C 4 or above</i></p>
<p>4.2 (b)</p>	<p>Average annual volume of construction work performed in last 10 years</p> <p>The average annual volume of construction work performed in the last five years shall be at least Rs. 324 Million. The last five years meaning that any of five years within last 10 years' period.</p>
<p>4.2 (c)</p>	<p>Experience in works of a similar nature and Complexity (Single Work) for each of the last 10 years shall be at least Rs. 135 Million (Excluding VAT).</p>

<p>4.2 (d)</p>	<p>Essential equipment</p> <p>Proposals for the timely acquisition (own, lease, hire, etc.) of the following essential equipment shall be;</p> <table border="1"> <thead> <tr> <th>No</th> <th>Equipment Type and Characteristics</th> <th>Min. Number Required</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Crawler excavator - 120 HP, Bucket capacity 1.0 m³</td> <td>3</td> </tr> <tr> <td>2</td> <td>Loader backhoe</td> <td>2</td> </tr> <tr> <td>3</td> <td>Concrete mixers 1 m³</td> <td>2</td> </tr> <tr> <td>4</td> <td>Tractor with trailers</td> <td>10</td> </tr> <tr> <td>5</td> <td>Porker vibrators</td> <td>4</td> </tr> <tr> <td>6</td> <td>Bar bending machine</td> <td>1</td> </tr> <tr> <td>7</td> <td>Transport equipment/ Tipper</td> <td>10</td> </tr> <tr> <td>8</td> <td>Water Bowser with sprinkler 5000 L Capacity</td> <td>1</td> </tr> <tr> <td>9</td> <td>Mobile Generator</td> <td>2</td> </tr> <tr> <td>10</td> <td>Plate Compactor</td> <td>2</td> </tr> <tr> <td>11</td> <td>Dozer</td> <td>2</td> </tr> <tr> <td>12</td> <td>Sheep foot Roller</td> <td>1</td> </tr> </tbody> </table>	No	Equipment Type and Characteristics	Min. Number Required	1	Crawler excavator - 120 HP, Bucket capacity 1.0 m ³	3	2	Loader backhoe	2	3	Concrete mixers 1 m ³	2	4	Tractor with trailers	10	5	Porker vibrators	4	6	Bar bending machine	1	7	Transport equipment/ Tipper	10	8	Water Bowser with sprinkler 5000 L Capacity	1	9	Mobile Generator	2	10	Plate Compactor	2	11	Dozer	2	12	Sheep foot Roller	1
No	Equipment Type and Characteristics	Min. Number Required																																						
1	Crawler excavator - 120 HP, Bucket capacity 1.0 m ³	3																																						
2	Loader backhoe	2																																						
3	Concrete mixers 1 m ³	2																																						
4	Tractor with trailers	10																																						
5	Porker vibrators	4																																						
6	Bar bending machine	1																																						
7	Transport equipment/ Tipper	10																																						
8	Water Bowser with sprinkler 5000 L Capacity	1																																						
9	Mobile Generator	2																																						
10	Plate Compactor	2																																						
11	Dozer	2																																						
12	Sheep foot Roller	1																																						
<p>4.2 (e)</p>	<p>Qualifications and experience of the Contract Manager and other Key personnel</p> <table border="1"> <thead> <tr> <th>Key personnel</th> <th>Qualifications</th> <th>No. of Position</th> <th>Experience</th> <th>Similar work Experience</th> </tr> </thead> <tbody> <tr> <td>1. Contract Manager</td> <td>Engineering Degree or equivalent qualification in a Relevant field</td> <td>1</td> <td>07 yrs</td> <td>03 yrs</td> </tr> <tr> <td>2. Environmental and Social Specialist</td> <td>Degree or equivalent qualification in a Relevant field</td> <td>1</td> <td>02 yrs</td> <td>-</td> </tr> <tr> <td>3. Health and Safety Specialist</td> <td>Degree or equivalent qualification in a Relevant field</td> <td>1</td> <td>02 yrs</td> <td>-</td> </tr> <tr> <td>4. Site Engineer</td> <td>B.Sc. (Civil Engineering) degree or equivalent</td> <td>1</td> <td>05yrs</td> <td>03yrs</td> </tr> <tr> <td>5. Engineering Assistant (Civil)</td> <td>NDT or equivalent</td> <td>1</td> <td>03 yrs</td> <td>01 yrs</td> </tr> <tr> <td>6. Work Supervisor (Civil)</td> <td>NCT</td> <td>2</td> <td>03 yrs</td> <td>01 yrs</td> </tr> </tbody> </table> <p>The Bidder must demonstrate that it will have suitably qualified Contract Manager and suitably qualified other key personnel in adequate numbers, as described in the</p>	Key personnel	Qualifications	No. of Position	Experience	Similar work Experience	1. Contract Manager	Engineering Degree or equivalent qualification in a Relevant field	1	07 yrs	03 yrs	2. Environmental and Social Specialist	Degree or equivalent qualification in a Relevant field	1	02 yrs	-	3. Health and Safety Specialist	Degree or equivalent qualification in a Relevant field	1	02 yrs	-	4. Site Engineer	B.Sc. (Civil Engineering) degree or equivalent	1	05yrs	03yrs	5. Engineering Assistant (Civil)	NDT or equivalent	1	03 yrs	01 yrs	6. Work Supervisor (Civil)	NCT	2	03 yrs	01 yrs				
Key personnel	Qualifications	No. of Position	Experience	Similar work Experience																																				
1. Contract Manager	Engineering Degree or equivalent qualification in a Relevant field	1	07 yrs	03 yrs																																				
2. Environmental and Social Specialist	Degree or equivalent qualification in a Relevant field	1	02 yrs	-																																				
3. Health and Safety Specialist	Degree or equivalent qualification in a Relevant field	1	02 yrs	-																																				
4. Site Engineer	B.Sc. (Civil Engineering) degree or equivalent	1	05yrs	03yrs																																				
5. Engineering Assistant (Civil)	NDT or equivalent	1	03 yrs	01 yrs																																				
6. Work Supervisor (Civil)	NCT	2	03 yrs	01 yrs																																				

	table above.
4.2 (f)	<p>Liquid assets and/or credit facilities required</p> <p>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. 68.0 Million</p> <ul style="list-style-type: none"> - Letter address to employer from respective banks - Proofing from Audited financial report, the report shall be endorsed by the IRD.
8.3	<p>The employer may conduct a site visit concurrently with the pre-bid meeting referred to in Clause 19.</p> <p>The site visit will be conducted as follow.</p> <p>Date & Time: 3rd June 2026 at 10.00 a.m Commencing Venue: Deputy Director’s office, Batticaloa Range, Provincial Irrigation Department, Yard Road,Batticaloa.</p>
10.1	<p>Clarification of Bidding Documents</p> <p>Employer’s address for clarification of bidding documents is:</p> <p>Name of Officer: Project Director, IWWRMP</p> <p>Address: 2nd Floor, Mahaweli Centre Building, No. 96, Ananda Coomaraswamy Mawatha, Colombo 07.</p> <p>Phone: 0112691163</p> <p>Facsimile: 0112691163</p> <p>E-mail: iwwrmp@slt.net.lk</p>
13.1(A) (j) 13.1(B) (d)	<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</p>

Section 2 – Bidding Data

	<p>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>
14.4	<p>Adjustments for change in cost</p> <p>The Contract is subject to price adjustment</p>
15.1	<p>Currency of Bid</p> <p>The bidders shall quote Rates and prices entirely in Sri Lankan rupees.</p>
16.1	<p>Period of Bid validity:</p> <p>The Bid shall be valid up to 119 days from the bid submission deadline date (12th October 2026).</p>
17.1	<p>Amount of Bid security:</p> <p>The amount of Bid Security is Sri Lanka Rupees: Three Million Four Hundred Thousand Sri Lanka Rupees (LKR 3,400,000.00)</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 (excluding closing date) 08th November 2026.</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>

Section 2 – Bidding Data

<p>19.1</p>	<p>Pre-Bid meeting</p> <p>Pre-Bid meeting <i>will be held</i> at the below mentioned Venue, time, and date of the pre-bid meeting.</p> <p>Date: 05/06/2026 Time: 2.00 P.M Venue: PMU Conference room, <i>Integrated Watershed & Water Resources Management Project</i> <i>2nd Floor, Mahaweli Centre Building,</i> <i>No.96, Ananda Coomaraswamy Mawatha, Colombo 07.</i></p>
<p>21.2 (a)</p>	<p>Employer’s Address for the purpose of bid submission is:</p> <p><i>Project Director</i> <i>Integrated Watershed & Water Resources Management Project</i> <i>2nd Floor, Mahaweli Centre Building,</i> <i>No.96, Ananda Coomaraswamy Mawatha,</i> <i>Colombo 07.</i></p>
<p>21.2 (b)</p>	<p>Identification number of Contract</p> <p>The identification Number of the Contract is:</p> <p>LK-MOMDE-496678-CW-RFB</p>
<p>22.1</p>	<p>Deadline for submission of Bids</p> <p>Deadline for submission of Bids: 15th June 2026 Time: 2:00 PM</p>
<p>25.1</p>	<p>Bid opening</p> <p>Venue, time, and date of bid opening.</p> <p><i>Venue: PMU Conference Room, IWWRM Project,</i> <i>2nd Floor, Mahaweli Centre Building,</i> <i>No.96, Ananda Coomaraswamy Mawatha, Colombo 07.</i></p> <p>Time: 2.00 P.M. Date: 15/06/2026</p>
<p>31.1</p>	<p>Preference for Domestic Bidders</p> <p>N/A</p>
<p>32</p>	<p>The procurement related complaints are specially covered under clause 3.26 to 3.31 and Annex III of the World Bank Procurement Regulations for IPF Borrowers, dated July 2016, revised November 2017 and August 2018.</p>

	<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 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>
<p>35.1</p>	<p>Amount of Performance Security</p> <p>The Standard Form of Performance Security acceptable to the Employer shall be a</p>

Section 2 – Bidding Data

	<p>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 shall 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>
<p>37</p> <p>37.1</p>	<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> <p>For contracts with estimated costs equal or exceeding Rs. 500 mn delete Clause 37 Adjudicator and insert following;</p> <p>Dispute Adjudication Board (DAB)</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>If either Party fails to nominate a member to the DAB or the Parties fail to agree upon the third member or the Parties fail to agree on the appointment of a replacement person to the DAB, then upon the request of either or both Parties the Institute for Construction Training and Development (ICTAD) shall appoint the relevant member to the DAB.</p>

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

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

Section 4 – Contract Data

Conditions of Contract Clause Number/s		
(*) 1.1.2.2 & 1.3	Employer's name and address	Name : Project Director, Integrated Watershed & Water Resources Management Project Address : 2 nd Floor, Mahaweli Centre Building, No.96, Ananda Coomaraswamy Mawatha, Colombo 07.
1.3	Contractor's name and address	Name: Address:
(*) 1.1.2.4 & 1.3	Engineer's name and address	Name: Deputy Director of Irrigation, Batticaloa Range Address: Deputy Director's office, Batticaloa Range, Provincial Irrigation Department, Yard Road, Batticaloa
	Engineer's Representative name and address	Name: Divisional Irrigation Engineer, Paddiruppu Division. Address: Divisional Irrigation Engineer's Office, Paddiruppu Division, Ward Road, Kaluwanchikudy
1.1.2.5	Key Personnel	
Contractor's Personnel	The following is added at the end of the sub-clause: "Contractor's Personnel includes Key Personnel as named in the Contract."	
1.1.2.5 Contractor's Representative	Name:..... Address:.....	
1.1.2.9	Replace existing Clause 1.1.2.9 with following: "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.	
(*) 1.1. 3.3	Time for Completion of the Works	The time for Completion is 365 <i>calendar days from the commencement date.</i>
(*) 1.1.3.7	Defects Notification Period	The defects Notification Period is 365 Days

1.1.6.8	The following is added after Sub-Clause 1.1.6.7 “ESHS” means environmental, social (including sexual exploitation and abuse (SEA) and gender-based violence (GBV)), health and safety.	
(*) 2.1	Right to access the Site	14 Days after the Letter of Acceptance
(*) 3.1	Engineer’s Duties and Authority	The Engineer shall obtain the specific approval of the Employer before taking action under the following Sub-Clauses of these Conditions: (a) Clause 13, where the final effect of the variations increases the 5% of the DCC.
4.1 Contractor’s General Obligations	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> ” “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.	
(*) 4.2	Amount of Performance Security	7 % of the Initial Contract Price, in the currencies and proportions in which the Contract Price is payable. The acceptable form is an Unconditional Guarantee. 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 3 % of the Initial Contract Price The ESHS Performance Security will be in the form of a “ <i>demand guarantee</i> ” in the amount(s) of 3% percent of the Accepted Contract Amount and in the same currency (ies) of the Accepted Contract Amount.

<p>4.2 Performance Security</p>	<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>
--	--

Reference Only - WWRMP

<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 <p>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.</p>
---	---

<p>6.8 Contractor's Personnel</p>	Key Personnel				
	Key personnel	Qualifications	No. of Position	Experience	Similar work Experience
	1. Contract manager	Engineering Degree or equivalent qualification in a Relevant field	1	07 yrs	03 yrs
	2. Environmental and Social Specialist	Degree or equivalent qualification in a Relevant field	1	02 yrs	-
	3. Health and Safety Specialist	Degree or equivalent qualification in a Relevant field	1	02 yrs	-
	4. Site Engineer	B.Sc. (Civil Engineering) degree or equivalent	1	05yrs	03yrs
	5. Engineering Assistant (Civil)	NCT or equivalent	1	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 style="text-align: center;">“6.9 (d).....; or”</p> <p>Sub-Clauses 6.8 (e) is inserted as follows:</p> <p style="text-align: center;">“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>“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.”</p>					

(*) 8.7	Liquidated damages for the Works	0.05 % of the Initial Contract Price per Day
(*) 8.7	The 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)	The percentage for adjustment of Provisional Sums	10 %
(*) 13.4(b) II	Overhead and profit factor percentage	17%
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	<table border="1"> <thead> <tr> <th>Indices No</th> <th>Input Name</th> <th>Input Percentage</th> </tr> </thead> <tbody> <tr> <td>P2</td> <td>Heavy Equipment</td> <td>25.32%</td> </tr> <tr> <td>P3</td> <td>Fuel</td> <td>24.85%</td> </tr> <tr> <td>M6</td> <td>Rubble (300 – 450mm)</td> <td>16.91%</td> </tr> <tr> <td>L3</td> <td>Unskilled Labour</td> <td>9.27%</td> </tr> <tr> <td>M8</td> <td>Sand</td> <td>5.30%</td> </tr> <tr> <td>L1</td> <td>Skilled Labour</td> <td>4.77%</td> </tr> <tr> <td>M5</td> <td>Gravel</td> <td>3.59%</td> </tr> <tr> <td colspan="2" style="text-align: center;">Total</td> <td style="text-align: center;">90%</td> </tr> </tbody> </table>	Indices No	Input Name	Input Percentage	P2	Heavy Equipment	25.32%	P3	Fuel	24.85%	M6	Rubble (300 – 450mm)	16.91%	L3	Unskilled Labour	9.27%	M8	Sand	5.30%	L1	Skilled Labour	4.77%	M5	Gravel	3.59%	Total		90%
		Indices No	Input Name	Input Percentage																									
		P2	Heavy Equipment	25.32%																									
		P3	Fuel	24.85%																									
		M6	Rubble (300 – 450mm)	16.91%																									
		L3	Unskilled Labour	9.27%																									
		M8	Sand	5.30%																									
		L1	Skilled Labour	4.77%																									
M5	Gravel	3.59%																											
Total		90%																											
The non-adjustable element shall be: All Psum & Lsum items																													
(*) 14.2	Total Advance Payment	20 % of the Initial Contract Price excluding provisional sums and contingencies																											
(*) 14.3(c)	Percentage of retention	10 % of each Interim Payment Certificate																											
(*) 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																											

<p>(*) 14.5</p> <p>Issue of Interim Payment Certificate</p>	<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 watercourses 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) failure 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>	
<p>(*)14.8</p>	<p>Alternative method for Payment of Retention</p>	<p>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.</p>

(*) 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 Equipment</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: (i) of the Contractor's employees per event</td> <td>Rs 1,000,000 per employee</td> <td>No Deductible</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 Equipment	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: (i) of the Contractor's employees per event	Rs 1,000,000 per employee	No Deductible	(ii) of other people per event	Rs 1,000,000 per person	No Deductible
	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 Equipment	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: (i) of the Contractor's employees per event	Rs 1,000,000 per employee	No Deductible																		
(ii) of other people per event	Rs 1,000,000 per person	No Deductible																		
	<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>																			

<p>19.2</p>	<p>Appointment of the Dispute Adjudication Board</p>	<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>
-------------	--	---

Reference Only MW/RMP

<p>19.3</p>	<p>Failure to Agree on the Composition of the Dispute Adjudication Board</p>	<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>
<p>19.4</p>	<p>Obtaining Dispute Adjudication Board Decision</p>	<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>

Reference Only - IWRMP

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>

Reference Only - IWRMP

		<p>Composition of the Arbitral Tribunal :</p> <p>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 :</p> <p>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 :</p> <p>The venue of arbitration shall be in Sri Lanka.</p> <p>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> <ul style="list-style-type: none"> 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” 	

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 enter 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 forms 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 15 (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 42Days 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..

Reference Only WWRMP

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 copies to the members of the DAB of 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 endeavour 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 provisions. 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: _____	SIGNED by: _____	SIGNED by: _____
for and on behalf of the employer in the presence of	for and on behalf of the Contractor in the presence of	the Member in the presence of
Witness: _____	Witness: _____	Witness : _____
Name: _____	Name: _____	Name : _____
Address: _____	Address: _____	Address : _____
Date: _____	Date: _____	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 bowsers, 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.

Reference Only -IWWRMP

Reference Only - IWRMP
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 Tank Bund (1 km) including Rip Rap, Spill and Sluice to Adachachakal Scheme – Retender** **IMMOMDE-499678-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 Tank Bund (1 km) including Rip Rap, Spill and Sluice to Adachachakal Scheme - Retender LK-MOMDE-499678-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-499678-CW-RFB** dated ----- with you, for the --- ----- *[insert "construction"]* of **Rehabilitation of Tank Bund (1 km) including Rip Rap, Spill and Sluice to Adachachakal Scheme - Retender** (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. _____ 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.

Reference Only -IWWRMP

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-499678-CW-RFB** dated ----- with you, for the ----- construction of **Rehabilitation of Tank Bund (1 km) including Rip Rap, Spill and Sluice to Adachachakal Scheme - Retender** (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-499678-CW-RFB** *[reference number of the contract]* dated ----- with you, for the execution of ----- *[name of contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, when the works have been 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)
<i>[insert year]</i>	<i>[insert amount and percentage]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Employer: <i>[insert full name]</i> Address of Employer: <i>[insert street/city/country]</i> Reason(s) for suspension or termination: <i>[indicate main reason(s) e.g. for GBV/ SEA breaches]</i>	<i>[insert amount]</i>
...	...	<i>[list all applicable contracts]</i>	...

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)
<i>[insert year]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Employer: <i>[insert full name]</i> Address of Employer: <i>[insert street/city/country]</i> Reason(s) for calling of performance security: <i>[indicate main reason(s) e.g. for GBV/ SEA breaches]</i>	<i>[insert amount]</i>

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)

Section - 6

Specifications

Reference Only - NWRMP

Specifications

Technical Specifications relevant to this contract consist of two parts.

Part 1 - General Technical Specifications

The following specifications published by the Institute for Construction, Training and Development (ICTAD) are applicable as General Specifications for this Contract.

CIDA/SP/102	Irrigation & Land Drainage -- [1st Edition – January 2017]
SCA/4/I	Building Works (Vol. I) – [3rd Edition (Revised) – July 2004]
SCA/4/II	Building Works (Vol. II) – [2nd Edition (Revised) – October 2001]

These publications are not issued with this Bidding Document and the Bidder shall purchase the same from CIDA.

Part 2 - Particular Technical Specifications

Particular Technical Specifications includes project specifications and conditions of particular specification which includes modifications and amendments 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 the construction phase.

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.

2. Land Available

The land available to the Contractor free of charge for the duration of the Contract shall be as follows:

- a. The land occupied by the Permanent Works;
- b. The Contractor is responsible for finding out the barrow area and obtaining the necessary approvals for mining and transport.
- c. The land as approved by the Engineer for Contractor's housing, plant yards, workshops and offices, after approval has been given for the locations and layouts of such installations.

3. Road Access to the Site

3.1 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.

3.2 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.

3.3 Tracked Vehicles

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

3.4 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.

4. Contract Documents and Drawings

4.1 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 Engineer and all further instructions issued by him shall be kept at all times by the Contractor on the Site and made available to the Engineer and his staff.

4.2 Construction Drawings

Based on the Tender drawings issued, the Contractor shall prepare and submit all construction and shop drawings. 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 catalogs in duplicate. All drawings and calculations submitted for approval shall be signed, checked and approved by the Contractor prior to submission. The drawings and calculations shall be signed by a qualified Engineer responsible for the design.

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 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.

4.3 As-built Drawings

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

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.

5. Schedules and Reports

5.1 Construction and Contractual Program

- a. Within 01 month of the award of the 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 bar chart form shall outline the Contractor's activities necessary to complete the Works within the period required for completion. 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.

5.2 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 the 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 item 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 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.

6. Use of Construction Facilities and Work Area

6.1 Right of Use Water in the Reservoir for Cultivation

The farmers will cultivate both Maha and Yala during the 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 Employer has given possession to the Contractor or which have been constructed or acquired by the Contractor for use in constructing the Works.

6.2 Reducing water level in Reservoir for the work

The water level in the reservoir shall not be reduced before for completion of Yala cultivation for the upstream work of the embankment. Once the Yala cultivation is completed water level can be reduced with the approval of the Engineer until the commencement of the next monsoonal rain or the next Maha cultivation which comes early.

7. Contractor's Equipment

The Contractor shall supply, install, operate, maintain and subsequently remove all 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

8. Standards

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.

9. Setting out Works

9.1 Existing Survey Data

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

9.2 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, labour and equipment including stakes, templates, patterns, platforms and special labour 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.

9.3 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.

9.4 Survey Operatives for the Engineer

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

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

9.5 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.

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

9.6 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.

10. Safety Precautions

10.1 General

The Contractor shall comply with any safety instructions given by the Engineer. The Contractor shall exercise every reasonable precaution to protect from injury any person or property. The Contractor shall erect and maintain all necessary temporary fencing, barricades, barriers, signs and lights and provide fire alarm, fire extinguishing and firefighting services at strategic points on the Site. The Contractor shall provide adequate ventilation, lighting and safe working conditions for his workmen engaged in all aspects of the Works. The Contractor shall adopt and enforce such rules and regulations as may be necessary, desirable or proper, to safeguard the public, and all persons engaged in the work and its supervision. Safety measures shall include but shall not be limited to those safety measures mentioned in this Clause.

10.2 Safety Officer

The Contractor shall constantly employ, during the progress of the Works, an employee qualified in safety, and familiar with the type of work being performed, whose assignments shall include initiation of measures for the protection of health and the prevention of accidents and who shall see, by personal inspection, that all safety rules and regulations are enforced.

The Contractor shall hold regular scheduled safety meetings at least once each month with his engineers, supervisors and foreman and, when instructed, with the Engineer. The Contractor shall keep the Engineer advised as to when these meetings are to be held and shall provide the Engineer with a copy of the proposed agenda.

10.3 Temporary Fencing

If required the Contractor shall erect, maintain and remove suitable and approved temporary fencing to enclose such areas of the Permanent Works and areas of land occupied by the Contractor within the Site as may be necessary to implement his obligation under the Contract, in an approved manner. Safety fences shall be erected around electrical and mechanical equipment before that equipment is connected to any electrical supply.

Where any temporary fence has to be erected alongside a road, footpath, or other public thoroughfare, it shall be of the type required by and shall be erected to the satisfaction of the Government authority concerned.

10.4 Lighting

Safety measures shall include but shall not be limited to the following:

Without limiting the generality of Clause 4.8 of the Conditions of Contract, the Contractor shall provide sufficient lighting to ensure that, in all places where work is in progress;

10.5 Signs

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 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.

If the Engineer considers that the system of signs provided by the Contractor is inadequate to ensure safety, or is unsatisfactory in other respects, the Contractor shall add to, amend, or otherwise change the system to the satisfaction of the Engineer.

10.6 Accident Reports

The Contractor shall promptly report to the Engineer in the form to be prescribed, all accidents involving death or serious injury to staff or workmen and furnish monthly reports of all accidents to staff or workmen involving loss of time, giving such information as may be instructed by the Engineer.

10.7 First Aid Officer

The Contractor shall constantly employ for the duration of the Contract a First Aid Officer and shall provide first aid and ambulance facilities in accordance with the General Conditions of Contract.

10.8 Other Safety Measures

Safety instruction – the Contractor shall at his own cost supply and issue to his employees, those of his sub-contractors and the Engineer, printed booklets of pocket size, on the scale of one per person, in Sinhalese and Tamil and in other languages used by his employees at Site, instructions based on good practice. Within 60 days of the Engineer's written order to commence the Works, proof copies of the booklet shall be submitted to the Engineer for approval before printing and amendments shall be made to the booklet to his entire satisfaction. The Contractor shall issue the booklet immediately after printing as required by this Clause and ensure that all employees are fully conversant with the instructions. Safety instructions shall deal with all safety including;

- a. Protective clothing, headgear and footwear
- b. Use of lifting equipment
- c. Use of drilling equipment
- d. Use and storage explosives
- e. Earthmoving
- f. Formwork erection
- g. Concreting
- h. Structural steel work
- i. Compressed air
- j. Welding and painting
- k. Routine for accidents or fires; and
- l. Watchmen, warning notices and barriers

The Contractor shall allow for ten (10) booklets for the use of the Engineer.

10.9 Provision of Personal Protective Equipment (PPE)

No construction work shall be carried on the Site before appropriate Personal Protective Equipment (PPE) is available for the operations planned. The Contractor shall, within 28 days of the Commencement Date, prepare for the consent of the Engineer a schedule of Personal Protective Equipment (PPE) for free issue, including replacement, to all persons employed on the Works,

including employees of the Engineer and Employer. Provision shall also be made for supplying PPE to site visitors.

The schedule shall address the need to provide such clothing and equipment suitable for the climatic conditions on the Site.

The Contractor shall immediately implement the issue of such PPE once he has obtained the Engineer's consent to the schedule. During the course of the Contract, he shall ensure that at no time do the stocks of PPE in his Site stores fall below the level consented to by the Engineer in that schedule. As proof of this, he shall submit to the Engineer each month during the Contract an inventory of PPE showing records of issue and demonstrating the levels of such PPE being retained in his Sites stores. Furthermore, all persons employed by his on the Works shall be made aware of the need to wear such clothing and to use such equipment, and to maintain the same in good working order.

The Engineer will monitor the effectiveness of the implementation of the use of the PPE during the course of the Works, and may certify the reduction of the value of some of all of the relevant Bill of Quantities items in the Monthly Statements in the event of non-usage of PPE on the Site.

Pursuant to Clause 6.9 of the Conditions of Contract the Contractor shall remove from the Works any person who fails to wear PPE, or to use equipment as intended, or who has otherwise failed to comply with the Site Safety Regulations, and any supervisor who fails to enforce those regulations. The Contractor shall make this a condition of employment for every employee engaged in construction work.

11 Temporary Works

11.1 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.

11.2 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.

11.3 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.

12 Contractor's Offices, Camp and Facilities

12.1 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.

12.2 Construction Camp

- a. The Contractor shall set up his camp as proposed in his Tender and approved in the Letter of Acceptance, for housing, camps and for other required facilities and amenities for his employees and for the employees of his sub-contractors.
- b. 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.
- c. 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.
- d. All buildings shall at all times be open to inspection by the Engineer. Any instruction given by the Engineer for the proper cleaning, disinfection and general maintenance in a 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.

12.3 Removal of Buildings and Facilities

- a. On the completion of the Works, all buildings and facilities provided by the Contractor in accordance with the provisions of this Clause shall be removed from the Site by the Contractor unless otherwise instructed by the Engineer.
- b. Foundations of all buildings and structures shall be broken up and removed from the site. All areas shall be restored and left in a clean and tidy condition to the satisfaction of the Engineer.

13 Inspections and Material Testing Laboratory

13.1 Inspections

The Contractor shall carry-out the inspections and tests stipulated in the respective sections of these Specifications in the presence of the Engineer or any person authorized by him.

No work shall be covered up or put out of view without the approval of the Engineer and the Contractor shall afford full opportunity for the Engineer to examine and measure any work which is about to be covered up or put out of view and to examine foundations before the Permanent Works is placed thereon.

The Contractor shall give due notice to the Engineer whenever any such work or foundation is or are ready or about to be ready for examination and the Engineer will without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly examine and measure such work or examine such foundations.

Should it be impossible for the Engineer to witness such inspections and tests, the Contractor shall record the results of such inspections and tests using the form specified by the Engineer, and submit to the Engineer the report by attaching the record photographs of the said inspections and tests as the record and report. These records and reports shall be subject to the approval of the Engineer.

These records and reports shall be prepared and submitted to the Engineer for approval irrespective of whether or not the Engineer has witnessed such inspection and tests.

In the case where the Engineer has approved and qualified the results of such inspections and tests, the Contractor may proceed to the next stage of the Works.

The inspections and tests specified herein shall include the following:

- a. Inspection of volume of work executed
- b. Inspection and test of construction materials
- c. Inspection of excavation (including bed surface)
- d. Inspection of reinforcement bar assembly
- e. Inspection of formwork
- f. Inspection of the dimensions of the structures
- g. Inspection of disposal of excavated materials
- h. Identification test of quality of concrete at site (cast-in-place concrete)
- i. Inspection of backfilling
- j. Other tests and inspections the Engineer deems necessary
- k. Other tests and inspections required according to pertinent regulations, codes and standards

The following tests and inspections shall be executed in the presence of the Engineer;

- a. Witnessing at concrete placing
- b. Compression test of concrete
- c. Other tests and inspections the Engineer deems necessary

13.2 Material Testing Laboratory

The Contractor shall provide and maintain until completion of the Works a material testing laboratory complete with furnishing, fixtures and equipment and carry-out all routine tests including preliminary tests for the concrete works as required by the Technical Specifications.

13.3 Equipment

The Contractor shall provide and maintain furnishings and equipment of approved manufacturers to carry-out testing.

The laboratory shall at all times be provided with a sufficient stock of consumable equipment, to allow for usage, breakage and deterioration. In the event of any item of equipment becoming unserviceable through any cause the Contractor shall, if required to do so by the Engineer, order replacement to be air-freighted from the country of origin.

The Contractor shall supply all equipment, supplies and copies of the relevant standards for the laboratory necessary to perform the tests stipulated in the Technical Specifications. These tests shall include but not be limited to the following:

- a. In concrete – temperature, slump, density, flow, air content
- b. In aggregate – grading, water absorption, specific gravity, soundness, flakiness, elongation, friable practices.
- c. In soil – grading, specific gravity, density (loose and compacted), moisture content, hydrometer, plasticity

The Contractor shall also provide any additional equipment as may be required by the nature of work or by the Engineer.

13.4 Costs

The tests required by the Technical Specifications or by the Engineer will be carried out by the Contractor in the 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.

13.5 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.

14 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
- 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.

15 Dealing with Water

15.1 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 groundwater 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 works for which dealing with water is required.

15.2 Approval of Proposals for Dealing with Water

Prior to the 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.

15.3 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 fill material. Such control may require supplementing approved de-watering methods by the use of perforated pipe under-drains leading to sumps 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 cutoff trench, the water level at every point in the cutoff trench shall be maintained below the bottom of the cutoff trench until the compacted fill in the cutoff 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 by the Engineer, the pipe drains, if any, and surrounding filter material shall be filled with approved grout composed of water and cement or clay.

16 Tests for Borrow Areas and Quarries

16.1 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 Field Laboratory at site and/or in the Employers Laboratory of the Irrigation Department.

16.2 Tests on Soils

From areas approved out for exploitation, the following tests 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) Mechanical Analysis, and
- (iv) Proctor Compaction.

The particle size grading for the fill materials are 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.

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

Table 16.2.1 - 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

16.3 Tests on Gravel

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

- (i) Mechanical Analysis, and
- (ii) Atterberg Limits.

16.4 Tests on Sand

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

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

16.5 Tests on Rock

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

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

17 Embankment Filling**17.1 General**

The embankment shall be constructed to the dimensions shown on the drawings with approved materials obtained from designated borrow areas and approved excavations. The distributing and gradation of the material throughout the embankment shall be of such homogeneous texture such that the fill will be free from lenses, pockets, streaks or layers of material differing substantially in gradation from the surrounding material. Relatively higher plastic material available from borrow areas shall be used in the central portion and previous material from approved excavations on the downstream slope of the embankment respectively.

The Engineer will give guidance in the selection of material for placement in different parts of the embankment on the basis of investigations done and/or tests carried out. Materials used in the embankment fill shall be continuously subject to the approval of the Engineer.

The combined excavation and placing operations shall be such that the material when compacted in the fill will be blended sufficiently to obtain the required degree of compaction. Successive loads of material shall be placed in layers so as to produce the best practicable distribution of the material subject to the approval of the Engineer for which purpose he may designate the locations in the fill where the individual loads shall be deposited.

Cobbles and rock fragments in material of homogeneous texture, of dimension larger than 75 mm shall not be placed in the fill. Such cobbles and rock fragments found in otherwise approved fill material shall be removed by the Contractor either at the site of excavation or after being transported to fill but before the materials are placed and compacted and shall be disposed as directed by the Engineer.

17.2 Placement

Embankment material shall be placed in continuous rows/lanes approximately parallel to the axis of the embankment and in approximately horizontal layers of thickness between 200 and 300 mm before compaction by machinery. If hand tools are used for compaction the thickness of layer shall be between 100 to 150 mm. the embankment may be constructed in separate reaches provided that the slopes of the bonding surfaces parallel to the dam axis between the completed portion of the embankment and material to be newly placed shall not be steeper than 6 horizontal to 1 vertical. The difference in elevation during construction between any adjacent lanes shall not exceed 500 mm.

17.3 Moisture Content

From a practical standpoint a moisture range of 1% less than the optimum and 1% more than the optimum may be regarded as satisfactory during compaction. Water required for conditioning the fill may be conveyed by pipeline or bowser and applied by sprinkler arrangement and throttle to control quantity. Jets may be used in confined areas provided that the nozzle is of an approved size and delivery rate.

The required water may added to the previously rolled layer before placing of the material for the next layer, or added to the top of the next layer, or a combination of both which will give the best results for obtaining a uniform moisture distribution throughout the layer. Harrowing will be required to work the moisture into the layer. Water may be added to the borrow areas by any of the methods described above on the day prior to exploitation, particularly where the ground is too hard and dry. This shall not preclude the addition of a further quantity of water to meet any deficiency in the placement moisture content just before spreading and compaction on the embankment. The methods described above adopted by the Contractor shall be subject to the approval of the Engineer.

If the moisture content of the previously rolled embankment or the material placed for compaction on fill is found to be above the specified limit before compaction then the material shall be dried out to the specified moisture content limit assisted by discing and/or harrowing. In such instances all hauling and other equipment except those required for discing or harrowing shall be kept off the surface to prevent rutting.

In case of stoppage in placing and compacting arising from approved construction or from holiday period exceeding one week or from unforeseen circumstances etc., the top layer placed and compacted before the stoppage shall be graded and rolled with a smooth wheel roller to facilitate surface run-off during the stoppage. Prior to resumption of work the top layer shall be scarified and moistened or allowed to dry as found necessary and approval of the Engineer obtained for continuing the operations.

17.4 Compaction

When each layer has been conditioned to 100% +/- 1% of the optimum moisture content, it shall be compacted by a towed tamping roller, self-propelled vibratory roller, pneumatic tire roller or any other suitable compacting equipment. Compaction with sheep-foot rollers shall be continued until the dry unit weight of the compacted material is not less than 98% of the standard "A" Proctor dry unit weight, which is the dry unit weight at optimum moisture content. The number of passes of the compacting equipment required to produce the above unit weight shall be determined from trial embankment tests conducted by the Contractor and witnessed by the Engineer. The layer shall be compacted in a direction parallel to the dam axis. The compacting equipment shall travel with adequate overlap to ensure thorough and complete compaction.

The embankment shall be brought up in approximately horizontal lifts. Proper compaction shall be ensured throughout the entire embankment. The outer edges of the embankment shall be processed to true slopes which shall be maintained until final completion and acceptance. To ensure proper compaction of true slope the other edges shall be made sufficiently wide and trimmed to true slopes.

17.5 Tests for Embankment

When an area of the embankment has been rolled, the bulk unit weight, moisture content and dry unit weight shall be obtained from the following conditions:

- (i) For every 750 cubic meters of material placed in each layer,
- (ii) Where embankment operations are concentrated, namely when two or more layers are placed over each other on the same day the frequency of tests shall be more than (i) above as determined by the Engineer,
- (iii) At every location where the degree of compaction is considered doubtful by the engineer,
- (iv) At locations of embedded installations at the discretion of the Engineer.

Compacted samples from every 7,500 cu meters shall be tested for the following.

- (i) Atterberg Limits,
- (ii) Mechanical Analysis, and
- (iii) Proctor Compaction

18. Rip Rap for Protection Upstream Face of Dam

18.1 Rip-rap for Protection of Embankment

Rip-rap required for protection of the 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.

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 5% loss by weight after 500 revolutions. The sizes of stones in the specified thickness of rip-rap shall be reasonably well grades with 50% being of the average individual size from 0.5 to 1.5 times the average size.

Rip-rap shall be dumped in place mechanically on a properly graded filter as bedding material which is described below. Compaction by equipment is not required for rip-rap, but it shall be dumped over the upstream face either preferably as the embankment is being raised or after the completion of same. The rock fragments of the rip-rap shall be dumped and graded off to ensure filling of voids, uniform distribution of stones, thus producing layers of specified thickness. Hand placing will be required only to the extent necessary to secure the above results.

Bedding material for rip-rap shall consist of quarry or river gravel placed adjacent to the layer of fill material of the embankment. Quarry gravel shall consist of rounded or water-worn pebbles of irregular shape and size occurring in natural deposit mixed with minimal clay content. If specifically provided for in the Bill of Quantities and/or the Drawings, river sand and graded metal shall be used as bedding materials instead of gravel. The bedding material shall be placed on the embankment slope as obtained from the quarry/spoil dump in uniform layers of specified thickness. Compaction by equipment is not required but the bedding material may be densified by wetting if required by the Engineer. Rip-rap shall then be placed on the bedding material as described above.

Rip-rap and bedding materials shall be measured separately of the volume of each in place to the lines, grades and thickness shown on the drawing or established by the Engineer. Payment shall be made separately for each at the unit price per cubic meter.

19. Dam Instrumentation

19.1 General

The Contractor shall be responsible for the procurement of all the instrumentation components in due time. Before placing the purchase order the Contractor shall seek for the Engineer's approval of the instruments.

The equipment to be supplied and installed comprises the following:

- (a) Levelling monuments and fix points;
- (b) Standpipe piezometers.
- (c) V notches incorporated to culvert outlets

The Contractor shall be prepared to accept changes in the instrumentation layout or additional installations of instruments, if required by the Engineer, and shall also be prepared to receive installation instructions for changed site conditions. The Contractor shall provide access to any instrumentation location at any time during the construction.

19.2 Levelling Monuments and Fix points

A network of leveling points and fix points shall be installed on the embankment as indicated in the drawings or as directed by the Engineer.

If not already existent, a minimum of 2 permanent fix points shall be established on each abutment at location shown by the Engineer. The location of each fix point shall be marked in detail on drawings supplied by the Contractor. The leveling monuments shall be built along the dam crest at intervals of 100 m close to the upstream dam shoulder.

The Contractor shall supply, install and survey all monuments including survey pins, pipes and caps, concrete and backfill as shown on the drawings or as directed by the Engineer. Levelling pins shall be of stainless steel, cast iron or steel bolts embedded in concrete of suitable size. A stainless steel plate fixed to the monument shall mark the chainage of the dam.

Immediately after installation of any point, its position and level shall be precisely surveyed. The level and coordinates shall be computed and shall be indicated in the "As-built drawings" to be submitted by the Engineer.

19.3 Installation of Standpipe Piezometers

Standpipe piezometer tips shall be of porous ceramic not less than 150 mm long and at least 40 mm diameter and shall be protected at each end by un-plasticized polyvinyl chloride (uPVC) fittings. The ceramic shall be high air-entry type.

Standpipe tubing shall consist of uPVC tubing to BS 3506 Class 6. Tubing to extend existing standpipes shall be of the same size as the existing tubes and have an appropriate jointing detail to provide a flush internal joint.

During earthwork filling operations standpipes shall be extended in 1.5 m lengths. Fill material shall then be placed and compacted around the tube by hand in a mound shape, the tube being maintained vertical with the top of the mound 750 mm higher than the surrounding fill at all times.

Installation of standpipe piezometers in boreholes shall be as follows:

- (i) Each piezometer shall be installed in a separate borehole 100 mm minimum diameter. The installation shall be completed as soon as practicable after drilling so as to minimize the amount of deterioration or alteration that occurs in the ground around the location of the piezometer tip. Holes shall be cased through unstable ground.
- (ii) After drilling to the required depth, using percussive or rotary methods, but without the use of air flush or drilling mud in the vicinity of the tip position, the hole shall be flushed clean.
- (iii) Sand falling wholly between the limits of grading 1200 and 2000 microns will be placed to a minimum depth of 150 mm at the base of the hole by flushing using clean water and a tremie pipe. The piezometer tip, saturated in water prior to the installation, shall then be coupled to the appropriate standpipe tube and lowered onto the sand, and more sand added by flushing through the tremie pipe to surround and cover the tip and to fill the hole to the level shown on the drawings.
- (iv) A plug of bentonite formed of either stiff hand rolled balls or pellets shall then be tamped over the sand approximately 500 mm thick. The hole shall then be backfilled with a 3:1 by weight

bentonite/cement grout mix prepared by thorough mixing using equipment approved by the Project Manager with just sufficient water to allow it to be tremied to the bottom of the hole.

- (v) Casing if used to maintain the hole open shall be withdrawn concurrently with the progress of the backfilling.
- (vi) An accurate record of the depths of the piezometers sand surround and seals shall be kept.

At final ground level the standpipes shall be protected by a lockable vandal proof cover set in a concrete surround. The exact location of all piezometers shall be indicated in the "As-built drawings" to be submitted by the Contractor.

20 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.

20.1 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.

20.2 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.

20.3 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.

20.4 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.

20.5 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 utilised 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.

21 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 the Wildlife Area** annexed in this section without any cost to Employer.

22 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.

23 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 the Employer.

Reference Only - IWWRMP



INTEGRATED WATERSHED AND WATER RESOURCES MANAGEMENT PROJECT (IWWRMP)

MINISTRY OF IRRIGATION

**Environmental and Social Management Plan and Environmental and
Social Screening Report for the Rehabilitation of Dams & Canals in
Eastern Province**



**IMPROVEMENTS TO BRANCH CANAL AND STRUCTURES OF
ADACHCHAKAL TANK AND SCHEME**

2026

Table of Contents

1	INTRODUCTION	1
1.1	Overview of the Integrated Watershed and Water Resources Management Project.....	1
1.1.1	Scope and description of the Integrated Watershed and Water Resources Management Project (IWWRMP)	1
1.1.2	Cost of the total project	2
1.1.3	Time schedule of the Adachchakal Tank and Scheme project.....	2
1.2	Background details of the specific sub-project	2
1.2.1	Main features of the sub-project	2
1.2.2	Issues encountered in the tank, bund and the command area	13
1.3	Justification of the sub-project.....	13
1.4	Objectives of the sub-project	13
1.5	Alternatives considered (if any)	14
1.6	Objectives of Environmental and Social Screening Report (ESSR) and Environmental and Social Management Plan (ESMP).....	14
1.7	Methodologies adopted in ESSR and ESMP preparation	14
	• Mobilization	14
	• Scoping Meetings and Reconnaissance survey	14
	• Methodology of the Study	15
2	DESCRIPTION OF THE PROJECT	17
2.1	Description of the tank and surrounding	17
2.2	Project location	19
2.3	Location map/s.....	21
2.4	Area/s of influence of the project	22
2.5	Land ownership	25
2.6	Major components of the sub-project	25
2.6.1	Pre-construction activities.....	25
2.6.2	Construction activities.....	25
2.6.3	Operation activities	26
2.6.4	Labour requirement	26
2.6.5	Resource requirement.....	26
3	DESCRIPTION OF THE EXISTING ENVIRONMENT	27
3.1	Physical environment	27
3.1.1	Topography and terrain.....	27

3.1.2	Climate.....	29
3.1.3	Soil type and quality	30
3.1.4	Surface water	32
3.1.5	Groundwater	32
3.1.6	Flooding/drainage	32
3.1.7	Air quality	32
3.1.8	Noise and vibration	33
3.2	Ecological environment.....	33
3.2.1	Presence of existing habitats.....	34
3.2.2	Presence of special habitat areas.....	35
3.2.3	Existing flora species, including invasive, endemic, and threatened	35
3.2.4	Existing fauna species, including endemic and threatened (avifauna, fish, reptiles, mammals, etc.)	36
3.2.5	Biodiversity in the sub-project area.....	37
3.2.6	Chance finds procedures.....	37
3.2.7	Tree removal	37
3.3	Socio-economic environment	38
3.3.1	Socio-economic profile, including demographic features.....	38
3.3.2	Occupation and Income levels of the people surrounding the tank.....	42
3.3.3	Land ownership of the sub-project area	44
3.3.4	Residential/sensitive/irrigable areas to be affected	44
3.3.5	Traditional economic and cultural activities to be affected.....	44
3.3.6	Details of affected direct and indirect populations, including vulnerable social groups	44
3.3.7	Sources of Livelihood to be affected.....	45
3.4	Archaeological and cultural features to be affected and chance find procedures	45
3.5	Construction Work plan,	45
4	LEGAL FRAMEWORK AND WORLD BANK'S SAFEGUARDS POLICIES WITH REFERENCE TO THE PROJECT	
	46	
4.1	National Laws, Regulations and Policies	46
4.2	World Bank Safe guard policies.....	47
5	ENVIRONMENTAL AND SOCIAL IMPACTS	48
5.1	Physical impacts	48
5.2	Ecological impacts	49
5.3	Socio-economic impacts.....	50

Impacts on presence of construction workers.....	52
5.4 ENVIRONMENTAL AND SOCIAL SCREENING DECISIONS	52
6 PUBLIC CONSULTATION AND DISCLOSURE	67
Public Consultation to Identify Issues and Solutions	67
6.1 During the stakeholder and community consultation, the following matters were highlighted. 69	
6.1.1 Photographs taken during the public consultation meeting.....	71
7 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN.....	72
7.1 General overview	72
7.2 Impacts and their mitigation	72
7.3 Implementation schedules of proposed mitigation.....	113
7.4 Others requirements	114
7.4.1 Sourcing of Material.....	114
(a) Procurement of material needed for implementing the proposed Interventions	114
(b) Management of Borrow Sites (within the project area).....	114
(c) Quarry Operations and Management of Quarry Sites	115
7.4.2 Safety Issues	115
7.4.3 Operation of Labour Camps	116
7.4.3 Procedures for Dealing with Chance Finds.....	117
8 ENVIRONMENTAL AND SOCIAL MONITORING PLAN AND ASSOCIATED COST	118
9 GRIEVANCE REDRESS MECHANISM	126
10 CONCLUSION AND RECOMMENDATIONS.....	130
10.1 Conclusions.....	130
10.2 Recommendations	130

Reference Only - IWRMP

LIST OF FIGURES

Figure 1-1	Location map of the tank under Eastern Province (Adachchakal)	1
Figure 2-1	Existing landscape of the Adachchakal tank	18
Figure 2-2	GN divisions in the project-affected areas (Source: Survey Department)	20
Figure 2-3	Location map of the Adachchakal tank (source – 1:50,000 map Survey Department of Sri Lanka)	21
Figure 2-4	Location map and the 500m study boundary	22
Figure 2-5	Vegetation grown on the tank bund to be removed 7°34'50.7"N 81°35'50.6"E	25
Figure 3-1	Geology map of the Adachchakal tank and the surrounding area	28
Figure 3-2	Average monthly precipitation in Batticaloa district	29
Figure 3-3	Average monthly temperature in Batticaloa district.....	29
Figure 3-4	Agro-Ecological regions of the Batticaloa district	30
Figure 3-5	The major soil types and their distribution in the Batticaloa District.	31
Figure 3-6	Surrounding environment	34
Figure 3-7	Invasive <i>Lantana camara</i> on the tank bund.....	36
Figure 3-8	<i>Terminalia arjuna</i> (Kumbul - left), <i>Syzygium cumini</i> (Madan) and <i>Vitex leucoxylon</i> (Nabada-right), located in the tank bund.....	37
Figure 2-14	Land use pattern in project area	41

LIST OF TABLES

Table 1-1	The proposed interventions under IWWRMP for this tank are:	3
Table 2-1	Hydro data of the Adachchakal dam	18
Table 2-2	The administrative setup of the Adachchakal Tank and Scheme.....	19
Table 2-3	Material requirement.....	26
Table 3-1	Summary of the Flora Species Recorded During the Field Survey	35
Table 3-2	Summary of the fauna and flora recorded in the project affected areas	36
Table 3-3	Tree identified to be removed from the proposed rehabilitation area of the tank bund	38
Table 3-4	Population with Gender segregation	38
Table 3-5	Population under the main age groups.....	38
Table 3-6	Economically Active and Non active population	39
Table 3-7	Educational Achievement.....	39
Table 3-8	Condition of houses.....	39
Table 3-9	Principal Type of Lighting	40
Table 3-10	Source of Drinking Water	40
Table 3-11	Availability of sanitary facilities	40
Table 3-12	Vulnerable Status in Project Area	41

Table 3-13	Other Livelihood related to reservoir water	42
Table 3-14	Irrigable land areas of farmer organizations	43
Table 3-15	Occupation Details, Manmunai West Vavunathivu DSD, in Batticaloa District	43
Table 6-1	Summary of the public consultation meeting minuets	67
Table 7-1	Environmental Management Plan.....	73
Table 7-2	General safety issues that need to be addressed	115
Table 8-1	Environmental and Social Monitoring Plan.....	118
Table 8-2	Cost Estimate to implement the ESMP	124

Reference Only -IWWRMP

LIST OF ABBREVIATIONS AND ACRONYMS

ACS	Advance Cultivation Season
CBOs	Community-based Organizations
CEA	Central Environment Authority
DBH	Diameter at Breast Height
DOI	Department of Irrigation
DSD	Divisional Secretariat Division
DWC	Department of Wildlife Conservation
EmoP	Environmental Monitoring Plan
EPL	Environmental Protection License
ESS	Environmental and Social Standards
ESSR	Environmental and Social Screening Report
ESMP	Environmental and Social Management Plan
FFPO	Fauna and Flora Protection Ordinance
FSL	Full Supply Level
GSMB	Geological Survey and Mines Bureau
GND	Grama Niladhari Division
GPS	Global Positioning System
GOSL	Government of Sri Lanka
HFL	High Flood Level
HS	Health Safety Plan
IA	Implementing Agency
IAS	Invasive Alien Species
IFC	International Finance Corporation
IWWRMP	Integrated Watershed and Water Resources Management Project
LA	Land Acquisition
LAA	Land Acquisition Act
LSA	Livelihood Support Assistance
NEA	National Environmental Act
NT	Near-Threatened
NGO	Non-Governmental Organizations
PHI	Public Health Inspector
PID	Provincial Irrigation Department
PMU	Project Management Unit
PPE	Personal Protective Equipment
RDA	Road Development Authority
TOR	Terms of Reference

UNITS

Currency	USD & LKR	Sq miles	Square miles
mm	Millimetres	ft	Feet
MCM	Million Cubic Meters	MSL	Mean Sea Level
ha	Hectare	m ³	Cubic meters
m	Meters	°C	Degree Celsius
km	Kilometres	dB	Decibel
hrs	Hours		

Reference Only -IWWRMP

1 INTRODUCTION

1.1 Overview of the Integrated Watershed and Water Resources Management Project

1.1.1 Scope and description of the Integrated Watershed and Water Resources Management Project (IWWRMP)

The existing major dams of the country are ageing and suffering from various structural deficiencies and shortcomings in operation and monitoring facilities. This situation threatens the safety and operational efficiency of the dams and their appurtenant structures and, as a result, increases the vulnerability of downstream populations and socio-economic infrastructure if breached.

The Integrated Watershed and Water Resources Management Project (IWWRMP) is in the process of addressing these issues of the selected dams and taking initiatives to rehabilitate them with financing from the World Bank. The Government of Sri Lanka (GOSL), with financing from the World Bank (WB), has proposed to undertake an Integrated Watershed & Water Resources Management Project (IWWRMP). The development objective of the project is to improve watershed and water resources planning and enhance the functionality of water resources infrastructure. Functionality refers to the improved safety of dams and improved water distribution networks for irrigation. As the project fund, USD 75.03 Million is to be received from the World Bank for the project. The proposed project intends to address these issues through its dam safety and operational improvements for selected 36 dams and 19 Irrigation infrastructures.

This environmental assessment report consists of information pertaining to the Adachchakal tank in the Eastern Province.

The World Bank (funding Agency) and Integrated Watershed & Water Resources Management Project (IWWRMP) have agreed that the five dams earmarked for rehabilitation under this study need only the preparation of an Environmental and Social Management Plan Assessment (ESMP) together with an Environmental and Social Screening list to be filled.

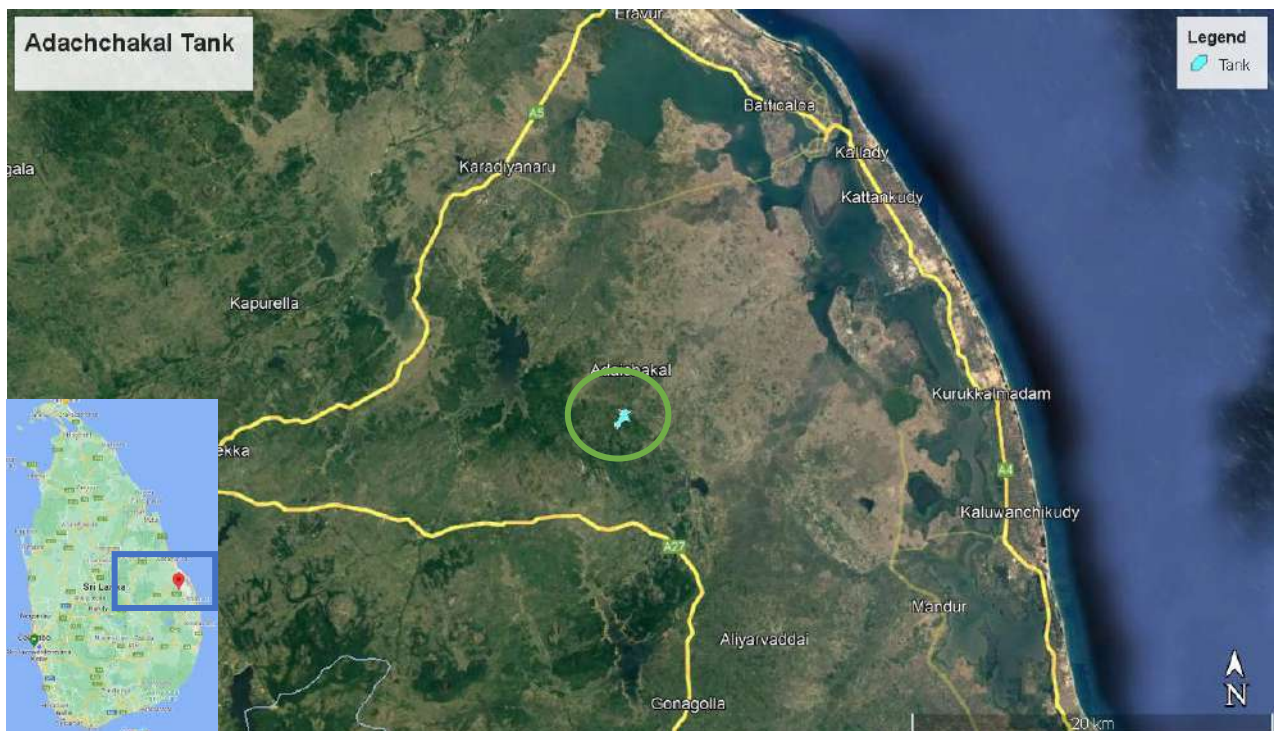


Figure 1-1 Location map of the tank under Eastern Province (Adachchakal)

1.1.2 Cost of the total project

The total cost of the IWWRMP is estimated as USD 75.03 Million and the tentative Cost component for the Adachchakal t

ank rehabilitation work is – USD 0.50 Million (183 Million Rupees)

1.1.3 Time schedule of the Adachchakal Tank and Scheme project



Activity	Tentative dates
Starting procurement procedures	March 2023
Bidding stage	April 2023
Contract award	August 2023
Rehabilitation period (Completion)	January 2025 (18-month contract)
Operational start	February 2025



1.2 Background details of the specific sub-project

1.2.1 Main features of the sub-project



Adachchakal tank is situated in Batticaloa District in Eastern Province. It consists of a storage capacity of 1.5 MCM while having the capacity of irrigation for 400 ha for paddy cultivation. A dam of 8.54 m high and 1.2 km in length has been constructed to make this tank. A spillway has been constructed to control overfilling of the tank. To protect the bund against erosion from the waves Rip Rap protection has been provided at upstream side and a Toe filter with a toe drain has been provided at downstream side to allow the unavoidable seepage water to flow through the bund without transporting sediments from the bund. A canal system having road crossing structures, Regulators and Turnout structures are there to convey the water to the irrigable area. Inadequate access roads are noted.

