REDUCTION OF LANDSLIDE VULNERABILITY BY MITIGATION MEASURES PROJECT

Site Specific Environmental and Social Management Plan

Site No. 231, 232, 233, 234 & 235
The failed slopes along the railway line from Ihalakotte to Kadugannawa Upcountry Railway

Kandy District

March 2026

February 2019

Prepared for:

ASIAN INFRASTRUCTURE INVESTMENT BANK

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Abbreviations

AIIB	Asian Infrastructure Investment Bank
CEA	Central Environmental Authority
DFC	Department of Forest Conservation
DS	Divisional Secretary
DWLC	Department of Wildlife Conservation
EH & S	Environmental Health & Social
E&SU of PMU	Environmental & Social Unit of Project Management Unit
ESMF	Environmental and Social Management Framework
SSE & SMP	Site Specific Environmental and Social Management Plan
ESMP	Environmental and Social Management Plan
GN	Grama Niladhari
GOSL	Government of Sri Lanka
GSMB	Geological Surveys & Mines Bureau
NBRI	National Building Research Organization
RHS	Right Hand Side
LHS	Left Hand Side
SLR	Sri Lanka Railways

1. Introduction

1.1 Project overview

The Government of Sri Lanka has received a loan from the Asian Infrastructure Investment Bank (AIIB) for mitigating/rectifying unstable slopes in high-risk areas, especially in 13 districts of 06 provinces of the country, under the Reduction of Landslide Vulnerability by Mitigation Measures Project (RLVMMP). The project requires to be implemented in accordance with environmental and social safeguards and mandates of the AIIB and those of Sri Lanka. Considering the nature of project actions and its implementation, an Environmental and Social Management Framework (ESMF) has been prepared as required by the AIIB environmental and social safeguard policy.

The purpose of the Environmental and Social Management Framework (ESMF) is to provide a guide for application of AIIB safeguards and national environmental and social mandates during the implementation of project actions. The project implementing agency (NBRI) is expected to ensure implementation of environmental and social management plans prepared under the ESMF during all phases of project implementation so that the impacts on the environment and community are minimum.
During the scoping exercise it was revealed that the environmental & social setting, and health & safety conditions are more site specific, and require to be addressed specific to site conditions. Therefore, the ESMF has recommended a site specific environmental and social assessment followed by Site Specific Environmental and Social Management Plans (SSE & SMP) for each site. The SSE & SMP gives planning, design, construction and operation phase environmental, social, and health & safety management measures to be considered in the project Implementation.

This is the site-specific environmental and social management plan for **the failed slopes along the railway line from Ihalakotte to Kadugannawa, Upcountry Railway, Kandy District** selected for mitigation under RLVMMP. This plan has been prepared by an in-depth environmental and social assessment to:

i. Identify sensitive environmental and social elements in the project influence area
ii. Identify significant environmental and social impacts due to project actions
iii. Propose mitigation measures
iv. Decide appropriate environmental and social monitoring requirements specific to this project
v. Study relevant environmental regulations and procedures to be followed during project implementation specific to the site

1.2 Intended users

The document provides an in-depth insight into site specific environmental and social issues associated with the proposed project and the mitigation measures and intends to be used by landslide mitigation design team, the PMU and the contractor in the implementation of Environmental and Social Management component of the project. The SSE & SMP is published on the project website (https://rlvmmp.lk/) and can be viewed by wide range of interested parties (public, stakeholder organizations) can be utilized by the contractors for the project and will form the basis of site-specific management plans that will be prepared by the contractors as part of their Site Specific Environmental and Social Management Action Plans (SSESMAP) prior to commencing works.

2. Description of the project

2.1 Name of the project

Rectification of Site No. 231, 232, 233, 234 & 235 for the failed slopes along the railway line from Ihalakotte to Kadugannawa, Upcountry railway, Kandy District.

2.2 Location details

The proposed five mitigation sites considered under several GN divisions belong to the Mawanella and Yatinuwara DS divisions, Kandy District, Central Province. *Refer to Table 1; Locational and administrative details of mitigation locations*

Table 1: Locational and administrative details of mitigation locations

Site No	Location	GPS Coordinates	GN Division	DS Division
231	CH 60/72 (Nearby Ihalakotte Station)	7.273477 N 80.474788 E	24B Dunugama Maliyadda	Mawanella
232	CH 62/26 (Balana Station)	7.266547 N 80.490464 E	Moragolla Mahakanda	Yatinuwara
233	CH 62/41 (Balana – Kadugannawa)	7.265916 N 80.493191 E		
234	CH 62/53 – CH 62/55 (Balana – Kadugannawa)	7.264554 N 80.494056 E	Weralugolla	
235	CH 64/12 – CH 64/13 (Balana - Kadugannawa)	7.254133 N 80.508935 E	Ihalamudaliwatta	

Nearest station and accessibility to the site – Ihalakotte railway station (station code – IKT) is the 40th railway station on the main line. The station is located at 96.74 km from Colombo Fort. The station is operated by the Nawalapitiya operation area of Sri Lanka. **Site No. 231** is located approximately 2 km away from the Ihalakotte railway station, towards Balana station (41st railway station and code is BNA), and other sites are situated between Balana and Kadugannawa railway stations. **Site No. 232** is located 0.1 km away from the Balana station. **Site No. 233** and **Site No. 234** are located within 0.5 km of the Balana station. **Site No. 235** is located approximately 1.4 km from the Kadugannawa station (42nd railway station and code is KGW).

Refer to Figures 1 & 2; Proposed landslide mitigation sites in the main railway line and Map showing the accessibility to site no.231, 232, 233, 234, and 235, respectively.

