

Involuntary Resettlement Due Diligence Report

January 2017

Project Number: 47381-002

SRI: Mahaweli Water Security Investment Program

Rehabilitation and Widening of Access Roads for North Western Province Canal (NWPC-ICB-1)

Final Report (Main)

Prepared by Ministry of Mahaweli Development and Environment with the assistance of Program Management, Design and Supervision Consultant (Joint Venture Lahmeyer International GmbH – GeoConsult ZT GmbH) for Democratic Socialist Republic of Sri Lanka and the Asian Development Bank.

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Mahaweli Water Security Investment Program

DUE DILIGENCE REPORT 3: REHABILITATION AND WIDENING OF ACCESS ROADS FOR NWPC-ICB-1 - FINAL

January 2017



Program Management, Design and Supervision Consultant

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DDR 3 : REHABILITATION AND WIDENING OF ACCESS ROADS FOR NWPC-ICB-1 - FINAL

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ABBREVIATIONS

ADB	Asian Development Bank
BoQ	Bill of Quantities
CAPC	Cabinet Appointed Procurement Committee
CEA	Central Environmental Authority
DPC	Department Procurement Committee
EA	Executing Agency
EIA	Environmental Impact Assessment
EOI	Expression of Interest
FAM	Facility Administration Manual
GBL	Geotechnical Baseline Report
GOSL	Government of Sri Lanka
IA	Implementing Agency
ICTAD	Institute for Construction Training and Development
ID	Irrigation Department
ISEWP	Improving system efficiencies and water productivity
km	Kilometre
KMTC	Kalu Ganga-Moragahakanda Transfer Canal
m ³ /s	Cubic metres per second
masl	Metres above mean sea level
MASL	Mahaweli Authority of Sri Lanka
MCB	Mahaweli Consultancy Bureau
MCM	Million m ³
MDP	Mahaweli Development Program
MIWRM	Ministry of Irrigation and Water Resources Management
MLBCR	Minipe Left Bank Canal Rehabilitation
MFF	Multitranchise financing facility
MFP	Ministry of Finance and Planning
MMDE	Ministry of Mahaweli Development and Environment
MPC	Ministry Procurement Committee
MPP	Master Procurement Plan
MRB	Mahaweli River Basin
NCPCP	North Central Province Canal Project
NPA	National Procurement Agency
NWPC	North Western Province Canal
PD-MWSIP	Program Director Mahaweli Water Security Investment Program
PD-UEC	Project Director –Upper Elahera Canal
PMDSC	Program Management, Design and Supervision Consultant
PPTA	Project Preparatory Technical Assistance
PSC	Program Steering Committee
RF	Resettlement Framework
RIP	Resettlement Implementation Plan
RPC	Regional Procurement Committee
SBD	Standard Bid Documents
SIWRM	Strengthening Integrated Water Resources Management
ToR	Terms of Reference
UEC	Upper Elahera Canal

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1. INTRODUCTION

1.1 Background

1. The Mahaweli River is the largest river basin in Sri Lanka, with a catchment of 10,300 km² and an average flow volume of 5,474 MCM (more than 10% of the national annual renewable water). The headwaters originate in the highlands of the wet zone, and the river flows to the northeast. It represents a large and strategically important water resource, which is being developed to meet the country's energy, water and food needs. The Mahaweli Development Program (MDP) was initiated in the early 1960s with the objective of developing the water and land resources of Mahaweli River Basin and the dry zone of the northern provinces for irrigation and power generation.

2. The North Central Provincial Canal Project (NCPCP) is the final stage of the Mahaweli Development Plan, a multisector development of the water and land resources of Mahaweli River Basin and North Central Province. This is the end-point of an investment program that has spanned more than six decades and is pivotal in meeting national development goals of food security, social development, energy production and environmental protection.

3. The NCPCP has been split into two Phases (1 and 2) by the Ministry of Mahaweli Development and Environment (MMDE) with the aim of implementing the final stages of the MDP. Phase 1 is the "Mahaweli Water Security Investment Program" (MWSIP) which is being financed through a Multi-Tranche Finance Facility (MFF) modality of 3 tranches from ADB. The Government of Sri Lanka has received from the ADB an ADF Loan of USD 74 Million and USD 76 Million Loan from ordinary capital resources, and has itself contributed USD 40 Million (total USD 190 Million), to support Tranche 1 of the MWSIP and an additional USD 495 Million is foreseen to finance the remaining 2 tranches of Phase 1 – financed through ADB, other donor co-financing and the Government of Sri Lanka (total USD 675 Million).

4. The Executing Agency (EA) is the MMDE on behalf of the Government of Sri Lanka (GoSL) and the Implementing Agency (IA), responsible for day-to-day management is the Program Management Unit (PMU), based in Colombo, and Project Implementation Units (PIU) for each of the three construction implementation component Projects. The Loan agreement signed between the GoSL and the ADB, stipulates that any Involuntary Land Acquisition and Resettlement (LAR) and Environmental safeguards issues that arise during project implementation will require a Resettlement Implementation Plan (RIP)¹, Initial Environmental Examination (or Environmental and Social Impact Assessment), or other appropriate document showing all impacts are mitigated in accordance with the government's relevant legislation and policies, and the existing Program Resettlement Framework (RF) and Environment and Social Management Framework (ESMF) documents, and particularly with ADB's Safeguard Policy Statement (SPS) 2009 and within the legal framework of Sri Lanka. The ADB will only finance projects and programs that fully comply with its SPS 2009.

5. This document focusses on the findings of due diligence investigations, conducted by the PMU and PIU, supported by the "Program Management, Design and Supervision Consultant" (PMDSC), for one such situation that although, on the NWPC-ICB-1 Sub-project, there is no direct resettlement impact, there is a need for access roads to be rehabilitated and widened in order to accommodate the transport of large-scale construction equipment from the port of Tinchomale to the Project site. On discussions with ADB, regarding the 32.3 km of widening of the roads up to a width of 7 to 12 meters, it was decided that a combined Environmental and Resettlement Due Diligence Report will be prepared to ensure roads development will comply with ADB safeguards and Sri Lanka's

¹ Resettlement Implementation Plan (RIP) is the legally accepted term in Sri Lanka for a Land Acquisition and Resettlement Plan (LARP) or Resettlement Plan (RP)

requirements. The roads included in the Due Diligence Study has subsequently reduced to approximately 18.3 km of road because a large 14 km section is wholly within the Kahalla - Pallekele Wildlife Sanctuary (soon to be re-designated a National park) and the rehabilitation shall be managed under the guide of the Wildlife Department.

1.2 Basis for This Due Diligence Study

6. The Draft RIP for the full NWPC Project was prepared during the PPTA, and has been disclosed. The PIU and PMDSC has carried out further investigations, including consulting with local authorities and site inspections. The investigation, along with the Section 2 Notice issued, confirmed that the area covered under this ICB contract is a part of a Wildlife Reserve forest area. Therefore, it will not have any Involuntary Resettlement impacts.

7. An Environment and Social Impact Assessment has been prepared for the Project and conditional approvals given by the Central Environmental Authority, along with the requirement that after detailed designs, individual environmental management plans be prepared to cover each construction contract in accordance with the EIA. The EIA report mentions the following five access roads to be improved under the project:

- (i) Herathgama - Mahakithula - 2.2 km
- (ii) Herathgama - Pothuwila - 2.6 km
- (iii) Pothuwila - Mahadambe - 2.4 km
- (iv) Pothuwila - Mahakithula - 4.6 km
- (v) Mahakithula Tunnel site - 4.2 km

8. However, the identification of the final alignments for the access roads was carried out through holding several discussions with the Wildlife Department officers to comply with Wildlife Sanctuary requirements and to comply with the ADB safeguard policy (SPS, 2009). These road alignments were finalized and mapped (**Figure 4**) for the following access road sections²:

- (i) Herathgama to Kirula Ela (3.8 km) – Road 1;
- (ii) Access road to Mahakirula dam (1.4 km) – Road 2
- (iii) Access road from Pothuwila to Moragolla (11.1 km) – Road 3; and
- (iv) Access road to Mahakithula dam (2 km) – Road 4

9. Screening investigations, into NWPC-ICB-1 to determine resettlement impacts, indicated the need for improvement of access roads (approximately 30km widened to 7 to 12-meter width), with the purpose of providing access for large-scale construction machinery to the NWPC-ICB-1 sites. The roads will also provide benefit to local communities, such as improved accessibility to local markets and social services as well as economic development due to the wildlife reserve expecting widened roads will allow development of eco-tourism in future. In accordance with the Loan Agreement requirements the EA and IA have informed the ADB that there is a need to rehabilitate and widen access roads to enable NWPC-ICB-1 to be implemented, and thus, due diligence studies are being undertaken to determine any potential resettlement and environmental safeguards requirements (both compliant with ADB SPS 2009 and GoSL legislation) prior to access roads construction.

10. The ADB, during their Mission visit to the Project in June 2016, requested that a combined “Environmental and Resettlement Due Diligence” study be conducted to determine whether (or not)

² A 14 km access road (1A) solely within the Wildlife Park is being constructed by the Wildlife Department.

there will be involuntary resettlement or environmental impacts, based on SPS 2009 and Sri Lankan laws.

11. The objectives of this Due Diligence Study are to report the results of the inventory of landholders, identifying any impacts and results of consultations; followed by making recommendations as to fill any identified gaps with SPS 2009 and resettlement framework and CEA environmental policies.

12. The study has focussed of three potential areas in which Sri Lankan Laws and policies and/or SPS 2009 policy may, or may not, be triggered:

- (i) The footprint of the rehabilitated widened roads, caused by widening to enable required heavy machinery to pass, causing resettlement and land acquisition, hence triggering a resettlement Implementation Plan.
- (ii) The rehabilitation and widening of the road impacting on the Wildlife Park, which is being re-classified to a National Park area and any potential issues triggering approvals from the CEA.
- (iii) Environmental and social impacts of the road during construction and operation, with recommendations for mitigation.

13. This study found that the potentially affected residents have signed to voluntarily release strips of their land (well below 10% of each total land-holding) to permanently accommodate the required widened road width footprint, citing that they stand to benefit from the road widening in better access to markets and social services and economic development due to the Wildlife reserve expecting that widened roads will allow for ecotourism development in future. Further, albeit minor to moderate social risks identified with recommended safeguards mitigations include labour, HIV/AIDS and human trafficking and public safety and workers' health and safety.

14. The nearby Kahalla - Pallekele Wildlife Sanctuary, which will soon be re-designated a national park (within the elephant fence boundary), has also provided permission for the road widening, based on benefits of improved access and park management for future ecotourism development opportunities for the Park. However, there will be impacts which have been foreseen and for which will require strictly enforced mitigation measures, including wildlife and flora, water courses, erosion and siltation, waste management, use of borrow-pits.

15. The report provides recommendations for the EA and contractor to maintain compliance in accordance with ADB SPS 2009 and within the Policies and Laws of Sri Lanka.

2. PROGRAM DESCRIPTION

16. This section describes the Mahaweli Water Security Investment Program (MWSIP) which consists of 5 Components, or Projects, as follows, the former three of which are construction (refer to **Figure 1**) related and the latter two being Consultancies:

- (i) Upper Elahera Canal Project (UECP).
- (ii) Minipe Anicut Heightening and Left Bank Rehabilitation Project (MLBRCP).
- (iii) North Western Canal Project (NWCP) (**Figure 2**) – this report specifically relates to due diligence studies under NWCP-ICB-3.
- (iv) Improving system efficiencies and water productivity (ISEWP).
- (v) Systems for improving water resources management and productivity developed (SIWRM).

17. This section describes the MWSIP Projects and the sub-project activity to rehabilitate and widen four access roads in North-West Province Canal Project (NWCP). A fifth, and longest road access is being directly handled by the Wildlife Department authorities, given it is all within the Park area.

2.1 Upper Elahera Canal (UEC)

18. Construction of approximately 82 kilometres of canal (including 28 km of tunnels) connecting the Moragahakanda Reservoir to the existing tanks of Huruluwewa, Manankattiya, Eruwewa and Mahakanadarawa. The Kalu Ganga - Moragahakanda Transfer Canal (KMTC) under this component will include the construction of approximately 9 km of transfer canal (including 8km of tunnels) for the transfer of water between Kalu Ganga and Moragahakanda reservoirs. The civil works will be carried out through 7 international contracts – one contract under Tranche 1; three proposed in Tranche 2; and four in Tranche 3 (**Figure 1**).

2.2 Minipe Anicut Heightening and Left Bank Canal Rehabilitation (MLBCR)

19. The MLBCR component of the program includes the heightening of the Minipe diversion weir (anicut) (downstream of the Rantembe dam) by approximately 3.5 meters, construction of new intake gates to the Minipe Left Bank system, construction of emergency side spillways on both the Left and Right Bank system, and rehabilitation of approximately 74km of the Left Bank system to improve conveyance and reliability of service to existing irrigated lands⁴. All civil works contracts (one international and five National) are covered by Tranche 1 (**Figure 1**).

³ Each contract, regardless of if they are international or national competitive bidding contracts are referred to within this report as National Competitive Bidding Contracts (NCB), International Competitive Bidding Contracts (ICB) or as a sub-project.

⁴ The rehabilitation of the 74km of the Minipe Left Bank system canal and associated structures (MLBCRP Stages (NCB) 1, 2, 3 and 4) are the subject of Due Diligence Reports (DDRs) 1 and 2 and relating to resettlement impacts only.

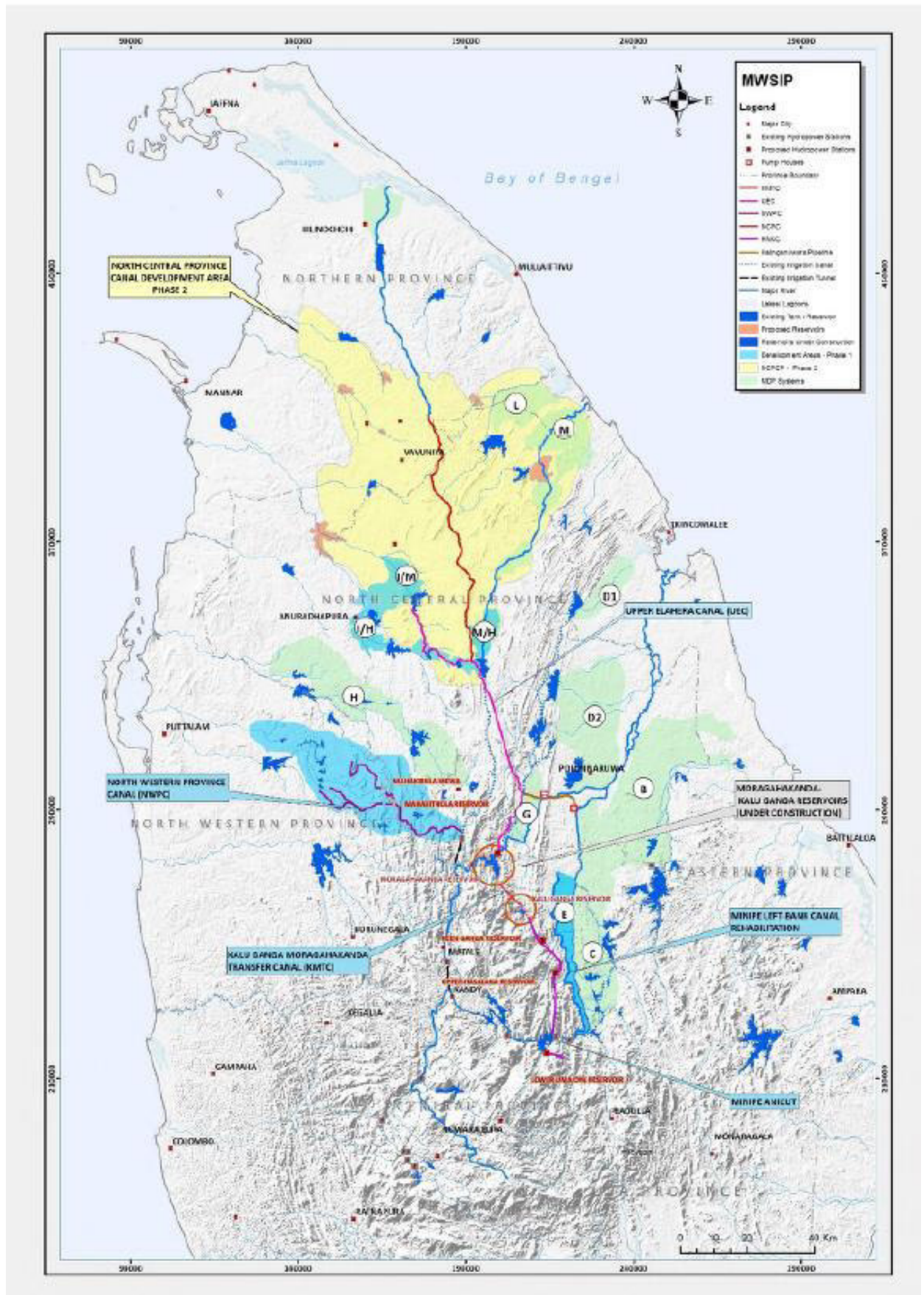


Figure 1 : Map of Mahaweli Water Security Investment Program

2.3 North Western Province Canal (NWPC)

20. NWPC includes the construction of 96 km of new and upgraded canals (including 940 m of tunnel) for transfer of water from the Dambulu Oya River and the existing Nalanda and Wemedilla Reservoirs to the cascade irrigation systems and Mahakithula and Mahakirula Reservoirs with a combined storage volume of approximately 26 MCM linked to the NWPC. It will be constructed through 8 civil works contracts – one national and two international in Tranche 1; and five national contracts for civil works proposed for Tranche 3 inclusion (**Figure 1 and 2**).

21. The following sub-projects are included under Tranche 1 (**Figure 2**):

- (i) NWPC-ICB-1 – Mahakithula Inlet Tunnel, Mahakithula and Mahakirula Reservoirs and Feeder Canal 3.66 Km.
- (ii) NWPC-ICB-2 – Main canal Nabadagahawatta to Mahakithula Reservoir (Km 5+250 to 22+500).
- (iii) NWPC-NCB-1 – Wemedilla Sluice and LBMC from reservoir to Nabadagahawatta (Km 00+000 to 5+250).

22. The Subproject under which this DDR is being prepared is NWPC-ICB-1 sub-project under the MWSIP Tranche 1, including Mahakithula Inlet Tunnel, Mahakithula and Mahakirula Reservoirs and Feeder Canal 3.66 kilometres (refer to **Figure 3**).

2.4 Description of Road Rehabilitation Works under NWPC-ICB-1

23. This section presents a description of the focus of this Due Diligence Study – the rehabilitation and widening of 32 km of local roads, enabling large-scale construction machinery to gain access to the Mahakithula Inlet Tunnel, Mahakithula and Mahakirula Reservoirs and Feeder Canal 3.66 kilometers' sub-project (**Figure 4**). The roads rehabilitation, tunnel, reservoir and canal works are all to be included in the works contract, known as NWPC-ICB-1.