Table 1-1 The proposed interventions under IWRMP for this tank are:

ADACHCHAKAL SCHEME				
No	Interventions as per the TOR	Interventions as per Irrigation Engineers and Field surveys carried out	Reason	Photograph
1	Strengthening the Tank bund	<ul style="list-style-type: none"> – Shrub & Thorny jungle clearing – Stripping top soil to a thickness of 75 mm and spoil to waste as directed. (By machinery) – Earth excavation from borrow and forming tank bund including watering and compaction by machinery (haul -2.0 mile). – Strip turving to U/S, D/S side new earth filling on bund slope including watering till turf takes roots (haul 1.6 km) – Supplying, spreading, watering and compacting Gravel (CBR > 16) for bund slop (Qty sheet annexed) as directed. 	<p>The existing tank bund is damaged and eroded heavily. Necessary to improve and widen the tank bund. The vegetation along the sides of the bund should be removed and trees which are built on riprap should be removed.</p>	 <p>(Fig A) 7.5809306,81.5975194 Access path to the tank bund</p>  <p>(Fig B) 7.580672, 81.597658 Top of the tank bund with vegetation</p>


ADACHCHAKAL SCHEME				
No	Interventions as per the TOR	Interventions as per Irrigation Engineers and Field surveys carried out	Reason	Photograph
		<ul style="list-style-type: none"> - Cutting for foundation (bottom basement) RIP-RAP by machinery. - Furnishing and placing 225 X 300 mm in size Rubble Rip Rap lift 0-1.5 m. (Qty sheet annexed) 		
2	Rip-Rap Protection of Tank bund	Rip-Rap Protection of Tank bund	Tank bund is getting eroded due hence rip rap protections should be established.	 <p>(Fig C (I))</p> 

Reference Only -IWWRMP

ADACHCHAKAL SCHEME				
No	Interventions as per the TOR	Interventions as per Irrigation Engineers and Field surveys carried out	Reason	Photograph
				(Fig C(II)) 7.580758, 81.597394 Existing upstream slope without the presence of riprap
3	Construction of Concrete lining at Main & Branch channels	<p>Othiyankudakandam</p> <p>Item 1- Construction of Concrete Lining at Othiyankuda channel from 1+106 m to 1+250 m (144.0 m)</p> <p>Item 2- Construction of Concrete Lining at Othiyankuda main channel at 0+ 000 m to 0+174 (174.0 m)</p> <p>Item 3- Construction of Concrete Lining at Paththirakkal Inlet channel - length 8 m</p> <p>Item 4- Construction of Concrete Lining at Othiyankuda 1st off take channel from 0+015 m to 0+175 m, 0+210 m to 0+970 m (length- 920 m)</p> <p>Item 5- Construction of Retaining wall at Othiyankuda 1st off take from 0+970 m to 0+990 m (length 20 m)</p> <p>Item 6- Construction of Concrete Lining at Othiyankuda 2nd off take</p>	Concrete linings of the channels are important in efficient water supply to irrigable lands without water supply losses, also soil erosion will lead to channel siltation and damages.	 <p>(Fig D) 7.580933, 81.597478</p>  <p>(Fig E) 7.582386, 81.599667</p>

ADACHCHAKAL SCHEME				
No	Interventions as per the TOR	Interventions as per Irrigation Engineers and Field surveys carried out	Reason	Photograph
		<p>channel from 0+000 m to 0+495 m (length- 495 m)</p> <p><u>Periyakalapoddamadu Kadam</u></p> <p>Item 1- Construction of Concrete Lining at Periyakalapoddamadu Main channel from 0+115 m to 0+695 m (length- 580 m)</p> <p>Item 2- Construction of Under crossing at 0+440 m</p> <p>Item 3- Construction of Concrete Lining at Periyakalapoddamadu LB-3 channel from 0+00 m to 0+120 m (length- 120 m)</p> <p>Item 4- Construction of Box culvert (Location- 0+112 m)</p> <p><u>Nedumsenaikkadam</u></p> <p>Item 1- Construction of Concrete Lining at Nedunchenai main channel from 0+000 m to 0+140 m (length- 140 m)</p> <p><u>Periyakalapoddamadu Kilal kadam</u></p>	Reference Only -IWWRMP	Locations where channel lining works to be done and retaining wall to be developed

ADACHCHAKAL SCHEME				
No	Interventions as per the TOR	Interventions as per Irrigation Engineers and Field surveys carried out	Reason	Photograph
		<p>Item 1- Periyakalapoddamadu Kilal kandan</p> <p>Item 2- Construction of Access Road- 1710 m</p> <p>Item 3- Construction of Box culvert (Location- 0+161 m)</p> <p>Item 4- Construction of Under crossing (3 Nos)</p> <p>Item 5- Construction of 18.95X4.30 m 4 bay Box Culvert</p> <p>Item 6- Construction of Concrete Lining at Kalapoddamadu kilal RB-2 channel from 0+000 m to 0+300 m (length- 300 m)</p> <p>Item 7- Construction of Concrete Lining at Kalapoddamadu kilal RB-1 channel from 0+000 m to 0+ 100 m (length- 100 m)</p> <p>Item 8- Periyakalapoddamadu Kilal main channel from 0+015 m to 0+043 m (length- 28 m)</p>	Reference Only -IWWRMP	


ADACHCHAKAL SCHEME				
No	Interventions as per the TOR	Interventions as per Irrigation Engineers and Field surveys carried out	Reason	Photograph
		<p>Item 9- Construction of Regulator Gate</p> <p>Navaladippallakkandam</p> <p>Item 1- Construction of Concrete Lining at Navaladippallam main channel from 0+160 m to 0+320 m (length- 160 m)</p> <p>Item 2- Construction of 27.60 m X 4.30 m 7 bay Box Culvert cum Spillway across the Thangana Road</p> <p>Item 3- Construction of Retaining wall Periyakalapoddamadu kilal Anicut U/S-90 m</p>		
4	Construction of Access Road	<ul style="list-style-type: none"> -Improvements to Access Road for Tank 47.0 m, -Trimming, levelling & filling of carriage way of the road surface, and road straining by motor grader/JCB as directed by Engineer -Earth excavation in foundation and part refill for side wall (cut-off wall) as directed. 	The bund access road should be improved as access to the bund is difficult through the existing path.	


(Fig F) 7.5809306,81.5975194

ADACHCHAKAL SCHEME				
No	Interventions as per the TOR	Interventions as per Irrigation Engineers and Field surveys carried out	Reason	Photograph
		<ul style="list-style-type: none"> -Supplying and laying polythene sheet on road surface (gauge 1000) for concrete -Furnishing, making, fixing and removing 16mm thick double coated plywood or any steel or shuttering planks (approved by engineer) with necessary props and connectors -1:2:4 (20 mm) cement concrete (grade-20) in structure excluding form work including mixing, placing, compacting and curing for three weeks including transport -Providing 10 mm tor steel links (450 mm long) between expansion joints 1m c/c half of the length covered by PVC conduit -Trimming, levelling & filling of carriage way of the road surface, and road straining by motor grader/JCB as directed by Engineer 		Access path to the bund top

Reference Only -IWWRMP

ADACHCHAKAL SCHEME				
No	Interventions as per the TOR	Interventions as per Irrigation Engineers and Field surveys carried out	Reason	Photograph
		<ul style="list-style-type: none"> –Earth excavation in foundation and part refill for side wall (cut-off wall) wall as directed. –Supplying and laying polythene sheet on road surface (gauge 1000) for concrete –Furnishing, making, fixing and removing 16 mm thick double coated plywood or any steel or shuttering planks (approved by engineer) with necessary props and connectors. –1:2:4 (20 mm) cement concrete (grade-20) in structure excluding form work including mixing, placing, compacting and curing for three weeks including transport –Providing 10 mm tor steel links (450 mm long) between expansion joints 1m c/c half of the length covered by PVC conduit 	Reference Only -IWWRMP	
5	Construction of 3 Nos of Box Culverts	Included under channel works under each main channel	Smoothen the water drainage.	

ADACHCHAKAL SCHEME				
No	Interventions as per the TOR	Interventions as per Irrigation Engineers and Field surveys carried out	Reason	Photograph
Extra Activities as proposed by the Divisional Irrigation Engineer at the site with referred to the Bill of Quantities				
6		Extent to Sluice barrel 2.40 m <ul style="list-style-type: none"> – Demolishing D/S side H/wall of Sluice – Supplying and laying 750 mm diameter 2.4 m long & Standard thickness of Hump pipe for Sluice Barrel as directed by engineer. – 1:2:4 (20 mm) cement concrete (grade-20) in structure excluding form work including mixing, placing, compacting and curing for three weeks including transport – Furnishing cutting bending and placing 10 mm tor steel reinforcement in position including cover blocks. – Furnishing, making, fixing and removing 16 mm thick double coated plywood or any steel or shuttering 	Reference Only -IWWRMP	 <p>(Fig G) 7.580932, 81.597530 Existing sluice barrel</p>

ADACHCHAKAL SCHEME				
No	Interventions as per the TOR	Interventions as per Irrigation Engineers and Field surveys carried out	Reason	Photograph
		planks (approved by engineer) with necessary props and connectors.		
7		Construction of Adachchakal unit Office	It is necessary to have establish a Unit office close to the tank for close by operation and maintenance.	 <p>(Fig H) 7.5905583,81.6089306 Location for Adachchakal unit office</p>

1.2.2 Issues encountered in the tank, bund and the command area

The dam has been severely eroded at upstream slope. During the site visit it was clearly understood that the existing bund top width is at marginal. To keep the adequate free board and to keep the adequate bund top width it is a must to widen the bund a little from the toe level. Widening a bund at upstream side is comparatively difficult since the existing structures will be affected and also at least a little storage capacity will be reduced. When widening the bund, a little at the downstream slope within tank reservation area only the water outlet pipes or rectangular concrete sections have to be extended to satisfy the design parameters. This is an easy way and less expensive. This area is not covered with trees and therefore it has no impact on affecting the environment. Deviation of the bund dimensions has no impact on submerging a new area. There will not be a change in spill crest level.

Therefore, it is a must to reinstate the bund and the cross sections of the dam to be kept as per the design providing the required free board. When the adequate freeboard is provided bund height will be increased and additional filling could be done at downstream section. Turfing is necessary to protect the dam slopes from severe erosion. Also, the access path which is currently being used is not appropriate and there should be a proper path to access the tank bund, the rehabilitation is proposed for the access road for this tank.

The present situation clearly shows that the Rip Rap protection has been failed and has to be provided adhering to the design parameters to withstand the waves. At present it is observed that the existing tank spill way need to be repaired.

The canals have been eroded indicating the seepages from the canals and losing irrigation water. The lining is necessary to fix the proper canal size in the site and to avoid losing of irrigation water. When the canal has been eroded the time taken to fill it and issue water is considerably high which leads to inefficiency in irrigation.

Farm turnout structures and reinforced concrete structures for water regulation to be provided for efficient water issue. It is clearly noted that access roads are not adequate and need to be provided.

1.3 Justification of the sub-project

Sri Lanka is basically an agricultural country. Since the main food is rice, hence paddy is the main crop in cultivation. Batticaloa District is one of the most appropriate districts for paddy cultivation in eastern Province. Therefore, it is worth to rehabilitate and protect the existing tank Adachchakal tank and scheme by attending to the needful. During the visits it was clearly understood that the tank is about to fail considerably in its expected use. The tank bund has been eroded severely (Table 1-1, figure A, B). It will tend to increase the seepage and finally the strength of the bund will not be adequate to withstand the water pressure. Reconstruction of a bund is very expensive. Rip-Rap used for protecting the bund against wave action has been failed or it is not available in many sections (Table 1-1, figure C). Non availability of the riprap will further erode the bund and it will reduce the life time of the bund thus, urgent repairs are necessary. Also, the sluice gates are not in a condition to issue water. Therefore, rehabilitation and replacing the gates are necessary. The spillway has to be reinstated for spilling. Turn out structures and pipe outlets, Box culverts access roads which are not functioning efficiently need repairs and new pipe outlets and access roads are necessary to get the maximum benefit of the sub project. The design capacity of the tank 1.5 MCM is not maintained due to its dilapidated condition only 35 -40 percent is managed to cultivate during the Yala season.

1.4 Objectives of the sub-project

The main objective of the dam rehabilitation is to ensure the protection and safety of the bund and irrigation structures and provide the required facilities for irrigation-related activities.

After completion of the rehabilitation works, it will contribute towards improvements in agriculture production and productivity of the farmers by providing water at its full supply irrigable land area 400 ha. As a result, the farmer's household income will be increased for the people who settled in the upstream and downstream. Also, people whose domestic water needs will be solved, and it will support better health of the communities. It will reduce floods and related issues. The regional socio-economic and environmental issues will be mitigated at a significant level.

1.5 Alternatives considered (if any)

The dams selected for rehabilitation under the IWWRMP in each province have been proposed by the Department of Irrigation after an extensive review of the requirement of rehabilitation. Therefore, there will not be any alternatives considered.

1.6 Objectives of Environmental and Social Screening Report (ESSR) and Environmental and Social Management Plan (ESMP)

The objective of preparation of the ESSR and the ESMP is to:

- Identify and evaluate the potential environmental and social impacts that would arise as a result of the proposed interventions, and this will be presented in the Environmental and Social screening report.
- Recommend appropriate mitigation measures to avoid, minimize, remedy or compensate for the predicted negative impacts; and
- Provide a site-specific Environmental and Social Management Plan that would give adequate project options in terms of mitigation measures, project alternatives and a monitoring program to achieve overall environmental sustainability of the project.

1.7 Methodologies adopted in ESSR and ESMP preparation

- **Mobilization**

The team of consultants appointed by MHEC (Pvt) Ltd. commenced work on 4th July 2022 with a meeting of team members where the Team Leader briefed the methodology for executing the consulting services. Documents required for the study were also identified, and team members were requested to collect those pertaining to their areas of expertise. The team leader thereafter prepared the Scope of Work for all team members to ensure the quantum of work to be carried out.

The requirements outlined in the TOR and the methodology were studied in depth, and the responsibilities of each team member were identified. Topographic sheets were studied to observe the current land use and the geographical features of the area.

Subsequent to the meeting, the Team Leader consulted the IWWRMP officials and obtained the contact details of technical personnel who are in charge of respective dams. These technical personnel were contacted to obtain project-related information. Soon after the initial desk studies, the consultant's team requested to arrange the initial site visit to the five dams and requested them to facilitate the reconnaissance field visit.

- **Scoping Meetings and Reconnaissance survey**

The reconnaissance survey of Adachchakal tank was carried out on the 8th and 9th March 2022 and detailed survey was carried out in 3rd August 2022. The team visited the tank and their project influence area for the observation of the environs and its proposed project interventions. This has been conducted with the respective divisional Irrigation Engineer, Technical officers, and a few farmers.

The main issues and the proposed interventions were identified during the reconnaissance survey by having several meetings with key stakeholders in order to reach a consensus on the issues and mitigation measures required. Meetings were held with the Irrigation Department and farmers/residents/Agrarian Services officers, Grama Niladari in the project vicinity and fishermen engaged in land fishery activities. Findings gathered during these meetings helped to refine our approach to the study and to focus on the following:

- a. Proposed physical intervention – scale and nature of the intervention: Identification of physical interventions, including field inspections with the officers to assess the issues and magnitude of the interventions.
- b. Review of the work plan and Implementation schedule, including the time frame; Discussion with relevant officers/engineers and other relevant stakeholders at the site to familiarize with the critical issues that are affecting the safety of the dams.

- **Methodology of the Study**

- a) **Establishment of the baseline environment**

This basically deals with the collection of background data through primary and secondary sources. However, where appropriate, surveys and investigations, both in-situ and ex-situ, were undertaken. The study area for the assessment included the tank and bund area, peripheral area (500 m minimum), borrow areas, work site and any area beyond the project site where there is potential for environmental impacts and off-site locations affected by construction activities.

The establishment of baseline conditions included the establishment of the present and future state of the environment, in the absence of the project, taking into account the changes resulting from natural events and from any disaster that can take place due to the dilapidated condition of dams and related infrastructure.

- (i) **Physical environment**

The baseline study was conducted to identify existing physical environmental conditions and current issues, including land, water, or air pollution sources within and surrounding the project site, identify material extraction sites (borrow pits, quarry sites, turfing material sources) and dumping sites for the proposed interventions, assess threats to the environment, and develop plans to prevent, control, or fix anticipated environmental issues.

- (ii) **Ecology**

An ecological survey was carried out to describe the existing baseline conditions to evaluate and illustrate the magnitude of the problem. This identified major habitats/flora and fauna, including communities in and around the sites, and assessed possible ecological impacts and existing environmental problems within the proposed project areas. The study area was confined to the specific locations and immediate surroundings directly affected by the activities.

Fauna and flora found in all habitats of the project area were recorded by walking along transects to get a rapid assessment of the species diversity. The conservation status of the species was assessed according to the National Red List-2020 published by the Biodiversity Secretariat of the Ministry of Environment in collaboration with the Department of National Botanic Gardens and the IUCN Global Red List - 2022.

Methodological Approach: A transect survey was carried out to identify major habitats or vegetation formations present in and around the proposed project site. This was followed by a rapid biodiversity survey by walking the entire project site and its immediate surroundings in order to document all the

fauna and flora present in the area in order to investigate whether the project will have any impact on endemic, threatened, rare or commercially important plant and animal species or critical habitats. In addition, threats and human disturbances associated with the habitat/vegetation types were also noted. A literature survey was conducted on Protected Areas and Forest Reserves in Batticaloa District, and recently published materials on fauna and flora as well as the different habitats present in the project-influenced area.

Species identification and nomenclature of the species present were based on the latest literature published on the fauna and flora of Sri Lanka. The global and national conservation status of the species was determined according to the IUCN list of threatened fauna and flora.

Night time sampling

The spot light census technique was used to observe nocturnal fauna. The study area was traversed by foot between 19:00 hrs. – 22:00 hrs. Headlamps with a red filter were used to observe the nocturnal fauna. When a species was observed; the type of species, number of individuals, time, and GPS coordinates were recorded.

The direct counts census technique was also employed to record nocturnal species of fauna. The tank bund, footpaths in the periphery of the project site was traversed by foot between 19:00 hrs – 22:00 hrs. Headlamps with red filters were used to observe faunal species. When species were encountered, they were photographed, identified, time and GPS location were recorded.

(iii) Social

Public consultation meetings including focused group discussions, key informant meetings and Social related social studies were carried out covering all the stakeholders, especially the farmer and fishing communities, in addition to other water users (e.g., villagers who use the water for day-to-day activities and/or other purposes). Grama Niladharis, Economic Development Officers, Samurdhi Niyamakas, officials of the farmer organizations, and any other governmental officers who are directly or indirectly involved with the functioning of the dam and its water resources (such as the Divisional Secretariat, Agrarian services). Data and information gathered from such social surveys were based on identifying and assessing social impacts. Mitigation measures are proposed with clear justifications based on the expectations of the stakeholders.

b) Anticipated Impacts

In general, the project's construction period will have the most short-term negative effects on the environment. The anticipated impacts on the physical environment during the period of civil works will be due to the change in the surrounding environment. During the project's construction phase, the following consequences are important.

- ✓ The effects of mining and quarrying for construction materials, especially by aggravating dust pollution, noise and vibration, disturbing wildlife and destroying vegetation, are numerous.
- ✓ The impact includes rehabilitation of tanks, strengthening tank bunds, building rip-raps, improving sluices and spills, preparing the ground, transporting materials, etc. These actions will cause pollution of surface water bodies, noise, vibrations, and dust emissions.
- ✓ Degradation of dam catchments affecting the biodiversity value/other ecological functions of the tank catchment.
- ✓ Loss of terrestrial habitats and changes in upstream and downstream ecology due to material extraction and disposal of construction and demolition waste.
- ✓ Enhance soil erosion and sedimentation during the construction stage of tank bund, rip rap, and other structural construction and storage of materials.

2 DESCRIPTION OF THE PROJECT

2.1 Description of the tank and surrounding

The tank supplies water for agricultural activities, mainly for paddy cultivation, and also for fishing and animal husbandry. Crop growth, as well as the quantity and quality of agricultural goods, are significantly impacted by a lack of rainfall and water storage in tanks. The area of the tank downstream that receives water for the agricultural areas is flat and gradually sloping, with both natural storm water drainage systems and a man-made canal network. The topography of the tank catchment region is flat and undulating, with boulders, rock outcrops, and mixed vegetation.

The vegetation patterns in the catchment and the vicinity are mainly composed of mixtures of trees, shrubs, grasses, and herbs. Outside of the catchment area, include forest remnants that reflect the local vegetation formation. Small patches of aquatic invasive plant Japan Jabara (*Eichhornia crassipes*) and Salvinia (*Salvinia* spp.) spread in some locations of the water body. There is now no visible impact of the aquatic invasive species on farmers and fishermen due to the low degree of invasive plant spread. The quality of the water contained in the tank is unaffected by anthropogenic activities in the tank catchment area. The tank's surface water appears to be clean and unpolluted. The downstream areas of the tank ecosystem are coming mostly under the human influence.

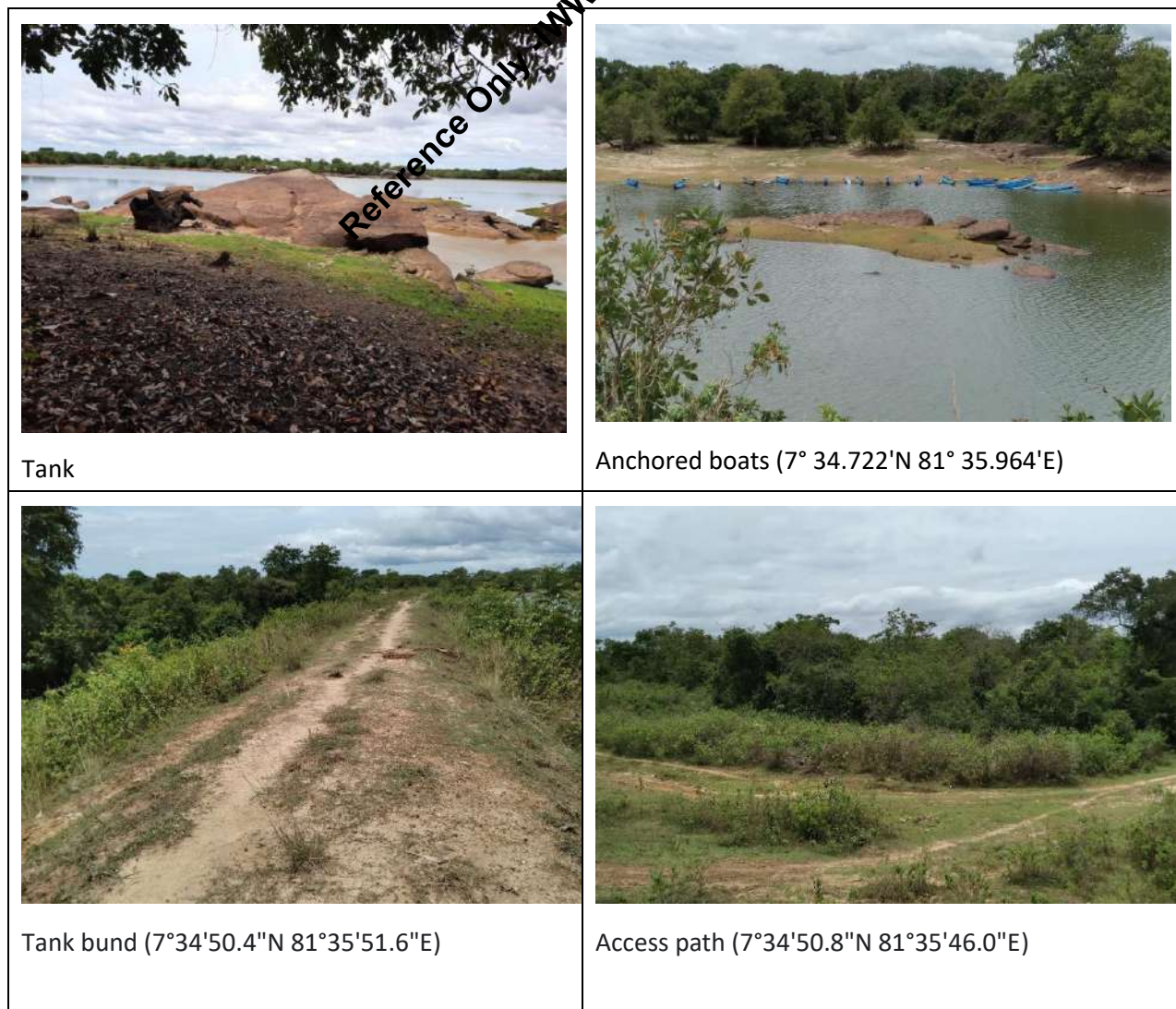




Figure 2-1 Existing landscape of the Adachchakal tank

Table 2-1 Hydro data of the Adachchakal dam

Basic Data	
Hydrological Data	
Catchment Area (Sq/miles)	3.25 sq mile
Catchment Slope	Flat
Catchment Detention (ac/ft)	1046.5
Long Water Course (miles)	1.6
Rainfall -NEM (inches)	32"
Rainfall – SWM (inches)	4"
Effective Yield – NEM (ac/ft)	1941

Basic Data	
Evaporation Station	Unnichchai
Agro / Eco / Regin	DL 2
Hydrological Zone	1
Reservoir Data	
Capacity Gross (ac /ft)	1475
Capacity Net (ac /ft)	1224
FSL (ft/above MSL)	114
HFL (ft/above MSL)	116
Area at FSL (acres)	128.6
Area at HFL (acres)	146
Full Supply Depth (ft)	0"
Duty (ac/ft/ac)	4.0 for Yala

2.2 Project location

The Adachchakal tank and scheme is located in the Eastern Province of Sri Lanka, in the Paddirippu Division of the Divisional Irrigation Engineer, within the two Grama Niladhari Divisions (GND) of 143B, Panchenai GND and 148B, Kaanchiragkuda GND of Manmunai West DSD of Batticaloa District. The administrative setup of the area is included in the table 2-2.

Table 2-2 The administrative setup of the Adachchakal Tank and Scheme

Province	District	DS Division	GN Division	Village	Nearest Town
Adachchakal Tank and Scheme					
Eastern	Batticaloa	Manmunai West DSD	143B, Panchenai and 148B, Kaanchiragku	Panchenai	Vavunithivu

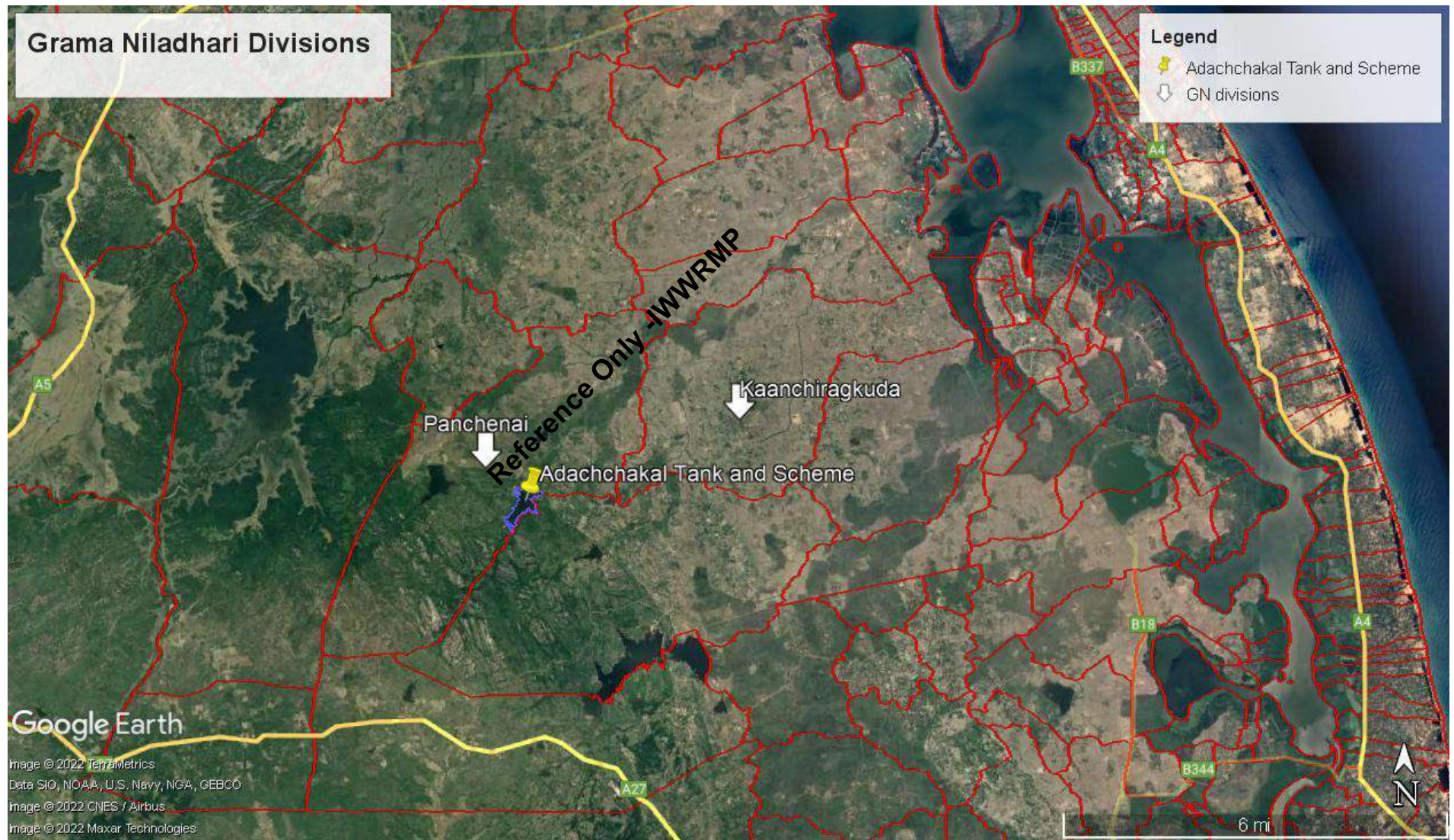


Figure 2-2 GN divisions in the project-affected areas (Source – Map generated using Google earth satellite map)

2.3 Location map/s

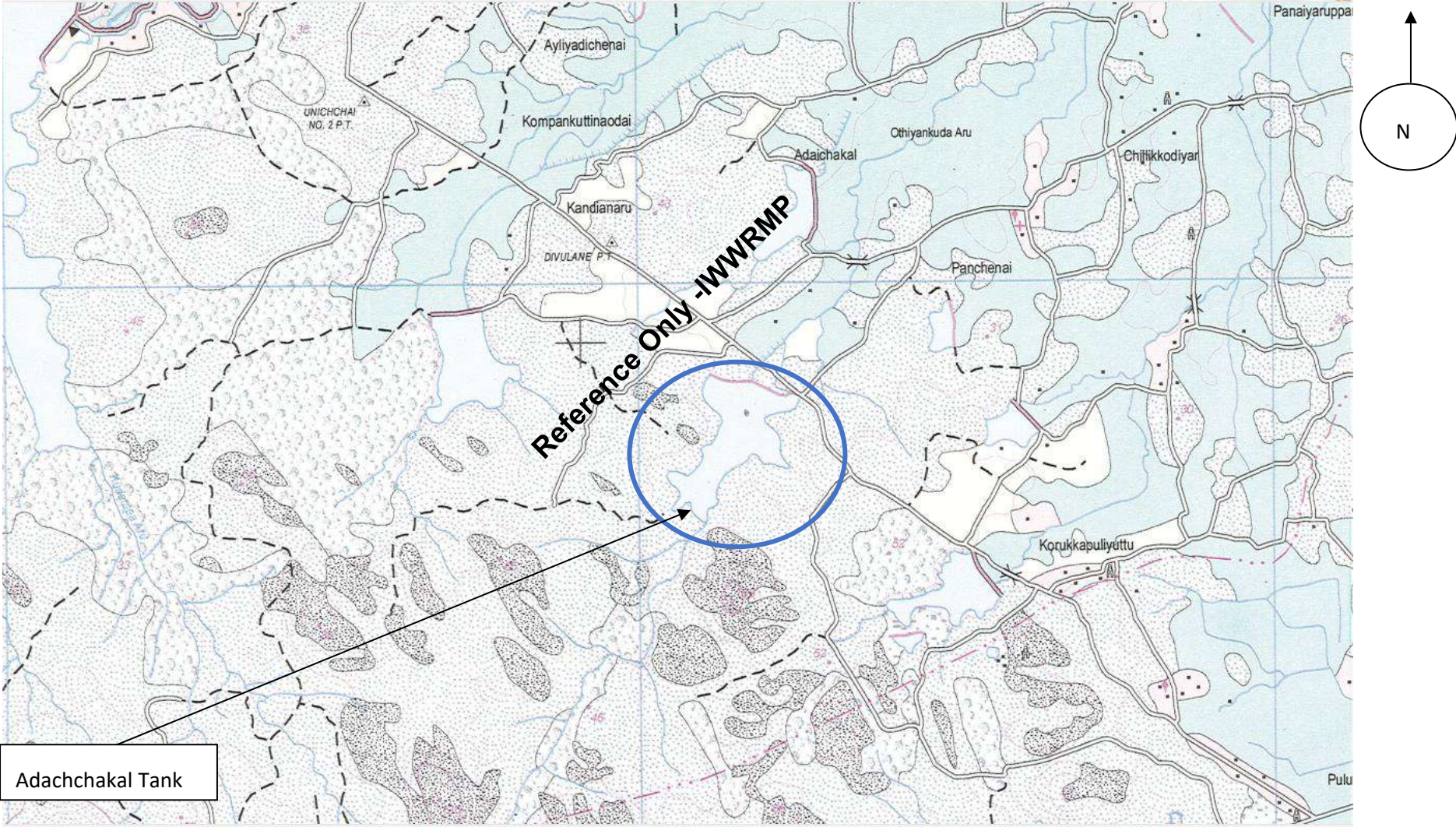


Figure 2-4 Location map of the Adachchakal Tank (source – 1:50,000 map Survey Department Sri Lanka)

2.4 Area/s of influence of the project

The command area is spread over Panchenai and Kaanchiragku GN divisions. The project area and its 500 m surrounding area has been subjected to the study. Here in this study, we have considered the influence of proposed project activities on upstream and downstream. There the area of the dam works, material haulage routes, labor camp location.

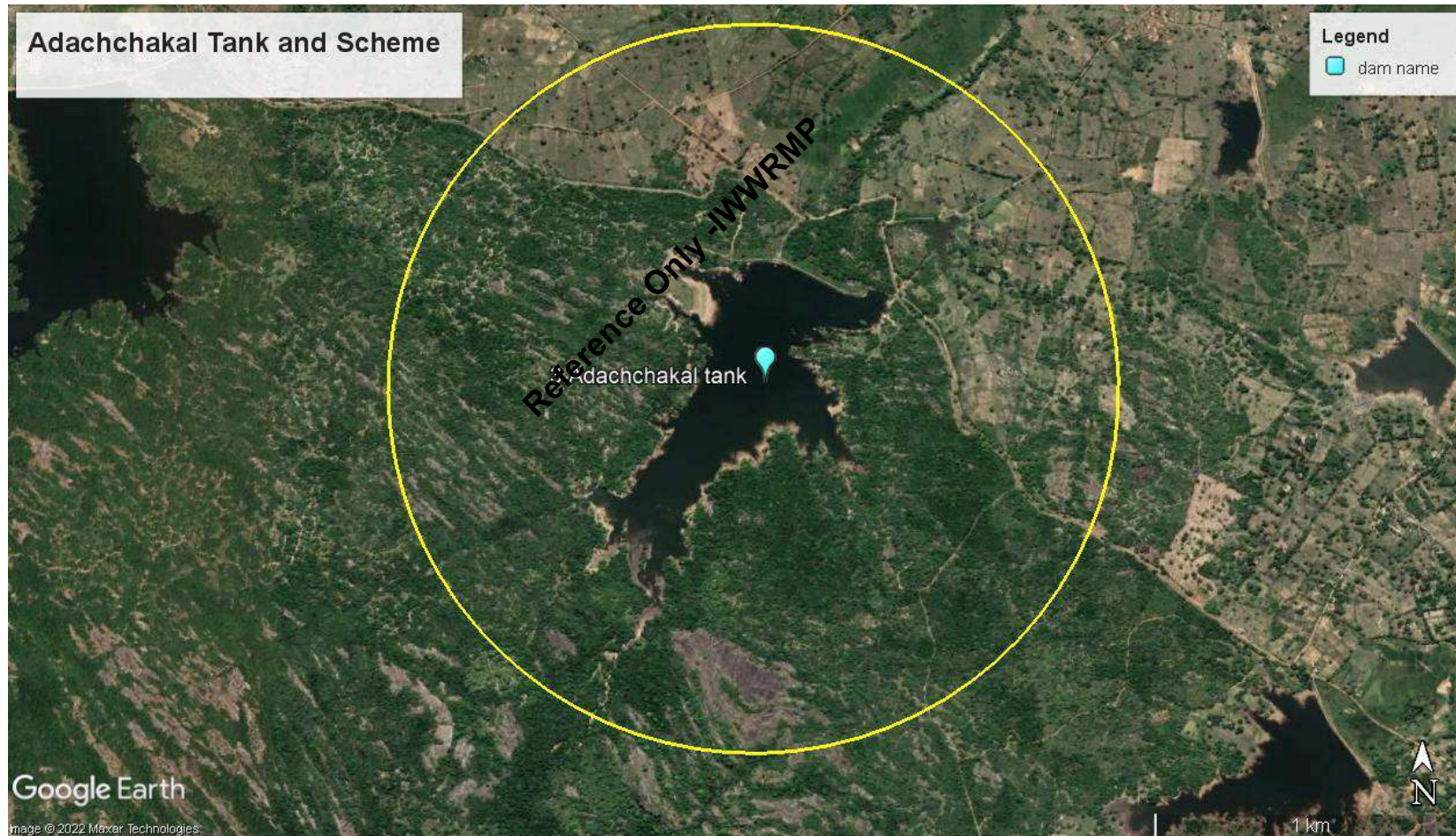


Figure 2-5 Location map and the 500m study boundary

Material extraction sites.

Earth and turfing materials

The proposed locations for the extraction of soil and turf for the Adachchakal tank restoration work are in the catchment region of the tank, beyond the water level. This catchment area is belonging to the Department of Irrigation

Gravel for the proposed construction

Number of gravel mining sites are located around the tank within 5 - 10 km distance.

Aggregates/Rubble

The Manmunai West DSD does not contain any quarry sites. Therefore, it is necessary to get aggregates and rubble from outside sources and transport them to the project site using the local road network in order to complete the proposed rip-rap restoration and other construction tasks. It has been proposed to transport Metal and rubble within 15 km distance, cement and sand within 28 km to 12 km respectively.

Disposal sites and material storage area

Land proposed disposal site are located downstream area of the tank owned by the Department of Irrigation (DOI).

Reference Only -IWRMP

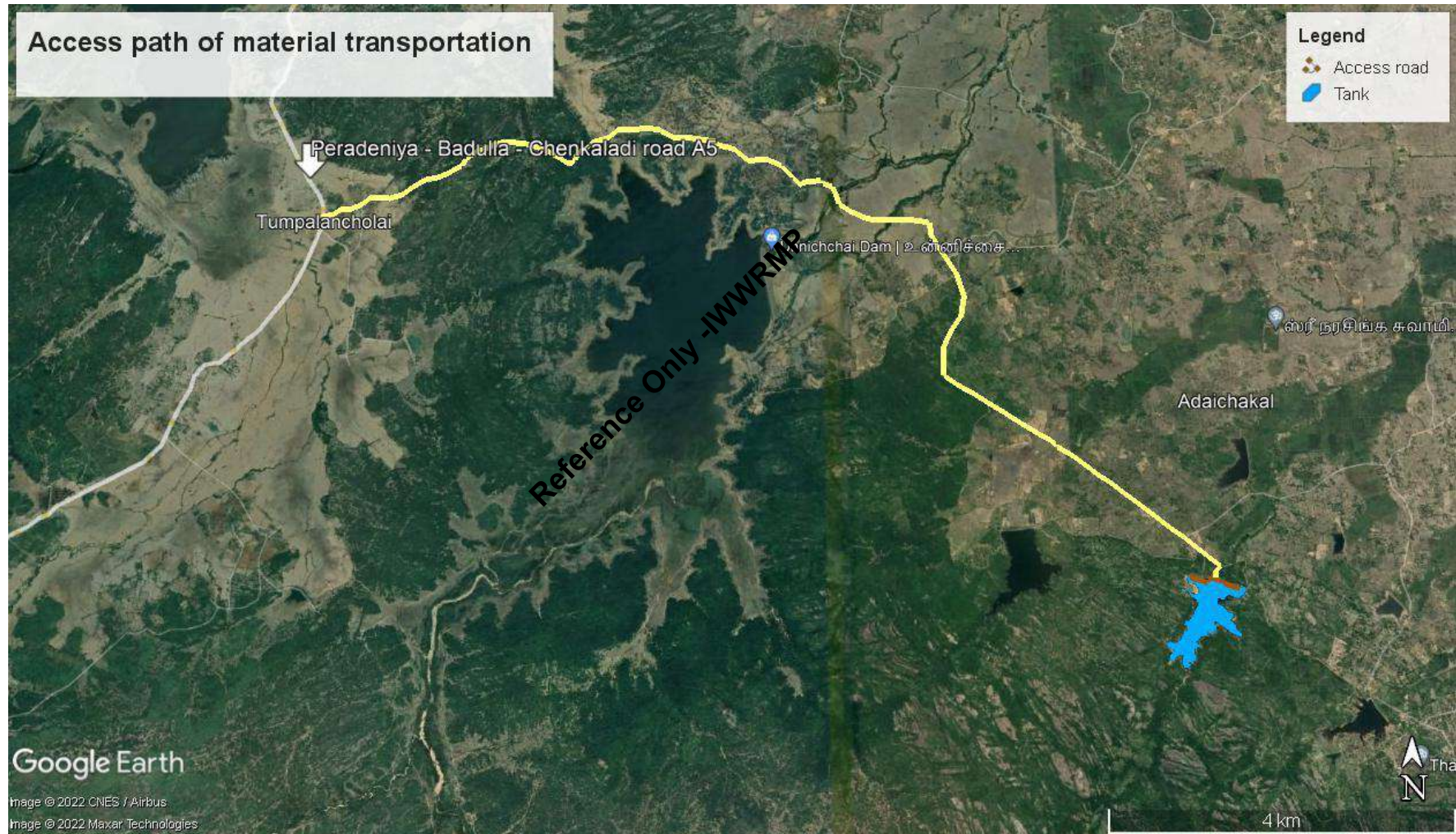


Figure 2-6 Raw material transportation route (Source – Map generated using Google earth satellite map)

The tank can be accessed 15 km from the A5 Peradeniya- Badulla- Chenkaladi road.

2.5 Land ownership

The project interventions are carried out on the land owned by the department of irrigation. The proposed interventions and its required area are free from encroachment.

2.6 Major components of the sub-project

2.6.1 Pre-construction activities

Mobilization at site;

The project mobilization will be accompanied with construction of temporary huts, facilitating health and safety requirements, installing utility facilities (i.e., water, Power, Generators) will take place. A temporary office to facilitate project staff, when necessary, is supposed to be at site. There should be sufficient space for the machinery, fuel and stock piles of construction materials and establishing units to assure expected quality of constructions. Vehicles and machinery to be maintained at site.

2.6.2 Construction activities

(a) Strengthening the tank bund

The Light jungle clearing along bund to the full width inclusive of cutting and removing uprooted trees, clearing 30 m away from bund striping & removing of top soil to 150 mm depth are required. Remove any anthills on bund completely. Trench excavation in upstream toe of tank bund for Rip Rap protection by machinery and spoil to waste as directed. It is necessary to cut benches to receive new earth on bund specially on downstream side of the bund. Earth excavation from borrow area suitable for construction (may be from tank bed however away from the tank bund) and forming bund to designed profile including watering and compaction (CBR>10) by machinery. Haul distance is 2 Miles where necessary core wall to be excavated and disposed. Sandy clay to be excavated and core wall to be reinstated. Spreading, watering, compacting by machinery to be involved. Haul 2 Miles. Providing bund level blocks on bund at specified (may be 50 m) intervals. Supplying Gravel (Type II) and forming up- stream slope of tank bund for a thickness of 225X300 mm for Rip Rap protection is necessary. Supplying and placing turf to both slopes of newly formed bund and watering until taken roots into bund slopes including transport of turf and water are needed. Providing bathing steps at safe places, if required. This may reduce damaging turf everywhere. Supplying, furnishing and placing 225 mm X 300 mm size rubble in 450 mm thick Rip Rap protection as directed.



Figure 2-7 Vegetation grown on the tank bund to be removed (7°34'50.7"N 81°35'50.6"E)

(b) Rehabilitation of sluices

Rectifying and fixing gate sets of Cast Iron 750 mm diameter by replacing base plates, H-Iron, housing, brass nut and spindle. Grooves need to be provided to facilitate the movement of the sluice. Providing concrete 1:2;4 (20) Grade 20 for fixing the H Iron after removing existing H Iron. Aligning and fixing gate enabling easy operation.

(c) Construction of spillway

The purpose of a spillway is to avoid the water level increasing above the designed fill level. In heavy rainy seasons, water levels can be reduced within a small duration. Therefore, this design and construction of a proper spillway are recommended.

(d) Rehabilitation of irrigation canal

This will include clearing shrub and jungle along the channel and training bund, remove outside the reservation. Earth excavation and forming channel bund to designed profile. Suppling gravel to fill the embankments. Strip turfing to channel bund including transport, laying and watering until take roots. Construction of concrete canal lining in Grade 20 concrete.

2.6.3 Operation activities

Site survey work, Striping top soil by machinery and disposal, removal and disposal of unsuitable materials (sandy clay and gravel). Preparation of earth cut benches on tank bund slopes, borrowing materials from borrow areas after testing the material samples regarding the suitability of it for bund construction works. Spreading the fill materials and compacting layer by layers. Spraying water on compacting layers to provide optimum moisture content to achieve required compaction. Testing the bund for compaction requirement and re-compaction of that layer if compaction is not achieved. Even after re-compaction if the degree of compaction is not satisfactory that layer to be removed and disposed.

2.6.4 Labour requirement

In addition to the labor for survey work labor is required to the works carried out by machinery. Since the filling materials, sand and rubble are obtained from the natural sites that may contain timber logs and roots. Labor is required to remove them manually. For the structure's preparation of formwork, masonry work pouring concrete curing concrete labor is required.

2.6.5 Resource requirement

As far as the machineries are concerned Dozers – D4, D6, D7 or/and D8, track mounted excavators, Front end loaders, Tippers 6 Wheelers and 10 Wheelers, Compacting Vibrator Rollers Water Bowsers Tractors with trailers and fuel bowsers will be used.

Following table listed the activities under each intervention proposed for the tank

Table 2-3 Material requirement

Materials	Quantities
Earth	78,219 m ³
Sand clay	32 m ³
Metal	38 m ³
Gravel	2,367 m ³
Turf	8,300 m ²
Rubble	5,500 m ³

3 DESCRIPTION OF THE EXISTING ENVIRONMENT

3.1 Physical environment

3.1.1 Topography and terrain

The topography of the area varies from flat to undulating. The elevation of the area is about 29 meters above the mean sea level. At the catchment area of the tank, the area consists of flat and undulating landscape, rocky outcrops, stagnant water spaces, and natural vegetation. The surrounding environment of the tank is composed of a large extent of paddy fields, small mountains, undulating plains, and natural and man-made waterways.

Geologically, the greater part of the Batticaloa district comprises Precambrian, essentially gneissic and crystalline rocks. The Precambrian rocks in the district belong to the Vijayan series, and the lithological types identified in the area are granitic gneisses, augen gneisses, biotite gneisses, hornblende biotite gneisses, migmatite, feldspar granite, calc-granulite or gneisses, and minor marble. The geological map of the area is shown in figure 3-1.

Reference Only -IWWRMP

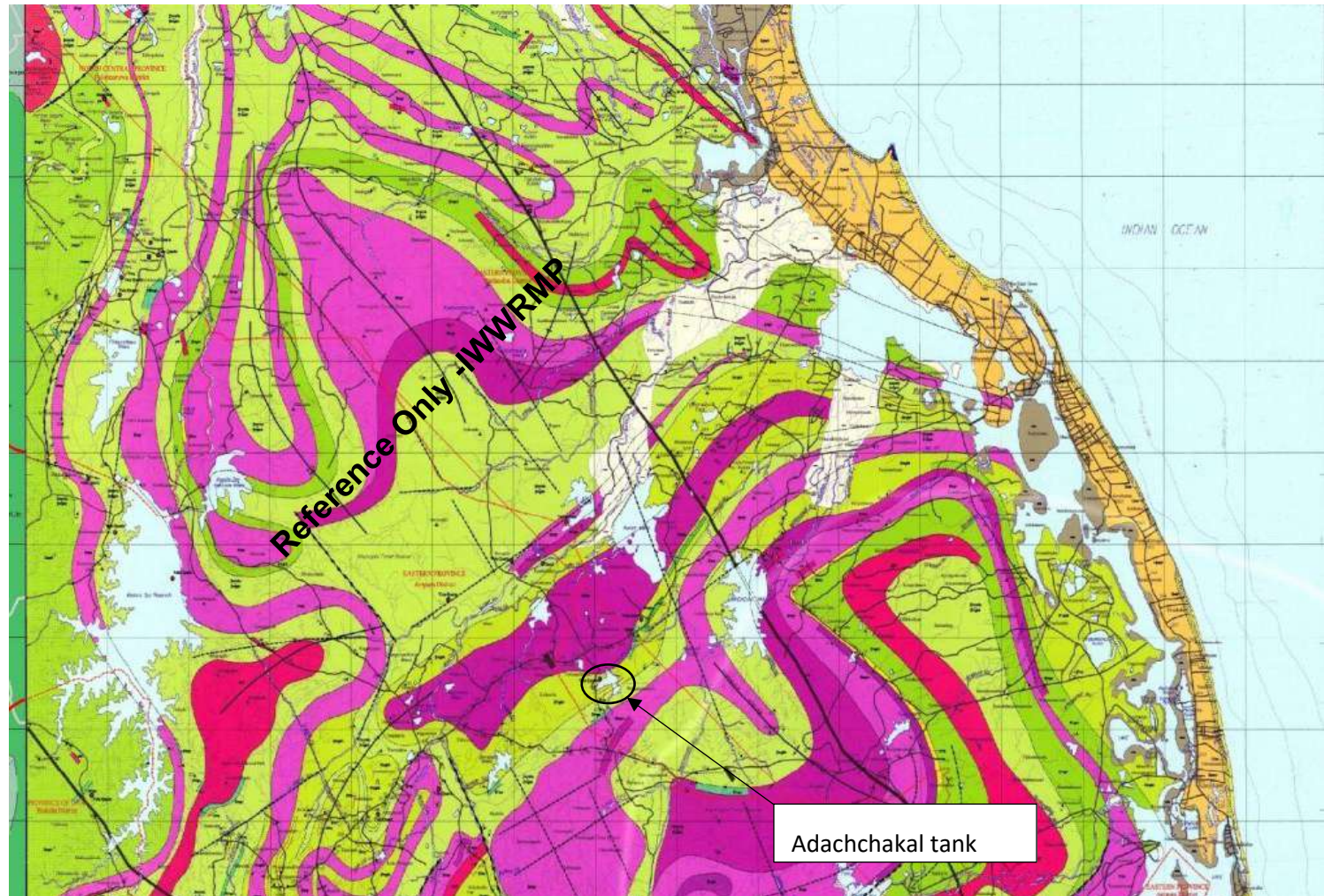


Figure 3-1 Geology map of the Adachchakal tank and the surrounding area

3.1.2 Climate

The project affected area lies in a low land, dry zone of Sri Lanka. The area receives mean annual rainfall of 1650.9 mm. The annual average rainfall varies from 864 mm to 3,081 mm (50 years data). The rainfall is not equally distributed throughout the year and has a bimodal pattern from October to March (Maha season) and less rains in April to September (Yala season). The climate of the area is influenced by the Northeast and Southwest monsoons. The Northeast monsoon brings major part of the rainfalls with little variation.

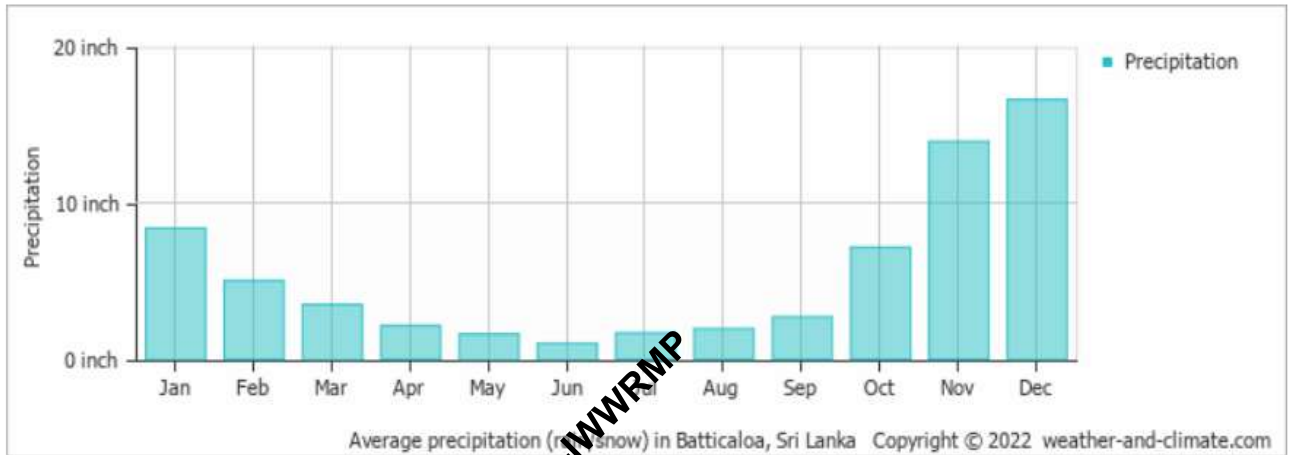


Figure 3-2 Average monthly precipitation in Batticaloa district

The mean annual temperature varies from 25°C to 35°C. The average temperature in Batticaloa is 27.4 °C and maximum temperature averages around 32°C. The warmest time period of the year is recorded from March to May and the minimum temperature is recorded in November/January. The dry season that follows lasts up to the end of September over a period of about 6 months.