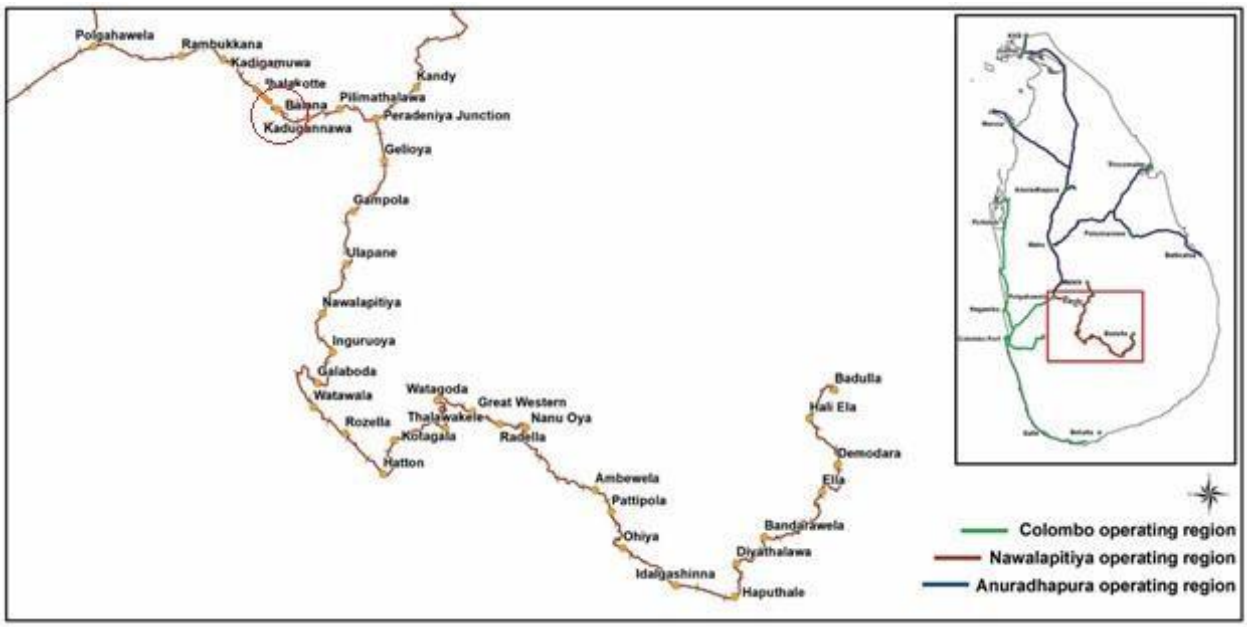


Figure 1: Proposed landslide mitigation sites in the main railway line

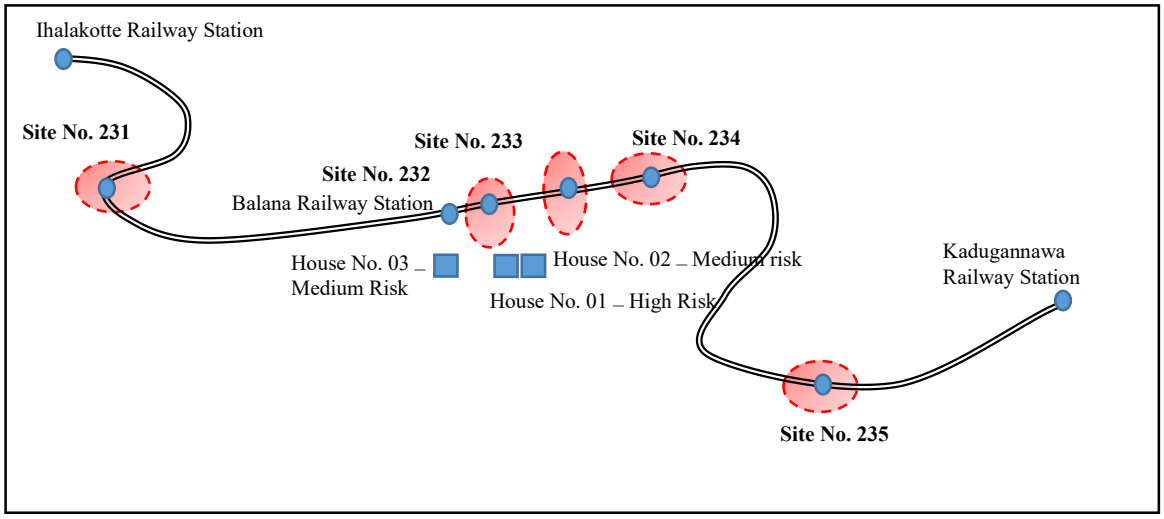


Figure 2: Map showing the accessibility to sites No.231, 232, 233, 234, and 235

2.3 Topography and land ownership

Site No. 231 is situated approximately 2 km from Ihalakotte Railway Station along the upcountry railway line. The site is at an elevation of 383 m above mean sea level. The length of the damaged railway section at Site No. 231 is approximately 200 m.

Site No. 232 is situated in proximity to Balana Railway Station, at an elevation of approximately 443 m above mean sea level. The extent of the site proposed for mitigation is about 500 m.

Site No. 233 and Site No. 234 are situated between Balana and Kadugannawa Railway Stations. The elevations of Site No. 233 and Site No. 234 are 452 m and 454 m above mean sea level, respectively. The lengths of the damaged railway sections at Site No. 233 and Site No. 234 are approximately 250 m and 300 m, respectively.

Site No. 235 is situated near Kadugannawa Railway Station at an elevation of approximately 521 m above mean sea level. The extent of the proposed mitigation works at Site No. 235 is about 150 m.

All proposed mitigation sites fall under the jurisdiction of the Sri Lanka Railways Department (SLR). In terms of land ownership, locations Site No. 231, Site No. 234, and Site No. 235 are within railway reservations under the Sri Lanka Railways (SLR), while downslope of locations Site No. 232 and Site No. 233 are located on privately owned land.

Refer to Figures 3a, 3b, and 3c; Google image of the proposed landslide mitigation sites, the surrounding environmental features, and service infrastructure.

Figure 3a: Google image of the proposed landslide mitigation Site No. 231, the surrounding environmental features and service infrastructure.

Figure 3b: Google image of the proposed landslide mitigation Site Nos. 232, 233, and 234, the surrounding environmental features and service infrastructure.

Figure 3c: Google image of the proposed landslide mitigation Site No. 235, the surrounding environmental features and service infrastructure.

2.4 Meteorology of the area (Balana)

Annual average rainfall – 228.73 mm
Annual average temperature – 26.05 ºC
(Source: https://weatherandclimate.com)

2.5 Demographic features of the area

According to Grama Niladhari Mrs. R.C.I.K. Rathnayake, Site No. 231 belongs to 24B Dunugama Maliyadda Grama Niladhari, which has a population of 1,996 (female: 1,014; male: 982).
Site No. 232 and Site No. 233 are considered under the Moragolla Mahakanda Grama Niladhari Division, as reported by Grama Niladhari Mr. W.K.R.K. Ranasinghe, who has a total population of 454 persons (female: 231; male: 223).
Site No. 234 belongs to Weralugolla Grama Niladhari Division, as reported by Grama Niladhari Mr. K.A.D.D.P. Koralearachchi, has a total population of 961 persons (female: 448; male: 473).
Site No. 235 belongs to Ihalamudaliwatta Grama Niladhari Division, as reported by Grama Niladhari Mr. K.G.U. Thilakarathne has a total population of 887 persons (Female – 458, Male – 429).

3. Landslide hazard incident details

3.1 Account of the incident

The most recent occurrence of the landslides at these locations occurred from 27th to 29th November 2025, coinciding with Cyclone "Ditwah." During this event, at the Site No. 231, a mass of soil and rock moved downslope, washing away the supporting soil beneath the railway track. Weathered rock was exposed near the ground surface, and the culvert was severely damaged due to intense surface runoff and debris flow.

The landslide near Balana Station, Site No. 232, also occurred on the night of November 27, 2025. At the mitigation sites, ground movements, soil displacement, and associated damage patterns were observed across the affected areas.

The mitigation site No. 233 is classified as an embankment failure, characterized by significant ground deformation and soil displacement. Similarly, Site No. 234 was identified as a landslide due to observed ground movements, soil displacement, and structural damage patterns.
At Site No. 235, near Kadugannawa Station, a slope failure was recorded, also associated with ground movements, soil displacement, and visible damage patterns. All incidents occurred on the same date as noted above, coinciding with the extreme weather conditions associated with Cyclone "Ditwah."

Refer to Fig 4: Google image, land use, risk elements, and the photographs of special features of the location

3.2 Effects and consequences of landslide

During the passage of the Ditwah cyclone, landslides, embankment failures, and slope failures caused severe damage to railway infrastructure, nearby residences, commuters, and scenic viewpoints. The resulting economic displacement and disruption significantly affected accessibility along the damaged railway corridor. The extent of structural deformation and ground instability necessitates professional intervention for the restoration and recovery of affected assets.

Furthermore, landslides and soil movements have obstructed and damaged railway tracks, further compromising safety and transportation connectivity. Economically and culturally valuable vegetation, including *Bo* trees, betel, kithul (palm), jackfruit, nutmeg, and coconut, and other cash cops ant, etc. were destroyed due to extreme storm conditions.

3.3 Description of any remedial measures already undertaken to reduce the potential risk

Officials from the National Building Research Institute (NBRI) and the Sri Lanka Railway (SLR) conducted a joint inspection on 26th December, 2025, along the up-country railway line in between the Rambukkana – Peradeniya section and issued an inspection report. The objective of the inspection was to carry out a preliminary assessment of the impacts of slope instability, evaluate existing site conditions,

provide technical guidance for the rapid reopening of the railway line to transportation while ensuring user safety, and identify the requirements for long- term mitigation measures.
All the railway transportation was halted with the destruction of the railway line. Therefore, no other slope remedial measures were implemented to reduce the potential risk in the area.

