

EMP-EMoP

ENVIRONMENTAL MANAGEMENT PLAN AND ENVIRONMENTAL MONITORING PLAN DEVELOPMENT ACTIVITY PLAN OF MASS RAPID TRANSIT (MRT) EAST – WEST LINE

**Tomang (DKI Jakarta) – Medan Satria (Bekasi, West Java) Route
along ±24,527 Km and Rorotan Depot along ±5,90 Km**



**Directorate General of Railways
Ministry of Transportation of the Republic of
Indonesia
November 2023**

FOREWORD

Preparation of EIA documents plan activity development track Mass Rapid Transit (MRT) East - West Line Phase 1 Stage 1 (Tomang - Medan Satria) refers to Regulations Government Republic of Indonesia Number 22 of 2021 concerning Guidelines Preparation of Environmental Documents Alive, Appendix II. The preparation of this RKL-RPL document is a follow-up to the approval of the Development Activity Terms of Reference Form track the Mass Rapid Transit (MRT) East - West Line Phase 1 Stage 1 (Tomang - Medan Satria). This RKL-RPL document is submitted together with the Andal document to the Ministry of Environment and Forestry for evaluation.

The activity of preparing this RKL-RPL document is an embodiment of and a sense of responsibility, in order to prevent and reduce negative impacts on the environment and optimize the positive impacts of the planned activities to be carried out, as well as strive for environmental sustainability.

On this occasion we as party guarantor answer say accept love to all party that has help in preparation of this RKL-RPL document. Hopefully what is contained in this document can be used as guidelines and instructions for us in implementing environmental management and monitoring activities in development activities track the Mass Rapid Transit (MRT) East - West Line Phase 1 Stage 1 (Tomang - Medan Satria).

Jakarta, November 2023

**Ir. Mohamad Risal Wasal, A.TD, MM, IPM
Director General of Railway**

ENVIRONMENTAL IMPACT ANALYSIS

MRT East – West Line Phase 1 Stage 1

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ENVIRONMENTAL IMPACT ANALYSIS

MRT East – West Line Phase 1 Stage 1

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Chapter 1

Introduction

1.1. Background

Mass Rapid Transit East-West Line Phase 1 Stage 1 (MRT-EWLP1S1) is a national strategic project based on Coordinating Minister for Economic Affairs Regulation No. 7 of 2021 concerning Changes to the List of National Strategic Projects, in order to overcome traffic congestion and improve transportation facilities in DKI Jakarta and its surroundings. This study was implemented by the Directorate General of Railways (DJKA), Ministry of Transportation of the Republic of Indonesia with funding from the Japan International Cooperation Agency (JICA). Following the Cabinet Secretary letter dated 27 September 2023 regarding the Presidential Meeting directives, during construction and operation stages, MRT East-West will be implemented by Pemprov DKI Jakarta and PT MRT Jakarta (Perseroda).

Based on Minister of Transportation Decree No. KM 203 of 2022 concerning Determining the Route of the Jakarta Mass Rapid Transit Line, East – West Corridor (Cikarang – Balaraja), MRT-EWLP1S1 is planned to be ± 24,527 Km with the Tomang (DKI Jakarta) – Medan Satria (Bekasi, West Java) route and Rorotan Depot access along ± 5.90 Km. The activity plan is presented in **Table 1.1..**

Table 1.1. MRT-EWLP1S1 Activity Plan

Criteria	Description
Route	Tomang – Grogol – Roxy – Petojo – Cideng – Thamrin – Kebon Sirih – Kwitang – Senen – Galur – Cempaka Baru – Sumur Batu – West Pakulonan – East Pakulonan – Perintis – Pulo Gadung – Milling – West Cakung – Pulo Gebang – Ujung Menteng – Medan Satria and access to the Rorotan Depot

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Criteria	Description
Railroad construction	<ul style="list-style-type: none"> a. <i>Elevated</i>(± 15,527 Km) <ul style="list-style-type: none"> • <i>ElevatedWest</i>: Tomang – Grogol – Roxy • <i>ElevatedEast</i>: Galur – Cempaka Baru – Sumur Batu – West Pakulonan – East Pakulonan – Perintis – Pulo Gadung – Milling – West Cakung – Pulo Gebang – Ujung Menteng – Medan Satria b. <i>Elevated</i>(± 5.9 Km) <ul style="list-style-type: none"> • access to Rorotan Depot c. <i>Underground</i>(± 9 Km) <ul style="list-style-type: none"> • Roxy – Petojo – Cideng – Thamrin – Kebon Sirih – Kwitang – Senen – Galur
Station	<ul style="list-style-type: none"> a. <i>Elevated</i>(13 stations) <ul style="list-style-type: none"> Tomang, Grogol, Cempaka Baru, Sumur Batu, West Pakulonan, East Pakulonan, Perintis, Pulo Gadung, Milling, West Cakung, Pulo Gebang, Ujung Menteng, Medan Satria b. <i>Underground</i>(8 stations) <ul style="list-style-type: none"> Roxy, Petojo, Cideng, Thamrin, Kebon Sirih, Kwitang, Senen, Galur
Depot	Rorotan, Cilincing, North Jakarta (area ± 23 Ha)

Source : JMCA, 2022

Administratively, the MRT-EWLP1S1 Tomang – Medan Satria route and access to the Rorotan Depot crosses 2 provinces (DKI Jakarta and West Java), 5 cities (West Jakarta, Central Jakarta, North Jakarta, East Jakarta & Bekasi City), 13 sub-districts (Grogol Petamburan, Gambir, Tanah Abang, Menteng, Senen, Johar Baru, Kemayoran, Cempaka Putih, Kelapa Gading, Pulo Gadung, Cakung, Cilincing, Medan Satria) and 31 sub-districts (Tomang, Tanjung Duren Selatan, Grogol, Duri Pulo, Cideng, Petojo North, South Petojo, Gambir, Kampung Bali, Kebon Sirih, Senen, Kwitang, Kramat, Tanah Tinggi, Galur, Harapan Mulia, Cempaka Baru, Sumur Batu, West Cempaka Putih, East Cempaka Putih, West Kelapa Gading, East Kelapa Gading, Pengangsaan Two, Kayu Putih, Pulo Gadung, Rawa Terate, West Cakung, East Cakung, Ujung Menteng, Medan Satria, and Rorotan).

1.2. Aims and Objectives of RKL - RPL

The purpose of RKL-RPL MRT-EWLP1S1 is as follows:

1. Formulate environmental management and monitoring activities to prevent, overcome and control negative impacts as well as increase positive impacts that are expected to arise as a result of MRT-EWLP1S1 activities;
2. Implementing and supervising environmental management activities

The objectives of RKL-RPL MRT-EWLP1S1 are as follows:

1. Environmental Management Plan (RPL)
 - a) As technical guidelines for the Pemprov DKI and PT MRT Jakarta (Perseroda) in carrying out environmental management activities for any significant impacts and/or other impacts that are expected to arise as a result of MRT-EWLP1S1 activities;
 - b) As technical guidelines for authorized agencies in the guidance and supervision of environmental management activities;
2. Environmental Monitoring Plan (RKL)

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- a) As technical guidelines for the Pemprov DKI and PT MRT Jakartain carrying out environmental monitoring activities and evaluating the implementation of environmental management for any significant impacts and/or other impacts that are expected to arise as a result of MRT-EWLP1S1 activities;

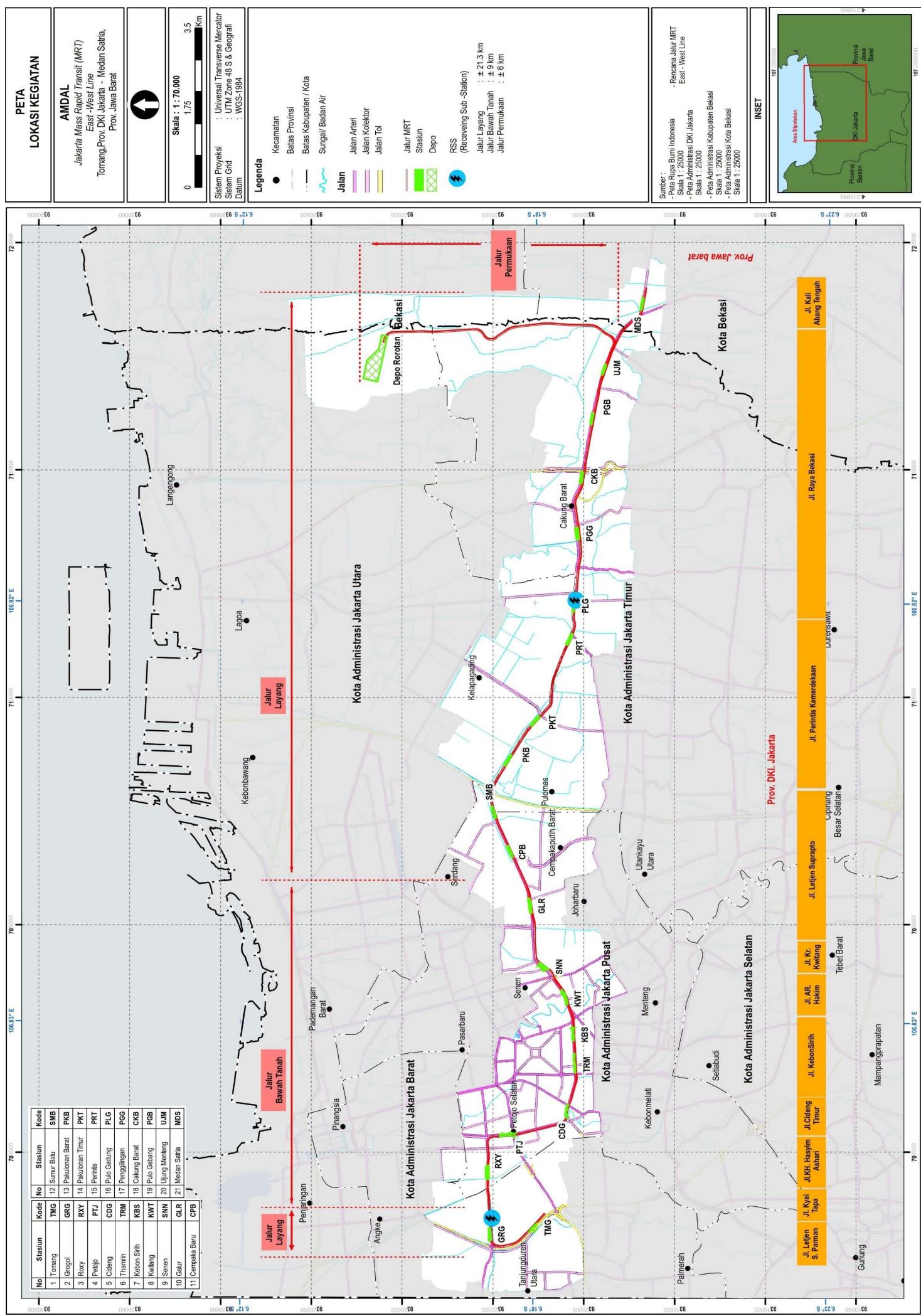


Figure 1.1. MRT-EW/LP1S1 Construction Location Map

- b) As technical guidelines for authorized agencies in the guidance, supervision and evaluation of compliance, trends and critical levels of the implementation of environmental management of MRT-EWLP1S1 activities carried out by Pemprov DKI and PT MRT Jakarta;

1.3. Environmental Policy

Pemprov DKI and PT MRT Jakarta are committed to:

1. Comply and implement provisions of relevant laws and regulations in the environmental field;
2. Improving sustainable environmental management and monitoring in the form of preventing, overcoming and controlling environmental impacts caused by MRT-EWLP1S1 activities;
3. Conduct environmental management training for personnel implementing MRT-EWLP1S1 activities;
4. Ensure that personnel implementing MRT-EWLP1S1 activities understand applicable environmental policies and implement them in every activity in the field;
5. Implement operating standards that minimize environmental impacts, employee health and safety.

All activities including EMP and EMoP stipulated in ANDAL (EIA) must be applicable to not only DKI Jakarta province but also to West Java province. DKI and MRTJ will conduct all the activities to be stipulated in the Updated EIA in West Java Province as well as in DKI Jakarta Province based on their coordination between DKI, West Java Government and Bekasi City.

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Chapter **2**

Environmental Management Plan

The Environmental Management Plan (RKL) contains forms of environmental management carried out for the impacts caused in order to avoid, prevent, minimize and/or control negative impacts and increase positive impacts. In this sense, it is a form of environmental management in MRT-EWLP1S1 activities includes:

1. Significant Impact Management Plan (result of management direction to Andal) as presented in Table 2.1.
2. Other Environmental Impact Management Plan, as presented in Table 2.2.

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Table 2.1. Significant Impact Management Plan (result of management direction to Andal)

No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location	Environmental Management Period	Environmental Management Institution
I PRE CONSTRUCTION STAGE							
1.	Land Acquisition						
1a.	Changes in public perceptions and attitudes	Land procurement	100% of land owners who are acquired receive the results of the land acquisition process	<p>1. Land acquisition is limited to the space area belonging to the MRT road through a land acquisition process with reference to applicable regulations.</p> <p>2. Conduct public consultations with land owners to reach agreement on the land acquisition process. If an agreement has not been reached, a public consultation will be held again. If an agreement is still not reached, the Governor will form a study team tasked with identifying the main issues of disagreement and providing recommendations for improvements to activity plans and/or fairer compensation.</p> <p>3. Conduct deliberations with the rights holders to reach an agreement on compensation and relinquishment of rights to the released objects. If an agreement has not been reached, mediation efforts will be made. If an agreement is still not reached, then negotiations are carried out. If the results of the negotiations do not reach an agreement, the rights holder can submit an objection to the District Court. If the objection is not granted, compensation will be deposited with the District Court, whereas if the objection is granted, compensation will be made based on the decision of the District Court.</p> <p>4. Handling public complaints using the following mechanism:</p> <pre> graph TD GS[Generate Source] --> RC[Registration Complaint] RC --> C[Community] RC --> DS[District/Sub-District] RC --> OG[Other authorized government] C --> IA_A[Issue Category A] DS --> CP[Complaint Service Post] OG --> IA_B[Issue Category B] IA_A --> FAE[Follow up action by Executive] IA_A --> AR[Agreement resolution] CP --> IA_B IA_B --> FAE IA_B --> AR </pre>	<ul style="list-style-type: none"> • Ex. Tomang • Ex. Tanjung Duren Selatan • Ex. Grogol • Ex. Duri Pulo • Ex. Cideng • Ex. North Petjo • Ex. South Petjo • Ex. Gambir • Ex. Kampung Bali • Ex. Kebon Sirih • Ex. Senen • Ex. Kuitwang • Ex. Kramat • Ex. Tanah Tinggi • Ex. Galur • Ex. Harapan Mulia • Ex. Cempaka Baru • Ex. Sumur Batu • Ex. Cempaka Putih Barat • Ex. Cempaka Putih Timur • Ex. West Kelapa Gading • Ex. East Kelapa Gading • Ex. Pegangsaan Dua • Ex. Kayu Putih • Ex. Pulo Gadung • Ex. Rawa Terate • Ex. West Cakung • Ex. East Cakung • Ex. IJung Menteng • Ex. Medan Satria • Ex. Rorotan 	Carried out during the land acquisition process	Implementator: Pemprov DKI Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
II CONSTRUCTION STAGE							
1.	Acceptance of Construction Workers						
1a.	Open job opportunities	Acceptance of construction workers	Local workers involved	Workers constitute a minimum of 20% of the 6,210 construction labor requirements	<p>1. Posting job vacancy announcements at sub-district and sub-district offices, including the number of workers required, qualifications, time and place of registration, place and date of the selection process, date and place of announcement of workers accepted</p> <p>2. Communicate and collaborate with the government (district and sub-district) and local community leaders in workforce recruitment activities</p> <p>3. Prioritize hiring workers from residents of 31 local sub-districts of at least 20% of the 6,210 people needed for construction workers with the following conditions:</p>	<ul style="list-style-type: none"> • The announcement is made once at the initial recruitment of workers • Communication and collaboration with residents, community leaders and local government is 	Implementator: Contractor under PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service

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No	Managed Environmental Impact	Impact Source	Management of the environment	Forms of Environmental Management	Environmental Management Location	Management Period	Environmental Management Institution
				<ul style="list-style-type: none"> If the number of applicants who meet the qualifications exceeds the quota, it can be considered that the number of local workers recruited will be more than 20%. On the other hand, if the 31 local sub-districts have not met the quota, then the need for construction workers can be met from other sub-districts in the 13 sub-districts and/or from 5 cities within the MRT-EWLP151 development area. 	<ul style="list-style-type: none"> Ex. Senen Ex. Kramat Ex. Tanah Tinggi Ex. Galur Ex. Harapan Mulia Ex. Cempaka Baru Ex. Sumur Batu Ex. Cempaka Putih Barat Ex. East Cempaka Putih Ex. West Kelapa Gading Ex. East Kelapa Gading Ex. Pegangsaan Dua Ex. Kayu Putih Ex. Pulo Gadung Ex. Rawa Terate Ex. West Cakung Ex. East Cakung Ex. Ujung Menteng Ex. Medan Satria Ex. Rorotan 	carried out during the workforce recruitment process	<ul style="list-style-type: none"> d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
1b.	Increase in family income	Acceptance of construction workers	Average family income ≥ Rp. 2,500,000/month (RLA condition Rp. 2,300,000/month)	<ol style="list-style-type: none"> Make a Specific Time Work Agreement (PKWT) for each worker Insuring all workers under BPJS Employment and BPJS Health Providing work wages in accordance with applicable regulations (referring to the Regional Minimum Wage) and agreed in the PKWT 	<ul style="list-style-type: none"> Ex. Tomang Ex. Tanjung Duren Selatan Ex. Grogoi Ex. Duri Pulo Ex. Cideng Ex. North Petoj Ex. South Petoj Ex. Gambir Ex. Kampung Bali Ex. Rebon Sirih Ex. Senen Ex. Kramat Ex. Tanah Tinggi Ex. Galur Ex. Harapan Mulia Ex. Cempaka Baru Ex. Sumur Batu Ex. Cempaka Putih Barat Ex. East Cempaka Putih Ex. West Kelapa Gading Ex. East Kelapa Gading Ex. Pegangsaan Dua Ex. Kayu Putih Ex. Pulo Gadung Ex. Rawa Terate Ex. West Cakung Ex. East Cakung Ex. Ujung Menteng Ex. Medan Satria Ex. Rorotan 	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department 	

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No	Managed Environmental Impact	Impact Source	Management of the environment	Success Indicators	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution
1c.	Changes in public perceptions and attitudes	Acceptance of construction workers	100% of the community accepts the results of the construction labor recruitment process	<p>1. Prioritize the recruitment of construction workers from residents of 31 local sub-districts, at least 20% of the 6,210 construction labor needs. If the number of applicants who meet the qualifications exceeds the quota, it can be considered that the number of local workers recruited will be more than 20%. On the other hand, if the 31 local sub-districts have not met the quota, then the need for construction workers can be met from other sub-districts in the 13 local sub-districts and/or from 5 local cities.</p> <p>2. Communicate and collaborate with the government (district and sub-district) and local community leaders in workforce recruitment activities</p> <p>3. Open communication with residents regarding developments in labor recruitment by conveying the number of workers accepted and those not accepted by limiting the acceptance of workers from outside the area</p> <p>4. Provide Complaint Service Post to accommodate public complaints</p> <p>5. Conducted of Public Complaints Handling with the following mechanism:</p> <pre> graph TD GS[Grievance Source] --> GV[Grievance Verification] GV --> IA[Issue Type A] GV --> IB[Issue Type B] IA --> CSPost[Complainant Service Post] IB --> CSPost </pre>	<ul style="list-style-type: none"> Ex. Tomang Ex. Tanjung Duren Selatan Ex. Grogol Ex. Duri Pulo Ex. Cideng Ex. North Petoj Ex. South Petoj Ex. Gambir Ex. Kampung Bali Ex. Kebon Sirih Ex. Senen Ex. Kuitang Ex. Kramat Ex. Tanah Tinggi Ex. Galur Ex. Harapan Mula Ex. Cempaka Baru Ex. Sumur Batu Ex. Cempaka Putih Barat Ex. East Cempaka Putih Ex. West Kelapa Gading Ex. East Kelapa Gading Ex. Pegangsaan Dua Ex. Kayu Putih Ex. Pulo Gadung Ex. Rawa Terate Ex. West Cakung Ex. East Cakung Ex. Ujung Menteng Ex. Medan Satria Ex. Rotoran 	Carried out during the workforce recruitment process		f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
				<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Source of Complaints</p> <p>Parties who may submit complaints: individuals (community), sub-districts/districts and other government authorities</p> <p>Complaint Service Post</p> <p>Providing a Complaints Service Post at each stage of activity with the contractor and HSE supervised by the Supervisory Consultant as the representative in charge of the activity</p> <p>Complaint Verification</p> <p>Complaint Service Post members verify the status of complaints received:</p> <ul style="list-style-type: none"> Category A: Problems that can be repaired and resolved by contractors in the field Category B: Issues that must be coordinated with other government authorities <p>Complaint Follow-up</p> <ul style="list-style-type: none"> Category A: Followed up by the contractor within a certain time based on agreement with the Community Category B: Followed up by the contractor in coordination with the relevant government agency <p>Complaint Resolution</p> <p>The settlement process will involve the party submitting the complaint to obtain an official settlement agreement</p>				

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No	Managed Environmental Impact	Impact Source	Management of the environment	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution
2a.	Open business opportunities	Basecamp operations	The number of local community businesses involved in providing basecamp operational needs is a minimum of 5 business units	1. Basecamp will be used by workers during short breaks in the working hours. All of the workers will not live on the site and instead will sleep in rented houses nearby (rented by the contractors), which locations will be confirmed just before construction starts. 2. Providing opportunities for local communities to collaborate in providing basecamp operational needs 3. Providing opportunities for local communities to become providers of goods and services for basecamp residents	<ul style="list-style-type: none"> • Basecamp Depot Rotan Village Ex: Pegangsaan Dua • Underground Basecamp Duri Pulo Village • Basecamp Elevated Duri Pulo Village 	Done during basecamp operations	Implementator: Contractor under PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department Report Recipient: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department
2b.	Increase in family income	Basecamp operations	Average family income ≥ Rp. 2,500,000/month (RLA condition Rp. 2,300,000/month)	1. Basecamp will be used by workers during short breaks in the working hours. All of the workers will not live on the site and instead will sleep in rented houses nearby (rented by the contractors), which locations will be confirmed just before construction starts. 2. Prioritize the provision of basecamp operational needs by the local community 3. Prioritize the provision of goods and services for basecamp residents by the local community	<ul style="list-style-type: none"> • Basecamp Depot Rotan Village • Underground Basecamp Ex: Pegangsaan Dua • Basecamp Elevated Duri Pulo Village 	Carried out during basecamp operations	Implementator: Contractor under PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department Report Recipient: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department
2c.	Changes in public perceptions and attitudes	Basecamp operations	100% of the community accepts the existence of construction labor activities and basecamp operations	1. Basecamp will be used by workers during short breaks in the working hours. All of the workers will not live on the site and instead will sleep in rented houses nearby (rented by the contractors), which locations will be confirmed just before construction starts. 2. Communicate and collaborate with the government (district and sub-district) and local community leaders regarding construction labor activities and basecamp operations 3. Open communication with residents regarding construction labor activities and basecamp operations 4. Providing a Complaint Service Post to accommodate public complaints 5. Handling public complaints using the following mechanism:	<ul style="list-style-type: none"> • Basecamp Depot Rotan Village • Underground Basecamp Ex: Pegangsaan Dua • Basecamp Elevated Duri Pulo Village 	Carried out during basecamp operations	Implementator: Contractor under PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department Report Recipient: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service

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No	Managed Environmental Impact	Impact Source	Management of the environment	Success Indicators	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution
				<p>Source of Complaints Parties who may submit complaints: individuals (community), sub-districts/districts and other government authorities</p> <p>Complaint Service Post Providing a Complaints Service Post at each stage of activity with the contractor and HSE supervised by the Supervisory Consultant as the representative in charge of the activity.</p> <p>Complaint Verification Complaint Service Post members verify the status of complaints received:</p> <ul style="list-style-type: none"> • Category A: Problems that can be repaired and resolved by contractors in the field • Category B: Issues that must be coordinated with other government authorities <p>Complaint Follow-up</p> <ul style="list-style-type: none"> • Category A: Followed up by the contractor within a certain time based on agreement with the Community • Category B: Followed up by the contractor in coordination with the relevant government agency <p>Complaint Resolution The settlement process will involve the party submitting the complaint to obtain an official settlement agreement.</p>				<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department
3.	3a. Decreased air quality	Mobilization of construction equipment and materials	Parameters: TSP ≤ 230 µg/m ³ PM10 ≤ 75 µg/m ³ PM2.5 ≤ 55 µg/m ³ SO2 ≤ 4900 µg/m ³ CO ≤ 75 µg/m ³ NO2 ≤ 65 µg/m ³ O3 ≤ 100 µg/m ³ HC ≤ 160 µg/m ³	<p>1. Mobilization of Construction Equipment and Materials</p> <p>Carrying out construction equipment and materials using covered transport vehicles and using designated roads.</p> <p>Set a maximum vehicle speed of 40 km/hour by placing supervisory officers.</p> <p>Limiting transportation time to 22:00 – 05:00 WIB as stipulated in Andalalin by placing supervisory officers.</p>	<p>Transport routes for construction equipment and materials:</p> <ul style="list-style-type: none"> • Jl. S. Parman • Jl. KH Hasyim Ashari • Jl. Kebon Sirih • Jl. Eastern Cendeng • Jl. Letjen Suprapto • Jl. Perintis Kemerdekaan • Jl. Raya Bekasi • Jl. Kali Abang Tengah • Jl. BKI inspection 	Over timeconstruction		