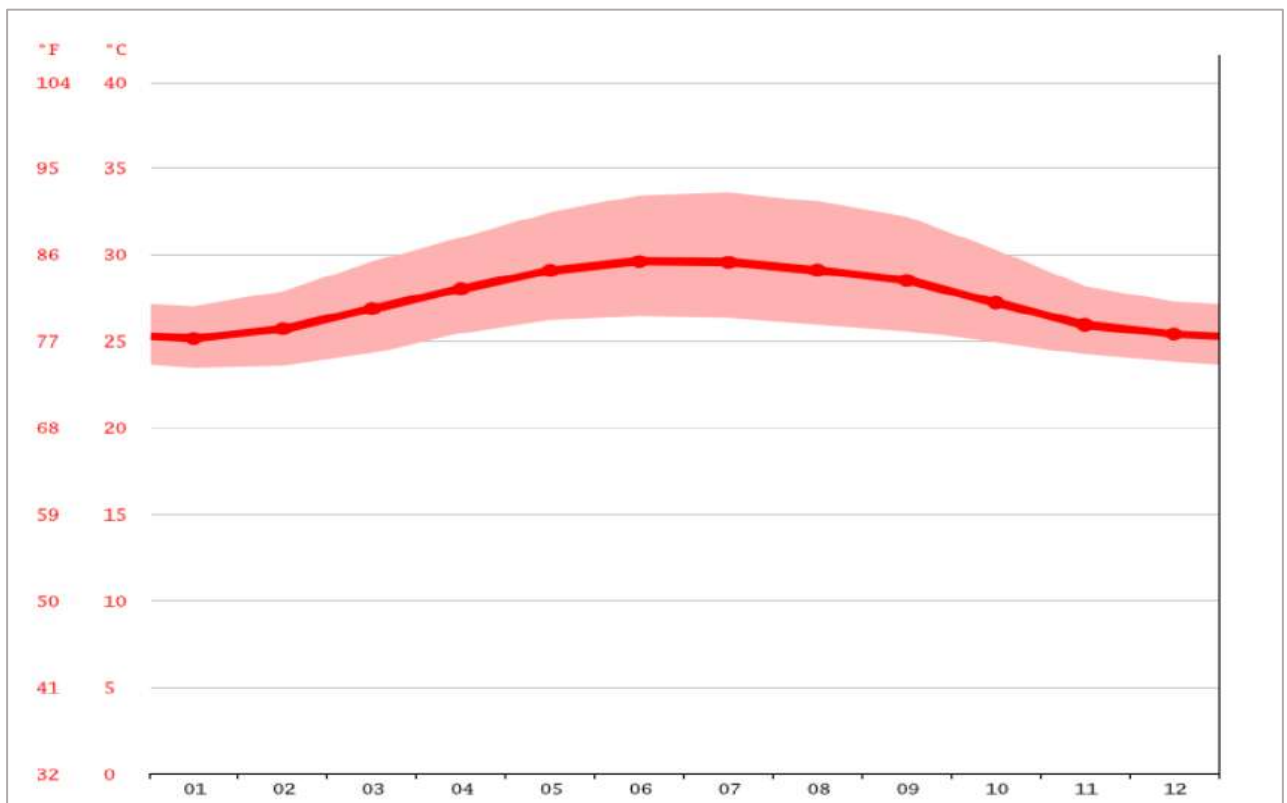


Figure 3-3 Average monthly temperature in Batticaloa district

Batticaloa District is geographically located mainly in agro-ecological zone of Dry zone Low country (DL). DL region in the district is again sub divided into three sub regions; are DL2b, DL2 and DL4. According to the zoning data of Department of Agriculture, the project area lies mainly in agroecological regions of DL2b. This region represents 96% from the total land area of the district. The agro-ecological region of the area and surrounding regions of the district are shown in Figure 3-4.

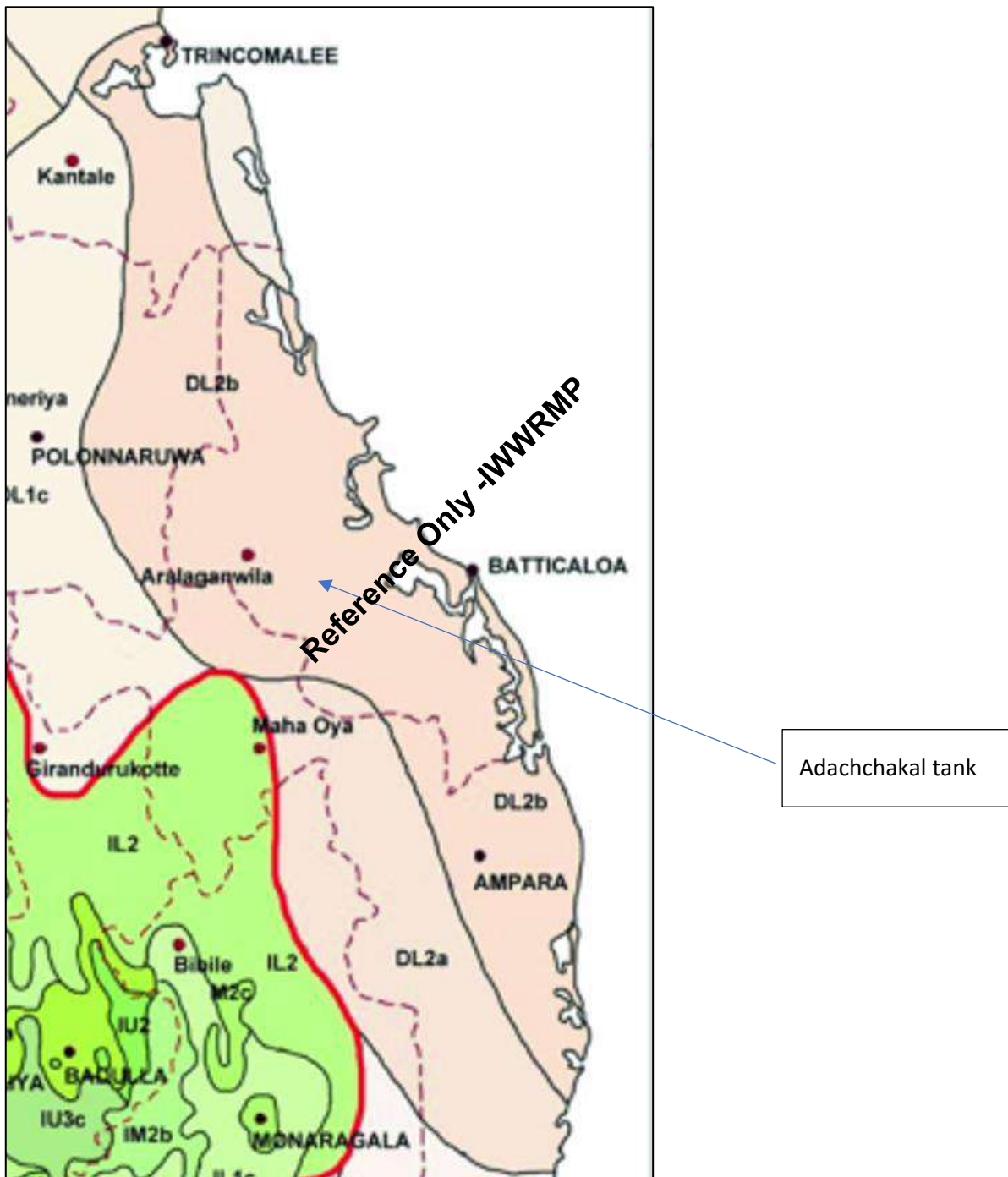


Figure 3-4 Agro-Ecological regions of the Batticaloa district

3.1.3 Soil type and quality

The dominant soil group in the area is the Alluvial soil and it represent 21% from the total land extent of the district. The next dominant soil group in the area is Reddish Brown earths, Non-Calcic Brown soils & Low Humic Clay soils. This group represent 18% from the total land extent of the district. Alluvial soil mainly distributed in the flat terrain while rest of the soil groups distributed in undulating terrain. The physical and

chemical properties of the soil distributed in the area are suitable for agriculture including paddy cultivation and other rain fed crops. The major soil groups and their distribution of Batticaloa district are shown in the figure 3-5.

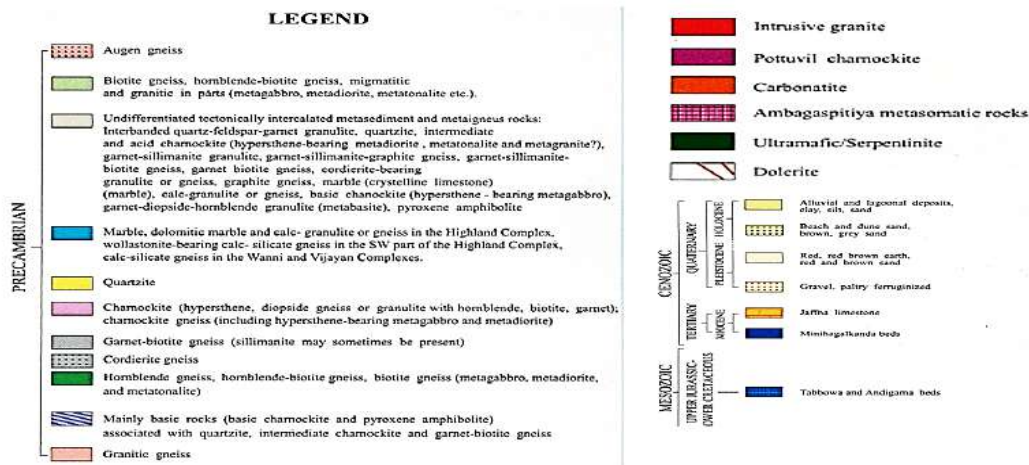
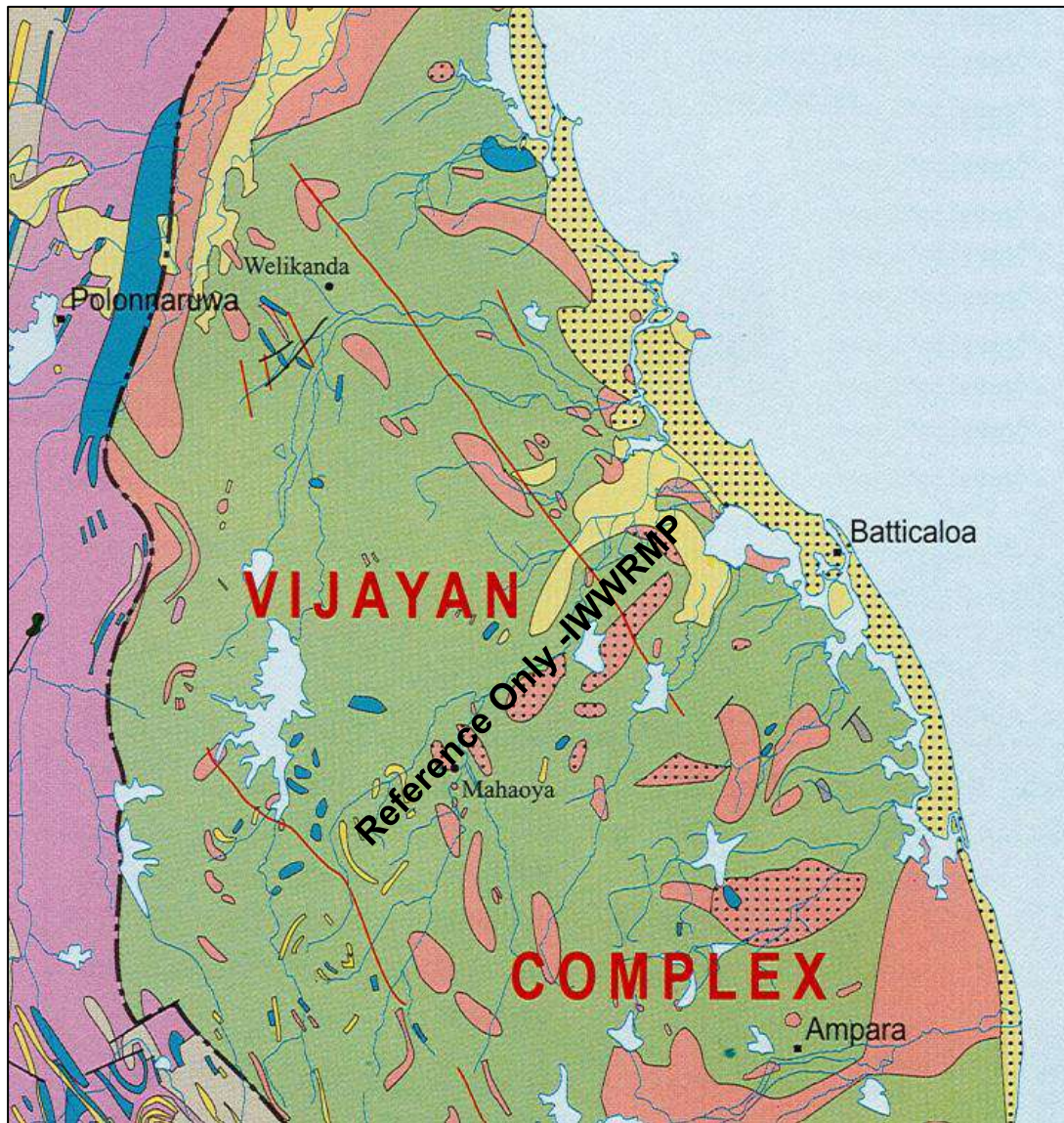


Figure 3-5 The major soil types and their distribution in the Batticaloa District.

3.1.4 Surface water

A total of 19 tanks are located within the Manmunai West DSD. Adachchakal is the only medium scale tank located within the DSD and no large-scale irrigation tanks are distributed within the DSD area and surroundings the tank. Rest of the tanks are small tanks mainly available water during the rainy season. Surface water is directly influences in the project affected area of Adachchakal during the irrigation time for plant growth, development and yield of the plant. Currently, 400 ha, is being cultivated under the medium scale tank of Adachchakal. In general, the project region lacks sufficient and evenly distributed surface water sources, canals, and natural streams. Apparently, the surface water of the Adachchakal tank is clean and unpolluted.

3.1.5 Groundwater

Groundwater quality has become a critical issue due to fresh water scarcity. Suitability of irrigation water is directly influences on the plant growth and its development, yield of the plant and deteriorates soil fertility.

Although the groundwater is an essential resource for sustaining domestic life and the existing environment in the project area, groundwater quality has become a critical issue due to fresh water scarcity. In addition to that, ground water is available in limited quantities in the project area due to insufficient and uneven distribution of rainfall. The dug wells, tube wells, and some agro-wells identified within the study area are used by the people for drinking, bathing, and domestic and animal husbandry. In some research indicated that irrigation waters, pumped from wells contain appreciable quantities of chemical substances. The physical and chemical parameters of well water from Manmunai West DSD Water quality parameters such as pH, TDS, Mg, Ca were within the FAO recommended range for irrigation purpose. While other parameters such as TSS, Na, K, Carbonate, and EC were found in higher concentrations. Seasonal changes in ground water levels, especially the drinking water level of the wells, are experienced by the people. During the dry season, about 2–5 feet of water is available in dug wells, and during drought, this situation is even worse. The higher level of groundwater available during the north-east monsoon period is mostly up to ground level. Utilization of groundwater is minimal within the study area for cultivation.

3.1.6 Flooding/drainage

The Batticaloa district in the eastern province is one of the most flood-prone areas in the country. Floods have an impact on the agriculture sector, disturbing the usual life pattern and making people vulnerable. Inundation and flooding are not an issue within the command area of Adachchakal tank during the spill of tank under heavy rains due to proper diversion of water to the Tathenthi Thoddai river basin. Prior to the restoration of the Unnachchiya tank, some agricultural regions in the DS of Manmunai West were prone to flooding during the rainy season, particularly during the North-East Monsoon season. These areas were Karawetti, Ponnanganichchanai, and Kodianaru, under the influence of the Unnachchiya tank. These areas are not currently flooded as a result of the recent rehabilitation of Unnachchiya dam.

3.1.7 Air quality

The proposed tank is located in rural area of Manmunai west DSD of Batticaloa district. Therefore, air quality in the area consists with clean atmosphere not affected by pollution of air due to lack of vehicular transport and industrial activities. During the dry season, dust emission is relatively high due to exposed lands and unpaved road sections all over the area. The scale of dust emissions related impacts will depend on the prevailing wind direction in the Project area. As mentioned by the public, the air quality sometimes gets degraded as a result of burning paddy husks in paddy cultivation or burning vegetation for slash and burn cultivation.

3.1.8 Noise and vibration

The existing ambient noise levels are observed to be very low, and high noise-generating activities are not observed within the project area. Background noise levels in the area are not influenced by any of the human activities, and existing noise levels in the area range from 40–45 dB(A) during the field inspection. No significant vibration levels were perceived during the field visits, indicating that vibration-induced activities were nonexistent.

3.2 Ecological environment

The project area falls within the low country dry zone of the Batticaloa district in the country. The climate of the area comprises a wet season during the North-East monsoon characterized by high mean precipitation and a dry season during the South-West monsoonal marked by low mean precipitation. Ecologically, the area is located within the Dry and Arid Lowlands Floristic Zone. Tropical Dry Mixed Evergreen Forests (*Manilkara* Community, Mixed Community (*Chloroxylon-Vitex-Berrya-Schleichera* series), Tropical Thorn Forests (*Manilkara-Chloroxylon-Salvadora-Randia* series), Damana and Villu Grasslands, Flood-plain Wetlands, Riverine and Gallery Forests are typical natural vegetation formations in the Dry and Arid Lowlands Floristic Zone. The coastal zone comes under the coastal and marine belt floristic zone (A I). Marine mangroves, salt marsh, dunes, and vegetation are the typical natural vegetation formations that can be seen in the coastal and marine belt floristic zone compared to the wet zone of Sri Lanka.

As observed during the field study, the dry zone habitats do not support critical elements of Sri Lanka's biodiversity, such as endemic and threatened species. Yet the dry zone habitats are rich repositories of indigenous flora and fauna, especially charismatic large mega-fauna such as elephants. The post-war development has nevertheless resulted in severe habitat loss, fragmentation, and modification of these habitats, giving rise to the vegetation types observed at present, which deviate somewhat from the typical floristic composition. Many disturbed areas have been transformed into open forests and scrub lands.

The site can be described as a man-made tank. The upstream sections comprise natural vegetation that is typical of the region, dry mixed evergreen forest. The downstream sections where the majority of the proposed interventions will take place comprise cultivated lands, riverine vegetation, scrub lands including home gardens. There are no natural habitats present in the area where project interventions are planned to be carried out.

Since the tanks are made to support agriculture, humans typically have a significant impact on the tank ecosystems. The downstream areas of the tank ecosystem are the areas that come most under human influence, while the catchment area of tanks contains remnants of forests that are representative of the typical vegetation formation in the area.

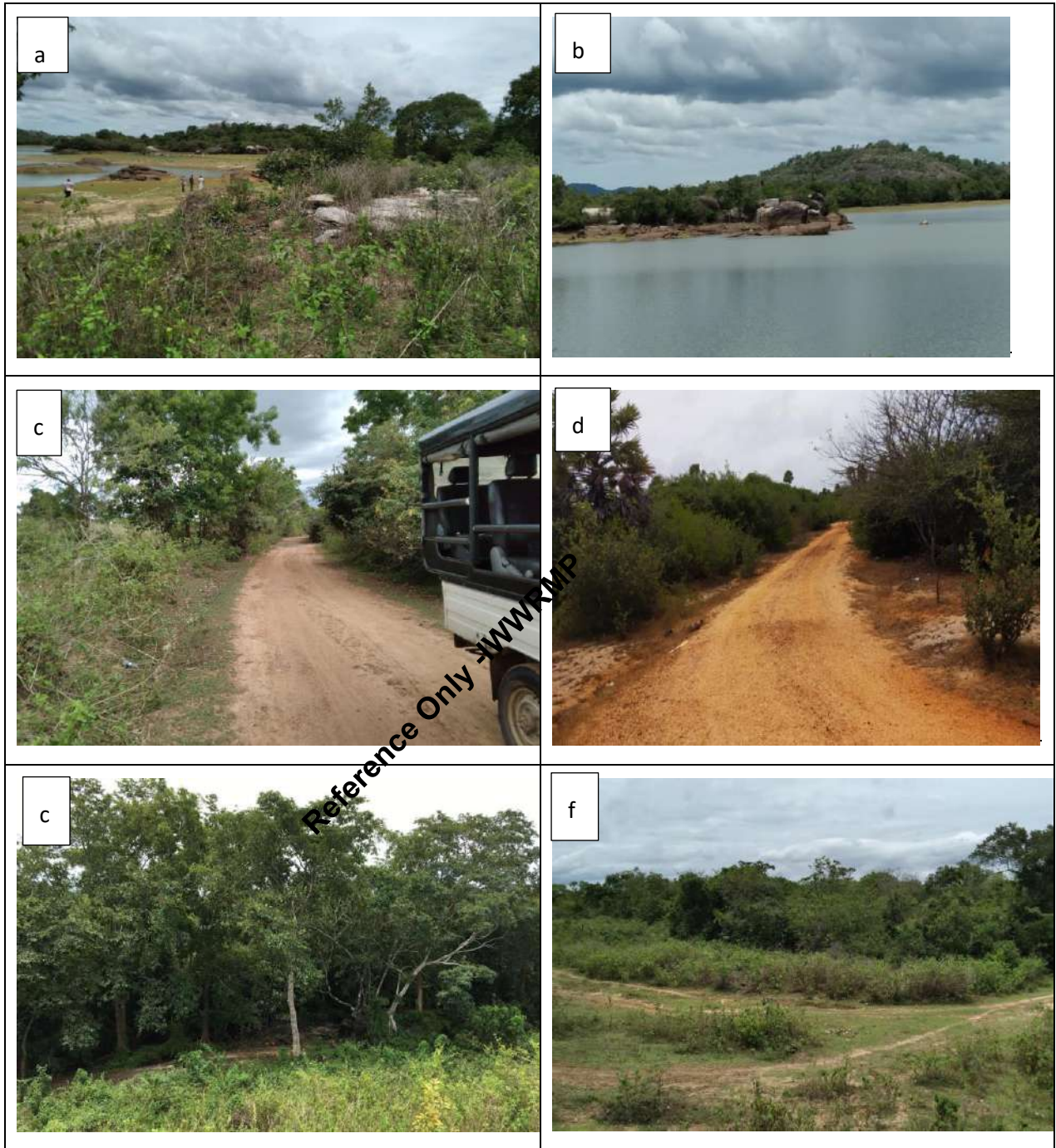


Figure 3-6 Surrounding environment

a-Tank bed area during the dry period (photo was taken in August 2022)

b- Tank bed

c-Access Road to the tank

d- Access Road to the tank

e- Downstream of the tank

f- Access path to the tank bed area

3.2.1 Presence of existing habitats

The aquatic and terrestrial habitats present in the project influencing area are mostly human-modified habitats such as home gardens, road reservations, tanks and associated irrigation canals, and agricultural

lands, mainly paddy fields. The forest patches in the surrounding area have been heavily damaged due to fire-fallow cultivation. Dry monsoon forest patches are limited to several locations away from the tank.

3.2.2 Presence of special habitat areas

As previously stated, the project-affected regions do not contain any key habitats, such as protected areas, habitats that support endemic threatened or range-restricted species, habitats required for the survival of migratory species, or habitats that support congregator species.

3.2.3 Existing flora species, including invasive, endemic, and threatened

A total number of 107 plant species belonging to 38 families with 02 endemic, 1 nationally vulnerable and 5 nationally near threatened (NT), species were recorded from different habitats in the study area during the field survey. Table 3-1 provides a summary of the flora species recorded during the field survey. A list of flora observed during the survey is given in Annex 2.

Both aquatic and terrestrial Invasive Alien Species (IAS) were observed within the project site and immediate surroundings. These include three terrestrial alien invasive species, *Leucaena leucocephala* (Ipil-ipil), *Panicum maximum* (*Rata thana*) and *Lantana camara* (Higuru) and two aquatic invasive plant *Eichhornia crassipes* (Japan Jabara) and *Salvinia molesta* (Salvinia). The aquatic ecosystem is not seriously threatened by the observed aquatic invasive plants. From the tank bund, neighboring vegetation, or aquatic species recorded from the tank. However, observed common terrestrial IAS *Lantana camara* (Higuru) seriously threatened to the tank and neighboring vegetation. All these terrestrial and aquatic flora species are commonly occurring alien invasive species in the dry zone habitats in the area.

Table 3-1 Summary of the Flora Species Recorded During the Field Survey

Number of Families	Number of Species	Indigenous	Endemic Species	Invasive species	Exotic Species
38	106	81 (76%)	02 (2%)	05 (55)	19 (18%)



Figure 3-7 Invasive *Lantana camara* on the bank bund

3.2.4 Existing fauna species, including endemic and threatened (avifauna, fish, reptiles, mammals, etc.)

A total number of 58 fauna species belongs to 33 families including 3 endemics, 1 nationally endangered and 3 nationally near threatened (NT), were recorded in the project-affected area. A summary of the fauna recorded during the study is included in the table 3-2. A detailed list of plant species recorded during the field study is listed in Annex 3, with information on their conservation and distribution status.

Table 3-2 Summary of the fauna and flora recorded in the project affected areas

Abbreviations used: **CR** - Critically Endangered; **EN** - Endangered; **VU** - Vulnerable, **NT** - Near Threatened; **LC** - Least Concern.

Taxa	Families	Total Species	Endemic Species	Exotic Species	National Conservation Status				
					CR	EN	VU	NT	LC
Dragonflies	02	05	-	-	-	-	-	-	05
Butterflies	04	14	01	-	-	-	-	01	15
Amphibians	02	02	01	-	-	-	-	-	01
Reptiles	04	05	-	-	-	-	-	01	04
Birds	17	28	01	-	-	-	-	01	26
Mammals	04	04	-	-	-	01	-	-	03
Total (Species)	33	58	03	0	0	01	0	03	56

3.2.5 Biodiversity in the sub-project area

Based on field observations the type of aquatic and terrestrial fauna and flora observed in the project site and surrounding area are characteristic of species found in human-modified habitats and are dominated by species that are highly resilient to change. In addition, some species of fauna and flora were recorded in the immediate impact zone. Therefore, whilst the project area supports a diverse species assemblage, it does not support critical species of habitats. Further, since the majority of the native/endemic species recorded in the project area are commonly found species listed as the least concern, the proposed project activities are unlikely to result in a significant reduction in the population of any of these species.

3.2.6 Chance finds procedures

If any rare, threatened, or endangered plant or animal species is discovered on the work site, the contractor's Environment Officer shall be immediately informed by the Irrigation Engineer (PMU) of the project. Then the Irrigation Engineer of PMU will seek directions from the Department of Wildlife Conservation as to what steps should be taken and deal with the find as per the advice of the Department of Wildlife Conservation.

3.2.7 Tree removal

A total of four trees belonging to three species (Figure 3-8), two numbers of *Terminalia arjuna* (Kumbuk) and one number each of *Syzygium cumini* (Madan) and *Vitex leucoxylon* (Nabada), need to be removed from the tank bund for proposed rehabilitation work. The identified trees, diameter at breast height (DBH), and species status are given in table 3-3.

The main reason of removing the trees identified below is allowing trees to grow on the tank bund and at the close proximity of any hydraulic structure is not suitable for the long term sustainability of the bund and those structures. In the long run roots of these trees would endanger the stability of the structures. Dead roots may create caverns or micro tunnels endangering the stability of the earth work of the embankment. Hence all trees on the tank bund should be removed including stumping and uprooting. In carrying out routine maintenance works, new plants germinating at these locations shall be destroyed and any new plant should not be allowed to grow.



Figure 3-8 *Terminalia arjuna* (Kumbuk- left), *Syzygium cumini* (Madan) and *Vitex leucoxylon* (Nabada- right), located in the tank bund.

Table 3-3 Tree identified to be removed from the proposed rehabilitation area of the tank bund

No.	Family	Scientific Name	DBH (cm)	Species status	Sinhala Name
1	Combretaceae	<i>Terminalia arjuna</i>	150	Native	කුඹුක්
2	Combretaceae	<i>Terminalia arjuna</i>	110	Native	කුඹුක්
3	Myrtaceae	<i>Syzygium cumini</i>	160	Native	මා දං
4	Lamiaceae	<i>Vitex leucoxydon</i>	135	Native	නැබඩ

3.3 Socio-economic environment

3.3.1 Socio-economic profile, including demographic features

Adachchakal Tank is identified for rehabilitation under the IWRMP belonging to Batticaloa district in Eastern province. The population in Batticaloa is 526,567 and comprises 134,966 families. The project area is mainly located in 2 GNDs named Panchenai and Kaanchirankudah belonging to Manmunai West DSD. The population in Manmunai West is 28,423 and the gender distribution is 13,887 males and 14,602 females. The Socio-economic profile, including demographic features of the three GN divisions which are related to the project area is given below;

Table 3-4 Population with Gender segregation

GNDs	Male	Female	Total
Panchenai	366	391	757
Kaanchirankudah	1,085	1,170	2,255
Total	1451	1561	3012

Total population in the GNDs related to the project area is 3012 with 1,451 males and 1,561 females. The male population is lower than the female population. Male female ratio is 100:107. National average is 100:108.

Table 3-5 Population under the main age groups

GNDs	Age Group			Total
	0- 14	15- 59	<60	
Panchenai	266	436	55	757
Kaanchirankudah	790	1355	110	2,255
Total	1056	1791	165	3012

Among the total population 59 percent account for 15-59 age group. 35 percent belong to 0-14 age group and remaining 16 % is falling under the age group of 60 and above. As per the records, 100 % of the population is Tamil.

Table 3-6 Economically Active and Non active population

GNDs	Population aged 15 yrs. and above			
	Employed	Unemployed	Economically Not active	Total
Panchenai	216	2	273	491
Kaanchirankudah	563	26	876	1,465
Total	779	28	1149	1956

Total population aged 15 years and above in the 2 GNDs is 1956. Labour force of the project related area is 807 (41.3%) of the total population. Unemployment rate is 3.4%. It is lower than national average of 5.8 percent. Economically non active population is 58.7%. Dependency ratio is 40.5%.

Table 3-7 Educational Achievement

GNDs	Educational Level						
	Primary	Secondary	GCE (O/L)	GCE (A/L)	Degree and above	No schooling	Total
Panchenai	331	168	4	1	0	183	687
Kaanchirankudah	937	594	22	3	0	506	2,062
Total	1268	762	26	4	0	689	2749

The percentage with no formal education accounts for a high rate of 25% and literacy rate is 75%. Sri Lanka literacy rate for 2020 was 92.38%. The data reveals the poor education level in the project area. About 46% of the population contributed to primary education and another 26% accounts for secondary education. A small percentage of population passed GCE O/L or A/L. The significant is no person got a higher education.

Table 3-8 Condition of houses

GNDs	Housing units by type of unit			
	Permanent	Semi-permanent	Improvised	Total
Panchenai	35	125	41	201
Kaanchirankudah	390	162	12	564
Total	425	287	53	765

Only about 55 % of the households have a permanent house while 38 % of the households are having a semi-permanent house. Remaining 7 % is improvised.

Table 3-9 Principal Type of Lighting

GNDs	Principal type of lighting			
	National Network	Kerosene	Solar power	Total
Panchenai		201		201
Kaanchirankudah	3	542	21	566
Total	3	743	21	767

Electricity consumption is an indicator for measuring wellbeing. Majority of the families use kerosene for lighting.

Table 3-10 Source of Drinking Water

GNDs	Source of drinking water					
	Well	Pipe born water	Tube well	Stream	Other	Total
Panchenai	113	3	2	47	36	201
Kaanchirankudah	543			22		566
Total	656	4	2	69	36	767

Main source of drinking water of households in tank area is shallow wells which accounts for 85% while small amount has access to tube well or Pipe born water. The significant amount (13%) use stream water or tank water for drinking. Therefore, attention need to pay on access to drinking water which could be affected to the community in close proximity during the construction period.

Table 3-11 Availability of sanitary facilities

GNDs	Type of toilet					
	Water seal	Pour flush toilet	Direct pit	Other	Not using toilet	Total
Panchenai	2	5	0	0	194	201
Kaanchirankudah	212	1	0	1	352	566
Total	214	6	0	1	546	767

Access to water and Improvements in sanitation have been shown consistently to result in better health. Only 28 % of the households have access to sanitary latrine facilities. The significant issue is 71% of the households are still not having proper sanitary facilities.

Vulnerability status of the Adachchakal tank

Table shows the vulnerability status of the Adachchakal Tank Area. The survey data revealed that there are 219 vulnerable Households in the reservoirs. The vulnerability status was identified through several dimensions as stated in the table such as elderly persons, households with disabled persons, below poverty

level and female household heads who engage in agricultural activities. Among them, about 73% them are below poverty level, receives samurdhi assistance. There is 13.7% of them female headed households. There are a smaller number of disabled persons identified, it is 1.8%. the significant number of elderly persons they engage in agriculture activities in Adachchakal Area.

Table 3-12 Vulnerable Status in Project Area

Vulnerability Status	Numbers	%
Elderly Persons	25	11.4%
Households with Disabled Persons	04	1.8%
Below Poverty level (Samurhi assistance)	160	73%
Female Headed Households	30	13.7%
Total	219	100%

Source: Manmunai West, Vavunathivu DSD

Land use pattern and vegetation within the project area

Considering about the land use pattern in the project area majority of lands are bare lands. Cultivated lands are located towards the North side (Downstream area of the tank). The Settlements are located few km distance from the tank. A significant amount of the lands covered with paddy and other field crops cultivation. Cultivated crops are paddy, coconut, vegetables, cowpea etc.



Figure 3-9 Land use pattern in project area

Farmer organizations and livelihood depend on tank water

Under the Adachchakal Irrigation scheme approximately 500 farmer families have been organized under the 5 Farmer Organizations. The total irrigable land extent is 400 hectares (about 1000 acres) However, total land extent couldn't be cultivated in the past period due to lack of water and lower storage capacity in the tank due to issues of its strength. Normally low percentage of land extent cultivated in *Yala* season compared to *Maha* season. In generally the cultivation extent in Maha season is 660 (66%) acres. Yala season cultivation extent is lower than the Maha season and it accounts for only 34% of the total extent. With the improvement of tanks there are possibilities to increase the cropping intensity to 100 percent. The reason for lower extent of cultivation in Maha season is;

- Due to different rainfall pattern in the area, there are certain seasons water is not sufficient to cultivate all the lands for Maha cultivation.
- The human elephant conflict led farmers to abandon their lands
- Some farmers have displaced to other cities.
- There are lands which are infested with pests.

The yala cultivation is totally depend on tank water and due to not availability of required amount of water cultivation extent has decreased to 33%

There are 50 fishing families that depend on this tank for their livelihood. Number of canoes used for fish catching is 10. Monthly average income of a fishing family is about Rs. 30,000. Considering that the families are engaged with other livelihoods, the majority of them are engaged in animal husbandry. Details are given below.

Table 3-13 Other Livelihood related to Reservoir water

Activity	No of Families engaged
Home Gardening	100
Animal Husbandry	40
Highland Crops	50
Fishing	50
Tourism	0
Total	240

3.3.2 Occupation and Income levels of the people surrounding the tank

Paddy Cultivation

Adachchakal tank has five farmer organizations which actively contribute to agriculture of the Panchenai GN Division. The paddy cultivation is the primary income source of the surrounding area of Adachchakal tank. The irrigation department especially focuses on paddy cultivation compared to other upland crops and priority is given to increase paddy harvesting. Farmers cultivate both Maha & Yala season. The following table shows the name of farmer organizations and proposed irrigable land area for Yala and Maha seasons. Maha season commences in October and ends in March and Yala season commences the month of march and ending month of July.

Table 3-14 Irrigable land areas of farmer organizations

	Name of the Farmer Organization	No of Farmers	Proposed Irrigable Land Area (ac)	
			Yala	Maha
01	Odiyankuda Aru	135	240	305
02	Nawalladipallam	30	60	60
03	Nedunchenai	55	55	125
04	Periya kalappottamadu	122	110	312
05	Periya kalappottamadu kila kandam	125	50	200
	Total	467	515	1002

Source: Divisional Irrigation, Pattirippu.

Other Crops Cultivation

Other crops are grown in the short period between Yala and Maha seasons, mainly during the Maha season. The following crops such as maize, ground nuts, kidney beans, cassava and chili as upland cultivations are cultivated in short periods in the Adachchakal tank area. Some farmers cultivate other crops in both seasons. In Panchenai grama niladari division, 100% of the family members engage in upland cultivation and livestock rearing. Water shortage makes a huge impact on producing cultivation crops since the water scarcity reduces the upland cultivation.

Farmers got benefits by cultivating crops in that short period in previous years and they are willing to engage in cultivation activities in another season, if they get adequate water consistently.

Income Level and Occupation Pattern

There are two GN divisions in Manmunai West Vavunathivu DSD which are in Adachchakal tank and surrounding area. Total population of the dam area is 757. According to the data, the economically active population is 216. Considering collected information, a smaller number of unemployed people are reported. Majority of them engage in different kinds of employment sectors (Table 3-15).

Major livelihood income source is agriculture. Also, around 50 people engage in the fisheries industry for their daily income. Most of the households' members engage in livestock rearing and home gardens. Men and women both take part in cultivation in the Adachchakal area. Women cultivate the high land crops in Maha and off seasons.

Adachchakal tank belongs to around 500 farm families. There are seven villages in Panchenai GN Division as Nedunchenai, Vathakkalmadu, Nallathanniodai, Othiyankuda, Panchenai, Navaladipallam and Kandiyanaaru. 350 farm families are living in Adachchakal location. There are 50 permanent fishermen and 75 part time members who engage in fishing and also, there are 75 members in the fishing community in one registered fishing community. The level of average income is Rs.25000-Rs.30000. The dwellers earn a monthly income approximately Rs.30,000 in the dam area. The dwellers represent the poor group within the proposed project area. Around 200 households earn less than 30,000 rupees per month. It is the lowest income rate.

Table 3-15 Occupation Details, Manmunai West Vavunathivu DSD, in Batticaloa District

DS Division	Agriculture	Livestock	Fishing	Govt. Employment	Private Sector	Labors	Foreign Employment	Other
Manmunai West Vavunathivu	1135	209	950	179	90	4680	1294	335

Source: Planning Branch, Kachcheri, Batticaloa

When considering the occupational patterns of the Manmunai West Vavunathivu DSD area, the majority of the occupations are based on daily wage laborers, which is 52.7% and 14.6% of them engaged in overseas related occupations. The government sector & private sector employees are less than the agricultural sector employees. According to the survey data, 12.8 % of the total population represents the agricultural activities in this DSD. But in Panchenai GN division in Adachchakal area more than 50% of the people are farmers and a significant level of people are fishermen.

Farmers are facing problems due to climate change. Farmers invest a high cost for the cultivation. But they get a low return and lose the entire cultivation or production in harvest due to drought. Many farmers said that they have adequate irrigable lands for cultivation, but they cannot produce anything because of lack of water.

Women In Agriculture

Women play a major role in agricultural activities. A significant number of women engage in upland crop cultivation activities in Adachchakal in Panchenai Grama Niladhari division. It is approximately 45% of the farmers. Also, women participate in farmer-based organizations hold the highest positions and also, the 60% of the land ownership belongs to women in Adachchakal Area. Women are producing the upland crops and contributing enormous ways in agricultural activities.

3.3.3 Land ownership of the sub-project area

Total number of farmer families in the Adachchakal Irrigation scheme is 500. Total irrigable extent is about 1000 acres. All of these lands belong to deed owners. The significant is majority of the deed owners are females and it account for 60%. Men's ownership limited to 40 percent.

3.3.4 Residential/sensitive/irrigable areas to be affected

No residential, sensitive or irrigable areas on or around the location which are occupied by sensitive land uses. No structures or sensitive locations which could be affected by the project since the project activities are only limited to the tank's reservation area.

3.3.5 Traditional economic and cultural activities to be affected

No residential, sensitive or irrigable areas on or around the location which are occupied by sensitive land uses. No structures or sensitive locations which could be affected by the project.

3.3.6 Details of affected direct and indirect populations, including vulnerable social groups

There is no land acquisition, resettlement or impacts to the livelihood. Any cultivation season will not be suspended. Issues will be arisen related to the community bathing, drinking water supplies, irrigation of home gardens etc. during the period identified for construction activities. It can be seen even under the normal situation because during the Yala season rainfall is comparatively low. Usually, the community

handle the situation by themselves. Apart from that, there are community wells and river stream nearby and can be used for domestic activities and animal feeding.

3.3.7 Sources of Livelihood to be affected

All the construction activities are scheduled to be done particularly during Yala season when the water level is low. The critical construction activities which are directly affected by the water issues are planned to be done at the end of Yala season. There is about a 3 months' time period to carry out critical construction activities. Therefore, no impacts to the livelihood due to the project activities. Water suspension is not required which will affect to the livelihood of the community. Irrigation officials ensured this period will be sufficient to complete the task. Moreover, it will not lead to diminishing of downstream water

3.4 Archaeological and cultural features to be affected and chance find procedures

There are no significant monuments or Archaeological and cultural value places located in the intervention area belong Adachchakal irrigation area or within the 500-meter vicinity. A detailed assessment based on the area of influence carried out for each of the subproject locations

3.5 Construction Work plan,

Note; Duration of YALA Season is from May to August.

Duration of MAHA Season is from September to March. Construction period will be 6 months. Date of commencement to be decided depending on above facts.

(a) Improvements to Channel including Structures.

- This item is in force throughout the construction period and has no effect to irrigation works.
- This item is also active during a period a little less than the construction period. By using a time where the canal water is not necessary this could be attended.
- Since Turnout structures are used for controlled water issues, during the construction period water may be issued whenever necessary without a control structure with the use of a bypass.
- Since a safe period is used no issue for irrigation water.

(b) Rehabilitation of tank bund including Rip Rap, Spill and both sluices.

- This item is in force throughout the construction period and has no effect to irrigation works.
- Lower portion of tank bund and Rip Rap could be finished at the beginning and water level will not affect the higher elevation construction works. Spill could be constructed by use of coffer dams.
- Since it is at downstream slope no effect to water issues.
- Turfing is done on the surface where no water is supposed to be at those locations.
- Sluices could be constructed by use of coffer dams.

4 LEGAL FRAMEWORK AND WORLD BANK'S SAFEGUARDS POLICIES WITH REFERENCE TO THE PROJECT

4.1 National Laws, Regulations and Policies

The social study reveals that it is anticipated that the proposed project interventions under IWWRMP will not lead to physical displacement of people or land acquisition, or any other damages to private property due to the construction activities of the Adachchakal tank and its related other infrastructures. Widening, new construction and new land acquisition will not be required. Followed up as the guiding documents for social safeguards of the proposed project to discuss the national legal framework for land acquisition and involuntary resettlement and the World Bank Policy on Involuntary Resettlement, including other ESSs relevant to the social part, are summarized below.

Policy and Legal framework and procedure of Land Acquisition to be followed in the Resettlement Activities. There are a number of laws and policies governing land acquisition for public purposes, the recovery of state lands, rights of acquisitive prescription, the declaration of reservations, compensation for property losses and compensation for improvements.

Land acquisition, compensation, relocation and income and livelihood restoration of the subproject will be guided by the Land Acquisition Act (LAA), 1950 and its amendments, National Involuntary Resettlement Policy (NIRP), 2001, National Policy for the Payment of Compensation, 2008, the Land Acquisition Regulations of 2009 (LA Regulations 2009), National Environmental Act of 1980 and amendments, and WB's ESS.

National Environmental Act (NEA), No. 47 of 1980 and its amendment Acts, No. 56 of 1988 and Act, No. 53 of 2000. In Sri Lanka, environmental protection and management are governed by the National Environmental Act (NEA), No.47 of 1980, which was enacted in 1980 and subsequently amended in 1988 (Amendment Act, No.56). The Central Environment Authority (CEA), the primary agency in charge of implementing the regulations of the NEA, was established in 1981 through Part IV C of the statute entitled "Approval of Projects" of the NEA.

Other than the NEA, No. 47 of 1980 and its amendments, further amendments that stipulated emissions, noise and vibration levels, the following enactments, namely **National Environmental (Noise Control) Regulations, No. 01 of 1996** and **National Environmental Protection and Quality Regulations** under extraordinary gazette notification No. 1534/18 and No. 1533/16 of 2008 under NEA section 32 & 23A, 23B, will also have a bearing on the proposed tank rehabilitation activities.

One of the main laws used in the planned project is the Irrigation Ordinance of 1946 and its later additions and amendments, such as the Irrigation Act, No. 23 of 1983.

Applicability – The proposed interventions are interconnected with the surrounding environment; thus, NEA is applicable. During the construction period generation of noise, vibration dust is expected.

The **Fauna and Flora Protection Ordinance (FFPO) of 1937, amended by Act, No. 49 of 1993 and No. 22 of 2009**, for the protection of the fauna and flora of Sri Lanka under the Authority of the Department of Wildlife Conservation, applies to the proposed tank rehabilitation activity.

Applicability – Any of the proposed project interventions interrelate with the surrounding environment consisting with the flora fauna should adhere to this act.

The Forest Ordinance of 1908 and its subsequent amendments relating to consolidate and amend the law relating to the conservation, protection, and management of forest and forest resources for the control of

felling and transport of timber under the jurisdiction of the Forest Department, as well as the **Felling of Trees Control Act, No. 09 of 1951, as amended through Act, No. 30 of 1953**, are also to be considered under the proposed activity.

Applicability – There are 8 number of trees identified to be removed from the tank bund, hence trees control act ,No .09 of 1951 will be enacted.

Further to the above, the **Soil Conservation Act, No. 25 of 1951, amended through No. 24 of 1996, Flood Protection Ordinance, No. 04 of 1924, Agrarian Service Act, No. 58 of 1979, and Antiquities Ordinance, No. 9 of 1940**, are other jurisdictions applied to the proposed project.

Applicability – These laws are applying in different stages of the construction during material extraction, crop cultivation, water distribution etc,

4.2 World Bank Safe guard policies

Environment and Social Safeguard Policies (ESS 1- 10)

There are ten Environmental and Social Standards (ESS), which specify the standards that the IWWMP will have to meet through the project life cycle. The ten environmental and social standards are:

- ESS 1: Assessment and Management of Environmental and Social Risks and Impacts;
- ESS 2: Labour and Working Conditions;
- ESS 3: Resource Efficiency and Pollution Prevention and Management;
- ESS 4: Community Health and Safety;
- ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;
- ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities;
- ESS 8: Cultural Heritage;
- ESS 9: Financial Intermediaries; and
- ESS 10: Stakeholder Engagement and Information Disclosure.

Further elaboration of the above 10 policies and its applicability to the project is explained under Annexure 6-part B.

5 ENVIRONMENTAL AND SOCIAL IMPACTS

5.1 Physical impacts

Pre-construction Stage

The existing tank bunds will be rehabilitated under this project, including rip-rap protection and other minor irrigation structure repairs such as spill improvement, construction of concrete lining at main and branch channels, construction of access road and cross drainage, and so on. Material extraction, transportation, and storage of materials for the proposed rehabilitation activities may lead to impacts on air quality due to dust and smoke, water pollution due to soil-laden surface runoff, noise and vibration due to extraction of materials and transportation.

Pre-construction related activities such as stockpiling of materials, disposal of debris, construction of labour camps, selection of land for vehicle parking, etc., will require temporary land use within the project affected areas close to the tank. Removal of green cover vegetation and trees and preparation of land will lead to dust, noise and vibration impacts, contamination of water and soil due to disposal of solid waste, etc., are the expected impacts during the pre-construction stage of the project. The specific mitigatory measures for the above impacts are discussed in the ESMP for easy reference.

Construction Stage

The anticipated negative impacts on the physical environment during the construction period of civil work will mainly be due to changes in the air quality, water quality, noise and vibration impacts due to proposed construction activities and supply of materials. These impacts will be expected within the construction area as well as outside the construction area since the material extraction sites are located beyond the project site. The main purposes mainly include the operation of quarry sites; crusher plants; excavation of materials from the tank bed and surrounding locations; transportation of construction materials to the construction site; and storage and removal of construction waste to the disposal sites.

Sand, gravel, and metal extraction will cause soil erosion, lowering of the river beds, destruction of the river banks, depletion of natural resources, and destruction of natural habitats at the material extraction sites. Water stagnation in excavated areas such as borrow pits will provide breeding sites for mosquitoes and other disease-causing vectors. Property damage due to blasting around quarry sites, reduction of aesthetic beauty, impact on biodiversity, and accidental risk to the public are the main issues around material extraction sites.

Removal of trees and ground cover vegetation in the construction area and disposal of debris generated from the area will cause soil erosion, environmental pollution and impact on the visual quality of the natural settings. Impact on water quality: sedimentation, siltation, contamination of the aquatic ecosystem of the tank and increase in turbidity of the water source will also be expected due to erosion of exposed areas (slopes of bund, material extraction sites, storage yards, disposal areas etc.). The specific mitigatory measures for the above impacts are discussed in the ESMP for easy reference.

Operational Stage

Earthen canals are being converted to concrete canals. The canals supply water only in dry season for a short period. Thus, the water infiltration and ground water recharge from the canal water flow is limited. Construction of concrete lining makes a minor impact on the ground water table since the infiltration is not enough to feed the ground water.

When the rehabilitation work is finished, it will not be anticipated that the tank will have any substantial effects on the physical environment while it is in operation. Only minor effects could happen during routine maintenance.

5.2 Ecological impacts

Pre-construction stage

The proposed set of interventions (strengthening the tank bund, extension of the sluice barrel, short length access road improvement and rehabilitating the distribution system comes under five divisions) does not involve any new vegetation clearance other than clearing the upstream and downstream faces of the bund and toe areas. However, due to a lack of regular maintenance, these structures are covered with vegetation, and some of the species observed in this vegetation include alien invasive species. The rehabilitation work will result in the removal of such vegetation. Disposal of removed vegetation should be done at designated locations only to prevent the spread of invasive species. Therefore, the extent of the vegetation affected is relatively small (less than 1 ha).

The project-affected area does not fall within any protected areas, and there are no sensitive habitats. The project-affected area supported an assemblage of species that are commonly found among man-modified habitats in the dry zone of Sri Lanka. No endemic species or range-restricted species were observed in the project-affected area. The only threatened species observed is the Asian Elephant, which shows a wide distribution within the dry zone, and the impact of the proposed project on elephant habitat is negligible.

Construction Stage

During construction, the water level of the tank will not be completely reduced, and, therefore, species that depend on the tank will not be significantly impacted. Further, this is a tank that undergoes seasonal fluctuations, and therefore the ecology of the tank is defined by such seasonal fluctuations. As the repair work will be done mostly in the dry season, at which the tank is at a low water level, a significant ecological impact will not take place due to this activity. As the tank does not feed any downstream water bodies, the civil works will not have a significant impact on water quantity. However, if proper measures are not taken during construction to prevent the flow of construction waste to the canals, the water quality of the downstream area will be affected, which will affect the aquatic organisms that inhabit these habitats. The project does not include the establishment of new canals, which will not result in any loss of habitats or further fragmentation of habitats. Therefore, canal improvement will not have any significant negative impacts on habitats. However, during the construction period, the construction-related disturbance will have an impact on water quality, and hence the species will be negatively impacted during the construction period. The proposed project activities will not result in the removal or disposal of any aquatic species. During the operational phase, water availability in the area will increase, which will have a beneficial effect on aquatic species.

The project will involve the use of heavy machinery, use of soil and other construction material brought from outside the project area. All of these can serve as sources of seeds of alien invasive species. Therefore, the project will increase the risk of the introduction of new alien invasive species to the area, which already contains at least two alien invasive species.

Operational stage

During the field investigations, the local community members pointed out that there is an ongoing human-elephant conflict in the area. Therefore, if the farmers receive more water after the rehabilitation of the tanks, that will result in an increase in cropping intensity, and there is also a likelihood of escalating the human-elephant conflict. Thus, the project must also include an assessment on this aspect, and if an

escalation of conflict is likely, measures should be included, such as providing assistance to farmers to construct temporary electric fences to protect their paddylands as well as permanent electric fences around the village to protect the homesteads and perennial crops grown in their home gardens.

It is recommended that the project proponent develop and execute an environmental management plan to ensure the best practices during the construction and operation of the project. It is also recommended that the project proponent must take steps to ensure that the alien invasive plants are destroyed on-site to prevent the spread of these species.

5.3 Socio-economic impacts

Pre-construction stage

As it stands at present, renovation of these reservoirs and canal systems is an essential requirement to facilitate the large number of families who are engaged with agriculture activities. It will give huge benefit to the community. Forgo a season is not necessary for Adachchakal reservoir. Project intervention locations are free from encumbrances. Strengthening the tank bund, Rip-Rap protection and improvement the spill are the major construction activities. In addition, need to construction of e lining at main canal and branch canals, improvement to access road and construction the few numbers of box culverts. However, temporary inconvenience might be there until major work is finished. The community in the adjacent area use tank and canal water for bathing and also domestic purposes such as bathing and animal feeding. There is no encroached land within the areas of intervention. Interventions do not require any acquisition of land or relocation of the families.

The projects envisaged in Eastern province under IWRMP may have a minor impact on the livelihoods. Therefore, there is no need to develop a Livelihood Support Assistance (LSA) programme or any other compensation due to not having an impact on lands or livelihood.

Water wastage is high due to the dilapidated canal system. With renovation of canals and bund, more opportunities will be arisen on farming. (Such as, using more water for agricultural activities.) Especially during the Yala season, the cropping intensity is low. According to irrigation official data, it reveals that out of total irrigable extent about 80- 90 % cultivated in Maha season and it is about 50-60% in Yala season. With the rehabilitation of the dam and canal system, the cropping intensity will be increased to the significant level.

Historically and Culturally Important Areas

This project involves constructing existing deteriorated structures. Therefore, no impact to the surrounding area or proposed construction site that is located in the Adachchakal tank. Total project area and its surrounding area also totally man modified area. There are no social or historically and culturally sensitive areas within the project study area.

Livelihood impacts

All the construction activities related to the Adachchakal irrigation system are decided to be carried out during the off-farm season. End of the Yala cultivation season prior to the start of the Maha season from June to October there are 3-4 months for carrying out the construction activities. During Yala season also not issuing water for some canals due to lack of water. Irrigation officials ensured there will be no water suspension for cultivation. Carrying out construction activities during the off seasons shall avoid or minimize any loss to livelihood or employment activities of the people. Scheduling the activities to off-season can bring these people as a labour force for the construction activities which will bring about an alternate income for them. It would be an additional benefit for them due to the project.

Full drawdown shall not be done for reservoirs which also support drinking water schemes. Need to schedule the rehabilitations works, targeting the dry season where most of these tanks get totally dried.

Constructional stage

There is a small fishing community (about 50 families) associated with Adachchakal tank. Fishing community will not be directly affected since there will not be any reduction in the water level in the tank and therefore, they can engage in their fishing activities. Once the construction design is finalized, if any impact on the fishing communities is identified, (which will be very minimal), could be considered for livelihood assistance.

Project is planning to implement the Livelihood Support Assistance (LSA) programme to mitigate temporary loss of livelihoods as a result of project interventions. ***It could be ensured that no need to implement such a programme for this project.***

Proposed entitlements for affected parties

No need for any kind of land acquisition in Adachchakal tank due to not having widening the canal or new constructions. All identified activities are limited to existing canal and other infrastructures. In the circumstance of any strip of private land is permanently required for any project intervention, such land shall be taken as per the provisions of LAA and compensation shall be paid based on LAA and its subsequent regulations. However, (if necessary) entitlement matrix has been developed by the project to address the different types of losses that are expected in the project.

According to the Resettlement Policy Framework prepared by the IWWRMP, a cutoff date will be declared by the project for the eligibility for LSA programmes for affected parties. Date of baseline survey conducted for each sub-component date of baseline survey conducted will be the last consideration for cutoff date. ***The social screening survey revealed that there will be no impact to declare a cutoff date or arrange a LSA programme.*** In the event that there is a requirement for land acquisition, the cut-off date for eligibility for compensation for non-title holders shall be the last date of census survey carried out for that proposed project subcomponent. For title holders, the cut-off date shall be the date in which section 2 notice under LAA is published.