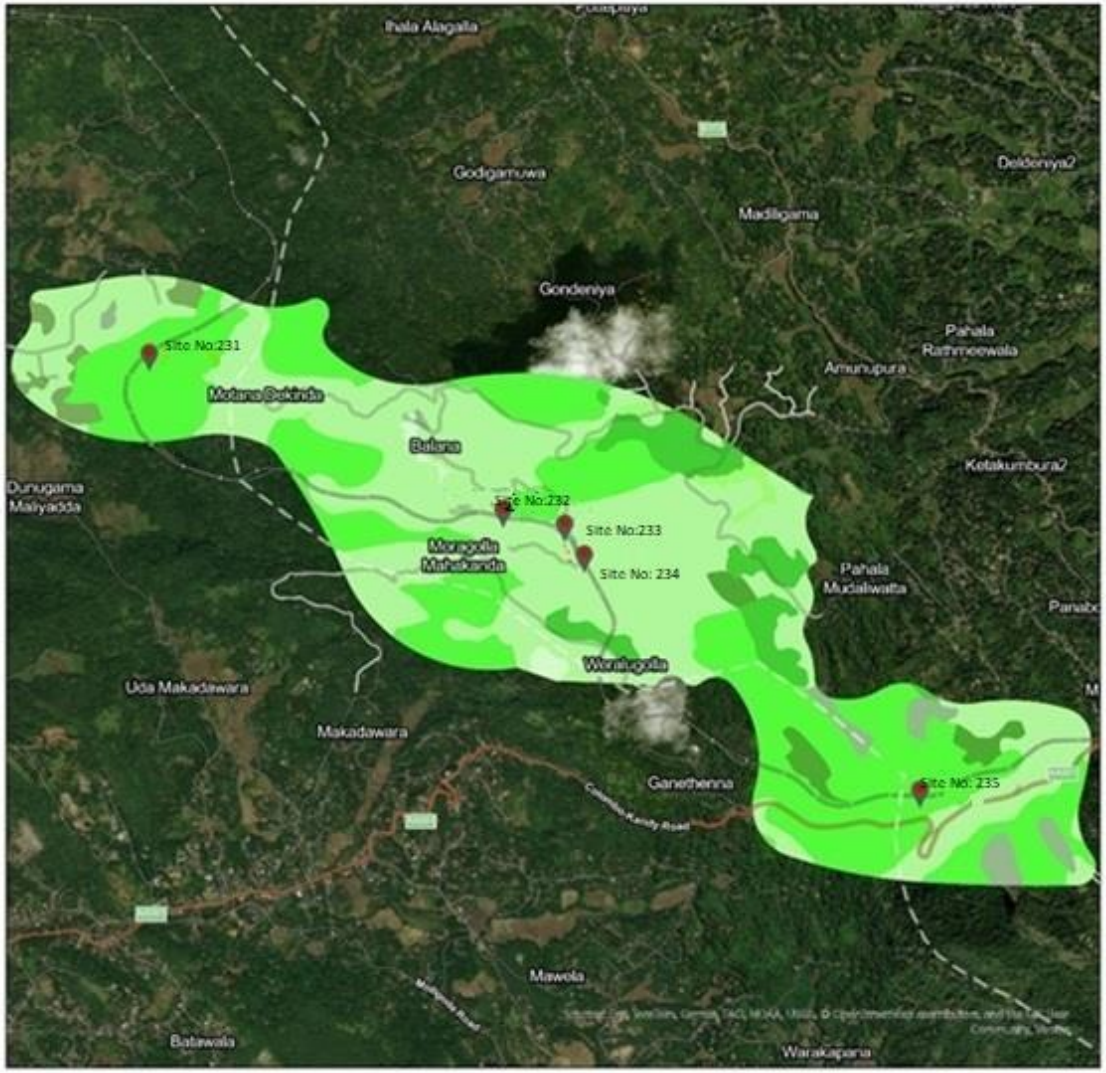
3.4 Evacuations

No requirement for evacuation for the site No. 231, 233, 234, and 235. Residents of Site No.232 have been relocated temporarily. Residents to be evacuated during construction such as drilling and soil nailing.

3.5 Resettlement (progress)

There is no requirement for a project-based resettlement programme for this site.

Mitigation sites located between Ihalakotte and Kadugannawa railway stations



Site No: 231

Site No: 232

Site No 233

Site No: 234

Site No 235

Legend

- Slide Location
- Bare Land
- Forest
- Grass
- Residential Area
- Other Agri
- Paddy
- Rubber
- Tea
- Railway
- Other Road
- Main Road
- Risk Building

Map authored by: National Building Research Institute (NBRI)

N

0 0.25 0.5 1 Km

Figure 4: Google image, land use, risk elements and the photographs of special features of the location

4. Description of the area of the landslide/slope failure and areas adjacent to the landslide, and the current level of risk

4.1 Area of the landslide

The British colonial administration initially introduced the railway system in Sri Lanka to facilitate transportation, primarily for the movement of goods and passengers. The Railway Department was established in 1858, nearly one and a half centuries ago. Sri Lanka's railway network comprises nine main lines covering a total distance of approximately 1,508 kilometers. The construction of this major railway project was carried out in several phases, including Colombo to Ambepussa (1864), Ambepussa to Kandy (1867), Peradeniya to Nawalapitiya (1874), Nawalapitiya to Nanu Oya (1885), Nanu Oya to Bandarawela (1894), and Bandarawela to Badulla (1924). In addition, the line from Peradeniya to Kandy was later extended to Matale in 1880, further expanding the railway network into the central region of the country.

The upcountry railway, known as the Main Line of the railway network, runs through a scenic countryside from Rambukkana to Badulla via Peradeniya. The Northern Line and the Matale Line connect to the Main Line at Polgahawela and Peradeniya, respectively. This railway section serves as a crucial link between the lowlands and the central hill country, transporting passengers through a diverse landscape of villages, cultivated lands, rivers, steep slopes, and mountainous terrain.
The railway track was constructed by cutting through solid rock formations; as a result, the Main Line from Rambukkana to Badulla passes through 46 tunnels. The total distance between Rambukkana and Badulla along this route is approximately 208 km. On average, the line accommodates nearly 100,000 passengers per day, making it one of the most heavily utilized railway corridors in the country. This railway line remains one of the most convenient and affordable modes of transportation for people traveling to the central hill country. Therefore, it is not merely a transportation route but also a vital public service that connects people, places, and economic opportunities.

However, Cyclone Ditwah has triggered the most extensive flooding and landslide damage in the past two decades in Sri Lanka, impacting approximately 2.2 million people across all 25 districts of the country. According to the Disaster Management Center, the cyclone had, as of 29 December 2025, resulted in 638 fatalities and left 175 people missing. (Disaster Management Situation Report as at 0900hrs on 28th December 2025).

The railway system has suffered extensive damage due to heavy rains and landslides triggered by Cyclone Ditwah. Signaling systems have been disrupted, while severe erosion and slope failures have destroyed sections of railway tracks. Several railway bridges have collapsed, and some railway stations have been affected by landslides. In addition, tunnels along the upcountry railway line have also sustained damage. This devastating weather condition cause to terminate 30% of the railway network temporary. The railway section from Ihalakotte to Kadugannawa represents one of the most valuable and critical segments of Sri Lanka's upcountry main railway line. However, severe damage to this section has emerged as a significant issue, resulting in widespread social, environmental, economic, aesthetic, and geographical consequences such as substantial challenges not only for transportation but also for the daily lives of local communities and the overall development of the surrounding region.

No houses were observed except near site No.232. The high-risk house was partially covered by a soil mass, while two medium-risk houses were not damaged. The displaced soil mass and disturbed vegetation were aggregated along the railway reservation area and private lands. The land use of the site in the affected area mainly consists of grasses and shrubs. Several numbers of Coconut, Mango, Kithul palm, Nutmeg and Jackfruit trees also can be observed both upslope and downslope.

Refer to Table 2; Observations on geomorphological and environmental features of mitigation locations.

Table 2: Observations on geomorphological and environmental features of mitigation locations

Site No	Location	Observed Features	Observations on geomorphological and environmental features
231	CH 60/72		• Down-slope has eroded near to the railway line shoulder due to uncontrolled surface runoff. • Culvert was completely damaged due to heavy surface runoff • Seasonal stream was observed at the bottom of down slope
232	CH 62/26		• Railway track has been washed out • Weathered rock has been exposed at ground surface • Existing gabion wall at bottom of area has failed due to coal and backfilling layer • Stream was observed at the bottom of down slope
233	CH 62/41		• Slope failure was observed on the LHS of railway track in downslope direction • Soil beneath has been washed out due to poor drainage • Tension cracks were observed • Stream was observed at the bottom of down slope
234	CH 62/53		• Soil failure has observed on RHS of railway track, in downslope direction • Tension cracks were observed on downslope and upper slope • Stream was observed at the bottom of down slope
235	CH 64/12		• Soil failure has observed on the RHS of railway track, in downslope direction • Weathered rock has been exposed on the downslope • Downslope movement of debris was observed along the slope, extending up to the Colombo – Kandy Road

4.2 Areas adjacent to the landslide

The Ihalakotte to Kadugannawa section is also highly important from a geographical point of view. It marks the transition from the lowland plains to the steep and rugged hill country. The first part of the upcountry railway runs through flatter land, but after Ihalakotte the line begins to climb into more difficult terrain. This geographical setting makes the railway route strategically important, as it provides access to the interior highlands, but it also makes it highly susceptible to natural disasters such as landslides, slope failures, and heavy rainfall. The winding alignment, steep gradients, and unstable ground require careful engineering and constant maintenance. Because of these geographical challenges, the restoration of the railway line is much more difficult than repairing a railway in a flat coastal region. At the same time, this very geography is what gives the railway its uniqueness and importance. It serves as a critical transport corridor through terrain that would otherwise be more difficult and costly to access.