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No	Managed Environmental Impact	Impact Source	Management of the environment	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution
3b.	Increased noise	Mobilization of construction equipment and materials	Noise levels in residential areas do not exceed 65 dB(A) (according to RLA conditions)	1. Set a maximum vehicle speed of 40 km/hour by placing supervisory officers. 2. Limiting transportation time to 22.00 – 05.00 WIB as stipulated in Andalalin by placing supervisory officers. 3. Limit heavy equipment activity from 08.00 – 16.00 WIB by placing supervisory officers. 4. Close work areas involving heavy equipment with work fences.	Transport routes for construction equipment and materials: <ul style="list-style-type: none"> • Jl. S. Parman • Jl. KH Hasyim Ashari • Jl. Kebon Sirih • Jl. Eastern Cendeng • Jl. Letjenn Suprapto • Jl. Perintis Kemerdekaan • Jl. Raya Bekasi • Jl. Kali Abang Tengah • Jl. BKI inspection 	During the construction period	Implementator: Contractor under PT MRT Jakarta Supervisor: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service Report Recipient: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
3c.	Increased prevalence of ARI	Mobilization of construction equipment and materials	ARI prevalence ≤ 15% (RA condition 14.69%)	Collaborate with local health centers in improvement activities powercommunity resilience in the form of assistance with healthy food, medication and vitamins	<ul style="list-style-type: none"> • Ex. Tomang • Ex. Tanjung Duren Selatan • Ex. Grogol • Ex. Duri Pulo • Ex. Cideng • Ex. North Petjo • Ex. South Petjo • Ex. Gambir • Ex. Kampung Bali • Ex. Kebon Sirih • Ex. Senen • Ex. Kwitang • Ex. Kramat • Ex. Tanah Tinggi 	During the construction period	Implementator: Contractor under PT MRT Jakarta Supervisor: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department

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MRT East – West Line Phase 1 Stage 1

No	Managed Environmental Impact	Impact Source	Management of the environment	Success Indicators	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution
					<ul style="list-style-type: none"> • Ex. Galur • Ex. Harapan Mulia • Ex. Cempaka Baru • Ex. Sumur Batu • Ex. Cempaka Putih Barat • Ex. East Cempaka Putih • Ex. West Kelapa Gading • Ex. East Kelapa Gading • Ex. Peganganan Dua • Ex. Kayu Putih • Ex. Pulo Gadung • Ex. Rawa Terate • Ex. West Cakung • Ex. East Cakung • Ex. Ujung Menteng • Ex. Medan Satria • Ex. Rorotan 	<ul style="list-style-type: none"> f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	During the construction period	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
3d.	Changes in public perceptions and attitudes	Mobilization of construction equipment and materials	100% of the community accepts the mobilization of construction equipment and materials	<ol style="list-style-type: none"> 1. Communicate and collaborate with the government (district and sub-district) and local community leaders regarding mobilization activities for construction equipment and materials 2. Open communication with residents regarding mobilization of construction equipment and materials 3. Providing a Complaint Service Post to accommodate public complaints 4. Handling public complaints using the following mechanism: 	<pre> graph TD A[Complainant Service Post] --> B[Issue Type A] A --> C[Issue Type B] B --> D[Grievance Verification] B --> E[Follow-up Action] C --> F[Follow-up by contractor with community] </pre>	<p>Grievance Source</p> <p>Some Parties involved in the project will be established at each construction site to convey the grievances received from the community. These parties will verify the received Grievance status as 2 types depending on the degree of capacity and environment the authorities supervised by Supervision consultant as Environmental Social position and DGR representative persons.</p> <p>Grievance Registered</p> <p>Complainant Service Post will be established at each construction site to receive the grievances received from the community. These parties will verify the received Grievance status as 2 types depending on the degree of capacity and environment the authorities supervised by Supervision consultant as Environmental Social position and DGR representative persons.</p> <p>Grievance Verification</p> <p>Issues that can be addressed on site will be referred to the relevant government authority.</p> <p>Follow-up Action</p> <p>Issues that can be addressed on site will be referred to the relevant government authority.</p> <p>Resolved</p> <p>Issues that can be addressed on site will be referred to the relevant government authority.</p>	<p>During the construction period</p> <p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department 	<p>Source of Complaints</p> <p>Parties who may submit complaints: individuals (community), sub-districts/districts and other government authorities</p> <p>Complaint Service Post</p> <p>Providing a Complaints Service Post at each stage of activity with the contractor and HSE supervised by the Supervisory Consultant as the representative in charge of the activity.</p> <p>Complaint Verification</p> <p>Complaint Service Post members verify the status of complaints received:</p> <ul style="list-style-type: none"> • Category A: Problems that can be repaired and resolved by contractors in the field

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No	Managed Environmental Impact	Impact Source	Management of the environment	Success Indicators	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution
				<ul style="list-style-type: none"> Category B: Issues that must be coordinated with other government authorities <p>Complaint Follow-up:</p> <ul style="list-style-type: none"> Category A: Followed up by the contractor within a certain time based on agreement with the Community Category B: Followed up by the contractor in coordination with the relevant government agency <p>Complaint Resolution:</p> <p>The settlement process will involve the party submitting the complaint to obtain an official settlement agreement.</p>				<p>h) Bekasi City Environmental Service</p>
4.	Earthworks and Dewatering							
4a.	Decreased air quality	Earthworks and dewatering	Parameters: TSP ≤ 230 µg/m ³ PM10 ≤ 75 µg/m ³ PM2.5 ≤ 55 µg/m ³ SO2 ≤ 4900 µg/m ³ CO ≤ 75 µg/m ³ NO2 ≤ 65 µg/m ³ O3 ≤ 100 µg/m ³ HC ≤ 160 µg/m ³	<ol style="list-style-type: none"> Transporting excavated soil using covered transport vehicles and using designated roads. Set a maximum vehicle speed of 40 km/hour by placing supervisory officers. Limiting transportation time to 22.00 – 05.00 WIB as stipulated in Andalalin by placing supervisory officers. 	Excavated soil transportation route: <ul style="list-style-type: none"> Jl. S. Parman Jl. KH Hasyim Ashari Jl. Kebon Sirih Jl. Eastern Cendeng Jl. Letjen Suprapto Jl. Perintis Kemerdekaan Jl. Raya Bekasi Jl. Kal Abang Tengah Jl. BKI inspection 	During the construction period	Implementator: Contractor under PT MRT Jakarta Supervisor: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DLH DKI Jakarta c) DLH Provincial West Java d) DLH Central Jakarta City e) DLH West Jakarta City f) DLH North Jakarta City g) DLH East Jakarta City h) DLH Bekasi City Report Recipient: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DLH DKI Jakarta c) DLH Provincial West Java d) DLH Central Jakarta City e) DLH West Jakarta City f) DLH North Jakarta City g) DLH East Jakarta City h) DLH Bekasi City 	
4b.	Increased noise	Earthworks and dewatering	Noise levels in residential areas do not exceed 65 dB(A) (according to RLA conditions)	<ol style="list-style-type: none"> Set a maximum vehicle speed of 40 km/hour by placing supervisory officers. Limiting transportation time to 22.00 – 05.00 WIB as stipulated in Andalalin by placing supervisory officers. Limit heavy equipment activity from 08.00 – 16.00 WIB by placing supervisory officers. Close work areas involving heavy equipment with work fences. 	Excavated soil transportation route: <ul style="list-style-type: none"> Jl. S. Parman Jl. KH Hasyim Ashari Jl. Kebon Sirih Jl. Eastern Cendeng Jl. Letjen Suprapto Jl. Perintis Kemerdekaan Jl. Raya Bekasi Jl. Kal Abang Tengah Jl. BKI inspection 	During the construction period	Implementator: Contractor under PT MRT Jakarta Supervisor: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service Report Recipient: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service 	

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No	Managed Environmental Impact	Impact Source	Management of the environment	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution												
4c.	Increased prevalence of ARI	Earthworks and dewatering	ARI prevalence condition 14.65% ≤ 15%	Collaborating with local health centers in activities to increase community immunity in the form of assistance with healthy food, medication and vitamins	<ul style="list-style-type: none"> Ex. Tomang Ex. Tanjung Duren Selatan Ex. Grogol Ex. Duri Pulo Ex. Cideng Ex. North Petjo Ex. South Petjo Ex. Gambir Ex. Kampung Bali Ex. Kebon Sirih Ex. Senen Ex. Kuitwang Ex. Kramat Ex. Ranah Tinggi Ex. Galur Ex. Harapan Mulia Ex. Cempaka Baru Ex. Sumur Batu Ex. Cempaka Putih Barat Ex. East Cempaka Putih Ex. West Kelapa Gading Ex. East Kelapa Gading Ex. Peganganan Dua Ex. Kayu Putih Ex. Pulo Gadung Ex. Rawa Terate Ex. West Cakung Ex. East Cakung Ex. Jungs Menteng Ex. Medan Satria Ex. Rorotan 	During the construction period	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 												
4d.	Changes in public perceptions and attitudes	Earthworks and dewatering	100% of the community accepts earthwork and dewatering activities	<ol style="list-style-type: none"> Communicate and collaborate with the government (district and sub-district) and local community leaders regarding mobilization activities for construction equipment and materials Open communication with residents regarding mobilization of construction equipment and materials Providing a Complaint Service Post to accommodate public complaints Handling public complaints using the following mechanism: 	<ul style="list-style-type: none"> Ex. Tomang Ex. Tanjung Duren Selatan Ex. Grogol Ex. Duri Pulo Ex. Cideng Ex. North Petjo Ex. South Petjo Ex. Gambir Ex. Kampung Bali Ex. Kebon Sirih 	During the construction period	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service 												
				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Grievance Source</td> <td style="width: 25%;">Grievance Post and Registered</td> <td style="width: 25%;">Follow-up Action</td> <td style="width: 25%;">Grievance Resolution</td> </tr> </table>	Grievance Source	Grievance Post and Registered	Follow-up Action	Grievance Resolution	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Issue Type A</td> <td style="width: 25%;">Follow-up by contractor during certain times based on its convenience</td> <td style="width: 25%;">Issues that can be redressed and resolved by contractor</td> <td style="width: 25%;">Follow-up by contractor on a timely basis with community involvement</td> </tr> </table>	Issue Type A	Follow-up by contractor during certain times based on its convenience	Issues that can be redressed and resolved by contractor	Follow-up by contractor on a timely basis with community involvement	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Issue Type B</td> <td style="width: 25%;">Follow-up by contractor</td> <td style="width: 25%;">Complaint Post</td> <td style="width: 25%;">Sub-District District</td> </tr> </table>	Issue Type B	Follow-up by contractor	Complaint Post	Sub-District District	Environmental Management Plan
Grievance Source	Grievance Post and Registered	Follow-up Action	Grievance Resolution																
Issue Type A	Follow-up by contractor during certain times based on its convenience	Issues that can be redressed and resolved by contractor	Follow-up by contractor on a timely basis with community involvement																
Issue Type B	Follow-up by contractor	Complaint Post	Sub-District District																

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No	Managed Environmental Impact	Impact Source	Management of the environment	Success Indicators	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution
				<p>Source of Complaints Parties who may submit complaints: individuals (community), sub-districts/districts and other government authorities</p> <p>Complaint Service Post Providing a Complaints Service Post at each stage of activity with the contractor and HSE supervised by the Supervisory Consultant as the representative in charge of the activity.</p> <p>Complaint Verification Complaint Service Post members verify the status of complaints received:</p> <ul style="list-style-type: none"> • Category A: Problems that can be repaired and resolved by contractors in the field • Category B: Issues that must be coordinated with other government authorities <p>Complaint Follow-up</p> <ul style="list-style-type: none"> • Category A: Followed up by the contractor within a certain time based on agreement with the Community • Category B: Followed up by the contractor in coordination with the relevant government agency <p>Complaint Resolution The settlement process will involve the party submitting the complaint to obtain an official settlement agreement.</p>	<ul style="list-style-type: none"> • Ex. Senen • Ex. Kuitang • Ex. Kramat • Ex. Tanah Tinggi • Ex. Galur • Ex. Harapan Mulia • Ex. Cempaka Baru • Ex. Sumur Batu • Ex. Cempaka Putih Barat • Ex. East Cempaka Putih • Ex. West Kelapa Gading • Ex. East Kelapa Gading • Ex. Pegangan Dua • Ex. Kayu Putih • Ex. Pulo Gadung • Ex. Rawa Terate • Ex. West Cakung • Ex. East Cakung • Ex. Ijung Menteng • Ex. Medan Satria • Ex. Rorotan 	<ul style="list-style-type: none"> d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 		
5.	Underground Construction Work			<p>5a. Increased noise</p> <p>Underground construction work</p> <p>Noise levels in residential areas do not exceed 65 dB(A) (according to RLA conditions)</p>	<p>1. Limit heavy equipment activity from 08.00 – 16.00 WIB by placing supervisory officers.</p> <p>2. Close work areas involving heavy equipment with work fences.</p>	<p>Underground station construction site: • Rox • Petobo • Cicend • Thamrin • Kebon Sirih • Kuitang • Senen • Galur</p>	<p>During the construction period</p>	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) East Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service

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No	Managed Environmental Impact	Impact Source	Management of the environment	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution
							d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
6.	Ground Surface Construction Work						
6a.	Increased noise	Construction work at ground level	Noise levels in residential areas do not exceed 65 dB(A) (according to RLA conditions)	1. Limit heavy equipment activity from 08.00 – 16.00 WIB by placing supervisory officers. 2. Close work areas involving heavy equipment with work fences.	Elevated station construction site: • Tomang Grogol • Cempaka Baru • Sumur Batu • West Pakulonan • East Pakulonan • Perintis • Pulo Gadung • Milling • West Cakung • Pulo Gebang • Ujung Menteng • Medan Satria • and the Rorotan Depot construction site	During the construction period	Implementator: Contractor under PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service Report Recipient: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
III OPERATIONAL STAGE							
1.	Acceptance of Operational Workers						
1a.	Open job opportunities	Acceptance of operational workforce	Local workers involved workers are a minimum of 20% of the 1,120 operational workforce requirements	1. Posting job vacancy announcements at sub-district and sub-district offices, including the number of workers required, qualifications, time and place of registration, place and date of the selection process, date and place of announcement of workers accepted	• Ex. Tomang • Ex. Tarjung Durun Selatan • Ex. Grogol • Ex. Duri Pulo • Ex. Cideng	• The announcement is made once at the initial recruitment of workers	Implementator: PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry

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No	Managed Environmental Impact	Impact Source	Management of the environment	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution
				<p>2. Communicate and collaborate with the government (district and sub-district) and local community leaders in workforce recruitment activities</p> <p>3. Prioritize hiring workers from residents of 31 local sub-districts of at least 20% of the 1,120 operational workforce needs with the following conditions:</p> <ul style="list-style-type: none"> If the number of applicants who meet the qualifications exceeds the quota, it can be considered that the number of local workers recruited will be more than 20%. On the other hand, if the 31 local sub-districts have not met the quota, then the need for construction workers can be met from other sub-districts in the 13 sub-districts and/or from 5 cities within the MRT-EWLP1S development area. 	<ul style="list-style-type: none"> Ex. North Petojo Ex. South Petojo Ex. Gambir Ex. Kampung Bali Ex. Kebon Sirih Ex. Senen Ex. Kwitang Ex. Kramat Ex. Tanah Tinggi Ex. Galur Ex. Harapan Mulia Ex. Cempaka Baru Ex. Sumur Batu Ex. Cempaka Putih Barat Ex. East Cempaka Putih Ex. West Kelapa Gading Ex. East Kelapa Gading Ex. Pegangsaan Dua Ex. Kayu Putih Ex. Pulo Gadung Ex. Rawa Terate Ex. West Cakung Ex. East Cakung Ex. Ujung Menteng Ex. Medan Satria Ex. Rorotan 	<ul style="list-style-type: none"> Communication and collaboration with residents, community leaders and local government's government is carried out during the workforce recruitment process 	<ul style="list-style-type: none"> b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
1b.	Increase in family income	Average family income ≥ Rp. 2,500,000 / month (RLA condition Rp. 2,300,000/month)	Acceptance of operational workforce	<ol style="list-style-type: none"> 1. Make a Specific Time Work Agreement (PKWT) or Indefinite Time Work Agreement (PKWTT) for each worker 2. Insuring all workers under BPJS Employment and BPJS Health 3. Providing work wages in accordance with applicable regulations (referring to the Regional Minimum Wage) and agreed in the PKWT or PKWTT 	<ul style="list-style-type: none"> Ex. Tomang Ex. Tanjung Duren Selatan Ex. Grogo Ex. Duri Pulo Ex. Cideng Ex. North Petojo Ex. South Petojo Ex. Gambir Ex. Kampung Bali Ex. Kebon Sirih Ex. Senen Ex. Kwitang Ex. Kramat Ex. Tanah Tinggi Ex. Galur Ex. Harapan Mulia Ex. Cempaka Baru Ex. Sumur Batu Ex. Cempaka Putih Barat Ex. East Cempaka Putih Ex. West Kelapa Gading Ex. East Kelapa Gading Ex. Pegangsaan Dua Ex. Kayu Putih Ex. Pulo Gadung Ex. Rawa Terate Ex. West Cakung Ex. East Cakung 	<ul style="list-style-type: none"> PKWT or PKWTT is made once at the initial recruitment of workers Vacancies and labor insurance are provided during work 	<p>Implementator: PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department

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No	Managed Environmental Impact	Impact Source	Management of the environment	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution	
1c.	Changes in public perceptions and attitudes	Acceptance of operational workforce	100% of the community accepts the results of the operational workforce recruitment process	<p>1. Prioritize the recruitment of construction workers from residents of 31 local sub-districts of at least 20%1,120 construction labor requirements. If the number of applicants who meet the qualifications exceeds the quota, it can be considered that the number of local workers recruited will be more than 20%. On the other hand, if the 31 local sub-districts have not met the quota, then the need for construction workers can be met from other sub-districts in the 13 local sub-districts and/or from 5 local cities.</p> <p>2. Communicate and collaborate with the government (district and sub-district) and local community leaders in workforce recruitment activities</p> <p>3. Open communication with residents regarding developments in labor recruitment by conveying the number of workers accepted and those not accepted by limiting the acceptance of workers from outside the area</p> <p>4. Provide Complaint Service Post to accommodate public complaints</p> <p>5. Conducted Public Complaints Handling with the following mechanism:</p> <pre> graph TD GS[Grievance Sources] --> RC[Registration Complaint] RC --> VC[Verification Complaint] VC --> EA[Issue Category A Executor] VC --> AB[Issue Category B Agreement requirement] EA --> FU[Follow up action by Resolution] AB --> FU FU --> CO[Coordination with other authorized government] </pre>	<ul style="list-style-type: none"> • Ex. Ujung Menteng • Ex. Medan Satria • Ex. Rorotan 	<ul style="list-style-type: none"> • Ex. Tomang • Ex. Tanjung Duren Selatan • Ex. Grogol • Ex. Duri Pulo • Ex. Cideng • Ex. North Petoj • Ex. South Petoj • Ex. Gambir • Ex. Kampung Bali • Ex. Kebon Sirih • Ex. Senen • Ex. Kwitang • Ex. Kramat • Ex. Tanah Tinggi • Ex. Galur • Ex. Harapan Mulia • Ex. Cempaka Baru • Ex. Sumur Batu • Ex. Cempaka Putih Barat • Ex. East Cempaka Putih • Ex. West Kelapa Gading • Ex. East Kelapa Gading • Ex. Pegangsaan Dua • Ex. Kayu Putih • Ex. Pulo Gadung • Ex. Rawa Terate • Ex. West Cakung • Ex. East Cakung • Ex. Ujung Menteng • Ex. Medan Satria • Ex. Rorotan 	<p>Done during the process/labor recruitment</p> <p>Implementator: PT MRT Jakarta Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	
2.				<p>SOURCE OF COMPLAINTS</p> <p>Parties who may submit complaints: individuals (community), sub-districts/districts and other government authorities</p> <p>Complaint Service Post</p> <p>Providing a Complaints Service Post at each stage of activity with the operator and HSE as the representative in charge of the activity.</p> <p>Complaint Verification</p> <p>Complaint Service Post members verify the status of complaints received:</p> <ul style="list-style-type: none"> Category A: Problems that can be repaired and resolved by operator in the field Category B: Issues that must be coordinated with other government authorities <p>Complaint Follow-up</p> <ul style="list-style-type: none"> Category A: Followed up by the contractor within a certain time based on agreement with the Community Category B: Followed up by the contractor in coordination with the relevant government agency <p>Complaint resolution</p> <p>The settlement process will involve the party submitting the complaint to obtain an official settlement agreement.</p>	<p>The minimum number of local community businesses involved in providing station operational needs is 5 business units</p>	<p>MRT Station:</p> <ul style="list-style-type: none"> • Tomang • Grogol • Roxy 	<p>Carried out during station operations</p>	<p>Implementator: PT MRT Jakarta Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry
2a.	Open business opportunities	Transportation and Station Operations		<p>1. Providing opportunities for local communities to collaborate in providing station operational needs</p> <p>2. Providing opportunities for local communities to become providers of goods and services to support station operations</p>				

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No	Managed Environmental Impact	Impact Source	Management of the environment	Success Indicators	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution
				3. Providing local communities with the opportunity to become tenants in the MSM space at each station	<ul style="list-style-type: none"> • Petojlo • Cideng • Thamrin • Kebon Sirih • Kwitang • Senen • Galur • Cempaka Baru • Sumur Batu • West Pakulonan • East Pakulonan • Perintis • Pulo Gadung • Milling • West Cakung • Pulo Gebang • Ujung Mentieng • Medan Satria 	<ul style="list-style-type: none"> b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	Report Recipient: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	Implementator: <ul style="list-style-type: none"> PT MRT Jakarta Supervisor: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service Report Recipient: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department
2b.	Increase in family income			Average family income ≥ Rp. 2,500,000/ month (RLA condition Rp. 2,300,000/ month)	<ol style="list-style-type: none"> 1. Prioritize the provision of station operational needs by the local community 2. Prioritize the provision of goods and services to support station operations by local communities 	MRT Station: <ul style="list-style-type: none"> • Tomang • Grogol • Roxy • Petojlo • Cideng • Thamrin • Kebon Sirih • Kwitang • Senen • Galur • Cempaka Baru • Sumur Batu • West Pakulonan • East Pakulonan • Perintis • Pulo Gadung • Milling • West Cakung • Pulo Gebang • Ujung Mentieng • Medan Satria 	Carried out during station operations	Implementator: <ul style="list-style-type: none"> PT MRT Jakarta Supervisor: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service Report Recipient: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department

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No	Managed Environmental Impact	Impact Source	Management of the environment	Forms of Environmental Management	Environmental Management Location	Environmental Management Period	Environmental Management Institution
2c.	Changes in public perceptions and attitudes	Transportation of passengers and station operations	100% of the public accepts passenger transport activities and station operations	<p>1. Communicate and collaborate with the government (district and sub-district) and local community leaders regarding passenger transport activities and station operations</p> <p>2. Open communication with residents regarding passenger transport activities and station operations</p> <p>3. Providing a Complaint Service Post to accommodate public complaints</p> <p>4. Handling public complaints using the following mechanism:</p> <pre> graph TD CS[Complaint Sources] --> RC[Registration Complaint] RC --> VC[Verification Complaint] VC --> FAE[Follow up action by Executor] FAE --> AR[Agreement requirement] AR --> CG[Confirmation with other authorized government] CG --> R[Resolution] FAE -.-> AR FAE -.-> CG AR -.-> FAE CG -.-> FAE </pre>	Carried out during station operations	e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	
				<p>• Ex. Tomang</p> <p>• Ex. Tanjung Duren Selatan</p> <p>• Ex. Grogo</p> <p>• Ex. Duri Pulo</p> <p>• Ex. Cideng</p> <p>• Ex. North Petoj</p> <p>• Ex. South Petoj</p> <p>• Ex. Gambir</p> <p>• Ex. Kampung Bali</p> <p>• Ex. Kebon Sirih</p> <p>• Ex. Senen</p> <p>• Ex. Kuitang</p> <p>• Ex. Kramat</p> <p>• Ex. Tanah Tinggi</p> <p>• Ex. Galur</p> <p>• Ex. Harapan Mulia</p> <p>• Ex. Cempaka Baru</p> <p>• Ex. Sumur Batu</p> <p>• Ex. Cempaka Putih Barat</p> <p>• Ex. East Cempaka Putih</p> <p>• Ex. West Kelapa Gading</p> <p>• Ex. East Kelapa Gading</p> <p>• Ex. Pegangsaan Dua</p> <p>• Ex. Kayu Putih</p> <p>• Ex. Pulo Gadung</p> <p>• Ex. Rawa Terate</p> <p>• Ex. West Cakung</p> <p>• Ex. East Cakung</p> <p>• Ex. Ujung Menteng</p> <p>• Ex. Medan Satria</p> <p>• Ex. Rorotan</p>	<p>Implementator: PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 		

Source of Complaints

Parties who may submit complaints: individuals (community), sub-districts/districts and other government authorities

Complaint Service Post

Providing a Complaints Service Post at each stage of activity with the operator and HSE as the representative in charge of the activity.

Complaint Verification

Complaint Service Post members verify the status of complaints received:

- Category A: Problems that can be repaired and resolved by operator in the field

- Category B: Issues that must be coordinated with other government authorities

Complaint Follow-up

- Category A: Followed up by the contractor within a certain time based on agreement with the Community
- Category B: Followed up by the contractor in coordination with the relevant government agency

Complaint Resolution

The settlement process will involve the party submitting the complaint to obtain an official settlement agreement.