24. Design of the roads shall be gravel, with appropriate drainage, as specified in the bidding documents, to AASHTO and Sri Lankan standards. Detailed design within the road corridor width, with cross-sections, may be necessary. Due to potential land acquisition and resettlement and environmental sensitivities, the corridor will already be set by the PMU for the road construction and no deviations shall be permitted. The scope of the roads rehabilitation and widening aspects of the contract package, as written in the bidding documents for the North-West Province Canal Project NWPC-ICB-1 is presented below.

25. The works generally required for all four roads shall include:

- (i) Earth Filling at Road Sides where necessary to raise the existing road level to achieve new road level and debris to be disposed as directed.
- (ii) Rock excavation where necessary to improve access road network and excavated material to be disposed as directed by the Engineer, as per GoSL laws and EMP instructions.
- (iii) Removal of trees where essential and necessary to improve access road network and disposed as directed by the Engineer (to strictly controlled through EMP and Environmental Monitoring).
- (iv) Construction of side drains as per Sri Lankan standard design.
- (v) Clearing vegetation or improvement works to the stream path drainage structures identified by the Engineer.



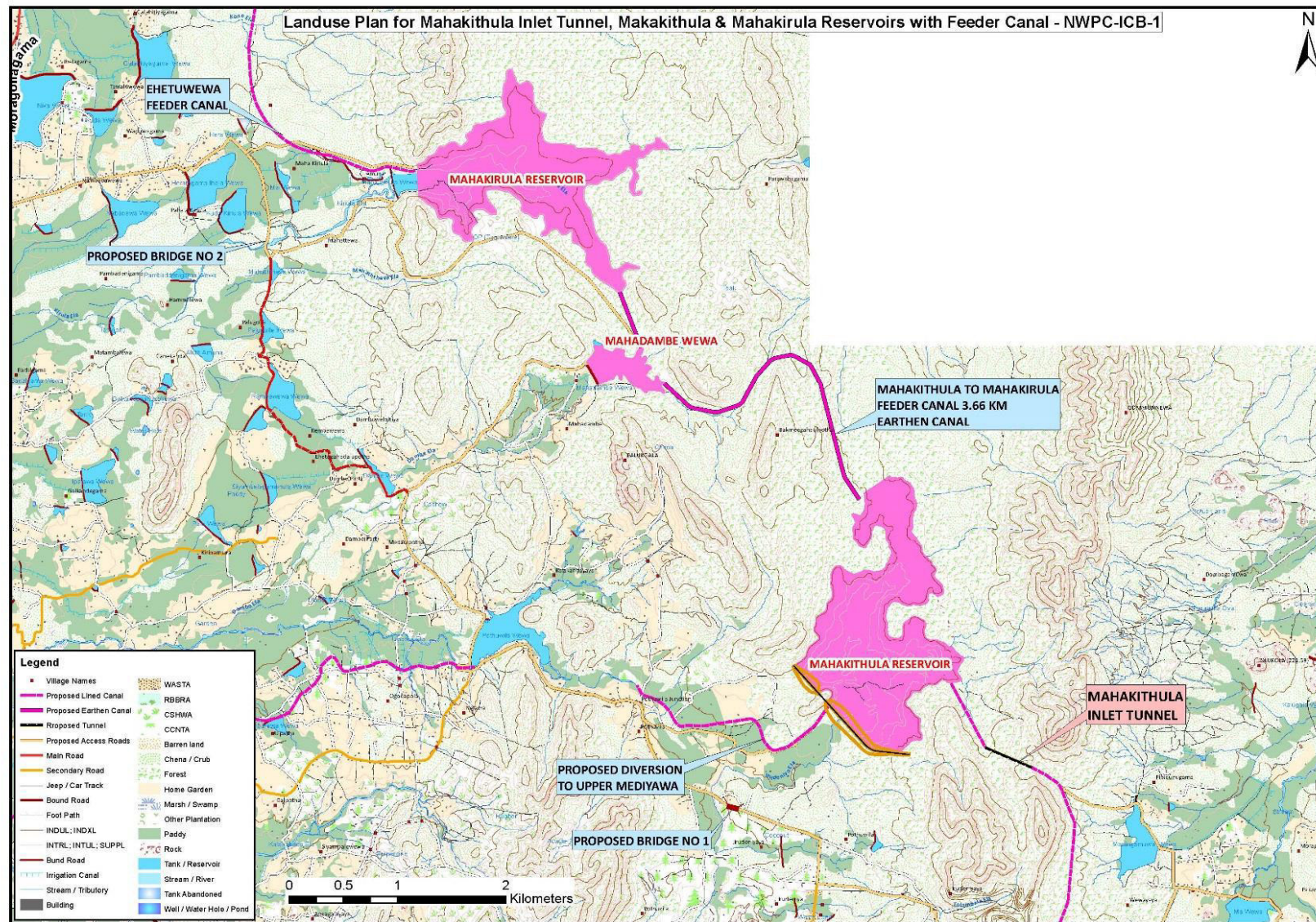


Figure 3 : NWPC-ICB-1 Map

2.4.1 Herathgama – Mahakirula Access Road (Road 1)

26. The scope of the rehabilitation and road widening works specific to the Herathgama – Mahakirula Access Road (Road 1) of the contract package, are as follows:

- (i) Improve the road Segments of Herathgama to Kirula Ela (Road 1-1) by using the suitable road section types, Type 08, Type 02, Type 03, Type 04, as per the Drawings presented in Annex E and as per the instructions of the Engineer at site.
- (ii) Demolish, where existing, and install 18 spun pipe culverts as per engineering design (Annex F).
- (iii) Demolish the existing structures and provide five box culverts as per engineering design (Annex F).
- (iv) Demolish the existing structure and provide twin box culverts as per engineering design, with height to be decided by the Engineer at site (Annex F).
- (v) Demolish the existing structure and provide 7 m wide bridge as per engineering design.

2.4.2 Mahakirula Dam Access Road (Road 2)

27. The scope of the rehabilitation and road widening works specific to the Mahakirula Dam Access Road (Road 2) of the contract package, are as follows:

- (i) Improve the road Segments of Road 2 by using the suitable road section types, Type 02, Type 03, Type 04, as per the Drawings presented in Annex E and as per the instructions of the Engineer at site.
- (ii) Demolish, where existing, and install 10 spun pipe culverts as per engineering design (Annex F).
- (iii) Demolish the existing structures and provide 2 as per engineering design, with height to be decided by the Engineer at site (Annex F).

2.4.3 Puthuwila to Morogolla Access Road (Road 3)

28. The scope of the rehabilitation and road widening works specific to the Pothuwila to Morogolla Access Road (Road 3) of the contract package, are as follows:

- (i) Improve the road Segments of Road 3 by using the suitable road section types, Type 02, Type 03, Type 04, Type 05, Type 06, as per the Drawings presented in Annex E and as per the instructions of the Engineer at site.
- (ii) Widening of existing embankment in road Segment 3 as per engineering design and as per the instructions of the Engineer at site.
- (iii) Demolish the existing structures and provide nine box culverts as per engineering design, with height to be decided by the Engineer at site (Annex F).
- (iv) Demolish, where existing, and install 21 spun pipe culverts as per engineering design (Annex F).

2.4.4 Mahakithula Dam Access Road (Road 4)

29. The scope of the rehabilitation and road widening works specific to the Mahakithula Dam Access Road (Road 4) of the contract package, are as follows:

- (i) Improve the road Segments of Road 4 by using the suitable road section types, Type 03, Type 04, as per the Drawings presented in Annex E and as per the instructions of the Engineer at site.
- (ii) Demolish the existing structures and provide two box culverts as per engineering design, with height to be decided by the engineer at site (Annex F).
- (iii) Demolish, where existing, and install eight spun pipe culverts as per engineering design (Annex F).

2.4.5 Turning Axis

30. There are sharp bends that will need reconstruction to allow sufficient turning axis for the trucks. One of these, on the Puthuwila to Morogolla Access Road, will have a limit of 11m diameter, because private land is impacted (refer to **Annex G** and Section 5).

2.4.6 Gravel Specifications and Borrow Pit Sites

31. **Table 1** and **2** provides acceptable gravel material specifications used in Sri Lanka. Several borrow pit sites (mainly for gravel) and three disposal sites identified for the proposed road improvement work.

Table 1 : Grading Requirements for Soils for Road Shoulders and Gravel Surfacing

SIEVE SIZE		PERCENT PASSING
mm	µm	
37.5		100
20		77-100
5		41-100
2.36		30-80
	600	18-50
	75	5-25

Table 2 : Consistency Limits for Soils for Earthen Road Shoulders and Gravel Surfacing

CLIMATE ZONE		LL	PI
Wet Zone	Laterite Gravely Soils	<55	4-25
	Other Gravely Soils	<50	4-20
Dry Zone		<55	6-25

2.4.7 Minimum Construction Equipment Requirement

32. The contractor will determine equipment needs, although the types of construction equipment which might be required include:

- (i) Tipper trucks.
- (ii) Crawler excavators.
- (iii) Graders.

- (iv) D9 or D8 Bulldozer.
- (v) Frontend loader.
- (vi) Water bowser (water-cart).
- (vii) Vibrating roller.
- (viii) Wacker (motorised tamper).
- (ix) Concrete vibrator.
- (x) Compressor.
- (xi) Bob-cat.
- (xii) Tractor/trailer.

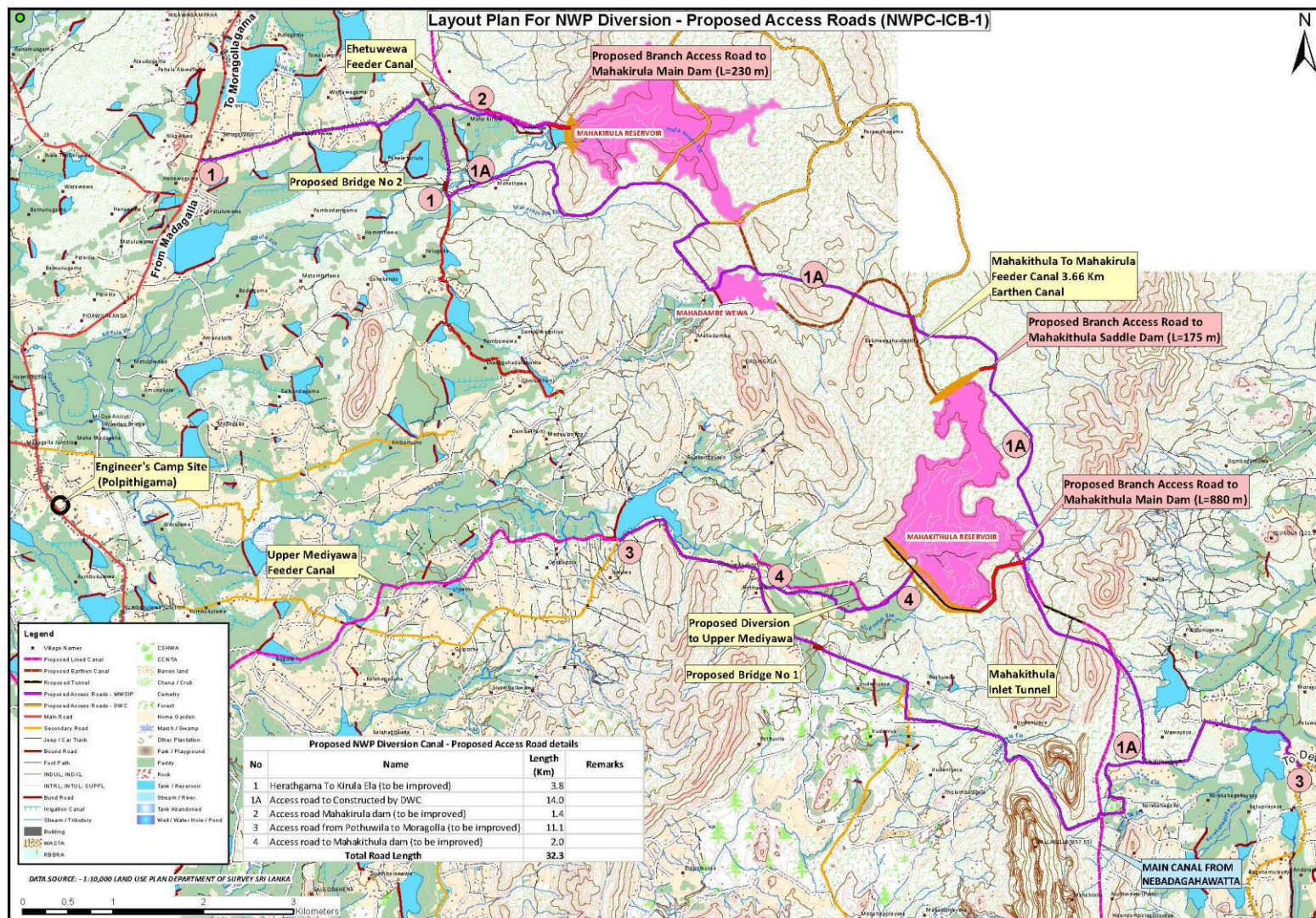


Figure 4: Layout Map of the Mahaweli Water Security Investment Program

3. PRELIMINARY ENVIRONMENTAL, RESETTLEMENT AND LAND ACQUISITION SCREENING INSPECTION FINDINGS

33. The PMDSC conducted a “Preliminary Environmental and Resettlement and Land Acquisition Screening Inspection” (PERLAI) of the 32.3 km of access roads with the aim of identifying the sections of road in which there may be possible environmental, resettlement and/or land acquisition impacts to private lands and structures, wildlife reserve and sensitive environmental areas and other Government land areas, if road rehabilitation and widening was to occur. The National Environmental Specialist and the National Social Safeguards and Resettlement Specialist, separately, with design engineers and other Government and NWP PIU personnel (as required), conducted a detailed walk along the roads to check widths and road and environmental conditions. The results of this initial inspection not only determined potential environmental impacts and asset acquisition issues, but allowed engineers to design the technical requirements in the bidding documentation (refer also to Section 2). This section summarises the results of these inspections along each of the four roadways (also refer to **Figure 4** above which indicated Road Numbers 1, 2, 3 and 4 marked below).

3.1 Herathgama – Mahakirula Access Road (Road 1)

34. The access road from Herathgama to Mahakirula is 8.7 km, located in the Kurunegala district and falls within Herathgama and Dambe GNDs of Polpithigama DSD. It will require rehabilitation and in four out of five sections there will be a need for road widening, two of which there are potential land acquisition impacts:

- (i) The Road number 1 is proposed to be extended up to Mahadambe tank within the Kahalla - Pallekele sanctuary (proposed National park) area, but the project is permitted to construct the road up to Kirula ela (3+800 km), at the boundary of existing elephant fence. The remaining part shall be ear marked by the wild life department, and improvements including drainage and surfacing shall be done under the project with the instructions of the wild life officers.
- (ii) The section 2.15km is on the bus route and is sufficient to heavy machinery access at 9 to 10 meters’ width (km 00.000 to 02.150).
- (iii) The next section traverses’ highlands category of land, which may potentially incur land acquisition impacts (km 02.150 to 02.160).
- (iv) A narrow section of land traverse’s reservation area, in which there is sufficient public lands to widen the road to a 9-meter width. However, the road has several stream crossings and adjacent surface water bodies like tanks. The road is located on a plain terrain and mainly going through an inhabited area with agriculture lands, public places like schools and Buddhist temples up to 2+475 km After 2+500 km, the habitat is naturalized and at this location there are wild life migratory paths (km 02.160 to 03.750).
- (v) The next area is the location of a bridge, which will need to bear the weight of the multiple axle trailer and truck carrying the construction equipment. The bridge will be rehabilitated for this purpose. There is enough space for construction and for allowing a diversion for traffic flow, without causing land acquisition impact (km 03.750 to km 3.800).
- (vi) The final section of road is 4.9 kilometers in length and is running through the Kahalla-Pallekele Wildlife Reserve. Therefore, consent from the Wildlife Department will be required for this road section (km 03.800 to 08.700).
- (vii) Approximately about 34 trees over 30 cm DBH could be affected due to the road expansion which are located within 4.5 m either side from the centre line.

- (viii) Also there are few endemic, threatened fauna and flora species recorded, but those species are not unique or restricted to the project area and common species in the particular agro ecological region.

3.2 Mahakirula Dam Access Road (Road 2)

35. This road is in the Kurunegala district and falls within Herathgama of Polpithigama DSD. Along this road, within the Wildlife Park area, is land cultivated that has by nearby villagers for over 40 years. At a length of 1.6 km, this narrow access road will require rehabilitation and will need widening. In three areas, there may be land acquisition impacts, while in one area is Government lands free of impacts:

- (i) The road exists as a jeep track up to 0+975 km, very narrow, either sides seasonal paddy lands. After this, there is only a foot path, goes along the existing electric fence up to the existing dam.
- (ii) This narrow section will need widening, with potential land acquisition impact (km 00.000 to 00.005).
- (iii) The width of this section of road is already an adequate 7 metres, with the inclusion of the full road reservation, a width available of 9 meters (km 00.005 to 00.400).
- (iv) This section will require widening on both sides of the road. It traverses paddy land in parts and, therefore, may have land acquisition impact (km 00.400 to 01.000).
- (v) Hilly terrain and ecologically sensitive area due to the heavy wild life migration occur within the area.
- (vi) Approximately about 9 trees over 30 cm DBH could be affected due to the road expansion, which are located within 4.5 m either side from the centre line.
- (vii) This 0.6km length of road belongs to the Wildlife Department on the left-hand side and the Divisional Secretary (Government Land) on the right-hand side. Road expansion will require to shift the elephant fence, and stream crossing required proper drainage structures to maintain the flow. Therefore, the recommendation is to rehabilitate and widen the right-hand side of the road through discussions with the Divisional secretary (km 01.000 to 01.600).

3.3 Pothuwila to Morogolla Access Road (Road 3)

36. The Pothuwila to Morogolla access road is 11.3 kilometres to be rehabilitated. This road falls within Kurunegala (0+ 000 km to 6+150 km) and Matale (6+150 km to 11+100 km) districts. This road is the only existing road to reach villages located at the periphery of the Kahalla - Pallekele sanctuary, linking the 2 districts. Twelve of eighteen sections of this road will need widening but will use Government or road reserve lands. One additional section is a bridge rehabilitation and five sections will impact on Wildlife department and potential on private land areas:

- (i) Road design should address flood / erosion prevention mechanisms (carpet road/ concrete).
- (ii) Existing road is with narrow bends can be dangerous due to wild life movements.
- (iii) The road goes through a diverse habitat types such as home gardens, surface water bodies, primary and secondary forests, scrub lands, rock out crops etc.
- (iv) The first 4.52 kilometres of road is on the bus route from Siyabalagashandiya to Pothuwila. Therefore, there is sufficient space for vehicles with a need for rehabilitation but no widening required (km 00.000 to 04.520).