Damage to the railway line from Ihalakotte to Kadugannawa is a serious problem that goes far beyond the destruction of a transport route. It has social effects on the daily lives of people, economic effects on trade and tourism, environmental effects on fragile hill-country landscapes, geographical implications due to the difficulty of the terrain, and aesthetic effects on one of the most beautiful railway journeys in Sri Lanka. This railway section is a vital part of the country's transport network as well as its cultural and natural heritage. Therefore, it is essential to mitigate the risk around sites. Site No.231 is few meters far away from the Ihalakotte station. The upslope and downslope in this site were considered under Sri Lanka Railway. Site No.232 is situated near Balana Railway Station, where one high-risk house and two medium-risk houses are located on the downslope. Three-wheel parking is also observed in front of the Balana station. Those drivers also loss their income due to the disaster. All houses are situated on privately owned lands cultivated with economically valuable plants.

Mitigation Site No.233 is situated in proximity to Anguru Wanguwa. A high-tension power line and an electricity distribution line run along the site. The Moragolla water stream is also present within the area.

A completely devastated single-storey building is located on the upslope side near Mitigation Site No.234. On the downslope of the mitigation site, the Moragolla stream continues, where a bathing location is also observed. Additionally, an access road to nearby residences runs along the downslope.

Refer to Fig 4: Google image, land use, risk elements and the photographs of special features of the location

4.3 Current level of risk

Landslides on the up slopes of the railway line at these locations pose a significant risk, particularly to the uninterrupted operation of train services along the upcountry railway between Colombo Fort and Badulla. Additionally, limited accessibility could severely affect essential services, facilities, and economic activities, including daily transactions and trade.

5. Description of the works envisaged under the project

The railway main line in the Pahala Kadugannawa area is frequently affected by rock falls and slope failures. During Cyclone Ditwah, failures occurred at several locations resulting in casualties and rendering the corridor impassable for more than two to three weeks, severely affecting public services, disaster rescue and relief operations, and the national economy. The project aims to implement slope

stabilization solutions for reducing recurrent disruptions and ensuring safer transportation within the section of Ihalakotte to Kadugannawa.
Mitigation locations are highly potential for landslides. The proposed project aims to ensure further progressive landslides are prevented. Therefore, preventive measures such as surface and subsurface drainage improvement, external/ internal slope rectification measures (retaining walls) will be used.

Refer to Table 3: Recommendation to reduce the rock fall/ landslide risk around mitigation locations.

Table 3: Recommendations to reduce the rockfall/ landslide risk around mitigation locations

Site No	Location	Recommendations from Initial surveys	Proposed Mitigation Measures
231	CH 60/72	As an immediate measure, applying a surface and horizontal drain at road shoulder to divert the rain runoff is recommended.	Reinforce embankment- RCL (Reinforced Concrete Lifting/Cantilever) walls Drains
232	CH 62/26	• As an immediate measure, applying a gabion wall or boulder packing at the bottom of the slope • Both side drains along the railway track need to be cleaned and reconstructed.	• Reinforce embankment- RCL (Reinforced Concrete Lifting/Cantilever) walls • Drains
233	CH 62/41	• As an immediate measure, apply a gabion wall at the RHS at the bottom of the railway line. • Both side cut-off drains and culverts should be cleaned to prevent water flow through unstable areas.	• Reinforce embankment- RCL (Reinforced Concrete Lifting/Cantilever) walls • Drains
234	CH 62/53	As an immediate measure, culverts and drains should be installed to prevent water flow through the unstable area.	• Gabion walls • Soil Nailing • Reinforce embankment- RCL (Reinforced Concrete Lifting/Cantilever) walls
235	CH 64/12	• As an immediate measure, apply drains and culverts to prevent water flow through the unstable area • Boulder packing should be constructed at the RHS toe region of the railway line	• Soil Nailing • Reinforce embankment- RCL (Reinforced Concrete Lifting/Cantilever) walls Drains

6. Brief description of the surrounding environment with special reference to sensitive elements that may be affected by the project actions and damaged elements

The elements and services at risk during the project implementation are;

i. Residential activities near the mitigation sites (access roads to nearby houses and their cultivations)
ii. Current services, economic, and tourism activities

(Ref. Fig.5 Sensitive elements that may be affected by the project actions and damaged elements)

Figure 5a: Vegetation near the washout of the railway line in Site No.231 (CH 60/72)

Figure 5b: Seasonal water stream and damaged culvert below the railway line, Site No.231

Figure 5c: Vegetation on both sides of the railway line from Ihalakotte to Balana station is also used as an access road for commuters

Figure 5d: Seasonal water stream from the upslope towards the railway line in Site No.231

Figure 5e: Vegetation near the landslide of Site No.232, and this area is used as an access road to nearby houses

Figure 5f: Cracked floor of high-risk house, Location No.02, Site No.232

Figure 5g: Vegetation and Electricity supply near rail way track in Site No.233

Figure 5h: Access road for the Balana – Kadugannawa main road

Figure 5i: Vegetation cover of upper boundary Site No.234

Figure 5j: Vegetation cover along the damaged railway track, Site No.234

Figure 5k: Vegetation along the railway line, Site No.234

Figure 5l: Damaged downslope section of Site No.235

Figure 5: Sensitive elements that may be affected by the project actions and damaged elements of mitigation Site Nos. 231, 232,233,234 and 235

7. Identification of social and environmental impacts and risks related to the works

7.1 Positive impacts

- The objective of this project is to mitigate the risk to an acceptable level in the unstable land sections between Ihalakotte and Kadugannawa Railway Station. These locations lie along the upcountry railway, a vital transportation corridor that connects key destinations across Sri Lanka. The line serves as the primary rail route between the capital city, Colombo, and the Badulla District, passing through Gampaha, Kegalle, Kandy, and Nuwara Eliya, and plays a crucial role in supporting daily commuting, tourism, and regional economic activity.

- Upcountry railway enhances rail connectivity to Sri Lanka's upcountry, particularly the Badulla District. Ihalakotte, Balana, and Kadugannawa stations serve as a gateway to key attractions such as Meeyan Ella, Central Hills viewpoint, Katale Eala, Balana Fort, Kadugannawa viewpoint, and Dawson tower. Cultural sites like Sangharaja cave, an ancient small cave located near the Ihalakotte Railway Station in the Kagalle District, Sri Lanka. Its history is related to the erudite Buddhist monk Weliwita Sri Saranankara Thera. This main railway line supports both local mobility and tourism, boosting regional economic activity. The proposed project will improve service reliability by reducing landslide risks, ensuring year-round rail operations, and enhancing commuter safety.

- Tourism activities and other lifeline activities of people in the area will be benefited largely by this mitigation.

7.2 Negative impacts

The mitigation works are generally confined to already failed land area. Therefore, negative impacts are much localized and also limited to construction period. *Refer to Table 4; Negative impacts and their level of significance.*

Table 4: Negative impacts and their level of significance

Impacts during the construction period	**Level of Significance**
7.2.1 Hydrological and water Quality impacts	
7.2.1.1 Impacts of the drainage pattern of the area The majority of the designs (sites No.231,232, 233, 234, and 235) consider surface and subsurface drainage management. That involves the extraction of water, both surface and sub-surface. Therefore, during the rainy season, a heavy flow of water is expected to be generated. The localized impacts may occur due to groundwater table drawdown while reducing the groundwater storage. As a result, the stream may dry up. During dry periods, the community may face water scarcity. This has a significant negative impact on the project. However, during the rainy season, the runoff load on the stream will be high. This may result in stream bottom and bank erosion and erosion at culverts if surface runoff is directly conveyed to streams or through culverts. This is considered a highly significant impact.	**Highly Significant**

7.2.1.2 Water pollution and impacts on surface water quality During the slope excavation, the removal of debris can generate high sediment-laden runoff. There could be a possibility to pollute the downslope stream near Site No.234 and Site No.235 by contaminated runoff water within the high seepage in the area. Improper disposal of oils and other harmful substances/contaminants from machinery, leakages from temporary storage tanks, solid waste, and wastewater disposal/dumping could occur, causing adverse impacts on the quality of the water.	**Highly Significant**
7.2.1.3 Erosional impacts and stream bed alterations The project activities will open the slope for surface erosion during the construction phase. The existing surface and sub-surface drainage pattern or destroyed drains in the area will be disrupted during the construction phase. Therefore, the erosional impacts are significant.	Significant
7.2.1.4 Open defecation and waterborne infections All five sites belonging to the mainline are not functioning until the damaged railway line is repaired. The possibility of open defecation could be high due to the isolated and covered with vegetation area around the railway line, except Site No.232	Significant
7.2.1.5 Impacts on the downstream water uses The construction activities will take place on an already disturbed slope adjacent to the railway line. The surface runoff, which flows through the culvert at the base, is not used for domestic purposes by nearby residents. However, surface runoff through culverts directly connects to the Moragolla water stream. Since there will t be an impact on downstream water uses.	Significant