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Table 2.2. Other Environmental Impact Management Plans

No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
1. CONSTRUCTION STAGE							
1. Basecamp Operations							
1a.	Increased disease vectors	Waste water from basecamp operations	No waste water is discharged into the environment around each basecamp location	1. Basecamp will be used by workers during short breaks in the working hours. All of the workers will not live on the site and instead will sleep in rented houses nearby (rented by the contractors), which locations will be confirmed just before construction starts. 2. Providing portable toilets equipped with septic tanks at each basecamp location: <ul style="list-style-type: none"> • Basecamp Depot • Underground Basecamp • Elevated Basecamp • Duri Pulo Village 3. Carrying out regular waste water suction in collaboration with PD PAL Jaya.	<ul style="list-style-type: none"> • Basecamp Depot Rorotan Village • Underground Basecamp Ex. Pegangsaan Dua • Elevated Basecamp Duri Pulo Village 	Carried out during basecamp operations	Implementator: Contractor under PT MRT Jakarta Supervisor: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department Report Recipient: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department
1b.	Increased disease vectors	Waste from basecamp operations	There is no litter in the environment around each basecamp location	1. Basecamp will be used by workers during short breaks in the working hours. All of the workers will not live on the site and instead will sleep in rented houses nearby (rented by the contractors), which locations will be confirmed just before construction starts. 2. Providing segregated waste bins (organic waste and inorganic waste) and Temporary Storage Places (TPS) in the form of container boxes at each basecamp location <ul style="list-style-type: none"> • Basecamp Depot : 1 TPS unit 2 m³ • Underground Basecamp : 1 TPS unit 6 m³ • Basecamp Elevated : 1 TPS unit 6 m³ 3. Transporting waste to the landfill no later than once every 2 days in collaboration with the DKI Jakarta Government	<ul style="list-style-type: none"> • Basecamp Depot Rorotan Village • Underground Basecamp Ex. Pegangsaan Dua • Elevated Basecamp Duri Pulo Village 	Carried out during basecamp operations	Implementator: Contractor under PT MRT Jakarta Supervisor: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department Report Recipient: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department
1c.	Increased disease vectors	B3 waste from basecamp operations	B3 waste is managed in accordance with Minister of Environment and Forestry Regulation No. 6 of 2021 concerning Procedures for Requirements and Management of B3 Waste	1. Basecamp will be used by workers during short breaks in the working hours. All of the workers will not live on the site and instead will sleep in rented houses nearby (rented by the contractors), which locations will be confirmed just before construction starts. 2. Carry out packaging of B3 waste: <ul style="list-style-type: none"> • Plastic containers (60 L) for B3 waste in the form of used batteries and used cloth • Iron drum (200 L) for B3 waste in the form of used lubricating oil • Jumbo bag (100 L) for B3 waste in the form of electronic waste and used filters from air pollution control facilities 	<ul style="list-style-type: none"> • Basecamp Depot Rorotan Village • Underground Basecamp Ex. Pegangsaan Dua • Elevated Basecamp Duri Pulo Village 	Carried out during basecamp operations	Implementator: Contractor under PT MRT Jakarta Supervisor: <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
				<p>3. Install B3 waste labels and symbols on each B3 waste package in accordance with the characteristics of B3 waste</p> <p>4. Carrying out LB3 storage in accordance with the provisions:</p> <ul style="list-style-type: none"> • The maximum storage time for used batteries is 180 days • The maximum storage time for used rags is 365 days • The maximum storage time for lubricating oil is 365 days • The maximum storage time for electronic waste is 365 days • The maximum storage time for used filters from air pollution control facilities is 365 days <p>5. Providing temporary storage for non-permanent B3 waste (TPS LB3) at each basecamp location with dimensions of 2 x 2.5 x 3m.</p> <p>6. Carrying out LB3 transportation every 180 days for further handling in collaboration with a third party who has an LB3 transportation permit from the MINISTRY OF ENVIRONMENT AND FORESTRY.</p>			d) North Jakarta Environment Department Report Recipient: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department
2.	Mobilization of Construction Equipment and Materials		Traffic performance (Vc ratio value) does not exceed 1.37	<p>Carry out traffic management and engineering by referring to the recommendations from the Andalalin study results, including:</p> <ol style="list-style-type: none"> 1. Carrying out outreach to the community along the MRT-EWLP1S1 construction site route and the wider community 2. Close the work area in the middle of the road with a work fence, so that traffic flow is not disturbed by the process of carrying out the MRT-EWLP1S1 construction work. 3. Carry out station construction work in stages for each side of the building, so as not to block the entire road at the station construction site. 4. Limiting heavy vehicle operating hours to 22.00 – 05.00 WIB. 5. Providing lay-by for four-wheeled vehicles for passenger drop off/pick up locations with a minimum length of 100 meters in each MRT-EWLP1S1 construction area. 6. Providing adequate pedestrian paths and road crossing facilities along the MRT-EWLP1S1 construction site. 7. Operational adjustments and affected Transjakarta Bus stops during the construction period. One way is to redesign bus stops or shift existing bus stops. 8. Resetting signals at intersections to reduce queues and improve intersection performance. 9. Clarify road markings, ensure street lighting functions properly and add no-stop signs at traffic jam points along the MRT-EWLP1S1 construction site route. 10. Implementing a right turn ban at every intersection on the MRT-EWLP1S1 construction route, to avoid crossings that occur at that intersection. 11. Implementing an odd-even system on roads at the MRT-EWLP1S1 construction site during the construction period in order to reduce vehicle volume density that occurs during peak hours (morning and evening). 12. Additional Transjakarta Bus frequency specifically for the MRT-EWLP1S1 construction area to divert the movement of people who will use this route using public transportation. 13. Provide warning signs or notifications to avoid road sections affected by MRT-EWLP1S1 construction work. 14. Divert traffic flow via alternative roads (Table 2.34.) on the North and South sides of the MRT-EWLP1S1 construction route. 15. Provide signs indicating alternative route routes on diverted road sections. 16. Sterilizing and improvement of alternative routes, in the form of resurfacing, marking repairs, and other potential improvements. 17. Parking management on construction routes and alternative routes, to ensure parking availability and support community activities around the project. Provide several on street parking points in each construction area. and supporting facilities can be used optimally. 18. Controlling sidewalks and side obstacles by officers, so that road capacity 	<p>Carried out every day during the mobilization of construction equipment and materials</p> <p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service</p> <p>Report Recipient: a) Ministry of Environment and Forestry b) Ministry of Transportation c) DKI Jakarta Provincial Environmental Service d) West Java Province Environmental Service e) Central Jakarta Environment Department f) West Jakarta Environment Department g) North Jakarta Environment Department h) East Jakarta Environment Department i) Bekasi City Environmental Service</p>		

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management		Management Location Environment	Environmental Management Period	Environmental Management Institution
2b.	Occurrence of Environmental Disturbances (dust, noise, piles of sediment)	Mobilization of construction equipment and materials	100% of public complaints regarding environmental disturbances (dust, noise and sediment piles) are handled according to established mechanisms	<p>1. Coordinate and collaborate with village heads, sub-district heads and related agencies to provide outreach/notifications to the surrounding community prior to the implementation of each stage/work of the MRT-EWLP1S1 construction.</p> <p>2. Providing a Complaint Service Post to accommodate public complaints regarding the implementation of each stage/construction work of the MRT-EWLP1S1.</p> <p>3. Informing the existence of the Complaints Service Post (with telephone number, email and contact person information) to the local community.</p> <p>4. Handling public complaints using the following mechanism:</p> <pre> graph TD GS[Grievance Source Registered] --> CPS[Complaint Service Post] CPS --> IA[Issue Type A] CPS --> IB[Issue Type B] IA --> FA[Follow-up Action] IB --> FA FA --> GV[Grievance Verification] FA --> R[Resolved] </pre>	<ul style="list-style-type: none"> • Ex. Tomang Seletan • Ex. Tanjung Duren Selatan • Ex. Grogol • Ex. Duri Pulo • Ex. Cideng • Ex. North Petjo • Ex. South Petjo • Ex. Gambir • Ex. Kampung Bali • Ex. Kebon Sirih • Ex. Senen • Ex. Kwitang • Ex. Kramat • Ex. Tanah Tinggi • Ex. Galur • Ex. Harapan Mulya • Ex. Cempaka Baru • Ex. Sumur Batu • Ex. Cempaka Putih Barat • Ex. East Cempaka Putih • Ex. Kelapa Gading • Ex. Pegangsaan Dua • Ex. Kayu Putih • Ex. Pulo Gadung • Ex. Rawa Jerate • Ex. West Cakung • Ex. East Cakung • Ex. Ujung Menteng • Ex. Medan Satria • Ex. Rorotan 	Implementator: Contractor under PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environmental Department g) East Jakarta Environment Department h) Bekasi City Environmental Service		
2c.	There are traffic jams	Mobilization of construction equipment and materials	There are no traffic jams	<p>1. Coordinate and collaborate with village heads, sub-district heads and related agencies to provide outreach/notifications to the surrounding community regarding the implementation of each stage/work of the MRT-EWLP1S1 construction which will disrupt the smooth flow of traffic.</p> <p>2. Submitting notification of diverting traffic flow via alternative roads on the North and South sides of the MRT-EWLP1S1 construction route.</p> <p>3. Deploy officers to regulate traffic, especially during peak hours (06.30 - 08.30 WIB and 16.00 - 18.30 WIB).</p>	<ul style="list-style-type: none"> • Jl. Letjen S. Parman, • Jl. Kyai Tapa, • Jl. Dr Susilo Raya • Jl. KH. Hashim, Ash'ari, • Jl. East Cideng, • Jl. West Cideng • Jl. East Cideng • Jl. Iati Baru Raya 	Implementator: Contractor under PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service		

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
				<ul style="list-style-type: none"> • Jl. Kebon Sirih • Jl. Kramat Kwitang • Jl. Letjen Suprapto • Jl. Perintis Kemerdekaan • Jl. Raya Bekasi • Jl. Central Kalabang • Jl. Sultan Agung • Jl. BKT inspection 	<ul style="list-style-type: none"> c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	
3.	Land Clearing and Relocation of Public Facilities/Utilities	Decreased traffic performance	Traffic performance (Vc ratio value) does not exceed 1.37	<p>Carry out traffic management and engineering by referring to the recommendations from the Andalalin study results, including:</p> <ol style="list-style-type: none"> 1. Carrying out outreach to the community along the MRT-EWLP1S1 construction site route and the wider community 2. Close the work area in the middle of the road with a work fence, so that traffic flow is not disturbed by the process of carrying out the MRT-EWLP1S1 construction work. 3. Carry out station construction work in stages for each side of the building, so as not to block the entire road at the station construction site. 4. Limiting heavy vehicle operating hours to 22.00 – 05.00 WIB. 5. Providing lay-by for four-wheeled vehicles for passenger drop off/pick up locations with a minimum length of 100 meters in each MRT-EWLP1S1 construction area. 6. Providing adequate pedestrian paths and road crossing facilities along the MRT-EWLP1S1 construction site. 7. Operational adjustments and affected Transjakarta Bus stops during the construction period. One way is to redesign bus stops or shift existing bus stops. 8. Resetting signals at intersections to reduce queues and improve intersection performance. 9. Clarify road markings, ensure street lighting functions properly and add no-stop signs at traffic jam points along the MRT-EWLP1S1 construction site route. 10. Implementing a right turn ban at every intersection on the MRT-EWLP1S1 construction route, to avoid crossings that occur at that intersection. 	<ul style="list-style-type: none"> • Jl. Letjen S. Parman, • Jl. Kyai Tapa, • Jl. Dr Susilo Raya • Jl. KH. Hashim, Ashari, • Jl. East Cideng, • Jl. Baru Raya • Jl. Kebon Sirih • Jl. Kramat Kwitang • Jl. Letjen Suprapto • Jl. Perintis Kemerdekaan • Jl. Raya Bekasi • Jl. Central Kalabang • Jl. Sultan Agung • Jl. BKT inspection 	<p>Carried out every day during land clearing activities and relocation of public facilities/utilities</p> <p>Implementator:</p> <ul style="list-style-type: none"> Contractor under PT MRT Jakarta <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) Ministry of Transport 	

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
				<p>11. Implementing an odd-even system on roads at the MRT-EWLP1S1 construction site during the construction period in order to reduce vehicle volume density that occurs during peak hours (morning and evening).</p> <p>12. Additional Transjakarta Bus frequency specifically for the MRT-EWLP1S1 construction area to divert the movement of people who will use this route using public transportation.</p> <p>13. Provide warning signs or notifications to avoid road sections affected by MRT-EWLP1S1 construction work.</p> <p>14. Divert traffic flow via alternative roads (Table 2.34) on the North and South sides of the MRT-EWLP1S1 construction route.</p> <p>15. Provide signs indicating alternative route routes on diverted road sections.</p> <p>16. Sterilization and improvement of alternative routes, in the form of resurfacing, marking repairs, and other potential improvements.</p> <p>17. Parking management on construction routes and alternative routes, to ensure parking availability and support community activities around the project. Provide several on street parking points in each construction area.</p> <p>18. Controlling sidewalks and side obstacles by officers, so that road capacity and supporting facilities can be used optimally.</p>	<p>Construction location:</p> <ul style="list-style-type: none"> • MRT Station: Tomang; Grogol; Roxy; Petrojo; Cideng; Thamrin; Kebon Sirih; Kwitang; Senen; Galur; Cempaka Baru; Sumur Batu; West Pakulonan; East Pakulonan; Perintis; Pulo Gadung; Milling; West Cakung; Pulo Gebang; Ujung Menteng; Medan Satia • Rorotan Depot <p>• Elevated path</p> <p>• Underground route</p>	<p>Planting is done once with maintenance carried out every day</p>	<p>Implementator:</p> <p>Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <p>a) Ministry of Environment and Forestry</p> <p>b) DKI Jakarta Provincial Environmental Service</p> <p>c) West Java Province Environmental Service</p> <p>d) Central Jakarta Environment Department</p> <p>e) West Jakarta Environment Department</p> <p>f) North Jakarta Environment Department</p> <p>g) East Jakarta Environment Department</p> <p>h) Bekasi City Environmental Service</p> <p>Report Recipient:</p> <p>a) Ministry of Environment and Forestry</p> <p>b) DKI Jakarta Provincial Environmental Service</p> <p>c) West Java Province Environmental Service</p> <p>d) Central Jakarta Environment Department</p> <p>e) West Jakarta Environment Department</p> <p>f) North Jakarta Environment Department</p> <p>g) East Jakarta Environment Department</p> <p>h) Bekasi City Environmental Service</p>
3b.	Decreased density of land vegetation	Land clearing and relocation of public facilities/utilities	The removal and/or felling and replacement of protective trees is carried out in accordance with the felling permit from the authorized agency.	<p>1. Carry out the removal and/or felling and replacement of protective trees after obtaining a felling permit from the authorized agency.</p> <p>2. Replanting shade trees that are removed and/or planting replacements for trees that are cut down as part of landscaping work in locations that have been determined according to permission from the competent authority</p>			

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
3c.	Increased runoff water discharge	Land clearing and relocation of public facilities/utilities	No flooding occurred	<ul style="list-style-type: none"> 1. Regulate MRT-EWLP1S1 construction activities so as not to disturb drainage channels by placing supervisory officers. 2. Create drainage channels in work areas that have the potential to cause puddles. 3. Coordinate with the Public Works Department to repair drainage channels affected by MRT-EWLP1S1 construction activities. 	<p>Construction location:</p> <ul style="list-style-type: none"> • MRT Station: Tomang; Grogol; Roxy; Petoj; Cideng; Thamrin; Kebon Sirih; Kwitang; Senen; Galur; Cempaka Baru; Sumur Batu; West Pakulonan; East Pakulonan; Perintis; Pulo Gadung; Milling; West Cakung; Pulo Gebang; Ujung Menteng; Medan Satria • Rorotan Depot • Elevated path • Underground route 	<p>Carried out during land clearing activities and relocation of public facilities/utilities</p>	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
3d.	Occurrence of Environmental Disturbances	(dust, noise, piles of sediment, and puddles)	Land clearing and relocation of public facilities/utilities	<ul style="list-style-type: none"> 100% of public complaints regarding environmental disturbances (dust, noise and sediment piles) are handled according to established mechanisms 	<p>Ex. Tomang Ex. Tanjung Duren Selatan Ex. Grogol Ex. Duri Pulo Ex. Cideng Ex. North Petrojo Ex. South Petrojo Ex. Gambir Ex. Kampung Bali Ex. Kebon Sirih Ex. Senen Ex. Kwitang Ex. Kramat Ex. Tanah Tinggi Ex. Galur Ex. Harapan Mulia Ex. Cempaka Baru Ex. Sumur Batu</p>	<p>Carried out every day during land clearing and relocation of public facilities/utilities</p>	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution	
				<pre> graph TD A[Grievance Source] --> B[Grievance Registered] B --> C[Grievance Verification] C --> D[Follow-up Action] D --> E[Resolved] E --> F[Issue Type A] E --> G[Issue Type B] F --> H[Followed up by contractor within some certain times based on its agreement with community] G --> I[Followed up by contractor with coordination to some authorities such as repairing road, drainage damaged, pipeline etc.] H --> I I --> J[Resolve process will be involved to previous parties in order to officially closing issue.] J --> K[Issue Type A] J --> L[Issue Type B] K --> M[Complaint Service Post will be Established at each member's office as 2 types depending on the address of capability and involvement the authorities supervised by Supervision consultant as Environmental Social position and DSR representative persons.] L --> M M --> N[Some Parties that might convey the grievances.] N --> O[Persons] N --> P[Sub-District] N --> Q[Other Government Authorities] O --> R[Complaint Service Post] P --> R Q --> R R --> S[Complaint Service Post at each stage of activities with contractors and HSE supervised by:] S --> T[Supervisory Consultant as the representative in charge of activities.] T --> U[Environmental damage monitoring team as representatives of the government and society] U --> V[Complaint Service Post members verify the status of complaints received:] V --> W[Category A: Problems that can be repaired and resolved by contractors in the field] V --> X[Category B: Issues that must be coordinated with other government authorities] W --> Y[Complaint Follow-up] X --> Y Y --> Z[Category A: Followed up by the contractor within a certain time based on agreement with the Community] Z --> AA[Category B: Followed up by the contractor in coordination with the relevant government agency] AA --> BB[Complaint Resolution] BB --> CC[The settlement process will involve the party submitting the complaint to obtain an official settlement agreement.] CC --> DD[Provide compensation to communities directly affected.] DD --> EE[Coordinate and collaborate with village heads, sub-district heads and related agencies to provide outreach/notification to the surrounding community regarding the implementation of each stage/work of the MRT-EWLP1S1 construction which will disrupt the smooth flow of traffic.] EE --> FF[Submitting notification of diverting traffic flow via alternative roads on the North and South sides of the MRT-EWLP1S1 construction route.] FF --> GG[Deploy officers to regulate traffic, especially during peak hours (06.30 - 08.30 WIB and 16.00 - 18.30 WIB).] GG --> HH[There are no traffic jams] HH --> II[Land clearing and relocation of public facilities/utilities] II --> JJ[Report Recipient: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service] JJ --> KK[Implementation: Contractor under PT MRT Jakarta] KK --> LL[Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) JI-BKT inspection] </pre>	<ul style="list-style-type: none"> Ex. Cempaka Putih Barat Ex. East Cempaka Putih Ex. West Kelapa Gading Ex. East Kelapa Gading Ex. Pegangsaan Dua Ex. Kayu Putih Ex. Pulo Gadung Ex. Rawa Terate Ex. West Cakung Ex. Ujung Menteng Ex. Medan Satria Ex. Rorotan 	<ul style="list-style-type: none"> Ex. Cempaka Putih Barat Ex. East Cempaka Putih Ex. West Kelapa Gading Ex. East Kelapa Gading Ex. Pegangsaan Dua Ex. Kayu Putih Ex. Pulo Gadung Ex. Rawa Terate Ex. West Cakung Ex. Ujung Menteng Ex. Medan Satria Ex. Rorotan 	<ul style="list-style-type: none"> h) Bekasi City Environmental Service a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> h) Bekasi City Environmental Service a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) JI-BKT inspection
3e.	There are traffic jams	Land clearing and relocation of public facilities/utilities	There are no traffic jams	<p>1. Coordinate and collaborate with village heads, sub-district heads and related agencies to provide outreach/notification to the surrounding community regarding the implementation of each stage/work of the MRT-EWLP1S1 construction which will disrupt the smooth flow of traffic.</p> <p>2. Submitting notification of diverting traffic flow via alternative roads on the North and South sides of the MRT-EWLP1S1 construction route.</p> <p>3. Deploy officers to regulate traffic, especially during peak hours (06.30 - 08.30 WIB and 16.00 - 18.30 WIB).</p>	<ul style="list-style-type: none"> Jl. Letjen S. Parman, Jl. Kyai Tapai, Jl. Dr Susilo Raya Jl. KH. Hashim, Ash'ari, Jl. East Cideng, Jl. Iati Baru Raya Jl. Kebon Sirih Jl. Kramat Kwitang Jl. Letjen Suprapto Jl. Perintis Kemerdekaan Jl. Raya Bekasi Jl. Central Kalibang Jl. Sultan Agung Jl. BKI inspection 	<ul style="list-style-type: none"> Carried out every day during land clearing and relocation of public facilities/utilities 	<ul style="list-style-type: none"> Implementator: Contractor under PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department 	

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN

MRT East – West Line Phase 1 Stage 1

No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
							<p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
4.	Earthworks and Dewatering	Decreased traffic performance	Traffic performance (Vc ratio value) does not exceed 1.37	<p>Carry out traffic management and engineering by referring to the recommendations from the Andalalin study results, including:</p> <ol style="list-style-type: none"> 1. Carrying out outreach to the community along the MRT-EWLP1S1 construction site route and the wider community 2. Close the work area in the middle of the road with a work fence, so that traffic flow is not disturbed by the process of carrying out the MRT-EWLP1S1 construction work. 3. Carry out station construction work in stages for each side of the building, so as not to block the entire road at the station construction site. 4. Limiting heavy vehicle operating hours to 22.00 – 05.00 WIB. 5. Providing lay-by for four-wheeled vehicles for passenger drop off/pick up locations with a minimum length of 100 meters in each MRT-EWLP1S1 construction area. 6. Providing adequate pedestrian paths and road crossing facilities along the MRT-EWLP1S1 construction site. 7. Operational adjustments and affected Transjakarta Bus stops during the construction period. One way is to redesign bus stops or shift existing bus stops. 8. Resetting signals at intersections to reduce queues and improve intersection performance. 9. Clarify road markings, ensure street lighting functions properly and add no-stop signs at traffic jam points along the MRT-EWLP1S1 construction site route. 10. Implementing a right turn ban at every intersection on the MRT-EWLP1S1 construction route, to avoid crossings that occur at that intersection. 11. Implementing an odd-even system on roads at the MRT-EWLP1S1 construction site during the construction period in order to reduce vehicle volume density that occurs during peak hours (morning and evening). 12. Additional Transjakarta Bus frequency specifically for the MRT-EWLP1S1 construction area to divert the movement of people who will use this route using public transportation. 13. Provide warning signs or notifications to avoid road sections affected by MRT-EWLP1S1 construction work. 14. Divert traffic flow via alternative roads (Table 2.34.) on the North and South sides of the MRT-EWLP1S1 construction route. 15. Provide signs indicating alternative route routes on diverted road sections. 16. Sterilization and improvement of alternative routes, in the form of resurfacing, marking repairs, and other potential improvements. 	<p>Implementator:</p> <ul style="list-style-type: none"> • Jl. Letjen S. Parman, • Jl. Kyai Tapa, • Jl. Dr Susilo Raya • Jl. KH. Hashim, Ash'ari, • Jl. East Cideng, • Jl. West Cideng • Jl. East Cideng • Jl. Jati Baru Raya • Jl. Kebon Sirih • Jl. Kramat Kwitang • Jl. Letjen Suprapto • Jl. Perintis Kemerdekaan • Jl. Raya Bekasi • Jl. Central Kalibang • Jl. Sultan Agung • Jl. BKT inspection 	<p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) Ministry of Transportation c) DKI Jakarta Provincial Environmental Service d) West Java Province Environmental Service e) Central Jakarta Environment Department f) West Jakarta Environment Department g) North Jakarta Environment Department h) East Jakarta Environment Department 	

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
				17. Parking management on construction routes and alternative routes, to ensure parking availability and support community activities around the project. Provide several on street parking points in each construction area. Controlling sidewalks and side obstacles by officers, so that road capacity and supporting facilities can be used optimally.			i) Bekasi City Environmental Service
4b.	Increased vibration	Earthworks and dewatering	Vibration levels do not exceed: <ul style="list-style-type: none"> • 2 mm/sec at a frequency of 4 Hz • 7.5 mm/second at a frequency of 5 Hz • 7 mm/sec at a frequency of 6.3 Hz • 6 mm/sec at a frequency of 8 Hz • 5.2 mm/second at a frequency of 10 Hz • 4.8 mm/sec at a frequency of 12.5 Hz • 4 mm/sec at a frequency of 16 Hz • 3.8 mm/second at a frequency of 20 Hz • 3.2 mm/second at a frequency of 25 Hz • 3 mm/sec at a frequency of 31.5 Hz • 2 mm/sec at a frequency of 40 Hz • 1 mm/second at a frequency of 50 Hz 	1. Carrying out earthworks for construction on the ground surface using the drill pile method using a drilling auger machine which directly installs a protective casing at the same time as a structural retaining wall and reduces vibrations. 2. Carrying out earthworks for underground station construction begins with installing a guide wall (G-wall) & diaphragm wall (D-wall) as a retaining wall for the station structure and reducing vibrations. 3. Carrying out underground tunnel excavations with an earth pressure balance (TBM-EPB) type tunnel boring machine which directly lines the tunnel walls with concrete at the same time as a retaining wall for the tunnel structure and reduces vibrations. 4. Regulate the speed of TBM-EPB movement by placing supervisory officers (geologists).	• Location of earthworks for elevated (pier) construction • Earthworks location for underground construction	Done every day during pEarthworks and dewatering	Implementator: Contractor under PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
4c.	Decrease in ground water level	Earthworks and dewatering	There was no decrease in the ground water level (TMA) of more than 3 m from the TMA in the initial environmental baseline conditions in residents' wells around the underground segment earthworks location	1. Carrying out earthworks for underground station construction begins with the installation of a guide wall (G-wall) & diaphragm wall (D-wall) which functions as a retaining wall for the station structure and groundwater seepage (design criteria for water leakage ratio $\leq 0.12 \text{ L/m}^2 \cdot \text{day}$ and every $10 \text{ m} \leq 0.20 \text{ L/m}^2 \cdot \text{day}$) 2. Carry out underground tunnel excavations with an EPB type Tunnel Boring Machine (TBM) which immediately lines the tunnel walls with concrete at the same time to prevent leaks and groundwater seepage (design criteria for water leakage ratio $\leq 0.12 \text{ L/m}^2 \cdot \text{day}$ and every $10 \text{ m} \leq 0.20 \text{ L/m}^2 \cdot \text{day}$), and has features to control soil flow and water pressure around the tunnel.	Earthworks location for underground construction	Performed daily during earthworks and dewatering	Implementator: Contractor under PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management		Management Location Environment	Environmental Management Period	Environmental Management Institution
4d.	Decreased groundwater quality	Earthworks and dewatering	Groundwater quality parameters: • Temperature $\pm 3^{\circ}\text{C}$ 1) • pH 6.5 – 8.5 1) • No smell 1) • Color $\leq 10 \text{ TCU}$ 1)) • TDS $\leq 988 \text{ mg/L}$ 2) • Turbidity $\leq 3 \text{ mg/L}$ 1) • Fe $\leq 0.2 \text{ mg/L}$ 1) • Mn $\leq 3 \text{ mg/L}$ 2) • Cr VI $\leq 0.01 \text{ mg/L}$ 1) • NO2 $\leq 3 \text{ mg/L}$ 1) • NO3 $\leq 20 \text{ mg/L}$ 1) • E.Coli $\leq 0 \text{ CFU/100 mL}$ 1) • Total Coliform $\leq 50 \text{ CFU/100 mL}$ 2)	1. Providing a dewatering water storage pond 2. Carrying out dewatering water periodically in collaboration with the PALJaya Regional Company.	Earthworks location for underground construction	Performed daily during earthworks and dewatering	Implementator: Contractor under PT MRT Jakarta	