Impacts on material transport

Rock, soil and material transportation will be carried out some distance away from the construction sites using (Provincial Road development authority) PRDA roads and PS roads will impact to the buildings or property are unlikely. However, there are few numbers of houses located in close proximity of the canal improvement area and close to the access road to tank bund. The dust due to transportation may cause damage to the health of community living close to the roadsides. The contractor needs to prepare a Material and Spoil Management Plan (MSMP) as part of the EMP. The MSMP will include required materials, potential sources and estimated quantities available (from quarries or burrow pits), transportation routes and traffic controls and management measures to minimize interference with normal traffic.

Contractors are expected to be vigilant to avoid damages to village roads or PS roads or public and private property during the material transport. If any damage does occur to public and private property as a result of construction work, the contractor will immediately restore damaged land and structures including any common property resources affected. If restoration is not initiated at a committed timeline agreed by those affected, the Contractor will pay replacement cost.

Impacts on presence of construction workers

The construction workers may be coming from various places with various cultures. Due to different culture and habits, there could be various social impacts including: Social disruption; Possibility of conflict or antagonism between community and workers; Spread of communicable diseases including HIV/AIDS; Children are potentially exposed to exploitation; Impacts on general health and safety of community. Considering the potential social destruction due the workers presence, the following mitigation measures are proposed. To mitigate these impacts:

The Health Safety Plan (HS) will include agreement on consultation requirements, establishment, and monitoring of acceptable practices to protect community safety, links to the complaints management system for duration of the works (in accordance with the grievance redress mechanism – GRM) and system for reporting of accidents and incidents. The PMU-IWWRMP ensure these actions are enforced.

- a) Before construction commences the contractor/s will conduct training for all workers on their requirements to engage the local community and ensure national laws are respected, special consideration and respect for women, elderly and children are to be strictly followed.
- b) Sri Lankan minimum wage requirements to be observed.
- c) Child and/or trafficked labour will be strictly prohibited for any activities associated with the project.
- d) Children will be prohibited from entering the worker's camps, accommodation, works area/construction zone and prohibited from playing on any equipment or machinery associated with the project
- e) Protection for the public in vicinity of work sites and safe access across work sites provided for the public.
- f) Maintain a good communication system to handle when fishermen face to a risk or critical situation due to construction of tank bund and Rip Rap during the fishing in reservoir.

5.4 ENVIRONMENTAL AND SOCIAL SCREENING DECISIONS

Note: The anticipated impacts described in this section are mainly for the construction phase only. However, any impacts that are induced during operational stages (if any) are also presented where applicable. The impacts are confined to negative impacts, as the positive impacts as a result of improved dam safety, and improved operational capacities of Headworks are obvious and perceived.

Impacts were classified into the following categories:

- No: Environmental effects are perceived to have been no change at all.
- Low: Environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.
- Moderate: Environmental effects are sufficient to noticeably alter important attributes of the resource but not to destabilize them.
- High: Environmental effects are clearly noticeable and are sufficient to destabilize the resource.

No	Screening question	Yes	No	Significance of the effect	Remarks
PROJECT DESIGN					
• GENERAL					
1	Will the sub project include any physical construction work?	yes		Moderate	The sub-Project consists of; <ol style="list-style-type: none"> 1. Strengthening the tank bund 2. Rip-Rap protection of tank bund 3. Improvement to spill 4. Construction of Concrete lining at Main & Branch channels 5. Construction of Access Road 6. Construction of 3 Nos. of Box Culverts.
2	Does the project include upgrading or rehabilitation of existing physical facilities?	yes		Moderate	The Project includes upgrading and rehabilitation of existing physical facilities as mentioned in the above row.
• Rehabilitation of dam head works, and rip rap associated irrigation infrastructure					
3	Will improvements to tank bund including the headworks and rip rap		No		

No	Screening question	Yes	No	Significance of the effect	Remarks
	structures require the water level in the reservoir to be artificially drawn down?				Construction work will be carried out at the Yala season's low water levels. Since the planned construction schedule does not require a decrease in water levels, there will be no effect.
4(i)	If yes, can this lead to any alteration of water flows in surface as well as groundwater sources, especially in the dry season?		No		During the proposed construction time of the dry Yala season, the water table is always low. As experienced by the Department of Irrigation, there is no impact on the ground or surface water sources. Although necessary, there is no need of reduce drastically. As a result, either the ground or surface water sources are not impacted.
4(ii)	Will the water draw down affect the ecology of the tank and other important wetlands that depend on the main lake and canal system to maintain water level?		No		As per the proposed interventions there won't be a complete drawdown of the tank. Further, this is a tank that undergoes seasonal fluctuations and therefore the ecology of the tank is defined by such seasonal fluctuations. As the repair work will be done mostly in the dry zone at which the tank is at a low water level a significant ecological impact will not take place due to this activity.
5	Will repairs to irrigation canals 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.		No		During the dry Yala season, lining at major and branch channels can be completed concurrently with rip-rap restoration work in a three-month time period. Even in a normal circumstance, during this time, problems with communal bathing, drinking water supply, irrigation for home gardens, etc. develop. Therefore, a temporary suspension of irrigation water is not required. There will be no drinking water intakes, industrial or recreational water uses in the command area. Civil works, bund rehabilitation, rip rap construction, and related activities increase soil vulnerability to erosion and can cause water

No	Screening question	Yes	No	Significance of the effect	Remarks
					quality deterioration in the tank due to increased turbidity and sediments. Sediment delivery into water bodies results in a reduction in water quality. However, since canal rehabilitation and other structural construction are not involved in residential environment, social issues will not be expected.
6	Will civil works lead to diminishing of other downstream water uses as a result of water quality impairment?		No	Reference Only -IWWBMP	<p>During the identified period people do not use tank water or canal water. End of the Yala and prior to the start of the Maha, water is not issued in canals. They use pipe water and well water for drinking and domestic purposes. However, there could be an impact to the water quality due to civil works of the tank which may increase the sediment transport rate. As downstream water bodies do not receive water from the tank the civil works will not have a significant impact on water quantity. However, if proper measures are not taken during the construction period to prevent flow of construction waste to the canals, the water quality of the downstream water bodies will be affected which will affect the aquatic organisms that inhabit these habitats.</p> <p>In addition, minor issues will be raised in access to the tank during the construction period for tank water user for bathing due to improvement in bund.</p>
7	Will there be changes to original design levels of the head works that will result in inundation of new land in the catchment		No		There will not be an increase of the crest level of the spill. Therefore, it will not result any inundation of new land in the catchment. Bund top levels could be increased to provide adequate free board which will not result any inundation of new land in the catchment.

No	Screening question	Yes	No	Significance of the effect	Remarks
8	Will the rehabilitated scheme serve new areas of paddy under its command?		No		There will not be change in the existing command area, but with the proposed rehabilitation work water wastage due to the dilapidated canal system will be improved. Also, with renovation of canals and tank bund water storage and water distribution can be done as per the design requirement.
<ul style="list-style-type: none"> Additional supplementary facilities 					
9	Will there be construction of new irrigation or drainage canals or widening of existing canals?		No		There are no new canal construction or widening canals. Limited to the rehabilitation of existing canal system.
9(i)	If yes, will new/modified canal trace/alignments interfere with existing land uses (habitats, home gardens) in a negative way?		No		No. The project will involve improvements to the existing canals only. Therefore, canal improvement will not have any significant negative impacts on land use.
9(ii)	If yes, will the trace interfere with other sensitive infrastructure such as roads, pedestrian paths, schools and temples?		No		No. Since the rehabilitation is only for the existing canal system there will not be any interference with the sensitive infrastructure. There are no pedestrian paths, schools and temples or other sensitive infrastructures in close proximity.
<ul style="list-style-type: none"> Project Construction 					

No	Screening question	Yes	No	Significance of the effect	Remarks
10	Will construction and operation of the project involve actions which will cause physical changes in the locality (topography, land use, changes in water bodies, etc)		No		The scenery of the project site will not be changed by the structural construction, rehabilitation, improvement, and repair activities envisaged.
11	Will construction of the project cause soil erosion within the site due to steep grade or soil content?	yes		Moderate	The exposed soil in the project area is vulnerable to soil erosion during the construction stage. The UP slope is exposed and vulnerable to soil erosion as a result of ground preparation, removal of topsoil, and vegetation for rip-rap protection. Material stockpiles, material extraction sites, dumping sites, and areas identified for turving materials will also be susceptible to soil erosion. The anticipated impacts are temporary during the construction stage and can be mitigated to an acceptable level due to proposed mitigation measures through EMP, proper planning and site management.
12	Will the project involve dredging and disposal of dredge material as well as other solid wastes during construction?	Yes		Moderate	There is no any dredging work to be carried out. But during the other construction activities construction waste will be generated.
13	Will the project release pollutants or any hazardous, toxic or noxious substances to air?	Yes		Low	No hazardous, toxic, or noxious substances are released during the construction stage of the project except exhaust gasses, black fume due to vehicles, machinery, and equipment, and the emission of dust. These impacts are temporary and short-term.
14	Will the project cause noise and vibration or release of light, heat energy or electromagnetic radiation?	Yes		Moderate	The noise and vibration generated during the construction activities and transportation of material may cause temporary impacts to the natural environment in and around the project area. Acoustic interference from

Reference Only - IWRMP

No	Screening question	Yes	No	Significance of the effect	Remarks
					construction noise can disrupt behavior of fauna, social interactions between animals and may have significant consequences for both individuals and populations living in nearby habitats.
15	Will the project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, groundwater?	Yes		Low	When it rains heavily, oil, fuel, and lubricant leaks from machinery and construction equipment are washed away, contaminating the water with oil and grease. Over time, this causes thin oil layers to build on the water. With proper maintenance of the vehicles and machinery in used in a separate location can significantly lower this impact by reducing the interference of water with the pollutant.
16	Will the project cause localized flooding and poor drainage during construction? Is the project area located in a flooding location?				The construction work is scheduled to be completed during the Yala season, which is the dry season in the region. As a result, localized flooding or drainage problems won't be anticipated.
17	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		There are several scenically important high landscape and scenic beauty areas located at catchment and around the project site. However, construction activities will not interfere or affect those locations since they are located a considerable distance from the site.
18	Are there any other areas on or around the location which are		No		The tank is not located in ecologically sensitive area.

No	Screening question	Yes	No	Significance of the effect	Remarks
	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?				
19	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 breeding, nesting, foraging, resting, migration, which could be affected by the project?		No	Reference Only -NWRMP	The project-affected area does not fall within any protected areas, and as indicated above, there are no sensitive habitats. The project-affected area supported an assemblage of species that are commonly found among man-modified habitats in the dry zone of Sri Lanka. No endemic species or range-restricted species were observed in the project-affected area. The only threatened species observed is the Asian Elephant, which shows a wide distribution within the dry zone, and the impact of the proposed project on elephant habitat is negligible.
20	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		Tank is only subjected to rehabilitation where existing infrastructure will be improved. No any loss of green fields.
• Land related Impacts					
21	Will the sub-project require acquisition of land and or other assets?		No		No, there are no any acquisition of land or other assets as per the proposed interventions. But

No	Screening question	Yes	No	Significance of the effect	Remarks
22	Is land for material mobilization or transport for the civil work available within the identified work site / Right of way?		No		No settlement/inhabitants related to the construction area. There are sufficient spaces and government-owned bare lands. No impact on privately owned lands. More materials need to be transported while constructing the bund and the strip rap. However, bund road is not used by the community for transport activities.
23	Is the site chosen for this work free from any encumbrances (e.g. squatters, encroachers)?	Yes		Low	Not any kind of settlement, cultivation or any livelihood activities related to the site. All the renovations are carried out within the boundary of existing canals and structures. No encroachers or scatters living close to construction sites.
24(i)	If the land parcel is to be acquired, is the actual plot size and ownership status known? If so, how much?		No		No land acquisition will be taken place.
24(ii)	Will the affected land/structure owners likely to lose less than 10% of their land/structures area?		No		None of the lands will be affected.
24(iii)	If any land required for the work is privately owned, will this be purchased or obtained through voluntary donation?		No		No land required is privately owned. All the rehabilitation works are carried within the Irrigation Department owned lands.
24(iv)	Are the land/structure owners willing to voluntarily donate the required land for this sub- project?		No		This is not taking place as there are no any additional land requirement under the rehabilitation work.

No	Screening question	Yes	No	Significance of the effect	Remarks
25	Is the project likely to cause partially or fully damage to, or loss of housing, shops, or other resource use?		No		Not significant. No partially or fully damage to, or loss of housing, shops, or other resource use.
26	Are there any routes or facilities on or around the location which are used by the public for access to recreation or other facilities, which could be affected by the project?		No		Not significant. There are no any such facilities available or affected through the project
• Livelihoods Related Impacts					
27	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		Not significant. No impact to the people with or without deeds. Not any impact to settlement, cultivation or any livelihood activities related to the site. All the renovations are carried out within the boundary of existing canals and structures.
28	Will there be damage to agricultural lands, standing crops, trees, etc.?		No		Not significant. No damage to agricultural lands, standing crops, trees, etc
29	Will there be any permanent or temporary loss of income and livelihoods as a result of the civil works? If so, for what period?		No		No impacts. Irrigation officials ensured that water level in the reservoir would not be artificially drawn down due to the improvements of tank bund including the head works and rip rap structures as it will be carried out during the Yala season where the water level is already at low level. Farmers and adjacent community will be benefitted on financially, economically and socially after construction works.

Reference Only -IWRMP

No	Screening question	Yes	No	Significance of the effect	Remarks
29(i)	Have these people/ businesses who may suffer temporary loss of incomes or livelihoods been surveyed and identified for payment of any financial assistance?		No		No impacts
29(ii)	Are there any vulnerable households affected?		No		No impacts to vulnerable households
29(iii)	Will people permanently or temporarily lose access to facilities, services, or natural resources?				No people permanently or temporarily lose access to facilities, services, or natural resources. There will be minor impacts in access to the tank for bathing activities during the bund renovation but impacts are insignificant. the bund road is not used by the community for transportation.
• Impacts on community resources, public services, cultural/historical sites, etc					
30	Are there any areas on or around the location which are densely populated or built-up, which could be affected by the project?		No		No such areas which could be affected by the project
31	Are there any areas or features of historic or cultural importance on or around the location which could be affected by the project?		No		No such areas or features of historic or cultural importance located in the project area which could be affected by the project
32	Are there any areas on or around the location which are occupied by sensitive land uses e.g., hospitals,		No		No areas on or around the location which are occupied by sensitive land uses. No structures or sensitive locations which could be affected by the project

No	Screening question	Yes	No	Significance of the effect	Remarks
	schools, places of worship, community facilities, which could be affected by the project				
33	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?		No		There is no such has been observed during the field observation work.
34	Will the project cause the removal of trees in the locality?		No		No removal of trees related to the social cultural or economic impacts. There are four number of trees which a requirement of the construction will be removed which are placed along the tank bund.
35	Are there existing land uses or socio-economic activities on or around the location which could be affected by the project?		No		There will be no harm or damage or any kind of impacts to settlement, homesteads, land use or socio-economic activities by any of the proposed work related to project
35(i)	Are there bathing spots that will be unusable during the construction period?		No		Yes, there are several bathing spots located in the tank and rehabilitated canals. However, community do not use these spots for bathing due to not having enough water during the dry period. This period is selected for the construction activities. Therefore, no impacts to the community as a result of constructions. These bathing places are unusable due to not releasing water along the canals during this period even without the project. Normally in this period community

No	Screening question	Yes	No	Significance of the effect	Remarks
					use community wells and other wells, river and streams for bathing which are flowing close proximity.
35(ii)	Is there subsistence fishing taking that will get disturbed due to canal rehabilitation		No		No significant impact. No fishing in the canals during the selected period for construction activities.
35(iii)	Are there any home gardening and other industrial, agricultural activities that will get disturbed due to construction activity		No		No there are no any disturbance to the any of those listed. The agricultural activities will not be affected since the construction will be taken place, during the Yala season where water
35(iv)	Are there drinking water supply sources located in the project area that may be rendered unusable during construction period?		No		No significant impact. Community not use tank or canal water for drinking. They use pipe born water, wells and community wells.
35(v)	Are there tourism activities taking place in the project area that will get disturbed by construction activity?		No		Not significant impact. Local people arrive to see the tank for entertainment when there is sufficient water level in the tank. The period for the construction activities is selected when there is lower water level. However, tourism is not prominent in this area.
<ul style="list-style-type: none"> • Construction related impacts (labor influx, community health and safety, etc) 					
36	Will there be any risks and vulnerabilities to public safety due to physical hazards during construction of the Project?		No		No impacts to vulnerabilities to public safety during the construction. During the construction period it is required to follow up the protection methods by the contractor for the protection of public safety

No	Screening question	Yes	No	Significance of the effect	Remarks
37	Are there local village roads that will become unsafe due to contractor's usage		No		Since the access road to this tank is already not in a proper condition and it is a gravel road. During construction there would be further damages to the road and higher volume dust generation, it is vital to consider this matter and take measures.
38	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?		No		Population density is low in the area. There will be minor impacts to the road users (passengers, school children) during the material transportations. Dust barriers should be used to cover the sites in which the construction work will be carried out in order to minimize the dust emissions to the community and their activities. The material should be covered during transportation by using tarpaulin.
39	Will the project require significant number of workers (skilled and unskilled)	Yes		Moderate	For the construction period there is a requirement of both skilled and unskilled workers
39(i)	Will the project attract significant number of migrant workers to the area?	Yes		Low	Skilled labourers would be needed to hire from outside of the area. Commonly contractor has their own skill labours. However unskilled labours would be hired from the neighbor villages.
40	Will construction activity lead to burrowing of earth, gravel and sand? And/or quarrying for rock?	Yes		Moderate	Material extraction sites for the proposed work have been identified within the project site (Sand) and our side (Gravel, Mettle) area. Contractors and material suppliers must adhere to the project EMP and receive licenses and permits from regulatory line agencies.
41	Will the project increase the risk of introduction of alien invasive species to the locality	Yes		Moderate	The project will involve the use of heavy machinery, use of soil and other construction material brought from outside the project area. All of these can serve as sources of seeds of alien invasive species. Therefore, the project will

No	Screening question	Yes	No	Significance of the effect	Remarks
					increase the risk of the introduction of new alien invasive species to the area, which already contains a number of alien invasive species.
OPERATIONAL IMPACTS					
42	Will the project lead to stagnant water and drainage problems causing increased mosquito breeding	Yes		Moderate	The projected borrow sites for gravel and mettle quarries in the outside region of the tank and borrow places for the earth in the tank's catchment are not restored in line with the standards, they may act as mosquito breeding grounds.
43	Will the project involve removal and disposal of aquatic invasive species?		No		The proposed project activities will not result in the removal or disposal of any invasive aquatic species. During the operational phase, water availability in the area will increase, which will have a beneficial effect on aquatic species.
44	Will the project involve regular maintenance dredging of the canal network		No		It is the responsibility of the Department of Irrigation to rehabilitate the canal network.
45	Will the scheme after rehabilitation serve a larger command area?		No		With the rehabilitation of the structures, it can be assured water distribution can be done as per the for the land under its command area even during the dry period as well. Specially in Yala season there are no sufficient water for cultivation. Water security for the cultivation is low. Risk will be reduced for farmers. It is expected cultivation extent will be increased 30-40 % during Yala and 10% in Maha season

Significance of Impact – Low-Moderate – High

6 PUBLIC CONSULTATION AND DISCLOSURE

Public Consultation to Identify Issues and Solutions

The community was consulted in order to raise awareness about the project as well as the potential for livelihood involved. The issues that were raised and discussed involved, among others:

- Issues pertaining to the details and implementation of the project;
- The potential for livelihood involved as well as issues connected to these.

The participator approach system was utilized in order to gauge the responses of the community towards the topics under discussion. The response rate for this method was very high. The parties with whom these issues were discussed included the community, officers involved, other stakeholders as well as all parties liable to be affected by the implementation of the project. The grievances that were raised by the affected parties were discussed, and solutions are given where necessary and practicable.

Table 6-1 Summary of the public consultation meeting minuetts

Province/District/DSD	FGD Categories	Key points discussed
Eastern Province consultation meeting held on 3.08.2022		
Batticaloa Munmunai West DSD	Farmers & Fishing Community Adachchakal Tank	<p>The significant issue face by the farmers is insufficient water for cultivation. In Yala enable to cultivate only one third of the total extent. In Maha season it is about 50-60 percent of the total extent. Water security could be ensured after rehabilitation of the dam and canal improvement.</p> <ul style="list-style-type: none"> • If there are possibilities to raise the bund level it would be great benefit to farmers and other water users. The cultivation extent could be increases double. There are large number of bare lands around the tank and these lands could be utilized. • Agriculture is the major livelihood income of our people. There are no other alternatives. • We highly appreciated to government and officials to allocate funds for Adachchakal tank rehabilitation. For a long period, there was no improvement. After the year 1975 there was no renovation took place for a five decades. • Irrigation canal system is well built up in the 'Mahaweli System B area' located in Polonnaruwa area and we are waiting for a long period such kind of project. It will cause to improve our technology, increase cropping intensity, enhance water security and we could be able to turn for commercial agriculture to receive more income. • The water storage capacity of the tank is low. But there is a huge catchment area covered with scrubs and bare lands. If there are possibilities to increase the

Province/District/DSD	FGD Categories	Key points discussed
		<p>storage capacity of the tank by raising bund, there are unutilized lands in downstream area which could be used for cultivation.</p> <ul style="list-style-type: none"> • The sluice belong to the tank is insufficient to issuing water for fill the cultivation requirement. As per our knowledge we realize the requirement of an additional sluice. We request to search this on technical side. • Further farmers requested to construct new canal right side of the tank for providing water for upstream cultivation. • The additional sluice needs to design up stream of the dam to feed the highland cultivation and it would immensely benefit to the village community. In Mahaweli area there are lift irrigation system to issuing water for highlands. • Most of the farmers in this area cultivate highland crops such as groundnut, cowpea and maize. • Women also highly contributed to agricultural activities, especially for homestead and highland crop cultivation. • The remarkable thing is majority of the land owners are female. Most of them are active members of the farmer organizations. • Generally, two acres of lands are provided by government and issued permit under the Land Development Ordinance (LDO permits). When getting married their daughters transfer the deed for daughter as a dowry for marriage and it is the reason for increased the female land owners. • The most of the farmers who are cultivating highland crops suffer from waters shortage during the dry period request another sluice for upland cultivation and wish to receive water for minimum of 25 percent of the total cultivation. Currently they are losing crops due to lack of water scarcity. • Another burning issue is not having access to clean water. The limited amount of water provides by the local council (Pradeshiasaba) through bowsers from a long distance borne diseases are highly spread in the area. • Infrastructure facilities availability is very low. Facilities related to healthcare, transport and education is poor.

Reference Only - IWMP

Province/District/DSD	FGD Categories	Key points discussed
		<ul style="list-style-type: none"> • The farmer organization support for community welfare too. Recently they provided financial assistance to grant scholarship for school children of farmers and funding to sports activities of the school. • Their view is no impacts to the farmers or community during the construction period. • According to the given testimonials by community that they have a strong relationship with irrigation technical officers and unanimously give their contribution for dam improvement. • There are some religious statues and shrines in the downstream of tank but no impacts due to construction.
Meeting Minuets of the Women participation meeting		
Batticaloa Munmunai West DSD		<ul style="list-style-type: none"> • Most of the lands are legally belongs to women householders. • They are highly engraining in other crop cultivation. • They have the membership of the farmer organizations as well, and they participate in the meetings. • Among total women,40% of them participate in cultivation. • Maize, Cowpea, groundnuts are the cultivation crops.

6.1 During the stakeholder and community consultation, the following matters were highlighted.

- All the construction activities scheduled to carry out for Adachchakal reservoir dam and canal rehabilitation.
- Benefits to the community who are depending on tank water for their livelihood (farmers and fisheries) and other tank water users
- The period that construction activities will be carried out
- Current issues related to the livelihood activities
- Suggestions to improvement of construction activities
- The most common complaint from the populace seems to be the loss of crop due to wild elephants
- The people are in an opinion that they will have economic advantages and could cultivate more after renovation of the tank and will reduce the disadvantage currently faced due to lack of water in both season (Maha and Yala) due to low storage of the tank and water delivery issues. Currently they enable to cultivate 66% in Maha and 34% in Yala. It is expected to increase CI value to 100 percent.
- When inquiries were raised about pertaining to forego season, irrigation officials and farmers are in an opinion there are sufficient time in end of Yala season to complete the critical activities which are cause to forego season.
- The farmer families were informed that they needed tank renovation rather than forego a season.

- As a result of not maintaining the elephant fence, would increase the damage to crops by the wild elephants and need to expand the elephant fence.

Also, the details pertaining to the project were explained to the communities with maximum transparency ensured. This was considered especially when the communities were the final beneficiaries of the project outcomes.

Reference Only -IWWRMP

6.1.1 Photographs taken during the public consultation meeting



Meeting with the farmers



Discussion had with the women householders



Field observation with the irrigation officers and farmers



information gathering from women householders

Reference Only -IWRMP

7 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

7.1 General overview

As per the identified potential social and environmental impacts, the Environmental and Social Management Plan (ESMP) has been prepared in accordance with the ESMF, and the RPF prepared for the IWWRMP.

The generated site-specific ESMP and relevant guidelines will be included as a Special Condition in the Bid Document, and also ESMP will be attached to the contract to form part of the contract requirement. And also, it is important to consider this ESMP will also be equally applicable to sub-contractors, including nominated sub-contractors, if any. The Contractor will be responsible for compliance with the requirements of the ESMP. With the assistance of the Engineer on behalf of the Employer, the Project Proponent (PP) will monitor the compliance of the ESMP by the Contractor.

The bidders will be advised to carefully consider the ESMP requirements during the construction stage when preparing the bid and pricing the items of work. In particular, prior to bidding, the associated costs are to be provided as a provisional sum and/or as part of the engineering cost. The prescriptions and clauses detailed in the ESMP are integral components of the specifications for relevant items of work unless separate items are included in the Bill of Quantities. Thus, separate payments will not be made with respect to compliance with the ESMP.

The Contractor, through an appointed Environmental and Social Officer, will assist the Engineer in conducting his/her duties as required in the ESMP implementation by:

- a) maintaining up-to-date records on actions taken by the Contractor with regard to the implementation of ESMP recommendations
- b) through timely submission of reports, information and data to the employer through the Engineer,
- c) via participating in the meetings conveyed by the Engineer or any relevant line agency and
- d) any other assistance requested by the Engineer.

In case the Contractor or the sub-contractor/s fails to implement the actions specified in the ESMP, the Contractor will be informed in writing. If corrective actions are still not taken, the Engineer will take whatever actions it is deemed necessary to ensure that the ESMP is properly implemented.

7.2 Impacts and their mitigation

Table 7-1 Environmental Management Plan

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
Design and Planning stage					
01	Delays in mobilization and timely implementation of work program & poor coordination, and extended duration for project completion	<ul style="list-style-type: none"> • Scheduling, coordination, procurement, obtaining approvals, and project implementation should be expedited to the practicable extent. • Standard and good construction practices should be followed at all times. • The possibility of simultaneous deployment of several gangs needs to be pursued, which will allow the work to be completed within the shortest possible duration. • The proposed trees to be removed which are located on the tank bund should be further examined by project implementation and management unit and select only the required trees to be removed considering its long term impacts to the structural stability of the tank bund and the other structures. • Finalize construction programs duly considering provisions for the work schedule <p>The following plans have to be developed during the planning/design stage:</p> <ul style="list-style-type: none"> ○ Construction Work Plan (with the approval of the IA) ○ Environmental Management Action Plan (based on this ESMP) ○ Material Procurement Plans ○ Transportation Plan for material, equipment, and waste and Traffic Management Plan for each road segment (for haulage routes) ○ Health & Safety Plan 	Included in the design cost	Contractor: One-off activities before starting construction	IA and reported to the PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> ○ Construction Waste Management Plan ○ Other plans, such as drainage management and erosion control (if any) 			
		<ul style="list-style-type: none"> • On social perspective no negative impacts were identified on the farming community or fisheries community. All the construction activities related to the Adachchak irrigation system are decided to be carried out during the off-farm season. • If could not complete the task on agreed time schedule due to unavoidable reasons or uncertainties, there may be possibilities to have negative impacts to the downstream community. Therefore, the following action have to be taken; • Make it mandatory for the contractor to adhere to the construction schedule but prevail upon him to complete the rip rap and upstream sluices within the shortest possible time without compromising on quality • Ensure the mobilization of contractor prior to start the construction activities • Once done, start filling the tank so that water will be available for the next Maha season cultivation 			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> • Release water periodically during the construction period to minimize water going waste, ensure replenishment of wells and reduce impacts on environment (thereby also reducing impact on domestic water) • Ensure the material transportation, fulfil the machinery and labor requirement prior to start the works. • Monitor to ascertain whether programs are moving towards correct directions or running effectively as planned and achieving the desired objectives. 			
		<p>• A monitoring committee need to be established soon after mobilization of the contractor. The said Committee consists of representatives from each of the Implementing Agencies, SSO and PMU. This forum is used for individual agency to present their constrains and issues if any, review the current progress, take collective decisions on remedial measures and take appropriate actions immediately.</p> <p>Function of the Monitoring Committee</p> <ul style="list-style-type: none"> • Obtaining the progress report periodically. • Reviewing the progress of construction activities at the committee meetings. • Holding discussions on the constraints which could be cause to delays and take collective decisions on the remedial measures. • If unable to complete the task due schedule time and can't avoid the delays postponed to next year. <p>(To complete the task is contractor responsibility and the additional cost borne to the contractor</p>			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>Community awareness</p> <ul style="list-style-type: none"> The people in the scheme need to aware of the critical condition of the dam and the period of the construction activities carrying out, difficulties that they have to face during the period of rehabilitation work. If unable to achieve the target under any circumstance due time period, aware the community about the negative impacts of on their livelihoods and find solutions to mitigate impacts (such as advancing the previous cultivation season and delay the commencing next cultivation season and encourage to cultivate short period varieties). 			
		<p>Advance Cultivation Season (ACS) to allocate more time for construction activities</p> <ul style="list-style-type: none"> If there is any risk achieve the target expected time period, advancing Yala cultivation season is the main strategy proposed to minimize the potential negative impacts caused by disruption of water supply from the tank. The prime objective of Advance Cultivation Season (ACS) and use short aged seed paddy is to allow a reasonable time period for the construction work whilst safeguarding the paddy income to farmer community. However, there is a water shortage for paddy cultivation in Yala seasons. In generally cultivated extent is about 40 % of the total extent. Face to the unavoidable issues need to encourage farmers to adjust themselves on an advanced calendar of cultivation operations that would offer chances to earn more or less similar income from paddy cultivation, ensure household food security and maintain the food requirement. The PMU and PID need to ensure all stakeholders 			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>would strictly adhere to the proposed calendar of cultivation and water management operations.</p> <ul style="list-style-type: none"> • Explore the possibilities of cultivating other field crops (OFC) and vegetables in the paddy fields if a water shortage situation arises due to dam rehabilitation work. • Timely cultivation of Maha season with completion of harvesting before mid-February when rain is comparatively less. Irrigation facilities are anticipated immediately afterwards to allow land preparation for Yala paddy cultivation within a short period. Three-month paddies would be sown and harvesting completed by end May. Next Maha season land preparation could be delayed by about 2-3 weeks. Then additional 5-6 weeks available for construction activities. It offered a win-win situation suggesting the practicability of implementing dam rehabilitation work without disrupting to cultivation. • ACS is community wish; it involves little adjustments in cultivation calendar and institutional support by way of facilitation and coordination entailing hardly any additional cost. <ul style="list-style-type: none"> ✓ the pre-Kanna Meeting of the Maha have to be conducted by mid-September in the previous year. The need for adjusting to an advanced Yala programme also should be announced at this meeting. ✓ Farmers should be informed at the commencement of Yala that there will no water releases for paddy after end May as the tank has to be fully drained out for rehabilitation 			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> ✓ PMU should take the responsibility for convincing the FOs about the importance of strict adherence to the calendar of operations. ✓ Conformity by the officials of concerned authorities about timely input supply and management of the APCS ✓ The monitoring committee should comprise of the representatives of the involved agencies and two office bearers from each Farmer Organization for effective monitoring of the calendar of operations 			
02	Poor environmental planning by the Contractor	<ul style="list-style-type: none"> • Designate a person to look after environmental and social (E&S officer) matters who will be responsible for coordination with the IA for implementing the EMP and EMoP, including any monitoring actions, etc. • The same person can be designated as the Environmental, Health, and Safety (EHS) Officer, to be appointed towards the end of the planning stage, before the implementation of any project activity. He will select locations and facilities for labour camps in consultation with the PHI of the area. EHS officer will thoroughly review compliance with regulatory requirements, and a summary requirement will be prepared (one for workers and another common one for the public, including the workers). • Coordinate with the IA/PMU on confirmatory surveys to be conducted during the design phase and complete as required with external experts (only if needed) • Proper planning of activities is needed considering climatic conditions and local weather patterns: e.g., 	Included in the project cost	Contractor: One-off during mobilization and continuously throughout the contract period	IA and reported to the PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> - Rainfall and its run-off in the project area may cause disruption to construction works. - Furthermore, climatic conditions play an important role during the dispersion of noise and air pollutants. Seasonal climatic conditions shall be considered for the scheduling of construction activities. - Pipe upstream is placed at a level enabling full cross-sectional area of pipe is used for flowing water. Adequate Pipe slope to be provided to avoid siltation inside the pipe. - The plan dimension of silt traps to be such that a mamoty or a shovel could be easily insert to remove silt. Elevation height (depth) of silt trap should be provided to retain silt until removed without overflowing depending on the duration of maintenance period. - Spacing of catch pits to be adequate to clean the path of water flow with provided cleaning rods. - With the use of historical rain fall data a hydrological analysis should be based in deciding the sizes of storm water drainage canals. 			
03	Incorporation of Environmental Design Recommendations	Run-off from the project will produce a highly variable discharge regarding volume and quality and, in most instances, will have no discernible environmental impacts. However, the following mitigation measures are needed to minimize any impacts:	Design Cost	Contractor's Engineer, in collaboration with the IA/PMU	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> • Culverts and canal designs shall be considered to allow overland flow and sheet flow from paved areas and cross drainage without any blocking. • Drainage paths need to be identified and demarcated on the sites and excavated site areas. For silt traps, designs shall be considered for the trapping of silt in a proper manner, with facilities for easy removal of silt, if any. • For catch pits, appropriate designs shall be considered in order to drain out rainwater without blocking or flooding. • Designed drainage facilities must be made capable of disposing of the run-off generated in a given water catchment without inundating the surrounding land for a selected rainfall event. • To minimize erosion and wash off of sediments from spoil heaps, a waste management plan has to be prepared for the disposal of spoil, excavated/dredged material and construction debris; Waste shall be disposed of in existing approved sites; new sites shall be developed considering siting guidelines, maintained and operated accordingly • Efforts shall be taken to minimize the overall material required for the project by adopting various approaches – balanced cut and fill, re-use as much excavated material from this project as possible 			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
04	Climate Change Consideration and Vulnerability Screening	<ul style="list-style-type: none"> Climate change vulnerability checks are needed in compliance with the requirements of the Department of Irrigation and adopting proper mitigation measures as may be required. e.g., extreme weather scenarios such as high rainfall intensities and flooding Efforts shall be made to plant additional trees to increase the carbon sink. The trees may be selected with the help of the Forest Department, and space for additional planting (if the remaining space within ROW is not adequate) will be secured with the help of the Forest Department, Divisional Secretary (DS) and Community-based Organizations (CBOs). This will partially compensate for the increased carbon emissions released to the atmosphere during the lifecycle of the project components, including those during the construction phase. 	Included in the project cost	Contractor: One-off during mobilization and continuously throughout the contract period	IA and reported to the PMU
05	Delays related to the selection of locations for project interventions e.g., Labour camps, stockpile areas, storage, and disposal areas	<ul style="list-style-type: none"> The priority of locating labour camps is near subproject locations. Sites to be considered will result in the least damage to property and vegetation and the least disturbance to the neighbourhood, including traffic movements. Residential areas are not the best locations to set up worker camps, given the possibility of social conflicts. Extreme care should be taken to avoid negative impacts on low-lying areas. All locations should be included in design specifications and plan drawings. Storage areas shall be secured to minimize the risk of trespassing and theft. They shall also be safe from access by children, animals, etc. 	Included in the project cost	Contractor: One-off before starting construction	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> The Contractor shall submit a method statement and plans for the storage of hazardous materials (fuels, oils, and chemicals) and emergency/contingency procedures. 			
Pre-Construction/Site preparation phase					
01	Site Access Restrictions	<ul style="list-style-type: none"> All public access to the Site needs to be prohibited or controlled via (especially the canal bund road) adequate fencing and signage in order to avoid risk to the public. The site entrance should include adequate signage indicating the details of the proposed sub-project, implementing agencies etc., as well as safety signage to keep the public away. Where possible, a fence shall be erected to cover the working area, where possible, using cost-effective fencing materials consisting of chain link fence fabric, concrete posts, etc., in order to ensure animals and the public are unable to freely access the Site. The Contractor shall not enter or occupy for any purpose with workers, tools, equipment, construction materials, or materials excavated from project activities within the boundaries of any private property outside the designated site boundaries without written permission from the owner and/or tenant of the property. 	Engineering Cost	IA the Site in collaboration with the IA/PMU	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
02	Material Sourcing	<ul style="list-style-type: none"> The Contractor is required to ensure that all construction materials are sourced from the identified sites, which are from the high-ground areas in the tank bed. Any change to these sites and the identification of new sites will require prior safeguard approval via the Engineer. These sites will be developed and restored as per the guidance provided in this ESMP. Quarry material and sand shall be purchased from licensed operators. If the Contractor intends to operate his own quarry site, he will be required to obtain all licenses, approvals, and consents and provide the details to the IA for confirmation. The Contractor is required to maintain the necessary licenses and environmental clearances for all borrow material, sand and quarry materials they are using—including soil, fine aggregate, and coarse aggregate. Sourcing of any material from protected areas and/or designated natural areas, including tank beds apart from what has been identified and approved, is strictly prohibited. Contractor-operated borrow/quarry sites shall be developed and remediated per the guidance provided in this ESMP. Site Remediation/Rehabilitation plans shall be provided as and when it is directed by the IA. The Contractor is required to submit in writing all the relevant copies, numbers, and relevant details of all pre-requisite licenses, etc. and report on their status to the Engineer on a quarterly basis. 	Engineering Cost	Contractor through EO	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
03	Construction of Cofferdams	<ul style="list-style-type: none"> When necessary, the Contractor should draft a method statement for coffer damming for the relevant construction locations, and if one is not already provided by the project proponent with plans, the Engineer will have to approve it before construction can begin. The method statement should include the method of damming, material requirements and sourcing, access to and from the coffer dam to the bund area, contingency plans for unforeseen rainfalls, and removal of the coffer dam. 	Engineering Cost	Contractor	IA/PMU
04	Worksite management	<ul style="list-style-type: none"> The Contractor should identify an area on-site (or close to the project area) to store/stock construction materials and equipment, which will be approved by the Engineer and demarcated for material storage as per the site plan. Appropriate safeguards and protection measures are required, such as covering and fencing of material storage areas. Fencing to keep wild animals away should also be considered. Parking, repairing, and storing vehicles, machinery, and equipment shall be done only at designated areas of the work site and/or in any other designated areas by the Engineer. The Contractor shall provide instruction and advice to drivers and operators (both company-owned and hired) to park vehicles and store equipment in these designated areas. 	Engineering Cost	Contractor through EO	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
05	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 and will be submitted to the Engineer prior to establishment. Fencing to keep wild animals away should be considered. 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 male and female labourers. The Contractor has to maintain necessary living accommodations and ancillary facilities in a functional and hygienic manner as approved by the Engineer. All temporary accommodations will be established and maintained in such a fashion that safe water supply is available for drinking, cooking, and washing. The wastewater collection and disposal system for the camp, if not available, will be planned and implemented with concurrence from the Local Public Health Officer (PHI). Collection and disposal of sewage should not pollute water sources. Any on-site collection and disposal facility should conform to provisions of SLS745. An EPL should be obtained from the CEA if the number of occupants in the camp exceeds 20. 	Engineering Cost	Contractor	IA/PMU
06(a)	Recruitment of labour	<ul style="list-style-type: none"> No workers under the age of 18 should be hired for this contract. The contractors must comply with the labour laws of GOSL and should make sure that there is no child labour and forced labour. The Contractor should give equal pay for equal work regardless of gender, ethnicity or 			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>caste. No discrimination in job opportunities and inductions has been given based on gender.</p> <ul style="list-style-type: none"> Recruitment of labourers, both unskilled and skilled, from the locality, will reduce the need for having large labour camps and will lead to lesser impacts due to such labour camps during the construction stage 			
06(b)	Labour Training and Awareness	<ul style="list-style-type: none"> Labour awareness programs to educate the labourers about gender-based violence (GBV), general conduct, the Environmental and Social Management Plan, Occupational Health and Safety etc., should be conducted throughout the contract period as agreed in the contract, as stipulated. Ensure all site personnel has a basic level of environmental awareness training. Heavy vehicles and construction and other operating equipment (such as excavators, loaders, pneumatic and hydraulic machinery and equipment, electrical appliances and equipment, etc.) shall be adequately trained on any potential hazards associated with their task. No operator shall be permitted to operate major mechanical equipment without having adequate prior experience and/or having been trained appropriately by the Contractor. All employees must undergo safety training. 	Engineering Cost	Contractor	IA/PMU
07	Tree Removal	<ul style="list-style-type: none"> Only a few native trees (4 numbers) are required to be removed for the bund works. The Contractor should adhere to the guidelines and recommendations made by the safeguards staff of 	Engineering Cost	Contractor	DWC/FD

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>the project and the CEA/Divisional Secretariat, if any, with regard to the felling of trees and removal of vegetation.</p> <ul style="list-style-type: none"> • Prior to clearing, all trees and green cover vegetation removed must be identified and marked. • Clearing operations must be strictly controlled to ensure minimal clearance in both the construction area and the material extraction sites in the catchment. • Protection of existing trees should be considered as much as possible. Avoid the removal of trees as much as possible. • The removal of trees from temporarily used lands should be avoided to the extent possible. • Removal of trees should be done with minimum disturbances to soil cover and without damage to adjoining trees • Trees removed need to be compensated on a minimum of a 1:3 basis at a suitable location on-site or in the tank catchment. Preferred number is 1:5. • Only trees required to be removed along the canal where deemed necessary and justified via the final technical design will be removed. • 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: 			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> • Contractor will make every effort to avoid removal and/or destruction of trees of religious, cultural and aesthetic 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. • Trees will be removed from the construction sites before commencement of construction with prior permission from Divisional Secretariat followed by respective Grama Niladhari depending on the location. • 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 bund and toe areas where tree were uprooted. • 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 Timber Corporation. <p><u>Compensatory Planting</u></p> <ul style="list-style-type: none"> • Compensatory plantation by way of Re-plantation of at least thrise 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. 			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> 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. <p>Additional Tree Removal</p> <ul style="list-style-type: none"> Additional trees and vegetation will be planted/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 Environmental Specialist and 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. 			
08	Information Disclosure among Stakeholders	<ul style="list-style-type: none"> Discuss about the grievances with the residents in the project affected area. For the process, residents will be briefed immediately once the Contractor is mobilized for the project, its purpose, design, and outcomes via a documented community consultation session. The Contractor shall take note of all impacts, especially nuisances, pollution scenarios and safety hazards that will be of concern to the residents, and take the necessary measures as stipulated in the ESMP to mitigate them. The Contractor is required to establish a grievance redress mechanism for all stakeholders and will need to maintain a log of any grievances or complaints and the actions taken to resolve them. 	Engineering Cost	Contractor/IA/IA/PMU	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> A copy of the ESMP shall always be available at the project supervision office on Site. 			
Construction/Intervention Phase					
01	Site clearance and land development	<ul style="list-style-type: none"> Water spraying should be done at regular intervals to avoid dust generation due to site clearance. Avoid stockpiling any excess spoils at the site for long periods. Such material should be disposed of at approved/designated areas without delay If disposal is required, the Site shall be selected from barren lands, no/least vegetated areas; site should be away from residential areas, water bodies, and any other sensitive land uses Spoil/wastes should be properly segregated during collection and dumped in the designated disposal site; Prohibit burning of vegetative matter, construction and other waste (including that of labour camps); Ensure that wastes are not haphazardly thrown in and around the project site; provide proper collection areas/bins/craters, etc., and create awareness of proper waste management. 	Engineering Cost	Contractor	IA/PMU
02	Disposal of debris and spoil	<ul style="list-style-type: none"> All debris and residual spoil material, including any left earth, shall be disposed of only at locations approved by the engineer/LAs. The debris and spoil shall be disposed of in such a manner that waterways and drainage paths are not blocked. The disposed of material should not be prone be washed away by run-off, and it should not be a nuisance to the public. The debris and residual spoil material, including any left earth, shall be used to refill the borrow areas as directed by the Engineer and 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>subjected to laying of topsoil as per recommendations for conservation and re-use of topsoil in an environmentally acceptable manner.</p> <ul style="list-style-type: none"> All spoil, topsoil, demolition waste (if any), and cut vegetation should be covered by secure tarpaulins whenever transported offsite to prevent material from being blown away by trucks. 			
03	Conservation and re-use of topsoil	<ul style="list-style-type: none"> The topsoil 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 at a height not exceeding 2 m, according to the direction from the Engineer in writing. Removed topsoil could be used as productive soil when replanting or 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 thin layers as appropriate. 	Engineering Cost	Contractor	IA/PMU
04	Transport and storage of construction materials	<ul style="list-style-type: none"> The capacity of the trucks shall not be exceeded when transporting material to construction sites. The Contractor shall minimize the possibility of public nuisance due to traffic congestion during the transportation of materials. If local roads are used, routes are to be selected based on the axle loads; loads should be safe to prevent damage to local roads, culverts and bridges. All vehicles used for haulage should be in good condition, and speed limits as per nationality stipulated for haulage must be maintained. 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> • If there is damage to local roads and other utilities due to hauling in roads caused by the Contractor, the Contractor shall be responsible for repairing all damaged infrastructure/roads, if needed, through relevant authorities. <p>Air quality impacts: material haulage, vehicle and equipment use:</p> <ul style="list-style-type: none"> • Vehicles travelling to and from the construction site must adhere to speed limits to avoid producing excessive airborne dust. • Use tarpaulin sheets to cover loose material (soil, sand, aggregate) when transported by trucks • Wheels and undercarriage of haul trucks should be cleaned sufficiently before leaving the construction site/quarry; Control dust generation while unloading the loose material (particularly aggregate, soil) at the Site by sprinkling water, if needed. • Stabilize surface soils where loaders, support equipment, and vehicles are operated, by using water and maintain surface soils in a stabilized condition • Access and other cleared surfaces, including backfilled trenches, must be dampened whenever possible and especially in dry and windy conditions to avoid excessive dust. • Ensure that all the construction equipment and machinery are fitted with emission control devices which are operating correctly; ensure that only those vehicles and equipment in good condition and are in good maintenance are used for project construction. Vehicles and machinery are to be kept in good working order and to meet the manufacturer's specifications for safety, fuel consumption, etc. 			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> Vehicles/equipment should have a valid Vehicle Emission Certificate (VEC) showcasing emissions below the specified limits; Maintain VEC records of all vehicles at all times for ready inspection at the work sites 			
05	Emission of dust during cover application and construction.	<ul style="list-style-type: none"> Storage of construction materials (sand, soil, metal, etc.) in covered areas with plastic sheeting (of about 6 mm minimum thickness) in order to minimize the levels of airborne dust. Mud patches caused by material transport vehicles on the access road should be cleaned immediately. To suppress dust, the Contractor should sprinkle water on exposed soil and stockpiled material on the Site sufficiently frequently, depending on the weather Water sprinkling should be done more frequently on days that are dry and windy (at least two times a day), as the levels of dust can be elevated during dry periods. Control access to the work area and prevent unnecessary movement of vehicles, workers, and public trespassing into work areas; limiting soil disturbance will minimize dust generation 	Engineering Cost	Contractor	IA/PMU
06	Prevention of soil erosion during site preparation	<ul style="list-style-type: none"> Debris material must be disposed of away from waterways and drainage paths so that it does not clog them. Silt traps should be constructed to avoid siltation into waterways where necessary. To avoid siltation, drainage paths should not be directed to any waterway directly, and they need to be separated. 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> • Embankment slopes, slopes of cuts, etc., shall not be unduly exposed to erosive forces. These exposed slopes shall be graded and covered with grass or other suitable material as per the specifications. • All fills, backfills, and slopes shall be compacted immediately to reach the specified degree of compaction and establish proper mulch. • Most of the impacts can be avoided if construction work can be carried out during the dry season. • Within the yards and site areas, exposed areas and areas of loose soil shall be turfed or planted with shrubs. Retention of the ground cover and vegetation (to the extent as possible) is the most natural and effective way of protecting soil from erosion by wind and rain; the feasibility of phasing site clearance in this way in order to reduce these impacts should be investigated when the construction work is planned in detail by the Contractor. • Newly-constructed and/or unstable slopes, loose rock and boulders shall be appropriately protected. Embankment surfaces shall be compacted and turfed. Proper drainage improvement works shall be done along with toe areas of embankments and slopes. • Movement of construction vehicles shall be restricted to access roads, haulage routes and yards to prevent damage to roads and pavements. 			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
07	Borrowing of earth and management of self-operated borrow sites	<ul style="list-style-type: none"> Extraction and transportation of borrowed materials shall be done only with the approval of the Geological Survey and Mines Bureau. The Contractor shall comply with the environmental requirements and guidelines issued by the GSMB, CEA, and the respective local authorities with respect to locating new borrow areas. All borrow pits and areas have to be rehabilitated at the end of their use by the Contractor in accordance with the requirements and guidelines issued by the GSMB, CEA, and the respective local authorities and guidelines presented in the ESMP. Noise and vibration control methods shall be strictly followed and shall comply with national regulations and IFC EHS Guidelines on Occupational Health and Safety. 	Engineering Cost	Contractor	IA/PMU
08	Quarry operations and management of self-operated quarry sites	<ul style="list-style-type: none"> A site operational plan for opening and closing of quarry sites shall be prepared and submitted to the Engineer for clearance with a valid Environmental Protection License (EPL) and Industrial Mining License; Prior approval needs to be obtained from GSMB, CEA, and LAs as Pradeshiya Sabha. Selected quarry sites need to have proper safety measures such as warnings, safety nets, etc., and third-party insurance cover to protect external parties that may be affected by blasting. Quarry sites should not be established within protected and sensitive areas. Materials shall not be obtained from quarries that have ongoing or prone to disputes with the community. 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> The maintenance and rehabilitation of the access roads in the event of damage by the Contractor's operations shall be the responsibility of the Contractor. Copies of all relevant licenses have to be maintained by the Contractor for review and documentation by the Engineer. Noise and vibration control methods shall be strictly followed and shall comply with national environmental regulations and IFC EHS Guidelines on Occupational Health and Safety. 			
09	Impact on habitats and wild life	<ul style="list-style-type: none"> Material extraction activities should be conducted with the guidelines of and recommendations of CEA. New transportation routes, storage yards and other facilities should be located without impact on the environment sensitive sites, terrestrial habitats and water bodies. Avoid contamination of water bodies and terrestrial habitats with construction waste Construction trash, sediments, and runoff containing oil, fuel, or other hazardous elements should not be discharged into waterways. New invasive species should not be introduced to the project area due to construction related activities. Restoration of impacted habitats once construction and material extraction is completed up to their original status. To minimize any influence on fauna and flora, vegetation clearing should be kept to a minimum. 	Engineering /Environmental cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> • Conservation of biodiversity with special attention to endemic and threatened species • For the working population, wildlife poaching is completely illegal. • Fencing of construction areas to protect animal without access to construction zones. 			
09	Operation of machinery	<ul style="list-style-type: none"> • Only personnel who have prior experience in operating machinery, equipment, and material processing plants should be employed for the project. • Ensure that all the construction equipment and machinery are fitted with emission control devices which are operating correctly; ensure that only those vehicles and equipment in good condition and are in good maintenance are used for project construction. Vehicles and machinery are to be kept in good working order and to meet the manufacturer's specifications for safety, fuel consumption, etc. • Vehicles/equipment should have a valid Vehicle Emission Certificate (VEC) showcasing emissions below the specified limits; Maintain VEC records of all vehicles at all times for ready inspection at the work sites 	Engineering Cost	Contractor	IA/PMU
10	Noise from vehicles, machinery, equipment and construction activities.	<ul style="list-style-type: none"> • No activities shall be carried out that generate excessive noise during the night hours (from 6:00 pm to 6:00 am) • High noise generating machinery will not be used for the construction activities. • All equipment and machinery should be operated at noise levels that do not exceed the maximum permissible noise levels at the boundaries of the land in which the sources of noise are located for construction 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>activities are 75 dB (A) L_{Aeq} during daytime and 50 dB (A) L_{Aeq} during night-time (Daytime: 6.00 am – 9.00 pm, night time: from 9.00 pm – 6.00 am).</p> <ul style="list-style-type: none"> • All equipment should be in good working condition. Regular maintenance of all construction vehicles and machinery to meet noise control regulations stipulated by the CEA [Gazette Extraordinary, No 924/12 (1996)] • Idling of temporary trucks or other equipment should not be permitted during periods of loading or unloading or when they are not in active use. This practice will be ensured, especially near residential and sensitive areas. • The effectiveness of exhaust silencers shall be checked during routine servicing operations and, if found defective, will be replaced. • To keep noise levels at a minimum, maintenance of vehicles, equipment, and machinery should be regular and up to the satisfaction of the Engineer. <p>Health Impacts of Noise and Vibration:</p> <ul style="list-style-type: none"> • If a worker is exposed to noise above a noise exposure limit, the Contractor must look for options for engineered noise control, such as using low-noise excavators, jackhammers, drills, and power generators. • Limit the duration of each worker depending on the Exposure Levels and Time Limits for corresponding exposure levels (follow IFC Occupational Safety Standards) 			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> If it is not practicable to reduce noise levels to or below noise exposure limits, the Contractor must post warning signs in the noise hazard areas. Workers in a posted noise hazard area must wear hearing protection. Use non-explosive blasting chemicals, silent rock cracking chemicals, and concrete breaking chemicals are preferred. 			
11	Pollution of soil and water due to fuel, lubricants and other hazardous waste	<ul style="list-style-type: none"> All construction vehicle parking areas, fuel/lubricant storage areas, vehicle, machinery, and equipment maintenance and refuelling areas, and vehicle, machinery, and equipment refuelling sites must be located away from the construction area. Fuel and lubricant spills must not contaminate the ground or water. The Contractor should arrange for the collection, storing, and disposal of oily wastes at the pre-identified disposal sites for the approval of the Engineer. All spills and collected petroleum products should be disposed of in accordance with standards set by the CEA. Oil interceptors shall be provided at appropriate locations (e.g., vehicle service areas); Residual and hazardous wastes such as asphalt and bituminous waste (if any), solvents, oils, fuels, and lubricants shall be disposed of in approved disposal sites approved by the CEA Hazardous material, including oil and grease to be collected in leak-proof, properly-labelled containers and stored appropriately. Proper signs should be displayed for hazardous waste) and should be handed over to authorized third parties who have CEA licenses Concrete, slurry, paints, and chemicals such as bituminous products (if any), fuel, lubricants, paints, solvents, and other chemicals shall be 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		stored at designated places, well-sheltered and impervious floors (preferably paved). The paving area of the storage yards be provided with a gentle slope and shall be made so that any leaks/spills can be collected into a chamber for safe disposal. Such chemicals shall be well-managed, and efforts shall be made to minimize waste generation.			
12	Loss of minor water sources and disruption to water users	<ul style="list-style-type: none"> • The Contractor should make workers aware of how to minimize and conserve water during construction. • Arrange an adequate supply of water for the project's purpose throughout the construction period and, if necessary, obtain water from ground or surface water bodies, with permission from the Engineer and relevant authority. • Apply best management practices to control contamination of run-off water during maintenance and operation of equipment. • The Contractor needs to protect sources of water used by the community so that continued use of these water sources will not be disrupted by the work. • If 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. 	Engineering Cost	Contractor	IA/PMU
13	Preventing siltation into water bodies	<ul style="list-style-type: none"> • The Contractor needs to take the necessary measures to prevent the siltation of water. • Construction materials containing small or fine particles should be stored in places without being washed away by run-off. • Temporary soil dumps should be placed at least 200–250 m away from water sources and covered with thick polythene sheets. 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> All fills, backfills, and slopes should be compacted immediately to reach the specified degree of compaction and establish proper mulch. Avoid earthworks during rainy days and monsoon season to prevent soil run-off and schedule works during the dry season when the water levels are low Avoid stockpiling of earth fill during the monsoon season unless covered by tarpaulins or plastic sheets; Install temporary silt traps or sedimentation basins along drainage leading to water bodies. 			
14	Preventing contamination of water from construction waste	<ul style="list-style-type: none"> To avoid construction-related effluent from immediately contaminating water sources or irrigation systems, the steps outlined in this ESMP must be followed. The discharge standards as stipulated in the National Environmental Act, must be strictly adhered to. Place storage areas for chemicals, fuels & lubricants away from any drainage leading to water bodies; Store fuel, construction chemicals, etc., under shelter and on an impervious floor, also avoid spillage Pump out the water collected in the pits/excavations to a temporary sedimentation basin and dispose of only clarified water into drainage channels/streams Consider safety aspects related to trench/pit collapse due to the accumulation of water; dispose of any residuals at the identified disposal site, and stockpile construction material away from water bodies, floodplains and reservations 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> No spillage of oil, grease, chemicals, etc., into the wetlands and water bodies, floodplains and reservations; Ensure that no silt-laden run-off from nearby construction area enter the water bodies; Do not clean or wash machinery and equipment near water bodies; prevent any waste/water from discharging to water bodies. Inspect all vehicles daily for fluid leaks before leaving the vehicle staging area, and repair any leaks before the vehicle resumes operation Excess water sprinkling on soil and material to control dust may also generate run-off, which may enter the water bodies; this should be avoided by controlled water sprinkling 			
15	Impacts on drainage canals, natural drainage paths and activities that would cause (local) flooding	<ul style="list-style-type: none"> The Contractor's activities shall not lead to flooding conditions as a result of blocked drainage paths and drains or any other modifications to be built- and/or natural drainage canals/paths. The Contractor may not permanently close or block existing canals and streams. If needed, obtain approval from the relevant agencies, such as ID/Divisional Secretary, prior to such action being taken. The Contractor shall take all measures necessary and as directed by the IA to keep all drainage paths and drains clear of blockage at all times. Contractors must return the Site to its original condition once the need for such a diversion, closure, or blockage has passed. If flooding or stagnation of water is caused by the Contractor's activities, contractors shall provide suitable means to (a) prevent loss of access to any land or property and (b) prevent damage to land and property. 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> • After completing the canal rehabilitation sections, the canal sections should be cleared of all debris, waste, etc., prior to the water issue so that no d/s pollution occurs. • Works associated with the gated structures, such as sandblasting and painting, should be done outside the canal and installed at the completed gate to avoid any water pollution due to hazardous waste material. • The Contractor shall not select land within flood-prone areas to dispose of excavated and spoil material, locations for material stockpiles, yards and other locations where other construction materials are stored 			
16	Public Safety	<ul style="list-style-type: none"> • The Site should always have entrance restrictions for the general public. Restrict public access to all areas where construction works are ongoing through the use of barricading and security personnel. • Ensure that all material, equipment, workers and all activities are conducted within the demarcated/barricaded strip of land along the road; there should be no spillage of any activity outside this zone • In all relevant areas, safety signboards and signboards that forbid entry and warn of risks should be visible. • To cover any losses or harm to members of the public or construction workers during the project, the Contractor will secure third-party insurance. • Under supervision, only personnel with training and experience shall drive any construction trucks. The safety of pedestrians shall be made a priority while hauling material. 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> Control dust pollution to ensure public safety during material hauling – implement dust control measures as suggested under air quality Plan transportation routes to avoid heavily populated areas; Schedule deliveries to avoid congested areas during morning and evening peak traffic periods; Astute coordination to combine deliveries where possible to avoid under-utilization of vehicles and reduce the number of journeys Source materials in close proximity (within Eastern Province) and other local outlets wherever possible to reduce the length of delivery journeys 			
17	Safety of workers Occupational health & safety	<ul style="list-style-type: none"> To the extent that is applicable to this contract, the Contractor should adhere to the requirements for the workers' safety as outlined in ILO Convention No. 62, the Safety & Health Regulations of the Factory Ordinance of Sri Lanka and IFC EHS Guidelines on Occupational Health and Safety. Provide compulsory H&S orientation training to all new workers to ensure that they are apprised of the H&S Plan, including rules of work, PPE, preventing injury to fellow workers, etc.; Conduct regular toolbox safety briefings; tendencies, causes, risks & safe procedures The Contractor should provide all necessary safety equipment, such as first aid kits and fire extinguishers, for the work site. The site office should have signage in the local tongues with instructions on first aid management, emergency contact information, and emergency operational protocols. Prior to the start of the construction activities, all labourers should get fundamental on-site safety instruction during the ESMP course. 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> • A briefing on the dangers of working on a dam rehabilitation site should be included in the training provided to labourers. • Workers who are subjected to loud noises and those engaged in crushing, compaction or concrete mixing processes shall be given earplugs. • The Contractor is responsible for providing PPE safety gear, including masks, earplugs, safety belts, helmets, and safety goggles. • Provide supplies of potable drinking water; Provide clean eating areas where workers are not exposed to hazardous or noxious substances. • Ensure the visibility of workers through their use of high-visibility vests when working in or walking through heavy equipment operating areas • Ensure moving equipment is outfitted with audible backup alarms • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high-voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to and easily understood by workers, visitors, and the general public as appropriate. • Disallow worker exposure to high noise for more than 8 hours/day without hearing protection. The use of hearing protection shall be enforced actively. • Employ workers with adequate experience, training, and know-how. These workers shall be led by an experienced supervisor or Engineer who will provide the leadership in daily activities. 			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> • General regard for the social and ecological well-being of the Site and adjacent areas is expected of the site staff. Workers need to be made aware of the following general rules: (i) no alcohol/drugs on-site; (ii) prevent excessive noise; (iii) construction staff are to make use of the facilities provided for them, as opposed to ad-hoc alternatives (e.g., fires for cooking, the use of surrounding bushes as a toilet facility); (iv) no fires permitted on-site except if needed for the construction works; (v) trespassing on private/commercial properties adjoining the Site is forbidden; (vi) other than pre-approved security staff, no workers shall be permitted to live on the construction site; and (vii) no worker may be forced to do work that is potentially dangerous or that he/she is not trained to do. • The Contractor must monitor the performance of construction workers to ensure that the points relayed during their induction have been properly understood and are being followed. If necessary, a translator shall be called to the Site to explain further aspects of environmental or social behaviour that are unclear. • The rules that are explained in the worker conduct section must be followed at all times. 			
18	Prevention of accidents	<ul style="list-style-type: none"> • Prevention of accidents involving the public or vehicles or accidents during construction periods will be done via adequate training and guidance to all workers. • The site office should always have a first aid kit on hand, along with a sufficient supply of sterile dressing materials and first aid equipment. • The availability of suitable transport to take injured or sick people to the nearest hospital should also be ensured. 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<ul style="list-style-type: none"> • A notice board with names and phone numbers for emergency services such as ambulance services, hospitals, police, and the fire brigade should be prepared. • Workers should be provided with personal protective equipment, (safety boots) to be worn to protect from Snake bites, insect bites, Also proper lighting should be provided for work during night time and it is recommend to minimize night work as much as possible. <p>To avoid attracting wild elephants to the camp sites, garbage management should be done properly.</p>			
19	Operation of labour camps	<ul style="list-style-type: none"> • Avoid/minimize the requirement to establish camps by hiring and employing local workers as far as possible; the presence of workers throughout the day and night during the construction work will disturb the environment, Worker camps should be operated adhering the General health guidelines or any special conditional guidelines stipulated by the government during the implementation period. • If necessary, the Contractor to identify a barren, vacant land (preferably private unused land) to establish the camp nearby; ensure that such camp is at least 500 m away from habitation, water bodies, scrublands, etc., and well away from forest reserves • A sufficient quantity of potable water should be provided in each workplace/labour camp site at suitable and easily accessible locations, and such provisions will be maintained on a regular basis. • The sewage system for the offsite labour camp, if newly established, should be designed, built, and operated in such a fashion that no health 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>hazards occur and no pollution to the air, groundwater, or adjacent water courses takes place.</p> <ul style="list-style-type: none"> • All urinals and toilets should have an adequate water supply. • A contractor should provide garbage bins in the camps and ensure that these are regularly emptied and disposed of in a hygienic manner. • Separate the workers' living areas and, material storage areas, work sites clearly with fencing (electric fencing is needed to keep the wild animals away) • Ensure conditions of liveability at work camps are maintained at the high standards possible at all times; living quarters and construction camps shall be provided with standard materials with proper ventilation) and facilities constructed with materials like GI sheets, timber planks, etc. • The camp shall be provided with proper drainage. There shall not be any water accumulation. 			
20	Handling of environmental and social issues during construction	<ul style="list-style-type: none"> • The Contractor shall prepare a detailed Environmental Method Statement (EMS) clearly stating the approach, actions, and way the ESMP is implemented. The contractor staff should align to the code of conduct guide lines provided in the Bidding document. • The Contractor should appoint a suitably qualified person to look after environmental and social (E&S) aspects of the project following the award of the contract. This person will be the primary point of contact for assistance with all environmental issues during the pre-construction and construction phases. This E&S officer will be responsible for ensuring the implementation of ESMP. Should the construction staff be 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>approached by members of the public or other stakeholders, the staff shall assist them in locating the E&S officer or Contractor or provide a number by which they may contact the environment management specialist or Contractor.</p> <ul style="list-style-type: none"> • The Contractor should assign the E&S officer the responsibility to liaise with the public and to handle public complaints regarding environmental or socially related matters. • The conduct of the construction staff when dealing with the public or other stakeholders shall be in a manner that is polite and courteous at all times. Failure to adhere to this requirement may result in the removal of staff from the Site by the E&S officer. • A complaints register shall be kept at the site office. This shall be in carbon copy format, with numbered pages. Any missing pages must be accounted for by the Contractor. This summary of the register shall be included in the monthly report to be submitted by the Contractor to IA. Interested and affected parties need to be made aware of the existence of the complaints book and the methods of communication available to them. • The Contractor must address queries and complaints by (i) documenting details of such communications, (ii) submitting these for inclusion in the complaints register, (iii) bringing issues to IA's attention immediately, and (iv) taking remedial action as per IA's instruction. • The Contractor shall immediately take the necessary remedial action on any complaint/grievance received by him and forward the details of the grievance, along with the action taken, to the environment 			