- (v) This next road section need to be rehabilitated and widened. However, the road reservation is of a width sufficient for widening (km 04.520 to 05.400).
- (vi) An area of road traversing private high-land agricultural areas will need to be widened. Therefore, a 10meter section of private land may be impacted (km 05.400 to 05.410).
- (vii) This 1.69-kilometre road section needs to be rehabilitated and widened. However, the road reservation is of a width sufficient for widening (km 05.410 to 07.100). The road is passing through a hilly /undulating terrain and side of the roads are hilly and slope (6+000 to 7+050 km) and this section is very narrow and naturalized area of the Kahalla - Palkeleke sanctuary. Hence expansion in this area need to be done in a careful manner
- (viii) The next 100 meters of road traverses the Wildlife Park and, therefore, permission will be required from the Wildlife Department to rehabilitate and widen the road access here (km 07.100 to 07.200).
- (ix) The road reservation is wide enough to accommodate the next section of road which requires rehabilitation and widening (km 07.200 to 07.400).
- (x) A narrow 10 metre section of road that runs through private Highland agricultural land will need to be rehabilitated and widened, which may cause land acquisition impact (km 07.400 to 07.410).
- (xi) The road reservation is wide enough to accommodate this next section of road which requires rehabilitation and widening (km 07.410 to 08.000).
- (xii) This 10m area of road traversing private high-land agricultural areas will need to be widened. Potential causing private land to be impacted (km 08.000 to 08.010).
- (xiii) A narrow 90 metre section of road in which the road reserve is sufficient width for widening to the requirement for heavy machinery to transported for construction (km 08.010 to 08.100).
- (xiv) This area is already 7 metres width and may not need further widening. However, the road reservation is sufficient for additional two metres if necessary (km 08.100 to 08.150).
- (xv) The road reservation is wide enough to accommodate this next section of road which requires rehabilitation and widening (km 08.150 to 08.420).
- (xvi) This 30m area of road traversing private high-land agricultural areas will need to be widened, potentially causing private land to be impacted (Km 08.420 to 08.450).
- (xvii) This next section is narrow, but with sufficient width in the road reserve for rehabilitation and widening. Other environmentally sensitive areas such as archaeological reserve (Left side) from 9+650 to 9+750 km (have to be careful during the heavy machinery handling) and Korakahagollagama cemetery (Right from 9+375 to 9+600 km) exists (km 08.450 to 10.600).
- (xviii) A bridge was being constructed here and may need further strengthening for the heavy trucks to traverse. However, there is sufficient space for road diversions and construction space if the bridge requires additional construction (km 10.600 to 10.620).
- (xix) The next section is the Mahawewa tank bund road, which will need widening. The reservation land area is of sufficient width for widening where required (km 10.620 to 10.750).
- (xx) This length of road is already 7 metres width and may not need further widening. However, the road reservation is sufficient for additional two metres if necessary (km 10.750 to 11.300).
- (xxi) Approximately about 31 trees over 30 cm DBH could be affected due to the road expansion which are located within 4.5 m either side from the centre line.

- (xxii) Also, there are some endemic, threatened fauna and flora species recorded, but those species are not unique or restricted to the project area and common species in this agro-ecological region.

3.4 Mahakithula Dam Access Road (Road 4)

37. The Mahakithula dam access road to be rehabilitated is 2.1 kilometres. It is mainly located in the Pothuvila GND of Polpithigama DSD of Kurunegala district with the last 300 m of the road falling under Anuradhapura district. As per the following, there are 2 areas in which road widening is required that needs consent from the Wildlife Department and one area in which road widening may impact paddy fields:

- (i) This narrow section of road traverses' paddy land and seasonal vegetables. Road widening will be necessary to accommodate construction equipment. Therefore, private paddy land may be impacted. At 01.275 km, there is a seasonal tank and the bund. The road goes over a very narrow bund of this small tank (km 00.00 to 01.300).
- (ii) This narrow section of road runs through Wildlife Department land area. After km 01.600, the road goes through the elephant fence which is a naturalized forest area within Kahalla - Pallekele sanctuary (proposed National park). Designs must be prepared in an eco-friendly manner with the minimum disturbances to the wildlife area. Therefore, permission will need to be sought from the Wildlife Department to consent to road widening (km 1.300 to 01.800).
- (iii) This section of road goes along the inner side of the Kahalla - Pallekele Wildlife reserve elephant fence. Elephant fence need to be redesigned with a gate. Otherwise, once the area is opened for the construction and operation of the proposed road, it could aggravate the Human-elephant conflicts. Therefore, letter of consent would be required from the Wildlife Department (km 01.800 to 02.100).

4. ASSESSMENT OF POTENTIAL ENVIRONMENTAL IMPACTS

38. Some of the most environmentally sensitive project components under North Western Canal Project (NWCP) are associated with the NWPC-ICB-1 package of Tranche 1, which includes construction of Mahakithula inlet tunnel, Mahakithula and Mahakirula reservoirs, and feeder canals which all fall within Kahalla - Palkelele wildlife sanctuary (proposed National Park). This section outlines the methodology and results of studies focusing on the identification of environmental and social impacts foreseen to be caused by the roads rehabilitation and widening to be included under the NWPC-ICB-1 construction contract works.

39. The anticipated impacts related to the proposed development have been studied in the Environmental Impact Assessment (EIA) carried out in June 2015, and the conditional approval has been granted by the Central Environmental Authority (CEA) (REF. 08/EIA/WATER/07/2012 dated as 23 February 2016). Further, Asian Development Bank (ADB) also accepted the EIA and recommended to make necessary design changes and updates to the EIA and EMP ensuring that the anticipated environmental impacts related to the project interventions shall be minimal. To ensure compliance with GoSL CEA conditions and Wildlife Department requirements, this DDR 3 shall be submitted to the CEA and Wildlife Department for their concurrence after ADB submission and approval.

40. This section aims to address the possible environmental impacts identified through the rapid Environmental Screening approaches abovementioned, particularly covering the direct impact area of the activities related to access road rehabilitation, widening and improvement.

4.1 Methodology

41. Accessibility to the project area during the construction phase is considered to be a challenging task, due to an elephant fence surrounding the Wildlife Sanctuary and heavy elephant movements existing in the area.

42. Walk through surveys were carried out by the PMDSC Environmental Specialist, along the identified road alignments using Google satellite maps, and the study area were defined as the direct and indirect impact zones (also refer to Section 3 and Section 5). The direct impact zone was marked as 4.5 m from the center line, including the either sides of the road. Indirect impact areas included the immediate surroundings of the road trace and the identified burrow and disposal areas that can be affected due to the road construction activities.

43. A “transect walk”, and consultation with the community and relevant stakeholders was carried out as an integral part of the project activities, to obtain maximum benefits to use the observations recorded in the ECOP during the preparation of engineering design incorporating environmental and social concerns (also refer to Section 6). The findings were also used to gather environmental features of the project area to identify potential environmental impacts and proposed mitigation measures.

44. The Environmental screening was carried out based on the Environmental Code of Practice (ECOP) Checklist (Annex A, B, C and D) prepared as per the ADB guidelines. Information on the road trace including existing land use, sensitive habitats such as natural habitats, any stream crossings, water bodies, endemic, threatened fauna and flora (as per the National Red List 2012), number of trees to cut down etc. will be taken from the ECOP and assess the possible environmental impacts.

45. Any alternatives required or mitigation measures shall be proposed where necessary depending on the significance of the anticipated negative environmental impacts. This information shall be added to the standard EMP to convert it into road specific EMPs along with the bid documents during the selection of contractors for the project implementation.

4.2 Proposed Alternatives Considered

46. All possible alternatives have been considered at finalizing the selection of access roads to be improved under the instructions of the Wild life department. The areas where the existing road traces with enough shoulder width could be realign to minimize land acquisition.

47. There are some areas where the proposed access roads are located or passes through forest areas, and the efforts have to be emphasized on minimizing encroachment into forest areas and tree cutting by establishing an alignment with widening, if needed, only on one roadside.

48. The road alignment should as much as possible avoid passing through water bodies. However, the road Number 4 alignment footprint observed to be going over a seasonal tank bund, at 1+275 km, and changing alignment is required by carrying out a proper engineering survey.

49. Design alternatives need to be considered to minimize the environmental impacts suggested in this DDR, especially at the stream crossing and animal crossing points. There are some flood prone areas during the heavy rains and attention should be given to incorporate the potential natural cross drainage and drainage structures, and adequate culverts and/or bridges need to be provided.

50. Further, the alternative sites for the disposal and borrow areas need to be identified instead of the sites located within the wild life areas and sites identified across the migratory paths.

4.3 Environmental Impacts – pre-construction

51. A corridor representing the roads' Right of Way has been set. This right of way shall be handed over to contractor for detailed design and construction. However, this section identifies potential impacts that may occur during the detailed design phase of the access roads.

4.3.1 Permits and Approvals

52. Sri Lankan legal environmental framework may be very strict. It requires a permits and approvals sought prior to construction and during construction. Section 7.2.4 provides a list of permits and laws that must be satisfied by the Contractor.

4.3.2 Finalisation of Alignment

53. The alignment and design for the access roads shall be finalised at the time the contractor prepares the detailed design and physically setting out the site for construction to commence. The following environmental impacts issue may occur in detailed design, hence construction:

- (i) **Trees and forest land** – the widening of roads may require the removal various trees common, rare and endangered. An inventory of flora has been conducted and is presented in **Annex A2, B2, C2 and D2**. All efforts shall be made by the contractor and engineer to reduce the amount of flora affected by the road rehabilitation, including by adjustment of cross-section design, where possible.
- (ii) **Fauna** – As a Wildlife Sanctuary, there are many species fauna identified, including along the roads, as presented in **Annex A2, B2, C2 and D2**. Nesting and breeding areas for animals and birds shall be avoided as much as possible, if identified during detailed design. There are also areas, that were identified during inspections that are elephant and other wildlife corridors crossing the roads within the Park. This too will need to be considered in final design of the roads. In the event of nesting and breeding areas, wildlife habitats or corridors being identified, the contractor shall be required to contact Wildlife department authorities in order to identify the solution with least impacts.

- (iii) **Flood-prone areas** – Road improvement would need to allow “all weather” roads year-round for the construction of ICB-1 tunnel, dams and canals to continue unhindered. Initial inspection of the site identified some areas which may be prone to flooding. Therefore, designers will need to consult the hydrological data prior to final designs of culverts, bridges, road cross fall and drainage.
- (iv) **Roads over water bodies** – contamination of natural water courses - should be avoided as much as possible, such as Road No.4, where a seasonal tank bund, exists at km 1+275.

4.4 Environmental Impacts – During Construction

54. There are no any significant impacts anticipated during the construction stage of the proposed road improvement projects as most of the road alignments are existing road sections and a small strip of lands along the roads allowing for road widening. However, some environmental impacts are still foreseen and should be mitigated during construction.

4.4.1 Common Environmental Impacts

55. Although impacts are deemed to be not significant irreversible impact, the possible common environmental impacts such as dust, noise, vibration, public safety can still be expected:

- (i) **Dust** – Although an issue also during operation of the road, earthworks, especially during the dry season periods, may create significant dust, providing inconvenience to the communities. Using water or other suppression mechanisms will be recommended, along with consultation with communities about methods to reduce dust in their homes.
- (ii) **Air Quality** – Impact expected to low to medium significance, due to contractors’ plant. However, contractor shall use plant in compliance with Sri Lankan environmental laws and shall use machines which are well maintained and not use old machines.
- (iii) **Noise** – is expected to only be significant for short periods during construction, and shall be short-term, moving progressively to along the road alignments. At work camps and storage areas, there may be more, longer-term (during construction period) noise impact. Disturbance of wildlife, particularly nesting seasons, may be significant but will also be short-term. There are several mitigation measures to be implemented, as recommended in the EMP such as limiting work hours, public consultation and awareness advising communities on noise and reduction actions, limitation during nesting seasons and noise suppression devices on construction equipment.
- (iv) **Vibration** – Impact from vibration from construction equipment, vibration rollers used in earthworks and surface compaction, causing damage to structures and affecting wildlife. Use of oscillating rollers may reduce this significant, but short-term impact. Contractors shall also need 3rd party insurance for such damages.
- (v) **Use of Fuels and Hazardous materials** – Hazardous materials that may be significant impact, if allowed to release into the environment such as fuels and oils spillage, waste from cement-based products, during construction activities. Cut-off ditches shall be specified for areas where refueling occurs (outside of the Wildlife Park) and emergency measures will be required to reduce hazardous materials, including fuels and oils from being released within the Wildlife Park areas.
- (vi) **Public Safety** – During construction there is a potential risk to public safety, especially children and community members encroaching on the construction site and dangers posed by machines on-site and transporting materials to and from sites. A program of public awareness, traffic management plans, signage and fencing as well as consideration for 24-hour security shall be implemented on all road construction sites, particularly adjacent to communities.

4.4.2 Land Clearing and Site Preparation and Road Construction Works

56. Road rehabilitation and widening construction activity will involve small strips of land to be cleared of vegetation, adjacent to the existing road. The following are the key identified impacts to be mitigated.

- (i) **Soil erosion and siltation** – During construction, some vegetation will be removed and soil will need to be excavated for a well-designed road to be constructed.

Topsoil shall be stripped and stockpiled in an approved location, by the contractor, and re-used/reinstated to ensure re-vegetation on the newly-constructed road sides, rehabilitation of borrow-pits and other areas along the vicinity of the road.

Exposed soil may be vulnerable to erosion and siltation into water-course. Use of bio-engineering and engineering preventative measure shall be required, such as silt-fencing in vulnerable locations.

- (ii) **Flora and Fauna** - The ecological impact significance of construction works pose a high-moderate level on all road alignments, especially within the Kahalla - Palkeleke wild life areas and within this, where there are no existing roads other than the footpaths and elephant migratory paths. Road number 2 and 4 ends within the wild life area need to be designed and constructed in an ecologically friendly manner. The EMPs for each specific roadway shall be extremely important to cover this requirement.

Removal of elephant fencing during the construction stage of the road traces located inside the wild life areas, would aggravate the human-elephant conflicts in the area, as this area is rich with elephant movements.

The project area of NWPC-ICB-1, including a significant length of the access roads, are entirely falling within the authority of Wild Life Conservation Department, Sri Lanka and the approval is subjected to the submission of "Wild Life Management Plan emphasizing Human Wild Life conflict", which is an ongoing assignment by the IUCN. Any recommendations from this IUCN study shall be strictly adhered to by the contractor and monitored by the PIU, with support of Wildlife Department authorities and PMDSC Specialists.

- (iii) **Removal of Ground cover, vegetation, trees and Nesting and Breeding Grounds** – Removal of ground cover, trees, shrubs and other vegetation shall be limited to area of permanent works (ie. Road). No chemicals substances shall be used to remove vegetation or that will be exposed to fauna. As a Wildlife Sanctuary, there are many species flora and fauna identified, including along the roads, as presented in **Annex A, B, C and D**. Nesting and breeding areas for animals and birds shall be avoided as much as possible, if identified. There are also areas, that were identified during inspections that are elephant and other wildlife corridors crossing the roads within the Park. Consultation with Wildlife department officers, prior to removing ground cover, will be required to reduce impact on flora and fauna damage in the park.

Like (b) above, the recommendations of the IUCN "Wild Life Management Plan emphasizing Human Wild Life conflict" study shall be strictly adhered to by the contractor and monitored by the PIU, with support of Wildlife Department authorities and PMDSC Specialists.

Tree planting shall commence immediately following completion of the road construction and embankment compaction. It shall be conducted as per local Government authorities, Forest Department and Wildlife Department permit conditions issued prior to construction commencement. Species of trees will be based on permit conditions, climate, availability and specific Road EMP conditions. The contractor shall be responsible for replanting and caring for saplings, including replacement of perished saplings, during the period of the NWPC-ICB-1

Contract and project is fully completed and handed over to the GoSL. It is recommended that a minimum 2 trees be planted for every one removed (refer to Annexes A - D for inventory of species in the alignments – to be confirmed at detailed design).

- (iv) **Waste Management** – land clearing for the road and road construction shall cause some moderate level of waste, including materials cleared from the site and wastes from materials brought in for constructing the road. A waste management plan shall be prepared as part of the Contractors Environmental Management Plans and mitigation measures, in which the following shall also be applied: no disposal of wastes in or around water courses; no waste disposal down roadside slopes; no waste disposal within the forest areas. Waste shall be disposed as per agreement with the engineer and environmental authorities.
- (v) **Impact on existing Utilities** – Road widening may require relocation of existing utilities, such as power lines, phone lines, water supplies and drainage. An inventory of these shall be prepared by the contractor at the time of detailed design and arrangements made with authorities to relocate.
- (vi) **Community Access** – In some areas, there is a risk that community access may be limited due to construction operations. The contractor shall be required to make alternative access arrangements for the community to move, with as little inconvenience as possible, accessing their community, accessing public transport, where applicable, etc.
- (vii) **Cut and fill** – Engineering design includes excavation of material to a 150 mm depth and filling with suitable compactable sub-grade material to required specification. Design and construction will keep excavation and fill to a minimum and as much as possible follow “Rural Roads Construction” design through following existing profile. This will reduce requirement for disposal of materials and excessive drawing from borrow-pits. Topsoil shall not be considered suitable for any type of fill material in road construction.

Excavated material shall be recycled, where possible, or disposed as per provisions of forest department, wildlife department and environmental authorities set out in the specific permits for this road construction works. Furthermore, disposal and control of silt erosion shall be in place to avoid dispersion of materials into nearby wetland and wildlife/forest areas.

- (viii) **Preparation of Embankment and road base layer** – raising of the embankment, widening and enlarging the existing roadway, or tracks in certain locations, lead to a wider footprint right of way, along with exacerbating drainage and erosion impacts. Silt catchment, during construction shall be required, as well as permanent re-vegetation (re-grassing, turf and tree planting) to occur directly after construction completion.
- (ix) **Cross-drainage structures** – during construction of these structures, foreseen potential impacts may include hindrance to surface run-off, temporary flooding and erosion and to an extent, impact on wildlife movements.

Impact on natural/existing drainage patterns and discharge capacities shall be determined in the detailed design through available hydrological studies.

Use of oils, lubricants, hydrocarbon materials and other hazardous materials along with construction wastes may contaminate rivers and streams and hence wildlife. At least 50 m upstream and downstream shall be kept cleared prior to onset of both monsoon periods.

4.4.3 Construction materials, Stone Aggregate, earth and water for construction purposes

57. Technical Engineering Specification in the ICB-1 Bidding Documents provides details on construction designs and approaches, materials and machinery minimum requirements to be supplied under the contract (also refer to summary presented in Section 2 above).

- (i) **Damage to Forest resources and Wildlife** – Existing quarries are discussed below (d), and are identified in the EIA. However, new quarries and borrow pits shall require licenses and permits to be obtained from the relevant authorities.
- (ii) **Environmental Pollution** – such as noise and dust, fuels and exhaust and water course contamination. Borrow pit equipment shall be equipped with noise reduction devices and/or will be relatively new, well maintained machinery. As much as possible, dust shall be minimized using water. Fuels at the site shall be equipped with spill containment, such as cutoff ditches and bunds with capacity of 110% of the storage device. Water resources shall be brought, and not sourced from natural water courses or that used for human consumption.
- (iii) **Health and Safety** – Crushing plants and borrow pit excavation pose a safety risk to workers, such as flying debris, air/dust pollution and accidents with machinery etc. Full PPE is a requirement when entering the site for both workers, machine operators, truck drivers and other visitors. Areas shall be well sign posted and with security measures to prevent public entering the site. All deep holes shall be fenced off fully and nearby communities informed of prohibition and safety issues.
- (iv) **Borrow Pits** - There are nine borrowing sites (mainly for gravel) and three disposal sites identified for the proposed road improvement work, and none of the sites has been included in the approved EIA report. The location map of the identified borrows and disposal sites are given in the **Figure 4. Table 3** presents a summary of the environmental screening carried out by visiting sites.