Information :
¹Republic of Indonesia Minister of Health Regulation No. 2 of 2023
²Initial environmental baseline conditions

- Report Recipient:**
- a) Ministry of Environment and Forestry
 - b) DKI Jakarta Provincial Environmental Service
 - c) West Java Province Environmental Service
 - d) Central Jakarta Environmental Department
 - e) West Jakarta Environment Department
 - f) North Jakarta Environment Department
 - g) East Jakarta Environment Department
 - h) Bekasi City Environmental Service

- Supervisor:**
- a) Ministry of Environment and Forestry
 - b) DKI Jakarta Provincial Environmental Service
 - c) West Java Province Environmental Service
 - d) Central Jakarta Environmental Department
 - e) West Jakarta Environment Department
 - f) North Jakarta Environment Department
 - g) East Jakarta Environment Department
 - h) Bekasi City Environmental Service

- Report Recipient:**
- a) Ministry of Environment and Forestry
 - b) DKI Jakarta Provincial Environmental Service
 - c) West Java Province Environmental Service
 - d) Central Jakarta Environmental Department
 - e) West Jakarta Environment Department
 - f) North Jakarta Environment Department

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
4e.	Occurrence of Environmental Disturbances (dust, noise, piles of sediment, and puddles)	Earthworks and dewatering	100% of public complaints regarding environmental disturbances (dust, noise, piles of sediment and puddles) are handled according to the established mechanism	<p>1. Coordinate and collaborate with village heads, sub-district heads and related agencies to provide outreach/notifications to the surrounding community prior to the implementation of each stage/work of the MRT-EWLP1S1 construction.</p> <p>2. Providing a Complaint Service Post to accommodate public complaints regarding the implementation of each stage/construction work of the MRT-EWLP1S1.</p> <p>3. Informing the existence of the Complaints Service Post (with telephone number, email and contact person information) to the local community.</p> <p>4. Handling public complaints using the following mechanism:</p> <pre> graph TD GS[Grievance Source] --> CSP[Complainant Service Post] CSP --> IA[Issue Type A] CSP --> IB[Issue Type B] IA --> FA[Follow-up Action] FA --> GV[Grievance Verification] FA --> R[Resolved] IB --> FBC[Follow-up by contractor with coordination to same relevant government authorities such as damming authority, other government authorities like damming authority, pipeline etc.] FBC --> RR[Report Recipient] RR --> MEF[Ministry of Environment and Forestry] RR --> DKI[DKI Jakarta Provincial Environmental Service] RR --> WJP[West Java Province Environmental Service] RR --> CJED[Central Jakarta Environmental Department] RR --> WEJD[West Jakarta Environment Department] RR --> NJED[North Jakarta Environment Department] RR --> EJED[East Jakarta Environment Department] RR --> BCES[Bekasi City Environmental Service] </pre>	<ul style="list-style-type: none"> Ex. Tomang Ex. Tanjung Duren Selatan Ex. Grogol Ex. Duri Pulo Ex. Cideng Ex. South Petrho Ex. North Petrho Ex. Gambir Ex. Kampung Bali Ex. Rebon Sirih Ex. Senen Ex. Kwitang Ex. Kramat Ex. Tarah Tinggi Ex. Galur Ex. Harapan Mulya Ex. Cempaka Baru Ex. Sumur Batu Ex. Cempaka Putih Barat Ex. East Cempaka Putih Ex. West Kelapa Gading Ex. East Kelapa Gading Ex. Pegangsaan Dua Ex. Kayu Putih Ex. Pulo Gadung Ex. Rawa Terate Ex. West Cakung Ex. East Cakung Ex. Ujung Menteng Ex. Medan Satria Ex. Rorotan 	<ul style="list-style-type: none"> g) East Jakarta Environment Department h) Bekasi City Environmental Service 	
4f.	There are traffic jams	Earthworks and dewatering	There are no traffic jams	<p>The settlement process will involve the party submitting the complaint to obtain an official settlement agreement.</p> <p>5. Provide compensation to communities directly affected.</p> <p>1. Coordinate and collaborate with village heads, sub-district heads and related agencies to provide outreach/notifications to the surrounding community regarding the implementation of each stage/work of the MRT-EWLP1S1 construction which will disrupt the smooth flow of traffic.</p> <p>2. Submitting notification of diverting traffic flow via alternative roads on the North and South sides of the MRT-EWLP1S1 construction route.</p>	<ul style="list-style-type: none"> Jl. Letjen S. Parman, Jl. Kyai Tapa, Jl. Di Susilo Raya Jl. KH. Hashim, Ash'ari, 	<ul style="list-style-type: none"> Carried out every day during earthworks and dewatering 	<ul style="list-style-type: none"> Implementator: Contractor under PT MRT Jakarta Supervisor: Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
				<p>3. Deploy officers to regulate traffic, especially during peak hours (06.30 - 08.30 WIB and 16.00 - 18.30 WIB).</p>	<ul style="list-style-type: none"> • Jl. East Cideng, • Jl. West Cideng • Jl. Iati Baru Raya • Jl. Kebon Sirih • Jl. Kramat Kwitang • Jl. Letjen Suprapto • Jl. Perintis Kemerdekaan • Jl. Raya Bekasi • Jl. Central Kalibang • Jl. Sultan Agung • Jl. BKT inspection 		<p>a) Ministry of Environment and Forestry</p> <p>b) DKI Jakarta Provincial Environmental Service</p> <p>c) West Java Province Environmental Service</p> <p>d) Central Jakarta Environment Department</p> <p>e) West Jakarta Environment Department</p> <p>f) North Jakarta Environment Department</p> <p>g) East Jakarta Environment Department</p> <p>h) Bekasi City Environmental Service</p>
5.	Decreased traffic performance	Underground construction work	Traffic performance (Vc ratio value) does not exceed 1.37	<p>Carry out traffic management and engineering by referring to the recommendations from the Andalalin study results, including:</p> <ol style="list-style-type: none"> 1. Carrying out outreach to the community along the MRT-EWLP1S1 construction site route and the wider community 2. Close the work area in the middle of the road with a work fence, so that traffic flow is not disturbed by the process of carrying out the MRT-EWLP1S1 construction work. 3. Carry out station construction work in stages for each side of the building, so as not to block the entire road at the station construction site. 4. Limiting heavy vehicle operating hours to 22.00 – 05.00 WIB. 5. Providing lay-by for four-wheeled vehicles for passenger drop off/pick up locations, with a minimum length of 100 meters in each MRT-EWLP1S1 construction area. 6. Providing adequate pedestrian paths and road crossing facilities along the MRT-EWLP1S1 construction site. 7. Operational adjustments and affected Transjakarta Bus stops during the construction period. One way is to redesign bus stops or shift existing bus stops. 8. Resetting signals at intersections to reduce queues and improve intersection performance. 9. Clarify road markings, ensure street lighting functions properly and add no-stop signs at traffic jam points along the MRT-EWLP1S1 construction site route. 10. Implementing a right turn ban at every intersection on the MRT-EWLP1S1 construction route, to avoid crossings that occur at that intersection. 	<ul style="list-style-type: none"> • Jl. Letjen S. Parman, • Jl. Kyai Tapa, • Jl. Dr Susilo Raya • Jl. KH. Hashim, Ash'ari, • Jl. East Cideng, • Jl. West Cideng • Jl. Iati Baru Raya • Jl. Kramat Kwitang • Jl. Letjen Suprapto • Jl. Perintis Kemerdekaan • Jl. Raya Bekasi • Jl. Central Kalibang • Jl. Sultan Agung • Jl. BKT inspection 	<p>Done every day during punde ground construction work</p>	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department</p> <p>e) West Jakarta Environment Department</p> <p>f) North Jakarta Environment Department</p> <p>g) East Jakarta Environment Department</p> <p>h) Bekasi City Environmental Service</p>

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
				<p>11. Implementing an odd-even system on roads at the MRT-EWLP1S1 construction site during the construction period in order to reduce vehicle volume density that occurs during peak hours (morning and evening).</p> <p>12. Additional Transjakarta Bus frequency specifically for the MRT-EWLP1S1 construction area to divert the movement of people who will use this route using public transportation.</p> <p>13. Provide warning signs or notifications to avoid road sections affected by MRT-EWLP1S1 construction work.</p> <p>14. Divert traffic flow via alternative roads (Table 2.3+) on the North and South sides of the MRT-EWLP1S1 construction route.</p> <p>15. Provide signs indicating alternative route routes on diverted road sections.</p> <p>16. Sterilization and improvement of alternative routes, in the form of resurfacing, marking repairs, and other potential improvements.</p> <p>17. Parking management on construction routes and alternative routes, to ensure parking availability and support community activities around the project. Provide several on street parking points in each construction area.</p> <p>18. Controlling sidewalks and side obstacles by officers, so that road capacity and supporting facilities can be used optimally.</p>			<p>b) Ministry of Transportation c) DKI Jakarta Provincial Environmental Service d) West Java Province Environmental Service e) Central Jakarta Environmental Department f) West Jakarta Environment Department g) North Jakarta Environment Department h) East Jakarta Environment Department i) Bekasi City Environmental Service</p>
5b.	Increased vibration	Underground construction work	Vibration levels do not exceed: <ul style="list-style-type: none"> • 2 mm/sec at a frequency of 4 Hz • 7.5 mm/sec at a frequency of 15 Hz • 7 mm/sec at a frequency of 6.3 Hz • 6 mm/sec at a frequency of 8 Hz • 5.2 mm/sec at a frequency of 10 Hz • 4.8 mm/sec at a frequency of 12.5 Hz • 4 mm/sec at a frequency of 16 Hz • 3.8 mm/sec at a frequency of 20 Hz • 3.2 mm/sec at a frequency of 25 Hz • 3 mm/sec at a frequency of 31.5 Hz • 2 mm/sec at a frequency of 40 Hz • 1 mm/sec at a frequency of 50 Hz 	<p>1. Carrying out earthworks for underground station construction begins with installing a guide wall (G-wall) & diaphragm wall (D-wall) as a retaining wall for the station structure and reducing vibrations.</p> <p>2. Carrying out underground tunnel excavations with an earth pressure balance (TBM-EPB) type tunnel boring machine which directly lines the tunnel walls with concrete at the same time as a retaining wall for the tunnel structure and reduces vibrations.</p> <p>3. Regulate the speed of TBM-EPB movement by placing supervisory officers (geologists).</p>	<p>Earthworks location for underground construction</p>	<p>Done every day during punde ground construction work</p>	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service</p> <p>Report Recipient: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service</p>

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN

MRT East – West Line Phase 1 Stage 1

No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management				Management Location Environment	Environmental Management Period	Environmental Management Institution
				Grievance Source	Grievance Registered	Grievance Verification	Grievance Follow-up Action	Resolved		
5c.	Occurrence of Environmental Disturbances (dust, noise, piles of sediment, and puddles)	Underground construction work	100% of public complaints regarding environmental disturbances (dust, noise, piles of sediment and puddles) are handled according to the established mechanism	<p>1. Coordinate and collaborate with village heads, sub-district heads and related agencies to provide outreach/notifications to the surrounding community prior to the implementation of each stage/work of the MRT-EWLP1S1</p> <p>2. Providing a Complaint Service Post to accommodate public complaints regarding the implementation of each stage/construction work of the MRT-EWLP1S1.</p> <p>3. Informing the existence of the Complaints Service Post (with telephone number, email and contact person information) to the local community.</p> <p>4. Handling public complaints using the following mechanism:</p>	<ul style="list-style-type: none"> Ex. Tomang Ex. Tanjung Duren Selatan Ex. Grogol Ex. Duri Pulo Ex. Cideng Ex. North Petjo Ex. South Petjo Ex. Gambir Ex. Kampung Bali Ex. Kebon Sirih Ex. Senen Ex. Kwitang Ex. Kramat Ex. Tanah Tinggi Ex. Galur Ex. Harapan Mulya Ex. Cempaka Baru Ex. Sumur Batu Ex. Cempaka Putih Barat Ex. East Cempaka Putih Ex. West Kelapa Gading Ex. East Kelapa Gading Ex. Pegangsaan Dua Ex. Kayu Putih Ex. Pulo Gadung Ex. Rawa Jerate Ex. West Cakung Ex. East Cakung Ex. Ujung Menteng Ex. Medan satria Ex. Rorotan 	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environmental Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 				
5d.	There are traffic jams	Underground construction work	There are no traffic jams	<p>1. Coordinate and collaborate with village heads, sub-district heads and related agencies to provide outreach/notification to the surrounding community regarding the implementation of each stage/work of the MRT-EWLP1S1 construction which will disrupt the smooth flow of traffic.</p> <p>2. Submitting notification of diverting traffic flow via alternative roads on the North and South sides of the MRT-EWLP1S1 construction route.</p>	<ul style="list-style-type: none"> Jl. Letjen S. Parman, Jl. Kyai Tapa, Jl. Dr Susilo Raya Jl. KH. Hashim, Ashari, 	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p>				

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution	
				<p>3. Deploy officers to regulate traffic, especially during peak hours (06.30 - 08.30 WIB and 16.00 - 18.30 WIB).</p> <ul style="list-style-type: none"> • Jl. East Cideng • Jl. West Cideng • Jl. Iati Baru Raya • Jl. Kebon Sirih • Jl. Kramat Kwitang • Jl. Letjen Suprapto • Jl. Perintis Kemerdekaan • Jl. Raya Bekasi • Jl. Central Kalibang • Jl. Sultan Agung • Jl. BKT inspection 			<p>a) Ministry of Environment and Forestry</p> <p>b) DKI Jakarta Provincial Environmental Service</p> <p>c) West Java Province Environmental Service</p> <p>d) Central Jakarta Environment Department</p> <p>e) West Jakarta Environment Department</p> <p>f) North Jakarta Environment Department</p> <p>g) East Jakarta Environment Department</p> <p>h) Bekasi City Environmental Service</p>	
							<p>Report Recipient:</p> <p>a) Ministry of Environment and Forestry</p> <p>b) DKI Jakarta Provincial Environmental Service</p> <p>c) West Java Province Environmental Service</p> <p>d) Central Jakarta Environment Department</p> <p>e) West Jakarta Environment Department</p> <p>f) North Jakarta Environment Department</p> <p>g) East Jakarta Environment Department</p> <p>h) Bekasi City Environmental Service</p>	
6.	Ground Surface Construction Work			<p>Traffic performance (Vc ratio value) does not exceed 1.37</p> <p>Construction work on the ground surface</p>	<p>Carry out traffic management and engineering by referring to the recommendations from the Andalalin study results, including:</p> <ol style="list-style-type: none"> 1. Carrying out outreach to the community along the MRT-EWLP1S1 construction site route and the wider community 2. Close the work area in the middle of the road with a work fence, so that traffic flow is not disturbed by the process of carrying out the MRT-EWLP1S1 construction work. 3. Carry out station construction work in stages for each side of the building, so as not to block the entire road at the station construction site. 4. Limiting heavy vehicle operating hours to 22.00 – 05.00 WIB. 5. Providing lay-by for four-wheeled vehicles for passenger drop off/pick up locations with a minimum length of 100 meters in each MRT-EWLP1S1 construction area. 6. Providing adequate pedestrian paths and road crossing facilities along the MRT-EWLP1S1 construction site. 7. Operational adjustments and affected Transjakarta Bus stops during the construction period. One way is to redesign bus stops or shift existing bus stops. 8. Resetting signals at intersections to reduce queues and improve intersection performance. 9. Clarify road markings, ensure street lighting functions properly and add no-stop signs at traffic jam points along the MRT-EWLP1S1 construction site route. 10. Implementing a right turn ban at every intersection on the MRT-EWLP1S1 construction route, to avoid crossings that occur at that intersection. 	<p>Done every day during construction work at ground level</p> <p>Jl. Letjen S. Parman, Jl. Kyai Tapa, Jl. Dr Susilo Raya Jl. KH. Hashim, Ash'ari, Jl. East Cideng, Jl. West Cideng Jl. Iati Baru Raya Jl. Kramat Kwitang Jl. Letjen Suprapto Jl. Perintis Kemerdekaan Jl. Raya Bekasi Jl. Central Kalibang Jl. Sultan Agung Jl. BKT inspection</p>	<p>Implementator:</p> <p>Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <p>a) Ministry of Environment and Forestry</p> <p>b) DKI Jakarta Provincial Environmental Service</p> <p>c) West Java Province Environmental Service</p> <p>d) Central Jakarta Environment Department</p> <p>e) West Jakarta Environment Department</p> <p>f) North Jakarta Environment Department</p> <p>g) East Jakarta Environment Department</p> <p>h) Bekasi City Environmental Service</p>	<p>Report Recipient:</p> <p>a) Ministry of Environment and Forestry</p>

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
				<p>11. Implementing an odd-even system on roads at the MRT-EWLP1S1 construction site during the construction period in order to reduce vehicle volume density that occurs during peak hours (morning and evening).</p> <p>12. Additional Transjakarta Bus frequency specifically for the MRT-EWLP1S1 construction area to divert the movement of people who will use this route using public transportation.</p> <p>13. Provide warning signs or notifications to avoid road sections affected by MRT-EWLP1S1 construction work.</p> <p>14. Divert traffic flow via alternative roads (Table 2.34.) on the North and South sides of the MRT-EWLP1S1 construction route.</p> <p>15. Provide signs indicating alternative route routes on diverted road sections.</p> <p>16. Sterilization and improvement of alternative routes, in the form of resurfacing, marking repairs, and other potential improvements.</p> <p>17. Parking management on construction routes and alternative routes, to ensure parking availability and support community activities around the project. Provide several on street parking points in each construction area.</p> <p>18. Controlling sidewalks and side obstacles by officers, so that road capacity and supporting facilities can be used optimally.</p>			<p>b) Ministry of Transportation c) DKI Jakarta Provincial Environmental Service d) West Java Province Environmental Service e) Central Jakarta Environmental Department f) West Jakarta Environment Department g) North Jakarta Environmental Department h) East Jakarta Environment Department i) Bekasi City Environmental Service</p>
6b.	Increased vibration	Construction work on the ground surface	Vibration levels do not exceed: • 2 mm/sec at a frequency of 4 Hz • 7.5 mm/sec at a frequency of 15 Hz • 7 mm/sec at a frequency of 6.3 Hz • 6 mm/sec at a frequency of 8 Hz • 5.2 mm/sec at a frequency of 10 Hz • 4.8 mm/sec at a frequency of 12.5 Hz • 4 mm/sec at a frequency of 16 Hz • 3.8 mm/sec at a frequency of 20 Hz • 3.2 mm/sec at a frequency of 25 Hz • 3 mm/sec at a frequency of 31.5 Hz • 2 mm/sec at a frequency of 40 Hz • 1 mm/sec at a frequency of 50 Hz	Carrying out earthworks for construction on the ground surface using the drill pile method using a drilling auger machine which directly installs a protective casing at the same time as a structural retaining wall and reduces vibrations.	Location of earthworks for elevated (pier) construction	Done every day during pconstruction work on the ground surface	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environmental Department g) East Jakarta Environment Department h) Bekasi City Environmental Service</p> <p>Report Recipient: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environmental Department g) East Jakarta Environment Department h) Bekasi City Environmental Service</p>

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management			Management Location Environment	Environmental Management Period	Environmental Management Institution
				Forms of Environmental Management					
6c.	Occurrence of Environmental Disturbances (dust, noise, piles of sediment, and puddles)	Construction work at ground level	100% of public complaints regarding environmental disturbances (dust, noise, piles of sediment and puddles) are handled according to the established mechanism	<p>1. Coordinate and collaborate with village heads, sub-district heads and related agencies to provide outreach/notifications to the surrounding community prior to the implementation of each stage/work of the MRT-EWLP1S1</p> <p>2. Providing a Complaint Service Post to accommodate public complaints regarding the implementation of each stage/construction work of the MRT-EWLP1S1.</p> <p>3. Informing the existence of the Complaints Service Post (with telephone number, email and contact person information) to the local community.</p> <p>4. Handling public complaints using the following mechanism:</p> <pre> graph TD GS[Grievance Source Registered] --> GV[Grievance Verification] GV --> IA[Issue Type A] GV --> IB[Issue Type B] IA --> CSPost[Complainant Service Post] IB --> CSPost CSPost --> FA[Follow-up Action] CSPost --> R[Resolution] FA --> GR[Grievance Resolved] R --> GR </pre>	<ul style="list-style-type: none"> • Ex. Tomang Selatan • Ex. Tanjung Duren • Ex. North Petjo • Ex. South Petjo • Ex. Gambir • Ex. Kampung Bali • Ex. Kebon Sirih • Ex. Senen • Ex. Kwitang • Ex. Kramat • Ex. Tanah Tinggi • Ex. Galur • Ex. Harapan Mulya • Ex. Cempaka Baru • Ex. Sumur Batu • Ex. Cempaka Putih Barat • Ex. East Cempaka Putih • Ex. West Kelapa Gading • Ex. East Kelapa Gading • Ex. Pegangsaan Dua • Ex. Kayu Putih • Ex. Pulo Gadung • Ex. Rawa Jerate • Ex. West Cakung • Ex. East Cakung • Ex. Ujung Menteng • Ex. Medan Satria • Ex. Rorotan 	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 			
6d.	There are traffic jams	Construction work at ground level	There are no traffic jams	<p>The setlement process will involve the party submitting the complaint to obtain an official settlement agreement.</p> <p>5. Provide compensation to communities directly affected.</p>	<ul style="list-style-type: none"> • Jl. Letjen S. Parman, • Jl. Kyai Tapia, • Jl. Dr. Susilo Raya • Jl. KH. Hashim, Ash'ari, • Jl. East Cideng, • Jl. West Cideng • Jl. Jati Baru Raya 	<p>Carried out every day during construction work at ground level</p>	<p>Implementator: Contractor under PT MRT Jakarta</p> <p>Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service 		

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
				<ul style="list-style-type: none"> • Jl. Kebon Sirih • Jl. Kramat Kwitang • Jl. Letjen Supriapto • Jl. Perintis Kemerdekaan • Jl. Raya Bekasi • Jl. Central Kalabang • Jl. Sultan Agung • Jl. BKT inspection 	<ul style="list-style-type: none"> c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	
III OPERATIONAL STAGE							
<p>1. Passenger Transportation and Station Operations</p> <p>1a. Improved traffic performance</p> <p>Traffic performance (V_c ratio value) does not exceed 1.27</p> <p>Transportation of passengers and station operations</p> <p>Carry out traffic management and engineering by referring to the Andalalin study results, including:</p> <ol style="list-style-type: none"> 1. Immediately dismantle notification signs and route instructions for alternative routes when construction work has been completed, so that motorists do not have to detour to look for alternative routes. 2. Providing crossing facilities for pedestrians and vehicles wishing to turn from the South or North. 3. Implementing an odd-even system along the road section where the MRT-EWP1S1 station is located to reduce vehicle volume on that road section. 4. Creation of zebra crossings at every intersection for pedestrians. 5. Controlling sidewalks and side obstacles (especially in the area around the MRT-EWP1S1 station) by officers so that road capacity and supporting facilities can be used optimally. <p>• Jl. Letjen S. Parman, • Jl. Kyai Tapa, • Jl. Dr Susilo Raya • Jl. KH. Hashim, Ash'ari, • Jl. East Cideng, • Jl. West Cideng • Jl. Jati Baru Raya • Jl. Kebon Sirih • Jl. Letjen Supriapto • Jl. Perintis Kemerdekaan • Jl. Raya Bekasi • Jl. Central Kalabang • Jl. Sultan Agung • Jl. BKT inspection</p>							