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		management specialist within 48 hours of receipt of such complaint/grievance.			
21	Management of chance find of Archaeological Property	<ul style="list-style-type: none"> All fossils, coins, articles of the value of antiquity, structures, 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 GoSL and shall be dealt with as per provisions of the Antiquities Ordinance of 1940 (Revised in 1986 & 1998) The Contractor shall take reasonable precaution to prevent his workmen or any other person from removing and damaging any such article or thing and shall, immediately upon discovery thereof and before removal, acquaint the Engineer with 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 should obtain advice and assistance from the Department of Archaeology of Sri Lanka on conservation measures to be taken with regard to the artefacts prior to the recommencement of work in the area. 	Engineering Cost	Contractor	IA/PMU
22	Chance finds of important Flora/Fauna	<ul style="list-style-type: none"> All work shall be carried out in such a manner that the destruction or disruption to the fauna and their habitats is kept to a minimum. The Contractor must immediately notify the IA/PMU if any rare, threatened, or endangered flora or fauna species are discovered. All activities that threaten such flora and fauna and/or their habitat must be halted immediately. Such activities shall be started only after obtaining the Engineer's approval. The Contractor shall carry out all 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
		<p>activities and plans directed by the Engineer in order to conserve such flora and/or their habitat.</p> <ul style="list-style-type: none"> Construction workers should be instructed to protect fauna, including birds and aquatic life, as well as their habitats. 			
23	Site closure and demobilization	<ul style="list-style-type: none"> Prior to completing site demobilization, the Contractor should clear the project site of any extra supplies, tools, and vehicles. If coffer dams were built, they must be totally removed, together with any accompanying debris, from the Site. There should be a complete dismantling and removal of all temporary site offices. According to the Engineer's assessment, if the parking areas, material store/stock areas, machinery and equipment yards, labour camps have deteriorated in any manner, the Contractor should restore it to its pre-demobilization state. Turfing, planting of trees, and stabilization of the surface areas should be done together with any drainage structures and erosion control measures. 	Engineering Cost	Contractor	IA/PMU
24	Prevention of issues (e.g., GBV) related to labour influx	<ul style="list-style-type: none"> Avoid or reduce labour influx where possible Contractors to implement robust measures to prevent sexual harassment and gender-based violence (GBV) Make the workforce aware of unacceptable conduct. Include a Worker Code of Conduct as part of the employment contract and introduce sanctions for non-compliance (e.g., termination). 	Engineering Cost	Contractor	IA/PMU

No	Activities and/or Associated Impact	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
Post Construction/Operation and Maintenance Phase					
01	Greening and maintenance of earthen embankment	<ul style="list-style-type: none"> • Only native species of plants may be used for the planting process. • Attempts will be made to identify suitable "living filter" plant species that are known to minimize the amount of nutrients and sediments flowing into the aquatic environment. • A supply of water will be available for the routine maintenance of the vegetation until it establishes naturally. • Routine maintenance of planted species will be conducted to identify issues with their establishment on Site. • Replacement planting will be conducted as appropriate. 	Operational Cost	Facility Operator	IA, CEA
02	Income generation for beneficiaries during construction periods	<ul style="list-style-type: none"> • Providing labour and other services for construction units can be allocated to local communities after providing the required training to ensure enough income for local communities. During training, women would be given priority. 	Operational Cost	Contractor	IA, PMU
03	Provide adequate support for social organizations in the community	<ul style="list-style-type: none"> • It is advised that some beneficiary services be provided to community organizations through cooperative social responsibility budgets in order to preserve the goodwill of the community 	Operational Cost	Contractor	IA, PMU

7.3 Implementation schedules of proposed mitigation

The specific mitigation measures given in Table 7.1 should be implemented by the contractor when each and every intervention is done. In addition to the specific measures, the contractor must adhere to the civil engineering best practices as practical as possible. Most of such practices are described in CIDA specifications, and the contractor is recommended to follow them when appropriate.

The time of the implementation of mitigation measures should be decided by the contractor, and they should be informed to the Project Engineer in advance, and his approval should be obtained. The key monitoring parameters and indicators for every mitigation carried out must be worked out (as provided in the EMoP – See Table 8.1) and should be informed to the Engineer for subsequent checks and balances. Once the monitoring parameters and indicators (as provided in the EMoP – See Table 8.1) are accepted, such indicators should be monitored by the Engineer to ensure that measures are taken to minimize or avoid environmental degradation or pollution that is very likely due to the said project.

It should be necessary that all mitigation measures mentioned in the report be implemented by the contractor, and for such implementation, the budgetary allocation must be set aside. It has to be done during the bidding process, and the allocation so kept must be utilized by the contractor in an efficient manner.

The following impact has to be dealt with beyond the scope of this ESMP

Impact due to lowering the water level in the tank

If the rip rap rehabilitation work needs to lower the water level of the tank during the construction phase, there is a need to forgo one Yala cultivation season. Yala season is fully cultivated by farmer families with about 1,002 acres of paddy during this time. This farmer group will have negative impacts on their livelihoods due to forgoing one-season cultivation activities. About 50 fishermen involved in full-time fishing activities in the tank will have negative impacts.

- If the Yala cultivation season is forgone, the affected families need to be compensated to recover the negative impacts on their livelihoods. A Livelihood Support Assistance Program (LSA) program should cover all the community members likely to be affected due to project interventions (Farmers, fishing community, etc.)
- Apart from planning and implementation of the Livelihood Support Assistance Program (LSA), better preparedness to establish rip rap during the period in which the water level in the tank is lowered is necessary. The contractors should be strictly requested to mobilize all the material needed for the rip-rap before the construction and store them in close proximity to the upstream of the bund. This process needs to be carefully managed by the construction supervisors.

Implementation responsibility: all tasks identified below fall under the purview of the contractor. The contractor is contractually bound to implement the activities outlined in the ESMP and EMoP (Table 7.1) during the implementation of the physical works outlined in the work plan

Supervision responsibility: The Project Proponent, i.e., the project engineer, technical officers of the respective project management units and Dam safety PMUs environmental unit will be responsible for the monitoring of all activities and reporting on the compliance of implementation as well as providing technical guidance to the contractor and staff on ensuring field level implementation is achieved in a satisfactory manner.

7.4 Others requirements

7.4.1 Sourcing of Material

(a) Procurement of material needed for implementing the proposed Interventions

The proposed interventions for the tank need large amounts of rubble, gravel, earth, aggregates and sand (See Table 2-4). Therefore, significant impacts on geological resources are anticipated at quarry sites and borrow areas, and therefore the contractors should ensure that sand, aggregates and other quarry material are sourced from licensed sources. These licensed sources are supposed to have necessary permits, approvals and licenses to carry out material sourcing operations, such as mining permits from the GSMB, EPL from the CEA, permits from local authorities, etc. These operators are expected to have necessary approvals for mining activities that comply with the following:

- Requirements for obtaining Environmental Protection License (EPL): Gazette Notification No. 1533/16 dated 25.01.2008
- Provisions of Geological Survey and Mines Bureau (GSMB) Act, No. 33 of 1992
- Provisions of Removal of Sand Regulations, No. 1 of 2007
- Regulation for Prohibition of use of Equipment for exploration, mining and extraction of Sand & Gems, Gazette Notification Number 1454/4 dated 17th July 2006
- Explosive Act, No. 36 of 1976

The contractor is required to maintain the necessary licenses and environmental clearances for all borrow and quarry material they are sourcing to obtain soil, fine aggregate and coarse aggregate. Sourcing of any material from protected areas and/or designated natural areas is strictly prohibited.

If the contractor uses non-commercial borrow/quarry sites, the sites should be remediated accordingly once material sourcing has been completed. The Project Supervision Engineer will require to maintain the numbers and relevant details of all necessary licenses etc., and report their status accordingly.

(b) Management of Borrow Sites (within the project area)

- Any earth excavated within the project area arising from construction works may be used as fill material if the properties of the soil are suitable for such filling.
- The material supplier and/or the contractor shall comply with the environmental requirements/guidelines issued by the CEA and the respective local authorities with respect to locating borrow areas and with regard to all operations related to excavation and transportation of earth from such sites.
- The material supplier and/or the contractor can also find suitable soil/earth materials from currently operated licensed borrow pits in the surrounding area, subject to the approval of the Engineer.
- No borrow-sites be used (current approved) or newly established within areas protected under FFPO and FO, especially within any National Parks.
- Borrow areas shall not be operated without a valid mining license from the GSMB. The location, depth of excavation and the extent of the pit or open cut area shall be as approved by the engineer.
- All borrow pits/areas should 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.
- The establishment of borrow pits/areas and their operational activities shall not cause any adverse impact on the nearby properties. Also, shall not be a danger of health hazard to the people.

The contractor shall take all steps necessary to ensure the stability of slopes, including those related to temporary works and borrow pits.

(c) Quarry Operations and Management of Quarry Sites

- Utilizing the existing quarry sites available in the project influential area as much as possible, which are approved by GSMB with valid EPL and Industrial Mining Licenses;
- If new quarries are to be opened, prior approval should be obtained from GSMB, CEA and local authorities such as Pradeshiya Sabha.
- Selected quarry sites should 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 should 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 the community.
- The maintenance and rehabilitation of the access roads in the event of damage by the contractor's operations shall be the responsibility of the contractor.

Copies of all relevant licenses should be maintained by the contractor for review and documentation by the Engineer.

7.4.2 Safety Issues

Table 7-2 General safety issues that need to be addressed

<p>Public and Worker Safety</p>	<p>-The construction site should be barricaded at all times with adequate marking, safety tape, flags, reflectors etc., for the safety of individuals using the site on a daily basis.</p> <p>At all times, the Contractor shall provide safe and convenient passage for vehicles, pedestrians and livestock. Work that affects the use of existing accesses shall not be undertaken without providing adequate provisions to the prior satisfaction of the Engineer.</p> <p>The construction site should be clearly demarcated by the above means, and restriction of access to the public to the site will help the safety of the public.</p> <p>Safety signboards should be displayed at all necessary locations.</p> <p>The contractor should obtain a Third-Party Insurance to compensate for any damages or injuries caused to the public or labourers during the construction period.</p> <p>All construction vehicles should be operated by experienced and trained operators under supervision.</p> <p>Basic onsite safety training should be conducted for all labourers during the EMP training prior to the start of the construction activities.</p> <p>All digging and installation work should be completed in one go. If this task is not accomplished, the area should be isolated using luminous safety tape and barricading structures surrounding the whole area.</p> <p>Trenches should be progressively rehabilitated once work is completed.</p> <p>Material loading and unloading should be done in an area well away from traffic and barricaded</p> <p>Construction wastes should be removed within 24 hours from the site to ensure public safety.</p>
---------------------------------	---

Safety Gear for Labours	<p>-Protective footwear and protective goggles should be provided to all workers employed in the mixing of materials like cement, concrete etc.</p> <p>-Welder's protective eye shields shall be provided to workers who are engaged in welding works.</p> <p>-Earplugs shall be provided to workers exposed to loud noise and workers working in crushing, compaction, or concrete mixing operation.</p> <p>-The contractor shall supply all necessary safety appliances, such as safety goggles, helmets, safety belts, ear plugs, masks etc., to workers and staff.</p> <p>In addition, the contractor shall maintain in stock at the site office gloves, ear muffs, goggles, dust masks, safety harnesses and any other equipment considered necessary.</p> <p>A safety inspection checklist should be prepared, taking into consideration what the workers are supposed to be wearing and monitored on a monthly basis and recorded.</p>
Prevention of accidents	<p>Prevention of accidents involving human beings, animals or vehicles falling or accidents due to open trenches, manholes during the construction period. This needs to be ensured with proper barricading, signage boards and lighting etc.</p> <p>A readily available first aid unit, including an adequate supply of sterilized dressing materials and appliances, should be available at the site office at all times</p> <p>Availability of suitable transport at all times to take an injured or sick person(s) to the nearest hospital should also be ensured.</p> <p>Names and contact information for emergency services such as Ambulance services, hospitals, police and the fire brigade should be prepared as a signboard and displayed at the work site.</p>
Site Access Control	<p>The site entrance will include adequate signage indicating the details of the proposed subproject, implementing agencies etc as well as safety signage to keep public aware on the work.</p>
Vehicle Management	<p>Traffic management and awareness should be taken place at the worker sites. General public should be provided with information of the vehicle movement as relevant.</p>
Material Stock piling	<p>Construction material and disposal material should be stock piled in an appropriate place with a proper covering to control the dust emission. Also, it should be stored away from the water surface and convenient access of vehicle should be ensured.</p>

7.4.3 Operation of Labour Camps

7.4.4 post-construction activities

Clearing/Closure of Construction Sites/Labour Camps

- Site restoration plans have to be formulated for approval by the engineer. The plan is to be implemented by the contractor prior to demobilization. This includes borrow sites and storage yards as well.
- On completion of the works, all temporary structures will be cleared away, all rubbish cleared,

excreta or other disposal pits or trenches filled in and effectively sealed off, and the site left clean and tidy, at the contractor's expense, to the entire satisfaction of the engineer.

Environmental Enhancement/Landscaping

- Landscape plantation, including turfing of bund walls, re-vegetation of embankments and other slopes, and edge treatment of water bodies shall be taken up as per either detailed design or typical design guidelines given as part of the Bid Documents.

The contractor also shall remove all debris, piles of unwanted earth, and spoiled material away from the dam site and from other workplaces and dispose at locations designated or acceptable to the Engineer.

7.4.3 Procedures for Dealing with Chance Finds

(a) Chance found Flora and Fauna

- The contractor will take reasonable precautions to prevent workmen or any other persons from removing and damaging any flora (plant/vegetation) and fauna (animal), including fishing in any water body and hunting any animal.
- If any wild animal is found near the construction site at any point in time, the contractor will immediately, upon discovery thereof, acquaint the Engineer and carry out the Engineer's instructions for dealing with the same.
- The Engineer will report to the nearby Forest Department/Department of Wildlife Conservation (range office or divisional office) and will take appropriate steps/measures, if required, in consultation with the forest officials.

(b) Chance found Archaeological Property

- All fossils, coins, articles of the value of antiquity, structures and other remains or things of geological or archaeological interest discovered on the site shall be the property of the Government and shall be dealt with as per provisions of the relevant legislation.
- The contractor will take reasonable precautions to prevent his workmen or any other persons from removing and damaging any such article or thing. He will, immediately upon discovery thereof and before removal, acquaint the Engineer of such discovery and carry out the instructions for dealing with the same, waiting which all work shall be stopped.
- The Engineer will seek direction from the Archaeological Department of Sri Lanka and inform the contractor to follow the Chance Find Procedures set forth.

8 ENVIRONMENTAL AND SOCIAL MONITORING PLAN AND ASSOCIATED COST

Environmental monitoring is required in order to make sure that the anticipated adverse impacts are kept minimal with the implementation of mitigation measures as and when required. The monitoring objectives are therefore focused on the mitigation of likely impacts. In addition, compliance with the existing regulations and legislation is also guaranteed. Table 8.1 provides the summary of the monitoring plan (MoP) required for the entire project.

Table 8-1 Environmental and Social Monitoring Plan

Specific Intervention	Monitoring Parameters	Monitoring Frequency	Total Time Period Months	Responsible Institution/ Person for Implementation	Responsible Key Persons for Supervision	The framework of the Institutional Arrangement to Incorporate the Findings of EMP into Project Implementation
*Removal of collapsed rip-rap by machinery. Construction of new rip rap *Installation of rip rap protection measures.	Material sourcing and stockpiling plan	At the beginning of the intervention	During material storage and stockpiling	Contractor	Project Manager (PM) or his nominee	PM is to inform the contractor of the monitoring requirement and the contractor to submit the reports as agreed; Reports are to be submitted to the Project Office (PO), and then the reports are evaluated by the World Bank (WB) and PO for approval.
*Strengthening and Improvements of the tank bund.	Turbidity in the section of the tank where interventions are proposed (Visual observations)	When such incidents are found	During the whole activity	Contractor	Project Manager or his nominee	As mentioned above
*Construction of unit office *Access road	The extent to which the turbidity plumes due to erosion in the D/S water courses run (Visual observations)	When such incidents occur	During the stockpiling period	Contractor	Project Manager or his nominee	

Specific Intervention	Monitoring Parameters	Monitoring Frequency	Total Time Period Months	Responsible Institution/ Person for Implementation	Responsible Key Persons for Supervision	The framework of the Institutional Arrangement to Incorporate the Findings of EMP into Project Implementation
	Air-borne dust, noise and vibration (Visual observations for dust in the air, noise and vibration – subjective assessment and when complaints are received if there are affected parties)	When such incidents occur	During the whole activity	Contractor	Project Manager or his nominee	
	Removal of cleared vegetation and branches	When the activity takes place	When this activity takes place	Contractor	Project Manager or his nominee	As mentioned above
	Stocks of stumps removed	When this activity takes place	When this activity takes place	Contractor	Project Manager or his nominee	As mentioned above
	Number of complaints received on the inconveniences caused to the PAPs and the neighbourhood due	As and when received	During the whole intervention	Contractor	Project Manager or his nominee	As mentioned above

Reference Only -IWWRMP

Specific Intervention	Monitoring Parameters	Monitoring Frequency	Total Time Period Months	Responsible Institution/ Person for Implementation	Responsible Key Persons for Supervision	The framework of the Institutional Arrangement to Incorporate the Findings of EMP into Project Implementation
	to any of the project interventions (Mainly due to interruption of water releases and water level drawdown)					
Extension of the sluice barrel by 2.4 m.	Noise levels	When the drilling is done	During the repairs	Contractor	Project Manager or his nominee	As mentioned above
	Vibration levels	When the drilling is done	When the drilling is done	Contractor	Project Manager or his nominee	
	Air-borne dust levels	When a complaint is received	During the activity	Contractor	Project Manager or his nominee	
Concrete lining	Number of complaints received on the inconveniences caused to the neighbourhood due	As and when received	During the whole intervention	Contractor	Project Manager or his nominee	As mentioned above

Specific Intervention	Monitoring Parameters	Monitoring Frequency	Total Time Period Months	Responsible Institution/ Person for Implementation	Responsible Key Persons for Supervision	The framework of the Institutional Arrangement to Incorporate the Findings of EMP into Project Implementation
	to any of the project interventions (Mainly due to interruption of water flow)					
	Turbidity in the section of the canal/channel where interventions are proposed (Visual observations)	When such incidents are found	During the whole activity	Contractor	Project Manager or his nominee	
	The extent to which the turbidity plumes due to erosion in the D/S water courses run (Visual observations)	When such incidents occur	During the construction and material storage	Contractor	Project Manager or his nominee	
Removal of vegetation and trees, collection and disposal of	The extent to which the turbidity plumes due to erosion in the downstream water courses run	When turbidity plumes are found	During the whole intervention	Contractor	Project Manager or his nominee	As mentioned above

Reference Only - NWRMP

Specific Intervention	Monitoring Parameters	Monitoring Frequency	Total Time Period Months	Responsible Institution/ Person for Implementation	Responsible Key Persons for Supervision	The framework of the Institutional Arrangement to Incorporate the Findings of EMP into Project Implementation
spoil and vegetation matter	Timber logs removed	When this activity takes place	When this activity takes place	Contractor	Project Manager or his nominee	
	Removal of cleared vegetation and branches	When this activity takes place	When this activity takes place	Contractor	Project Manager or his nominee	
Material sourcing, borrow operations, quarry operations, operations at the stockyards and machinery yards	Noise levels	When the drilling is done	During the borrow/quarry operations	Contractor	Project Manager or his nominee	As mentioned above
	Vibration levels	When the drilling is done	When the blasting, drilling, and excavations are done	Contractor	Project Manager or his nominee	
	Airborne dust levels	When a complaint is received	During the activity	Contractor	Project Manager or his nominee	
	Cracks that may appear in neighbouring structures	During this activity	During this activity	Contractor	Project Manager or his nominee	As mentioned above
Material haulage from borrow areas	Noise levels	When a complaint is received	During the material transport	Contractor	Project Manager or his nominee	As mentioned above

Specific Intervention	Monitoring Parameters	Monitoring Frequency	Total Time Period Months	Responsible Institution/ Person for Implementation	Responsible Key Persons for Supervision	The framework of the Institutional Arrangement to Incorporate the Findings of EMP into Project Implementation
	Airborne dust levels					
	Vibration levels	When a complaint is received	During the material transport	Contractor	Project Manager or his nominee	As mentioned above
	Presence of invasive species in materials	One in 5 vehicles of borrowed material brought into the site (Visual inspection)	During the material transport	Contractor	Project Manager or his nominee	As mentioned above

Table 8-2 Cost Estimate to implement the ESMP

Issue	Mitigation	Details of Costing	Itemized Cost
<p>Activities such as material transport, soil stockpiling, etc., may result in air pollution through airborne dust. If there are dwelling units along haulage routes, there may be a minor temporary adverse impact during this period.</p>	<p>Dust emission due to transport operations should be controlled by wet spraying, and tarpaulin covering is mandatory on trucks/lorries which are used for transporting materials, particularly in built-up areas.</p>	<p>Sprinkling of water has to be carried out using bowzers or tractors where there is a dwelling unit only when necessary.</p> <p>Lorries and trucks should be covered (with tarpaulin sheets) when transporting earth and gravel.</p>	<p>Sprinkling of water: Bowser: Rs. 12,000 - 15,000 per bowser Tractor: Rs. 7,500 per tractor Covering with tarpaulin sheets: Rs. 400/m²</p>
<p>Health and sanitation of worker's camps and that of residents in the adjoining areas:</p> <p>The temporary camps, if not managed properly, may create an unhealthy environment causing health hazards to both workers and nearby residents.</p>	<p>Proper sanitation facilities should be provided on-site for the workforce. Ideally, this can be a pit latrine in which the pit is located above the groundwater table. Covering the deposit (with earth or sawdust) is necessary to prevent smells and discourage flies.</p>	<p>Costs involved in providing pit latrines</p>	<p>Rs. 10,000 – 15,000</p>
<p>Operation of borrow pits</p> <p>Erosion in borrow areas occurring in hillocks would lead to loss of topsoil and vegetation loss, hence habitat loss.</p> <p>The re-establishment of vegetation would be hindered due to the loss of fertile soil</p> <p>Any borrow pits on the tank bed also should be levelled properly.</p>	<p>Closure of borrow pits properly</p> <p>After borrowing, the slope/gradient of the area should be graded to match or blend with the existing terrain.</p> <p>Plant the area with native trees and water regularly</p>	<p>The costs that may incur involve grading of borrow pit edges</p>	<p>The cost of mitigation depends on the scale of the borrow pit. The typical cost of rehabilitation would be Rs. 500/ m².</p>
<p>Worker's safety at the site, to protect from the</p>	<p>Provide appropriate personal protective</p>		<p>15000 rs per one person</p>

Issue	Mitigation	Details of Costing	Itemized Cost
snake and insect bites, protection of eyes, ears etc during the construction.	equipment for workers working in critical activities.		
Required number of garbage bins to be placed with the labour camps	Garbage should be collected properly due to pollution and to protect the wild animals. Also, fragrance of organic food will attract wild animals	separate bins should be placed to collect organic, inorganic	10000 rs per one bin
Temporary electric fence to be placed to protect workers from wild animals.	Protect the labours while they are at the campsites.	Cost to construct on kilometer electric fence.	700000 rupees per 1 km
Communication equipment. Mobile phones.	To have strong communication in between workers and	Cost per one unit	20,000 rs .

Reference Only -IWRMP

9 GRIEVANCE REDRESS MECHANISM

Large-scale development projects can affect people in many ways. The problems arising shall include social, environmental issues and claims relating to entitlement to resettlement benefits. There may also be concerns related to the construction activities such as site clearing, excavation, and compaction and blasting. These issues can to some extent be resolved by good planning and good project implementation, and above all by ensuring full and honest participation and consultation with the people that will be affected by the project, supported through regular interaction between the community and project staff, transparency and monitoring. However, it is almost inevitable that there will be some complaints and grievances that cannot be addressed at this level (i.e., at site level) and it is strongly recommended that a formal Grievance Redress Mechanism (GRM) be set up to resolve these concerns rather than leaving them to the often time-consuming and expensive procedures of the formal legal system.

The objective of GRM is to avoid adverse impacts of projects on the environment and affected people and to minimize, mitigate or compensate for such adverse project impacts, if they are unavoidable in realizing the benefits of the projects. Accordingly, as much as possible this project will comply with the Safeguard Policy of WB. The GRM is to help project affected persons/ communities to resolve their problems through a process of mutual understanding and consensus with the relevant parties.

The proposed three-tier grievance redress system for the project would function at local GN level, DS level and regional level (District level), with recourse to a national-level body for appeal and for ensuring high-level government commitment, policy support and coordination for the process (a three level GRM). The Proposed Grievance Redress Mechanism is implemented through Grievance Redress Committees (GRC) appointed as follows.

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
Representative of Supervision Consultant (as appropriate)	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
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 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 Supervision firm	Member
Representative from construction firm (if necessary)	Member
District Secretary of the District or a representative nominated by the	Member
Divisional Secretary of the area or a representative nominated by the DS	Member
Representatives from a Social Organization (if necessary) (A national level NGO/CBO operating in the field and have operations in project area)	Member

Among the issues that could be taken up at different levels of GRC are; Entitlement or eligibility for non-cash benefits, Dust, noise and vibration nuisance at the construction site, Loss of access, Damages to public and private property (especially damage caused by vibration/pile driving, Damages to religious shrines, statues or trees, Storage of construction material obstructing community activities etc. To effective and transparent GRM mechanism to give optimum benefits to the affected party, it will be necessary to explain and publicize the procedures. The General Public and other relevant stakeholder agencies should be aware of the procedures for GRM.

The GRM has to be explained to the relevant stakeholder groups, including people affected by the project, government agencies, and civil society organizations. If people are aware of the procedures and their options, the GRM should be more manageable and should help to avoid conflicts and litigation. It will also be essential to offer clear explanations of the criteria for eligibility for livelihood support benefits, and this has to be pro-actively communicated to people living in the project area.

Awareness should include the following components:

- Scope of the project, planned construction phases, etc.;
- Types of GRMs available; purposes for which the different GRMs can be accessed, e.g., construction-related grievances, grievances related to physical and economic displacement,
- Types of grievances not acceptable to the GRM.

- Eligibility to access the GRM.
- How complaints can be reported to those GRMs and to whom, e.g., phone, postal and email addresses, and websites of the GRM as well as information that should be included in a complaint;
- Procedures and time frames for initiating and concluding the grievance redress process; boundaries and limits of GRM in handling grievances; and roles of different agencies such as project implementer and funding agency.
- A variety of methods can be adopted for communicating information to the relevant stakeholders. These methods could include display of posters in public places such as in government offices, project offices, community centers, hospitals and health clinics of the area.

The process of implementing a GRM involves the following steps:

1. Assign focal points.
2. Receive and register complaints.
3. Screen and refer to the complaints.
4. Coordinate with other GRMs/ agencies (if required).
5. Assess the complaint.
6. Formulate a response.
7. Select a resolution approach.
8. Implement the approach.
9. Settle the issues.
10. Track, document, and evaluate the process and results.

Reference Only - IWWRMIP

Coordinate with Other GRMs/ agencies

GRMs do not operate in a vacuum. They are embedded in networks of agencies and actors, and in the course of their operations may relate to Affected Parties (APs), GRM implementers, their executing and support agencies, project implementers, intermediaries used for presenting complaints, and funding agencies. On the other hand, APs may relate to GRMs in diverse forms. For example, APs might seek redress from more than one single GRM, or else they might decide to appeal to a higher level of the same GRM or to a different GRM if they are dissatisfied with the resolutions made by a lower level GRM.

Coordination among different GRMs, as well as among other external agencies and actors with whom the GRMs interact in their operations, is an important aspect of good GRM design. It is necessary to identify and establish a central point to carry out these coordinating and communication functions. The coordination functions of such a central body could include,

- Facilitation of case referrals to appropriate agencies.
- Tracking and monitoring grievance resolution processes and their outcomes by different agencies.
- Maintaining a central database of complaints received and their current status.
- Analyzing data and preparing regular updates and progress reports for involved agencies with proposed follow-up activities.
- Establishing feedback loops with relevant agencies and the APs to communicate and report case progress and status.

- Identifying capacity-building needs of the GRM members, and overseeing the conduct of such capacity-building training.
- Identifying awareness-creation needs among relevant agencies and communities, and overseeing the conduct of such awareness-building programs.
- Liaising with media and monitoring media reports; and giving feedback to project management
- The contractor should represent the GRM meeting with the other relevant parties. Contractor should provide their opinions, suggestions to concerns arise

Reference Only -IWWRMP

10 CONCLUSION AND RECOMMENDATIONS

10.1 Conclusions

The following conclusions could be deduced for the environmental assessment.

The project area does not have any environmentally sensitive features. The reported endemic and near threatened and vulnerable flora and fauna are not restricted to the project site and immediate surroundings. They are found in the similar habitats in the project affected areas. Also proposed construction activities will not impact these species. There are no archaeological sites cultural, or religious sites are found in the project area.

All the interventions are standard construction interventions for small-scale irrigation tank rehabilitation, renovation and re-construction work. Environmental and social impacts that arise due to the proposed interventions are found to be not significant, as almost all the impacts are short-term and limited to the construction period, and the resultant effects are reversible in nature. Therefore, interventions can be carried out without any specific environmental mitigation measures. Nevertheless, the best practices listed in the EMP should be implemented as practical as possible. CIDA/ICTAD specifications and other standard methods of civil engineering practices must be followed as and when applicable.

All the borrow sites need appropriate post-construction rehabilitation measures in order to avoid or minimize the potential for any adverse impacts, and best practices for managing and closing such sites should be adopted.

The construction of the bund and the rip-rap needs to be planned so that the negative impacts would be minimal. The proper construction methods are to be adopted so that negative impacts would be effectively mitigated.

The proposed project can, therefore, be carried out together with the implementation of mitigation measures, as stated in this report.

No negative impacts on the farming community are envisaged if the work is carried out during the dry season when the water level is lowest. Repair and rehabilitation work will be undertaken only during the Yala season. If there is a need to forgo a Yala season, then a Livelihood Support Assistance Program (LSA) program should be implemented, covering all the community members likely to be affected due to project interventions (Farmers, fishing community etc.).

10.2 Recommendations

The following recommendations are imperative to be adhered to for the management of the environment during the project realization period.

Borrow sites in the tank bed must be utilized with a proper rehabilitation and safety plan for the protection of fauna inhabiting the area. All the other material sourcing sites, including borrow areas, should be accepted for material exploitation only if proper approvals from the relevant authorities are obtained.

Engineering best practices must be recommended to be adopted by the contractor for carrying out the proposed engineering work as outlined in the EMP and monitoring plan.

When complaints are received from the neighborhood on environmental and social issues, immediate attention and solutions to such issues are recommended as outlined in the GRM.

Apart from planning and implementation of the Livelihood Support Assistance Program (LSA), better preparedness to establish rip-rap during the period in which the water level in the tank is lowered is

necessary. The contractors should be strictly requested to mobilize all the material needed for the bund construction and rip-rap before the construction and store them in close proximity to the upstream of the bank. This process needs to be carefully managed by the construction supervisors.

Reference Only -IWWRMP



Integrated Watershed and Water Resources Management Project (IWWRMP)

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

Reference only IWWRMP



December, 2020

Content

1. Purpose
2. Common hazards may occur when working in Wildlife areas
3. Planning for Occupational Health and Safety (OHS).
4. Safe Operating Procedure
 - 4.1 General procedures
 - 4.2 Common preparedness
5. Common actions to be followed
6. Precautional actions
 - 6.1 Precautions against bees/wasp stings/bites
 - 6.2 Precautions against large mammals
 - 6.3 Precautions against snake bites
 - 6.4 Precautions against crocodiles' attacks
7. General conditions of works
8. Personal Protective Equipment needed

Reference Only - IWWRMP

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 anything 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 a 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 repellent
2. Long-sleeved shirts and pants (Jungle green/ dark color)
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)

Ministry of Irrigation

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



June, 2021

Abbreviations

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

Reference Only -IWWRMP

Introduction

Labor management plan of the Integrated Watershed and Water Resources Management Project (IWWRMP) provides basic guidance to contractors to smoothly function of project activities without basic issues. Selected contractors shall follow this plan simultaneously with other relevant laws and regulations. The prepared labor management plan consists with site management measures and camp management measures with outlining a range of mitigation measures designing 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 pay attention and provides identified mitigation measures with responsibility and frequency of monitoring.

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 other necessary acts, rules and regulations related to the labor management and obtain necessary approvals.
- 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 provide necessary awareness and trainings to labors 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.	Contactar	-
			Fence or protective measure should be placed around the work site.	Contactar	-
		Control public access to work site	All public access to the work site should be prohibited or controlled to avoid risk to the public.	Contactar	Monthly
			Signboards should be displayed at all entry points which indicating "Authorized entries only" or "prohibited to public entrance".	Contactar	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.	Contactar	Weekly
			A register shall be maintained at the security point to register all labors/ officers/vehicles which enter / departure to/from the work site.	Contactar	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.	Contactar	Monthly
			Safety signs should be displayed at the entrance and other necessary places at the work site.	Contactar	Monthly
			Contractor should established a notice boards at the work site and necessary information should be displayed in time to time.	Contactar	Monthly
			Contractor should establish a notice board on COVID 19 health guideline at the entrance.	Contactar	Monthly

No	Major field	Sub field	Mitigation and management measures	Responsibility	Monitoring frequency
		Establishment of site office	Contractor should established a site office according to the site plan and should maintain appropriate working condition.	Contractor/ Site engineer	-
			Necessary documents (guidelines, ESMP, copy of approvals etc.) should be placed at the site office.	Contactora	Monthly
			First aid box with essential drugs should be placed at the site office.	Contactora	weekly
			Fire protection equipment should be placed at the site office.	Contactora	Monthly
			Contractor should maintain an extra stock of safety equipment at site office to use when necessary.	Contactora	Monthly
			Hazards, explosives or any harmful chemicals should not stock in the site office .	Contactora	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
			Fire protection equipment should be established in the work site at most essential places.	Contractor	Every 2 weeks
			The contactor 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.	Contacto	-
			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 for earth works (when operating) should be 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. from the work site and follow up the approved site restoration actions.	Contractor / Site engineer/PMU	-		
4	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 laws and acts related to labor management.	Contractor	-
			Contractor shall obtain necessary approval when increased the number of workers in labor camps	Contractor	-
			Contractor shall maintain a log of any grievances/complaints and actions taken to resolve them.	Contractor	Weekly

No	Major field	Sub field	Mitigation and management measures	Responsibility	Monitoring frequency
			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 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.	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
			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

No	Major field	Sub field	Mitigation and management measures	Responsibility	Monitoring frequency
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
			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

No	Major field	Sub field	Mitigation and management measures	Responsibility	Monitoring frequency
		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 be released 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 from the work site. Temporary toilet pits should be treated and demolished according to approved health guidelines. Approved site restoration actions should be implemented.	Contractor/IA/ PMU	-

Reference Only IWR/PMU



Integrated Watershed and Water Resources Management Project (IWWRMP)

Standard Procedure for Assessing the Requirement of Tree Removals

Reference Only IWWRMP



December, 2020

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.

Reference Only - IWRB/MP

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 bring 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

Reference Only -IWWRMP

Section - 7

Form of Bid

Section 7 - FORM OF BID

Name of Contract: **Rehabilitation of Tank Bund (1 km) including Rip Rap, Spill and Sluice to Adachachakal Scheme - Retender**

Contract No.: **LK-MOMDE-499678-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]

...	...	<i>[list all applicable contracts]</i>	...
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)	
<i>[insert year]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i> Name of Employer: <i>[insert full name]</i> Address of Employer: <i>[insert street/city/country]</i> Reason(s) for calling of performance security: <i>[indicate main reason(s) e.g. for GBV/ SEA breaches]</i>	<i>[insert amount]</i>	

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:

Reference Only - IWRMP

Reference Only -IWRMP
Section – 8
Bill of Quantities

Reference Only -IWWRMP

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.

Reference Only -IWWRMP

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: ITEM I - PRELIMINARIES

1.1 Securities, insurances etc.

Sub Item 1.1.1– Performance Security

The item provides for the provision of Performance Security as specified in Clause 4.2 of the Conditions of Contract.

Payments for the item will be certified when the Performance Security in the specified format has been provided and accepted by the Employer.

Sub Item 1.1.2– Providing Advance payment Security.

The item provides for the provision of Advance payment Security as required in the Contract as a Provisional Sum item.

Payments for each item will be certified when the respective Advance payment security in the specified format has been provided and accepted by the Employer.

Sub Item 1.1.3, 1.1.4- Insurances of property materials and works at site, third party insurance and Insurance against accidents, and injury to workmen

The sub items provide for the provision of the different types of insurances as specified in Clause 18 of the Conditions of Contract.

Payment for each type of insurance will be certified when the respective insurance policies from acceptable insurance companies together with full payment of the premium has been submitted to and accepted by the Employer.

1.2 Engineer's facilities

Sub Item 1.2.1– Construction of Engineer's site office, sanitary facilities, installation and supplying of electricity & water facilities

The sub item provides for the provision for Construction of engineer's site office (length 8.0 m X width 4.0m), sanitary facilities, installation and supplying of electricity & water facilities of Employer's offices for the duration of the Contract as a Provisional sum item. The Employer shall order the supply of items or the work items to be carried out under this provisional sum item. All items procured or established under this sub item shall remain the property of the Employer and shall be handed over to the Employer at the end of the Contract.

The sub item provides for the provision for computer with internet facility, fax machine, photocopy and printing facilities to Employer's offices of the Contract as a Provisional sum item. The Employer shall order the supply of items or the work items to be carried out under this Provisional sum item. All items procured or established under this sub item shall remain the property of the Employer and shall be handed over to the Employer at the end of the Contract.

Sub Item 1.2.2– Providing of Double cab for inspection of works

The sub item provides for the provision for Providing of Double cab for inspection of works and attend to meeting in Divisional, District, provincial and National level for the period of 12 months. It should be brand new or registered after 2017, fuel type can be Diesel/Petrol/Hybrid. Engine Capacity 2500cc,4Wd, mileage less than 200,000km for registered vehicle while the point of providing for visit in the first time. Minimum running shall be 3000km per month usage shall be 25days per month,06 days per week and 12 hours per day. Vehicle should be fully insured one.it should be automatic air condition with rear A/C vent minimum seating including driver shall be five. (wet lease basis with Driver)

period will be instructed by Engineer. Payments for the item will be certified based on the submission of running chart certified by the respective staff and approved by the Engineer.

On the absence of such provision, Engineer shall declare the actual progress against to the vehicle provision.

1.3 Contractor's Requirements

Sub item 1.3.1, 1.3.2– Establishment, Maintenance and Removal of all contactor's site facilities

The sub item provides for the establishment, maintenance and removal on completion of all the facilities required by the Contractor for execution of the works under the contract including offices, stores, workshops, housing etc. (details with layout to be supplied with the Tender). The Contractor shall submit with the Tender a breakdown of this Provisional sum item.

50 % of the lump sum under this item will be certified on establishment of all planned facilities balance of 25% for maintenance and the balance of 25% for when they have been removed and site cleaned on completion of the work. All items established under this item will remain the property of the Contractor.

Payments for maintenance under this item shall be included in the monthly payment certificates from the time the facilities have been established until completion.

1.4 Other requirements

Sub Item 1.4.1 – Provisional sum for all cost in connection with preparing samples for testing, making arrangements for testing of works, Materials, Goods, as stipulated in the specification, obtaining test reports

The sub item provides for the cost connection with preparing samples for testing.

Payment under this item shall be certified on submission on the test report and relevant documents.

Sub Item 1.4.2 – providing and maintaining a plaque

The sub item provides for the construction of plaque after completion, size than 300X450 mm giving details of the Project, Employer, Contractor and other details to be specified by the Engineer.

Payment for this item will be certified as on the submission of required documents accepted by the Engineer when erected

Sub Item 1.4.3 –Providing and Maintaining of Name Board

The sub item is provided for Fabricating, installing and maintaining a project name board,(size 1500mmx1200mm) made out of 26 gauge Zn-Al sheet 50mm G.I Pipe post (2Nos) with fixed with the help of 25mm box bar frame with & necessary bold & nuts and reverts rate including lettering in digital print affixing on Zn-Al sheet with the help of 25x25 Aluminium "L" bar with required detail affixing firmly in ground on concrete base with minimum 1500mm (bottom level of the board) above the ground level, as per dwg. Payments will be certified upon the successful erection of the Notice Board approved by the engineer.

Sub Item 1.4.4 – Provide As-built drawings

The sub item is provided on a sum basis for the submission of As-Built Drawings, Quality Assurance reports and O & M Manual etc. as specified in the Contract and requested by the Engineer.

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

Sub Item 1.4.5 – Employers share of Adjudicator's fees and expenses

This sub item is provided as a provisional sum for the reimbursement of the Employer's part of fees and expenses, paid by the Contractor to the Adjudicator.

Payments will be certified on submission of the required documentation, accepted by the Engineer.

Sub Item 1.4.6 – Conducting Social awareness programme in coordination with Implementing Agency

The sub item provides for the understanding social awareness regarding the works and site supervisors, other staffs and public.

Payment under this item shall be certified on the attendance of conducting programme.

B "Item – II, Improvements to Tank Bund (Location (from -(0+390)) m to (0+630) m)

Sub Item 2.1- Removal of trees

The sub item provides for Allow lump sum for removal of trees along the tank bund (Rate shall be inclusive of obtaining approval /permits from the relevant authorities all risks consequences of delays inconvenience cost of damage, associated with above) as directed by engineer. Rate includes for careful removal of boulders and stockpiling in a well packed manner in a suitable place as directed by Engineer.

The measurement for payment shall be the payment made upon the documents submitted for approval obtained for the numbers of trees and considering working hours.

Sub Item 2.2- Supplying, spreading Gravel (Type I, CBR >15)

The sub item provides for Supplying & spreading Gravel (Type I CBR >15) to the bottom layer of RIP RAP for a thickness of 250mm as directed. Haul 7.0 mile. 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 spread gravel placed in position measured from the Construction drawings

Sub Item 2.3- Cutting foundation of RIPRAP at toe of bund

The sub item provides for cutting foundation of RIPRAP (600mm x450mm) at toe of bund by Machinery as direct by Engineer.

The measurement for payment shall be the volume of excavation measured from the levels established by the pre-construction surveys and Construction drawings.

Sub Item 2.4 Supplying, piling and placing 300 mm- 450mm size Rubble

The sub item provides for Placing Rip Rap from the dumped rubble an average thickness of 300/450mm on U/S slope of bund as Directed by Engineer. Rip-rap has to be placed manually in position, in compact, dense and uniform layer on the upstream slope of the dam. Rate also includes cost of obtaining rubble from approved sources, transport, loading, unloading and internal transport.

The measurement for payment shall be the volume of rip-rap placed in position up to a thickness of 450 mm from the Construction drawings.

Sub Item 2.5 Full turfing to U/S, D/S side new earth filling on bund slope including watering till turf takes roots (haul 1.6 km)

The sub item provides for supply, lay, furnish and plant of strip turf to the new earth fill, with pieces not exceeding 300 mm squares of dense living grass of approved Species and sod thickness not less than 50 mm, placed firmly on 150 mm thick fertile soil layed on newly filled earth and watered until rooted and established. The rate also includes all cost for locating areas and other charges involved to obtain the turf, transport to site.

Sub Item 2.6 -Earth Excavation from barrow & pilling suitable soil for run- off area of U/S side Bund slope

The sub item provides for earth fill in improvement of bund slopes, using earth from selected borrow areas, including stripping and benching of slopes to receive new fill, excavation from borrow areas, transporting, spreading, watering, compacting (98 % Proctor Density) and specified or directed material testing. The rate includes stripping and removing top soil from borrow areas and reinstatement of the same as directed by the Engineer. Rate shall also include for all charges, levies license fees etc. involved in borrow and transport of fill material. (haul 3.125 mile)

The measurement for payment shall be the measurement taking with Pilling Quantity based on the preconstruction levels surveyed after clearing of slopes and the final design slope profile.

Sub Item 2.7- Loading, Transporting, Placing & Required Compaction as directed by Engineer

The sub item provides for Furnishing placing spreading, watering and compaction of 225mm layer for bund. The rate also includes cost for identifying suitable borrow areas, removal of overburden, transport to site, reinstatement of borrow areas.

The measurement for payment shall be the volume of compacted earth placed in position measured from the Construction drawings

Sub Item 2.8- Shrub & Thorny jungle clearing along the D/S side Toe area of bund including uprooting and burning outside the reservation by machinery as directed by Engineer

The sub item provides for Shrub & Thorny Jungle clearing including uprooting along the tank bund and reservations. The measurement for payment shall be the actual area of clearing measured on the slope of the tank bund on U/S and from toe to D/S reservation.

Sub Item 2.9- Stripping top soil to a thickness of 75mm and spoil to waste by machinery as directed by Engineer.

The sub item provides for Stripping top soil along the upstream slope, downstream slope and top of the bund to a thickness of 0.075 m in order to receive new earth and spoils to be disposed outside the reservation as directed.

The measurement for payment shall be the actual volume of striping soil measured from the level approved by the Engineer.

Sub Item 2.10-Earth Excavation from barrow and forming bund including watering & compaction (as per drawings) as directed by Engineer haul 3.0 mile

The sub item provides for earth fill in improvement of bund slopes, using earth from selected

borrow areas, including stripping and benching of slopes to receive new fill(as directed by Engineer), excavation from borrow areas, transporting, spreading, watering, compacting (98 % Proctor Density) and specified or directed material testing. The rate includes stripping and removing top soil from borrow areas and reinstatement of the same as directed by the Engineer. Rate shall also include for all charges, levies license fees etc. involved in borrow and transport of fill material. (haul 3.125 mile)

The measurement for payment shall be the compacted volume of earth fill in place, based on the preconstruction levels surveyed after clearing of slopes and the final design slope profile.