7.2.1.6 Impacts on groundwater table and groundwater quality The addition or mixing of construction materials, including cement and grout, with subsurface water flows could lead to temporary water quality degradation and the accumulation of unwanted substances. During the construction period, hazardous waste from chemical substances, wastewater from construction activities, and discharge from onsite septic systems may negatively impact groundwater quality. Additionally, the mitigatory activities carried out in the slope area could affect groundwater quality, potentially resulting in a drawdown of the groundwater table.	Significant
7.2.1.7 Impacts on water or wetlands Improper disposal of oils, chemicals, solid waste, or wastewater from machinery and worker sites, along with leaks from temporary storage tanks could contaminate surface runoff flowing through the culvert at the base of the slope, adversely affecting water quality at the discharge point.	Significant
7.2.2 Environmental Impacts	
7.2.2.1 Noise and vibration impacts Noise and vibration are expected from construction equipment. Noise and vibration impacts are highly significant as the constructions are carried out in Balana railway station. (Even though railway function is temporary terminated, few officers who on duty and buildings may significantly affected) Daytime operation of machinery and vehicles may disturb the downslope near to two medium risk houses nearby Site No.232, Balana railway station.	**Highly Significant**
7.2.2.2 Air pollution impacts Construction activities that contribute to air pollution include land clearing, operation of diesel engines, demolition, burning, and the storage, transportation, and disposal of construction materials and waste. During construction, high levels of dust are typically generated from concrete, cement, wood, stone, and silica. Residents of two medium risk houses near to Site No.232 and railway commuters, the dust generated during the construction phase could have highly significant effects. Air pollution resulting from these activities is likely to affect both railway and road commuters as well as nearby households, particularly during dry periods.	**Highly Significant**
7.2.2.3 Solid waste disposal issues Haphazard disposal of solid waste; various types of waste such as litter, food waste, construction waste will be generated and may store or dispose on site. The littering and haphazard storage and disposal of solid waste in and around the railway premises will create inconveniences to the railway commuters, and the neighboring community. It can block the water seepages to make breeding grounds for waterborne diseases. Waste can pollute the soil and leave various environmental impacts if proper disposal mechanism is not in place during the construction period.	Significant
7.2.2.4 Explosive hazards and hazardous materials As there are large, weathered rocks adjacent to mitigation Site No.231, the need for rock blasting will be anticipated.	Significant
7.2.3 Biological /Ecological Impacts	

7.2.3.1 Effects of important wildlife habitats There are vegetation in railway reservation areas within the project influence area with high biodiversity.	Insignificant
7.2.3.2 Effects on Fauna & Flora Trees such Kithul palm, Mango, Coconut, Nutmeg, Jackfruit, and Betel plant found in the slope are not endemic, threatened, and identified in the Red List of IUCN.	Insignificant
7.2.4 Social and Economic Impacts	
7.2.4.1 Impacts on agriculture within the area to be remedied/ immediately to the site There are tea and banana-like cultivation immediately adjacent or the area to be remedied.	Significant
7.2.4.2 Cracks in the building due to vibration impacts There are two medium-risk houses nearby, Site No.232 downslope from the railway line adjacent to the site, resulting in significant impacts.	Significant
7.2.4.3 Losing access to land and future development activities The mitigation works will be concentrated on the railway reservation area, and mitigation sites are private lands. Hence, there will be a significant impact to the land owners with regard to losing access to the land or loss to valuable uses.	Significant
7.2.4.4 Impacts on livelihood/ business and income activities There were income-generating small scale businesses activity near to proposed mitigation area, Site No.234 and Site No.235.	Insignificant
7.2.4.5 Impacts on service provision (water supply, sewage, electricity) Electricity lines run upslope from the unstable slope, and may be at risk if further slope movement occurs during construction. Any damage or disruption to these lines could affect power supply to nearby households and railway operations.	Significant
7.2.4.6 Effect due to loss of infrastructure and safety During construction phase, the railway tracks from Ihalakotte to Kadugannawa will be obstructed by frequently moving machinery, loaders, trucks etc. Although already railway line was already destroyed from Ihalakotte to Kadugannawa.	Insignificant
7.2.4.7 Work camps and lay-down site requirements The camps site will be selected in the neighbourhood of community. If proper camp management is not in place, it may result several labour issues, social issues with community, conflicts for shared resources with the community, nuisances, and management of waste etc. If temporary camps are built in the close proximity of the site, management of solid waste and sewage will be an issue.	Significant

7.2.4.8 Relations between workers and staff / people living in the vicinity of the site and possibility of disputes The construction workers at this site will be from different social backgrounds and from different geographical areas often under poverty. Usually, they are with poor educational and social background. Such communities may have a wide range of social issues to cause dis-stress on the neighbouring community. Although the workers who would engage in such issues will be rare, even few possibilities cannot be ignored.	**Highly Significant**
7.2.4.9 Workers safety during construction The workers may not be exposed to risk of facing railroad due to termination of railway function. The constructions are carried out in a very limited space. They also may face risk of falling from the unstable slope. The heavy construction machinery may be used in limited work spaces. Risk of hazard from vehicles and construction machinery accidents is also highly significant at this site. Contractor may engage under age workers (children) for construction work, which is risky and can results serious accidents and injuries.	**Highly Significant**

7.2.4.10 Safety to the public from construction activities: Risk for commuters As the site is in a land section featuring major railway track, ensuring commuter safety will be highly significant. The presence of heavy machinery such as excavators, rollers, water dowsers, trucks, and lorries carrying materials and water may increase the risk of accidents.	**Highly Significant**
7.2.4.11 Impacts on transport infrastructure (especially temporary loss of road or rail access, risks of traffic congestion) Due to railway function temporary terminated, the traffic on the railway from Ihalakotte to Kadugannawa stations may not effect. However, obstruction for railway commuters may be affected.	Insignificant
7.2.4.15 Need for people to enter or cross the site Excavation machinery, loaders, trucks etc. will be used in the railway station premises where commuters and railway staff are moving. There is no special need for commuters and the station staff to enter the site for other purposes. Construction may use materials such as metal aggregates, steel etc. which can be injurious under improper storage and handling. However, unauthorized entry of ordinary people may occur due to intentional or unintentional purposes, and they may be at risk due to operating machinery, vehicles, electricity, and may be blasting materials.	**Highly Significant**

8. Site Specific Risk Analysis

Table 5: Site specific risk analysis

Risk	Affected group	Risk level
1. Facing accidents when working in a limited space	Workers	Very high
2. Transporting materials and machineries	Workers	Low
3. Throw out disposals (litter, bottles, and food) to the construction site from workers	Workers	high
4. Facing railway accidents during construction at night time	Workers	Low
5. Accidents from the construction activities and materials placed in the limited space	Workers/ commuters	High
6. Water inundation in the unstable area	Workers Railway and road commuters	Very High
7. The wasps' attacks during the construction phase	Railway and road commuters Community nearby Workers	High
8. Injuries due to rock particles due to explosions/ blasting	Workers Community nearby	Low
9. Work adjacent to electrified lines, signal lines	Workers	High
10. Site Working – Working in poor visibility	Workers	High
11. Lone Working	Workers	High
12. Emergency evacuation	Workers	High
13. Extreme weather conditions (wind, rain etc.)	Workers	High

9. Significant Environmental and Social Impacts

Environmental, social impacts, or risks that will require special attention on the part of NBRI.

9.1 Priority Health and Safety Issues. Specific H&S concerns that require measures that go beyond the standard contractual requirements for contractors

The health and safety issues pertinent to these sites are significant, as the workers have to work on an unstable slope with a risk of falling. Such common E & HS issues have been discussed in the **ESMF**. Worker safety requirements in the construction sites are more detailed under 2003 5: Safety equipment and clothing in the section 2003: Working conditions and community health and safety in the Bidding document.

9.2 Child labour & forced labour

Child labor & Forced labor are detailed under 2003.3 under section 2003: Working conditions and community health and safety in the Bidding document.

10. Environmental Social Management Plan (ESMP)

Measures to manage and or mitigate the impacts and risk. Especially the significant impacts and risks identified in sections 7 & 8. This section will include the specific recommendations and requirements of the ESMP for the design stage, construction phase, and maintenance operation phase.