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management		Management Location Environment	Environmental Management Period	Environmental Management Institution
1b.	Decreased air quality	Passenger transportation and station operations	The concentration of air pollutants that arise does not exceed the ambient air quality standards: <ul style="list-style-type: none">• TSP ≤ 230 µg/m³ (24 hour measurement)• PM10 ≤ 75 µg/m³ (24 hour measurement)• PM2.5 ≤ 55 µg/m³ (24 hour measurement)• SO₂ ≤ 75 µg/m³ (24 hour measurement)• CO ≤ 4000 µg/m³ (8 hour measurement)• NO₂ ≤ 65 µg/m³ (24 hour measurement)	1. Providing toll gates at the access route to enter the parking area and separate parking areas for bicycles, 2-wheeled and 4-wheeled motorized vehicles 2. Provide adequate air ventilation, exhaust fans and blowers in the parking basement location	Parking area for each MRT station: <ul style="list-style-type: none">• Tomang Station;• Grogol Station;• Roxy Station;• Petojok Station;• Cideng Station;• Thamrin Station;• Kebon Sirih Station;• Kwitang Station;• Senen Station;• Galur Station;• Cempaka Baru Station;• Sumur Batu Station;• West Pakulonan Station;• East Pakulonan Station;• Perintis Station;• Pulo Gadung Station;• Milling Station;• West Cakung Station;• Pulo Gebang Station;• Ujung Menteng Station;• Medan Satria Station	Performed every day during the operation period	Implementator: PT MRT Jakarta Supervisor: <ul style="list-style-type: none">a) Ministry of Environment and Forestryb) DKI Jakarta Provincial Environmental Servicec) West Java Province Environmental Serviced) Central Jakarta Environmental Departmente) West Jakarta Environment Departmentf) North Jakarta Environment Departmentg) East Jakarta Environment Departmenth) Bekasi City Environmental Service Report Recipient: <ul style="list-style-type: none">a) Ministry of Environment and Forestryb) DKI Jakarta Provincial Environmental Servicec) West Java Province Environmental Serviced) Central Jakarta Environmental Departmente) West Jakarta Environment Departmentf) North Jakarta Environment Departmentg) East Jakarta Environment Departmenth) Bekasi City Environmental Service	
1c.	Increased disease vectors	Waste water from passenger transportation activities and station operations	No waste water is discharged into the environment around the location of each station	1. Providing a Sewage Treatment Plan (STP) at each station	<ul style="list-style-type: none">• Tomang Station 60 m³/day;• Grogol Station 25 m³/day;• Kwitang Station 20 m³/day;• Senen Station 45 m³/day;• Galur Station 20 m³/day;• Cempaka Baru Station 20 m³/day;• Sumur Batu Station 70 m³/day;• West Pakulonan Station 30 m³/day;• East Pakulonan Station 25 m³/day;• Perintis Station 25 m³/day;• Pulo Gadung Station 20 m³/day;• Milling Station 10 m³/day;• West Cakung Station 45 m³/day;	Performed every day during the operation period	Implementator: PT MRT Jakarta Supervisor: <ul style="list-style-type: none">a) Ministry of Environment and Forestryb) DKI Jakarta Provincial Environmental Servicec) West Java Province Environmental Serviced) Central Jakarta Environmental Departmente) West Jakarta Environment Departmentf) North Jakarta Environment Department	

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
			<p>1. Pulo Gebang Station 10 m³/day; • Ujung Menteng Station 20 m³/day; • Medan Satria Station 10 m³/day;</p> <p>2. Regularly suctioning STP processed wastewater in collaboration with PD PAL Jaya.</p> <p>3. For St. Roxy, Petjojo, Cideng, Thamrin and Kebon Sirih will be connected to the city IPAL channel</p>	<ul style="list-style-type: none"> • Sumur Batu Station; • West Pakulonan Station; • East Pakulonan Station; • Perintis Station; • Pulo Gebang Station; • Milling Station; • West Cakung Station; • Pulo Gebang Station; • Milling Station; • Ujung Menteng Station; • Medan Satria Station 	<ul style="list-style-type: none"> g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	g) East Jakarta Environment Department	<p>PT MRT Jakarta Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
1d.	Increased disease vectors	Waste from passenger transportation activities and station operations	<p>There is no litter in the environment around the location of each station</p>	<p>1. Providing segregated waste bins (organic waste and inorganic waste) and Temporary Storage Places (TPS) in the form of container boxes at each MRT station</p> <ul style="list-style-type: none"> • Tomang Station 8 m³; • Grogol Station 4 m³; • Roxy Station 4 m³; • Petojo Station 4 m³; • Cideng Station 4 m³; • Thamrin Station 2 x 6 m³; • Kebon Sirih Station; • Kwitang Station; • Senen Station; • Galur Station; • Cempaka Baru Station; • Sumur Batu Station; • West Pakulonan Station; • East Pakulonan Station; • Perintis Station; • Pulo Gebang Station; • Milling Station; • West Cakung Station; • Pulo Gebang Station; • Milling Station; • Ujung Menteng Station; • Medan Satria Station <p>2. Transporting waste to the landfill no later than once every 2 days in collaboration with the DKI Jakarta and Bekasi City Governments</p>	<p>• Tomang Station;</p> <p>• Grogol Station;</p> <p>• Roxy Station;</p> <p>• Petojo Station;</p> <p>• Cideng Station;</p> <p>• Thamrin Station;</p> <p>• Kebon Sirih Station;</p> <p>• Kwitang Station;</p> <p>• Senen Station;</p> <p>• Galur Station;</p> <p>• Cempaka Baru Station;</p> <p>• Sumur Batu Station;</p> <p>• West Pakulonan Station 4 m³;</p> <p>• East Pakulonan Station 6 m³;</p> <p>• Perintis Station 4 m³;</p> <p>• Pulo Gebang Station 2 m³;</p> <p>• Milling Station 2 m³;</p> <p>• West Cakung Station 6 m³;</p> <p>• Pulo Gebang Station 2 m³;</p> <p>• Ujung Menteng Station 2 m³;</p> <p>• Medan Satria Station 2 m³.</p>	<p>Performed every day during the operation period</p>	<p>PT MRT Jakarta Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
1e.	Increased disease vectors	B3 waste from passenger transportation activities and station operations	B3 waste is managed in accordance with Minister of Environment and Forestry Regulation No. 6 of 2021 concerning Procedures for Requirements and Management of B3 Waste	<p>1. Carry out packaging of B3 waste:</p> <ul style="list-style-type: none"> • Plastic containers (60 L) for B3 waste in the form of used batteries and used cloth • Iron drum (200 L) for B3 waste in the form of used lubricating oil • Jumbo bag (100 L) for B3 waste in the form of electronic waste and used filters from air pollution control facilities <p>2. Install B3 waste labels and symbols on each B3 waste package in accordance with the characteristics of B3 waste</p> <p>3. Storage of LB3 in the transit room for a maximum of 30 days</p> <p>4. Providing LB3 transit space at each station with a minimum capacity of 5 m³</p> <p>5. Carrying LB3 every 30 days to TPS LB3 at the Rorotan Depot location in collaboration with a third party who has an LB3 transportation permit from the MINISTRY OF ENVIRONMENT AND FORESTRY.</p>	<ul style="list-style-type: none"> • Tomang Station; • Grogoj Station; • Roxy Station; • Petojo Station; • Cideng Station; • Thamrin Station; • Kebon Sirih Station; • Kwitang Station; • Senen Station; • Galur Station; • Cempaka Baru Station; • Sumur Batu Station; • West Pakulonan Station; • East Pakulonan Station; • Perintis Station; • Pulo Gadung Station; • Milling Station; • West Cakung Station; • Pulo Gebang Station; • Ujung Menteng Station; • Medan Satria Station 	<ul style="list-style-type: none"> • Packaging, placing labels and symbols, and storing LB3 is carried out every day during the operation period • Transport LB3 every 30 days to TPS LB3 at the Rorotan Depot location 	Implementator: PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
2a.	Increased disease vectors	Waste water from train maintenance activities and depot operations	Waste water is discharged into the environment around the Rorotan Depot	<p>1. Providing a Sewage Treatment Plan (STP) with a capacity of 28 m³/day with an anaerobic-aerobic biofilter system for domestic wastewater treatment plant (IWTP) with a capacity of 93 m³/day with a sand and activated carbon coagulation-filtration system for processing MRT train washing waste water and workshop activities</p> <p>2. Providing an industrial waste water treatment plant (IWTP) with a capacity of 93 m³/day with a sand and activated carbon coagulation-filtration system for processing MRT train washing waste water and workshop activities</p> <p>3. Recirculate or reuse 35% of IWTP processed water for washing MRT trains and workshop activities</p> <p>4. Regularly sucking up wastewater from IWTP and STP processing in collaboration with PD PAL Jaya</p>	Rorotan Depot	Performed every day during the operation period	Implementator: PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) North Jakarta Environment Department
2b.	Increased disease vectors	Waste from train maintenance activities and depot operations	There is no waste spilled in the environment around the Rorotan Depot	<p>1. Providing segregated waste bins (organic waste and inorganic waste) and Temporary Storage Places (TPS) in the form of container boxes with a capacity of 2 m³.</p>	Rorotan Depot	Performed every day during the operation period	Implementator: PT MRT Jakarta Supervisor: a) Ministry of Environment and Forestry

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No	Managed Environmental Impact	Impact Source	Success Indicators Management of the environment	Forms of Environmental Management	Management Location Environment	Environmental Management Period	Environmental Management Institution
				2. Transporting waste to the landfill a maximum of once every 2 days in collaboration with the DKI Jakarta Government			b) DKI Jakarta Provincial Environmental Service c) North Jakarta Environment Department Report Recipient: a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) North Jakarta Environment Department
2c.	Increased disease vectors	B3 waste from train maintenance activities and depot operations	B3 waste is managed in accordance with Minister of Environment and Forestry Regulation No. 6 of 2021 concerning Procedures for Requirements and Management of B3 Waste	<p>1. Carry out packaging of B3 waste:</p> <ul style="list-style-type: none"> • Plastic containers (60 L) for B3 waste in the form of used batteries and used cloth • Iron drum (200 L) for B3 waste in the form of used lubricating oil • Jumbo bag (100 L) for B3 waste in the form of electronic waste and used filters from air pollution control facilities <p>2. Install B3 waste labels and symbols on each B3 waste package in accordance with the characteristics of B3 waste</p> <p>3. Carrying out LB3 storage in accordance with the provisions:</p> <ul style="list-style-type: none"> • The maximum storage time for used batteries is 180 days • The maximum storage time for used rags is 365 days • The maximum storage time for used lubricating oil is 365 days • The maximum storage time for electronic waste is 365 days • The maximum storage time for used filters from air pollution control facilities is 365 days <p>4. Providing a temporary storage place for B3 waste (TPS LB3) with a capacity of 50 m³.</p> <p>5. Carrying out LB3 transportation every 180 days for further handling in collaboration with a third party who has an LB3 transportation permit from the MINISTRY OF ENVIRONMENT AND FORESTRY.</p>	<p>Rotongan Depot</p> <ul style="list-style-type: none"> • Packaging, placing labels and symbols, and storing LB3 is carried out every day during the operation period • LB3 transportation every 180 days 	<p>• PT MRT Jakarta Supervisor:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) North Jakarta Environment Department <p>Report Recipient:</p> <ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) North Jakarta Environment Department 	

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN

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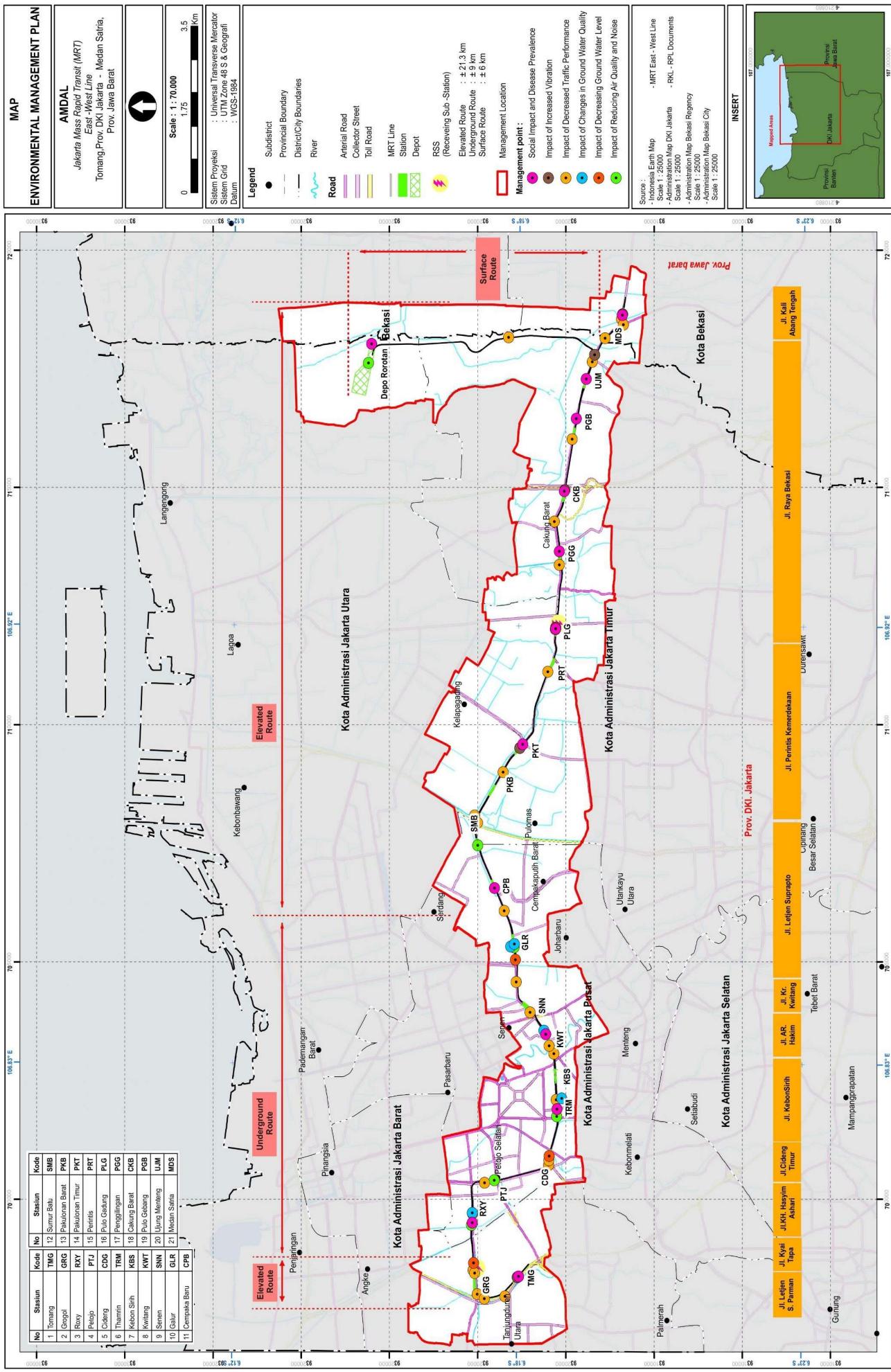


Figure 2.1. Environmental Management Plan Map

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN
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Isi

Environmental Monitoring Plan..... 1

Table 3.1. Significant Impact Monitoring Plan (result of management direction to Andal) 2

Table 3.2. Other Environmental Impact Monitoring Plans 21

Figure 3.1. Enviromental Monitoring Plan Map 48

Chapter 3

Environmental Monitoring Plan

Monitoring is an activity that takes place continuously, systematically and planned. Monitoring is carried out on relevant environmental components and is used as an indicator to evaluate compliance, trends and critical levels of environmental management. In this sense, it is a form of environmental monitoring in MRT-EWLP1S1 activities includes:

1. Important Impact Monitoring Plan (result of management direction to Andal) as presented in Table 3.1.
2. Other Environmental Impact Monitoring Plans, as presented in Table 3.2.

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Table 3.1. Significant Impact Monitoring Plan (result of management direction to Andal)

No	Types of Impacts That Arise	Indicators/ Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
I PRECONSTRUCTION STAGE									
1	The land acquisition								

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient	
1a.	Changes in public perceptions and attitudes	Perceptions and attitudes of land owners towards the land acquisition process	Land procurement	<p>Method of collecting data: Data collection on land owners' perceptions and attitudes towards the land acquisition process was carried out by direct interviews, observations and/or questionnaires with owners of the land being acquired.</p> <p>Data analysis method: Data analysis was carried out by comparing the results of data collection on land owners' perceptions and attitudes towards the land acquisition process with indicators of environmental management success.</p>	<ul style="list-style-type: none"> • Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grojol, • Ex. Duri Pulo, • Ex. Cideng, • Ex. North Petjo, • Ex. South Petjo, • Ex. Gambir, • Ex. Kampung Bali, • Ex. Kebon Sirih, • Ex. Senen, • Ex. Kwitang, • Ex. Kramat, • Ex. Tanah Tinggi, • Ex. Galur, • Ex. Harapan Mulia, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Cempaka Putih Barat, • Ex. Cempaka Putih Timur, • Ex. West Kelapa Gading, • Ex. East Kelapa Gading, • Ex. Pegangsaan Dua, • Ex. Kayu Putih, • Ex. Pulo Gadung, • Ex. Rawa Terate, • Ex. West Cakung, • Ex. East Cakung, • Ex. Ujung Menteng, • Ex. Medan Satria, • Ex. Rorotan. 	Carried out every 3 months during land acquisition activities	Pemprov DKI Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
II CONSTRUCTION STAGE									
1	Acceptance of Construction Workers	Number of local workers involved as workers	Acceptance of construction workers	Method of collecting data: Record the number of local workers involved as workers and the total number of workers in the labor logbook Data analysis method: Data analysis was carried out by calculating the percentage of local workers to the total number of workers and comparing it with indicators of environmental management success	<ul style="list-style-type: none"> Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grogol, • Ex. Duripulo, • Ex. Glideng, • Ex. North Petjo, • Ex. South Petjo, • Ex. Gambir, • Ex. Kampung Bali, • Ex. Kebon Sirih, • Ex. Senen, • Ex. Kwitang, • Ex. Kramat, • Ex. Tanah Tinggi, • Ex. Galur, • Ex. Harapan Mulia, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Cempaka Putih Barat, • Ex. Cempaka Putih Timur, • Ex. West Kelapa Gading, • Ex. East Kelapa Gading, • Ex. Peganganan Dua, • Ex. Kayu Putih, • Ex. Pulo Gadung, • Ex. Rawa Terate, • Ex. West Cakung, • Ex. East Cakung, • Ex. Ujung Menteng, • Ex. Medan Satria, • Ex. Rorotan. 	Carried out every 3 months during construction labor recruitment activities	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
1a.	Open job opportunities								

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
1b.	Increase in family income	Family income level	Acceptance of construction workers	<p>Method of collecting data: Data collection on family income from recruitment of construction workers is carried out by direct interviews, observations and/or questionnaires with local workers involved as workers.</p> <p>Data analysis method: Data analysis was carried out by comparing the results of data collection on the income of local workers involved as workers with indicators of environmental management success.</p>	<ul style="list-style-type: none"> Ex. Tomang, Ex. Tanjung Duren Selatan, Ex. Grogol, Ex. Duri Pulo, Ex. Cideng, Ex. North Petjo, Ex. South Petjo, Ex. Gambir, Ex. Kampung Bali, Ex. Kebon Sirih, Ex. Senen, Ex. Kwitang, Ex. Kramat, Ex. Tanah Tinggi, Ex. Galur, Ex. Harapan Mulia, Ex. Cempaka Baru, Ex. Sumur Batu, Ex. Cempaka Putih Barat, Ex. Cempaka Putih Timur, Ex. West Kelapa Gading, Ex. East Kelapa Gading, Ex. Pegangsaan Dua, Ex. Kayu Putih, Ex. Pulo Gadung, Ex. Rawa Terate, Ex. West Cakung, Ex. East Cakung, Ex. Ujung Menteng, Ex. Medan Satria, Ex. Rorotan. 	Carried out every 6 months during construction labor recruitment activities	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
1c.	Changes in public perceptions and attitudes	Community perceptions and attitudes towards the results of the construction workforce recruitment process	Acceptance of construction workers	<p>Method of collecting data: Data collection on community perceptions and attitudes towards the process of recruiting construction workers was carried out by direct interviews, observations and/or questionnaires with the community in 31 sub-districts at the MRT-EWLPS1 construction site.</p> <p>Data analysis method: Data analysis was carried out by comparing the results of data collection on community perceptions and attitudes towards the process of recruiting construction workers with indicators of environmental management success.</p>	<ul style="list-style-type: none"> Ex. Tomang, Ex. Tanjung Duren Selatan, Ex. Grogol, Ex. Duri Pulo, Ex. Cideng, Ex. North Petjo, Ex. South Petjo, Ex. Gambir, Ex. Kampung Bali, Ex. Kebon Sirih, Ex. Senen, Ex. Kwitang, Ex. Kramat, Ex. Tanah Tinggi, Ex. Galur, Ex. Harapan Mulia, Ex. Cempaka Baru, Ex. Sumur Batu, 	Carried out every 6 months during construction labor recruitment activities	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient	
					<ul style="list-style-type: none"> Ex. Cempaka Putih Barat, Ex. Cempaka Putih Timur, Ex. West Kelapa Gading, Ex. East Kelapa Gading, Ex. Pegangsaan Dua, Ex. Kayu Putih, Ex. Pulo Gadung, Ex. Rawa Terate, Ex. West Cakung, Ex. East Cakung, Ex. Ujung Menteng, Ex. Medan Satria, Ex. Rorotan. 					
Basecamp Operations*										
2	(Basecamps will be used by workers during short breaks during working hours. All of the workers will not live on the site and instead will sleep in rented houses nearby (rented by the contractors), which locations will be confirmed just before construction starts)									
2a.	Open business opportunities	Number of local community businesses involved in providing basecamp operational needs	Basecamp operations	Method of collecting data: <ul style="list-style-type: none"> Carrying out data collection on local community businesses involved in providing basecamp operational needs Carrying out data collection on local community businesses that provide goods and services to basecamp residents 	<ul style="list-style-type: none"> Basecamp Depot Rorotan Village Underground Basecamp Ex. Pegangsaan Dua Basecamp Elevated Duri Pulo Village 	Carried Out every 3 months during basecamp operational activities	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department 	
2b.	Increase in family income	Family income level	Basecamp operations	Method of collecting data: <p>Data collection on family income from business opportunities was carried out by direct interviews, observations and/or questionnaires with the business community around the basecamp location.</p>	<ul style="list-style-type: none"> Basecamp Depot Rorotan Village Underground Basecamp Ex. Pegangsaan Dua Basecamp Elevated Duri Pulo Village 	Carried out every 6 months during basecamp operational activities	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department 	

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
2c.	Changes in public perceptions and attitudes	Community perceptions and attitudes towards construction labor activities and basecamp operations	Basecamp operations	Method of collecting data: Data collection on community perceptions and attitudes towards construction labor activities and basecamp operations was carried out by direct interviews, observations and/or questionnaires with the community at each basecamp location.	<ul style="list-style-type: none"> • Basecamp Depot Rorotan Village Ex. Pegangsaan Dua • Underground Basecamp • Basecamp Elevated • Duri Pulo Village 	Carried out every 6 months during basecamp operational activities	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department
3	3. Mobilization of Construction Equipment and Materials		Mobilization of construction equipment and materials	Method of collecting data: <ul style="list-style-type: none"> • TSP, PM10, PM2.5, SO2, CO, NO2, O3, HC 	<ul style="list-style-type: none"> • II. S. Parman (S 06°10'30.59"; E 106°47'33.35") • II. KH Hasyim Ashari (S 06°09'56.71"; E 106°48'09.07") • II. Kebon Sirih (S 06°10'59.50"; E 106°49'23.74") 	Carried out every 3 months for ambient air emissions (from generators and vehicles) during construction activities	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department
3a.	Decreased air quality			Method of collecting data: <ul style="list-style-type: none"> • TSP is monitored using the SNI 7119.3:2017 method • PM10 is monitored using the SNI 7119.15:2016 method • PM2.5 is monitored using the SNI 7119.14:2016 method 	<ul style="list-style-type: none"> • II. Eastern Cendeng (S 06°10'13.40"; E 106°48'39.79") • II. Letjen Suprapto (S 06°10'27.62"; E 106°51'19.45") • II. Letjen Suprapto (S 06°10'00.59"; E 106°52'29.49") • II. Penitisi (S 06°10'31.25"; E 106°53'36.19") • II. Raya Bekasi (S 06°10'57.48"; E 106°54'15.80") • II. Raya Bekasi (S 06°11'03.85"; E 106°56'32.89") • II. Raya Bekasi (S 06°11'25.46"; E 106°58'05.75") • Jl. Kali Abang Tengah (S 06°11'46.05"; E 106°58'33.59") • Jl. BKI inspection (S 06°08'38.72"; E 106°57'59.62") 	<ul style="list-style-type: none"> Once every 6 months 	<ul style="list-style-type: none"> e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
3b.	Increased noise	Noise level	Mobilization of construction equipment and materials	<p>Method of collecting data:</p> <ul style="list-style-type: none"> Measurements are carried out using a simple sound level meter, usually measuring the dB(A) sound pressure level for 10 (ten) minutes for each measurement. Readings are taken every 5 (five) seconds. The measurement time was carried out during 24 hours of activity (LSM) by means that during the day the activity level was highest for 16 hours (LS) in the interval 06.00 - 22.00 and activity during the day for 8 hours (LM) in the interval 22.00 - 06.00. Each measurement must be able to represent a certain time interval by setting at least 4 measurement times during the day and at least 3 measurement times at night. Calculations using the formula: $LS = 10 \log \frac{1}{16} \{T_1, 100, 11.11 + T_2, 100, 1.14\} dB(A)$ $LM = 10 \log \frac{1}{18} \{T_5, 100, 1.15 + T_7, 100, 1.17\} dB(A),$ $LSM = 10 \log \frac{1}{24} \{T_6, 100, 1 LS + 8, 100, 1 LM+5\} dB(A).$ <p>Data analysis method: Data analysis was carried out by comparing the calculated LSM values with indicators of environmental management success with a tolerance of + 3 dB(A).</p>	<ul style="list-style-type: none"> Jl. S. Parman (S 06°10'30.59"; E 106°47'33.35") Jl. KH Hasyim Ashari (S 06°09'56.71"; E 106°48'09.07") Jl. Kebon Sirih (S 06°10'59.50"; E 106°49'23.74") Jl. Eastern Cendeng (S 06°10'13.40"; E 106°48'39.79") Jl. Letjen Suprapto (S 06°10'27.62"; E 106°51'19.45") Jl. Letjen Suprapto (S 06°10'00.59"; E 106°52'29.49") Jl. Perintis (S 06°10'31.25"; E 106°53'36.19") Jl. Raya Bekasi (S 06°10'57.48"; E 106°54'58.80") Jl. Raya Bekasi (S 06°11.03.85"; E 106°56'32.89") Jl. Raya Bekasi (S 06°11.25.46"; E 106°58'05.75") Jl. Kali Abang Tengah (S 06°11.46.05"; E 106°58'33.59") Jl. BKI inspection (S 06°08'38.72"; E 106°57'59.62") 	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	
3c.	Increased prevalence of ARI	ARI prevalence	Mobilization of construction equipment and materials	<p>Method of collecting data: Collect data on the prevalence of ISPA at community health centers in the region MRT construction area</p> <p>Data analysis method: Data analysis was carried out by comparing the calculated LSM values with indicators of environmental management success</p>	<ul style="list-style-type: none"> Ex. Tomang Duren Selatan Ex. Grogol Ex. Duri Pulo Ex. Ciceng Ex. North Petrojo Ex. South Petrojo Ex. Gambir Ex. Kampung Bali Ex. Kebon Sirih Ex. Zenen Ex. Kwitang Ex. Kramat Ex. Tanah Tinggi Ex. Galurs 	Carried out every 6 months during mobilization of construction equipment and materials	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient	
					<ul style="list-style-type: none"> • Ex. Harapan Mulia • Ex. Cempaka Baru • Ex. Sumur Batu • Ex. Cempaka Putih Barat • Ex. East Cempaka Putih • Ex. West Kelapa Gading • Ex. East Kelapa Gading • Ex. Pegangsaan Dua • Ex. Kayu Putih • Ex. Pulo Gadung • Ex. Rawa Terate • Ex. West Cakung • Ex. East Cakung • Ex. Ujung Menteng • Ex. Medan Satria • Ex. Rorotan 					