Sub Item 3.0 Item III- Toe Filter and chimney Drain of Tank Bund in D/S (Location 0+00m to 0+450 m) Drawing No: - IWWRMP/PI/PD/ADH/01 to IWWRMP/PI/PD/ADH/09

Sub Item 3.1 Furnishing, placing and watering graded sand to a thickness of 0.3m in inclined chimney drain and vertical sand drain

The sub item provides for Furnishing, placing and watering graded sand to a thickness of 0.3m in inclined chimney drain and vertical sand drain along the D/S slope of embankment filling including necessary excavation and transport as per Drawing as directed by the Engineer. The rate includes Furnishing, placing and watering graded filter sand including transport and the compacting manner as directed by the Engineer.

The measurement for payment shall be the volume of sand measured from the levels established by the pre-construction surveys and Construction drawings.

Sub Item 3.2 Supplying and laying Geotextile along the D/S of the tank bund at Toe drain rubble Packing

The sub item provides for Supplying and laying Geotextile along the D/S of the tank bund at Toe drain rubble Packing. The measurement for payment shall be the area of Geo textile laying at tank bund.

Sub Item 3.3 Furnishing and dry rubble packing in 150 to 225mm well graded rubble along the toe of bund including necessary excavation as directed

The sub item provides Supplying, Furnishing and Placing 150 to 225mm well graded Rubble in Toe drain as directed by the Engineer. The rate also includes cost of obtaining rubble from approved sources, transport to site, manual packing with minimum of voids.

The measurement for payment shall be the volume of rubble placed in position and measured from the Construction drawings.

Sub Item 3.4 Construction of 0.60m width, 0.45m depth Finger Drains at 15 m intervals

The sub item provides Construction of 0.60m width, 0.45m depth Finger Drains at 15 m intervals including excavation of trench connecting chimney drain and vertical sand drain to toe drain as shown in the drawing. (150mm thick sand,150mm thick 20mm graded metal &

150mm thick 37.5mm graded metal)

The measurement for payment shall be the length of finger drains for the given measurements.

Sub Item 3.5 Furnishing 200mm thick dry rubble pitching

The sub item provides Furnishing 200mm thick dry rubble pitching in 75mm to 100 mm well graded rubble. Laying and voids filled in 1:4 Cement Sand mortar along the toe Drain of bund including necessary excavation as per the construction drawing.

The measurement for payment shall be the volume of rubble pitching for the given measurements.

Sub Item 3.6 Construction of V notch weir

The sub item provides for Construction of V notch weir as per drawing with including stainless steel 6.3mm thick weir plate for V notch (steel grade 316531 or equivalent) in position including 100 mm long 10mm Dia stainless steel anchor bolt complete with washer, 1.5mm thk. stainless steel plate with graduation from 0 to 300 etched in block as directed by the Engineer.

The measurement for payment shall be the P.Sum of work done as per Construction drawings.

4.0 Item IV- Improvements to Sluice barrel in D/S side (Location at 300m) & Improvements to Abutments of Spill (Location at 0.00m)

Sub Item 4.1 Demolish in D/S side H/wall, and Channel side walls of Sluice

The sub item provides for Demolish in D/S side H/wall, and Channel side walls of Sluice. The measurement for payment shall be the measurement taking with Pilling Quantity based on the preconstruction levels surveyed.

Sub Item 4.2 Earth excavation in foundation as directed.by manual

The sub-item provides for Common earth excavation in the foundation and spoil to waste as directed by the manual. Cut & lift up to 1.5m.

The measurement for payment shall be the volume of excavation measured from the levels established by the pre-construction surveys and construction drawings.

Sub Item 4.3 Supplying and laying polythene sheet (Gauge 1000) on channel bed for lining channel before concreting.

The sub-item provides Supplying and laying polythene sheet on Structure bed (grade 1000) before concreting as directed by engineer. The measurement for payment shall be the area measured on surface before concreting.

Sub Item 4.4 Supplying and laying 750 mm dia ,2.4 m long & Standard thickness of Hume pipe for Sluice Barrel as directed by engineer.

The sub-item provides for Supplying and laying 750 mm dia ,2.4 m long & Standard thickness of Hump pipe for Sluice Barrel as directed by engineer. The measurement for payment shall be the length of Hume pipe measured from the site and Construction drawings.

Sub Item 4.5 1:2:4 (20mm) cement concrete (grade-20) in structure excluding form work including mixing, placing, compacting and curing for three weeks including transport

The sub-item provides for 1:2:4(20mm) concrete compacting with a porker vibrator including curing without formwork (mixing by manual). Rate includes cost of dewatering of foundations, placing, compacting and curing of concrete including filling of over-excavations.

The payment measurement shall be the concrete volume measured from the construction drawings approved by the Engineer.

Sub Item 4.6 Furnishing, making, fixing and removing 16mm thick double coated plywood or any steel or shuttering planks (approved by engineer) with necessary props and connectors.

The sub-item provides for supplying all necessary formwork, erecting, framing, cutting angles, cleaning wetting and treatment before placing concrete and removal. Further, Furnishing and making formwork with 16mm thick plywood sheet & necessary props including fixing and removing same once. (Plywood & other materials can be used 6 times)
The measurement for payment shall be the form work area of concrete measured from the construction drawings.

Sub Item 4.7 Providing 12 mm dia ,450mm long dowels at center point 600 mm interval along bottom and side face as directed by engineer.

The sub-item provides for Providing 12 mm dia ,450mm long dowels at center point 600 mm interval along bottom and side face as directed by engineer. The measurement for payment shall be the numbers of dowels measured from the site and Construction drawings.

Sub Item 4.8 Furnishing, cutting, bending, and placing of 10mm Dia. R/F (Tor steel) including wastage & Cover blocks for Sluice barrel, passerelle & Abutments of spill

The sub-item provides for Supplying, cutting, bending & fixing reinforcement bars as mentioned in the drawing. The rate includes the cost of Supplying, cutting, bending & fixing reinforcement bars

The measurement for payment shall be the weight of QT rib bars measured from the Construction drawings.

Sub Item 4.9 Furnishing, cutting, bending, and placing of 6mm Dia. R/F (mild steel) including wastage & Cover blocks for columns of Passerelle

The sub-item provides for Supplying, cutting, bending & fixing reinforcement bars as

mentioned in the drawing. The rate includes the cost of Supplying, cutting, bending & fixing reinforcement bars

The measurement for payment shall be the weight of QT rib bars measured from the Construction drawings.

Sub Item 5.0 Item -V- Fixing Handrail in Passerelle -6.0 m

Sub Item 5.1 Supplying 37.5mm dia heavy duty G.I Pipe

The sub item provides for supplying 37.5mm dia heavy duty G.I Pipe As per the detailed drawing.

The measurement for payment shall be the length measured from the Construction drawings.

Sub Item 5.2 Making hand rails

The sub item provides for Making hand rails as per detailed drawing including, two coat painting of anticorrosive paint and Transporting Charges.

The measurement for payment shall be measured as per the detailed drawings.

Sub Item 5.3 Furnishing and Fixing hand rail

The sub item provides for Furnishing and Fixing hand rail in position as directed. (Rate including necessary Labour Scaffolding, etc.)

The measurement for payment shall be measured as per the detailed drawings.

Sub Item 5.4 Tiding Up site

The sub item is provided as a lump sum for removal of all rubbish and debris and disposal as approved and clearing site on completion.

Payment for this item will be certified on completion and leaving all in good order before handing over.

Bill of Quantities

Item No.	Description	Amount (LKR)
Bill No 01	Item I- Preliminaries	
Bill No 02	Item II – Improvements to tank bund	
Bill No 03	Item III – Toe filter and chimney drain of tank bund in D/S side	
Bill No 04	Item IV – Improvements to abutment of spill and sluice barrel in D/S side	
Bill No 05	Item V – Fixing hand rail in Passerelles	
A	Sub Total 1 - Summary of Bills 1 to 5	
B	Ddt: Provisional Sums	4,496,000.00
C	Sub Total 2 (A-B)	
D	Discount (if Any)	
E	Sub Total 3 (C-D+E)	
F	Physical Contingencies - 10% of E (10% x E)	
G	Sub Total 4 (E+F)	
H	Price Contingencies - 7% of E (7% x E)	
I	TOTAL BID PRICE, CARRIED TO LETTER OF BID (G+H)	
Total Bid Price (Amount in words)		
J	VAT- 18% of Bid Price (I×0.18)	
GRAND TOTAL INCLUDING VAT (D+E)		
K	Provisional Sum – Total for Day works	
Sub Total 5 (Bid Price with Day Works) (I+K) <i>[Will be considered only for Evaluation Purpose]</i>		

Signature of Bidder :-.....

Bill of Quantities

Item No	Description	Unit	Qty	Rate (LKR)	Amount (LKR)	Rate in Words
1.0	Preliminaries					
	The attention of the bidder is drawn to the use of Bill of Quantities, Drawings. Conditions of Contract, Specifications and any other particulars related to this bid. It is the bidder's responsibility to see that his price includes for complying with all the requirements of the conditions of contract and other documents specifically required.		Note			
	The bidder is advised to visit the site of the proposed work, as it is his responsibility to ascertain the Conditions, governing access to the site, the external working space, storage area, etc.,		Note			
	Existing roads & culverts cannot take the passage of heavy vehicle or such in adequate areas to be strengthen by the successful bidder, before make use		Note			
	Any existing services, roads, culverts and approaches damaged during the construction to be reinstated without any charge to the employer.		Note			
	All temporary works shall be dismantled and cleared away from the site on completion of the work.		Note			
	Any other preliminary items not listed below but deemed to be included in the bid rates, as no extras would be made.		Note			
	No work in any trade shall be carried out in such a manner as to cause any nuisance to adjacent owners or the public		Note			

Item No	Description	Unit	Qty	Rate (LKR)	Amount (LKR)	Rate in Words
	Mechanical plant and equipment which emits obnoxious liquids, gases etc., will not be allowed to be used on the site, without the prior approval from the Employer and the Engineer.		Note			
	The Engineer has the final decision as and when he deems it necessary for the Contractor to take precautions, maintain or repair such plant and equipment or order their removal from the site.		Note			
	The contractor shall be responsible for any loss or damage to the works, existing structures, adjoining structures and unfixed materials.		Note			
	The Contractor shall be responsible for necessary lighting, watchman and other suitable measures during construction until handing over.		Note			
	Contractor shall be responsible for erection, shifting and maintaining of necessary protective netting, fencing, hording, screens at site and other precautions to the required standard and satisfaction of the Engineer.		Note			
	The Contractor shall forthwith and as a condition precedent to the commencement of any works under this contract, take out an insurance policy from a company or companies approved by the Engineer in writing on all risk insurance policy or policies indemnifying the contractor, the Engineer's and the Employer's staff at the site from all liabilities including claims by any and every workman employed in and for the performance of this contract for payment of the Workmen's Compensation Legislation and from all		Note			

Item No	Description	Unit	Qty	Rate (LKR)	Amount (LKR)	Rate in Words
	costs and expenses incidental or consequential thereto.					
1.1	Securities, Insurances etc.,					
1.1.1	Provisional Sum for providing a Performance Security	Item	Allow	P.Sum	1,091,000.00	
1.1.2	Provisional Sum for providing a Advance Payment Security	Item	Allow	P.Sum	909,000.00	
1.1.3	Provisional Sum for insurance of works, Machinery & Equipment, Plant, Materials, Third party persons & property and employer's personnel & property at site as per the contract	Item	Allow	P.Sum	546,000.00	
1.1.4	Provisional Sum for insurance against accidents and injury to contractor's personnel as per the contract	Item	Allow	P.Sum	546,000.00	
1.2	Engineer's Facilities					
1.2.1	Provisional sum for constructing, maintaining, dismantling and removal on completion of the works, a temporary building (length 8.0 m X width 4.0m)for Engineer's office in conformity with the plans provided for Engineer's requirements including necessary furniture and fittings, furnishing, sanitary facilities and other facilities	Item	Allow	P.Sum	250,000.00	
1.2.2	Providing of Double cab for inspection of works and attend to meeting in Divisional, District, provincial and National level for the period of 12 months. It should be brand new or registered after 2017, fuel type can be Diesel/Petrol/Hybrid. Engine Capacity 2500cc,4Wd, mileage less than 200,000km for registered vehicle while the point of providing for visit in the first time.	Item	Allow	L. Sum		

Item No	Description	Unit	Qty	Rate (LKR)	Amount (LKR)	Rate in Words
	Minimum running shall be 3000km per month usage shall be 25days per month,06 days per week and 12 hours per day. Vehicle should be fully insured one.it should be automatic air condition with rear A/C vent minimum seating including driver shall be five. (wet lease basis with Driver) Only for 12 months, period will be as instructed by Engineer.					
1.3	Contractor's Facilities					
1.3.1	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	Item	Allow	L.Sum		
1.3.2	Allow Lump sum for constructing, maintaining, dismantling and removal on completion of the works, building to be used as workshops and stores for perishable materials and building shall be constructed in accordance with the drawings prepared by the contractor and concurred by the Engineer , the lump sum shall be also included for altering, modifying or dismantling and re-erecting all temporary building / structures within the site if required.	Item	Allow	L.Sum		
1.4	Other Requirements					

Section 8 – Bill of Quantities

Item No	Description	Unit	Qty	Rate (LKR)	Amount (LKR)	Rate in Words
1.4.1	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	Item	Allow	P.sum	200,000.00	
1.4.2	Allow lump sum for providing and maintaining a plaque to the specification and / or as directed by Engineer.	Item	Allow	L.Sum		
1.4.3	Allow lump sum for providing and maintaining a Project Name board to the specification and / or as directed by Engineer.	Item	Allow	L.Sum		
1.4.4	Allow lump sum for provision of 4 sets of hard copies and soft copies of As-built drawing of all services, for engineer's approval.	Item	Allow	L.Sum		
1.4.5	Employers share of Adjudicator's fees and expenses.	Item	Allow	L.Sum		
1.4.6	Conducting Social awareness programmed in coordination with Implementing Agency	Item	Allow	P.Sum	254,000.00	
Total for Bill No 1 (Carried to Summary of Bill)						

Item No	Description	Unit	Qty	Rate (LKR)	Amount (LKR)	Rate in Words
2.0	Item II - Improvements of tank Bund (Location (- (0+390)) m to (0+630) m) Drawing No :- IWWRMP/PI/PD/ADH/01 to IWWRMP/PI/PD/ADH/16					
2.1	Allow lump sum for removal of trees along the tank bund (Rate shall be inclusive of obtaining approval /permits from the relevant authorities all risks consequences of delays inconvenience cost of damage, associated with above)	Item	Allow	L.sum		
2.2	Supplying, spreading, Gravel (Type1, CBR >15) for u/s side bund slope (Qty sheet annexed) as directed by Engineer.	m	2,345.0			
2.3	Cutting foundation of RIP-RAP at toe of bund as directed by Engineer and shown in the drawing.	m ³	402.0			
2.4	Supplying, pilling and placing 300 mm- 450mm size Rubble and piled rubble including loading, transporting and placing, complete to working order of Rip Rap protection work lift 0.00 m-1.5m. (Qty sheet annexed)	m ³	7,365.0			
2.5	Full turfing to U/S, D/S side new earth filling on bund slope including watering till turf takes roots (haul 1.6 km)	m ²	15,068.0			
2.6	Earth Excavation from barrow & pilling suitable soil for run- off area of U/S side Bund slope as directed by Engineer (measurement taking with Pilling Qty)	m ³	2,194.0			
2.7	Loading, Transporting, Placing & Required Compaction as directed by Engineer	m ³	1,755.0			

Item No	Description	Unit	Qty	Rate (LKR)	Amount (LKR)	Rate in Words
2.8	Shrub & Thorny jungle clearing along the D/S side Toe area of bund including uprooting and burning outside the reservation by machinery as directed by Engineer	ha	1.0			
2.9	Stripping top soil to a thickness of 75mm and spoil to waste by machinery as directed by Engineer.	m ³	2,416.0			
2.10	Earth Excavation from barrow and forming bund including watering & compaction (as per drawings) as directed by Engineer haul 3.0 mile	m ³	64,888.0			
	Total for Bill No 2 (Carried to Summary of Bill)					
	Reference Only - IWWRMP					
3.0	Item III- Toe Filter and chimney Drain of Tank Bund in D/S Side (Location at 0+00m to 0+450 m) Drawing No: - IWWRMP/PI/PD/ADH/17 & IWWRMP/PI/PD/ADH/01 to IWWRMP/PI/PD/ADH/10					
3.1	Furnishing, placing and watering graded sand to a thickness of 0.3m in inclined chimney drain and vertical sand drain along the D/S slope of embankment filling including necessary excavation and transport as per Drawing	m ³	1,514.0			
3.2	Supplying and laying Geotextile along the D/S of the tank bund at Toe drain rubble Packing	m ²	1044.0			
3.3	Furnishing and dry rubble packing in 150 to 225mm well graded rubble along the toe of bund including necessary excavation as directed	m ³	338.0			
3.4	Construction of 0.60m width, 0.45m depth Finger Drains at 15 m intervals including excavation of trench connecting chimney drain and vertical sand drain to toe	L.m	68.20			

Section 8 – Bill of Quantities

Item No	Description	Unit	Qty	Rate (LKR)	Amount (LKR)	Rate in Words
	drain as shown in the drawing. (150mm thick sand,150mm thick 20mm graded metal & 150mm thick 37.5mm graded metal)					
3.5	Furnishing 200mm thick dry rubble pitching in 75mm to 100 mm well graded rubble. Laying and voids filled in 1:4 Cement Sand mortar along the toe Drain of bund including necessary excavation as per the drawing.	m ³	152.0			
3.6	Construction of V notch weir as per drawing with including stainless steel 6.3mm thick weir plate for V notch (steel grade 316531 or equivalent) in position including 100 mm long 10mm dia stainless steel anchor bolt complete with washer, 1.5mm thk. stainless steel plate with graduations from 0 to 300 etched in block	Item	Allow	P.sum	700,000.00	
Total for Bill No 3 (Carried to Summary of Bill)						
4.0	Item IV- Improvements to Abutments of Spill (Location at 0.00m) & Sluice barrel in D/S side Location at 0+300m IWWRMP/PI/PD/ADH/17, IWWRMP/PI/PD/ADH/19					
4.1	Demolish at D/S side H/wall, and Channel side walls of Sluice	Item	Allow	L.sum		
4.2	Earth excavation in foundation as directed.by manual	m ³	27.0			
4.3	Supplying and laying polythene sheet (Gauge 1000) on channel bed for lining channel before concreting.	m ²	33.0			

Item No	Description	Unit	Qty	Rate (LKR)	Amount (LKR)	Rate in Words
4.4	Supplying and laying 750 mm dia ,2.4 m long & Standard thickness of Hump pipe for Sluice Barrel as directed by engineer.	L.m	9.76			
4.5	1:2:4 (20mm) cement concrete (grade-20) in structure excluding form work including mixing, placing, compacting and curing for three weeks including transport	m ³	102.5			
4.6	Furnishing, making, fixing and removing 16mm thick double coated plywood or any steel or shuttering planks (approved by engineer) with necessary props and connectors.	m ²	407.0			
4.7	Providing 12 mm dia ,450mm long dowels at center point 600 mm interval along bottom and side face as directed by engineer.	Nos	127.0			
4.8	Furnishing, cutting, bending, and placing of 10mm Dia. R/F (Tor steel) including wastage & Cover blocks for Sluice barrel, passerelle & Abutments of spill	Kg	2,248.0			
4.9	Furnishing, cutting, bending, and placing of 6mm Dia. R/F (mild steel) including wastage & Cover blocks for columns of Passerelle	Kg	7.50			
Total for Bill No 4 (Carried to Summary of Bill)						
5	Item -V- Fixing Handrail in Passerelle -6.0 m					
5.1	Supplying 37.5mm dia heavy duty G.I Pipe as per the detailed drawing.	l.m	37.80			

Section 8 – Bill of Quantities

Item No	Description	Unit	Qty	Rate (LKR)	Amount (LKR)	Rate in Words
5.2	Making hand rails as per detailed drawing including , two coat painting of anticorrosive paint and transporting Charges .	Item	Allow	L.sum		
5.3	Furnishing and Fixing hand rail in position as directed.(rate including necessary Labor Scaffolding ,etc.)	Item	Allow	L.sum		
5.4	Tiding Up site	Item	Allow	L.sum		
Total for Bill No 5 (Carried to Summary of Bill)						
Total Civil Cost						

Reference Only - WWW.RMP

7.0 DAYWORKS SCHEDULE

	Description	Unit	Qty	Rate (LKR)	Amount (LKR)	Rate in Words
	Labour					
1	Skilled labour	hr	75.00			
2	Unskilled labour	hr	80.00			
3	Mason	hr	20.00			
4	Carpenter	hr	20.00			
5	Plumber, Electrician	hr	2.00			
6	Mechanic	hr	5.00			
7	Welder, Fitter	hr	5.00			
8	Steel fixer	hr	5.00			
9	Driver	hr	5.00			
	Total for Labour					
	Material					
1	Cement (50 Kg bags)	Nos	50.00			
2	Sand	m ³	20.00			
3	Mild steel reinforcement	t	0.15			
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	15.00			
9	Gravel	m ³	20.00			
	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 06					

Technical Proposal

Forms for personnel

Forms for equipment

Site organisation

Method statements

Mobilisation and construction schedule

Reference Only
www.pmp.com

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

Reference Only -IWWRMP

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.

Reference Only -IWWRMP

Method Statements

The Bidder shall provide a method statement describing the methodology proposed to be adopted in the execution of the contract.

Reference Only -IWWRMP

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.

Reference Only -IWWRMP

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.

Reference Only -IWWRMP

Section 9 - Schedules

Schedule 1 – General Information			
<p>(i) <i>If pre-qualification is done the bidders are required to include information subsequent to that submitted with the pre-qualification application.</i></p> <p>(ii) <i>For joint ventures, each joint venture partner shall furnish information separately.</i></p>			
ITB Clause reference	Description	Information <i>(to be filled by the Bidder)</i>	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.	<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		

Reference Only -IWWRMP

**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		
6		
7		
8		
9		
10		

Reference Only - IWW/RMP

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		

Schedule 4 – Construction Experience in last ten 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	Employer	Description of Works	Amount	Contractor's Responsibility (%)
		Total		

Reference Only -IWWRMP

- *Provide documentary evidence and label as attachment to Clause 4.2*

Schedule 6 – Construction Management Staff		
A. Key Professionals		
Name	Position	Task
B. Support Staff		
Name	Position	Task

Reference Only - IWWRMP

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		

Reference Only -IWW/RMP

Nonadjustable element shall be:
All P sum & L sum items

Schedule 10 - 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							

Reference Only - IWRMP

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 Manger 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 and 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 4.13 Protection of the Environment

Sub-clause 4.15 Contractor's Operations on the Site

Sub-clause 4.16 Fossils

Sub-clause 4.19 Avoidance of Interference

Section 6 Staff and Labour (includes health and safety)

Sub-clause 7.1 Manner of Execution

Sub-clause 10 Clearance of Site

Sub-clause 15 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.

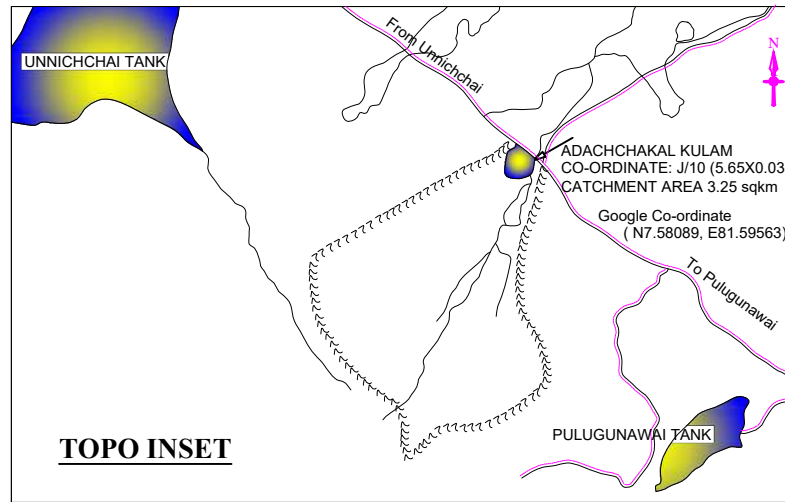
Section - 10

Drawings

S.NO	DESCRIPTION	DRAWING NO	NO OF SHEETS
01.	Improvements of tank Bund	IWWRMP/PI/PD/ADH/01 to 17	16
02.	Toe Filter and Drain of Tank Bund in D/S side	IWWRMP/PI/PD/ADH/1 to 10	10
03.	Improvements to Abutments of Spill (Location at 0.00m) & Sluice barrel in D/S side Location at 0+300m	IWWRMP/PI/PD/ADH/18(sluice), IWWRMP/PI/PD/ADH/19(spill Abutment)	02
04.	V notch weir	IWWRMP/PI/PD/ADH/11	01

Total Drawings 19 Nos.

Reference Only - IWWRMP



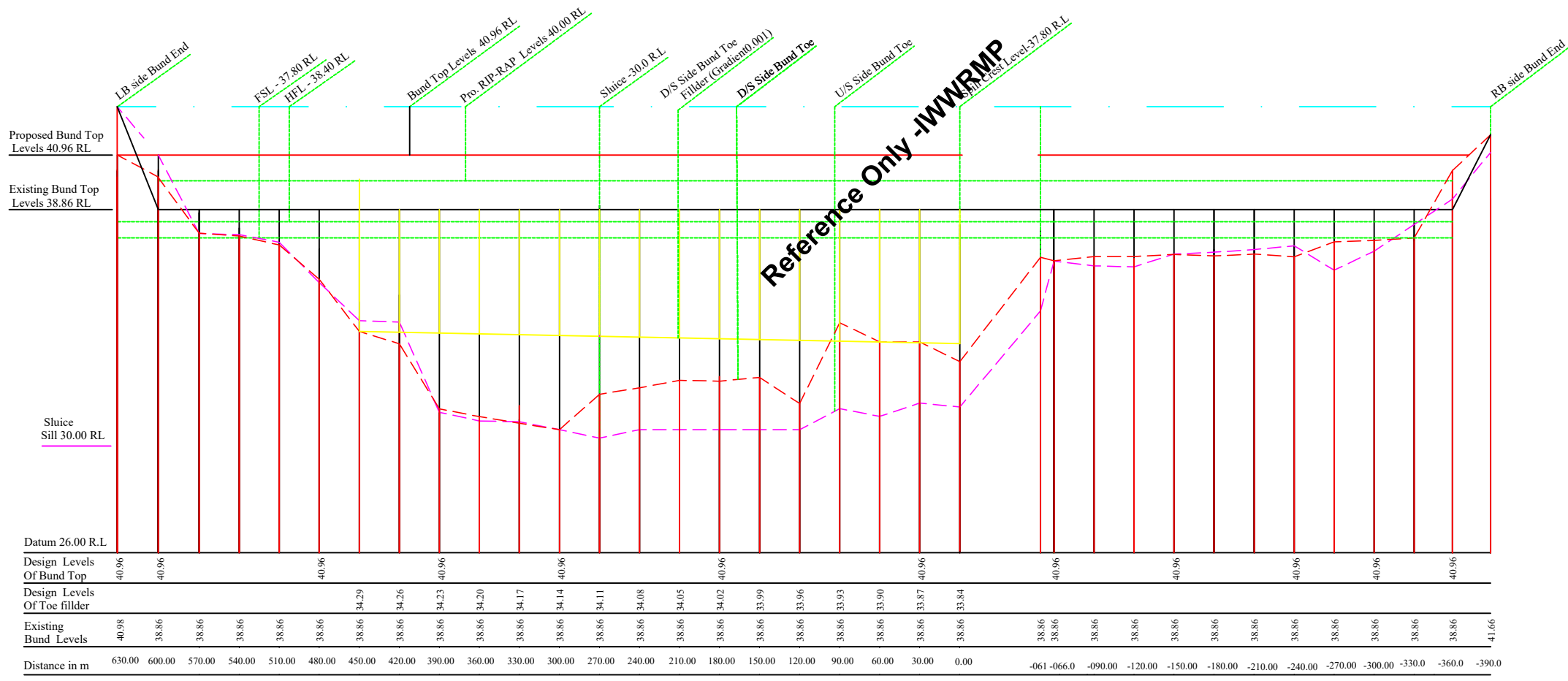
TANK DATA	
1.NAME OF TANK	:ADACHCHAKAL KULAM
2.CATCHMENT AREA	:3.25 Sq.miles
3.CO-ORDINATE	:J/10(5.65x0.03)
4.AREA AT FSL	:146.0 Acres
5.AREA AT HFL	:166.0 Acres
6.CAPACITY AT F.S.L	:1845.0 Ac.ft
7.CAPACITY AT H.F.L	:
8.F.S.L	:117.6 ft above MSL
9.H.F.L	:119.6 ft above MSL
10.DEAD STORAGE	:100 Ac.ft

Bund	
1.LENGTH OF BUND	:2952 ft
2.BUND TOP LEVEL	:121.07 ft above MSL
3.BUND TOP WIDTH	:4.0 m
SIDE SLOPE U/S	:1on 3
D/S	:1on 2.5

SPILL	
1.Type:	CO
2.LENGTH(ft)	:200 (61.0m)
3.CREST LEVEL(ABOVE MSL)	:116.0

SLUICE	
1.TYPE	:TOWER
2.SIZE	:52"
3.SILL LEVEL(ft ABOVE MSL)	:92 ft
4.HEAD OF WATER	:25.5 ft
5.IRRIGABLE AREA	:1002 Acres

CANAL DATA	
1.LENGTH OF MAIN CANAL(m)	:4941
2.LENGTH OF BRANCH CANAL(m)	:5003



LONGITUDINAL SECTION AT LB SIDE 0+000 to 0+600 m

SCALE : HORIZONTAL - 1:2000
VERTICAL - 1:100

- NOTE**
- ALL DIMENSION ARE IN MILLIMETERS
 - ALL LEVELS ARE IN METERS ABOVE MSL
 - BAR NOTATION

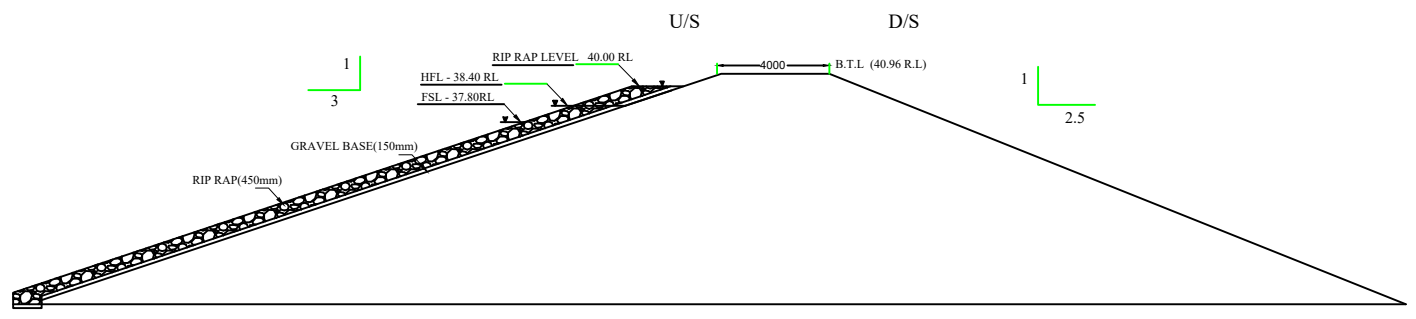
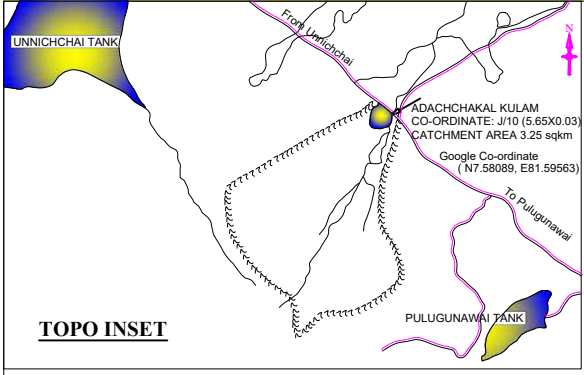
20 Y 20 - 10 - 225 T	
No OF BARS	BAR LOCATION
STEEL TYPE	BAR SPACING
BAR SIZE	BAR MARK
 - ABBREVIATION

T-	TOP	FF - FAR FACE	BF - BOTH FACE
B-	BOTTOM	NF - NEAR FACE	
 - MATERIAL PROPERTIES

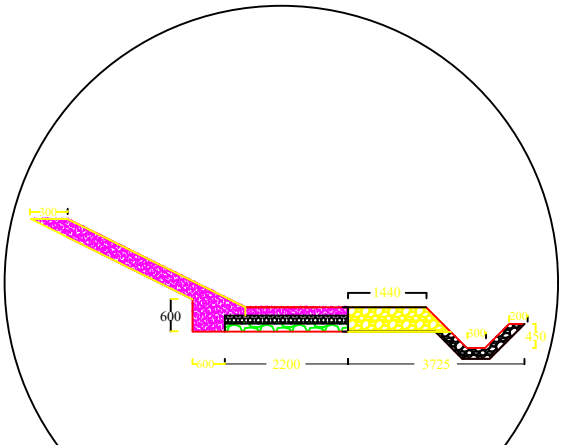
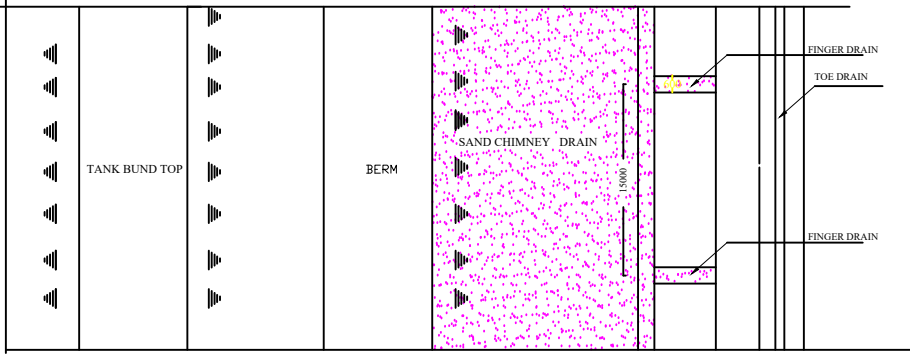
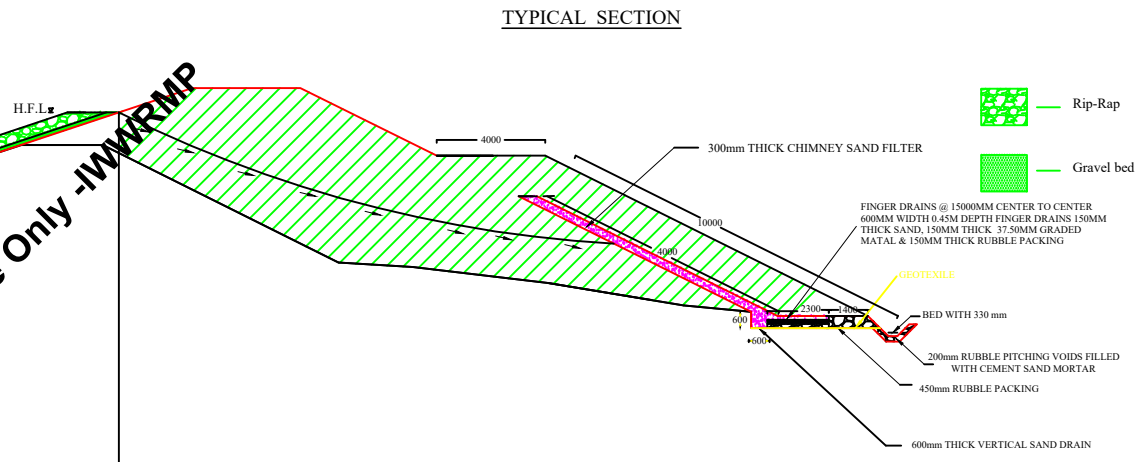
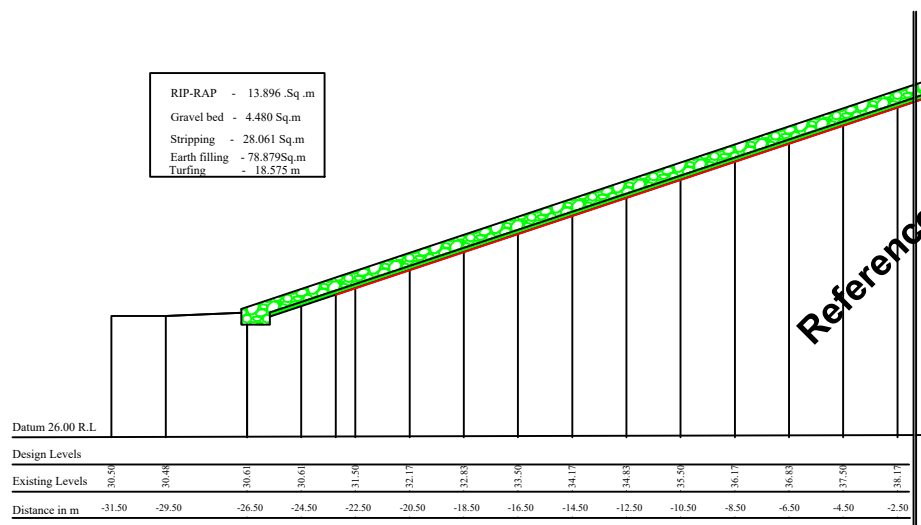
CONCRETE - GRADE 20
REINFORCEMENT - 460 N/mm2 TOR STEEL
 - MINIMUM CLEAR COVER SHOULD BE 50mm
 - LAP LENGTH SHOULD BE 45 x BAR DIAMETER & LAPS SHOULD BE STAGGERED

ALL DIMENSION ARE IN MILLIMETERS

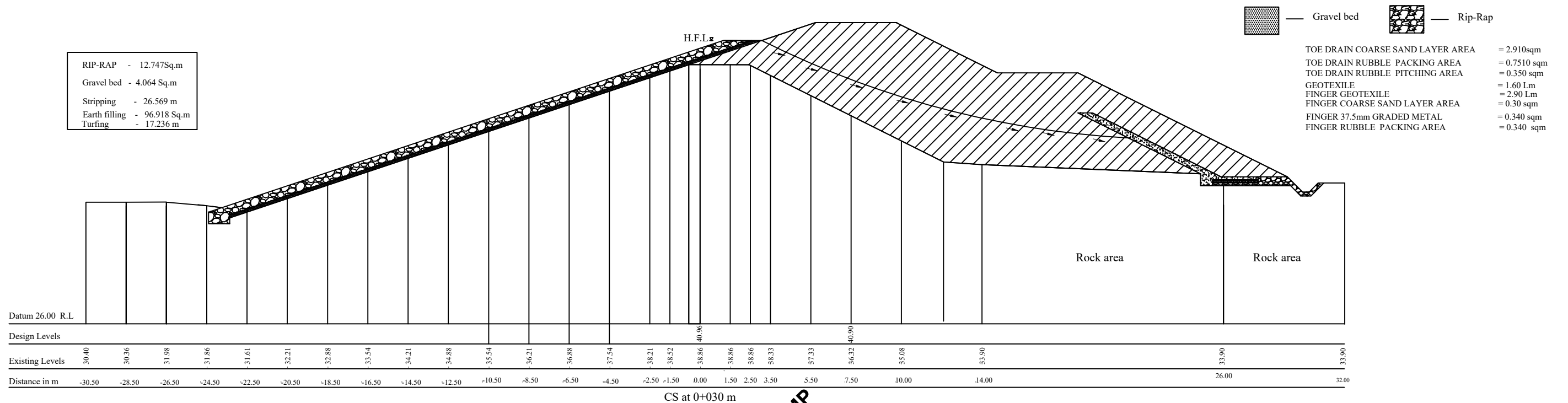
D.I.E.'s Office	LEVELLED & DRAWN BY: Mr.S.Rathikaram (T.O)	DESIGNED BY:	SUBMITTED BY:
	DRAWING CHECKED BY: Mr.R.Ravikkumar (T.O)	ENGLinggipri Jansathan P/Divisional Irrigation Engineer	ENGLinggipri Jansathan P/Divisional Irrigation Engineer
D.D.I.'s Office	DRAWING CHECKED BY:	DESIGN CHECKED BY: ENGLK.Pruthespan, IE,Batticaloa Range	RECOMMENDED BY: Eng K. Pruthespan D.I.Batticaloa Range
	DRAWING CHECKED BY: Dmm	DESIGN CHECKED BY: IE,DDI'S Office Batticaloa	
P.D.I.'s Office	DESIGN CHECKED BY: D.D.I [Design] EP	APPROVED CHECKED BY: ENGL V.Rajagopalasingam, Director of Irrigation, EP	
	IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME LS OF TANK BUND FROM 0+000 TO 0+630, 0+061 TO 0+390m		
DATE:-	SHEET: 01 of 19	DRW. NO : IWW/RMP/PI/PD/ADH/01 to 19	



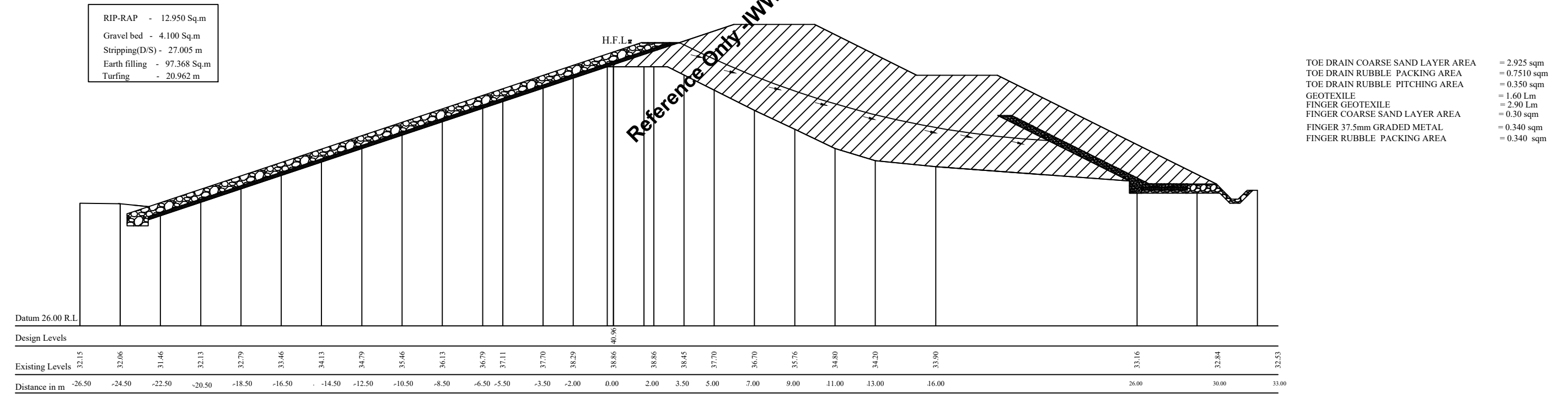
RIP-RAP	- 13.896 Sq. m
Gravel bed	- 4.480 Sq.m
Stripping	- 28.061 Sq.m
Earth filling	- 78.879 Sq.m
Turfing	- 18.575 m



D.E. Office	LEVELLED & DRAWN BY: Mr.S.Rajkumar (T.O)	DESIGNED BY: ENGLingappa Jannathan P/Divisional Irrigation Engineer	SUBMITTED BY: ENGLingappa Jannathan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY: Mr.R.Ravikumar (T.O)	DESIGN CHECKED BY: ENGL.K.Prathapan P/Assistant Engineer	RECOMMENDED BY: Eng K. Prathapan P/Assistant Engineer
P.D. Office	DRAWING CHECKED BY: Drawn	DESIGN CHECKED BY: H.D.D.'S Office Batickalo	APPROVED CHECKED BY: ENG V.Rajappaswainam, Divisional Engineer, EP
	<p align="center">IRRIGATION DEPARTMENT (E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME LS OF TANK BUND FROM 0+000 TO 0+630, 0+861 TO 0+390M</p>		
DATE:		SHEET: 02 of 19	DRW. NO : IWRMP/PD/AD102



Reference Only - IWWRMP



SCALE : HORIZONTAL - 1:100
 VERTICAL - 1:100

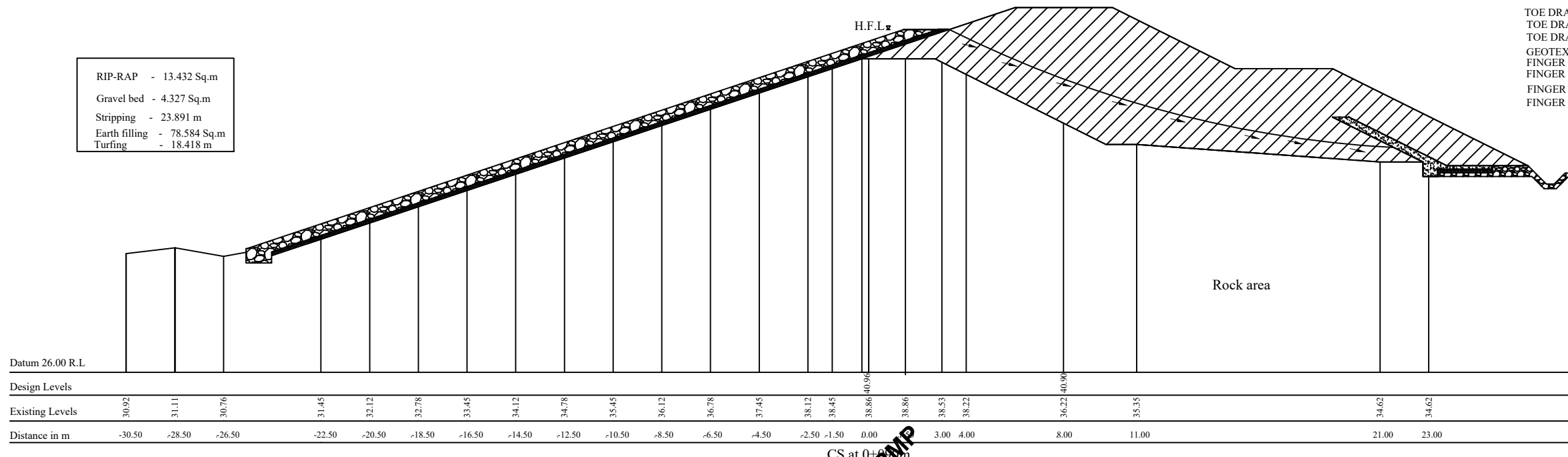
D.I.E.Y's Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY: Mr.R.Ravikkumar (T.O)		
DDI's Office	DRAWING CHECKED BY: D'man	DESIGN CHECKED BY: IE,Batticaloa Range	RECOMMENDED BY: Eng.K.Pratheepan DDL,Batticaloa Range
P.D.I's Office	DRAWING CHECKED BY: D'man	DISIGN CHECKED BY: IE,DDI'S Office Batticaloa	
	DESIGN CHECKED BY: D.D.I [Design] EP	APPROVED CHECKED BY: ENG.V.Rajagopalingam, Director of Irrigation, EP	
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME CS OF LB SIDE TANK BUND FROM 0+000 TO 0+030 M			
DATE:-	SHEET: 03 of 19	DRW. NO : IWWRMP/PI/PD/ADH/03	

ALL DIMENSION ARE IN MILLIMETERS

Gravel bed Rip-Rap

RIP-RAP - 13.432 Sq.m
 Gravel bed - 4.327 Sq.m
 Stripping - 23.891 m
 Earth filling - 78.584 Sq.m
 Turfing - 18.418 m

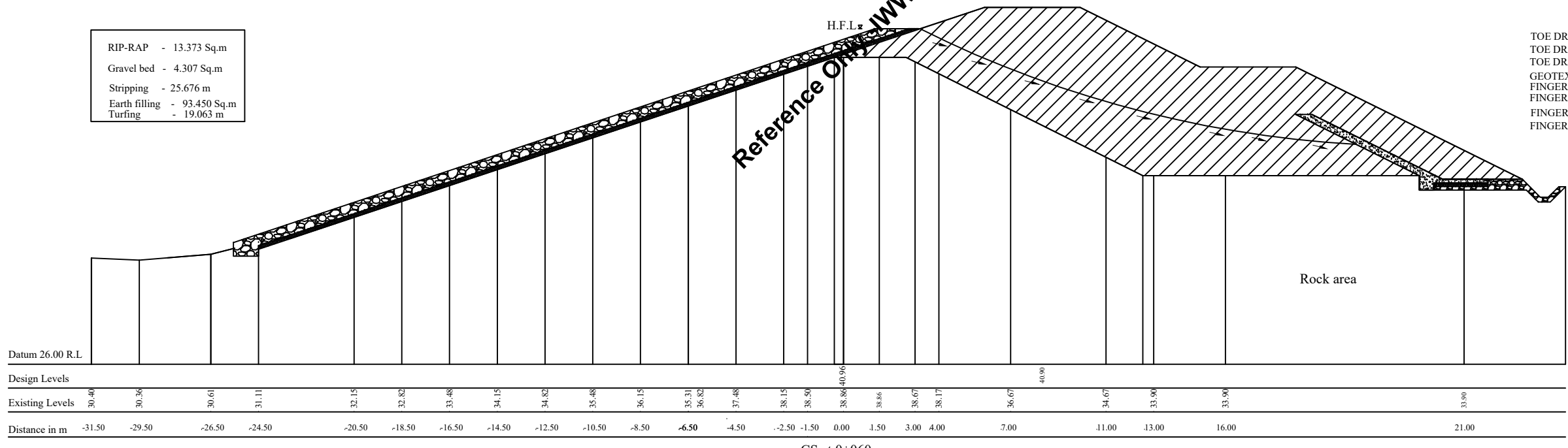
TOE DRAIN COARSE SAND LAYER AREA = 1.977sqm
 TOE DRAIN RUBBLE PACKING AREA = 0.7510 sqm
 TOE DRAIN RUBBLE PITCHING AREA = 0.350 sqm
 GEOTEXILE = 1.60 Lm
 FINGER GEOTEXILE = 2.90 Lm
 FINGER COARSE SAND LAYER AREA = 0.30 sqm
 FINGER 37.5mm GRADED METAL = 0.340 sqm
 FINGER RUBBLE PACKING AREA = 0.340 sqm



CS at 0+090 m

RIP-RAP - 13.373 Sq.m
 Gravel bed - 4.307 Sq.m
 Stripping - 25.676 m
 Earth filling - 93.450 Sq.m
 Turfing - 19.063 m

TOE DRAIN COARSE SAND LAYER AREA = 2.469 sqm
 TOE DRAIN RUBBLE PACKING AREA = 0.7510 sqm
 TOE DRAIN RUBBLE PITCHING AREA = 0.350 sqm
 GEOTEXILE = 1.60 Lm
 FINGER GEOTEXILE = 2.90 Lm
 FINGER COARSE SAND LAYER AREA = 0.30 sqm
 FINGER 37.5mm GRADED METAL = 0.340 sqm
 FINGER RUBBLE PACKING AREA = 0.340 sqm



CS at 0+060 m

SCALE: HORIZONTAL - 1:100
 VERTICAL - 1:100

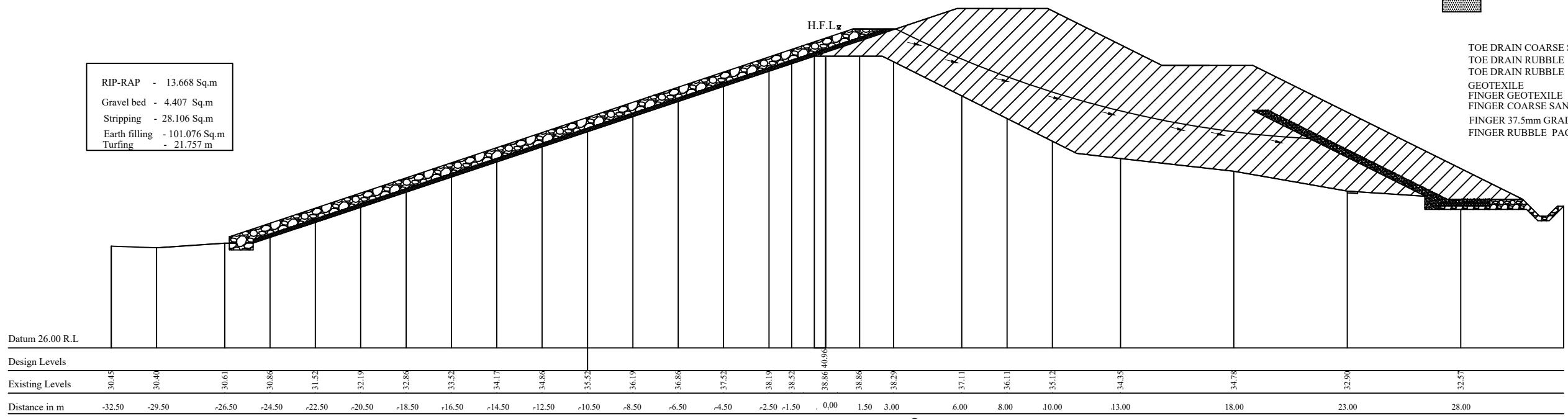
ALL DIMENSION ARE IN MILLIMETERS

D.I.E.S Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY: Mr.R.Ravikkumar (T.O)		
D.D.'s Office	DRAWING CHECKED BY: D'man	DESIGN CHECKED BY: IE,Batticaloa Range	RECOMMENDED BY: Eng.K.Pratheepan DDL,Batticaloa Range
P.D.I.'s Office	DRAWING CHECKED BY: D'man	DISIGN CHECKED BY: IE,DDI'S Office Batticaloa	
	DESIGN CHECKED BY: D.D.1 [Design] EP	APPROVED CHECKED BY: ENG.V.Rajagopalasingam, Director of Irrigation, EP	
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME CS OF LB SIDE TANK BUND FROM 0+060 TO 0+090 M			
DATE:-	SHEET: 04 of 19	DRW. NO : I/WRMP/PI/PD/ADH/04	

Gravel bed Rip-Rap

RIP-RAP - 13.668 Sq.m
 Gravel bed - 4.407 Sq.m
 Stripping - 28.106 Sq.m
 Earth filling - 101.076 Sq.m
 Turfing - 21.757 m

TOE DRAIN COARSE SAND LAYER AREA = 3.276sqm
 TOE DRAIN RUBBLE PACKING AREA = 0.7510 sqm
 TOE DRAIN RUBBLE PITCHING AREA = 0.350 sqm
 GEOTEXILE = 1.60 Lm
 FINGER GEOTEXILE = 2.90 Lm
 FINGER COARSE SAND LAYER AREA = 0.30 sqm
 FINGER 37.5mm GRADED METAL = 0.340 sqm
 FINGER RUBBLE PACKING AREA = 0.340 sqm

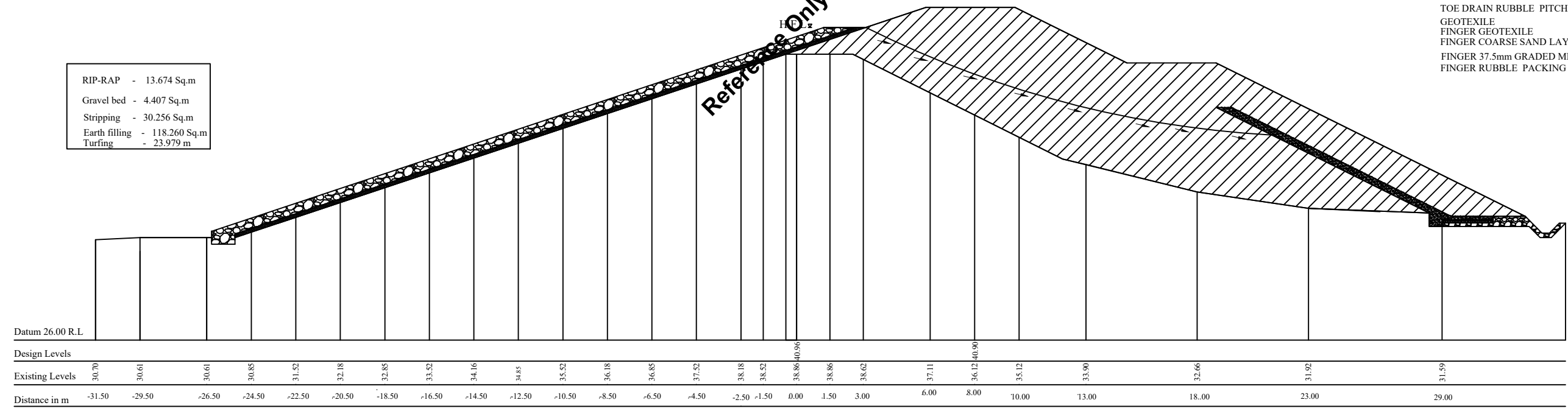


CS at 0+150 m

Reference Only - IWWRMP

RIP-RAP - 13.674 Sq.m
 Gravel bed - 4.407 Sq.m
 Stripping - 30.256 Sq.m
 Earth filling - 118.260 Sq.m
 Turfing - 23.979 m