Some of the identified borrow areas and gravel areas identified within the protected area, cannot be recommended as this can create life threatening impacts to the existing wild life movements due to falling in the pits, trenches etc. Also, operating gravel and disposal sites within the protected areas, which violates ADB Safeguard policies and GoSL National Environmental regulations, unless it is unavoidable or subjected to the approval by carrying out additional Environmental Impact Assessments.




4.4.4 Transportation of Construction Materials




58. Materials will be transported to site for construction. The following foreseen impacts with some mitigations:



- (i) **Public Safety** – Construction shall involve movement of trucks carrying materials for the road construction, followed by the canal and reservoir developments under ICB-1. This will not only be the noise of numerous trucks passing through communities, but also a safety issue. Therefore, restrictions shall be put in place in terms of timing for trucks to work (ie. No night-time works), speeds shall be limited, to 40km per hour in communities and 60 elsewhere, all materials transported shall be covered to prevent dust spread and truck tail gates shall remain closed and will not be removed. The PIU, contractor and PMDSC will provide awareness campaigns in the community in relation to safety during construction.
- (ii) **Dust** – along roads traversed by construction trucks and machines, dust suppression will be required through water tankers with sprinkling systems, although it is realized that full dust suppression is not possible.
- (iii) **Fuels and oils and other hazardous materials** – Vehicles will be well-maintained to reduce oils and fuel spillage. Fuels stored at the site shall be equipped with spill containment, such as cut-off ditches and bunds with capacity of 110% of the storage device.
- (iv) **Access tracks** - especially formed for hauling materials from borrow pits to the road construction site may cause damage to ecology and agriculture. Existing tracks and roads shall be used to haul materials. In the event this is not possible, haulage accessed shall avoid agricultural areas, topsoil shall be stripped and after use the area shall be rehabilitated with soil and vegetation re-instated.



Table 3 : Summary of the Key Environmental screening findings of the borrow and disposal sites

Location No.	Existing environmental condition		Environmental significance and suitability
Proposed Borrow Sites			
L1	<ul style="list-style-type: none">• This is an existing gravel site, above the Potuwila tank• Existing land use is scrub forest and disturb vegetation• Surrounding there are home gardens• Invasive species found (<i>Acacia sp</i>)		Environmental significance is low and recommended with appropriate mitigations
L2	<ul style="list-style-type: none">• Gravel site but not exploited• Existing land use is disturbed secondary vegetation• Few endemic species recorded, but those are not unique to the area• Invasive species found (<i>Lantana camara</i>, <i>Panicum maximum</i>)		Environmental significance is low and recommended with appropriate mitigations

Location No.	Existing environmental condition		Environmental significance and suitability
L3	<ul style="list-style-type: none"> Used and available gravel site, Located at the road side from the Pothuwila tank Ownership is not clear Existing land use is secondary vegetation including forest Surrounding there are home gardens and agriculture lands Invasive species found (<i>Acacia sp</i>) 		Environmental significance is low and recommended with appropriate mitigations
L4	<ul style="list-style-type: none"> It is a used gravel site, just before the Mahakirula dam. Presently a naturalized forest habitat outside the elephant fence Since it is through the elephant migratory path, not recommended to use as a gravel pit, but can use as a disposal site to restore the area 		Not recommended to use as a gravel pit, but can use as a disposal site to restore the area
L5	<ul style="list-style-type: none"> Gravel site spread over a large area and located by the side of the Pothuwila-Moragolla road Surrounding area has home gardens, agriculture lands and in the vicinity of Pothuwila Granma Niladhari office Few endemic species recorded, but those are not unique to the area Invasive species found (<i>Lantana camara</i>, <i>Panicum maximum</i>) 		Environmental significance is low and recommended with appropriate mitigations

Location No.	Existing environmental condition		Environmental significance and suitability
L6	<ul style="list-style-type: none"> Existing privately owned gravel site located at the road side Surrounding inhabitant and agriculture area and electric fence is at the other side of the land Existing vegetation type is scrub forest Few endemic species recorded, but those are not unique to the area Invasive species found (Lantana camara, Panicum maximum) An Elephant migratory area 		Low and Recommended with mitigations
L7	<ul style="list-style-type: none"> Private land located at Korakahagolla village, and present land use is a degraded planted teak forest There are inhabitant areas and agriculture lands in the surrounding area The access to the proposed site is poor Few endemic species recorded, but those are not unique to the area Invasive species found (Lantana camara, Panicum maximum) An Elephant migratory area 		Low and recommended with mitigations
L8	<ul style="list-style-type: none"> Wild life Land and present land use is disturbed secondary vegetation and within the elephant fence and proposed National park area in Kahalla - Pallekele sanctuary Located just above the new wild life range office at Pibidunagama Hilly terrain and no proper access to gravel site, eroding area 		High and not recommended

Location No.	Existing environmental condition		Environmental significance and suitability
L9	<ul style="list-style-type: none"> Located within the proposed National park area, owned by Wild Life department, just above the existing Bambaragala tank constructed for elephants Hilly terrain and no access to the site Existing land use is forest and disturb secondary vegetation, which is favourable for elephants 		High and Not recommended
Proposed Disposal Sites			
D1	<ul style="list-style-type: none"> Ownership is uncertain, but within the sanctuary area Located at Irudeniya-Tholambu ela road Existing land use is an open area, abandoned paddy and scrub forest, and the area seems to be not sufficient. Flat land and there is a possibility of wash off the disposal material during rainy season There is an old gravel site in front of the identified location, which can be used as a gravel site and then to use as disposal site to restore the area 		Environmental significance is low, but not suitable due to the small area. The gravel pit in front of the land is proposed as an alternative site is proposed

Location No.	Existing environmental condition		Environmental significance and suitability
D2	<ul style="list-style-type: none"> This site is located inside the elephant fence of Kahalla - Palkeleke sanctuary area, closer to Mahakirula tank Present land use is secondary forest, old teak plantation and naturalised High elephant migratory area 		Environmental significance is Moderate and recommended with appropriate mitigations
D3	<ul style="list-style-type: none"> Located closer to Kuda Kirula tank, by the side of proposed access road No.1 Existing vegetation is disturbed secondary forest and scrub, and in the surrounding area there are agriculture lands An elephant migratory area 		Environmental significance is Moderate and recommended with appropriate mitigations

4.4.5 Establishment of Construction Campsite, Temporary Office and Storage/ Stockpile Areas

59. Some sites have been identified for the Contractor camp site, office facilities and stockpiling, as noted on the Map (Figure 4):

- (i) **Contamination of Environmental receptors** (Air, Water, land) – This includes environmental pollution from waste disposal, noise and air pollution due to vehicles and transportation of materials and fuel and oil spillage. There shall be adequate sanitation, with septic tank and soak pit to avoid contamination of surface and ground water resources, and other infrastructure facilities in order to avoid pressure on resources use by the surrounding communities, which may also lead to social friction. Location of the campsite shall be at least 5 km away from the forest to avoid trespassing by construction workers.
- (ii) **Vegetation clearance and disturbance to ecological habitats** – Shall be avoided, where possible, in order not to disturb ecological habitats, avoid human-wildlife contact (refer to IUCN study) and unnecessary risk of damage to flora. Must be at least 500m from human settlement areas and 1 km from forest and wildlife sanctuary areas.

4.4.6 Clean-up of site and Waste Disposal

60. As mentioned above all sites shall be cleaned and restored to the state prior to project commencements soon after construction is completed, including work camps, borrow pits, offices and stockpile areas.

61. All waste during and after the project, shall be disposed of as approved by local district authorities. All conditions required by the obtained waste management permits shall be implemented by the contractor.

4.5 Operation Stage

62. This section addresses the foreseeable environmental impacts, with some recommended mitigations, that may occur during the “operation” stage of the four roads:

(i) Wildlife park Development Plan

The Kahalla - Palkeleke sanctuary (at present) is proposed to be upgraded as a National Park in near future and hence, the Wild Life department has restrictions of improving or making new access into the wildlife area. Hence, some of the roads identified during the EIA stage were slightly changed of the trace and dimensions to ensure the wild life department requirements.

A meeting held in Colombo with the Wildlife Department Head officer on 13 July 2016. This meeting was arranged to finalize the access road alignments. In the 2016 development plan of the wild life department has been identified the road traces to be developed associated with the proposed National Park, and hence, the proposed accessed roads under the NWPC-ICB-1 was adjusted as per the Wild life department requirements. It was clearly highlighted that, Herathgama entrance should be only entry point into the proposed National Park (Road No.1), and all the other access improved for the project purpose (Road No.2 and 4) must be closed at the completion of the project activities within the Kahalla - Pallakele area. The wild life department has no objection of improving the existing road from Pibidunagama end (Road No.3) without any disturbance to the existing natural habitats in the area.

Furthermore, the Wildlife Department also stipulated that the roads sections (1, 1A, 2, 3 and 4), shall be developed mainly for the project requirements and the other internal road development shall be carried out through the department.

(ii) Flora and Fauna

Improving access towards the protected wildlife and forest areas and specially the areas of Mahakirula and Mahakithula tank areas would create significant impacts during the operation stage as it would encourage people to encroach the areas for cultivations and other purposes. Hence, it is high priority to block all the additional access to the area soon after completing the construction work. This will be done through replacing the elephant fence, and installing gates where the road traverses the fence. Furthermore, the Wildlife Sanctuary is to be re-gazetted as a National park, which under law shall prohibit any form of encroachment activities within the National Park area, designated by the elephant fence.

(iii) Maintenance of Roads in Post-Project operations

During the NWPC-ICB-1 contract, from the time of mobilization up to contract completion, the construction works contractor shall be responsible for road construction and maintenance which allows accessibility of construction equipment and accessibility for vehicles to access communities and park access (as authorized by Wildlife department). However, at the time of handing over the Project, roads within the Sanctuary will belong to, and will be maintained by, the Wildlife department; and road areas outside of the park (outside of the elephant fence), will become the responsibility of roads authorities within the District(s) administration. Therefore, budget for road maintenance will fall on these agencies.

To assist in a “phasing in” of the improved roads to the District authorities, and to assist district authorities with initial maintenance costs for the roads, it is recommended that consideration be given by the PMU and GoSL to stockpile some of the materials from the MWSIP tunneling constructions in NWPC and UEC areas, which may be recycled and used as road construction maintenance material from 2020 (post project) and beyond.

4.6 Potential Social Impacts

63. This section addresses some of the potential social impacts in relation to the road rehabilitation and widening activities proposed as part of the NWPC-ICB-1 Sub-project.

(i) Land acquisition and resettlement

It was found that there are 46 potentially affected people that may be impacted by land and asset acquisition due to the road rehabilitation and widening. Impacts include small strips of land near the road to be acquired, some of which have vegetable crops and trees also affected. This does not include the Forest Department, which owns land on which 26 farmers, whom have been living on this land area for more than 40 years, prior to the Park being gazetted in July 1989.

All 46 private landholders and encroachers have signed letters in they have agreed to volunteer (donate) land and/or assets for use in rehabilitating and widening the four access roads. Refer of Section 5 and 6 for further detailed assessment on the Land Acquisition and Resettlement issue. The wild life department mentioned that, it is not permitted to acquire lands within the wild life reservation and a conditional approval would be granted to continue with the proposed road improvements, subjected to the conditions given by the department, upon the submission of road designs and the specific details of the construction activities.

(ii) Access for Community

These four access roads are in very much bad condition and are neglected at present. Transportation of vehicles are very much difficult in these roads due to its bad conditions. Therefore it takes longer time to move the vehicles through these roads from one point to other

end. It will not only be widening the roads but those will rehabilitate into better condition. Then people in the area will be benefited by having better roads in their villages.

These roads are going through the villages where the agricultural lands are mostly available and producing agriculture products for the country. Widening and improving roads condition will lead to have better access roads for transporting agricultural products and construction materials for villagers' house construction activities etc. The improved condition of the road, resulting from the rehabilitation and widening, interlinking with existing main road networks, will also provide the communities with improved accessibility to district and provincial centers, hence better access to markets for selling and buying products and to social services.

(iii) Labour

Construction activity for the whole of NWPC-ICB-1, inclusive of the roads construction may lead to a small, temporary change in socio-economic and gender setting for communities along the roads, due to potential higher influx of labour (skilled/semi-skilled). The following risks, albeit low to moderate significance, with mitigation measures are recommended:

- a) There is potentially a need for skilled, unskilled and semi-skilled labour to be employed during the NWPC-ICB-1 Project, including the roads rehabilitation activities. As roads rehabilitation, will be one of the first construction activities of the sub-project, it is recommended, in accordance with the ADB Social and Poverty Reduction Safeguards Strategy (SPRSS) for Tranche 1, that local labour be employed on the Project to the maximum extent possible.
- b) Increased employment in opportunities, particularly for poor, will not only provide an income opportunity but also risks underage labour. GoSL laws do have a minimum working age of 18 years old.
- c) Gender and income – labour shall not be discriminated by basis of gender. Based on GoSL laws, employment and wage shall be in accordance with Sri Lanka' legal minimum wage laws, which were updated from 1 January 2016 (certified on 23 March 2016).

(iv) HIV/AIDS and Human Trafficking

A potential influx in labour for the Project, may increase the risk of HIV/AIDS and communicable diseases within the area. With a sudden increase in employment demand, during construction and then sudden decrease after construction, does provide a low to moderate risk of human trafficking vulnerability for labour, particularly at completion of this sub-project. However, as a part of both the Health and safety requirements and under the standard International contract conditions of the MWSIP, it is required that HIV/AIDS and Human Trafficking Awareness be implemented by construction contractors.

(v) Health and Safety

Health and Safety potential impacts include both workers' health and safety and public safety, as follows

- a) Workers Health and Safety – The NWPC-ICB-1, as with all construction contracts under MWSIP, does have significant civil works scope of works, including roads, reservoirs development, inlet tunnelling and canal construction works. These have varying, significant health and safety risks. The Contractor shall be required to prepare and enforce during construction, a detailed Health and Safety Plan, in accordance with the Health and Safety Manual, prepared by the PMDSC for the MWSIP.
- b) Public Safety – The road rehabilitation and widening will be in both the Wildlife sanctuary and within communities. Therefore, particularly within communities, public safety is a significant risk. The contractor shall be required to include, as part of the

Health and Safety Plan, measures to ensure the public safety is optimized. Recommended measures may include barricades and traffic management, to prevent public accessing construction sites; awareness to communities, especially children to keep away from the construction areas; providing well-signed public access around construction sites, temporary bus-stops (where required) and temporary community accessibility to ensure the public do not use construction sites.

5. ASSESSMENT OF POTENTIAL RESETTLEMENT AND LAND ACQUISITION IMPACTS

64. After completing the RLASI, and the engineering design for the roads, the PMU and PIU, assisted by the PMDSC, conducted consultations with those potentially impacted people and the GND concerned (refer to Section 6 and Annex J). This became apparent that affected persons were willing to donate a small strip of land for the improved roads, which would also benefit them in carrying out their livelihoods. This section assesses the potential resettlement and land acquisition impacts resulting from the roads rehabilitation.

5.1 Inventory of Assets

65. An inventory of assets of “Potentially Affected Persons” (PAPs), was conducted by the NWPC - PIU and MWSIP - PMU to identify potential impacts of the road rehabilitation and widening. The survey was conducted during the period of 15th August and 3rd September 2016 led by the Project Director and Resettlement officer of the NWPC - PIU, with PMDSC assistance, conducted an “Inventory of Assets”, like that being conducted for RIPs development (refer to Annex H), of potentially affected areas was conducted by the NWPC - PIU and MWSIP - PMU to identify potential impacts of the road rehabilitation and widening. The inventory of 100% of potentially affected persons included collection of the following data⁵:

- (i) Number of potentially affected persons.
- (ii) Gender of household head.
- (iii) Type of land ownership or encroachment.
- (iv) Extent of land required for road widening.
- (v) Extent of total land use area.
- (vi) Severity of impact (extent of total landholding/used by the AP versus that required for the road).
- (vii) Cropping patterns and details of types of crops affected.
- (viii) Trees and crops affected.

66. This section discusses the baseline information inventory of those whom are volunteering land, that may experience impact due to the Project. Annex M also presents the results of the inventory for each individual PAP.

5.2 Numbers of Potentially Affected Persons (PAPs)

67. There is a total of 46 plots that are potentially impacted by the road rehabilitation and widening. There are no potentially affected persons owning multiple of plots. Therefore, there are 46 affected persons, of which 41 are male headed and 5 are female headed (total 46) affected persons (**Table 4**). Out of a total of 46 Plots, 20 are private and 26 are encroachments into the Wildlife Park. All 26 encroachment, along one road are highland agricultural area, 8 private plots farming paddy and 12 private plots are highland agricultural areas (**Table 5**).

⁵ No structures or businesses were found to be potentially impacted.

Table 4 : Numbers of Affected Household by Gender and Impacted plots

SN	Name of Road	No. of affected households (Aps)		No. of affected Plots
		Male	Female	
1	Herathgama - Mahakirula	3	0	3
2	Mahakirula Dam	10	2	12
3	Pothuwila to Morogolla	4	1	5
4	Mahakithula Dam	24	2	26
Total		41	5	46

Table 5 : Land ownership status (numbers of potentially affected plots)

SN	Name of Road	Description of lands	Private owner-ship Number of Plots	Encroached land (No. of plots)	Total (No. of plots)
1	Herathgama-Mahakirula	Highlands	3	0	3
		Paddy land	0	0	0
2	Mahakirula Dam	Highlands	4	0	4
		Paddy land	8	0	8
3	Pothuwila to Morogolla	Highlands	5	0	5
		Paddy land	0	0	0
4	Mahakithula Dam	Highlands	0	26	26
		Paddy land	0	0	0
	Total		20	26	46

5.3 Impact of Land

68. In Sri Lanka, there are several types of land title. The inventory collected data on the type of land title status of the PAP as well as the extent of land area to be volunteered for the road widening. The total land area volunteered includes 1Rood, 10.68 Perches (approximately 0.13 ha) of privately owned land and 2 roods, 18.7 perches (approximately 0.25 Ha) of encroached land (owned by the Wildlife Department). The Wildlife department and the said encroachers have all prided consent, agreeing to volunteer strips of land for road widening) (**Table 6**). **Table 7** presents severity of potential impact in volunteering land out of total land holdings which ranges from 0.7% to a maximum of 3.08%. of total land area and well below 10% land area is thus not classified as severe.

69. It is important to note that, per Sri Lanka's history, the encroachers have been permitted to remain on the Wildlife department land because authorities are not keen to enforce clearance unless the land is needed for a specific development purpose of the Government. Although this is not a reason for lack of enforcement relating to the land encroachment, at the same time it does not necessarily make any argument for or against compensatory requirements for land use in the Project, and in accordance with ADB SPS 2009.

70. Access road to Mahakithula Dam (Road No 4), where 26 encroachments are located in the lands to be released for road widening who have living and occupying in these lands since 1970, almost above 40 years. During this period Kahalla - Palkeleke wildlife reserve has declared and gazetted by the government including these encroached lands.