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient	
3d.	Changes in public perceptions and attitudes	Community perceptions and attitudes	Mobilization of construction equipment and materials	<p>Method of collecting data: Data collection on community perceptions and attitudes was carried out using direct interviews, observations and questionnaires.</p> <p>Data analysis method: Data analysis was carried out by comparing the results of data collection on community perceptions and attitudes with indicators of environmental management success</p>	<ul style="list-style-type: none"> • Ex. Tomang • Ex. Tanjung Duren Selatan • Ex. Grojol • Ex. Duri Pulo • Ex. Cideng • Ex. North Petjo • Ex. South Petjo • Ex. Gambir • Ex. Kampung Bali • Ex. Kebon Sirih • Ex. Zenen • Ex. Kwitang • Ex. Kramat • Ex. Tanah Tinggi • Ex. Galurs • Ex. Harapan Mulia • Ex. Cempaka Baru • Ex. Sumur Batu • Ex. Cempaka Putih Barat • Ex. East Cempaka Putih • Ex. West Kelapa Gading • Ex. East Kelapa Gading • Ex. Peganggaan Dua • Ex. Kayu Putih • Ex. Pulo Gadung • Ex. Rawa Terate • Ex. West Cakung • Ex. East Cakung • Ex. Ujung Menteng • Ex. Medan Satria • Ex. Rorotan 	Carried out every 6 months during mobilization of construction equipment and materials	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient	
4a.	Decreased air quality	TSP, PM10, PM2.5, SO ₂ , CO, NO ₂ , O ₃ , HC	Earthworks and dewatering	Method of collecting data: <ul style="list-style-type: none"> TSP is monitored using the SNI 7119.3:2017 method PM10 is monitored using the SNI 7119.15:2016 method PM2.5 is monitored using the SNI 7119.14:2016 method SO₂ is monitored using the SNI 7119.7:2017 method CO is monitored using the SNI 7119.10:2011 method NO₂ is monitored using the SNI 7119.2:2017 method O₃ is monitored using the SNI 7119.8:2017 method HC is monitored using the SNI 7119.13:2009 method Data analysis method: <p>Data analysis is carried out by comparing the results of measurements and/or testing with indicators of environmental management success</p>	<ul style="list-style-type: none"> Jl. S. Parman (S 06°10'30.59"; E 106°47'33.35") Jl. KH Hasyim Ashari (S 06°09'56.71"; E 106°48'09.07") Jl. Kebon Sirih (S 06°10'59.50"; E 106°49'23.74") Jl. Eastern Cendeng (S 06°10'13.40"; E 106°48'39.79") Jl. Letjen. Suprapto (S 06°10'27.62"; E 106°51'19.45") 	Carried out every 3 months for ambient air emissions (from generators and vehicles) during construction activities in earthworks and dewatering	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
4b.	Increased noise	Noise level	Earthworks and dewatering	<p>Method of collecting data:</p> <ul style="list-style-type: none"> Measurements are carried out using a simple sound level meter, usually measuring the dB(A) sound pressure level for 10 (ten) minutes for each measurement. Readings are taken every 5 (five) seconds. The measurement time was carried out during 24 hours of activity (LSM) by means that during the day the activity level was highest for 16 hours (LS) in the interval 06.00 - 22.00 and activity during the day for 8 hours (LM) in the interval 22.00 - 06.00. Each measurement must be able to represent a certain time interval by setting at least 4 measurement times during the day and at least 3 measurement times at night. Calculation using the formula: $LS = 10 \log \frac{1}{16} \{T_1 \cdot 100.1 \cdot 1.11 + T_2 \cdot 100.1 \cdot 1.41\} dB(A)$ $LM = 10 \log \frac{1}{18} \{T_5 \cdot 100.1 \cdot 1.5 + T_6 \cdot 100.1 \cdot 1.17\} dB(A),$ $LSM = 10 \log \frac{1}{24} \{T_6 \cdot 100.1 \cdot LS + 8.100.1 \cdot (LM+5)\} dB(A).$ <p>Data analysis method: Data analysis was carried out by comparing the calculated LSM values with indicators of environmental management success with a tolerance of + 3 dB(A).</p>	<ul style="list-style-type: none"> Jl. S. Parman (S 06°10'30.59"; E 106°47'33.35") Jl. KH Hasyim Ashari (S 06°09'56.71"; E 106°48'09.07") Jl. Kebon Sirih (S 06°10'59.50"; E 106°49'23.74") Jl. Eastern Cendeng (S 06°10'13.40"; E 106°48'39.79") Jl. Letjen Suprapto (S 06°10'27.62"; E 106°51'19.45") Jl. Letjen Suprapto (S 06°10'00.59"; E 106°52'29.49") Jl. Perintis (S 06°10'31.25"; E 106°53'36.19") Jl. Raya Bekasi (S 06°10'57.48"; E 106°54'58.80") Jl. Raya Bekasi (S 06°11.03.85"; E 106°56'32.89") Jl. Raya Bekasi (S 06°11.25.46"; E 106°58'05.75") Jl. Kali Abang Tengah (S 06°11.46.05"; E 106°58'33.59") Jl. BKI inspection (S 06°08'38.72"; E 106°57'59.62") 	Contractor under PT MRT Jakarta Carried out every 3 months during earthworks and dewatering	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	
4c.	Increased prevalence of ARI	ARI prevalence	Earthworks and dewatering	<p>Method of collecting data:</p> <p>Collect data on the prevalence of ISPA at community health centers in the region MRT construction area</p> <p>Data analysis method: Data analysis was carried out by comparing data on the prevalence of ISPA with indicators of environmental management success</p>	<ul style="list-style-type: none"> Ex. Tomang Ex. Tanjung Duren Selatan Ex. Grogo Ex. Duripulo Ex. Cideng Ex. North Petrojo Ex. South Petrojo Ex. Gambir Ex. Kampung Bali Ex. Kebon Sirih Ex. Senen Ex. Kwitang Ex. Kramat Ex. Tanah Tinggi Ex. Galurs Ex. Harapan Mulya Ex. Cempaka Baru 	Carried out every 6 months during earthworks and dewatering	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient	
					<ul style="list-style-type: none"> • Ex. Sumur Batu • Ex. Cempaka Putih Barat • Ex. East Cempaka Putih • Ex. West Kelapa Gading • Ex. East Kelapa Gading • Ex. Pegangan Dua • Ex. Kayu Putih • Ex. Pulo Gadung • Ex. Rawa Terate • Ex. West Cakung • Ex. East Cakung • Ex. Ujung Menteng • Ex. Medan Satria • Ex. Rorotan 					
4d.	Changes in public perceptions and attitudes	Community perceptions and attitudes	Earthworks and dewatering	<p>Method of collecting data: Data collection on community perceptions and attitudes was carried out using direct interviews, observations and questionnaires.</p> <p>Data analysis method: Data analysis was carried out by comparing the results of data collection on community perceptions and attitudes with indicators of environmental management success</p>	<ul style="list-style-type: none"> • Ex. Tomang • Ex. Tanjung Duren Selatan • Ex. Grojol • Ex. Duri Pulo • Ex. Cideng • Ex. North Petobo • Ex. South Petobo • Ex. Gambir • Ex. Kampung Bali • Ex. Kebon Sirih • Ex. Senen • Ex. Kwitang • Ex. Kramat • Ex. Tanah Tinggi • Ex. Galurs • Ex. Harapan Mulia • Ex. Cempaka Baru • Ex. Sumur Batu • Ex. Cempaka Putih Barat • Ex. East Cempaka Putih • Ex. West Kelapa Gading • Ex. East Kelapa Gading • Ex. Pegangan Dua • Ex. Kayu Putih • Ex. Pulo Gadung • Ex. Rawa Terate • Ex. West Cakung • Ex. East Cakung • Ex. Ujung Menteng • Ex. Medan Satria • Ex. Rorotan 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 			

5 Under Construction Work

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN

MRT East – West Line Phase 1 Stage 1

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
5a.	Increased noise	Noise level	Underground construction work	<p>Method of collecting data:</p> <ul style="list-style-type: none"> Measurements are carried out using a simple sound level meter which usually measures the dB(A) sound pressure level for 10 (ten) minutes for each measurement. Readings are taken every 5 (five) seconds. The measurement time was carried out during 24 hours of activity (LSM) by means that during the day the activity level was highest for 16 hours (LS) in the interval 06.00 - 22.00 and activity during the day for 8 hours (LM) in the interval 22.00 - 06.00. 	<ul style="list-style-type: none"> Jl. S. Parman (S 06°10'30.59"; E 106°47'33.35") Jl. KH Hasyim Ashari (S 06°09'56.71"; E 106°48'09.07") Jl. Kebon Sirih (S 06°10'59.50"; E 106°49'23.74") Jl. Eastern Cendeng (S 06°10'13.40"; E 106°48'39.79") Jl. Letjen Suprapto (S 06°10'27.62"; E 106°51'19.45") 	Carried out every 3 months during underground construction work	Contractor under PT MRT Jakarta	<p>a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department</p>	<p>a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department</p>

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN
MRT East – West Line Phase 1 Stage 1

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
				<ul style="list-style-type: none"> Each measurement must be able to represent a certain time interval by setting at least 4 measurement times during the day and at least 3 measurement times at night. Calculation using the formula: $LS = 10 \log \frac{1}{16} \{T_1 \cdot 100 \cdot 1 \cdot L_1 + \dots + T_4 \cdot 100 \cdot 1 \cdot L_4\} \text{dB(A)}$ $LM = 10 \log \frac{1}{8} \{T_5 \cdot 100 \cdot 1 \cdot L_5 + \dots + T_7 \cdot 100 \cdot 1 \cdot L_7\} \text{dB(A),}$ $LSM = 10 \log \frac{1}{24} \{16 \cdot 100 \cdot 1 \cdot LS + 8 \cdot 100 \cdot 1 \cdot (LM+3)\} \text{ dB(A).}$ <p>Data analysis method: Data analysis was carried out by comparing the calculated LSM values with indicators of environmental management success with a tolerance of + 3 dB(A).</p>	<ul style="list-style-type: none"> Jl. Letjen Suprapto (S 06°10'00.59"; E 106°52'29.49") Jl. Perintis (S 06°10'31.25"; E 106°53'36.19") Jl. Raya Bekasi (S 06°10'57.48"; E 106°54'58.80") Jl. Raya Bekasi (S 06°11'03.85"; E 106°56'32.89") Jl. Raya Bekasi (S 06°11'25.46"; E 106°58'05.75") Jl. Kali Abang Tengah (S 06°11'46.05"; E 106°58'33.59") Jl. BKI inspection (S 06°08'58.72"; E 106°57'59.62") 		<ul style="list-style-type: none"> Jl. Letjen Suprapto (S 06°10'00.59"; E 106°52'29.49") Jl. Perintis (S 06°10'31.25"; E 106°53'36.19") Jl. Raya Bekasi (S 06°10'57.48"; E 106°54'58.80") Jl. Raya Bekasi (S 06°11'03.85"; E 106°56'32.89") Jl. Raya Bekasi (S 06°11'25.46"; E 106°58'05.75") Jl. Kali Abang Tengah (S 06°11'46.05"; E 106°58'33.59") Jl. BKI inspection (S 06°08'58.72"; E 106°57'59.62") 	<ul style="list-style-type: none"> g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> g) East Jakarta Environment Department h) Bekasi City Environmental Service

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN

MRT East – West Line Phase 1 Stage 1

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
6a.	Increased noise	Noise level	Construction work at ground level	<p>Method of collecting data:</p> <ul style="list-style-type: none"> Measurements are carried out using a simple sound level meter, usually measuring the dB(A) sound pressure level for 10 (ten) minutes for each measurement. Readings are taken every 5 (five) seconds. The measurement time was carried out during 24 hours of activity (LSM) by means that during the day the activity level was highest for 16 hours (LS) in the interval 06.00 - 22.00 and activity during the day for 8 hours (LM) in the interval 22.00 - 06.00. Each measurement must be able to represent a certain time interval by setting at least 4 measurement times during the day and at least 3 measurement times at night. Calculation using the formula: $LS = 10 \log \frac{1}{16} \{T_1, 100, 1, 11 + T_2, 100, 1, 14\} dB(A)$ $LM = 10 \log \frac{1}{8} \{T_5, 100, 1, 15 + T_7, 100, 1, 17\} dB(A),$ $LSM = 10 \log \frac{1}{24} \{L_6, 100, 1, LS + 8, 100, 1, LM+5\} dB(A).$ <p>Data analysis method: Data analysis was carried out by comparing the calculated LSM values with indicators of environmental management success with a tolerance of +3 dB(A).</p>	Carried out every 3 months during ground level construction work	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	

III OPERATIONAL STAGE

1 Acceptance of Operational Workers

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN
MRT East – West Line Phase 1 Stage 1

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
1a.	Open job opportunities	Number of local workers involved as workers	Acceptance of operational workforce	<p>Method of collecting data: Record the number of local workers involved as workers and the total number of workers in the labor logbook</p> <p>Data analysis method: Data analysis was carried out by calculating the percentage of local workers to the total number of workers and comparing it with indicators of environmental management success</p>	<ul style="list-style-type: none"> • Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grogol, • Ex. Duri Pulo, • Ex. Cideng, • Ex. North Petjo, • Ex. South Petjo, • Ex. Gambir, • Ex. Kampung Bali, • Ex. Kebon Sirih, • Ex. Senen, • Ex. Kwitang, 	Carried out once every 3 months during operational workforce recruitment activities	PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN
MRT East – West Line Phase 1 Stage 1

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
1b.	Increase in family income	Family income level	Acceptance of operational workforce	<p>Method of collecting data: Data collection on family income from operational workforce recruitment is carried out by direct interviews, observations and/or questionnaires with local workers who are involved as workers.</p> <p>Data analysis method: Data analysis was carried out by comparing the results of data collection on the income of local workers involved as workers with indicators of environmental management success.</p>	<ul style="list-style-type: none"> • Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grogol, • Ex. Duri Pulo, • Ex. Cideng, • Ex. North Petjo, • Ex. South Petjo, • Ex. Gambir, • Ex. Kampung Bali, • Ex. Kebon Sirih, • Ex. Zenen, • Ex. Kuitang, • Ex. Kramat, • Ex. Tanah Tinggi, • Ex. Galur, • Ex. Harapan Mulia, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Cempaka Putih Barat, • Ex. Cempaka Putih Timur, • Ex. West Kelapa Gading, • Ex. East Kelapa Gading, • Ex. Peganggaan Dua, • Ex. Kayu Putih, • Ex. Pulo Gadung, • Ex. Rawa Terate, • Ex. West Cakung, • Ex. East Cakung, • Ex. Ujung Menteng, • Ex. Medan Satria, • Ex. Rorotan. 	Carried out once every 6 months during operational workforce recruitment activities	PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
1c.	Changes in public perceptions and attitudes	Community perceptions and attitudes towards the results of the operational workforce recruitment process	Acceptance of operational workforce	<p>Method of collecting data: Data collection on community perceptions and attitudes towards the operational workforce recruitment process was carried out by direct interviews, observations and/or questionnaires with the community in 31 sub-districts at the MRT-EWLPIS1 construction site.</p>	<ul style="list-style-type: none"> • Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grogol, • Ex. Duri Pulo, • Ex. Cideng, • Ex. North Petjo, • Ex. South Petjo, • Ex. Gambir, 	Carried out once every 6 months during operational workforce recruitment activities	PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN

MRT East – West Line Phase 1 Stage 1

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
				<p>Data analysis method: Data analysis was carried out by comparing the results of data collection on community perceptions and attitudes towards the process of recruiting construction workers with indicators of environmental management success.</p> <ul style="list-style-type: none"> • Ex. Kampung Ball, • Ex. Kebon Sirih, • Ex. Senen, • Ex. Kwitang, • Ex. Kramat, • Ex. Tanah Tinggi, • Ex. Galur, • Ex. Harapan Mula, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Cempaka Putih Barat • Ex. Cempaka Putih Timur, • Ex. West Kelapa Gading, • Ex. East Kelapa Gading, • Ex. Pegangsaan Dua, • Ex. Kayu Putih, • Ex. Pulo Gadung, • Ex. Rawa Terate, • Ex. West Cakung, • Ex. East Cakung, • Ex. Ujung Menteng, • Ex. Medan Satria, • Ex. Rorotan. 			e) North Jakarta Environment Department f) East Jakarta Environment Department g) Bekasi City Environmental Service		e) North Jakarta Environment Department f) East Jakarta Environment Department g) Bekasi City Environmental Service
2	Passenger Transportation and Station Operations	Number of local community businesses involved in providing station operational needs	Transportation of passengers and station operations	<p>Method of collecting data:</p> <ul style="list-style-type: none"> • Carrying out data collection on local community businesses involved in providing the station's operational needs • Collect data on local community businesses that provide goods and services to support station operations • Collecting data on local community businesses who are tenants in the MSME space at each station <p>Data analysis method: Data analysis was carried out by comparing the results of data collection with indicators of environmental management success.</p>	MRT Station: <ul style="list-style-type: none"> • Tomang • Grogol • Roxy • Petojlo • Cideng • Thamrin • Kebon Sirih • Kwitang • Senen • Galurs • Cempaka Baru • Sumur Batu • West Pakulonan • East Pakulonan • Perintis • Pulo Gadung • Penggilingan • West Cakung • Pulo Gebang • Ujung Menteng • Medan Satria 	Carried out once every 3 months during passenger transport activities and station operations	PT MRT Jakarta e) North Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN

MRT East – West Line Phase 1 Stage 1

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Implementator	Supervisor	Report Recipient
2b.	Increase in family income	Family income level	Transportation of passengers and station operations	Method of collecting data: Data collection on family income from business opportunities is carried out by direct interviews, observations and/or questionnaires with the business community around the station location. Data analysis method: Data analysis was carried out by comparing the results of data collection on family income from business opportunities with indicators of environmental management success.	MRT Station: <ul style="list-style-type: none"> • Tomang • Grogol • Roxxy • Petoj • Cideng • Thamrin • Kebon Sirih • Kwitang • Senen • Galurs • Cempaka Baru 	Carried out once every 6 months during passenger transport activities and station operations	PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
2c.	Changes in public perceptions and attitudes	Public perceptions and attitudes towards passenger transport activities and station operations	Transportation of passengers and station operations	Method of collecting data: Data collection on community perceptions and attitudes towards passenger transportation activities and station operations was carried out by direct interviews, observations and/or questionnaires with the community at each basecamp location. Data analysis method: Data analysis was carried out by comparing the results of data collection on community perceptions and attitudes towards the activities of construction workers and basecamp operations with indicators of environmental management success.	Ex. Tomang • Ex. Tanjung Duren Selatan • Ex. Grogol • Ex. Duri Pulo • Ex. Cideng • Ex. North Petjo • Ex. South Petjo • Ex. Gambir • Ex. Kampung Bali • Ex. Kebon Sirih • Ex. Senen • Ex. Kwitang • Ex. Kramat • Ex. Tanah Tinggi • Ex. Galurs	Carried out once every 6 months during passenger transport activities and station operations	PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

Table 3.2. Other Environmental Impact Monitoring Plans

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
I CONSTRUCTION STAGE									
1 Basecamp Operations									
1a.	Increased disease vectors	<ul style="list-style-type: none"> There are portable toilets equipped with septic tanks at each basecamp location Carrying out regular waste water suction 	Waste water from basecamp operations	Method of collecting data: <ul style="list-style-type: none"> Conduct field observations of the existence of the MCK at each basecamp Recording the frequency and volume of waste water sucked up by the PAL Jaya Regional Company in the waste water suction logbook Data analysis method: Data analysis was carried out by comparing the results of observations (existence of MCK) and recording (irritation and volume of wastewater sucked) with indicators of environmental management success.	Basecamp Depot <ul style="list-style-type: none"> Rorotan Village Underground Basecamp Ex. Pegangsaan Dua Basecamp Elevated Duri Pulo Village 	<ul style="list-style-type: none"> Observations on the presence of MCK are carried out every 3 months Recording of the flow and volume of waste water sucked is carried out every time the waste water is sucked out 	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department
1b.	Increased disease vectors	<ul style="list-style-type: none"> There are segregated waste bins and TPS available at each basecamp location Carrying out regular waste transportation 	Waste from basecamp operations	Method of collecting data: <ul style="list-style-type: none"> Conduct field observations of the existence of segregated waste bins (organic waste and inorganic waste) and Temporary Shelters (TPS) in the form of container boxes at each basecamp location Recording the frequency and volume of waste transported periodically by the DKI Jakarta Government in a waste transportation logbook Data analysis method: Data analysis was carried out by comparing the results of observations (trash bins and TPS) and recording (trash bins and volume of transported waste) with indicators of environmental management success.	Basecamp Depot <ul style="list-style-type: none"> Rorotan Village Underground Basecamp Ex. Pegangsaan Dua Basecamp Elevated Duri Pulo Village 	<ul style="list-style-type: none"> Observations of the existence of segregated waste bins and TPS are carried out every 3 months Recording of the frequency and volume of waste transported is carried out every time the waste is transported 	Contractor under PT MRT Jakarta	a) MINISTRY OF ENVIRONMENT AND FORESTRY b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department	a) MINISTRY OF ENVIRONMENT AND FORESTRY b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN

MRT East – West Line Phase 1 Stage 1

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
1c.	Increased disease vectors	<ul style="list-style-type: none"> • B3 waste packaging • The presence of B3 waste labels and symbols on LB3 packaging • LB3 storage time • The existence of TPS LB3 • LB3 Freight 	Basecamp operations	<p>Method of collecting data :</p> <ul style="list-style-type: none"> • Conduct field observations on the suitability of B3 waste packaging to the type and characteristics of B3 waste • Conduct field observations on the existence and suitability of B3 waste labels and symbols on LB3 packaging • Record the entry and exit of B3 waste at TPS LB3 in the B3 waste storage logbook • Conduct field observations of the existence of TPS LB3 • Create a B3 waste balance sheet complete with an B3 transportation manifest <p>Data analysis method: Data analysis was carried out by comparing the results of recording and observing the implementation of B3 waste management with indicators of environmental management success</p>	<ul style="list-style-type: none"> • Basecamp Depot Rorotan Village • Underground Basecamp Ex: Pegangsaan Dua • Basecamp Elevated Duri Pulo Village 	<ul style="list-style-type: none"> • Observations on the implementation of B3 waste management at non-permanent TPS LB3 are carried out every 3 months • Recording of the volume of LB3 transported is carried out every time the LB3 is transported by a third party who has an LB3 transportation permit from the MINISTRY OF ENVIRONMENT AND FORESTRY 	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department d) North Jakarta Environment Department
2	2. Mobilization of Construction Equipment and Materials	Decreased traffic performance	Traffic performance (Vc ratio value)	Mobilization of Construction Equipment and Materials	<p>Method of collecting data :</p> <ul style="list-style-type: none"> • Capacity data for each road section was obtained based on the results of the Andalalin MRT-EWLP151 study (2023) 	<ul style="list-style-type: none"> • Jl. Letjend Parman (S 06°10'21.64"; E 106°47'20.14") • Jl. Kyai Tapa (S 06°10'1.092"; E 106°47'21.73") 	Once every 3 months	<ul style="list-style-type: none"> Contractor under PT MRT Jakarta 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Environmental Service