TOE DRAIN COARSE SAND LAYER AREA = 3.943sqm
 TOE DRAIN RUBBLE PACKING AREA = 0.7510 sqm
 TOE DRAIN RUBBLE PITCHING AREA = 0.350 sqm
 GEOTEXILE = 1.60 Lm
 FINGER GEOTEXILE = 2.90 Lm
 FINGER COARSE SAND LAYER AREA = 0.30 sqm
 FINGER 37.5mm GRADED METAL = 0.340 sqm
 FINGER RUBBLE PACKING AREA = 0.340 sqm



CS at 0+120. m

SCALE: HORIZONTAL - 1:100
 VERTICAL - 1:100

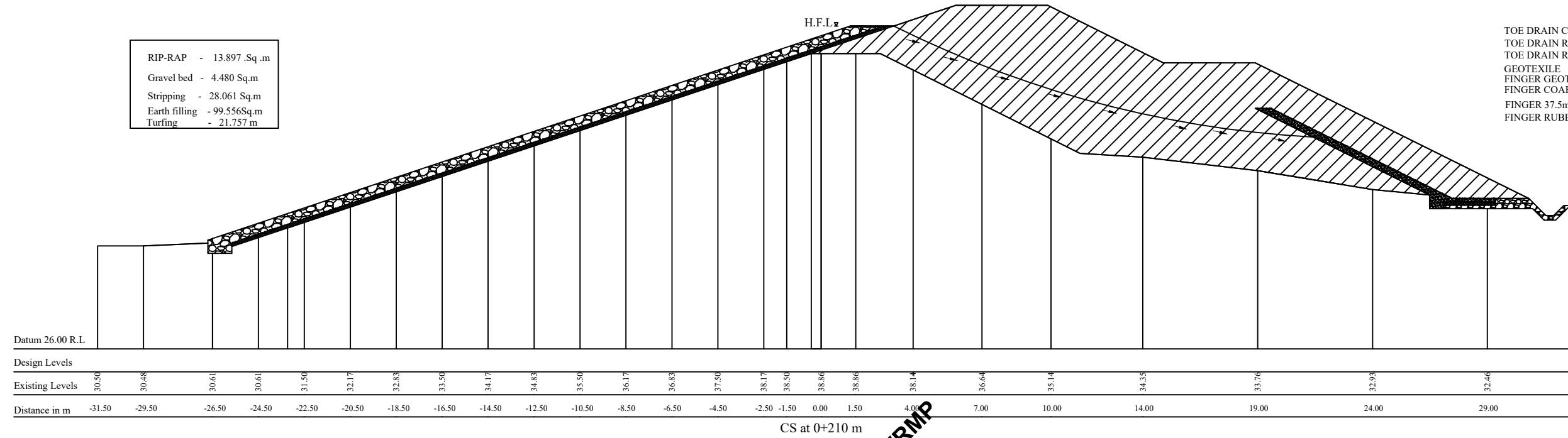
D.I.E.S Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY: Mr.R.Ravikkumar (T.O)		
D.D.'s Office	DRAWING CHECKED BY: D'man	DESIGN CHECKED BY: IE,Batticaloa Range	RECOMMENDED BY: Eng.K.Pratheepan DDL,Batticaloa Range
P.D.I's Office	DRAWING CHECKED BY: D'man	DISIGN CHECKED BY: IE,DDI'S Office Batticaloa	
	DESIGN CHECKED BY: D.D.I [Design] EP	APPROVED CHECKED BY: ENG.V.Rajagopalasingam, Director of Irrigation, EP	
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME CS OF TANK BUND FROM 0+120 TO 0+150 M			
DATE:-	SHEET: 05 of 18	DRW. NO : IWWRMP/PI/PD/ADH/05	

ALL DIMENSION ARE IN MILLIMETERS

Gravel bed Rip-Rap

RIP-RAP - 13.897 Sq.m
 Gravel bed - 4.480 Sq.m
 Stripping - 28.061 Sq.m
 Earth filling - 99.556 Sq.m
 Turfing - 21.757 m

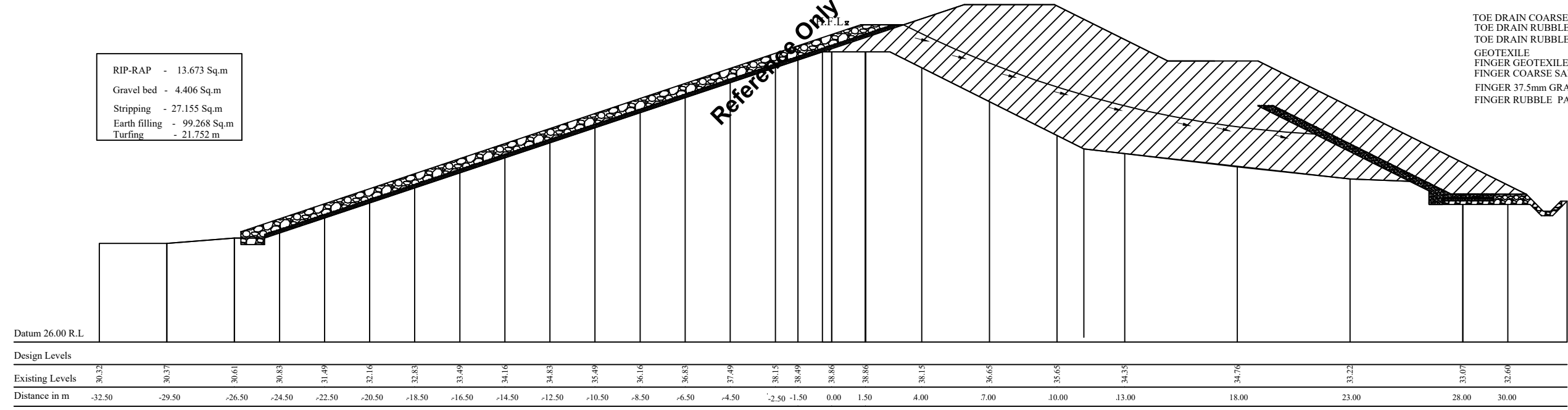
TOE DRAIN COARSE SAND LAYER AREA = 3.277sqm
 TOE DRAIN RUBBLE PACKING AREA = 0.7510 sqm
 TOE DRAIN RUBBLE PITCHING AREA = 0.350 sqm
 GEOTEXILE = 1.60 Lm
 FINGER GEOTEXILE = 2.90 Lm
 FINGER COARSE SAND LAYER AREA = 0.30 sqm
 FINGER 37.5mm GRADED METAL = 0.340 sqm
 FINGER RUBBLE PACKING AREA = 0.340 sqm



CS at 0+210 m

RIP-RAP - 13.673 Sq.m
 Gravel bed - 4.406 Sq.m
 Stripping - 27.155 Sq.m
 Earth filling - 99.268 Sq.m
 Turfing - 21.752 m

TOE DRAIN COARSE SAND LAYER AREA = 3.277sqm
 TOE DRAIN RUBBLE PACKING AREA = 0.7510 sqm
 TOE DRAIN RUBBLE PITCHING AREA = 0.350 sqm
 GEOTEXILE = 1.60 Lm
 FINGER GEOTEXILE = 2.90 Lm
 FINGER COARSE SAND LAYER AREA = 0.30 sqm
 FINGER 37.5mm GRADED METAL = 0.340 sqm
 FINGER RUBBLE PACKING AREA = 0.340 sqm



CS at 0+180 m

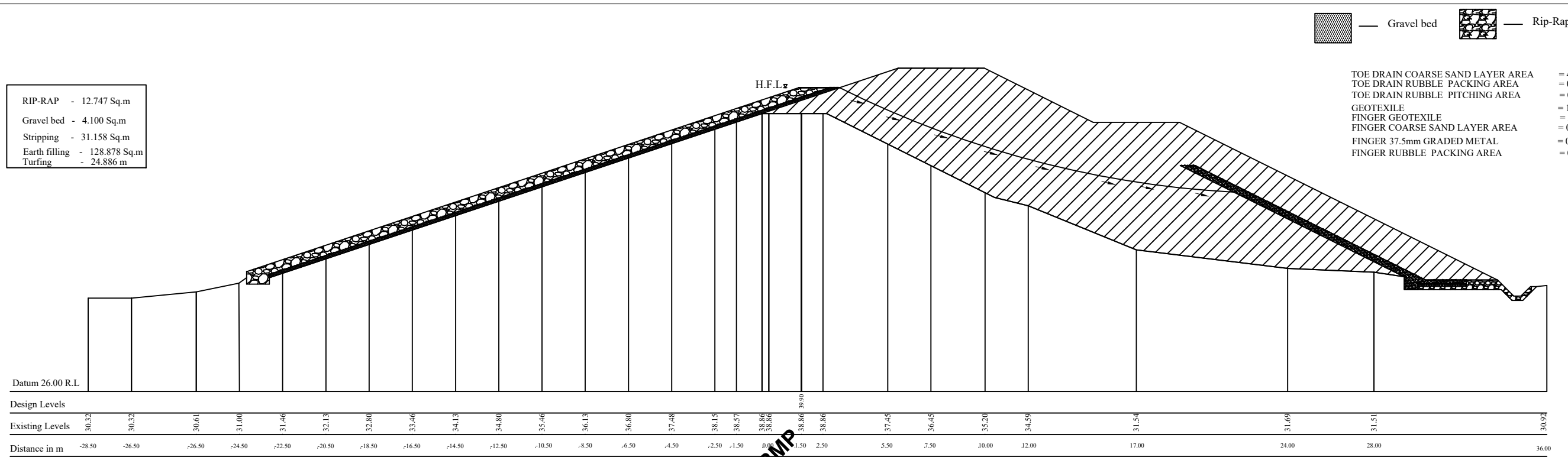
Reference Only - IWWRMP

SCALE : HORIZONTAL - 1:100
 VERTICAL - 1:100

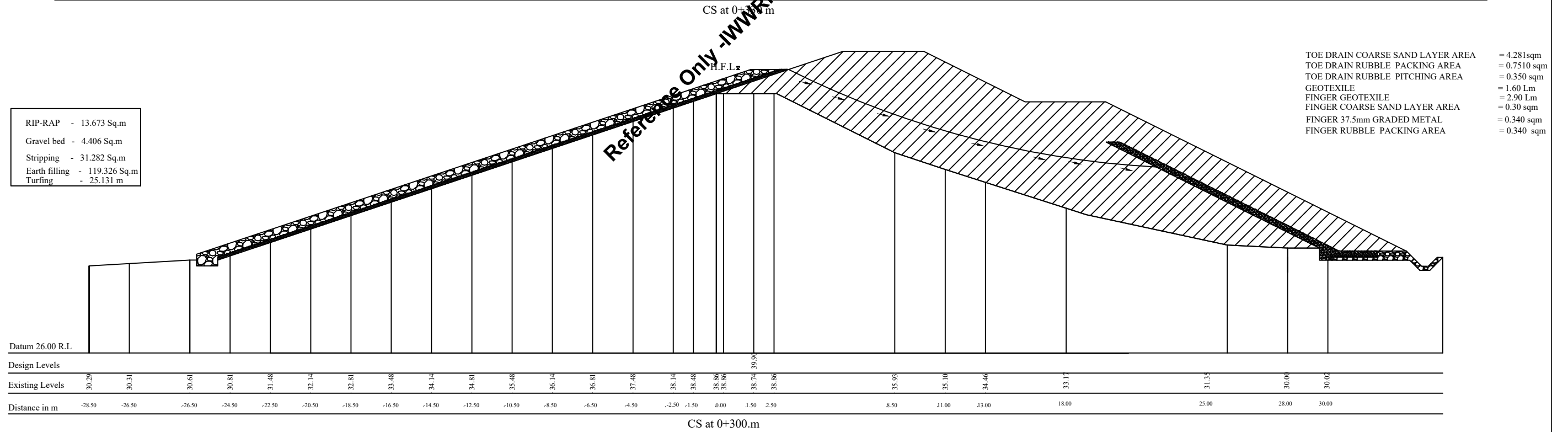
ALL DIMENSION ARE IN MILLIMETERS

D.I.E.S Office	LEVELLED & DRAWN BY : Mr.S.Rathikaran (T.O)	DESIGNED BY : ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY : ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY : Mr.R.Ravikkumar (T.O)		
DDI's Office	DRAWING CHECKED BY : D'man	DESIGN CHECKED BY : IE,Batticaloa Range	RECOMMENDED BY : Eng.K.Pratheepan DDL,Batticaloa Range
P.D.I's Office	DRAWING CHECKED BY : D'man	DISIGN CHECKED BY : IE,DDI'S Office Batticaloa	
	DESIGN CHECKED BY : D.D.I [Design] EP	APPROVED CHECKED BY : ENG.V.Rajagopalasingam, Director of Irrigation, EP	
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME CS OF LB SIDE TANK BUND FROM 0+180 TO 0+210 M			
DATE:-	SHEET: 06 of 19	DRW. NO : IWWRMP/PI/PD/ADH/06	

RIP-RAP - 12.747 Sq.m
 Gravel bed - 4.100 Sq.m
 Stripping - 31.158 Sq.m
 Earth filling - 128.878 Sq.m
 Turfing - 24.886 m



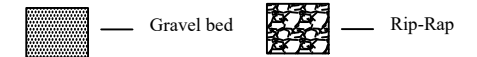
RIP-RAP - 13.673 Sq.m
 Gravel bed - 4.406 Sq.m
 Stripping - 31.282 Sq.m
 Earth filling - 119.326 Sq.m
 Turfing - 25.131 m



SCALE: HORIZONTAL - 1:100
 VERTICAL - 1:100

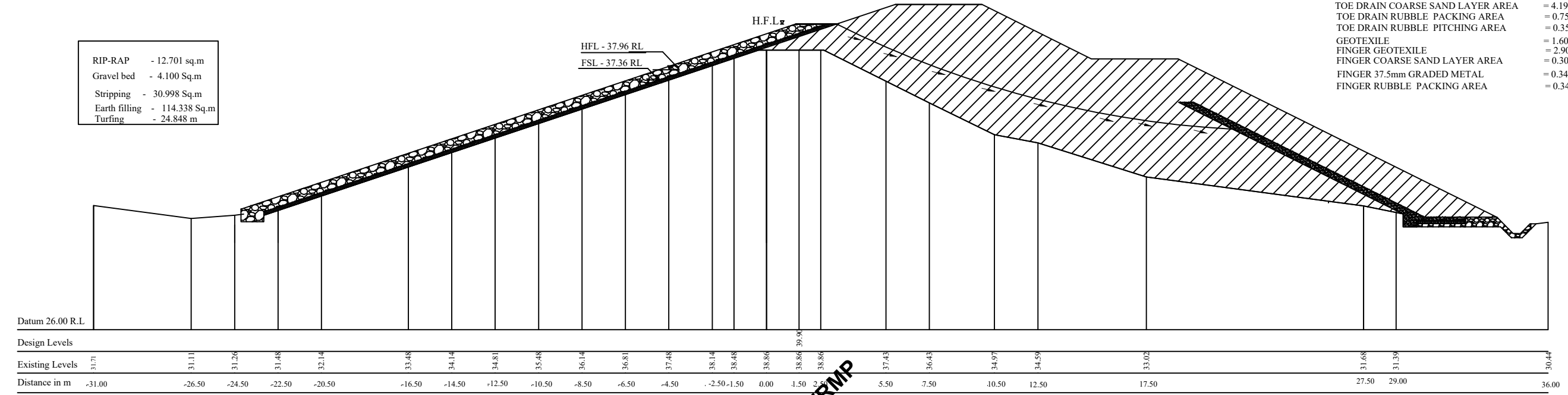
ALL DIMENSION ARE IN MILLIMETERS

D.I.E.Y's Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY: Mr.R.Ravikkumar (T.O)		
DDI's Office	DRAWING CHECKED BY: D'man	DESIGN CHECKED BY: IE,Batticaloa Range	RECOMMENDED BY: Eng.K.Pratheepan DDL,Batticaloa Range
P.D.I's Office	DRAWING CHECKED BY: D'man	DISIGN CHECKED BY: IE,DDI'S Office Batticaloa	
	DESIGN CHECKED BY: D.D.I [Design] EP	APPROVED CHECKED BY: ENG.V.Rajagopalingam, Director of Irrigation, EP	
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME CS OF LB SIDE TANK BUND FROM 0+300 TO 0+330 M			
DATE:-	SHEET: 08 of 19	DRW. NO : IWRMP/PI/PD/ADH/08	



RIP-RAP	- 12.701 sq.m
Gravel bed	- 4.100 Sq.m
Stripping	- 30.998 Sq.m
Earth filling	- 114.338 Sq.m
Turfing	- 24.848 m

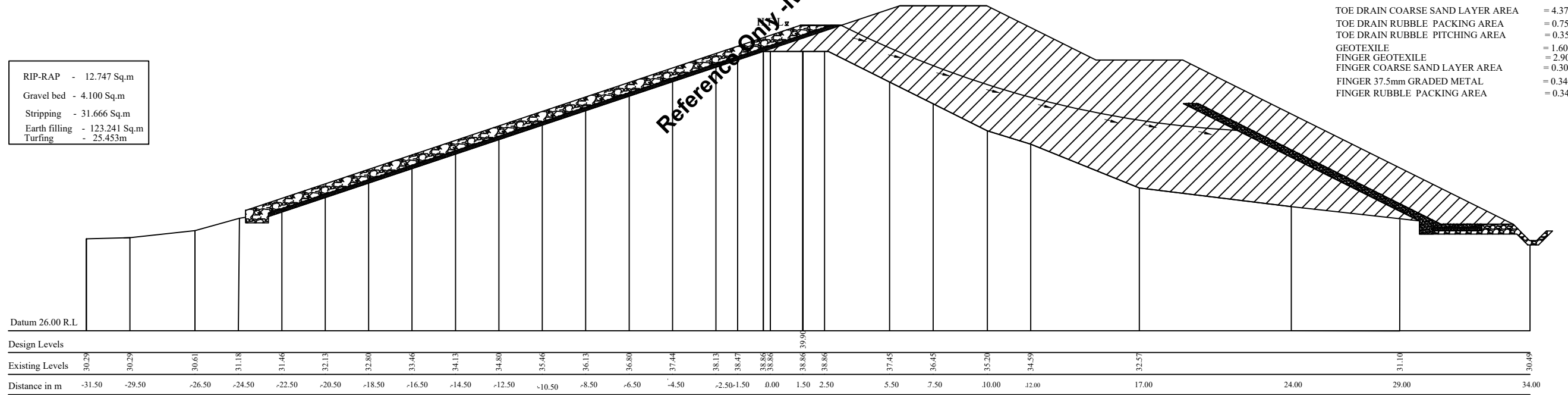
TOE DRAIN COARSE SAND LAYER AREA	= 4.196 sqm
TOE DRAIN RUBBLE PACKING AREA	= 0.7510 sqm
TOE DRAIN RUBBLE PITCHING AREA	= 0.350 sqm
GEOTEXILE	= 1.60 Lm
FINGER GEOTEXILE	= 2.90 Lm
FINGER COARSE SAND LAYER AREA	= 0.30 sqm
FINGER 37.5mm GRADED METAL	= 0.340 sqm
FINGER RUBBLE PACKING AREA	= 0.340 sqm



CS at 0+390 m

RIP-RAP	- 12.747 Sq.m
Gravel bed	- 4.100 Sq.m
Stripping	- 31.666 Sq.m
Earth filling	- 123.241 Sq.m
Turfing	- 25.453m

TOE DRAIN COARSE SAND LAYER AREA	= 4.378sqm
TOE DRAIN RUBBLE PACKING AREA	= 0.7510 sqm
TOE DRAIN RUBBLE PITCHING AREA	= 0.350 sqm
GEOTEXILE	= 1.60 Lm
FINGER GEOTEXILE	= 2.90 Lm
FINGER COARSE SAND LAYER AREA	= 0.30 sqm
FINGER 37.5mm GRADED METAL	= 0.340 sqm
FINGER RUBBLE PACKING AREA	= 0.340 sqm



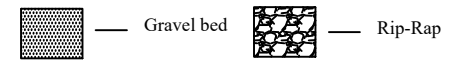
CS at 0+360 m

Reference Only - IWWRMP

SCALE: HORIZONTAL - 1:100
VERTICAL - 1:100

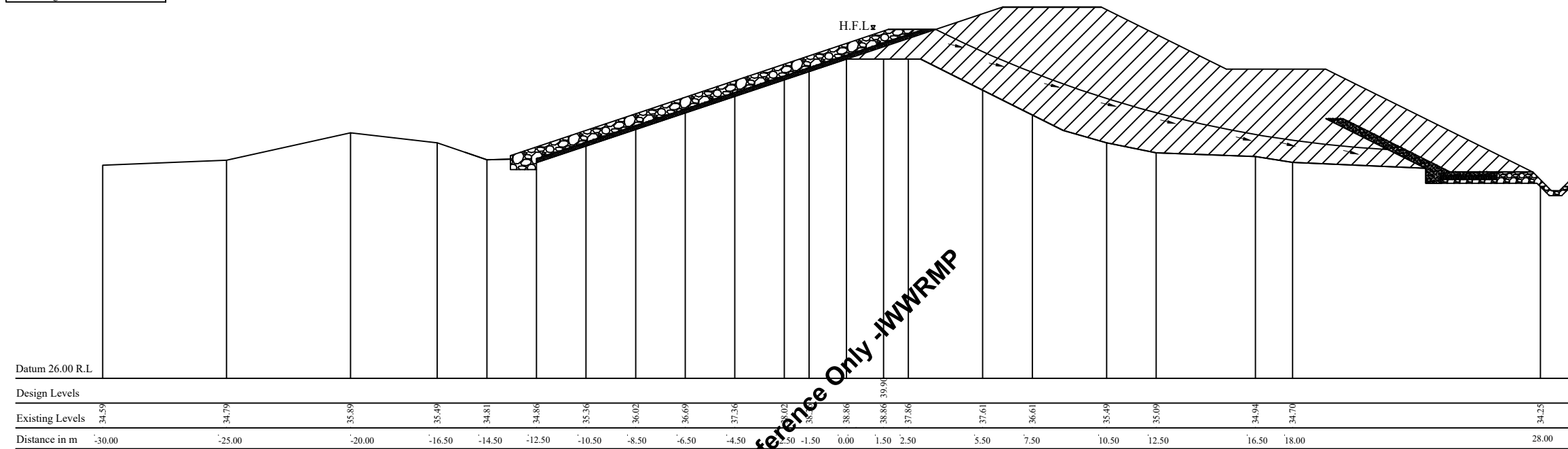
ALL DIMENSION ARE IN MILLIMETERS

D.I.E's Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY: Mr.R.Ravikkumar (T.O)		
DDI's Office	DRAWING CHECKED BY: D'man	DESIGN CHECKED BY: IE,Batticaloa Range	RECOMMENDED BY: Eng.K.Pratheepan DDL,Batticaloa Range
P.D.I's Office	DRAWING CHECKED BY: D'man	DISIGN CHECKED BY: IE,DDI'S Office Batticaloa	
	DESIGN CHECKED BY: D.D.I [Design] EP	APPROVED CHECKED BY: ENG.V.Rajagopalasingam, Director of Irrigation, EP	
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME CS OF LB SIDE TANK BUND FROM 0+360 TO 0+390M			
DATE:-	SHEET: 09 of 19	DRW. NO : IWWRMP/PI/PD/ADH/09	



RIP-RAP	- 7.852 Sq.m
Gravel bed	- 2.486 Sq.m
Stripping	- 24.187 Sq.m
Earth filling	- 80.110 Sq.m
Turfing	- 17.793 m

TOE DRAIN COARSE SAND LAYER AREA	= 2.081sqm
TOE DRAIN RUBBLE PACKING AREA	= 0.7510 sqm
TOE DRAIN RUBBLE PITCHING AREA	= 0.350 sqm
GEOTEXILE	= 1.60 Lm
FINGER GEOTEXILE	= 2.90 Lm
FINGER COARSE SAND LAYER AREA	= 0.30 sqm
FINGER 37.5mm GRADED METAL	= 0.340 sqm
FINGER RUBBLE PACKING AREA	= 0.340 sqm

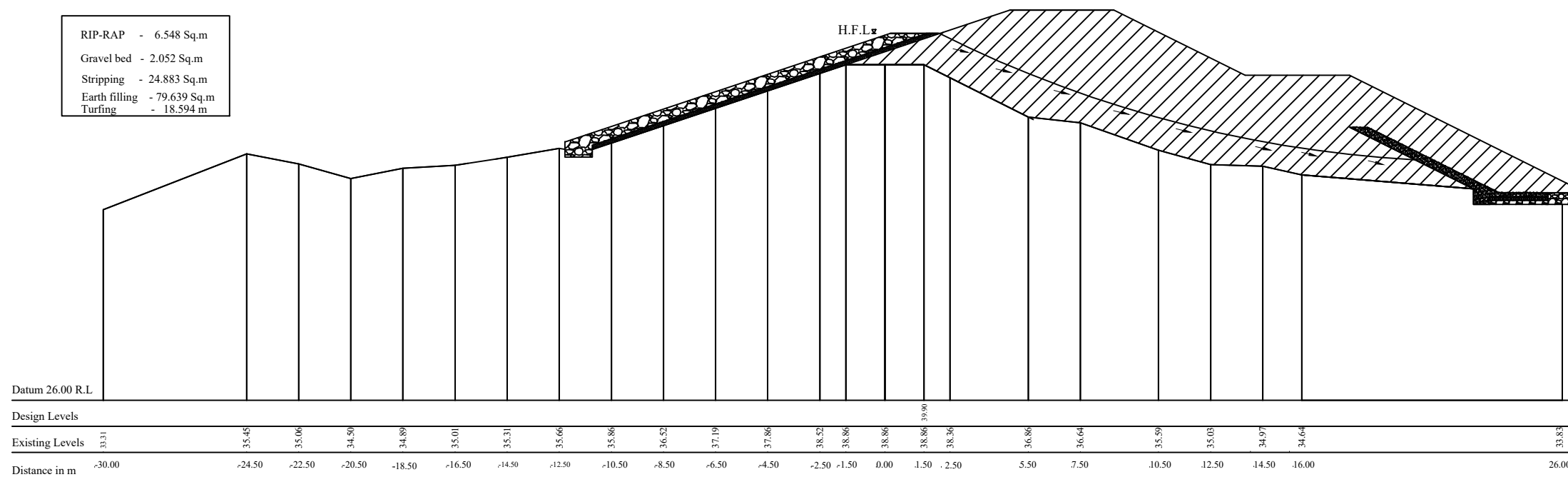


Reference Only -IWWRMP

CS at 0+450 m

RIP-RAP	- 6.548 Sq.m
Gravel bed	- 2.052 Sq.m
Stripping	- 24.883 Sq.m
Earth filling	- 79.639 Sq.m
Turfing	- 18.594 m

TOE DRAIN COARSE SAND LAYER AREA	= 2.320sqm
TOE DRAIN RUBBLE PACKING AREA	= 0.7510 sqm
TOE DRAIN RUBBLE PITCHING AREA	= 0.350 sqm
GEOTEXILE	= 1.60 Lm
FINGER GEOTEXILE	= 2.90 Lm
FINGER COARSE SAND LAYER AREA	= 0.30 sqm
FINGER 37.5mm GRADED METAL	= 0.340 sqm
FINGER RUBBLE PACKING AREA	= 0.340 sqm



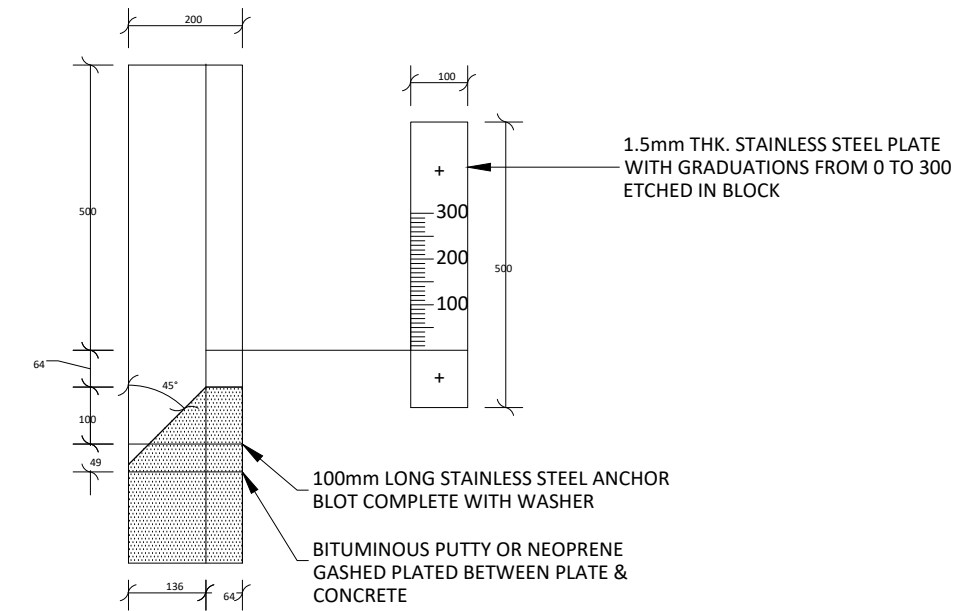
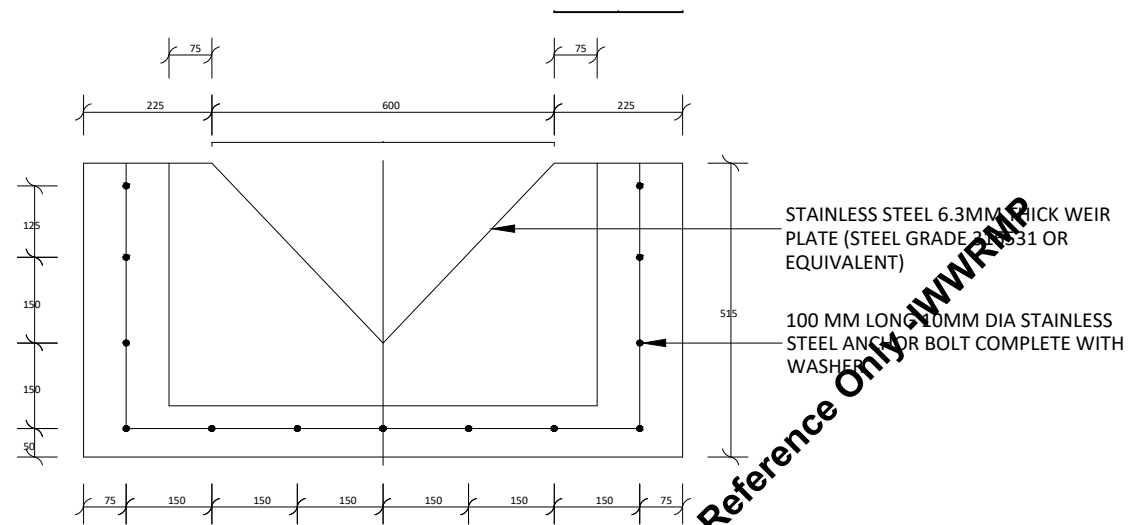
Reference Only -IWWRMP

CS at 0+420 m

D/IE's Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY: Mr.R.Ravikkumar (T.O)		
D/D's Office	DRAWING CHECKED BY: D'man	DESIGN CHECKED BY: IE,Batticaloa Range	RECOMMENDED BY: Eng.K.Pratheepan DDL,Batticaloa Range
P/D's Office	DRAWING CHECKED BY: D'man	DISIGN CHECKED BY: IE,DDI'S Office Batticaloa	
	DESIGN CHECKED BY: D.D.I [Design] EP	APPROVED CHECKED BY: ENG.V.Rajagopalasingam, Director of Irrigation, EP	
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME CS OF LB SIDE TANK BUND FROM 0+420 TO 0+450 M			
DATE:-	SHEET: 10 of 19	DRW. NO : IWWRMP/PI/PD/ADI/10	

SCALE : HORIZONTAL - 1:100
VERTICAL - 1:100

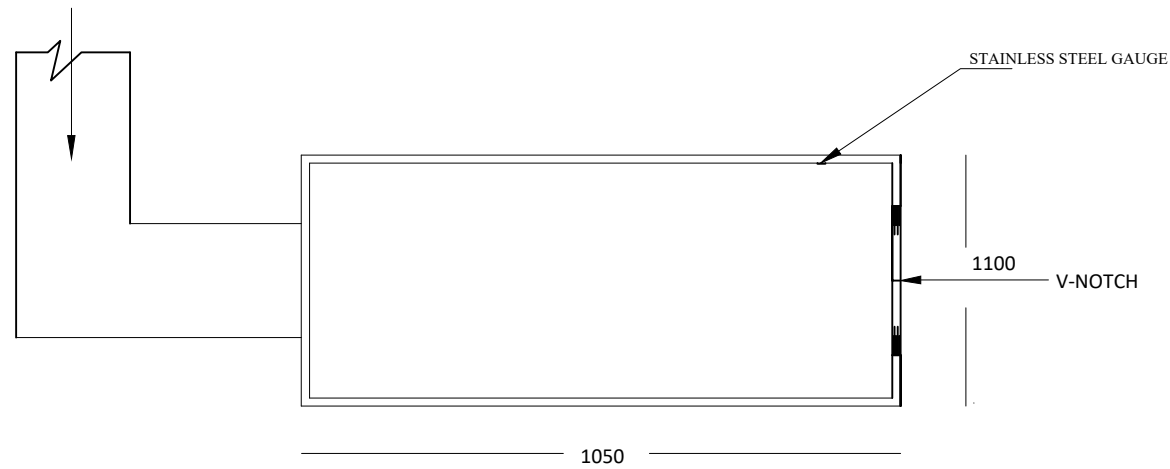
ALL DIMENSION ARE IN MILLIMETERS



DETAIL 'B' - STICK GAUGE

SCALE :-1:40

COLLECTING CHAMBER





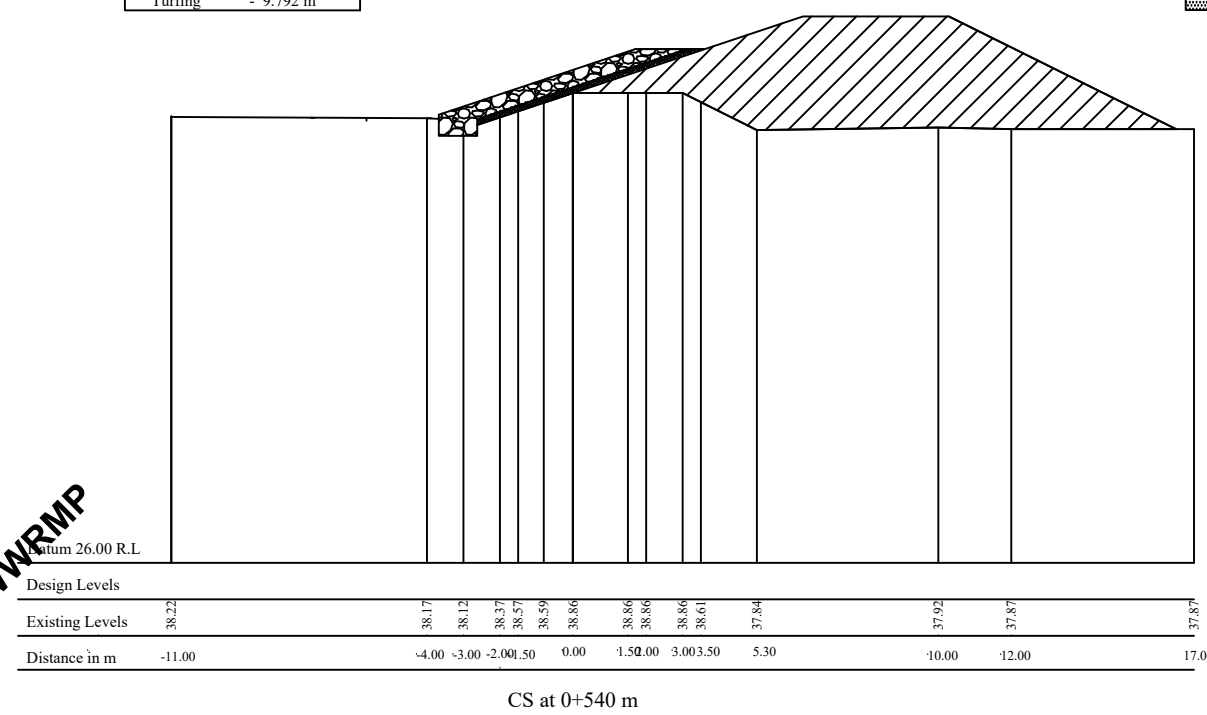
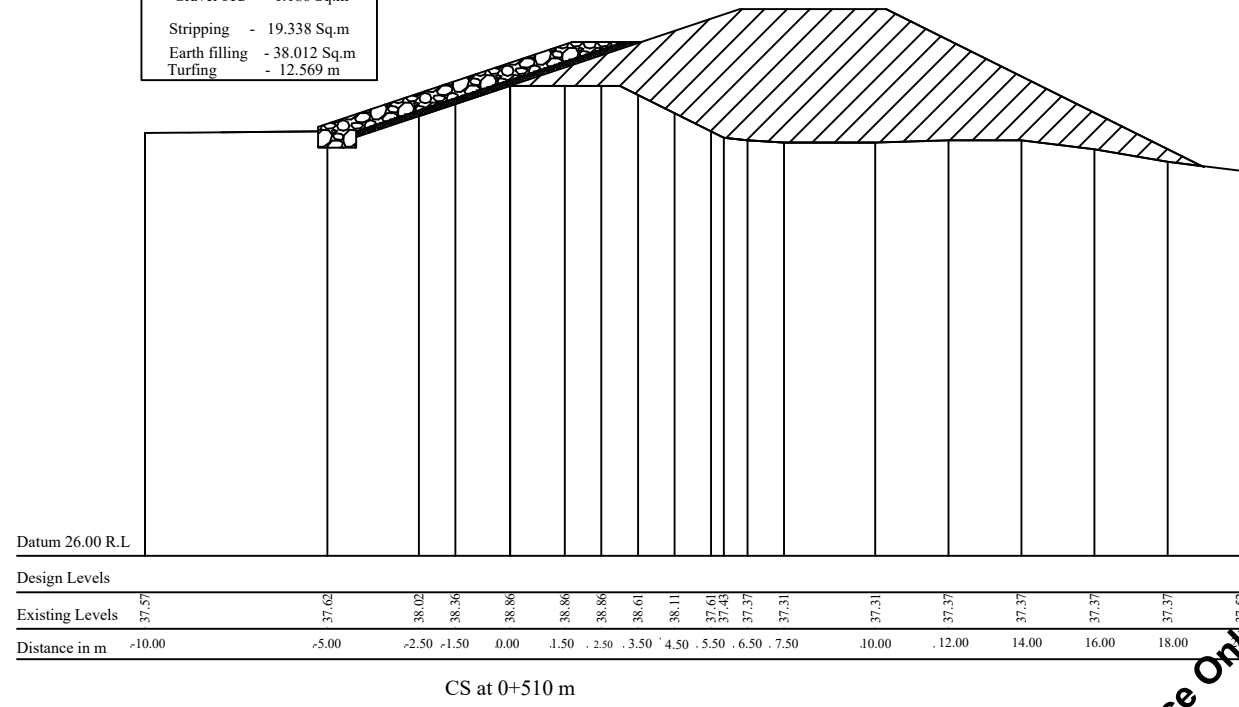
DETAIL 'A' - V NOTCH WEIR PLATE

D.I.E.Y's Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY : ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY : Mr.R.Ravikumar (T.O)		
DDI's Office	DRAWING CHECKED BY : D'man	DESIGN CHECKED BY : IE,Batticaloa Range	RECOMMENDED BY : Eng K. Pratheepan DDL,Batticaloa Range
P.D.I.'s Office	DRAWING CHECKED BY : D'man	DISIGN CHECKED BY : IE,DDI 'S Office Batticaloa	
	DESIGN CHECKED BY : D.D.I [Design] EP	APPROVED CHECKED BY : ENG V.Rajagopalasingam, Director of Irrigation, EP	
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME Construction of V- NOTCH WEIR			
DATE-	SHEET: 11 of 19	DRW. NO : IWWRMP/PI/PD/ADH/11	

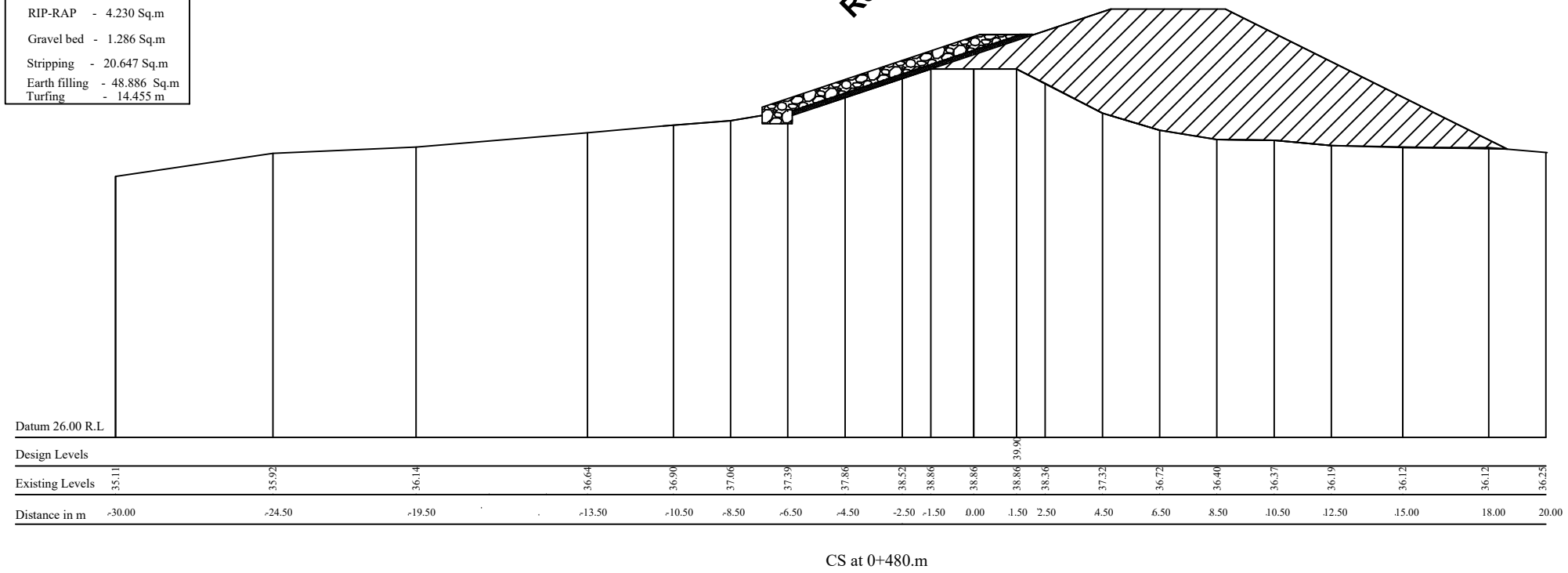
RIP-RAP - 3.930 Sq.m
 Gravel bed - 1.186 Sq.m
 Stripping - 19.338 Sq.m
 Earth filling - 38.012 Sq.m
 Turfing - 12.569 m

RIP-RAP - 3.178 Sq.m
 Gravel bed - 0.940 Sq.m
 Stripping - 16.754 Sq.m
 Earth filling - 30.758 Sq.m
 Turfing - 9.792 m

 Rip-Rap
 Gravel bed



RIP-RAP - 4.230 Sq.m
 Gravel bed - 1.286 Sq.m
 Stripping - 20.647 Sq.m
 Earth filling - 48.886 Sq.m
 Turfing - 14.455 m



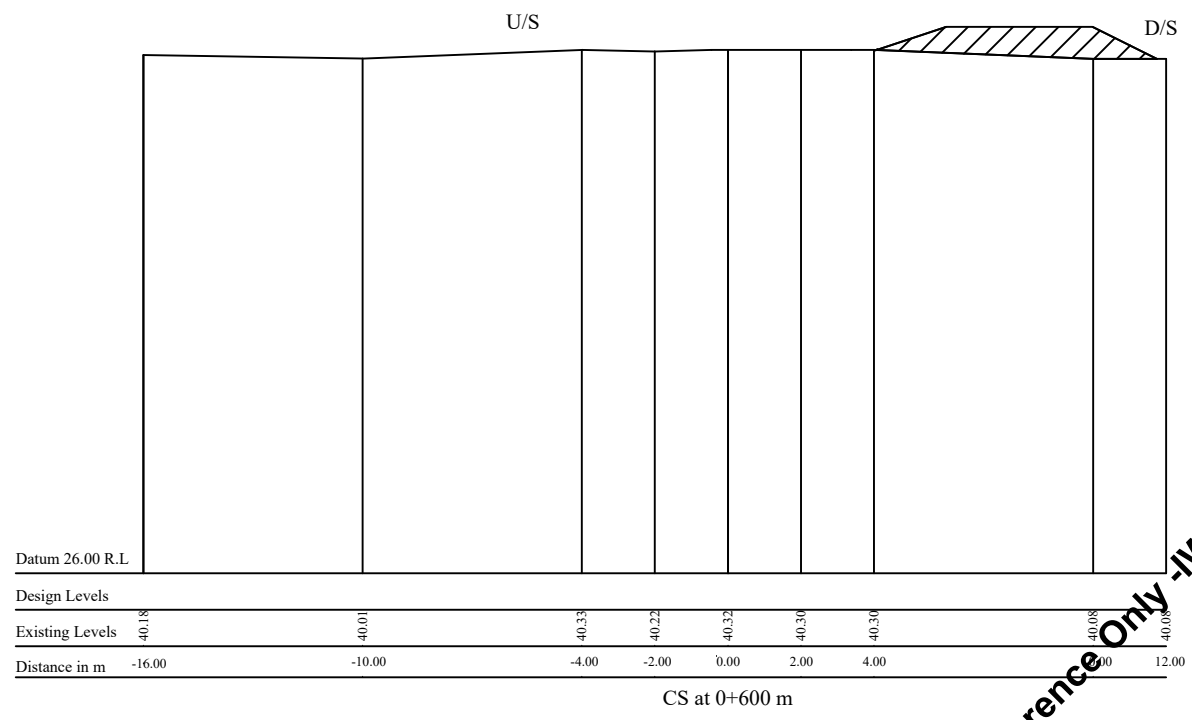
Reference Only - IWW/RMP

DDI's Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY : ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY : Mr.R.Ravikkumar (T.O)	DESIGN CHECKED BY : IE,Batticaloa Range	RECOMMENDED BY : Eng.K.Pratheepan DDL,Batticaloa Range
P.D.I's Office	DRAWING CHECKED BY : D'man	DISIGN CHECKED BY : IE,DDI'S Office Batticaloa	
	DESIGN CHECKED BY : D.D.I [Design] EP	APPROVED CHECKED BY : ENG.V.Rajagopalasingam, Director of Irrigation, EP	
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION			
INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME CS OFLB SIDE TANK BUND FROM 0+480 TO 0+540 M			
DATE:-	SHEET: 12 of 19	DRW. NO : IWW/RMP/PU/PD/ADH/12	

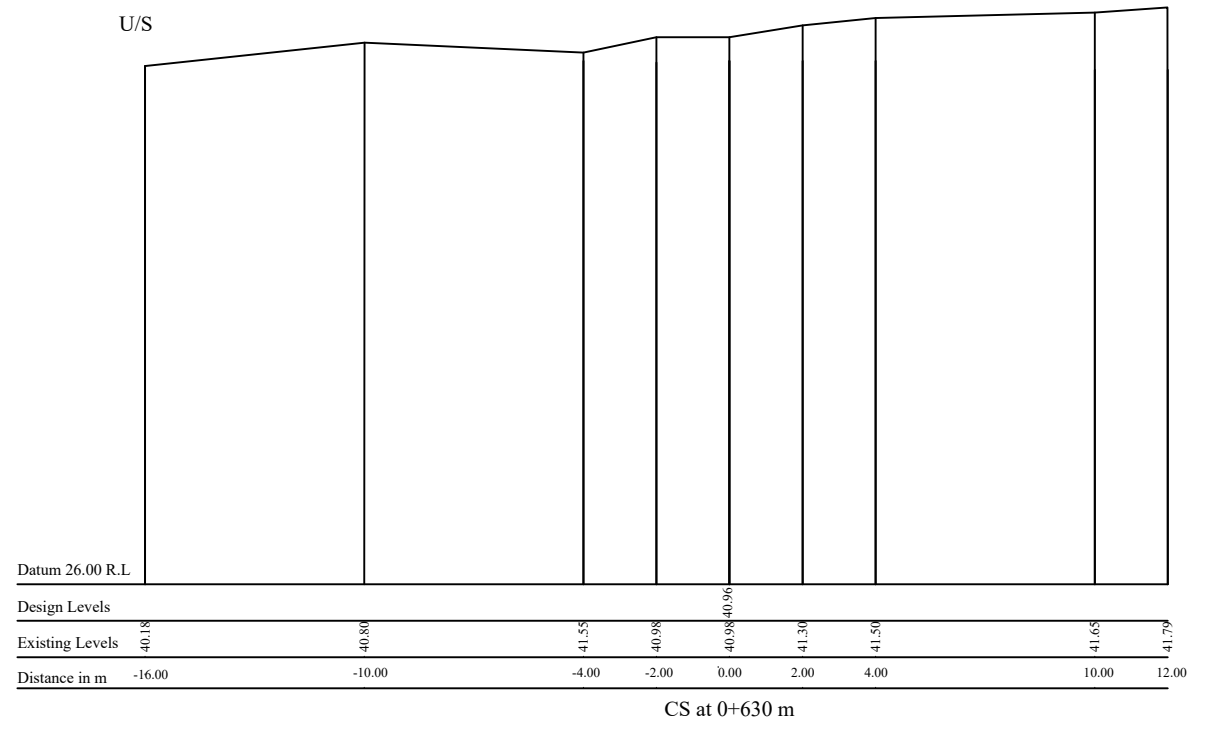
ALL DIMENSION ARE IN MILLIMETERS

SCALE : HORIZONTAL - 1:100
 VERTICAL - 1:100

RIP-RAP	- 0.00 Sq.m
Gravel bed	- 0.00 Sq.m
Stripping	- 7.676 Sq.m
Earth filling	- 4.633 Sq.m
Turfing	- 3.983 m



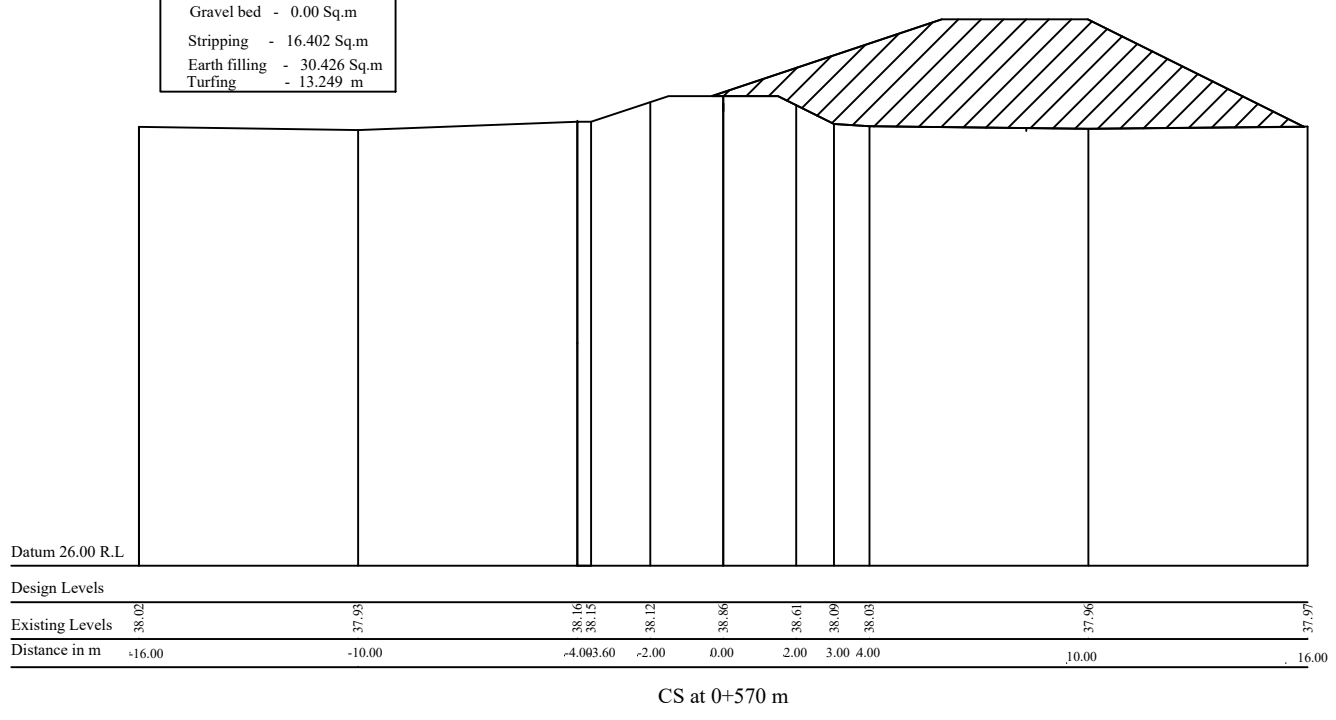
RIP-RAP	- 0.00 Sq.m
Gravel bed	- 0.00 Sq.m
Stripping	- 0.00 Sq.m
Earth filling	- 0.00 Sq.m
Turfing	- 0.00 m



	Rip-Rap
	Gravel bed

Reference Only -IWWRMP

RIP-RAP	- 0.00 Sq.m
Gravel bed	- 0.00 Sq.m
Stripping	- 16.402 Sq.m
Earth filling	- 30.426 Sq.m
Turfing	- 13.249 m





D.I.E.S Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY : ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY : Mr.R.Ravikkumar (T.O) P/Divisional Irrigation Engineer P/Divisional Irrigation Engineer
DDI's Office	DRAWING CHECKED BY : D'man	DESIGN CHECKED BY : IE,Batticaloa Range	RECOMMENDED BY : Eng.K.Pratheepan DDL,Batticaloa Range
P.D.I.S Office	DRAWING CHECKED BY : D'man	DISIGN CHECKED BY : IE,DDI'S Office Batticaloa	
	DESIGN CHECKED BY : D.D.1 [Design] EP	APPROVED CHECKED BY : ENG.V.Rajagopalasingam, Director of Irrigation, EP	
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME CS OF LB SIDE TANK BUND FROM 0+570 TO 0+630 M			
DATE:-	SHEET: 13 of 19	DRW. NO : IWWRMP/PI/PD/ADH/13	