10.1 Resettlement action plan

There is no project-based resettlement in this site. These houses may have some impacts in the form of structural damage during the project actions due to ground vibration induced by heavy machinery operation. (The scheme of compensation, in case of damage to structures due to the project, should be arranged, (Refer 2002.2.17), utilities and roadside amenities in contracts requirement to ESMP.

10.2 Evacuation of people

Project-based evacuations are not required for mitigation sites No.231, 233, 234, and 235. However, the high-risk house near site No.232 is required to evacuate during construction. Even though residents moved from that high-risk house, they were not properly evacuated from the house.

10.3 Procedure for removal of damaged structures, facilities, and infrastructure (consent from owners to remove the articles)

In the aftermath of the landslide triggered by the Ditwah storm, which has caused significant damage to railway infrastructure and associated facilities, a formal procedure shall be initiated and conducted in a coordinated manner involving all relevant stakeholders, including Sri Lanka Railways, the Ceylon Electricity Board, private landowners, and the respective Provincial and Local Authorities, with the objective of systematically removing damaged structures, facilities, and infrastructure along the affected railway corridor in compliance with applicable legal and regulatory frameworks.

10.4 Requirement for compensation for loss of property /uses due to project actions

High-risk house residents deserve to be compensated near the mitigation location No.02.

10.5 Public awareness and education- needed for the following areas

Programs to inform and educate people in the vicinity about the risks posed by an unstable land section located within the railway premises, especially the occupants of the households in the upslope area and commuters using the railway station.

10.6 Design-based Environmental/ Social Management considerations

The sites are located in an aesthetically beautiful, environmentally sensitive natural environment in a rural setup. Hence, the following environmentally and socially significant design considerations are recommended. *Refer to Table 6; Design stage Environmental & Social considerations*

Table 6: Design stage Environmental & Social considerations

Design feature	Recommended level of consideration for this site

i. Natural resource management and resource-optimized designs Project specific designs should be considered to eliminate mass clearing of vegetation and minimum number of removals of grown tree species. Sufficient emphasis should be made to consider conservation of trees if important tree species are found. However, vegetation of all five sites were destroyed due to soil movements.	High
ii. Site Planning During site planning it is necessary to be cautious on possible re-activation of slope failures and movements of soil masses. Also, the sites are located in a very limited space around railway line and reservation area. It should not be installed in the danger zones of the slides. It is very necessary to keep trained safety officer during the construction period and proper communication between contractor's workforce, and PMU must be built. The SLR buildings within the close proximity can be used as camping sites or storage houses under the permission of the Railway Department.	Very High
iii. Habitat connectivity and animal trails If large fractions of vegetation are required to be cleared in ecologically fragile habitats as for permanent structures or for access, or if deep drains etc. are to be made the designs should include habitat connectivity features, animal trails and vegetation strips and etc. even if the impacts are localized.	Low
iv. Conservation of water resources If extraction of water is involving as a mitigation measure, as the extracted water is in a good quality and yield it can be considered as a source of water for upslope houses.	High
v. Aesthetically compatible design considerations The designs in aesthetically sensitive environments should consider structures that blend with natural environment to keep the visual pollution to minimum. As the tourism industry is one of the major economic growth points for the project area, greening could be used in construction activities to develop the area as a tourist attraction. Service of landscape architect may be important for the design of suitable mitigation structures.	High
vi. Consideration of green environmental features As many of the mitigatory works are carried out in ecologically sensitive habitats, it is recommended to consider green environmental designs as much as possible in the designs e.g.: use of local vegetation species for erosion control, combination of plants to sustain species diversity in the environment, avoiding inclusion of potentially invasive species & etc.	High
vii. Conservation of social and Cultural features The local cultures and heritages are strengthened by their close connections to the natural environment that sustains them. Therefore, the project actions should be carried out considering local culture and social aspects, providing opportunities to reinforce them during the project actions.	Low

viii. Workers/ commuters and community safety Unauthorized entry and ignorance may cause severe accidents around the site. Activation of slides may occur during construction phase and may pose threat to workers, and commuters. Therefore, design-based safety consideration such as berms, safety nets etc. should be considered.	Very high
ix. Erosion control structures In drainage management, water is extracted and conveyed to nearby stream often through culverts. During rainy season the flow in these drainage structures can be significantly high and this may cause stream bed erosion. Hence the design should adequately consider flow speed breakers to reduce erosive flows entering natural streams. This should be an inclusive part of the design if there are streams and culverts in the proximity of the mitigation site.	High
x. Low post maintenance and operation designs The mitigation should consider passive techniques such as gravity drains for drainage management. Correct pipe diameters, pore diameters and laying angles should be considered to avoid clogging of drains. Low maintenance structures and designs such as designs to withstand erosive forces, sediment trapping systems etc. should be considered if drain water is expected be directed to natural streams. The materials used for structures and should be chosen carefully so as to withstand weather conditions with high durability. Designs should specially consider corrosion prevention techniques if steel structures are used.	High

10.7 Mitigation of impacts during the construction phase

10.7.1 Construction contractors' requirement to comply with environmental and social management during the construction phase

Measures to manage and to mitigate the environmental and social impacts are generally common to all landslide mitigation sites. Such impacts are largely attributed to activities in the construction phase. The mitigation of impacts therefore becomes an obligation of construction contractor. NBRI has prepared a comprehensive document on "***contractors' requirement to comply with Environmental and Social Health and Safety (ES & HS) management during the construction phase"*** to be included in construction contractors' bid document. The main sections are summarized below indicating the degree of relevancy for this site. For details ESMP for construction contractors should be referred. *Refer to Table 7; Contractor requirement to comply with ES & HS*

Table 7: Contractor requirement to comply with ES & HS

Reference No. as per construction contractors obligation to ESMP	Item	Relevant to the project
2002. Environmental and Social Monitoring		
2002.2 1)	Storage on site	Highly Relevant (railway tracks)
2002.2 2)	Noise and Vibration	Highly relevant (railway officers, community nearby and commuters)
2002.2 3)	Cracks and damages to the buildings	Not relevant
2002.2 4)	Disposal of waste	Relevant (workers and commuters)

2002.2 5)	Disposal of refuse	Highly relevant (community nearby and commuters)
2002.2 6)	Dust control	Highly relevant (community nearby, workers and commuters)
2002.2 7)	Transport of Construction materials and waste	Highly Relevant
2002.2 8)	Water	Highly Relevant
2002.2 9)	Flora and Fauna	Relevant
2002.2 10)	Physical and cultural resources	Not relevant
2002.2 11)	Soil Erosion	Relevant
2002.2 12)	Soil Contamination	Relevant
2002.2 13)	Borrowing Earth	Relevant
2002.2 14)	Quarry Operations	Not relevant
2002.2 15)	Maintenance vehicles and Machinery	Relevant
2002.2 16)	Disruption to public	Highly relevant (community nearby, commuters)
2002.2 17)	Utilities and roadside amenities	Highly relevant
2002.2 18)	Visual environment enhancement	Relevant
2002-5. Environmental Monitoring	Baseline surveys (air, water, noise, vibration, crack surveys)	Refer site specific monitoring plan
	Surveys during construction (air, water, noise, vibration, crack surveys)	Refer site specific monitoring plan
	Surveys during operation phase	Refer site specific monitoring plan
	Reporting and maintenance of records	Relevant
2003. Working Conditions and Community Health and Safety		
2003.2	Safety organization and communication	Highly relevant (unsafe slope, heavy machinery)
2003.3	Child Labor and Forced Labor	Relevant
2003.4	Safety reports and notification of accidents	Low
2003.5	Safety Equipment and Clothing	Highly relevant
2003.6	Safety inspections	Highly relevant
2003.7	First Aid Facilities	Highly relevant
2003.8	Health and safety information and training	Highly relevant
2003.9	Plant equipment and qualified personnel	Relevant
Relevant: *The section is relevant to the site as a common ESMP applicable to any site* ***Highly relevant:*** *The contractor should pay special emphasis in the preparation of environmental method statements to ensure that the relevant ESMP is implemented specific to the site* ***Possibly relevant:*** *This ESMP will be triggered if the site come across with relevant aspect during project implementation* ***Not relevant:*** *The section may not be relevant to this site under disclosed conditions* ***Optional:*** *require to be implement if needed only* ***Refer site specific monitoring plan****: Contractor is obliged to carry out monitoring as specified in the site specific monitoring plan* ***Reference: Contractors Obligation for implementation of ESMP***		