				<ul style="list-style-type: none"> • Calculate vehicle traffic volume directly in the field using the 24-hour traffic counting method • Jl. Kyai Tapa (S 06°10'6.384"; E 106°47'13.56") • Jl. Dr Susilo Raya (S 06°9'57.99"; E 106°47'38.07") • Jl. Kyai Tapa (S 06°9'159.11"; E 106°47'36.06") • Jl. KH. Hasyim Ashari (S 06°9'57.99"; E 106°48'16.77") • Jl. West Cideng and Jl. East Cideng (S 06°10'6.3312"; E 106°48'38.12") • Jl. East Cideng (S 06°10'33.54"; E 106°48'50.39") • Jl. Jati Baru Raya (S 06°10'33.83"; E 106°48'53.56") • Jl. Kebon Sirih (S 06°10'59.08"; E 106°49'35.11") • U Turn at Tugu Tani (S 06°10'57.07"; E 106°50'6.68") • Jl. Kramat Kwitang (S 06°10'53.68"; E 106°50'12.2") • Jl. Letjen Suprapto (S 06°10'39.57"; E 106°50'35.0") • Jl. Letjen Suprapto (S 06°10'29.20"; E 106°50'55.8") • Jl. Letjen Suprapto (S 06°10'20.10"; E 106°51'14.6") • Jl. Perintis Kemerdekaan (S 06°10'33.6"; E 106°52'44.9") • Jl. Perintis Kemerdekaan (S 06°9'58.17"; E 106°52'49.83") • Jl. Perintis Kemerdekaan (S 06°10'19.12"; E 106°53'19.6") • Jl. Perintis Kemerdekaan (S 06°10'51.74"; E 106°54'28.6") • Jl. Raya Bekasi (S 06°11'0.024"; E 106°55'41.7") • Jl. Raya Bekasi (S 06°10'56.13"; E 106°56'11.3") • Jl. Raya Bekasi 	<ul style="list-style-type: none"> e) Central Jakarta Environment Department f) West Jakarta Environment Department g) North Jakarta Environment Department h) East Jakarta Environment Department i) Bekasi City Environmental Service 	<ul style="list-style-type: none"> d) Central Jakarta Environment Department e) Central Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> e) Central Jakarta Environment Department f) West Jakarta Environment Department g) North Jakarta Environment Department h) East Jakarta Environment Department i) Bekasi City Environmental Service 	<ul style="list-style-type: none"> e) Central Jakarta Environment Department f) West Jakarta Environment Department g) North Jakarta Environment Department h) East Jakarta Environment Department i) Bekasi City Environmental Service 	<ul style="list-style-type: none"> e) Central Jakarta Environment Department f) West Jakarta Environment Department g) North Jakarta Environment Department h) East Jakarta Environment Department i) Bekasi City Environmental Service 		

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient	
					(S 06°11'20.3"; E 106°57'7.81") • Jl. Raya Bekasi (S 06°11'23.89"; E 106°58'0.87") • Jl. East Canal Inspection (S 06°10'21.97"; E 106°58'17.4") • Jl. Raya Bekasi (S 06°11'33.21"; E 106°58'17.2") • Jl. Kali Abang Tengah (S 06°11'45.34"; E 106°58'30.4") • Jl. Sultan Agung (S 06°11'46.71"; E 06°58'26.43")					
2b.	Occurrence of Environmental Disturbances (dust, noise, piles of sediment)	Public complaints regarding environmental disturbances (dust, noise, puddles/ floods and piles of sediment) due to MRT-EWLP1S1 activities	Mobilization of Construction Equipment and Materials	<p>Method of collecting data :</p> <ul style="list-style-type: none"> Public complaint data was obtained from the Complaint Service Post Conduct observation/field surveys regarding community complaints regarding environmental disturbances (dust, noise, puddles/ floods and piles of sediment) resulting from MRT-EWLP1S1 activities <p>Data analysis method :</p> <p>Compare the number and types of public complaints submitted to the person in charge of the activity with the number and types of complaints that have been resolved/agreed officially in accordance with the established community complaint handling mechanism</p>	<ul style="list-style-type: none"> Ex. Tomang, Ex. Tanjung Duren Selatan, Ex. Grogol, Ex. Duri Pulo, Ex. Cidereng, Ex. North Petrojo, Ex. South Petrojo, Ex. Gambir, Ex. Kampung Bali, Ex. Reborn Sirih, Ex. Senen, Ex. Kwitang, Ex. Kramat, Ex. Tanah Tinggi, Ex. Galur, Ex. Harapan Mulia, Ex. Cempaka Baru, Ex. Sumur Batu, Ex. Cempaka Putih Barat, Ex. Cempaka Putih Timur, Ex. West Kelapa Gading, Ex. East Kelapa Gading, Ex. Peganganan Dua, Ex. Kayu Putih, Ex. Pulo Gadung, Ex. Rawa Terate, Ex. West Cakung, Ex. East Cakung, Ex. Ujung Menteng, Ex. Medan Satria, Ex. Rorotan. 	Every months	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Provincial Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 		

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
2c.	There are traffic jams regarding traffic congestion due to MRT-EWL P1S1 activities	Public complaints	Mobilization of Construction Equipment and Materials	<p>Method of collecting data :</p> <ul style="list-style-type: none"> • Public complaint data was obtained from the Complaint Service Post • Conduct observation/field survey of public complaints regarding traffic congestion due to MRT-EWL P1S1 activities <p>Data analysis method :</p> <p>Compare the number and types of community complaints submitted to the person in charge of the activity with the number and types of complaints that have been officially resolved/agreed upon in accordance with the established community complaint handling mechanism</p>	<ul style="list-style-type: none"> • Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grogol, • Ex. Duru Pulo, • Ex. Cideng, • Ex. North Petojio, • Ex. South Petojio, • Ex. Gambir, • Ex. Kampung Bali, Kebon Sirih, • Ex. Senen, • Ex. Kwitang, • Ex. Kramat, • Ex. Tanah Tinggi, • Ex. Galur, • Ex. Harapan Mulia, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Cempaka Putih Barat, • Ex. Cempaka Putih Timur, • Ex. West Kelapa Gading, • Ex. East Kelapa Gading, • Ex. Pegangsaan Dua, • Ex. Kayu Putih, • Ex. Pulo Gadung, • Ex. Rawa Terate, • Ex. West Cakung, • Ex. East Cakung, • Ex. Ujung Menteng, • Ex. Medan Satria, • Ex. Rorotan. 	Every months	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
3	Land Clearing and Relocation of Public Facilities/Utilities								

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	3a. Decreased traffic performance	Traffic performance (Vc ratio value)	Mobilization of Construction Equipment and Materials	Method of collecting data :	Contractor under PT
			<ul style="list-style-type: none"> Capacity data for each road section was obtained based on the results of the Andalalin MRT-EWP15A study (2023) Calculate vehicle traffic volume directly in the field using the 24-hour traffic counting method <p>Data analysis method: Data from traffic volume calculations is analyzed to determine the road traffic performance (level of service). The level of service (LOS) value is determined based on the VCratio value with the equation:</p> $V_{\text{rate}} = \frac{v}{C}$ <p>Keterangan : v = vol. arus lalu lintas (m/jam) C = kapasitas (m²/jam)</p> <p>Determination of road traffic performance based on the VCratio value refers to the following criteria (MKJ, 1997):</p> <ul style="list-style-type: none"> LOS category A with a VCratio value ≤ 0.60 LOS category B with a VCratio value ≤ 0.70 LOS category C with a VCratio value ≤ 0.80 LOS category D with a VCratio value ≤ 0.90 LOS category E with a VCratio value ≤ 1 LOS category F with a VCratio value ≥ 1 	<ul style="list-style-type: none"> Jl. Letjen S Parman (S 06°10'21.64"; E 106°47'20.14") Jl. Kyai Tapa (S 06°10'1.092"; E 106°47'21.73") Jl. Kyai Tapa (S 06°10'6.384"; E 106°47'18.56") Jl. Dr Susilo Raya (S 06°9'15.7.99"; E 106°47'38.07") Jl. Kyai Tapa (S 06°9'59.11"; E 106°47'36.06") Jl. KH. Hayyim Astari (S 06°9'57.49"; E 106°48'16.77") Jl. West Cicideng and Jl. East Cicideng Jl. Ilati Baru Raya (S 06°10'53.83"; E 106°48'53.56") Jl. Kebon Sirih (S 06°10'53.54"; E 106°48'50.39") U Turn at Tugu Tani (S 06°10'57.07"; E 106°50'6.68") Jl. Kramat Kwitang (S 06°10'53.68"; E 106°50'12.2") Jl. Letjen Suprapto (S 06°10'39.57"; E 106°50'35.0") Jl. Letjen Suprapto (S 06°10'29.20"; E 106°52'49.8") Jl. Letjen Suprapto (S 06°10'20.10"; E 106°51'44.6") Jl. Perintis Kemerdekaan (S 06°10'0.336"; E 106°52'44.9") Jl. Perintis Kemerdekaan (S 06°9'58.17"; E 106°52'49.83") Jl. Perintis Kemerdekaan (S 06°10'51.74"; E 106°54'28.6") Jl. Raya Bekasi (S 06°10'57.35"; E 106°54'57.6") Jl. Raya Bekasi 	

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
					(S 06°11'00.024"; E 106°55'41.7") • Jl. Raya Bekasi (S 06°10'56.20"; E 106°56'11.3") • Jl. Raya Bekasi (S 06°11'19.203"; E 106°57'7.81") • Jl. Raya Bekasi (S 06°11'23.89"; E 106°58'0.87") • Jl. East Canal Inspection (S 06°10'21.97"; E 106°58'17.4")				
3b.	Decreased density of land vegetation	Number of shade trees removed and/or felled with replacement	Land Cleaning and Relocation of Public Facilities/Utilities	Method of collecting data: <ul style="list-style-type: none">Data on the number of protective trees removed and/or felled with replacement was obtained based on felling permits from the authorized agency.Carrying out field observations and calculating the number of trees replanted and/or planted as replacements in each location that has been determined according to permission from the competent authority.	<ul style="list-style-type: none">Tomang Station.Grogol Station.Roxy Station.Petojo Station.Cideng Station.Thamrin Station.Kebon Sirih Station.Kwitang Station.Senen Station.Galur Station.Cempaka Baru Station.Sumur Batu Station.West Pakulonan Station.East Pakulonan Station;Perintis Station.Pulo Gadung Station.Penggilingan Station.West Cakung Station.Pulo Gebang Station.Ujung Menteng Station.Medan Satria StationRorutan Depot	<ul style="list-style-type: none">Data collection the number of trees replanted and/or planted as replacements is done once Observation Maintenance conditions are carried out every 6 months	<ul style="list-style-type: none">Contractor under PT MRT Jakarta	<ul style="list-style-type: none">a) Ministry of Environment and Forestryb) DKI Jakarta Provincial Environmental Servicec) West Java Province Environmental Serviced) Central Jakarta Environment Departmente) West Jakarta Environment Departmentf) North Jakarta Environment Departmentg) East Jakarta Environment Departmenth) Bekasi City Environmental Service	
				Data analysis method: <p>Data from field observations and calculations of the number of trees replanted and/or planted as replacements are compared with felling permits from authorized agencies.</p>					

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
3c.	Increased runoff water discharge	Flooding occurs	Land Cleaning and Relocation of Public Facilities/Utilities	Method of collecting data: Data collection on the occurrence of inundation is carried out by observation, direct interviews, and/or questionnaires to the community at each activity location. Data analysis method: Data analysis was carried out by comparing the results of data collection with indicators of environmental management success	Construction location: • MRT Station: Tomang; Grogol; Roxy; Petojio; Cideng; Thamrin; Kabon Sirih; Kwitang; Senen; Galur; Cempaka Baru; Stone Well; West Pakulonan; East Pakulonan; Perintis; Pulo Gadung; Penggilingan; West Cakung; Pulo Gebang; Ujung Menteng; Medan Satria • Rorotan Depot • Elevated path • Underground route	Once every 3 months	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
3d.	Occurrence of Environmental Disturbances (dust, noise, piles of sediment, and puddles)	Public complaints regarding environmental disturbances (dust, noise, puddles/floods and piles of sediment) due to MRT-EWLPI1S1 activities	Land Cleaning and Relocation of Public Facilities/Utilities	Method of collecting data : • Public complaint data was obtained from the Complaint Service Post • Conduct observation/field surveys regarding community complaints regarding environmental disturbances (dust, noise, puddles/floods and piles of sediment) resulting from MRT-EWLPI1S1 activities Data analysis method : Compare the number and types of public complaints submitted to the person in charge of the activity with the number and types of complaints that have been resolved/agreed officially in accordance with the established community complaint handling mechanism	• Ex. Tomang, • Ex. Tarjung Duren Selatan, • Ex. Grogol, • Ex. Duri Pulo, • Ex. Cideng, • Ex. North Petojo, • Ex. South Petojo, • Ex. Gambir, • Ex. Kampung Bali, • Ex. Nebra Sirih, • Ex. Senen, • Ex. Kwitang, • Ex. Kramat, • Ex. Tanah Tinggi, • Ex. Galur, • Ex. Harapan Mulya, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Cempaka Putih Barat, • Ex. Cempaka Putih Timur, • Ex. West Kelapa Gading, • Ex. Peganganan Dua, • Ex. Rayu Putih, • Ex. Pulo Gadung, • Ex. Rawa Terate, • Ex. West Cakung, • Ex. East Cakung, • Ex. Ujung Menteng, • Ex. Medan Satria, • Ex. Rorotan.	Every month	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
3e.	There are traffic jams regarding traffic congestion due to MRT-EWL/P1S1 activities	Public complaints	Land Cleaning and Relocation of Public Facilities/Utilities	<p>Method of collecting data :</p> <ul style="list-style-type: none"> • Public complaint data was obtained from the Complaint Service Post • Conduct observation/field survey of public complaints regarding traffic congestion due to MRT-EWL/P1S1 activities <p>Data analysis method :</p> <p>Compare the number and types of community complaints submitted to the person in charge of the activity with the number and types of complaints that have been officially resolved/agreed upon in accordance with the established community complaint handling mechanism</p>	<ul style="list-style-type: none"> • Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grogol, • Ex. Duripulo, • Ex. Cideng, • Ex. North Petojos, • Ex. South Petojos, • Ex. Gambir, • Ex. Kampung Bali, Kebon Sirih, • Ex. Senen, • Ex. Kwitang, • Ex. Kramat, • Ex. Tanah Tinggi, • Ex. Galur, • Ex. Harapan Mulia, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Cempaka Putih Barat, • Ex. Cempaka Putih Timur, • Ex. West Kelapa Gading, • Ex. East Kelapa Gading, • Ex. Pegangsaan Dua, • Ex. Kayu Putih, • Ex. Pulo Gadung, • Ex. Rawa Terate, • Ex. West Cakung, • Ex. East Cakung, • Ex. Ujung Menteng, • Ex. Medan Satria, • Ex. Rorotan. 	Every month	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

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	4a. Decreased traffic performance	Traffic performance (Vc ratio value)	Earthworks and dewatering	Method of collecting data :	MRT Jakarta	Contractor under PT	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
4a.				<ul style="list-style-type: none"> Capacity data for each road section was obtained based on the results of the Andalalin MRT-EWP15A study (2023) Calculate vehicle traffic volume directly in the field using the 24-hour traffic counting method <p>Data analysis method: Data from traffic volume calculations is analyzed to determine the road traffic performance (level of service). The level of service (LOS) value is determined based on the VCratio value with the equation:</p> $V_{\text{rate}} = \frac{v}{C}$ <p>Keterangan : v = rata-rata laju lintas (m/jam) C = kapasitas (m^2/jam)</p> <p>Determination of road traffic performance based on the VCratio value refers to the following criteria (MKJ, 1997):</p> <ul style="list-style-type: none"> LOS category A with a VCratio value ≤ 0.60 LOS category B with a VCratio value ≤ 0.70 LOS category C with a VCratio value ≤ 0.80 LOS category D with a VCratio value ≤ 0.90 LOS category E with a VCratio value ≤ 1 LOS category F with a VCratio value ≥ 1 	<ul style="list-style-type: none"> Jl. Letjen S Parman (S 06°10'21.64"; E 106°47'20.14") Jl. Kyai Tapa (S 06°10'1.092"; E 106°47'21.73") Jl. Kyai Tapa (S 06°10'6.384"; E 106°47'18.56") Jl. Dr Susilo Raya (S 06°9'57.99"; E 106°47'38.07") Jl. Kyai Tapa (S 06°9'59.11"; E 106°47'36.06") Jl. KH. Hasyim Asy'ari (S 06°9'57.49"; E 106°48'16.77") Jl. West Cicideng and Jl. East Cicideng (S 06°10'6.312"; E 106°48'38.12") Jl. East Cicideng (S 06°10'53.54"; E 106°48'50.39") Jl. Jati Baru Raya (S 06°10'53.83"; E 106°48'53.56") Jl. Kebon Sirih (S 06°10'59.08"; E 106°49'35.11") U Turn at Tugu Tani (S 06°10'57.07"; E 106°50'16.683") Jl. Kramat Kwitang (S 06°10'53.68"; E 106°50'12.22") Jl. Letjen Suprapto (S 06°10'39.57"; E 106°50'35.05") Jl. Letjen Suprapto (S 06°10'29.20"; E 106°50'55.82") Jl. Letjen Suprapto (S 06°10'20.10"; E 106°51'44.50") Jl. Perintis Kemerdekaan (S 06°10'0.336"; E 106°52'44.90") Jl. Perintis Kemerdekaan (S 06°9'58.17"; E 106°52'49.83") Jl. Perintis Kemerdekaan (S 06°10'51.74"; E 106°54'28.58") Jl. Raya Bekasi (S 06°10'57.35"; E 106°54'57.63") 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 		

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
					<ul style="list-style-type: none"> • Jl. Raya Bekasi (S 06°11'00.024"; E 106°55'41.70") • Jl. Raya Bekasi (S 06°10'56.20"; E 106°56'11.29") • Jl. Raya Bekasi (S 06°11'19.203"; E 106°57'7.811") • Jl. Raya Bekasi (S 06°11'23.89"; E 106°58'0.875") • Jl. East Canal Inspection (S 06°10'21.97"; E 106°58'17.43") • Jl. Raya Bekasi (S 06°11'33.21"; E 106°58'17.25") • Jl. Kali Abang Tengah (S 06°11'45.34"; E 106°58'30.46") • Il. Sultan Agung (S 06°11'46.71"; E 106°58'26.43") 				

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient	
4b.	Increased vibration	Vibration level	Earthworks and dewatering	<p>Method of collecting data :</p> <ul style="list-style-type: none"> Measure vibration levels at frequency 4; 5; 6; 3; 8; 10; 12.5; 16; 20; 25; 31.5; 40 and 50 Hz Measuring equipment: <ul style="list-style-type: none"> - Vibration capture device (accelerometer or seismometer) - Vibration measuring equipment or analysis tools (vibration meter or vibration analyzer) - 1/3 octave or narrow band filter (1/3 octave or narrow band filter) - Vibration level recorder (level or X - Y recorder) - Vibration level measuring analysis tool (FFT analyzer) Measurement method: <ul style="list-style-type: none"> The vibration capture device is placed on the floor or vibrating surface, and connected to a vibration measuring instrument equipped with a filter The measuring instrument is installed on the deviation quantity (in the event that the instrument is not equipped with this facility, quantity conversion can be used) Reading and recording are carried out for each frequency 4 – 50 Hz or by sweeping with a vibration recording device. <p>• The results of 12 measurements of data are depicted in the Standard Graph of Mechanical Vibration Levels Based on Damage Impact (Attachment II to Minister of Environment Decree No. 49 of 1996)</p> <p>Data analysis method:</p> <p>Comparing the vibration level measurement results with the Vibration Level Standards in the Decree of the Minister of Environment No. 49/MENLH/11/1996 (Appendix II – Table 1. Standard Mechanical Vibration Levels Based on Damage Impact)</p>	• UKG-1 (S 06°10'30.59" : E 106°47'33.35") <ul style="list-style-type: none"> UKG-7 (S 06°10'31.25" : E 106°53'36.19") UKG-8 (S 06°10'57.48" : E 106°54'58.80") UKG-9 (S 06°11'03.85" : E 106°56'32.88") UKG-10 (S 06°11'25.46" : E 106°58'05.75") UKG-11 (S 06°11'46.05" : E 106°58'33.58") 	Once every 3 months	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
4c.	Decrease in ground water level	Height of ground water level	Earthworks and dewatering		• UBH-01 (S 698.656.150 : E 9.318.097.940) <ul style="list-style-type: none"> UBH-25 (S 700.913.597 : E 9.316.383.057) UBH-56 (S 705.252.510 : E 9.317.166.400) 	Every 3 months	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department	

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
4d.	Decreased groundwater quality	Groundwater quality	Earthworks and dewatering	Method of collecting data : Take groundwater samples by referring to SNI 6989.36:2008, then test groundwater samples in an accredited laboratory by referring to: a) SNI 06-6989.23-2005 for temperature parameters b) SNI 6989.11:2019 for pH parameters c) SNI 6989.80:2011 for color parameters d) SNI 6989.27:2019 for TDS parameters e) SNI 06-6989.25-2005 for turbidity parameters f) SNI 6989.4:2009 for iron (Fe) parameters g) SNI 6989.5:2009 for Manganese (Mn) parameters h) SNI 6989.17:2009 for the Chromium val parameter. 6 i) SNI 06-6989.9-2004 for Nitrite (NO2) Parameters j) SNI 6989.74:2009 for Nitrate (NO3) parameters k) SNI ISO 9308-1:2010 for E. Coli and Total Coliform parameters Data analysis method : Compare laboratory test results with indicators of environmental management success	• AT2 (S 06°09'03.45" : E 106°48'05.69") • AT-2D (S 06°09'57.28" : E 106°48'17.35") • AT3 (S 06°11'03.01" : E 106°49'36.01") • AT-3D (S 06°10'49.72" : E 106°50'22.48") • AT4 (S 06°10'24.99" : E 106°51'20.01") • AT-4D (S 06°10'27.84" : E 106°51'21.92")	Once every 6 months	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) Central Jakarta Environment Department
4e.	Occurrence of Environmental Disturbances (dust, noise, piles of sediment, and puddles)	Public complaints regarding environmental disturbances (dust, noise, puddles/foods and piles of sediment) due to MRT-EWLP1S1 activities	Earthworks and dewatering	Method of collecting data : • Public complaint data was obtained from the Complaint Service Post • Conduct observation/field surveys regarding community complaints regarding environmental disturbances (dust, noise, puddles/foods and piles of sediment) resulting from MRT-EWLP1S1 activities Data analysis method : Compare the number and types of public complaints submitted to the person in charge of the activity with the number and types of complaints that have been resolved/agreed officially in accordance with the established community complaint handling mechanism	• Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grogol, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Cempaka Putih Barat, • Ex. Cempaka Putih Timur, • Ex. West Kelapa Gading, • Ex. Pegangsaan Dua, • Ex. Kayu Putih, • Ex. Pullo Gadung, • Ex. Rawa Terate, • Ex. West Cakung, • Ex. East Cakung, • Ex. Ujung Menteng	Every month	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
4f.	There are traffic jams regarding traffic congestion due to MRT-EWL P1S1 activities	Public complaints	Earthworks and dewatering	<p>Method of collecting data :</p> <ul style="list-style-type: none"> • Public complaint data was obtained from the Complaint Service Post • Conduct observation/ field survey of public complaints regarding traffic congestion due to MRT-EWL P1S1 activities <p>Data analysis method :</p> <p>Compare the number and types of community complaints submitted to the person in charge of the activity with the number and types of complaints that have been officially resolved/agreed upon in accordance with the established community complaint handling mechanism</p>	<ul style="list-style-type: none"> • Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grogol, • Ex. Duri Pulo, • Ex. Cideng, • Ex. North Petojos, • Ex. South Petojos, • Ex. Gambir, • Ex. Kampung Bali, Kebon Sirih, • Ex. Senen, • Ex. Kwitang, • Ex. Kramat, • Ex. Tanah Tinggi, • Ex. Galur, • Ex. Harapan Mulia, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Cempaka Putih Barat, • Ex. Cempaka Putih Timur, • Ex. West Kelapa Gading, • Ex. East Kelapa Gading, • Ex. Pegangsaan Dua, • Ex. Kayu Putih, • Ex. Pulo Gadung, • Ex. Rawa Terate, • Ex. West Cakung, • Ex. East Cakung, • Ex. Ujung Menteng, • Ex. Medan Satria, • Ex. Rorotan. 	Every month	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
4g	Soil Quality degradation	Meet the characteristic standard values of TCLP and/or TK (total concentration)	Earth working and underground segment dewatering	<p>Method of collecting data:</p> <ul style="list-style-type: none"> • Soil sampling at the excavation site <p>Data Analysis Method:</p> <p>Laboratory analysis of soil quality (heavy metal, pH, hydrocarbon etc.)</p>	<p>MRT East – West Line Phase 1 Stage 1 construction area as 22 point locations at underground construction area</p> <p>Note: Objectively as 22 point locations within 6 months</p>	Periodically within 6 months during the MRT East -West Line MRT construction activities	Contractor under DGR a) Environmental services of West Jakarta, Central Jakarta, North Jakarta, East Jakarta & Bekasi b) Environmental services of DKI Jakarta Province and West Java c) Director General of Railways, Ministry of Transportation d) Ministry of Environment & Forestry	a) Environmental services of West Jakarta, Central Jakarta, North Jakarta, East Jakarta & Bekasi b) Environmental services of DKI Jakarta Province and West Java c) Director General of Railways, Ministry of Transportation d) Ministry of Environment & Forestry	