Table 6 : Land Ownership Status (by area affected – acres/perch/roods)

SN	Name of Road	Description of lands	Private ownership			Encroached land			Total		
			A.	R.	P.	A.	R.	P.	A.	R.	P.
1	Herathgama – Mahakirula	Highlands	0	0	3.56	0	0	0	0	0	3.56
		Paddy land	0	0	0	0	0	0	0	0	0
2	Mahakirula Dam	Highlands	0	0	12.3	0	0	0	0	0	12.3
		Paddy land	0	0	27.6	0	0	0	0	0	27.6
3	Pothuwila to Morogolla	Highlands	0	0	7.22	0	0	0	0	0	7.22
		Paddy land	0	0	0	0	0	0	0	0	0
4	Mahakithula Dam	Highlands	0	0	0	0	2	18.7	0	2	18.7
		Paddy land	0	0	0	0	0	0	0	0	0
	Total		0	1	10.68	0	2	18.7	0	3	29.38

* A = Acres; R= Rood; and P= Perch

Table 7 : Severity of impact (area and % of land volunteered to total occupied)

Item / Road		Herathgama-Mahakirula	Mahakirula Dam	Pothuwila to Morogolla	Mahakithula Dam	Total
Impacted land to be volunteered	Paddy		0.069 Ha (27.6P)			0.069 Ha
	Highland	0.009 Ha (3.56 P)	0.151 Ha (12.3P)	0.02 Ha (7.22P)	0.245 Ha (2r 18.7P)	1.134
percent-age of whole land area	Paddy		1.4% (1.86% paddy)			
	Highland	0.07%	3.08% (12.6% H'land)	0.60%	1%	

5.4 Crops and trees

71. The inventory recorded a total of 37 plots with 4 categories of crops and 2 categories of trees (**Table 8** and **9**). The highest number of cropping land plots are chillies, followed by onions and paddy. However, in terms of land area, the highest affected land area is onion crops, followed by paddy, chillies and beetroot crops.

72. There are total number of three plots with trees that would need to be removed for road widening. No crops are impacted on these plots. Two Teak trees and 2 Neem trees are located on one land plot, which and 1 Neem tree is affected on another separate plot, totalling 3 neem trees and 2 teak trees that will need to be removed for road widening (**Table 9**). The affected trees are on privately owned properties, and recorded under the specific letters signed to volunteer land and assets (refer to Annexes I, M and N) Trees to be removed on public and Wildlife Park areas are covered in Section 4 Environmental impacts and listed for each road section in **Annex A, B, C and D**.

Table 8 : Crops affected

SN	Road	Type of crops and area of cultivation				
		Data	Vegetable-Chilies	B-Onions	Vegetable-beetroots	Paddy
1	Herathgama - Mahakirula	No. of Plots	0	0	0	0
		No. of Aps	0	0	0	0
		Area	0	0	0	0
2	Mahakirula Dam	No. of Plots	0	0	0	8
		No. of Aps	0	0	0	8
		Area	0	0	0	perch - 27.6
3	Pothuwila to Morogolla	No. of Plots	0	0	0	0
		No. of Aps	0	0	0	0
		Area	0	0	0	0
4	Mahakithula Dam	No. of Plots	11	10	5	0
		No. of Aps	11	10	5	0
		Area	perch. 22.72	perch - 57.78	perch - 18.2	0

Table 9 : Number of plots wit affected trees

SN	Name of Trees	Teak		Neam	
		No. of Plots	No. of Trees	No. of Plots	No. of Trees
1	Herathgama - Mahakirula	0	0	1	1
2	Mahakirula Dam	0	0	0	0
3	Pothuwila to Morogolla	2	2	2	2
4	Mahakithula Dam	0	0	0	0
	Total	2	2	3	3

6. CONSULTATIONS AND DISCLOSURE

73. The potentially affected households, and associated local Government, along the four access roads and other project stakeholders (Wildlife department and environmental related authorities) have been consulted through formal consultation and semi-formal consultation meetings. This section outlines the consultation and awareness activities occurring during the Due Diligence Studies, spearheaded by the PMU and NWPC - PIU.

6.1 Consultation Meetings

74. There were 3 formal consultations with community that were held, as summarised in Minutes of Meetings recorded by NWPC PIU presented in Annex J.

6.1.1 Consultation Meeting for Pothuwila to Morogolla and Mahakithula Dam Access Roads (3 and 4) Communities

75. The first consultation and awareness meeting was held on 16 August 2016 by the NWPC - PIU and PMU with the Potentially Affected Persons and local Government authorities in relation to Roads 3 and 4 at Grama Niladari Division of Pothuwila. The following aspects were discussed with meeting attendees: (English translation of minutes in Annex J):

- (i) Introduction of NWPC - PIU members to community members attending the meeting.
- (ii) Explanation by the NWPCP described the Project, including the process of land acquisition and resettlement and GRM.
- (iii) Discussion on problems, benefits and questions about the project.
- (iv) Information about inventory surveys to be conducted with each household.
- (v) Community participants said that they are willing to support the project, due to the benefits of improved roads in the area.

6.1.2 Consultation Meeting for Pothuwila to Morogolla Access Road (3) Communities

76. The second consultation and awareness meeting was held on 26 August 2016 by the NWPC - PIU and PMU with the Potentially Affected Persons and local Government authorities in relation to Road 3 at Grama Niladari Division of Pibidunugama. The following aspects were discussed with meeting attendees: (English translation of minutes in Annex J):

- (i) Introduction of NWPC - PIU members to community members attending the meeting.
- (ii) Explanation by the NWPCP - PIU described the Project, including the process of land acquisition and resettlement, the GRM and about inventory surveys to be conducted with each household.
- (iii) Clarification of questions about the project.
- (iv) Community participants expressed that they are willing to support the project, due to the benefits of improved roads in the area because currently the road is not good quality and is difficult for taking goods to the market. A participant offered their land area for the road widening.

6.1.3 Consultation Meeting for Herathgama to Mahakirula and Mahakirula Dam Access Roads (1 and 4) Communities

77. The second consultation and awareness meeting was held on 29 August 2016 by the NWPC - PIU and PMU with the Potentially Affected Persons and local Government authorities in relation to Road 1 and 4 at Grama Niladari Division of Herathgama. The following aspects were discussed with meeting attendees: (English translation of minutes in Annex J):

- (i) Introduction of NWPC PIU members to community members attending the meeting.
- (ii) Explanation by the NWPC PIU described the Project, including the process of land acquisition and resettlement, the GRM and about inventory surveys to be conducted with each household.
- (iii) Clarification of questions about the project.
- (iv) Community participants explained that they appreciated being made aware of the project activities and roads development activities.

6.2 Consultative Meetings with Department of Wildlife Conservation (DWC)

78. A consultative session was held by PMU, supported by the PMDSC, with both head office and regional office staffs of NWP DWC staff. The following aspects were discussed with meeting attendees: Meeting notes prepared by the PMU are in Annex J):

- (i) Construction access road development.
- (ii) Establishment of Hakwatunaweve Elephant Corridor (HEC).
- (iii) Providing infrastructure for sanctuary management and developing improved ecotourism.
- (iv) Inundation of DWC proposed habitat enrichment zone due to inundation through Mahakithula and Kahakirula Reservoir construction.

6.3 Semi-formal and Informal Consultations Meetings in Areas along the Four Roads

79. Further consultation and awareness activities are planned. A series of "Semi-formal" consultations and awareness was held during the 46 individual Inventory of Assets surveys and some "Informal" consultations conducted through general discussions during community inspections along the roads. Both sets of these consultations are presented below.

6.3.1 Semi-formal Consultations

80. Semi-formal consultations were held during the 100% affect persons "Inventory of Affected Assets" survey, with each individual household in the form of awareness and opportunity for questions covering:

- (i) Awareness about of the Project.
- (ii) Grievance Redress Mechanism.
- (iii) Information of land acquisition and resettlement compensation through the RIP process and in accordance with ADB SPS 2009, and

(iv) The opportunity for questions and comments to be responded by PIU/PMU personnel and at the time, confirmed household's willingness to volunteer land and/or income sources (ie. Land for agricultural crops and trees) to allow road rehabilitation and widening.

81. This is also covered in Section 6.3 below, explaining that during consultations, land holders voluntarily agreed to donate small strips of land along the road to allow for road widening activities.

82. Semi-formal consultations were also held by the Environment Specialist with various Government officials responsible for the North-Western Province project area. A summary of these Consultation is presented in **Table 10**.

6.3.2 Informal Consultations in areas along the Four Roads

83. As formal minutes were not prepared, **Table 11** provides a summary of the discussions during six "Informal Consultation" discussions conducted by the National Social and resettlement Safeguards Specialist of the PMDSC and NWPC - PIU in July 2016, hence some of the information may have slightly changed over time. However, key issues to be considered include:

84. The extent of land to be affected by the road rehabilitation, even though those consulted did indicate willingness to volunteer affected land (or those they encroach and use for livelihood).

- (i) Security of title, or being forced off the land on which a group of farmers encroach. It is important that a letter from the Wildlife department is issued regarding land requirement for the road in this area.
- (ii) How will the road be rehabilitation, including widths, type of surface and accessibility during construction?

Table 10 : Summary of Environmental Stakeholder Consultations (NWPC-ICB-1 Roads Rehabilitation)

Name	Title	Issues discussed
1. Mr. Manjula Amarasinghe	Deputy Director (Natural Resource Management), Department of Wild Life Conservation, Battaramulla,	<ul style="list-style-type: none"> The proposed project area under NWPC-ICB-1 and the rest of the undisturbed area under present Kahalla - Pllekele sanctuary shall be declared as a National Park in near future
2. Mr. Sumanasena	Regional Assistant Director (North Western Province), Department of Wild Life Conservation	<ul style="list-style-type: none"> Therefore, the Herathgama entrance should be the only entrance into the proposed National park areas, and all the other entry points into the proposed park area shall be closed from the boundary elephant fence immediately after the construction work is over
3. Mr. Wijesinghe	Wild Life Range Officer, Department of Wild Life Conservation, Kahalla	<ul style="list-style-type: none"> Sections of Road No.1 and road to Mahadamabe across the wild life area will be ear marked and ground preparation will be done and the surfacing and drainage shall be done under the project cost with the close supervision of Wild life department officers No any land acquisition is permitted, and the road improvements and operation can be done liaise with the Wild life department conditions and regulations It's expected that the project would support to the wild life department to construct Herathgama office, park entrance fasciitis, Mahadambe beat officer within the proposed area and provide with the come bicycles for the field officers
4. Mr. Tenyshan	Ranger, Wild Life Range Office, Pibidunagama	<ul style="list-style-type: none"> Road from the Pibidunagama entrance is the only road used by the surrounding villages of the Kahalla - Palkeleke sanctuary, and hence it's a positive impact to develop the area, in an eco-friendly manner, as the area has lot of wild life movements The proposed borrow site above the existing wild life range office at Pibidunagama is not accepted as it would affect the area with the risk of erosion, earth slips etc.
5. Mr. H. M. Priyantha Bandara	Ministry of North Western Province Development, Herathgama, Moragollagama	<ul style="list-style-type: none"> Funding (8 million LKR is allocated by the NWP Development Ministry to resurface the 1st 2 km of the proposed Road No.1 under NWPC-ICB-1.
6. Community		<ul style="list-style-type: none"> Improve the flooding areas with proper engineering designs

Name	Title	Issues discussed
		<ul style="list-style-type: none">• Water ways crossing the road should not be blocked as those are flowing to the nearby small tanks. Proper designs to be made calculating the exact flows• Disturbances to the existing utilities to be reinstate by the project, including home garden fencing / walls• There is a proposed pipe lying under a community water supply project associated with the road No.1. So road improvements to be planned in such a manner considering the planned development activities in the area• Borrow areas to be reinstate soon after the excavation, as those pits would impact to the village (spreading diseases due to creating mosquito breeding sites etc.) falling wild animals into the pits

Table 11 : Summary of Consultation Meetings (NWPC-ICB-1 Roads Rehabilitation)

Date and Time	Location (village/road/Chainage/etc.)	Numbers of participants		Points of discussion	Questions and Concerns of people & responses from Consultant/PIU/PMU	Outcomes of discussions
		Male	Female			
11.07.2016 10.00 to 11.00am	Access road from Herathgama to Mahakithula-road No.1 Chainage - 02.000 to 02.420	08	04	Potential Land, assets and other impacts for road rehabilitation and widening	1. Extent of lands to be to widen the road and what are the affected lands? <u>Answer-</u> Below 10 perches of land from an allotment and width may be 3-5 meters and length is along the road where land is located. 2. Width of the road after rehabilitation. <u>Answer-</u> 5 meters' carriage way and 2 meters for shoulders from both sides. 3. People wanted to know whether road will be closed during construction/rehabilitation period. <u>Answer-</u> road is not close during construction period.	1. Affected landowners wished to volunteer the land area for the road footprint. 2. All people welcomed the road widening and rehabilitation.
11.07.2016 2.00 to 3.00 pm.	Access road to Mahakirula dam access road No.2. Chainage - 00.400 to 01.000	20	14	Potential Land, assets and other impacts for road rehabilitation and widening	1. When the road rehabilitation will start and extent of lands to widen the road? <u>Answer</u> May be in 2017. Land extent not more than 10 perches/width 3-5 meters and length along the road.	1. Lands affected people wished to volunteer land without asking compensation. 2. All those who were present at the consultation expressed their satisfaction over proposed road rehabilitation works.

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Date and Time	Location (village/road/Chainage/etc.)	Numbers of participants		Points of discussion	Questions and Concerns of people & responses from Consultant/PIU/PMU	Outcomes of discussions
		Male	Female			
				for road rehabilitation and widening	be informed to them through Grama Niladari. Some affected land lots were shown to the people.	
12.07.2016 2.00 4.00 pm.	Access road to Mahakithula Dam road no. 04. Chainage 00.000 – 00.300 Meeting 1	11	06	Potential Land, assets and other impacts for road rehabilitation and widening	1. Who are the affected land owners? <u>Answer</u> - Exact names of affected land owners will be informed in due course through Grama Niladari, but the road areas under consideration were mentioned.	1. People did discuss willingness to volunteering the lands for road widening.
	Meeting 2	12	03	Potential Land, assets and other impacts for road rehabilitation and widening	1. Extent of lands extent of lands to widen the road, affected lands and persons? <u>Answer</u> - Maximum land affected for road widening if around 5-10 perches. Affected lands and owners of the lands will be informed to them through Grama Niladari. Some affected land lots were shown to the people.	1. People did not object road widening or release of lands for that purpose.

6.4 Land-holders' Agreements to Voluntarily Donate Land

85. During consultations, land holders voluntarily agreed to donate small strips of land along the road to allow for road widening activities that would enable large construction machinery to pass through to the NWPC-ICB-1 site. Potentially affected households agreed to volunteer their land permanently, on the basis that the improved roads would provide future benefit for them. To show this agreement, land-holders signed a letter of no objection, and in which there was full disclosure of the items impacted through donation of the strips of land. In accordance with ADB SPS 2009 requirement, the written agreements included the PIU, the Grama Niladari and a third-party CBO to observe and witness (Annex I and N). These CBOs for each of the four roads are listed in **Table 12**.

86. It was identified that 46 small plots of lands will be affected by four roads widening which are 20 private lands and balance 26 are encroachments, owned and cultivating by 46 persons. These plots of land are located at deference chainage of the access roads. These roads are traversing through villages where people are using the roads as access to their residences and agricultural lands who welcomed the widening of roads as that will benefit to affected landowners as well as other people in the villages. All affected landowners are having one acre to five acres of land and they are willing to donate 0.5 to 7 perches of land per requirement of deference sections of roads.

87. During consultation meetings land owners and those who are using encroached wildlife lands stated that they will be benefitted from the roads widening and improvements as vehicles moving are difficult due to bad condition of roads. When the roads widening will be started land owners and encroachers have consented to release the required extent of land for the roads. They read the consent letters and knew that land releases will occur on permanent basis which could not be used again. Two land owners are agreed to remove the five trees which have planted on the plots of land which will be released for roads.

88. Data of signatures presented in **Table 12** indicates that 100% land owners and encroachers have consented to permanent lands release for the roads widening. PIU/NWPC has obtained consent from affected 20 land owners and 26 encroachers for permanent land releases. Extent of land to be released by each land owner and encroacher has indicated in the consent letter and those varies into each other.

Table 12 : Farmers' Agreements Summary

SN	Name of Road and Number	Total number of land owners / farmers	Number of Signatures	Number of landowners/ farmers not signed	Percentage	Comments	Community-Based Organization Witness
1	Road -1 : Herathgama to Mahakirula-km.02.800	03	03	0	100%	03 persons are private landowners.	Treasurer of the "Water resources Society of Herathgama"
2	Road - 2 : Access road to Mahakirula dam-km.01.400	12	12	0	100%	12 persons are private land owners.	Secretary of the "Agricultural Producers' Society of Moragollagama"
3	Road - 3 : Pothuwila to Moragolla-km.10.800	05	05	0	100%	05 persons are private land owners.	Secretary of the "Temple Society of Pibidunugamba"
4	Road - 4 : Access road to Mahakithula dam- km. 02.100	26	26	0	100%	26 persons are encroachers over 40 years.	Secretary of the "Samurdhi Society of Pibidunugamba"
	Total	46	46	0	100%		

6.5 Disclosure of DDR for NWPC-ICB-1 Roads Rehabilitation

89. The PMU, with the support of the consultant, is planning a third set of consultations, in which the results of the Due Diligence studies are to be disclosed. This will also allow affected persons to be informed of their rights, reminded of the Grievance Redress Mechanism and an opportunity to have any further queries addressed by the project.

90. Approval and disclosure of this Due Diligence Report will be carried out as a condition for NWPC-ICB-1 contract award announcement and notice to proceed. There will be environmental and social safeguards monitoring and arrangements with which the contractor, PMU, NWPC - PIU, PMDSC and GoSL must comply and they will be strictly monitored by the environmental and the social and resettlement specialists of the PIU and PMU, supported by the PDMSC specialists (refer to Sections 9 "Findings and Recommendations").

91. Copies of the approved report will be made available to stakeholders and the public, from the PMU, PIU and Grama Niladari and District Secretary levels, as well as disclosed on the websites of ADB and MMDE. A copy of the findings and other relevant information of this report will be available in English and local languages and distributed stakeholders and those volunteering land. The PIU, supported by PMU and PMDSC will assist CBOs and District authorities to explain some of the key findings of this report and ensure the voluntary donors of the land are informed of the Grievance Redress Mechanism, including rights to complain about social, resettlement, environmental and other matters.

7. LEGISLATIVE FRAMEWORK

7.1 Introduction

92. This section provides a summary of key parts of the Sri Lankan legal framework and ADB's Safeguards Policy Statement (2009), which are relevant to the impacts and situation described above in Roads Rehabilitation as part of NWPC-ICB-1. For ease of identification and assessment, the Environmental Legal Framework and the Land Acquisition and Resettlement legal framework, with respective consideration of the relevant ADB safeguards policy (SPS 2009 - Environmental and Involuntary Resettlement sections) are separately presented. Additional aspects of the legislative framework may be viewed in the Resettlement Framework and Resettlement Implementation Plan (March 2015), and the NWP Environmental Impact Assessment, prepared by the Ministry of Mahaweli Development and Environment.

7.2 Environmental Legislative Framework and Safeguards Policies

93. This section presents the Environmental Legislative Framework and ADB's Environmental aspects of the safeguards Policy Statement (SPS, 2009).