10.7.2 Site Specific mitigation

Given below are the site-specific mitigation measures that the project is expected to implement during the construction period. *Refer to Table 8; Site specific ES & HS mitigation measures*

Table 8: Site specific ES & HS mitigation measures

Mitigation item	Project implementation phase	Responsibility
i. Priority Health and Safety Issues rs in the site have to work in high-risk conditions, it is implement recommendations given in section 2003 of obligation on ESMP under "working conditions and ıealth and safety". These recommendations should be ɔper organization and safety monitoring followed car system. Prepare a special Occupational Health and Safety Management Plan before the commencement of construction activities Adoption of standard worker safety methods Provision of personal protective equipment (PPE) such as safety boots, helmets, protective clothing, goggles, etc. Provision of training and awareness programs to employees Conducting hazard analysis and plan/provide adequate mitigation measures for such hazards identified, before carrying out major construction activities If the wasp nest is in the vicinity, it is mandatory to use Evacuation Centres for ensure of workers' safety Additionally, work should be discontinued for a sufficient time period during rainy season as working on unstable land will be highly risky in the rainy season.	Construction	PMU Construction Contractor Railway Department
ii. Transporting materials and machineries Inform and take permission from the authorized person of SLR before any material and machinery transportation through / along the railway tracks running very close to the affected area. The commuters and the workers should be informed about the material and machinery transportation schedule. The railway station	Construction	PMU Construction Contractor Railway Department

platform or the railway trucks must not be damage due to the material and machineries transportation.		
iii. Injuries due to rock particles due to explosions/ blasting Inform and take permission from the authorized person of SLR before blasting and making awareness announcements through the nearby railway station. Establish an emergency accidents preparedness plan for the injuries due to rock particles due to explosions/ blasting.	Construction	Construction Contractor Railway Department
iv. Inundation of the railway tracks During the construction, the water inundation of the railway tracks will be expected. To mitigate this impact, contractor should construct a temporary surface and sub-surface drainage network directing excess water to nearby stream or canal before start of the construction.	Site preparation & construction	Construction Contractor
v. Minimize erosional impacts during construction It is recommended that mitigation works involved with site clearance, slope reshaping, removal of debris etc. are avoided during rainy season. Therefore, site must work in slope mitigation are carried out in the dry season and avoid such activities on slope area in the wet season as much as possible. This should be considered in the project planning stage. Silt traps should be introduced to cut down sediment laden runoff.	Site preparation & construction	Construction Contractor
vi. Invasive species Should be avoided in using vegetative erosion control structures. Native plants in the local environment should be chosen for vegetative control. The species used for vegetative control measures need approval from the relevant authorities.	Construction	Construction Contractor
vii. Noise and vibration control The noise and vibration generating activities may disturb the smooth flow of activities of the nearby houses and railway commuters taking Balana railway station. Vibration generating activities should be done within the prescribed limits to avoid damage to structures. Suitable compensation should be made if damage cracks due to construction work occur in the houses and infrastructure.	Construction	Construction Contractor
viii. Disposal of construction waste The contractor should pay special attention with respect to disposal of construction waste. This site is located within a public place in a rural landscape with a pleasing environment. Therefore, such waste if generated should store properly without getting washed off and dispose according to approved procedures by the PMU. Construction waste should not dispose along railway tracks.	Site preparation & construction	Construction Contractor

ix. Onsite sanitary facilities for the workers The contractor should prepare temporary sanitary facilities for the workforce within the site, to mitigate open defecation of the workers.	Site preparation & construction	Construction Contractor
x. Dust and aerosol control screens Dust particles generated during the construction period can influence the commuters, tourists and staff of the station. The upslope houses with occupants could be affected from generated dust particles. Special screens etc. should be used if heavy dust or aerosol generating activities are envisaged.	Site preparation & construction	Construction Contractor
xi. Water and electricity for construction Water for construction should be obtained only from approved places. If the Contractor intends to use electricity from the main electricity line, they should be informed and the required permission should be taken.	Construction	Construction Contractor
xii. Working hours, working in extreme weather conditions and working in poor visibility The construction activities can be carried out at both day and nighttime. Working after 6.p.m. could be done after with the consent from Station Master due to safety issues.	Construction	Construction Contractor Railway Department
xiii. Impact on service infrastructure Telecommunication, electricity, and water lines should be relocated before construction starts on per the approval of PMU.	Construction	Construction Contractor
xiv. During construction good housekeeping should be maintained to minimize visual pollution	Site preparation & construction	Construction Contractor
xv. Worker's code of conduct Possible disputes between the labor force and the villagers, staff of the station, commuters and tourists should be prevented by maintaining the agreed code of conduct by the contractor. Possible disputes between workforce and villagers should be avoided especially when using shared resources such as common bathing and washing places etc.	Construction	Construction Contractor
xvi. Snake bites, toxic insect bite management and emergency management by accidents Proper emergency management system for snake bites and toxic insect bite (include awareness on snake bites, safety shoes while at work, first aid on a snake bite, hospitalization and admission to correct hospital where snake bite management facilities are available) should be introduced. Accidents are common in these kinds of sites. Proper emergency management unit for other accidents (first aids facilities, safety items, hospitalization facilities and transportation facilities) should be maintained for this site.	Construction	Construction Contractor

10.7.3 Monitoring requirements specific to the site

Following monitoring plan is strongly emphasized during the construction phase specific to this site. In addition to this, monitoring procedure indicated in the contractors' obligation to ESMP should also be implemented by construction contractor. The contractor is expected to indicate in the bid the ESMP procedure to be implemented along with relevant proofs of his competency. The cost for ESMP will require to be indicated as a separate pay item. The environmental and social management method statement is expected to be submitted by the selected construction contractor and to be approved by the PMU unit. *Refer to Table 9; Environmental and Social monitoring plan*

Table 9: Environmental and Social monitoring plan

Monitoring requirement	**Parameter**	**Frequency**				
		Site No.231	**Site No.232**	**Site No.233**	**Site No.234**	**Site No. 235**
i. Baseline monitoring	Water quality	Once*	Once*	-	Once*	-
	Pre-crack survey for the railway station	Once*	Once*	-		-
	Ground vibration	Once*	Once*	-	Once*	-
	Air quality: particulate matter	Once*	Once*	-	Once*	-
	Background noise measurement	Once*	Once*	-	Once*	-
ii. During construction	Water quality	During the rainy season if noticeable change in the appearance of water				
	Crack survey for the risk houses	If noticeable displacement is observed during construction **		-	-	-
	Ground vibration	During the operation of drilling machinery, boring works, or any works that generate ground vibrations*		-	-	-
	Construction noise	Once a month during heavy noise generation times *		-	-	-
	Air quality particulate matter	Once a month *		-	-	-
iii. Vehicular Emission	All machinery/vehicles operational should have the emission control test certificate as applicable - should be checked by the site ES officer of the consultant					
iv. Monitoring agency	* A competent independent monitoring agency with registration of Central Environmental Authority for all parameters except crack surveys					
	**Crack surveys should be conducted by competent agency acceptable to PMU					

v. Reporting requirements	**Stream water quality** – Comparison with ambient water quality standards published by the CEA, 2017 **Pre crack survey of the railway station** -Professional report **Ground vibration**-as per the interim standards on vibration for the Machinery, Construction activities and Vehicular movements, CEA **Background noise measurement** –Extraordinary Gazette No.924.1, May 23,1996, CEA **Air quality particulate matter**- The National Ambient Air Quality standards stipulated under the Extraordinary Gazette, No. 1562/22 August 15, 2008 -Central Environmental Authority of Sri Lanka.

11. Public and Stakeholder Consultations - the public consultations that have been and/or will be held

11.1 Public Consultations

Mr. H.G.J.Rupasinghe, Technical Officer of the Ihalakotte railway station, was consulted and informed about the landslide early warning alerts, the mitigation project, and the funding mechanism. He acknowledged the importance of the mitigation works and expressed full support and cooperation for the project.

11.2 Stakeholders involved in the consultations any recommendations or agreements reached in the consultations

Mrs.R.C.I.K.Rathnayake, the Grama Niladhari of the 24 B Dunugama Maliyadda GN Division, were informed about the project works about site no.231. They acknowledged the necessity of the mitigation and expressed their full support for the project. Mr.W.K.R.K.Ranasinghe, the Grama Niladhari of the Moragolla Mahakanda GN Division, were informed about the project works about site no.232. They acknowledged the necessity of the mitigation and expressed their full support for the project. Mr.K.A.D.D.P.Koralearachchi, the Grama Niladhari of the Weralugolla GN Division, were informed about the project works about site no.233 and site no.234. They acknowledged the necessity of the mitigation and expressed their full support for the project. Mrs.K.G.U.Thilakarathna, the Grama Niladhari of the Ihalamudaliwatta GN Division, were informed about the project works about site no.235. They acknowledged the necessity of the mitigation and expressed their full support for the project.