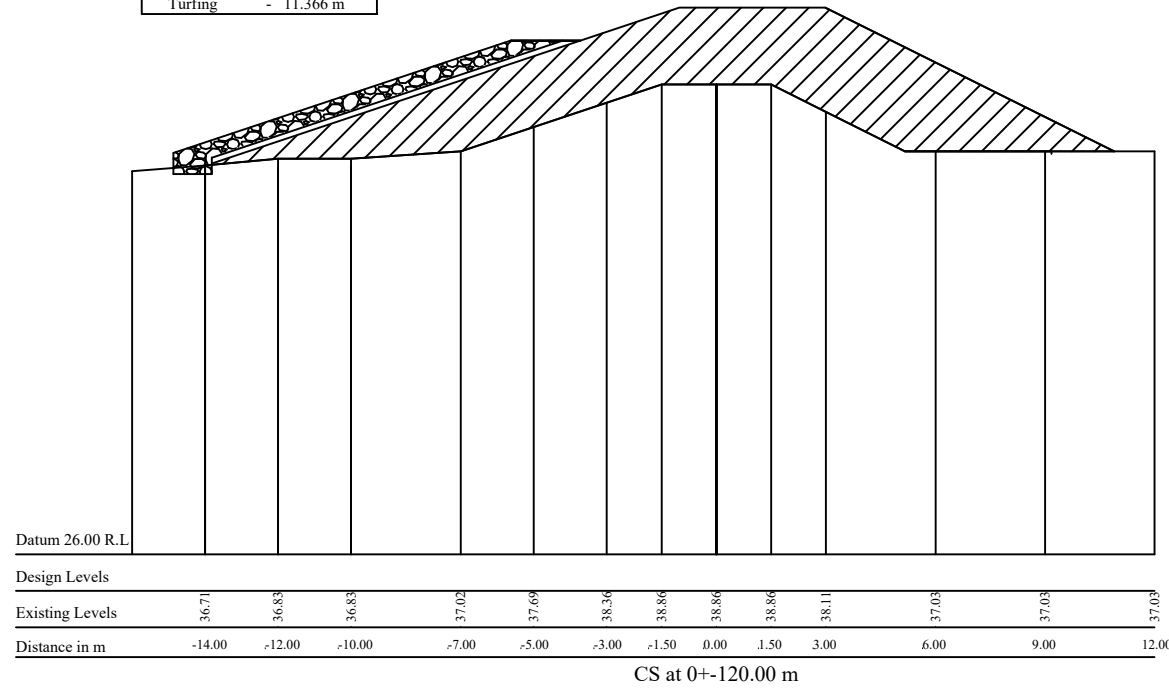
SCALE : HORIZONTAL - 1:100
VERTICAL - 1:100

ALL DIMENSION ARE IN MILLIMETERS

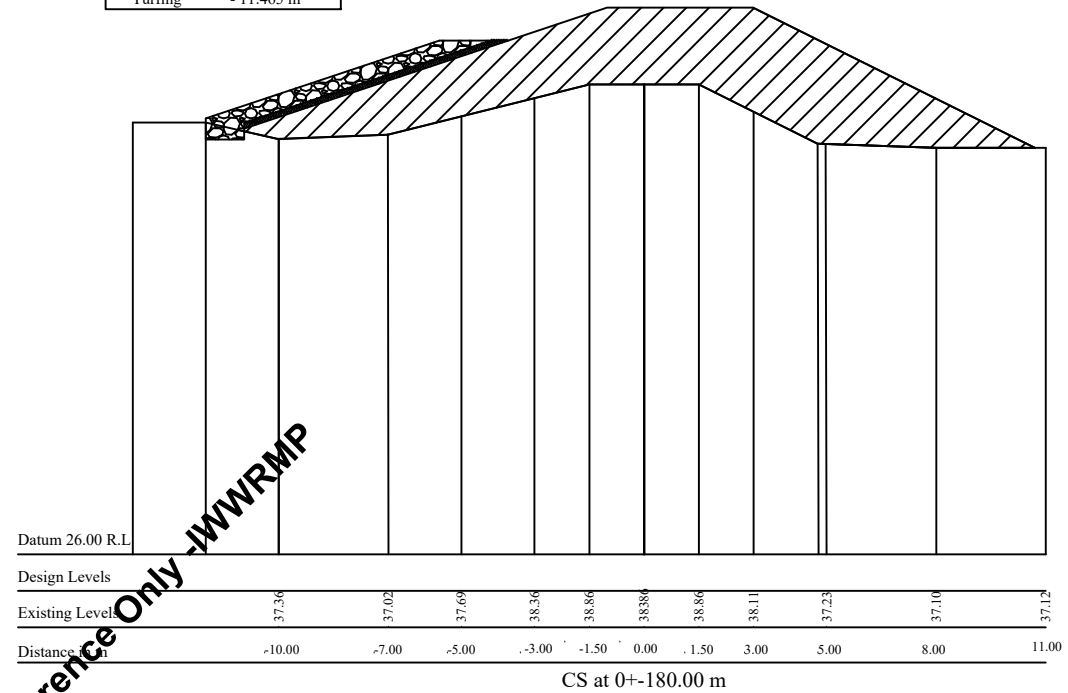
RIP-RAP - 5.032 Sq.m
 Gravel bed - 1.572 Sq.m
 Stripping - 25.450 Sq.m
 Earth filling - 41.629 Sq.m
 Turfing - 11.366 m

RIP-RAP - 3.640 Sq.m
 Gravel bed - 1.105 Sq.m
 Stripping - 22.363 Sq.m
 Earth filling - 36.387 Sq.m
 Turfing - 11.465 m

 Rip-Rap
 Gravel bed

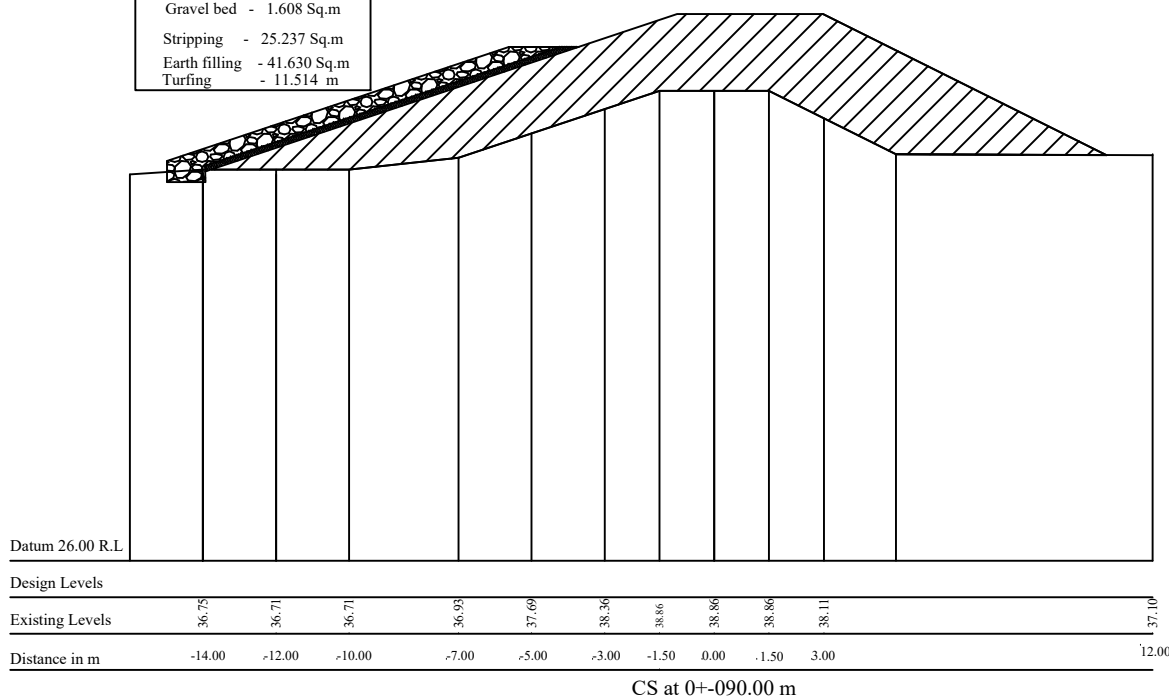


Reference Only - IWWRMP



RIP-RAP - 5.065 Sq.m
 Gravel bed - 1.608 Sq.m
 Stripping - 25.237 Sq.m
 Earth filling - 41.630 Sq.m
 Turfing - 11.514 m

RIP-RAP - 4.676 Sq.m
 Gravel bed - 1.476 Sq.m
 Stripping - 23.573 Sq.m
 Earth filling - 39.020 Sq.m
 Turfing - 11.307 m



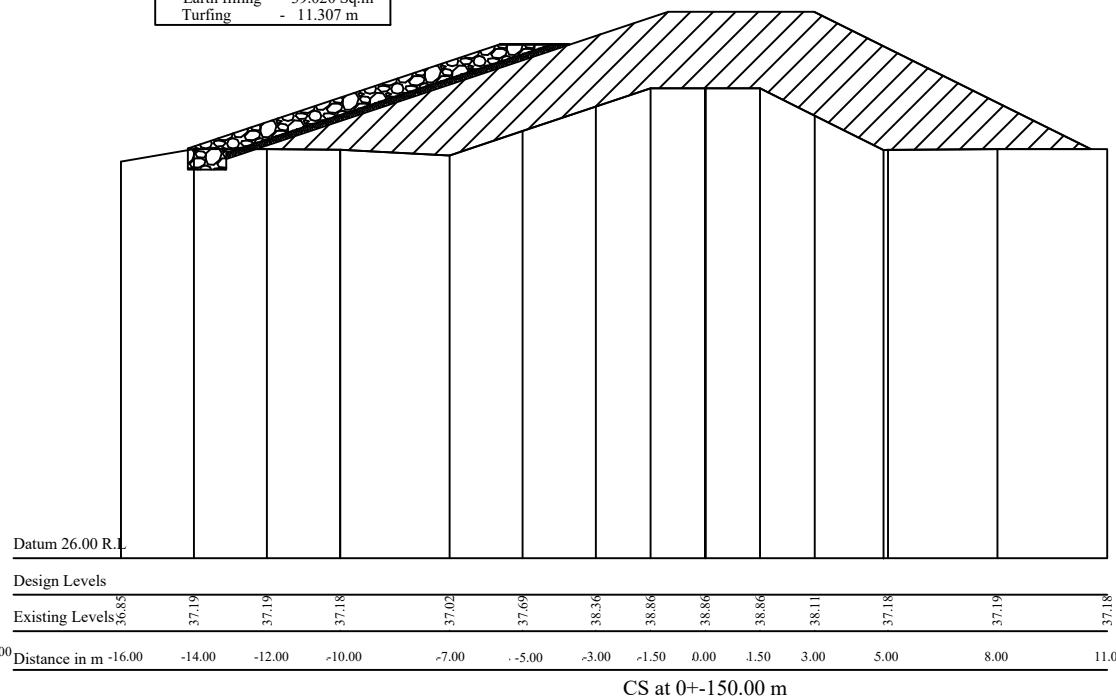
Datum 26.00 R.L.

Design Levels

Existing Levels

Distance in m

CS at 0+150.00 m





ALL DIMENSION ARE IN MILLIMETERS

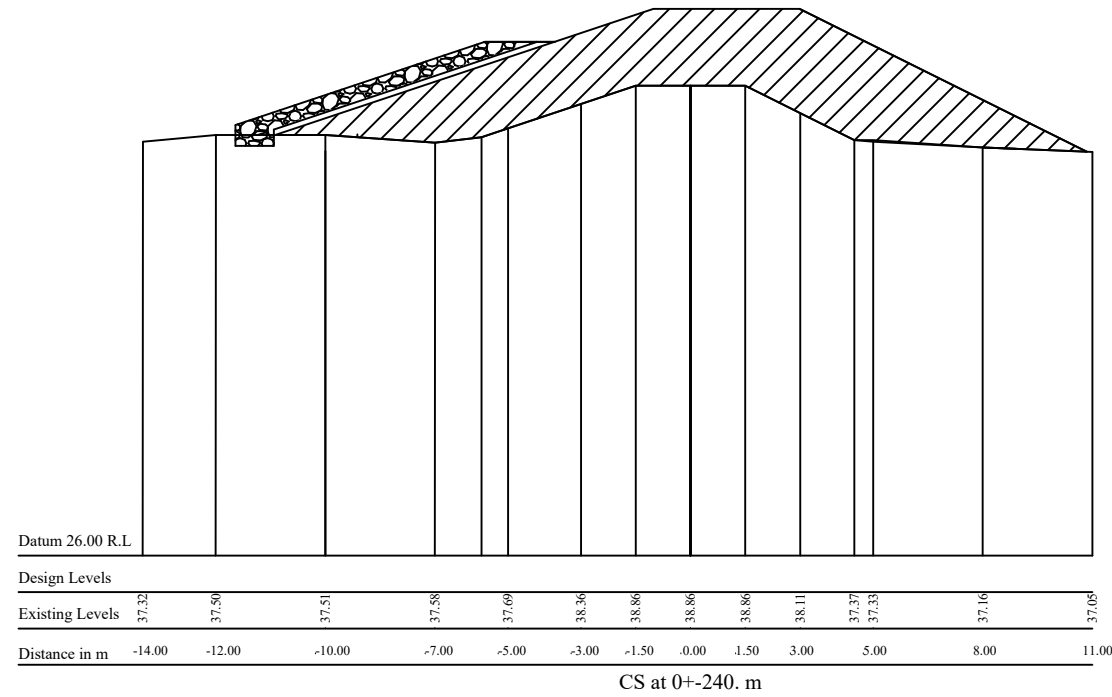
SCALE : HORIZONTAL - 1:100
 VERTICAL - 1:100

D.I.E.'s Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY: ENG.Linggajini Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY: Mr.R.Ravikkumar (T.O)	DESIGN CHECKED BY: IE,Batticaloa Range	RECOMMENDED BY: Eng.K.Pratheepan DDI,Batticaloa Range
DDI's Office	DRAWING CHECKED BY: D'man	DESIGN CHECKED BY: IE,DDI'S Office Batticaloa	APPROVED CHECKED BY: ENG.V.Rajagopalsingam, Director of Irrigation, EP
P.D.I's Office	DRAWING CHECKED BY: D'man	DESIGN CHECKED BY: IE,DDI'S Office Batticaloa	APPROVED CHECKED BY: ENG.V.Rajagopalsingam, Director of Irrigation, EP
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION			
INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME CS OF RB SIDE TANK BUND FROM 0+090 TO 0+180M			
DATE:	SHEET: 15 of 19	DRW. NO : IWWRMP/PI/PD/ADH/15	

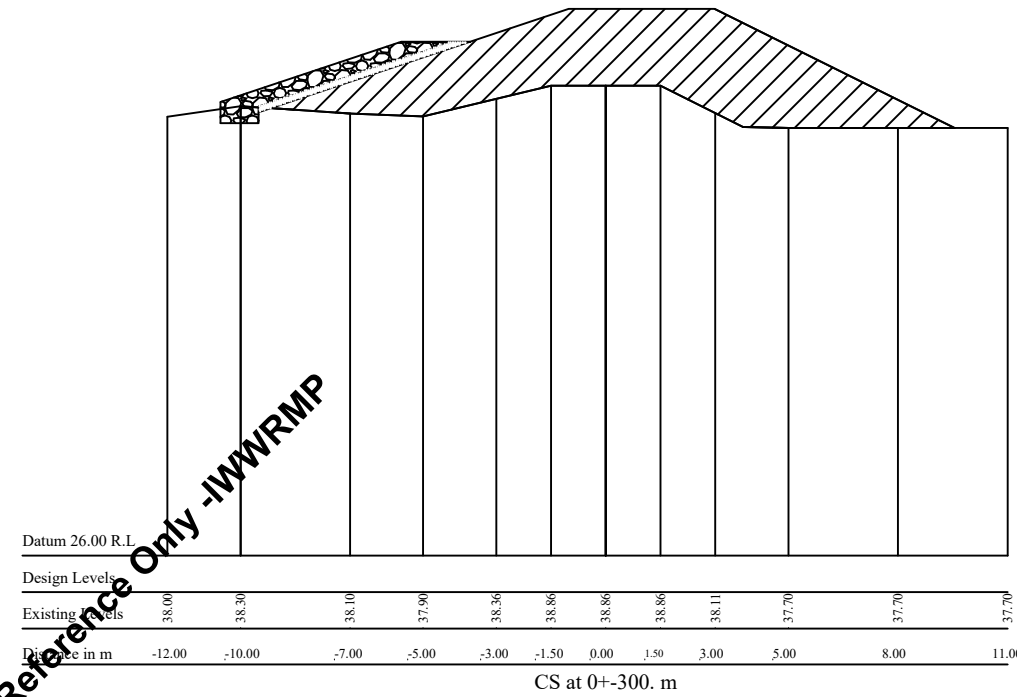
RIP-RAP - 3.885 Sq.m
 Gravel bed - 1.189 Sq.m
 Stripping - 22.856 Sq.m
 Earth filling - 37.270 Sq.m
 Turfing - 11.622 m

RIP-RAP - 2.958 Sq.m
 Gravel bed - 0.877 Sq.m
 Stripping - 19.083 Sq.m
 Earth filling - 30.063 Sq.m
 Turfing - 10.175 m

 Rip-Rap
 Gravel bed

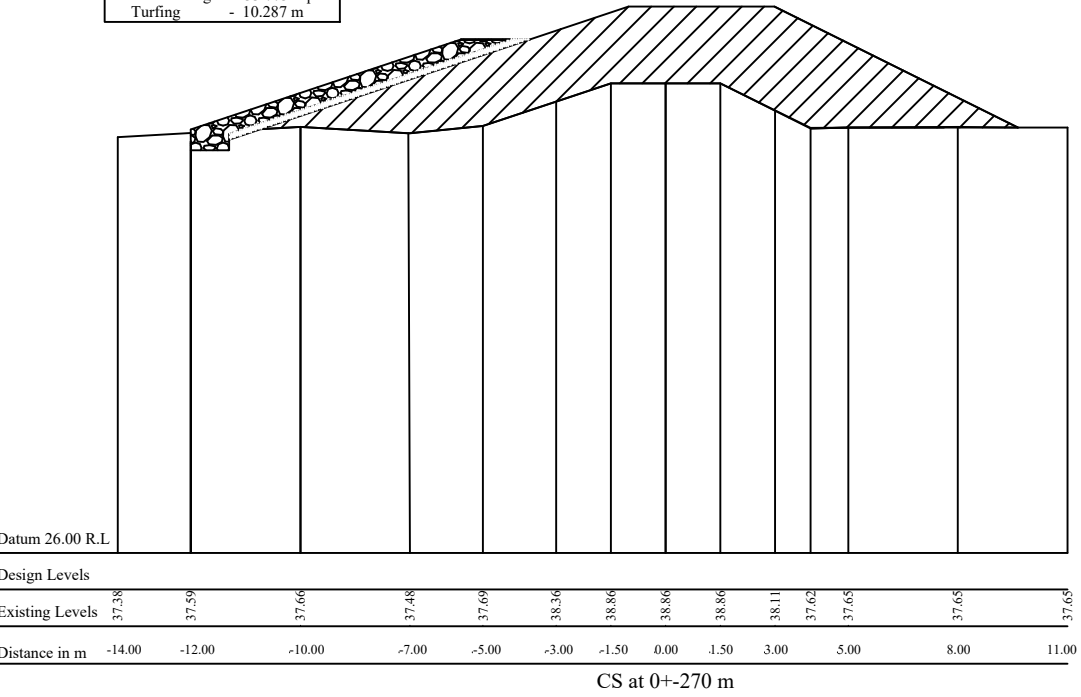
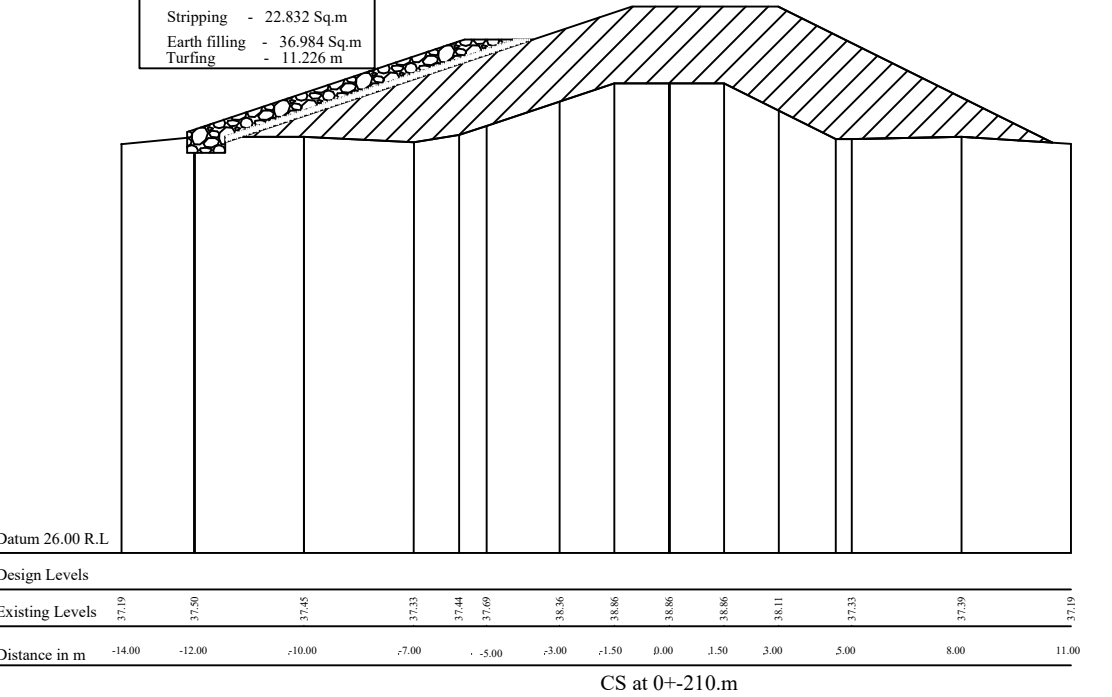


Reference Only -IWW/RMP



RIP-RAP - 4.254 Sq.m
 Gravel bed - 1.296 Sq.m
 Stripping - 22.832 Sq.m
 Earth filling - 36.984 Sq.m
 Turfing - 11.226 m

RIP-RAP 4.109 Sq.m
 Gravel bed - 1.264 Sq.m
 Stripping - 21.221 Sq.m
 Earth filling - 33.773 Sq.m
 Turfing - 10.287 m

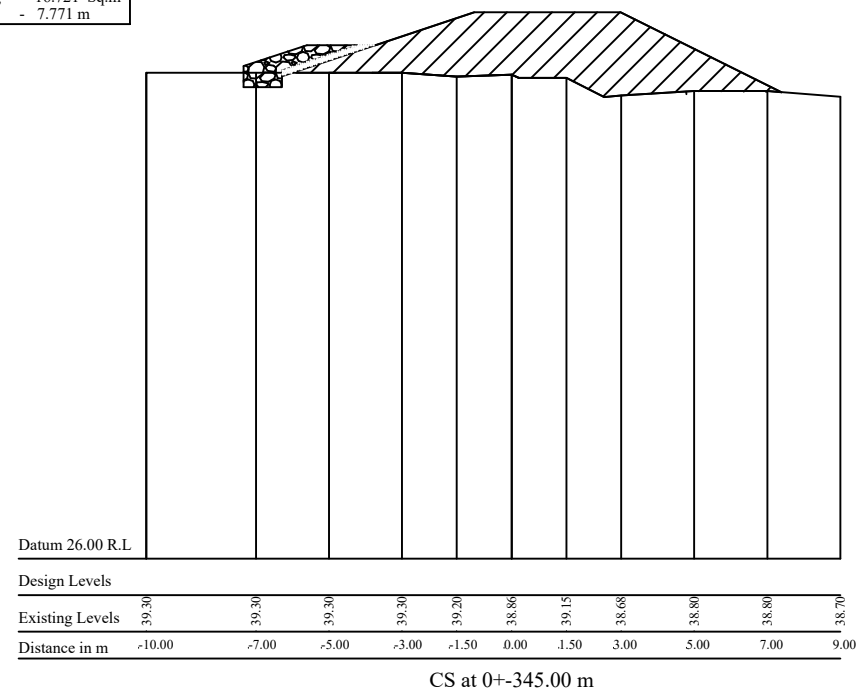


SCALE :
 HORIZONTAL - 1:100
 VERTICAL - 1:100

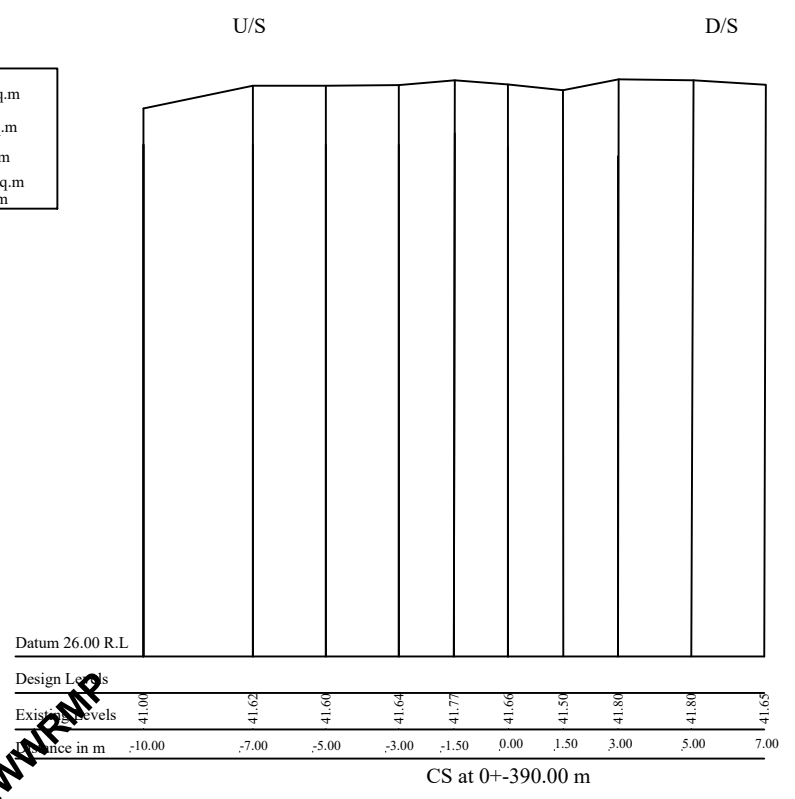
ALL DIMENSION ARE IN MILLIMETERS

D.I.E's Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY : ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY : Mr.R.Ravikkumar (T.O)	DESIGN CHECKED BY : IE,Batticaloa Range	RECOMMENDED BY : Eng K. Pratheepan DDI,Batticaloa Range
P.D.I's Office	DRAWING CHECKED BY : Dman	DESIGN CHECKED BY : IE,DDI'S Office Batticaloa	APPROVED CHECKED BY : ENG V.Rajagopalasingam, Director of Irrigation, EP
	IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHAKAL SCHEME CS OF RB SIDE TANK BUND FROM 0+210 TO 0+300 M		
D.I (Design) EP	DATE:-	SHEET: 16 of 19	DRW. NO: IWW/RMP/PI/PD/ADH/16

RIP-RAP - 1.442 Sq.m
 Gravel bed - 0.369 Sq.m
 Stripping - 13.448 Sq.m
 Earth filling - 16.721 Sq.m
 Turfing - 7.771 m



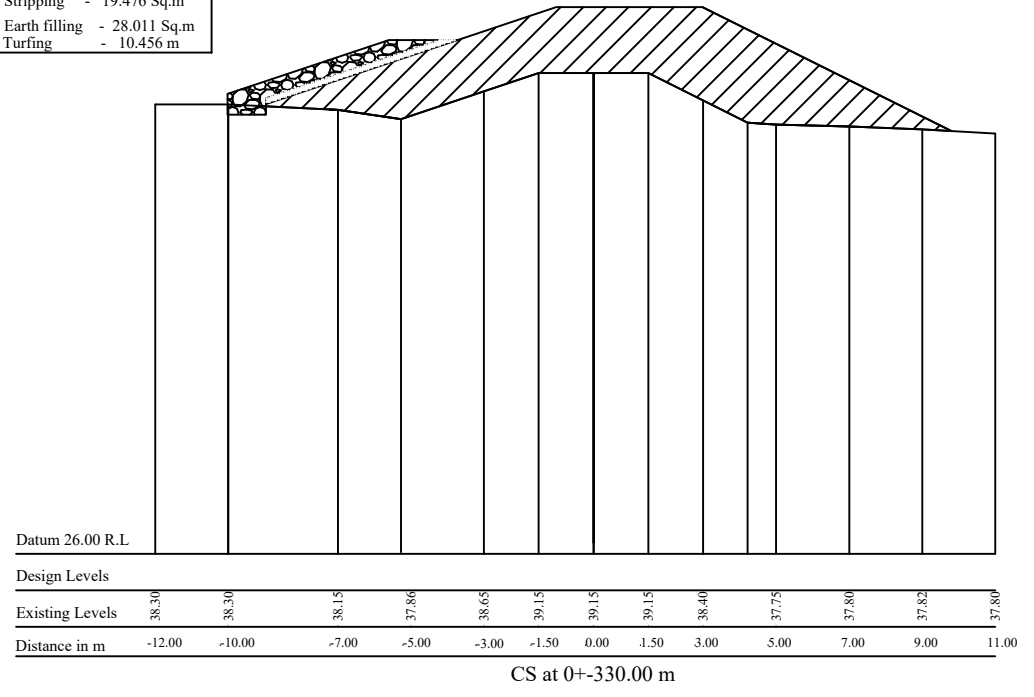
RIP-RAP - 0.00 Sq.m
 Gravel bed - 0.00 Sq.m
 Stripping - 0.00 Sq.m
 Earth filling - 0.00 Sq.m
 Turfing - 0.00 m



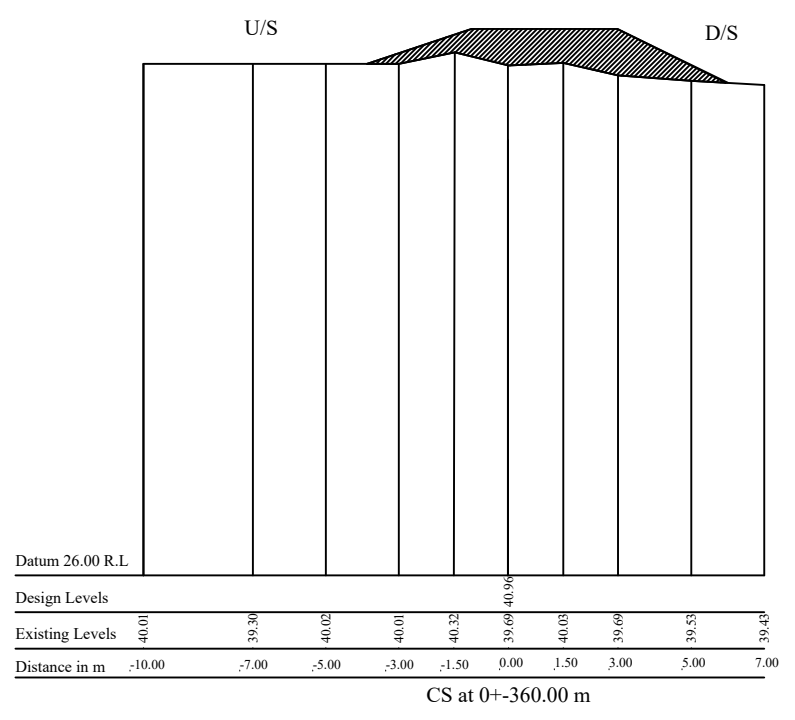
Rip-Rap
 Gravel bed

Reference Only - IWRMP

RIP-RAP - 2.704 Sq.m
 Gravel bed - 0.792 Sq.m
 Stripping - 19.476 Sq.m
 Earth filling - 28.011 Sq.m
 Turfing - 10.456 m



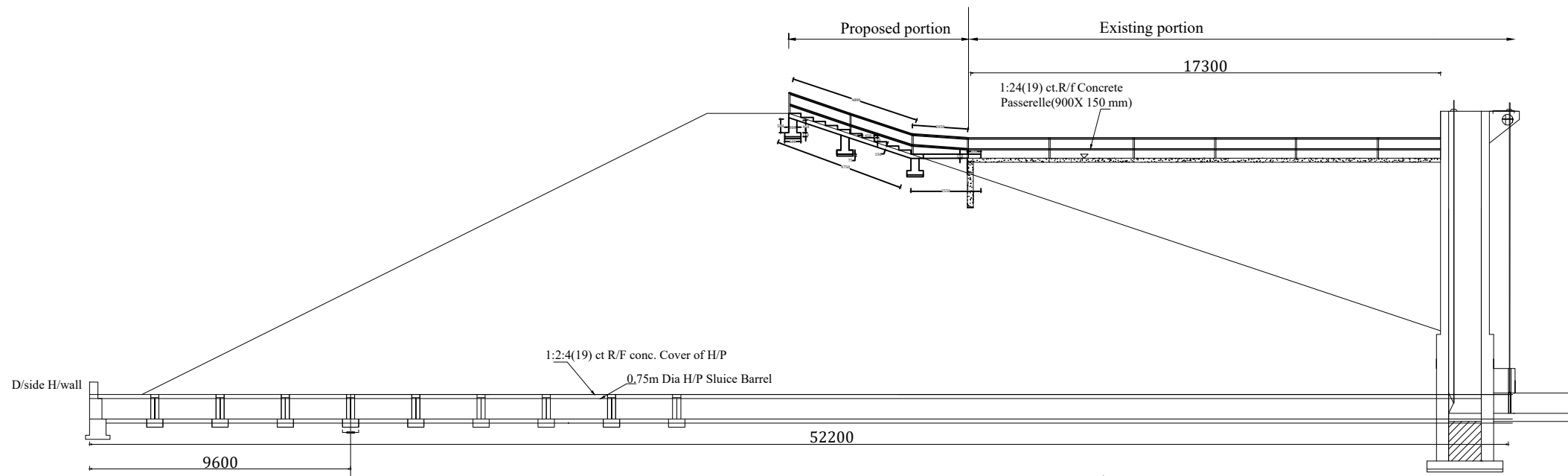
RIP-RAP - 0.00 Sq.m
 Gravel bed - 0.00 Sq.m
 Stripping - 9.937 Sq.m
 Earth filling - 6.832 Sq.m
 Turfing - 5.850 m



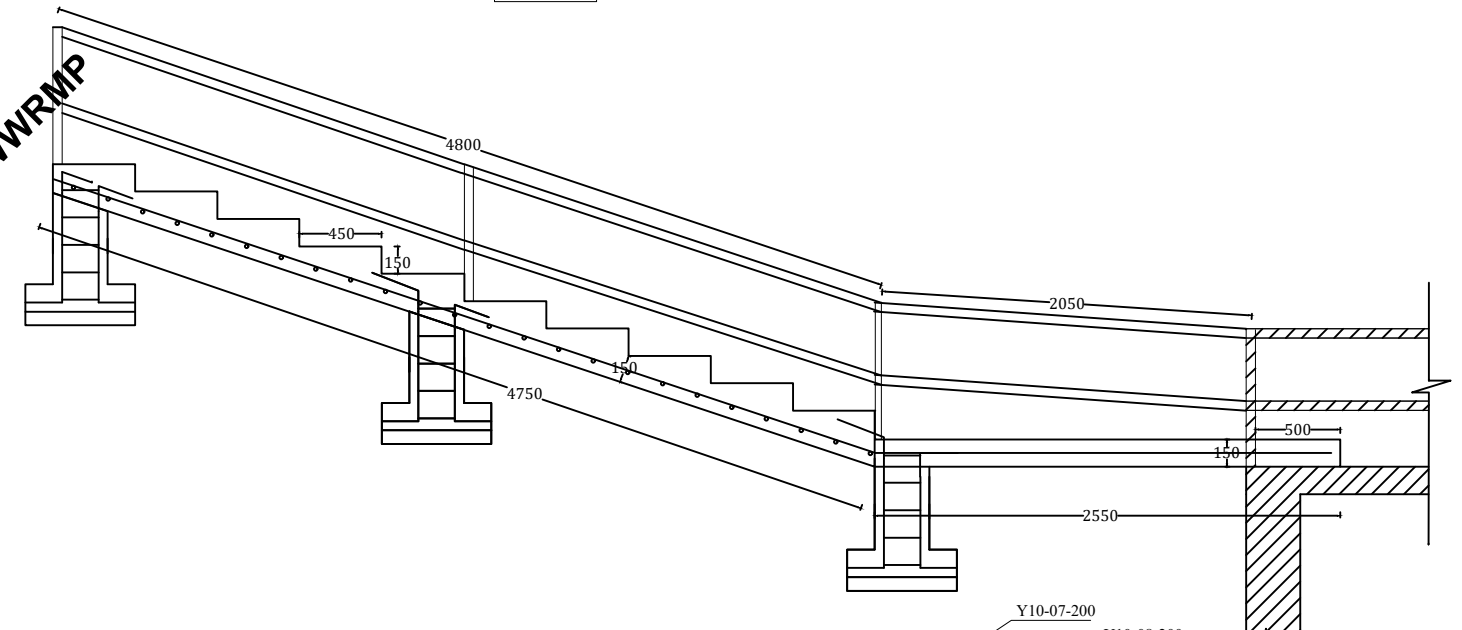
SCALE : HORIZONTAL - 1:100
 VERTICAL - 1:100

ALL DIMENSION ARE IN MILLIMETERS

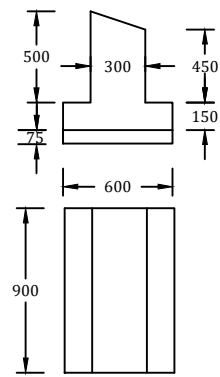
D.I.E's Office	LEVELLED & DRAWN BY: Mr S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY : ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY : Mr.R.Ravikkumar (T.O)		
DDI's Office	DRAWING CHECKED BY : D'man	DESIGN CHECKED BY : IE,Batticaloa Range	RECOMMENDED BY : Eng K. Pratheepan DDL,Batticaloa Range
P.D.I's Office	DRAWING CHECKED BY : D'man	DISIGN CHECKED BY : IE,DDI'S Office Batticaloa	
	DESIGN CHECKED BY : D.D.1 [Design] EP	APPROVED CHECKED BY : ENG V.Rajagopalasingam, Director of Irrigation, EP	
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION			
INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME CS OF RB SIDE TANK BUND FROM 0+330 TO 0+390 M			
DATE:-	SHEET: 17 of 19	DRW. NO : IWRMP/PI/PD/ADH/17	



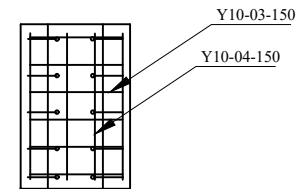
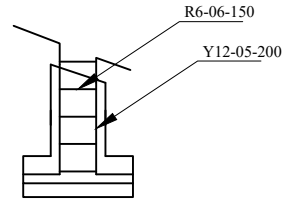
TYPICAL SECTION OF PROPOSED BUND AT 300m



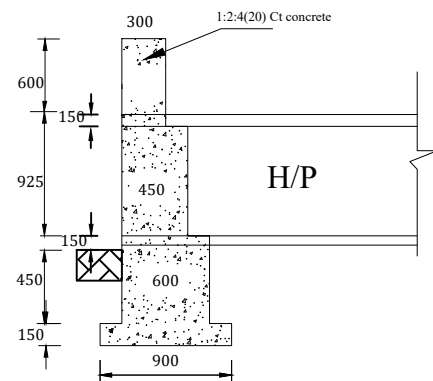
Reference Only -IWWRMP



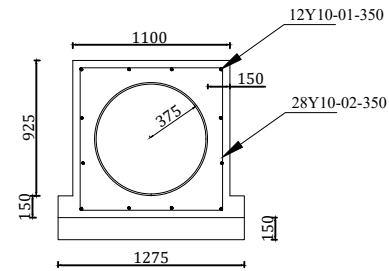
Details of Footing & Column



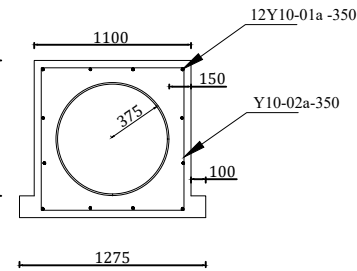
R/F Details of Footing & Column



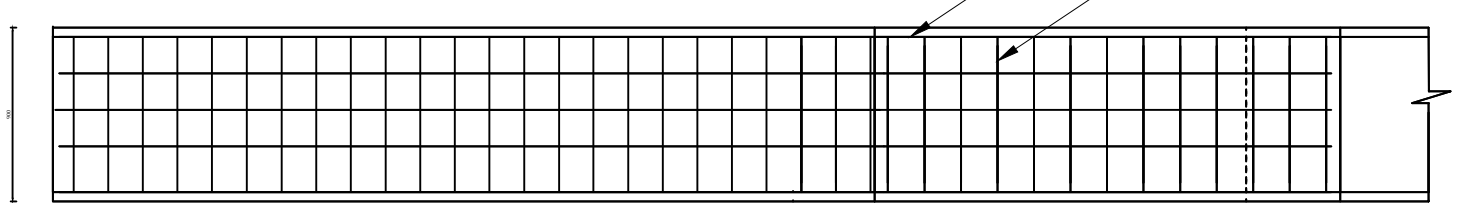
D/S Side H/Wall



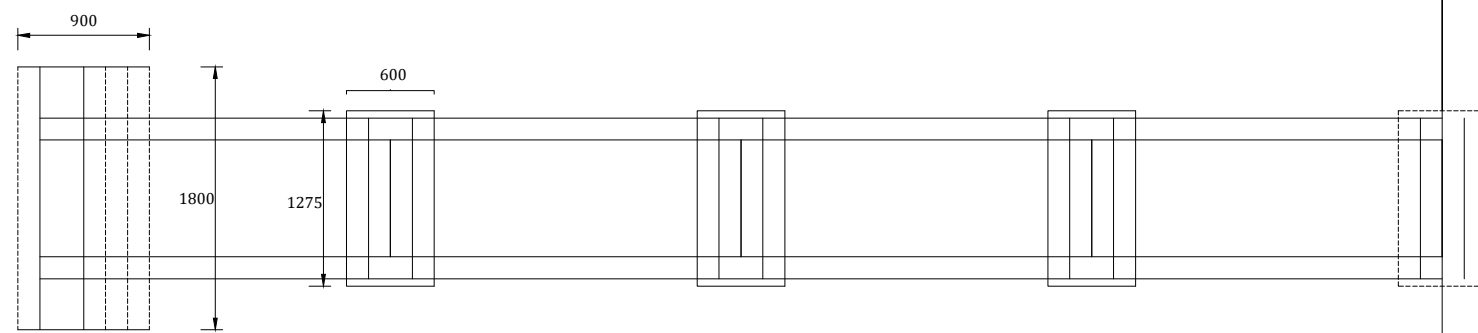
R/F Details of Sluice barrel



R/F Details of Trough structure



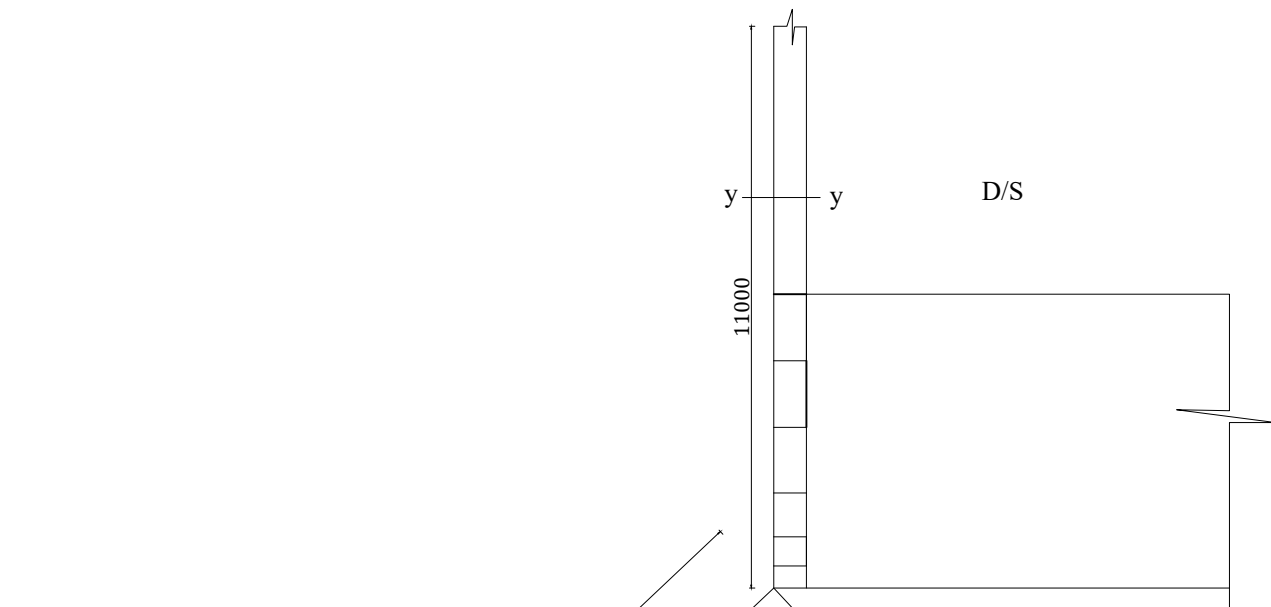
Section of Passerelle with bottom beam & Column



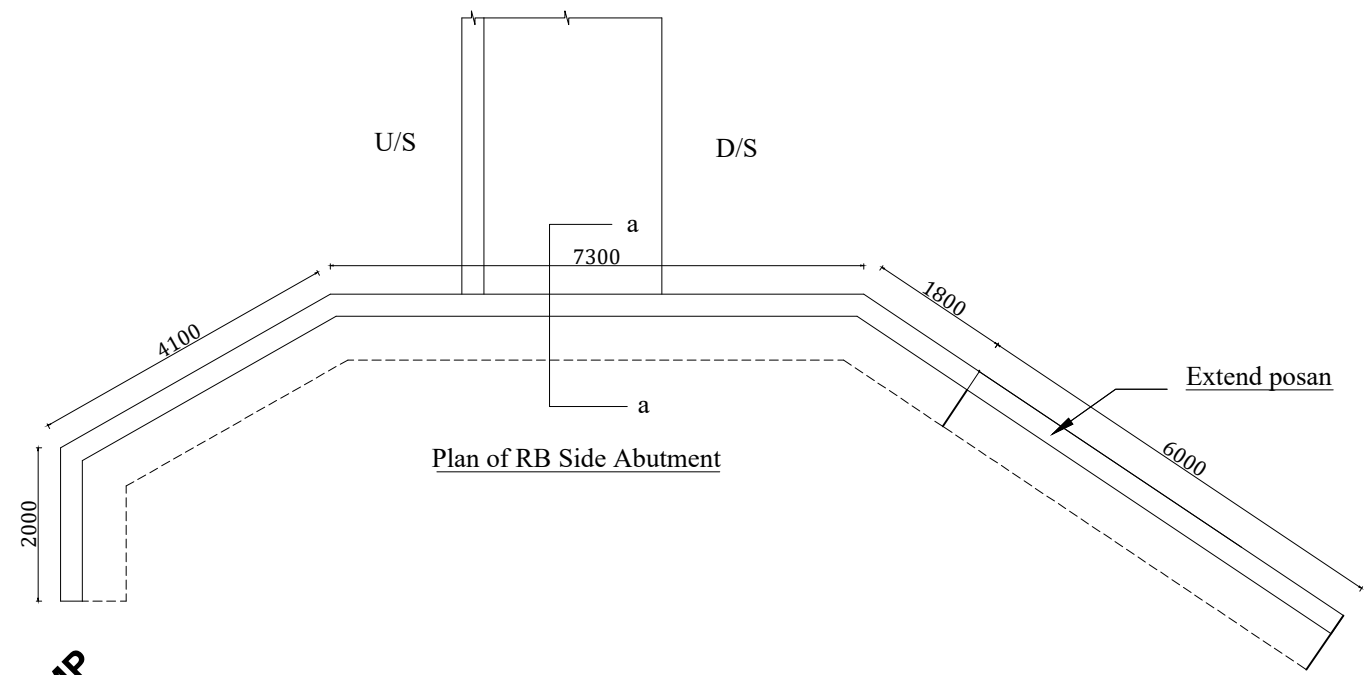
Extent Sluice Barrel

ALL DIMENSION ARE IN MILLIMETERS

DDI's Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	SUBMITTED BY: ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
	DRAWING CHECKED BY: Mr.R.Ravikkumar (T.O)	DESIGN CHECKED BY: IE,Batticaloa Range	RECOMMENDED BY: Eng.K.Pratheepan DDL,Batticaloa Range
P.D.I's Office	DRAWING CHECKED BY: D'man	DISIGN CHECKED BY: IE,DDI'S Office Batticaloa	APPROVED CHECKED BY: ENG.V.Rajagopalasingam, Director of Irrigation, EP
	DESIGN CHECKED BY: D.D.I [Design] EP		
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME Improvements of Sluice Barrel Structure			
DATE:-	SHEET: 18 of 19	DRW. NO : IWWRMP/PI/PD/ADH/18	

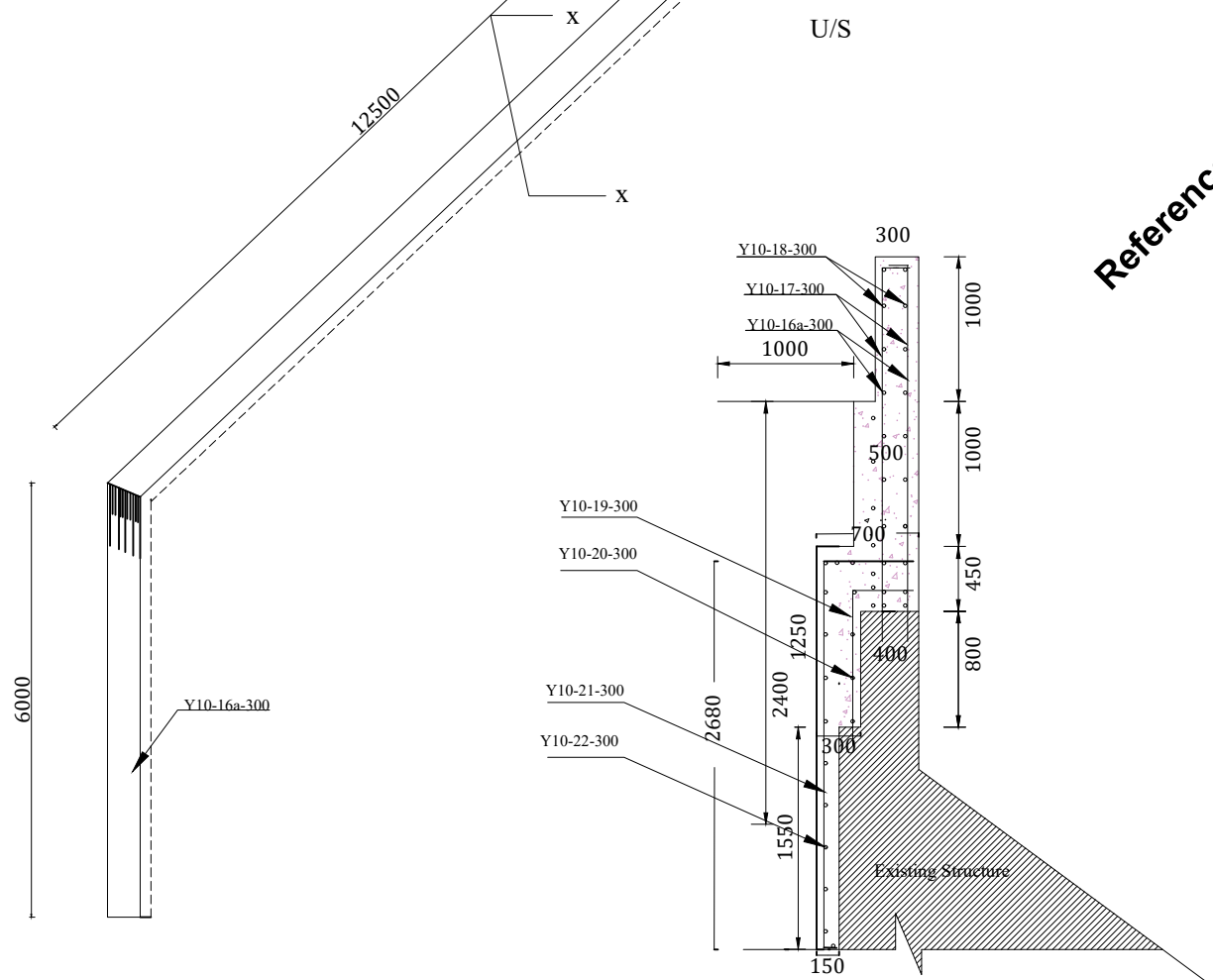


LB Side Abutment

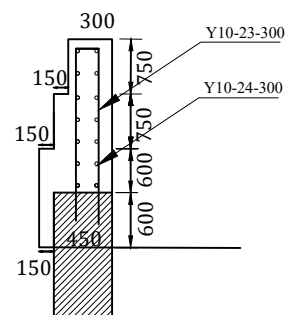


Plan of RB Side Abutment

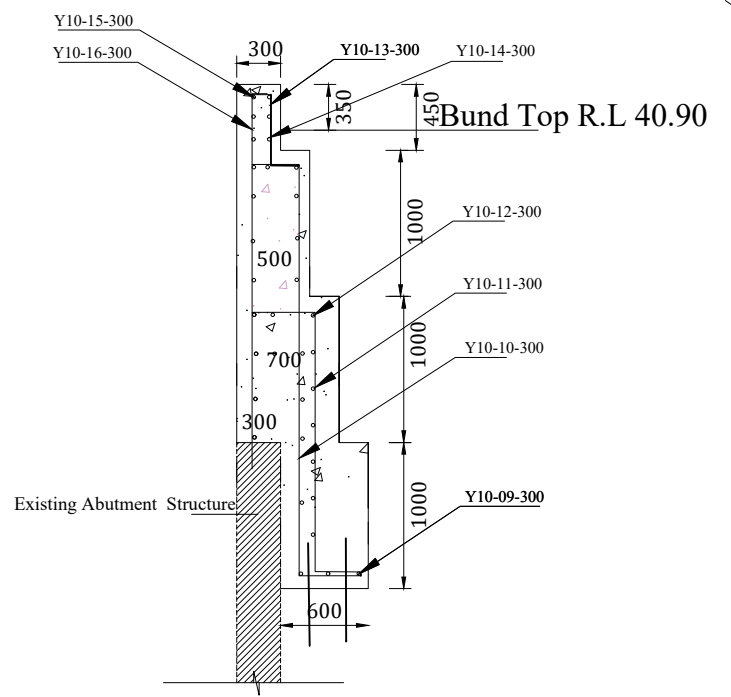
Reference Only -IWWRMP



LB Side Abutment Section x-x



LB Side Abutment Section y-y



RB Side Abutment Section a-a

ALL DIMENSION ARE IN MILLIMETERS

D.I.E.S Office	LEVELLED & DRAWN BY: Mr.S.Rathikaran (T.O)	DESIGNED BY:	SUBMITTED BY :
	DRAWING CHECKED BY : Mr.R.Ravikkumar (T.O)	ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer	ENG.Linggajini.Janasuthan P/Divisional Irrigation Engineer
DDI's Office	DRAWING CHECKED BY :	DESIGN CHECKED BY :	RECOMMENDED BY : Eng.K.Pratheepan DDL,Batticaloa Range
P.D.I's Office	DRAWING CHECKED BY :	DISIGN CHECKED BY :
	DESIGN CHECKED BY :	APPROVED CHECKED BY :
IRRIGATION DEPARTMENT(E.P) PADDIRUPPU DIVISION BATTICALOA REGION INTEGRATED WATERSHED & WATER RESOURCES MANAGEMENT PROJECT ADACHCHAKAL SCHEME REHABILITATION OF TANK BUND IN ADACHCHAKAL SCHEME Improvements of LB,RB Spill Abutments			
DATE:-	SHEET: 19 of 19	DRW. NO : IWWRMP/PI/PD/ADH/19	

Section - 11

STANDARD FORMS (BID)

Reference Only -IWWRMP

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 Coomaraswamy 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 Tank Bund (1 km) including Rip Rap, Spill and Sluice to Adapaarachakal Scheme - Retender**' under Invitation for Bids No. **LK-MOMDE-499678-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 -----