7.2.1 Sub-project Environmental Categorization

94. The improvement and rehabilitation of the access roads required for implementation of NWPC-ICB-1 of MWSIP Tranche 1. NWPC-ICB-1 Sub-project traversing through Kahalla - Palkelele wild life and forest reserves. The environmental category of the tranche 1 of MWSIP, covering all 3 Projects (MLBRC, NWPC and UEC) is determined by the most environmentally sensitive component. Therefore, like the remainder of Tranche 1, the NWPC-ICB-1 Sub-project and its activities are classified as Category A.

95. It is mentioned in the Facility Administration Manual (FAM) prepared in June 2015 for the Mahaweli Water Security Investment Program (RRP SRI 47381) that it is necessary to prepare correction action plans including resettlement plan for additional facilities such as access roads and camps, consistent with safeguards requirements and ADB's Safeguards Policy Statement (2009), and submitting updated safeguards and monitoring reports for review and disclosure through ADB.

96. Hence, this DDR shall fulfil the requirement of studying possible impacts that has not been addressed clearly in the approved EIA report as a sub component of the "Category A" subproject.

7.2.2 Environmental Legislative Framework of Sri Lanka

- (i) **The National Environmental Act (NEA) No.47** is the main National legal framework which administer through CEA of Ministry of Environment and renewable energy. NEA No. 47 was enacted in 1980 and NEA amendment Act No.56 of 1988 stipulated the regulation of obtaining environmental clearance for regulating environmental impacts in a timely and systematic manner. The NEA process implements through the designated Project Approving Agency (PAA) as prescribed by the Minister under section 23 Y of the NEA. The procedure that should be followed for obtaining environmental clearance is described under section 23CC and 32 of the NEA.
- (ii) The **North Western Province Environmental Statute No.12 of 1990** was enacted under the powers vested to the Provincial Council by the 13th Amendment under the Constitution of the Democratic Socialist Republic of Sri Lanka.

The Statute empowers the Provincial Environmental Authority to manage the environmental quality of industrial sector discharges such as smoke, noise, wastewater, odour, etc. The Authority also has legal powers to manage and protect the natural environment of the province. It has exclusive powers to issue Environmental Protection Licenses (EPLs) Environmental Site Clearance Certificates (ESCCs), and to carry out Environmental Impact Assessments on prescribed projects within the jurisdiction of the NWP.

- (iii) **Other Relevant Environmental Laws** - Other laws and regulations to be followed during the proposed sub project interventions are presented in **Table 13**:

Table 13 : Applicable National Laws and Regulations Relevant to the Sub-Project Activities

	Legislation	Relevance and main content	Authorizing institution
1.	Fauna and Flora Protection Act (FFPO) No.2 of 1937 amended in 1993 and 2009	Act specifies that any development activity takes place within the one mile from the boundary of a National Reserve declared under the Ordinance require an EIA/IEE which provide for the protection and conservation of fauna and flora of Sri Lanka and their habitats; for the prevention of commercial and other misuse of such fauna and flora and their habitats for conservation of biodiversity of Sri Lanka; and to provide for matters connected there with.	Department of Wildlife Conservation
2.	Forest Ordinance No.10 of 1885, No.16 of 1907 and amendment in 2009	Forest Ordinance made provisions for the declaration of reserved forests, emphasizing on controlling the felling and transport of timber, and relating to forests and plant protection. The present Forest Ordinance is an ordinance to consolidate and amend the law relating to conservation, protection, and sustainable management of forest resources and have provisions for community involvement in forest management and benefit sharing through forest agreements.	Forest Department
3.	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	This regulate any discharge, deposit or waste emission into the environment and waste management related to the project activities and describe the license requirements. Environmental Protection License (EPL) from CEA, in particular prescribed activities in gazette No. 1533/16 of 2008 (i.e. Asphalt processing plant, concrete batching plants, treatment plants, sewerage networks, mechanized mining activities etc) is required during construction period and license need to be obtained to collect, transport, store, recover, recycle or dispose waste or establish any site or facility for the disposal of any waste during the construction and operation period.	CEA
4.	National Environmental (Protection and Quality) Regulation No.1 of 1990 published in Gazette Extraordinary No.595/16 of February, 1990	Provides standards for discharging effluents into inland surface water during proposed project activities.	CEA

	Legislation	Relevance and main content	Authorizing institution
5.	National Environmental (Ambient Air Quality) Regulations, 1994, published in Gazette Extraordinary, No. 850/4 of December, 1994 and amendment gazette No. 1562/22 of 2008	Provides standards for emissions to the air during proposed project activities.	CEA
6.	National Environmental (Noise Control) Regulations No.1 of 1996 and its amendments	Regulates maximum allowable noise levels for construction activities during proposed project activities	CEA
7.	National Environmental (Vehicle Horns) Regulations, No.1 of 2011	Regulate maximum allowable noise emanating from vehicular horns on a highway or road any motor vehicle use during project construction activities	CEA
8.	National Environmental (Municipal Solid Waste) Regulations, No.1 of 2009	Regulate dumping municipal solid waste along sides of any national highway or at any place other than places designated for such purpose by the relevant local authority during proposed project activities	CEA
9.	Felling of Trees Control Act No. 9 of 1951 as amended through Act No.30 of 1953	This Act sought to prohibit and control felling of specified trees (mainly intended to stop indiscriminate felling of specified trees) in the country.	Department of forest conservation
10.	Water Resources Board Act, No. 29 of 1964 and (Amendment) Act, No.42 of 1999	The act control, regulation and development (including conservation and utilization) of water resources; prevention of pollution of rivers, streams and other water resources; formulation of national policies relating to control and use of water resources.	Ministry of irrigation and water resources management
11.	Soil Conservation Act, No. 25 of 1951 and Amended No.24 of 1996	This Act to make provision for the enhancement and substance of productive capacity of the Soil; to restore degraded land for the prevention and mitigation of soil erosion; for the Conservation of soil resources and protection of land against damage by floods, salinity, alkalinity water logging. brought; and to provide for matters connected therewith or incidental thereto	Department of Agriculture
12.	Explosives Act No.36 of 1976	To provide control of explosions and regulations of matters connected with explosive activities related with the project.	Ministry Of Defense
13.	Municipal Councils Ordinance No.29 of 1947, the Urban Councils Ordinance No. 61 of 1939 and the Pradeshiya Sabha Act No. 15 of 1987 as amended in 2010	Regulates and control actions pertaining to socio-economic development such as roads, culverts, bridges, ferries, waterways and other means of local transport and related site clearance for constructing worker camps, site office etc. and methods taking place within the command area relevant to government laws and regulations	Ministry Of Local Government And Provincial Council
14.	Flood Protection Ordinance No.04 of 1924, No 22 of 1955	An ordinance for protection of areas subjected to damage from floods. This includes declaration of flood areas, preparation of schemes for flood protection and other rules and regulations regarding flood in the country	Irrigation Department
15.	Crown Land Ordinance Act No. 1947	An ordinance to make provision for the grant and disposition of crown lands in Sri Lanka ; for the management and control of such lands and the	Land Commissioners Department

	Legislation	Relevance and main content	Authorizing institution
		foreshore ; for the regulation of the use of the water of lakes and public streams ; and for other matters incidental to or connected with the matters related to proposed project	
16.	Agrarian Development Act No. 46 of 2000 (Section 32)	This act regulates using paddy land for a purpose other than agricultural cultivation without the written permission of the Commissioner General.	Agrarian Services Department
17.	Land Acquisition Act No. 09 in 1950 and amendment acts	An Act to make provision and sets out the procedures for acquiring land and for payment of compensation at market rates for acquired land. The Chapter 460 of the Act describes the land acquisition process related to the project activities	Ministry of Land and Land development
18.	Cemeteries and burial grounds ordinance No.9 of 1899 and amendments	The act regulate any disturbance, removal of burial, monuments and use of such areas for other developments and such activities related to the proposed project must be given proper concern	Local Government Authority
19.	Antiquities Ordinance No.9 of 1940 and amendments	The act regulate the subprojects located in close proximity to any archeological reserves	Department of Archaeology

7.2.3 ADB Policy on Environment (SPS, 2009 - Environment)

97. The Environmental safeguards policy principles of ADB are embodied in the SPS 2009. It aims to:

- (i) Help avoid adverse impacts on the environment and on affected people and communities.
- (ii) Minimize, mitigate and/or compensate for adverse project impacts if unavoidable.
- (iii) Help the EA to strengthen their safeguards systems.
- (iv) Develop the EAs capacity in managing the environmental and social risks.

98. The ADB Policy on Environmental Safeguards (SPS, 2009) is based on the following principles:

- (i) Use screening process for each proposed project to determine the appropriate extent and type of environmental assessment so that appropriate studies are undertaken commensurate with significance of potential impacts and risks.
- (ii) Conduct an Environmental Assessment (EA) for each proposed project to identify potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic (including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues), and physical cultural resources in the context of the Project's area of influence. Assess potential trans-boundary and global impacts, including climate change.
- (iii) Examine alternatives to the project's location, design, technology and components and their potential environmental and social impacts and document the rationale for selecting the alternative proposed. Also, consider the no project alternative.
- (iv) Avoid, and where avoidance is not possible, minimize, mitigate and/or offset adverse impacts and enhance positive impacts by means of environmental planning and management.
- (v) Prepare an Environmental Management Plan (EMP) that includes the proposed mitigation measures, environmental monitoring and reporting requirements, related institutional or organization arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicator. Key considerations for EMP preparation

- include mitigation of potential adverse impacts to the level of no significant harm to third parties, and the polluter pays principle.
- (vi) Carry out meaningful consultation with affected people and facilitate their informed participation. Ensure women's participation in consultation. Involve stakeholders, including affected people and concerned non-government organisations, early in the project preparation process and ensure that their views and concerns are made known to and understood by decision makers and considered. Continue consultations with stakeholders throughout project implementation as necessary to address issues related to environmental assessment.
 - (vii) Establish a grievance redress mechanism to receive and facilitate resolution of affected people's concerns and grievances regarding the project's environmental performance.
 - (viii) Disclose a draft Environmental Assessment (including EMP) in a timely manner, before project appraisal, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. Disclose the final environmental assessment, and its updates (if any) to affected people and stakeholders.
 - (ix) Implement the EMP and monitor its effectiveness. Document monitoring results, including the development and implementation of corrective actions, and disclose monitoring reports.
 - (x) Do not implement project activities in critical habitats, unless (i) there are no measurable adverse impacts on critical habitat that could impair its ability to function, (ii) there is no reduction in the population of any recognized endangered or critically endangered species, and (iii) any lesser impacts are mitigated.
 - (xi) If a project is located within a legally protected area, implement additional programs to promote and enhance the conservation aims of the protected area.
 - (xii) In areas of natural habitats, there must be no significant conversion or degradation, unless (i) (alternatives are not available, (ii) the overall benefits from the project substantially outweigh the environmental costs, and (iii) any conversions or degradation is appropriately mitigated.
 - (xiii) Use of precautionary approach to the use, development and management of renewable resources.
 - (xiv) Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and discharges, including direct and indirect greenhouse gasses emissions, waste generation and release of hazardous materials from their production, transportation, handling and storage.
 - (xv) Apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognised standards such as World Bank Group's Environmental Health and safety Guidelines, 2007.
 - (xvi) Avoid the use of hazardous materials subject to international bans or phase-outs. Purchase, use, and manage pesticides based on integrated pest management approaches and reduce reliance on synthetic chemical pesticides.
 - (xvii) Adopt cleaner production processes and good energy efficiency practices.
 - (xviii) Provide workers with safe and healthy working conditions and prevent accidents, injuries and diseases. Establish preventative and emergency preparedness and response measures to avoid, and where avoidance is not possible, to minimize, adverse impacts and risks to the health and safety of local communities.
 - (xix) Conserve physical cultural resources and avoid destroying or damaging them by using field-based surveys that employ qualified and experienced experts during environmental assessment. Provide for the use of "chance find" procedures that include a pre-approved

management and conservation approach for materials that may be discovered during project implementation.

7.2.4 Key Approvals Required to Conduct Road Project Activities

99. ADB safeguard policy statement (SPS, 2009) is clearly stated that access to legally protected parks and protected areas which shall cause potential environmental impacts need to be avoided, or at least minimized, mitigated if there is no any alternatives to be considered.

100. In circumstances where some project activities are located within a legally protected area, as specified in para. 30 (Appendix 1 of SPS, 2009), the borrower/client should meet the following requirements:

- (i) Act in a manner consistent with defined protected area management plans.
- (ii) Consult protected area sponsors and managers, local communities, and other key stakeholders on the proposed project.
- (iii) Implement additional programs, as appropriate, to promote and enhance the conservation aims of the protected area.

101. Since, this sub project access road component is partially covered under the Chapter 2 of EIA completed and approved for the entire NWPC project there is no further requirement of carrying out any detail Environmental Assessment. Whilst, the many of the identified roads are existing roads associated with the human settlements, which are to be improved with proper drainage and proper surfacing would be an environmentally positive impact.

102. Road number 2 (access road to Mahakirula dam) and 4 (access road to Mahakithula dam) would improve the access into the protected area (proposed Kahalla - Pallekele National park) managed by Wild Life conservation department, under the Jurisdiction of Fauna and Flora Protection Ordinance (FFPO) No.2 of 1937 amended in 1993 and 2009. Therefore, required concurrence need to be obtained from the Department of Wild life conservation, and strictly follow the conditions laid by the authority as per the FFPO.

103. Although the Environmental approval is already granted for the entire NWPC project by CEA, with the consent of the DWC subject to the submission of "Wildlife Management Plan" emphasizing human - elephant conflict" which is presently being carried out through the IUCN and scheduled to be completed in June 2017. As per the environmental approval, the approval by DWC or Forest Department (FD) is required prior to commencement of any construction activity within Protected areas managed by the DWC / FD. In addition, following table (**Table 14**) summarize the key approvals required to precede with the project activities per GoSL legislation.

Table 14 : Key approvals required to conduct project activities

Project stage	Approvals	Project related activity	Relevant agency
Pre-Construction Stage (Although clearances and approval should be obtained during preconstruction stage it is valid throughout the project cycle. However this should be renewed before expiry date)	Clearance for the land ownership	Implementation of the project	Local Government (respective Divisional Secretariat and Pradeshiya sabha), Department of Wild life conservation and Forest Conservation, any private land holders (if any)
	Industrial Mining License (IML)	Operation of quarries, borrow areas and other material extraction sites	Geological Survey and Mines Bureau
	Environmental Protection License (EPL)	Operation of material extraction site including operation of asphalt plants, treatment plants etc	CEA
	Local Government authority Trade license and machinery permits	Deciding waste disposal sites, material storage and sites for worker camps and other project stations	Respective Pradeshiya sabha
	Explosive Permits	Blasting activities	Ministry of Defence
	Approval for removal of trees	Road clearance for construction	Forest department, Wild Life department, CEA and local authorities
	Environmental Protection Licences	Licences for operating material extraction and processing facilities in the Province	North Western Province Provincial Environment Authority (PEA-NWP)
	Disturbance to Paddy Lands	Ground preparation for road trace and interchange locations	Commissioner of Agrarian Services
Construction stage	Consent from relevant government agencies	Construction of bridges, culverts and other drainage systems, land filling, dredging activities	Department of Irrigation, Wild Life Department, Department of Agrarian services, Local government authority, Land Reclamation and Development Cooperation

7.3 Resettlement and Land Acquisition Legislative Framework and Safe-guards Policies

104. This section presents the Land Acquisition and Resettlement Legislative Framework of Sri Lanka and ADBs Environmental aspects of the safeguards Policy Statement (SPS, 2009).

7.3.1 Resettlement and Land Acquisition Legislative Framework of Sri Lanka

105. Land acquisition, compensation, relocation and income and livelihood restoration for the MWSIP are 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 ADB's Safeguards Policy Statement 2009 SPS (2009).

106. The LAA provides detailed procedures for land acquisition, consultations, compensation calculations and other assistance packages for resettlement, when acquiring land for "public purposes". It guarantees that no person is deprived of lands except under provisions of the Act, providing compensations for acquisition and disturbances caused by the Project. The normal procedure for Land Acquisition through the LAA is by application to the Ministry of Land and Land Development (MLLD) and once acquired, land is vested in the Government Agency that made application.

107. The LAA is indifferent to the socioeconomic status of the land loser and any adverse livelihood and income compensation. The LAA bases valuation on market rate, while ADB prescribes replacement value.

108. The Government adopted the NIRP in 2001 to ensure that (i) PAPs are fairly and adequately compensated, relocated, and rehabilitated; (ii) delays in project implementation and cost overruns are reduced; and (iii) better community relations are restored among PAPs and lost communities.

109. The NIRP is based on LAA and its amendments, National Environmental Act of 1980 and amendments, and several other applicable laws such as the Urban Development Authority Act and Coastal Conservation Act, Regulations of the Acts and also legal opinions of courts on land acquisition, compensation, consultation and income restoration.

110. Some of the key principles relevant to this due diligence study include:

- (i) IR should be avoided as much as possible by reviewing alternatives to the Project as well as alternatives within the Project.
- (ii) Where IR is unavoidable, PAPs should be assisted to re-establish themselves and improve their quality of life.
- (iii) Gender and equality should be ensured and adhered to throughout.
- (iv) Compensation for loss of land, structures, other assets and income and livelihood losses should be based on full replacement cost and should be paid promptly. This should include transition costs.
- (v) Resettlement should be planned and implemented with full participation of the provincial and local authorities.
- (vi) Participatory measures should be designed and implemented to assist those economically and socially affected to be integrated into their host communities.
- (vii) Common property resources and community and public services should be provided to resettles.

- (viii) PAPs who do not have title deeds to land should receive fair and just treatment.
- (ix) Vulnerable groups should be identified and given appropriate assistance to improve their living standards.
- (x) Project executing agencies should bear the full cost of compensation and resettlement.

7.3.2 ADB Policy on Involuntary Resettlement Safeguards (SPS, 2009 – Involuntary Resettlement)

111. The ADB Policy on Involuntary Resettlement (SPS, 2009) is based on the following principles:

- (i) Screen the project early on to identify past, present and future involuntary resettlement impacts and risks. Determine the scope of resettlement planning through survey and/or census of affected persons, including gender analysis, specifically related to resettlement impacts and risks.
- (ii) Carry out meaningful consultations with Displaced Persons (DPs), host communities, and concerned non-government organizations. Inform all DPs of their entitlements and resettlement options. Inform all DPs of their entitlements and resettlement options. Ensure their participation in planning, implementation, and monitoring and evaluation of resettlement programs.
- (iii) Pay attention to the needs of vulnerable groups, especially those below the poverty line, the landless, the elderly, women and children, and indigenous peoples and those without legal title to land, and ensure their participation in consultations.
- (iv) Establish a grievance redress mechanism to receive and facilitate resolution of the affected persons' concerns.
- (v) Support the social and cultural institutions of DPs and their host population.
- (vi) Where involuntary resettlement impacts and risks are highly complex and sensitive, compensation and resettlement decisions should be preceded by a social preparation phase.
- (vii) Improve, or at least restore, the livelihoods of all DPs through (i) land-based resettlement strategies when affected livelihoods are land based where possible or cash compensation at replacement value for land when the loss of land does not undermine livelihoods; (ii) prompt replacement of assets with access to assets of equal or higher value; (iii) prompt compensation at full replacement cost for assets that cannot be restored; and (iv) additional revenues and services through benefit sharing schemes where possible.
- (viii) Provide physically and economically displaced persons with needed assistance, including the following: (i) if there is relocation, secured tenure to relocation land, better housing at resettlement sites with comparable access to employment and production opportunities, integration of resettled persons economically and socially into their host communities, and extension of project benefits to host communities; (ii) transitional support assistance, such as land development, credit facilities, training, or employment opportunities; and (iii) civic infrastructure and community services, as required.
- (ix) Improve the standards of living of the affected poor and other vulnerable groups, including women, to at least national minimum standards. In rural areas, provide them with legal and affordable access to land and resources, and in urban areas provide them with appropriate income sources and legal and affordable access to adequate housing.
- (x) Develop procedures in a transparent, consistent, and equitable manner if land acquisition is through negotiated settlement to ensure that those people who enter into negotiated settlements will maintain the same or better income and livelihood status. This includes cases of voluntary donation.