12. Clearances, no objection, consent and approvals required for the implementation of the project

Table 10: Clearances, no objection, consent and approvals

Requirement / Approval / Institution	Relevance to the project
12.1 Project implementation	

Approval from the District Secretariat	The approvals will be required and the proposals need to be presented at the District Coordinating Committee, to which chief minister and stakeholder agencies in the district will also participate. The Officer of PMU will present the project, disclose the project details and various concerns including environmental and social issues will be discussed at this meeting. The issues arrived will be addressed in the ESMP, the decisions and recommendations taken up at this meeting will be considered in the ESMP.
Approval from the planning committee	The approval from the planning committee of the Mawanella and Yatinuwara Pradheshiya Sabha.
12.2 Approval from the state lands owners relevant to the project	
Central Environmental Authority	Consent from District Central Environmental Authority is required.
Department of Forest Department of Wildlife Conservation	As there are no forest reservations and wildlife habitats; Department of Forest and Department of Wildlife Conservation approvals are not needed
Geological Surveys and Mines Bureau	Approval will be obtained for for extraction of materials, transportation and disposal of earth, rocks and mineral debris. (If necessary, only).
Mawanella and Yatinuwara Pradheshiya Sabha	Approvals from Mawanella and Yatinuwara Pradheshiya Sabha will be obtained for the disposal of waste and plant litter.
Ceylon Electricity Board	Approvals from regional office of Ceylon Electricity Board will be required for power supply for site operation.
National Plant Quarantine Service	Approval from Additional Director National Plant Quarantine Service Katunayake for Director General of Agriculture under the Plant Protect Act No. 35 of 1999 Plant or seed if needed for bio–Project Managed slope mitigation shall be imported into Sri Lanka under the authority and in accordance with the conditions, of a plant importation permit issued.
12.3 Consent/ no objection/ legally bound agreement from the private land ownerships	
Land owner (Sri Lanka Railways and Private Land Ownership)	Signing a legally bound agreement between the land owner and the project implementing authority allowing no-objection to remove the structures, access the land, implement construction works, and engage in long-term maintenance works

The tentative timeline for getting approval is given in the table 11.

Table 11: Tentative timeline for getting approvals

Approvals	Month 1				Month 2			
	W1	W2	W3	W4	W1	W2	W3	W4
Project implementation ***Approval from the District Secretariat*** Submission of application Project briefing Respond to comments Approvals								

Approval from planning committee Submission of application Project briefing Respond to comments Approvals								
Approval from Sri Lanka Railway Department Submission of application Respond to comments Approvals								
Other approvals GSMB Ministry of Defense (Depends on the requirement)								
Consent/ no objection from the land ownership								

13. Grievance redress mechanism for this site

The PMU ES officer is responsible for establishing the grievance redress mechanism for this site for impact communities. *(Reference: Environmental and Social Management Framework for recommended procedure for establishment of grievance redress mechanism).*

14. Information disclosure

It is the responsibility of the PMU to disclose the ES information to following agencies and organizations by indicated modes as a minimum as given in the table. 12

Table 12: Proposed scheme of information disclosure

Information	Proposed agencies	Mode of information disclosure
i. Project plan (site details, design, implementation arrangements)	District CEA, District Secretariat, Divisional secretary, Railway station master, Other district level Agencies, NBRI district office, AIIB	Meetings, District coordination committee, submission of relevant report to sign agreements, approvals and consents.
ii. Environmental and Social Management plan	District CEA, Railway station master, AIIB	Meetings, District Coordination Committee, submission of relevant report to sign agreements, approvals and consents
iii. Monitoring reports (baseline and during construction)	District CEA, AIIB and relevant parties as appropriate	Progress meetings, special meetings, submission of relevant reports

iv. Site inspections for environmental conformance workers health and safety	District CEA, Divisional secretary, Police, Railway station master, Grama Niladhari, District Office NBRI, AIIB and relevant parties as appropriate	Written and verbal communications, submission of relevant reports
v. Decisions taken and progress review meetings pertinent to ES matters	District CEA, Divisional secretary, Police, Railway station master, Grama Niladhari, District Office NBRI, AIIB and relevant parties as appropriate	Meetings, submission of relevant reports
vi. Grievance redress mechanism	Relevant parties, AIIB	Meetings, written and verbal communications

Table 13: Level of information gathered through consulting institutions

Date	**Institution**	**Person contacted for information**
28/03/2026	Sri Lanka Railways	Mr D. P.C.P Karunarathna, Station master – Balana Railway Station

Annexure I: Images of the consultation during the field visit

Consultation with Mrs.Rasika Dilrukshi (Daughter of High-Risk House Owner of site No.232)

Consultation with Mr. H.G.J.Rupasinghe: Technical Officer, Ihalakotte Railway Station

Consultation with Mr.Siril Abeywikrama (medium Risk House Owner of site No.232)

Annexure II: Report on the Stakeholder Consultation

Institution	Name and designation of the contact officer	Concerns raised
Central Environmental Authority	Mr. M.M.A.I Janaka, Provincial Director, Central Environmental Authority Central Province.	✓ The Basic Information Questionnaire (BIQ) is needed to fill for the project and submit the application ✓ As the proposed project (mitigation) intends to reduce the risk from landslide for an emergency action CEA approval is not needed considering the priority of the project. ✓ Before project commence a request indicating the mitigation sites need. ✓ If the project is carried out in a sensitive area, even not within a prescribed project, consideration of sensitive area will govern the process.
Way and Works Railway Department	Mr. E.M.S.P.K. Deegala, Chief Engineer	✓ This area is under the jurisdiction of the Department of Sri Lanka Railway. ✓ The SLR has no objection and states the mitigation is very much needed. ✓ Detailed work plan and time schedules must be provided to the SLR by contractor before starting construction activities

		and keep good relationship between contractor, PMU and SLR. ✓ Other concerns raised • Workers must be followed his advices and guidance for safety issues. • Material transportation for locations which haven't other road access will be done according to the requests of the contractor • All the cost including railway material transportation, wages of the flagman and other resources from SLR should be bear by the construction contractor. • A proper handing over of the project is required after the mitigation. • SLR will do the maintenance after mitigation. • It is emphasised that during the construction the contractor should use Personal Protective Equipment • At all times, the contractor shall provide safe and convenient passage for material transportation. measures, barricades, flagmen and for the night work, lights and illumination should be provided. • The contractor should use temporary toilet facilities • The service infrastructure should be relocated under the supervision of SLR. ✓ It is also stated that construction waste/ excavated materials should not be a nuisance to public/commuters.

Annexure III: Proposed procedure for obtaining approvals from state land owners and environmental agencies.

1. Proposed procedure by SLR for approval for implementation of landslide mitigation projects in SLR reservation areas

i. The design to be accepted by the SLR: The project implementing agency should submit detailed design report to SLR with a formal request on nature of approvals required. PMU should prepare above documents and should submit the documents to Way and Works of Railway Department.

ii. Way and Works Railway Department will evaluate the proposal and may call for project briefing. The PMU should provide necessary briefing as appropriate

iii. On the approval by SLR an agreement will be signed between SLR and Project implementing agency to access the site, erect structures, and implement mitigation works.

Annexure IV: Study team

Name	Designation	Position in the study
SAMS Dissanayake	Senior Scientist/ESSD/NBRI	Senior Environmental Scientist
Prabath Liyanaarachchi	Scientist/ ESSD/NBRI	Environmental scientist
A.G.Randombage	Project Assistant	Demographic Data Collection and Report Preparation

Annexure V: List of References

1. Contractor's obligations for Generic Environmental and Social Management Plan- Sri Lanka Landslide Mitigation Project-AIIB

2. Environmental and Social Management Framework-Sri Lanka Landslide Mitigation Project AIIB
3. Resettlement Planning Framework- Sri Lanka Landslide Mitigation Project -AIIB
4. Felling Trees (Control) Act by Ministry of Agriculture, Rural Economic Affairs, Livestock Development, Irrigation and Fisheries and Aquatic Resources Development
5. Census and Statistical Report (2012), Department of Census and Statistics