- (xi) Ensure that DPs without titles to land or any recognizable rights to land are eligible for resettlement assistance and compensation for loss of non-land assets.
- (xii) Prepare a resettlement plan elaborating on affected persons' entitlements, the income and livelihood restoration strategy, institutional arrangements, monitoring and reporting framework, budget, and time-bound implementation schedule.
- (xiii) Disclose a draft resettlement plan, including documentation of consultation process in a timely manner, before appraisal, in an accessible place and in a form and language in which the affected persons and other stakeholders will all understand. Disclose the Final resettlement plan and its updates to DPs and other stakeholders.
- (xiv) Conceive and execute involuntary resettlement as part of a development project or program. Include the full costs of resettlement in the presentation of project 's costs and benefits. For a project with significant involuntary resettlement impacts, consider implementing the involuntary resettlement component as a stand-alone operation.
- (xv) Pay compensation and provide other resettlement entitlements before physical or economic displacement. Implement the resettlement plan under close supervision throughout project implementation.
- (xvi) Monitor and assess resettlement outcomes, their impacts on the standards of living of affected persons, and whether the objectives of the resettlement plan have been achieved by taking into account the baseline conditions and the results of resettlement monitoring.
- (xvii) Disclose monitoring reports.

7.3.3 Differences between Sri Lanka Legislation and ADB SPS 2009

112. The key gaps between the LAA and IR policy principles of SPS are (i) the entitlements of non-titled PAPs; (ii) compensation at replacement cost; (iii) income restoration and improvement; (iv) consulting PAPs and their host communities on relocation options; (v) special assistance to vulnerable PAPs; (vi) monitoring and assessment of resettlement outcome and impacts; and (vii) the formulation of RIP to address these issues.

113. The issue of non-titled PAPs entitlements is addressed in LAA and elaborated in NIRP and LA regulations 2009. Under the LAA any person having a right title or interested in or over the Land which is to be acquired or over which a servitude is to be acquired (section 10(1)) is entitled to compensation. A person who has interest in land apart from the owner and co-owner's area mortgage, a lessee, or occupier absolutely for himself or in trust for another person or for any charitable, religious or other purpose or a person having servitude over the land (section 65 as amended in 1964). The Court of Appeal in 2001 added tenants to the list. The court also held that the occupier could not in any event be evicted without being compensated in respect for his improvement (if in fact he is the owner of the improvements and owner of the property). This matches ADB's involuntary resettlement safeguards principle that those who do not hold title to land are eligible to resettlement assistances and compensation for loss of non-land assets.

7.3.4 Principles - Resettlement and Land Acquisition

114. The ADB can only finance projects that comply with its Safeguards Policy Statement (2009). If gaps exist between ADBs safeguards requirements and countries laws, specific gap-filling measures need to be made to ensure policy and safeguards requirements are achieved. On the basis of differences between the legal framework of Sri Lanka and ADB SPS 2009, the following principles relevant to the Due Diligence Study are as follows:

- (i) Screen each project of the investment program to determine whether it triggers the Involuntary resettlement principles (below) and determine the scope of resettlement planning required.
- (ii) Take every effort to avoid physical displacement and/or any other adverse impacts on livelihood and income sources and community resources and infrastructure. If physical displacement and economic displacement are unavoidable, the actions (below) will be taken to ensure that they improve or at least restore their income and livelihoods and rebuild their socio-cultural systems.
- (iii) Consult and inform all PAPs on land acquisition, compensation, and rehabilitation, and their entitlement and grievance redress mechanism.
- (iv) Provide well-planned and budgeted income restoration and improvement programs for the benefits of PAPs, especially for the poor and vulnerable groups.
- (v) All common property resources lost due to the project will be replaced or compensated by the project.
- (vi) If land acquisition is through negotiated acquisition, the project will ensure that PAPs who enter into negotiated acquisition will maintain the same or better income and livelihood status.
- (vii) PAPs without title to land are eligible for resettlement assistance.
- (viii) Disclose resettlement information and RIPs including consultation documentation to PAPs in a language accessible to the PAPs and other stakeholders.
- (ix) The full cost of resettlement will be included in Project costs.

- (x) Pay compensation and provide other entitlement to each eligible displaced person before displacement and construction commences.
- (xi) Monitor and assess the progress of RIP implementation and prepare monitoring reports to share with ADB, PAPs and other stakeholders.

115. It should be noted that there are no affected persons in the area of the sub-project activity in that would trigger the SPS 2009 Policy on Indigenous Persons.

8. GRIEVANCE REDRESS MECHANISM

116. In order to receive and facilitate the resolution of possibly affected peoples' concerns, complaints, and grievances concerning the project's performance, a Grievance Redress Mechanism (GRM) has already been established for the project, and is being enhanced at local and PIUs level, at the Project sites. The GRM addresses potentially affected people's concerns and complaints proactively and promptly, using an understandable, communicated and transparent process that is gender responsive, culturally appropriate and readily accessible to all community members at no costs and without retribution. The mechanism will not impede access to the Country's judicial or administrative remedies.

8.1 Types of Grievance

117. Legal issues:

- (i) Application of LAA and its limitations to arrive at replacement cost of acquired property.
- (ii) Difficulties in obtaining abstracts of deeds from Land Registry.
- (iii) Rules and regulations determining the ownership of land and amount of compensation.

118. Practical Issues.

- (i) Lack of knowledge on the acquisition process and how to present claims.
- (ii) Delays in payment of compensation.
- (iii) Delays in payments of resettlement assistance and provision of benefits.
- (iv) Most contracts on leased land are verbal. Difficulty in transforming into written contracts.
- (v) Inability to find new land for building new houses.
- (vi) Inability to construct new houses in a short period of time.
- (vii) During the construction period: temporary disruptions.
- (viii) Cracks in structures.
- (ix) Noise pollution.
- (x) Environmental Pollution.
- (xi) Dust problems.
- (xii) Other environmental issues.

8.2 Levels of Grievance Redress in the Program

119. This section outlines the 4 levels of grievance redress on the Project plus the additional systems through the Land Acquisition Act and the courts. Many grievances arise because of inadequate understanding of Project policies and procedures, but can be promptly resolved by proper explanation of the situation to the complainant. The four levels of the Project Grievance Redress Mechanism are as follows:

- (i) **Grievance Redress Committee – Grama Niladari Level** - The complainant may submit a Grievance⁶ either in writing or orally to the PIUs Project Resettlement Officer or the PIUs Project Environmental officer or to the Grama Niladari (GN). The Grama Niladari is the closest

⁶ A Grievance or complaint may be Project related, environmental or Social

- community administrative representative to the affected household, and is under the Divisional administration. It is expected that most complaints will be resolved at this level. A resolution will be determined within 1-week. However, if the complaint cannot be resolved through the Grama Niladari GRC, then the grievance is passed to the GRC – PIU level.
- (ii) **Grievance Redress Committee – Divisional / Project Implementation Unit (PIU) Level** – A resolution will be determined within one week. If a resolution cannot be determined, then the complaint will be passed to the GRC - Divisional Secretary level by the Project Director.
 - (iii) **Grievance Redress Committee – Project Level** – At this level the grievance is considered by representatives of Project related Government agencies such as Land Registration office, Inland Revenue office, Forest Department, Wildlife Department, Samurdhi Officer, surveyor and PIU staff. A resolution is expected to be determined within one week. In case the Project Director cannot resolve the complaint, the Project Director will then bring the complaint to the Executive Agency GRC.
 - (iv) **Grievance Redress Committee – Executive Agency (PMU) at Ministry Level** - In case the complaint cannot be resolved, a resolution could take up to four weeks (inclusive of GRC levels 1-iv). This is the final level of the GRM system. However, there are still the law courts, although this is time consuming, costly and often not used.

120. ADB's SPS 2009 requires that the Project level system should not impede access to the country's judicial or administrative systems and thus the complainant has the right to access the legal court system at any time of the resolution process. Therefore, the four levels mentioned above are authorized under the Project to consider grievances in relation to land acquisition cases, compensation payments, resettlement issues, ownership disputes, delays of payment of compensation, rehabilitation assistance programs and environmental concerns related to the Project.

121. The GRM does not cover matters pending in the courts or any disputes concerning compensation rates. However, compensation rate disputes do fall under the LAA. Under the LAA, an Appeal must be constituted to deal with appeals against compensation offers. This process will minimize the grievances. However, a person who does not agree with the decision of the Board of Appeal may still take the case before the Supreme Court claiming a higher amount of compensation. This option is costly and time consuming and is rarely used.

8.3 Grievances Submitted to Date in the NWPCP-ICB-1 and Associated Access Roads Sub-Project(s)

122. To date, there have been no grievances submitted in relation to NWPC-ICB-1 sub-project, inclusive of the road rehabilitation and widening activity. This is inclusive of complaints through Sri Lanka's formal, legislated complaints procedure. However, the Grievance Redress Mechanism has been established in NWPCP and first Grievance Redress Committee Meetings have been held (Annex K).

123. Furthermore, during the conduction of consultations and surveys the potentially affected persons are made aware of the GRM, particularly of how and where to submit a Grievance at the GND level. All GRM levels shall be set up and GRCs operating at each level, as well as awareness campaigns conducted prior to the civil works contract award (brochure presented in **Annex G**).

9. FINDINGS AND RECOMMENDATIONS

124. The activities of detailed design, road construction and operations shall be conducted in accordance with the requirements set forth in this Due Diligence Study and Report and in addition, the EIA, NWPC-ICB-1 specific EMP and other subsequent documented requirements.

125. This Due Diligence Study, covering the Roads Rehabilitation and Widening requirements for moving large-scale heavy construction machinery to the North-West Province Canal project NWPC-ICB-1 “Mahakithula Inlet Tunnel, Mahakithula and Mahakirula Reservoirs and Feeder Canal 3.66 kilometres” sub-project has established the following Environmental findings:

- (i) The ecological impact significance would be high to moderate in the road traces aligned towards the Kahalla - Pallekele wild life areas, where there are no existing road alignments, other than tracks, footpaths and elephant migratory paths. Road number 2 and 4 end within the wild life area and shall need to be designed in an ecologically friendly manner, in close consultation with Wildlife Department authorities.
- (ii) Apart from (i) above, there are no other significant impacts anticipated, in terms of construction activities on the proposed road improvement sub-project activities, as most of the road alignments are existing road sections. However, the possible common environmental impacts such as dust, noise, vibration, nuisance to public can be expected in the inhabitant and agriculture areas.
- (iii) An Environment and Social Impact Assessment (ESIA) has been prepared for the Project and conditional approvals given by the Central Environmental Authority and ADB. A CEA conditional requirement is that after detailed designs, individual environmental management plans be prepared to cover each construction contract, in accordance with the ESIA⁷.
- (iv) Some of the identified borrow pit areas and gravel areas that have been identified are located within the protected area. These cannot be recommended as this can create life threatening impacts to the existing wild life movements due to falling in the pits, trenches etc. Also, operating gravel and disposal sites within the protected areas is violating ADB Safeguard policies and National Environmental regulations, unless it is unavoidable or subjected to the approval by carrying out an Environmental Assessment.
- (v) Identified borrow areas and disposal areas required to be out of the ecological sensitive areas and proper restorations plans requires to be prepared and approved prior to award the construction contract.
- (vi) It is recommended that in “operations” phase of the roads, after the full completion of NWPC-ICB-1 contract, and to assist district authorities with maintenance costs for the road, consideration be given by the PMU and GoSL to stockpile some of the materials from the MWSIP tunnelling constructions in NWPC and UEC areas, which may be recycled and used as road construction maintenance material from 2020 (post project) and beyond.
- (vii) Removal of elephant fence during the construction stage of the road traces located inside the wild life areas, would aggravate the human-elephant conflicts in the area, as this area is rich with elephant movements. In order to duly contain such adverse impacts, the removal of the existing elephant fence will be undertaken as per the recommendations in the WMP / interim written advice from the same experts as well as prior approval and guidance of the DWC.
- (viii) The project area of NWPC-ICB-1, including a significant length of the access roads, are entirely falling within the authority of Wild Life Conservation Department, Sri Lanka. Environmental approval was granted by the CEA with consent of the DWC subject to the preparation of the

⁷ Central Environmental Authority (CEA) (REF. 08/EIA/WATER/07/2012 DATED AS 23 February 2016)

“Wild Life Management Plan” emphasizing Human Wild Life conflict”, being conducted by the IUCN and scheduled for completion in June 2017. Any recommendations from this IUCN study shall be strictly adhered to by the contractor and monitored by the PIU, with support of Wildlife Department authorities and PMDSC Specialists.

- (ix) As per the environmental approvals, the approval of DWC or Forest Department is required prior to commencement of any construction activity within the boundaries with the Protected Areas managed by DWC / FD.
- (x) Improving access towards the protected wild life areas and specially the areas of Mahakirula and Mahakithula tank areas would create significant impacts during the operation stage as it would encourage people to encroach the areas for cultivations and other purposes. Hence, it is high priority to block all the additional access to the area soon after completing the construction work, by reinstating the elephant fence with gates, for Wildlife department maintenance access purposes.
- (xi) The identified 4 roads are existing roads which are used by the community in the bordering villages of the Kahalla - Palkelele Wild life and Forest protected area, the sections are rural roads with no proper drainage facilities and poor surfacing.
- (xii) Road number 2 and 4 is proposed to be improved and extended into the proposed National Park area, beyond the existing elephant fence, which will create a significant impact on the wild life movements and habitat fragmentation.
- (xiii) Hence, precautions must be taken to construct those road sections that are located within the park area following necessary guidelines to get the minimum required width to reduce the disturbance. Also, it is suggested to design the sections in an ecologically friendly manner providing suitable animal crossing areas.
- (xiv) Once the construction is completed within the sanctuary area, it is recommended to close those road accesses within the wild life areas, as requested by the Wildlife Department, and hand over the lands to the Wildlife Department for their continued management.
- (xv) There are number of stream crossing points and seasonal water bodies exists within project impact area, which require construction of several cross-drainage structures, across streams/rivers flowing across the road, referring to hydrological studies to ensure that construction of drainage structures is not likely to alter drainage pattern, and discharge capacities of drainage structures are designed to facilitate smooth passage of water and heading up or flooding is avoided even in flood season.
- (xvi) The required approval need to be processed on following aspects prior to commence the construction work;
- (xvii) Approval from Local Government authorities and relevant other stakeholder agencies on the final road alignment and design details
 - a) Land clearances
 - b) Felling of Trees
 - c) Operating borrow areas and quarry sites
 - d) Operating disposal sites, camping sites
 - e) Use of any explosives/ blasting activities
 - f) Waste management arrangements and required approval

126. The findings have found some potential environmental impacts due to the road rehabilitation and widening activities. However, **Table 15** below presents an Environmental Management Plan, which gives an overview of the possible impacts and recommends some proposed mitigation measures related to the access road improvement sub project indicate impacts and recommended mitigation measures.

127. The EMP shall be updated at the time when Bidding documents are prepared for NWPC-ICB-1, followed by more detailed Contractor EMP, to be prepared by contractor after contract award.

128. The standard environmental management plan in **Table 15**, which includes information about the environmental impacts and proposed mitigation measures, shall be updated for each individual access road, at the bidding stage, and by the contractor after finalizing the alignment and designs.

129. The Due Diligence study also established the following land acquisition and resettlement findings, covering the Roads rehabilitation requirements for moving large-scale heavy construction machinery to the North West Province Canal project NWPC-ICB-1 “Mahakithula Inlet Tunnel, Mahakithula and Mahakirula Reservoirs and Feeder Canal 3.66 kilometres” - sub-project:

- (i) Inspections, consultations and an inventory has been conducted, covering each potentially affected strip plot of land along the four roads to be rehabilitated and widened. There are 46 affected plots, in which less than 10% of land area may be potentially affected by road widening. Of the potential impact, 0.069Ha categorised paddy land and 1.134 Ha is highland. Apart from rice, onions, beetroot and chilly is grown and 5 trees (teak and neam trees) are potentially affected (Annex M).
- (ii) There are 47 affected persons, including households, encroachers and the Wildlife Department which owns some of the occupied agricultural lands impacted by the road rehabilitation, as well as within the Sanctuary area.
- (iii) Twenty-six of the potentially affected farmers are currently encroaching in Wildlife Department Land. However, they have been allowed to remain, conducting their agriculture and livelihood practices as the Wildlife Sanctuary was declared over 40 years ago. Being outside of the elephant fencing, it is not expected that the encroached area be subsequently affected by the re-categorization of the Wildlife area to a National park (within the elephant fence boundary).
- (iv) All 46 potentially affected households have signed agreements to volunteer land and assets areas for the road rehabilitation (Annex I, M and N). In accordance with the requirements for volunteering assets set out in the ADBs “Involuntary resettlement Sourcebook”, the volunteering of assets were fully disclosed on the agreements signed by the AP, the District authority and a CBO acting as a third party observer to ensure agreements were fully voluntary.
- (v) The Wildlife Department, as the 47th affected Person/entity, has agreed to change in land use (ie. Road rehabilitation and widening, as per the Project), but has not agreed to “acquisition” of land, meaning the roads within the Sanctuary will remain property of the Wildlife Department (as current land owners). Apart from some records of meetings, this Due Diligence Study has not been able to obtain any letters or other written documentation stating the above agreement. Therefore, prior to contract award, the PMU and PIU shall obtain a letter from the Wildlife department, which as a minimum agrees to the road construction works, although not necessarily to “land acquisition” as stated in meeting with PMDSC consultants.
- (vi) The PIU, with the PMDSC support, and the contractor shall Consult again with those land users, whose lands are potentially affected. Verification of land and assets recorded to be volunteered by each affected person and per the actual road design shall be conducted and the actual volunteer acquisition will be recorded at the time of setting out the corridor by the contractor surveyors, at the time of detailed design (refer to Annex M and N).

Table 15 : Generic Environmental Management Plan related to the project activities

Project Activity	Anticipated Impact	Mitigation Measures
A. Preconstruction Stage		
Finalization of alignment	<p>i. Requirement of new alignment to;</p> <ul style="list-style-type: none"> connect existing tracks or roads to improve access avoid inhabited areas, and protected areas, or to avoid high construction costs due to landslide, large river crossings or other difficult terrain <p>ii. Requirement of bypass roads to avoid traffic/ disturbance to the existing road users</p>	<ul style="list-style-type: none"> Consult with local people to finalize the alignment especially to decide location for culverts and other drainage structures Avoid excessive cut and fill and road should be aligned to follow natural topography In case of hilly/mountainous area, alignment selection should refer to geological survey data to identify landslide prone area, and settlement/loose rock areas. In flood prone region/areas, refer to hydrological data to finalize provision for culvert drainage structures especially for alignment that intersects/crosses ground and surface water flow Avoid the requirement of forestland for road construction. In case unavoidable, minimise it to extent possible by exploring alternative options In case the alignment has trees, which are known to be nesting/breeding places for migratory birds, contact the wildlife Department / Forest for seeking permits and details about non-breeding seasons. In any case, no tree shall be cut in such stretches and construction works are to be strictly scheduled for non-breeding/nesting season and all permit conditions are to be complied Avoid or minimize tree felling, acquisition of agricultural land, shifting of shrines/temples, disturbance to community ponds, community resources, burial grounds, etc. to the extent possible through evolving alternate alignment options
Land acquisition and resettlement	<ul style="list-style-type: none"> Disturbances to the agriculture activities and livelihood of the land owners Acquisition of classified forest lands and wild life areas shall not be possible, and clearance for widening would create habitat loss and habitat deterioration Social unrest and other socioeconomic impacts related to land acquisition 	<ul style="list-style-type: none"> Land acquisition, compensation packages, resettlement and rehabilitation, poverty alleviation programs for affected people and all other related issues are addressed in Social Impacts and Resettlement & Rehabilitation section It can be encourage the people to donate lands when the village roads are expanded and improved, which will be benefitted to the community in the area during the project operation period

Project Activity	Anticipated Impact	Mitigation Measures
B. Construction Stage		
Common environmental impacts during construction	<ul style="list-style-type: none"> • Dust generation • Noise and vibration • Air Quality • Use of Fuels, Oils and hazardous materials • Public Safety 	<ul style="list-style-type: none"> • Using water or other dust suppression mechanisms • Consultation with communities about methods to reduce dust in their homes • Contractor shall use plant in compliance with Sri Lankan environmental laws and shall use machines which are well maintained and not use old machines • Reducing noise through limited work hours • Public consultation and awareness advising communities on noise and noise reduction actions in the home • Limitation of works during nesting seasons • Noise suppression devices on construction equipment • Use of oscillating rollers may reduce significant vibration impacts • Contractors shall also need 3rd party insurance for such damages • Cut-off ditches and impermeable surfaces (or at least areas with surfaces that may be cleaned of all hazardous materials post-project) shall be specified for areas where refueling occurs (outside of the Wildlife Park) • emergency measures will be required to reduce hazardous materials, including fuels and oils from being released within the Wildlife Park areas. • Contractor must have empty containers available near working machines in the park, in case of emergency, for heavy oil and fuel leaks • A program of public awareness, traffic management plans, signage and fencing as well as consideration for 24-hr security shall be implemented on all road construction sites, particularly adjacent to communities
Land clearing operations and site preparation	<ul style="list-style-type: none"> • Disturbances to the nesting and breeding grounds during vegetation clearance • Impact on existing utility 	<ul style="list-style-type: none"> • The road land width requiring clearing shall be clearly demarcated on ground and making required ROW available on a timely basis • compensation for forest land and felling trees based on the forest clearance and compensation for utilities such as power distribution lines, pipe water supply, irrigation land, etc. based on agreements with other relevant parties or government agencies.

Project Activity	Anticipated Impact	Mitigation Measures
	<ul style="list-style-type: none"> • Blockage of existing migratory paths and storm water drainages • Disturbances to the community and disturbances to their access • Erosion, siltation 	<ul style="list-style-type: none"> • The contractor should submit within the time specified in the contract document a program showing the general methods, arrangements, order, and timing for all the activities under the civil works contract. • During land clearing operations, topsoil shall be collected, preserved, and reused as a base for turbing of embankment slopes or development of barren areas along roadside. • Where the road passes through forest areas, efforts have to be made to minimize encroachment into forest areas and cutting trees by limiting widening only on one roadside, and consult with local forest officers prior to removing any ground cover including trees. • Limit removal of ground cover, trees, or shrubs only to the area needed for permanent works. • For locations with soil erosion problems, limit the exposed surface area in terms of coverage area as well as duration by scheduling the construction work immediately after completing land clearing, if not covered with soil, with mulch. • Allow no chemical substances (e.g. herbicide) to be used for land clearing. • Prepare a plan to handle waste from land clearing adhering to the following principles: (a) wastes should not be disposed in nearby water bodies, (b) wastes should not be disposed in the down slope of the roadsides, (c) wastes should not be disposed in the forest areas, and (d) wastes should not be left unmanaged on the road sides. • Small temples, shrines, other culturally important areas if any is within the road land width, the same may be shifted to adjacent areas in consultation with local community leaders. • During clearing operations, any treasure trove, slabs with epigraphical evidence or edicts, sculptural or any material found and appear to have historical importance, it should be brought to the notice of Department of Archaeology, and instructions of this Department, if any, must be followed. • All public utilities like power transmission cables, telephone cables, water/sewerage lines, drains, tube wells etc. falling within road land width shall be inventoried, and arrange for relocation /shifting to adjacent areas in consultation with the respective agencies/authorities. • Establish and maintain interaction with local community to ensure that no social unrests due to operations.

Project Activity	Anticipated Impact	Mitigation Measures
Establishment of temporary office and storage area	<ul style="list-style-type: none"> • Vegetation clearance and disturbance to existing ecological habitats, wild life migratory path • Environmental pollution due to waste disposal, water, noise and air pollution due to vehicle, transportation of material, any spillage etc. • Hindrance to surface run off • Erosion and sedimentation in associated water ways 	<ul style="list-style-type: none"> • The temporary office and storage area for construction works shall be located away from human settlement areas (minimum 500 m) and forest / wild life areas (minimum 1 km). • The office and storage areas shall preferably be located on barren/waste lands and conversion of agricultural/cultivable lands for office and storage areas shall not be allowed under any circumstances. • All fuel oil/lubricants loading, unloading and storage areas shall be paved (impermeable), and have separate storm water collection system with facility for separation of oil/lubricants prior to discharge. • The temporary office and storage area shall be provided with adequate water supply, sanitation, septic tank/soak pit of adequate capacity so that it functions properly for the entire duration of its use. • After completion of construction works, the site shall be restored to its previous state by undertaking clean up operations.
Construction Camp Sites	<ul style="list-style-type: none"> • Contamination of receptors (water, land, air) • Environmental & Social damages • Social unrest 	<ul style="list-style-type: none"> • The construction campsites shall be located away from any local human settlement areas and preferably located on lands, which are barren/waste lands. • The camps shall be located, at a minimum, 5 km from forest areas to deter trespassing of construction labour. • The campsites shall be provided with adequate water supply, sanitation and all requisite infrastructure facilities. This would minimize dependence on outside resources, presently being used by local populace and minimize undesirable social friction thereof. • The camps shall have septic tank/soak pit of adequate capacity so that it can function properly for the entire duration of its use. • Construction camps shall be provided with kerosene/LPG to avoid dependence on firewood for cooking to the extent possible. • After completion of construction works, location of campsites shall be restored to its previous state by undertaking clean up operations.
Mobilization of construction materials - Stone aggregates, earth and construction water	<ul style="list-style-type: none"> • Resource depletion • Damage to wildlife, forest resources 	<ul style="list-style-type: none"> • Stone aggregates shall be sourced only from licensed existing quarries.

Project Activity	Anticipated Impact	Mitigation Measures
	<ul style="list-style-type: none"> • Environment Pollution • Health & safety 	<ul style="list-style-type: none"> • A list of such existing quarries is available with the PMDSC and given in the EIA. In case new quarries are to be opened, quarry license/permits are to be obtained from this department/authority. • In case, only stone crushing plants are to be installed near work sites, required permits are to be obtained and all conditions of permits are to be complied. • Ensure stone quarries and crushing units have pollution control system; occupational safety procedures/practices in place and regular inspection shall be carried to ensure compliance. This shall be a pre-condition for sourcing of materials from quarries/crushing plants. • Earth borrow areas identified during DDR stage shall be revisited to assess its environmental sensitivity and ensure it is not an ecologically sensitive areas. Permits are to be obtained from authorities and all permit conditions are complied. • The borrow areas are to be demarcated with signboards and operational areas are to be access controlled. • Topsoil from borrow areas (first 30cm) are to be preserved and used for redevelopment of borrow areas as a base for turfing along embankment slopes. • The borrow areas as an option may be used as disposal areas of the construction waste produced during the construction work and reinstate as appropriate by planting native forest trees • Conversion of agricultural lands for borrowing earth is to be discouraged to the use possible unless warranted by local conditions. In such cases, written consent shall be obtained from the landowners • Water for construction works shall NOT be drawn from sources, which serve routine needs of local people. • In case water is sourced from existing private tube wells, well owner shall be informed about the quantity and duration for which water drawls will be carried out and possible implications. Written consent for use of groundwater shall be obtained.

Project Activity	Anticipated Impact	Mitigation Measures
		<ul style="list-style-type: none"> In case new tube wells are to be constructed, required permits are to be obtained from the Ground Water Department and permit conditions, if any are to be complied. In any case, care shall be taken not to source all requirements from one single source and no two sources (in case of tube wells) shall be less than 500 m from each other.
Transportation of construction materials	<ul style="list-style-type: none"> Spreading dust and impact due to hazardous material Pollution of Soil and Water via Fuel and Lubricants Nuisance to the public Noise from vehicles 	<ul style="list-style-type: none"> Existing tracks/roads are to be used for hauling of materials to extent possible. The alignment of haul roads (in case of new ones) shall be finalized to avoid agricultural lands to the extent possible. In unavoidable circumstances, suitable compensation shall be paid to people, whose land will be temporarily acquired for the duration of operations. The compensation shall cover for loss of income for the duration of acquisition and land restoration. Prior to alignment of new haul roads, topsoil shall be preserved or at least shall be used for any other useful purposes like using in turfing of embankment rather than allowing its loss by construction activities. Dust suppression along transportation links is to be ensured by deploying water tankers with sprinkling system are to be deployed along haul roads. The vehicles deployed for material transportation shall be spillage proof to avoid or minimize the spillage of the material during transportation. Transportation links are to be inspected daily to clear accidental spillage, if any. Precaution shall be taken to avoid inconvenience to the local community due to movement of materials.
Cut and fill	<ul style="list-style-type: none"> Impact of hindrance to surface runoff, soil erosion and sedimentation Impact on wild life movements Dispersion of excavated material in nearby wetlands and adjoining wild life /forest areas Temporary flooding 	<ul style="list-style-type: none"> Finalisation of alignment plan and profile shall consider options to minimise excessive cuts or fills. The design shall as per the relevant Rural Road construction design The cut and fill quantities required for profile correction shall be balanced to the extent possible, to avoid dependence on earth from borrow areas. In both cases of cut and fill, top soil shall be preserved and reused for turfing of embankment slopes or redevelopment of borrow areas or any other areas in the vicinity of roads. Under no circumstances, topsoil shall be allowed to be used as a fill material in road construction activities

Project Activity	Anticipated Impact	Mitigation Measures
Preparation of embankment and road base	<ul style="list-style-type: none"> Spreading dust 	<ul style="list-style-type: none"> The road construction works will raise, extend and enlarge existing roadway/tracks all along the alignment. Therefore, mitigation measures to contain erosion and drainage problems are essential. The engineering measures for countering soil erosion, slope protection, drainage wherever required shall be considered and implemented as per relevant design guidelines Measures like selection of less erodible material for embankment construction, compaction, adequate embankment slopes and turfing shall be considered as per the relevant Technical Specifications for construction of Rural Roads
Cross Drainage Structures		<ul style="list-style-type: none"> The road construction will also require construction of several cross drainage structures, across streams/rivers flowing across the road. Refer to hydrological studies to ensure that construction of drainage structures is not likely to alter drainage pattern, and discharge capacities of drainage structures are designed to facilitate smooth passage of water and heading up or flooding is avoided even in flood season. Schedule the construction works to dry season so that impacts on water quality of stream/river is minimise or avoided. Precaution shall be exercised to prevent oil/lubricant/ hydrocarbon contamination of channel bed during construction works. Spillage, if any, shall be immediately cleared with utmost caution to leave no traces. Ensure all construction wastes are removed from work site and stream /river beds are to be cleaned up (at least 50 m on both upstream and downstream sides of water courses) after completion of construction but prior to onset of monsoon.
Tree Planting		<ul style="list-style-type: none"> Tree planting operations shall be commenced immediately after completion of embankment compaction. Tree plantation along the road shall be undertaken as per permit conditions issued by the Local Gov. authorities/Department of Forests/ wild life, prior to tree felling. The species shall be suitable for local climate and available. The concerned District Forest Officer can be consulted for selection of species and technical guidance, if required.

Project Activity	Anticipated Impact	Mitigation Measures
		<ul style="list-style-type: none"> Proper care shall be taken to increase survival rate of saplings like regular watering, pruning, provision of tree guards, manure for better nourishment, etc. including timely replacement of perished saplings.
Equipment/ vehicles deployed for Construction works	<ul style="list-style-type: none"> Spreading dust / smoke and impact due to hazardous emissions Pollution of Soil and Water via Fuel and Lubricants Nuisance to the public Traffic congestion Noise from vehicles 	<ul style="list-style-type: none"> All Diesel run equipment/vehicles/ deployed for construction activities shall be regularly maintained for smooth operation, a measure contributing to air quality and noise. Vehicles/equipment shall be periodically subjected for emission tests and shall have valid POLLUTION UNDER CONTROL certificates. Revalidation of certificates shall be done once a year. All vehicles deployed for material movement shall be spill proof to the extent possible. In any case, all material movement routes shall be inspected daily twice to clear off any accidental spills.
Clean up of construction work Sites and Disposal of waste		<ul style="list-style-type: none"> All operational areas under road construction works like work sites, office/storage area, work force camps, and borrow areas, shall be cleaned up and restored to its previous state soon after operations are complete. All construction waste shall be disposed in approved areas. Local district authorities shall be consulted to determine disposal site and implement any conditions imposed while issuing permits.
Social	<ul style="list-style-type: none"> Access for Local Communities Labour HIV/AIDS and Human Trafficking Health and safety 	<ul style="list-style-type: none"> Temporary access for local communities shall be maintained at all times during the contract. A Traffic Management Plan shall be prepared and updated both for road construction and during the remaining NWPC-ICB-1 Construction activities to ensure safe access is maintained at all times, or alternative detours are provided. Communities and public notices shall be prepared to inform road users of the changed conditions. Local labour be employed on the Project to the maximum extent possible. In accordance with Labour laws of GoSL the minimum working age for project labourers shall be 18 years old or older. Labour shall not be discriminated by basis of gender. Based on GoSL laws, employment and wage shall be in accordance with Sri Lanka' legal minimum wage laws, which were updated from 1 January 2016 (certified on 23 March 2016).

Project Activity	Anticipated Impact	Mitigation Measures
		<ul style="list-style-type: none">• As a part of both the Health and safety requirements and under the standard International contract conditions of the MWSIP, it is required that HIV/AIDS and Human Trafficking Awareness be implemented by construction contractors.• The Contractor shall prepare and enforce during construction, a detailed Health and Safety Plan, in accordance with the Health and Safety Manual, prepared by the PMDSC for the MWSIP. The Plan shall consider risks and mitigations posed regarding the actual planned and implemented construction activities as well as general H&S requirements.• Recommended public measures may include barricades and traffic management, to prevent public accessing construction sites; awareness to communities, especially children to keep away from the construction areas; providing well-signed public access around construction sites, temporary bus-stops (where required) and temporary community accessibility to ensure the public do not use construction sites.

- (vii) With the signing of the agreements by Aps and meetings with the Wildlife Department to confirm roads, a maximum right of way alignment (corridor) for the road has been set. The contractor will have this maximum alignment only, in which to prepare road detailed designs. At no time, shall the land/assets required, be higher or different than that recorded in the signed letter attached to this report and per agreement with Wildlife Department.
 - (viii) In the case that additional land and/or assets acquisition is required, a Resettlement Implementation Plan (RIP) shall be triggered.
 - (ix) The contractor shall allow the farmers time to harvest (where required), prior to using for construction purposes.
 - (x) In the event of any grievances to land/asset acquisition or to contractor acquiring land/assets for the road alignment, not included under the agreements made by this DDR, the Grievance process shall be activated and an RIP shall be subsequently triggered.
130. The Contractor may acquire land and assets for its construction operations, as in accordance with the contract specifications and in accordance with GoSL laws and not contravening ADB SPS 2009.
131. By the time of reporting, there have been no recorded grievances in relation to the Sub-project development, inclusive of roads rehabilitation and widening. In the event of a grievance:
- (i) The complaint shall be immediately submitted through the system, with full assistance by the PIU - NWPC, PMU and PMDSC.
 - (ii) All environmental Grievances shall be dealt with in consultation with CEA and Wildlife Department authorities along with other stakeholders
 - (iii) All objections to land being acquired, an RIP shall be prepared for temporary use of the said piece of land, with compensation paid for temporary loss of assets/income and rental of land. The plot shall be then rehabilitated back to its original pre-project state, by the contractor. All expenses shall be covered by the PMU and the Project.
132. This DDR shall be submitted for approval by ADB. After approval by ADB the DDR shall be submitted to the Wildlife department, Forest department, the CEA and other relevant stakeholder, for their “concurrence” and any additional requirements to conform with GoSL laws.
133. Disclosure of this DDR 3 shall be arranged, prior to Contract award, as followed by the NWPC - PIU and MWSIP PMU, with the support of the PMDSC:
- (i) A copy of this report being made available to the public at the District, NWPC - PIU and the PMU offices.
 - (ii) A summary of these recommendations and findings shall be provided to each individual household that volunteered land and/or assets for the road rehabilitation and widening works.
 - (iii) Awareness meetings shall be conducted with all Aps and stakeholders to ensure understanding of the recommendations and conditions of this DDR, to ensure environmental and social/resettlement safeguards are followed.
 - (iv) All disclosure modes recommended, shall also be accompanied by Grievance Redress mechanism brochures, ensuring people have access to contacts and can know their rights for lodging complaints and grievances (Annex L).
134. To ensure that the road widening, although a very small amount of land required having minimal impact on the Aps but allows them to be the same or better off after the Project than before, a socioeconomic survey of all 46 households shall be conducted. This survey will enable the Program to monitor the Aps, especially the Female Headed households and encroachers, to ensure

that they are the same or better off than before the road project. This shall be conducted as a baseline, prior to the road construction, at the same time as setting out the alignment; at mid-term, during the ICB-1 canal construction period; and with 6-months of completing the sub-project ICB-1. This shall ensure a key ADB policy is followed:

135. *“Develop procedures in a transparent, consistent, and equitable manner if land acquisition is through negotiated settlement to ensure that those people who enter into negotiated settlements will maintain the same or better income and livelihood status.*

136. This Due Diligence Study Report shall be provided to the contractor, attached to the Bidding documents.

137. A Monitoring Plan will be prepared by the NWPC PIU, with the support of the PMDSC, and presented as part of the regular Resettlement Monitoring and Evaluation Reports by the PMDSC to the PMU and ADB.