5. Underground Construction

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5a.	Decreased traffic performance	Performance traffic ratio value)	Underground construction work	Method of collecting data :	MRT Jakarta	Contractor under PT	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
				<ul style="list-style-type: none"> Capacity data for each road section was obtained based on the results of the Andalalin MRT-EWP15A study (2023) Calculate vehicle traffic volume directly in the field using the 24-hour traffic counting method <p>Data analysis method: Data from traffic volume calculations is analyzed to determine the road traffic performance (level of service). The level of service (LOS) value is determined based on the VCratio value with the equation:</p> <p style="text-align: center;">$V_{\text{rate}} = \frac{v}{C}$</p> <p>Keterangan : $v = \text{volt arus lalu lintas (m/jam)}$ $C = \text{kapasitas (m/jam)}$</p> <p>Determination of road traffic performance based on the VCratio value refers to the following criteria (MKJ, 1997):</p> <ul style="list-style-type: none"> LOS category A with a VCratio value ≤ 0.60 LOS category B with a VCratio value ≤ 0.70 LOS category C with a VCratio value ≤ 0.80 LOS category D with a VCratio value ≤ 0.90 LOS category E with a VCratio value ≤ 1 LOS category F with a VCratio value ≥ 1 	<ul style="list-style-type: none"> Jl. Letien S Parman (S 06°10'21.64"; E 106°47'20.14") Jl. Kyai Tapa (S 06°10'1.092"; E 106°47'21.73") Jl. Kyai Tapa (S 06°10'5.384"; E 106°47'18.56") Jl. Dr Susilo Raya (S 06°9'57.99"; E 106°47'38.07") Jl. Kyai Tapa (S 06°9'59.11"; E 106°47'36.06") Jl. KH. Hayyim Ashari (S 06°9'57.49"; E 106°48'16.77") Jl. West Cicideng and Jl. East Cicideng (S 06°10'6.312"; E 106°48'38.12") Jl. East Cicideng (S 06°10'53.54"; E 106°48'50.39") Jl. Jati Baru Raya (S 06°10'53.83"; E 106°48'53.56") Jl. Kebon Sirih (S 06°10'59.08"; E 106°49'35.11") U Turn at Tugu Tani (S 06°10'57.07"; E 106°50'16.683") Jl. Kramat Kwitang (S 06°10'53.68"; E 106°50'12.22") Jl. Letien Suprapto (S 06°10'39.57"; E 106°50'35.05") Jl. Letien Suprapto (S 06°10'29.20"; E 106°50'55.82") Jl. Letien Suprapto (S 06°10'20.10"; E 106°51'44.50") Jl. Perintis Kemerdekaan (S 06°10'0.336"; E 106°52'44.90") Jl. Perintis Kemerdekaan (S 06°9'58.17"; E 106°52'49.83") Jl. Perintis Kemerdekaan (S 06°10'51.74"; E 106°54'28.58") Jl. Raya Bekasi (S 06°10'57.35"; E 106°54'57.63") Jl. Raya Bekasi 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 		

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient	
					(S 06°11'0.024"; E 106°55'41.70") • Jl. Raya Bekasi (S 06°10'56.20"; E 106°56'11.29") • Jl. Raya Bekasi (S 06°11'19.203"; E 106°57'7.81") • Jl. Raya Bekasi (S 06°11'23.89"; E 106°58'0.875") • Jl. East Canal Inspection (S 06°10'21.97"; E 106°58'17.43") • Jl. Raya Bekasi (S 06°11'33.21"; E 106°58'17.25") • Jl. Kali Abang Tengah (S 06°11'45.34"; E 106°58'30.46") • Jl. Sultan Agung (S 06°11'46.71"; E 106°58'26.43")					

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient	
5b.	Increased vibration	Vibration level	Underground construction work	<p>Method of collecting data :</p> <ul style="list-style-type: none"> Measure vibration levels at frequency 4; 5; 6.3; 8; 10; 12.5; 16; 20; 25; 31.5; 40 and 50 Hz Measuring equipment: <ul style="list-style-type: none"> - Vibration capture device (accelerometer or seismometer) - Vibration measuring equipment or analysis tools (vibration meter or vibration analyzer) - 1/3 octave or narrow band filter (1/3 octave or narrow band filter) - Vibration level recorder (level or X - Y recorder) - Vibration level measuring analysis tool (FFT analyzer) Measurement method: <ul style="list-style-type: none"> - The vibration capture device is placed on the floor or vibrating surface, and connected to a vibration measuring instrument equipped with a filter - The measuring instrument is installed on the deviation quantity (in the event that the instrument is not equipped with this facility, quantity conversion can be used) - Reading and recording are carried out for each frequency 4 – 50 Hz or by sweeping with a vibration recording device. 	• UKG-1 (S 06°10'30.59": E 106°47'33.35") • UKG-7 (S 06°10'31.25": E 106°53'36.19") • UKG-8 (S 06°10'57.48": E 106°54'58.80") • UKG-9 (S 06°11'03.85": E 106°56'32.88") • UKG-10 (S 06°11'25.46": E 106°58'05.75") • UKG-11 (S 06°11'46.05": E 106°58'33.58") •	Once every 3 months	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

Data analysis method:

Comparing the vibration level measurement results with the Vibration Level Standards in the Decree of the Minister of Environment No. 49/MENLH/11/1996 (Appendix II – Table 1. Standard Mechanical Vibration Levels Based on Damage Impact)

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
5c.	Occurrence of Environmental Disturbances (dust, noise, piles of sediment, and puddles)	Public complaints regarding environmental disturbances (dust, noise, puddles/floods and piles of sediment) due to MRT-EWLP1S1 activities	Underground construction work	Method of collecting data : <ul style="list-style-type: none"> • Public complaint data was obtained from the Complaint Service Post • Conduct observation/field surveys regarding community complaints regarding environmental disturbances (dust, noise, puddles/floods and piles of sediment) resulting from MRT-EWLP1S1 activities Data analysis method : <p>Compare the number and types of public complaints submitted to the person in charge of the activity with the number and types of complaints that have been resolved/agreed officially in accordance with the established community complaint handling mechanism</p>	<ul style="list-style-type: none"> • Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grogol, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Cempaka Putih Barat, • Ex. Cempaka Putih Timur, • Ex. West Kelapa Gading, • Ex. East Kelapa Gading, • Ex. Pegangsaan Dua, • Ex. Rayu Putih, • Ex. Pulo Gadung, • Ex. Rawa Terate, • Ex. West Cakung, • Ex. East Cakung, • Ex. Ujung Menteng 	Every month	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
5d.	There are traffic jams	Public complaints regarding traffic congestion due to MRT-EWLP1S1 activities	Underground construction work	Method of collecting data : <ul style="list-style-type: none"> • Public complaint data was obtained from the Complaint Service Post • Conduct observation/field survey of public complaints regarding traffic congestion due to MRT-EWLP1S1 activities Data analysis method : <p>Compare the number and types of community complaints submitted to the person in charge of the activity with the number and types of complaints that have been officially resolved/agreed upon in accordance with the established community complaint handling mechanism</p>	<ul style="list-style-type: none"> • Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grogol, • Ex. Duri Pulo, • Ex. Cideng, • Ex. North Petrojo, • Ex. South Petrojo, • Ex. Gambir, • Ex. Kamping Bali, • Ex. Nebra Sirih, • Ex. Senen, • Ex. Kwitang, • Ex. Kramat, • Ex. Tanah Tinggi, • Ex. Galur, • Ex. Harapan Mulya, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Pegangsaan Dua, • Ex. Rayu Putih, • Ex. Pulo Gadung, • Ex. Rawa Terate, • Ex. West Cakung, • Ex. East Cakung, • Ex. Ujung Menteng, • Ex. Medan Satria, • Ex. Rorotan. 	Every month	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

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6a. Decreased traffic performance	Traffic performance (Vc ratio value)	Ground Surface Construction Work	Method of collecting data : <ul style="list-style-type: none"> Capacity data for each road section was obtained based on the results of the Andalalin MRT-EWL/PSI Study (2023). Calculate vehicle traffic volume directly in the field using the 24-hour traffic counting method 	Jl. Letjen S Parman (S 06°10'21.64"; E 106°47'20.14"); Jl. Kyai Tapa (S 06°10'1.09"; E 106°47'21.73"); Jl. Kyai Tapa (S 06°10'6.384"; E 106°47'18.56"); Jl. Dr Susilo Raya (S 06°9'57.99"; E 106°47'38.07"); Jl. Kyai Tapa (S 06°9'59.11"; E 106°47'36.06"); Jl. KH. Hasyim Ashari (S 06°9'57.49"; E 106°48'16.77"); Jl. West Cideng and Jl. East Cideng (S 06°10'16.312"; E 106°48'38.12"); Jl. East Cideng (S 06°10'53.54"; E 106°48'50.39"); Jl. Jati Baru Raya (S 06°10'53.83"; E 106°48'53.56"); Jl. Rebon Sirih (S 06°10'59.08"; E 106°49'35.11"); U Turn at Tugu Tani (S 06°10'57.07"; E 106°50'12.22"); Jl. Letjen Suprapto (S 06°10'39.57"; E 106°50'35.05"); Jl. Letjen Suprapto (S 06°10'29.20"; E 106°50'55.82"); Jl. Letjen Suprapto (S 06°10'20.10"; E 106°51'44.60"); Jl. Perintis Kemerdekaan (S 06°10'00.336"; E 106°52'44.90"); Jl. Perintis Kemerdekaan (S 06°9'38.17"; E 106°52'49.83"); Jl. Perintis Kemerdekaan (S 06°10'51.74"; E 106°53'19.50"); Jl. Raya Bekasi (S 06°10'57.35"; E 106°54'57.63"); Jl. Raya Bekasi (S 06°10'57.35"; E 106°54'28.58")	Once every 3 months	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) Ministry of Transportation c) DKI Jakarta Provincial Environmental Service d) West Java Province Environmental Service e) Central Jakarta Environment Department f) West Jakarta Environment Department g) North Jakarta Environment Department h) East Jakarta Environment Department i) Bekasi City Environmental Service
			Data analysis method : Data from traffic volume calculations is analyzed to determine the road traffic performance (level of service). The level of service (LOS) value is determined based on the V/C ratio value with the equation: $V_{ratio} = \frac{V}{C}$ Keterangan : V = Vol. arus lalu lintas (cars/h) C = Kapasitas (cars/h) Determination of road traffic performance based on the V/C ratio value refers to the following criteria (MKII, 1997): <ul style="list-style-type: none"> LOS category A with a V/C ratio value ≤ 0.60 LOS category B with a V/C ratio value ≤ 0.70 LOS category C with a V/C ratio value ≤ 0.80 LOS category D with a V/C ratio value ≤ 0.90 LOS category E with a V/C ratio value ≤ 1 LOS category F with a V/C ratio value ≥ 1 				

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient	
					(S 06°11'0.024"; E 106°55'41.70") • Jl. Raya Bekasi (S 06°10'56.20"; E 106°56'11.29") • Jl. Raya Bekasi (S 06°11'19.203"; E 106°57'7.81") • Jl. Raya Bekasi (S 06°11'23.89"; E 106°58'0.875") • Jl. East Canal Inspection (S 06°10'21.97"; E 106°58'17.43") • Jl. Raya Bekasi (S 06°11'33.21"; E 106°58'17.25") • Jl. Kali Abang Tengah (S 06°11'45.34"; E 106°58'30.46") • Jl. Sultan Agung (S 06°11'46.71"; E 106°58'26.43")					

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient	
6b.	Increased vibration	Vibration level	Ground Surface Construction Work	<p>Method of collecting data :</p> <ul style="list-style-type: none"> Measure vibration levels at frequency 4; 5; 6.3; 8; 10; 12.5; 16; 20; 25; 31.5; 40 and 50 Hz Measuring equipment: <ul style="list-style-type: none"> - Vibration capture device (accelerometer or seismometer) - Vibration measuring equipment or analysis tools (vibration meter or vibration analyzer) - 1/3 octave or narrow band filter (1/3 octave or narrow band filter) - Vibration level recorder (level or X-Y recorder) - Vibration level measuring analysis tool (FFT analyzer) Measurement method: <ul style="list-style-type: none"> - The vibration capture device is placed on the floor or vibrating surface, and connected to vibration measuring instrument equipped with a filter - The measuring instrument is installed on the deviation quantity (in the event that the instrument is not equipped with this facility, quantity conversion can be used) - Reading and recording are carried out for each frequency 4 – 50 Hz or by sweeping with a vibration recording device. - The results of 12 measurements of data are depicted in the Standard Graph of Mechanical Vibration Levels Based on Damage Impact (Attachment II to Minister of Environment Decree No. 49 of 1996) <p>Data analysis method:</p> <p>Comparing the vibration level measurement results with the Vibration Level Standards in the Decree of the Minister of Environment No. 49/MENLH/11/1996 (Appendix II – Table 1. Standard Mechanical Vibration Levels Based on Damage Impact)</p>	<ul style="list-style-type: none"> UKG-1 (S 06°10'30.59" : E 106°47'33.35") UKG-7 (S 06°10'31.25" : E 106°53'36.19") UKG-8 (S 06°10'57.48" : E 106°54'58.80") UKG-9 (S 06°11'03.85" : E 106°56'32.88") UKG-10 (S 06°11'25.46" : E 106°58'05.75") UKG-11 (S 06°11'46.05" : E 106°58'33.58") 	Once every 3 months	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) West Java Province Environmental Service e) Central Jakarta Environment Department f) West Jakarta Environment Department g) East Jakarta Environment Department h) North Jakarta Environment Department i) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) West Java Province Environmental Service e) Central Jakarta Environment Department f) West Jakarta Environment Department g) East Jakarta Environment Department h) North Jakarta Environment Department i) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) West Java Province Environmental Service e) Central Jakarta Environment Department f) West Jakarta Environment Department g) East Jakarta Environment Department h) North Jakarta Environment Department i) Bekasi City Environmental Service

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
6c.	Occurrence of Environmental Disturbances (dust, noise, piles of sediment, and puddles)	Public complaints regarding environmental disturbances (dust, noise, puddles/floods and piles of sediment) due to MRT-EWLP1S1 activities	Ground Surface Construction Work	Method of collecting data : <ul style="list-style-type: none"> • Public complaint data was obtained from the Complaint Service Post • Conduct observation/field surveys regarding community complaints regarding environmental disturbances (dust, noise, puddles/floods and piles of sediment) resulting from MRT-EWLP1S1 activities Data analysis method : <p>Compare the number and types of public complaints submitted to the person in charge of the activity with the number and types of complaints that have been resolved/agreed officially in accordance with the established community complaint handling mechanism</p>	<ul style="list-style-type: none"> • Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grogol, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Cempaka Putih Barat, • Ex. Cempaka Putih Timur, • Ex. West Kelapa Gading, • Ex. East Kelapa Gading, • Ex. Pegangsaan Dua, • Ex. Rayu Putih, • Ex. Pulo Gadung, • Ex. Rawa Terate, • Ex. West Cakung, • Ex. East Cakung, • Ex. Ujung Menteng • Ex. Medan Satria, • Ex. Rorotan 	Every month	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
6d.	There are traffic jams	Public complaints regarding traffic congestion due to MRT-EWLP1S1 activities	Underground construction work	Method of collecting data : <ul style="list-style-type: none"> • Public complaint data was obtained from the Complaint Service Post • Conduct observation/field survey of public complaints regarding traffic congestion due to MRT-EWLP1S1 activities Data analysis method : <p>Compare the number and types of community complaints submitted to the person in charge of the activity with the number and types of complaints that have been officially resolved/agreed upon in accordance with the established community complaint handling mechanism</p>	<ul style="list-style-type: none"> • Ex. Tomang, • Ex. Tanjung Duren Selatan, • Ex. Grogol, • Ex. Duri Pulo, • Ex. Cicendeng, • Ex. North Petrojo, • Ex. South Petrojo, • Ex. Gambir, • Ex. Kamping Bali, • Ex. Nebra Sirih, • Ex. Senen, • Ex. Kwitang, • Ex. Kramat, • Ex. Tanah Tinggi, • Ex. Galur, • Ex. Harapan Mulya, • Ex. Cempaka Baru, • Ex. Sumur Batu, • Ex. Pegangsaan Dua, • Ex. Rayu Putih, • Ex. Pulo Gadung, • Ex. Rawa Terate, • Ex. West Kelapa Gading, • Ex. East Cakung, • Ex. Ujung Menteng, • Ex. Medan Satria, • Ex. Rorotan. 	Every month	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

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No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient	
II										
1.	1a. Improved traffic performance	Traffic performance (Vc ratio value)	Transportation of passengers and station operations	<p>Method of collecting data :</p> <ul style="list-style-type: none"> Capacity data for each road section was obtained based on the results of the Andalalin MRT-EWP151 study (2023) Calculate vehicle traffic volume directly in the field using the 24-hour traffic counting method <p>Data analysis method :</p> <p>Data from traffic volume calculations is analyzed to determine the road traffic performance (level of service). The level of service (LOS) value is determined based on the VCratio value with the equation:</p> $VCratio = \frac{V}{C}$ <p>Keterangan : V = vol arus lalu lintas C = kapasitas (m^3/jam)</p> <p>Determination of road traffic performance based on the VCratio value refers to the following criteria (MKU, 1997):</p> <ul style="list-style-type: none"> LOS category A with a VCratio value ≤ 0.60 LOS category B with a VCratio value ≤ 0.70 LOS category C with a VCratio value ≤ 0.80 LOS category D with a VCratio value ≤ 0.90 LOS category E with a VCratio value ≤ 1 LOS category F with a VCratio value ≥ 1 	<ul style="list-style-type: none"> Tomang Station; Grogol Station; Roxy Station; Petojo Station; Cideng Station; Thamrin Station; Kebon Sirih Station; Kwitang Station; Senen Station; Galur Station; Cempaka Baru Station; Sumur Batu Station; West Pakulonan Station; East Pakulonan Station; Perintis Station; Pulo Gadung Station; Penggilingan Station; West Cakung Station; Pulo Gebang Station; Ujung Menteng Station; Medan Satria Station; 	Once every 3 months	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) Central Jakarta Environment Department f) West Jakarta Environment Department g) North Jakarta Environment Department h) East Jakarta Environment Department i) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environmental Department e) Central Jakarta Environment Department f) West Jakarta Environment Department g) North Jakarta Environment Department h) East Jakarta Environment Department i) Bekasi City Environmental Service	

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
1b.	Decreased air quality	Air quality with parameters: TSP, PM10, PM2.5, CO, SO2, NO2	Transportation of passengers and station operations	Method of collecting data : Take samples of air quality parameters and analyze these samples in the laboratory, in collaboration with a KAN accredited laboratory Data analysis method: Comparing the results of the analysis of air quality parameters with the Ambient Air Quality Standards in PP No. 22 of 2021 – attachment VII.	• Tomang Station; • Grogol Station; • Roxy Station; • Petojos Station; • Cideng Station; • Thamrin Station; • Kebon Sirih Station; • Kwitang Station; • Senen Station; • Galur Station; • Cempaka Baru Station; • Sumur Batu Station; • West Pakulonan Station; • East Pakulonan Station; • Perintis Station; • Pulo Gadung Station; • Penggilingan Station; • West Cakung Station; • Pulo Gebang Station; • Ujung Mentereng Station; • Medan Satria Station;	Carried out every 3 months for ambient air Once every 6 months emissions (from generators and vehicles) during operation activities	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
1c.	Increased disease vectors	Availability of Sewage Treatment Plan (STP)	Waste water from station operations	Method of collecting data: • Conduct field observations of the existence of MCK at each station • Recording the frequency and volume of waste water sucked up by the PALaya Regional Company in the waste water suction logbook Data analysis method: Data analysis was carried out by comparing the results of observations (the existence of MCK) and recording (the flow and volume of waste water sucked) with indicators of environmental management success.	• Tomang Station; • Grogol Station; • Roxy Station; • Petojos Station; • Cideng Station; • Thamrin Station; • Kebon Sirih Station; • Kwitang Station; • Senen Station; • Galur Station; • Cempaka Baru Station; • Sumur Batu Station; • West Pakulonan Station; • East Pakulonan Station; • Perintis Station; • Pulo Gadung Station; • Penggilingan Station; • West Cakung Station; • Pulo Gebang Station; • Ujung Mentereng Station; • Medan Satria Station;	• Observations on the presence of MCK are carried out every 6 months Recording of the flow and volume of waste water sucked is carried out every time the waste water is sucked out	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
1d.	Increased disease vectors	<ul style="list-style-type: none"> • Availability of segregated waste bins and TPS at each station Carrying out regular waste transportation 	Waste from station operations	<p>Method of collecting data:</p> <ul style="list-style-type: none"> • Conduct field observations of the existence of segregated waste bins (organic waste and inorganic waste) and Temporary Storage Places (TPS) in the form of container boxes at each station • Recording the frequency and volume of waste transported periodically by the DKI Jakarta and Bekasi City Governments in the waste transportation logbook <p>Data analysis method: Data analysis was carried out by comparing the results of observations (trash bins and TPS) and recording (trash bins and volume of transported waste) with indicators of environmental management success.</p>	<ul style="list-style-type: none"> • Tomang Station; • Grogol Station; • Roxy Station; • Petajo Station; • Cideng Station; • Thamrin Station; • Kebon Sirih Station; • Kwitang Station; • Senen Station; • Galur Station; • Cempaka Baru Station; • Sumur Batu Station; • West Pakulonan Station; • East Pakulonan Station; • Perintis Station; • Pulo Gadung Station; • Penggilingan Station; • West Cakung Station; • Pulo Gebang Station; • Ujung Menteng Station; • Medan Satria Station; 	<ul style="list-style-type: none"> • Observations of the existence of segregated waste bins and TPS are carried out every 6 months Recording of the frequency and volume of waste transported is carried out every time the waste is transported 	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service
1e.	Increased disease vectors	<ul style="list-style-type: none"> • B3 waste packaging • The presence of B3 waste labels and symbols on LB3 packaging • B3 storage time • The existence of TPS LB3 Freight 	LB3 from station operations	<p>Method of collecting data :</p> <ul style="list-style-type: none"> • Conduct field observations on the suitability of B3 waste packaging to the type and characteristics of B3 Waste • Conduct field observations on the existence and suitability of B3 waste labels and symbols on LB3 packaging • Record the entry and exit of B3 waste in the LB3 transit room in the B3 waste storage logbook • Conduct field observations of the existence of LB3 transit noise • Create a B3 waste balance sheet complete with an LB3 transportation manifest <p>Data analysis method: Data analysis was carried out by comparing the results of recording and observing the implementation of B3 waste management with indicators of environmental management success</p>	<ul style="list-style-type: none"> • Tomang Station; • Grogol Station; • Roxy Station; • Petajo Station; • Cideng Station; • Thamrin Station; • Kebon Sirih Station; • Kwitang Station; • Senen Station; • Galur Station; • Cempaka Baru Station; • Sumur Batu Station; • West Pakulonan Station; • East Pakulonan Station; • Perintis Station; • Pulo Gadung Station; • Penggilingan Station; • West Cakung Station; • Pulo Gebang Station; • Ujung Menteng Station; • Medan Satria Station; 	<ul style="list-style-type: none"> • Observations on the implementation of B3 waste management in the LB3 transit room are carried out every 6 months Recording of the volume of LB3 transported is carried out every time the LB3 is transported by a third party who has an LB3 transportation permit from the MINISTRY OF ENVIRONMENT AND FORESTRY 	Contractor under PT MRT Jakarta	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service	a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) West Java Province Environmental Service d) Central Jakarta Environment Department e) West Jakarta Environment Department f) North Jakarta Environment Department g) East Jakarta Environment Department h) Bekasi City Environmental Service

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN
MRT East – West Line Phase 1 Stage 1

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
2a.	Increased disease vectors	<ul style="list-style-type: none"> Availability of Sewage Treatment Plan (STP) and Industrial waste water treatment plant (IWP) Carrying out regular waste water suction 	Waste water from depot operations	Method of collecting data: <ul style="list-style-type: none"> Conduct field observations of the presence of MCK in the depot Recording the frequency and volume of waste water sucked up by the PAL Jaya Regional Company in the waste water suction logbook Data analysis method: Data analysis was carried out by comparing the results of observations (the existence of MCK) and recording (the flow and volume of waste water sucked) with indicators of environmental management success.	• Rorotan Depot	<ul style="list-style-type: none"> Observations on the presence of MCK are carried out every 6 months Recording of the flow and volume of waste water sucked is carried out every time the waste water is sucked out 	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) North Jakarta Environment Department 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) North Jakarta Environment Department
2b.	Increased disease vectors	<ul style="list-style-type: none"> Availability of segregated waste bins and TPS Carrying out regular waste transportation 	Waste from depot operations	Method of collecting data: <ul style="list-style-type: none"> Conduct field observations of the existence of segregated waste bins (organic waste and inorganic waste) and Temporary Storage Places (TPS) in the form of container boxes Recording the frequency and volume of waste transported periodically by the DKI Jakarta Government in a waste transportation logbook Data analysis method: Data analysis was carried out by comparing the results of observations (trash bins and TPS) and recording (trash bins and volume of transported waste) with indicators of environmental management success.	• Rorotan Depot	<ul style="list-style-type: none"> Observations of the existence of segregated waste bins and TPS are carried out every 6 months Recording of the frequency and volume of waste transported is carried out every time the waste is transported 	Contractor under PT MRT Jakarta	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) North Jakarta Environment Department 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) North Jakarta Environment Department

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN
MRT East – West Line Phase 1 Stage 1

No	Types of Impacts That Arise	Indicators/Parameters	Impact Source	Data Collection and Analysis Methods	Environmental Monitoring Locations	Monitoring Time and Frequency	Executor	Supervisor	Report Recipient
2c.	Increased disease vectors	<ul style="list-style-type: none"> B3 waste packaging The presence of B3 waste labels and symbols on LB3 packaging LB3 storage time The existence of TPS LB3 Freight 	LB3 from depot operations	<p>Method of collecting data :</p> <ul style="list-style-type: none"> Conduct field observations on the suitability of B3 waste packaging to the type and characteristics of B3 waste Conduct field observations on the existence and suitability of B3 waste labels and symbols on LB3 packaging Record the entry and exit of B3 waste at TPS LB3 in the B3 waste storage logbook Conduct field observations of the existence of TPS LB3 Create a B3 waste balance sheet complete with an B3 transportation manifest <p>Data analysis method : Data analysis was carried out by comparing the results of recording and observing the implementation of B3 waste management with indicators of environmental management success</p>	<ul style="list-style-type: none"> Rorotan Depot 	<ul style="list-style-type: none"> Observations on the implementation of B3 waste management at TPS LB3 are carried out every 6 months Recording of the volume of LB3 transported is carried out every time the LB3 is transported by a third party who has an LB3 transportation permit from the MINISTRY OF ENVIRONMENT AND FORESTRY 	<p>Contractor under PT MRT Jakarta</p>	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) North Jakarta Environment Department 	<ul style="list-style-type: none"> a) Ministry of Environment and Forestry b) DKI Jakarta Provincial Environmental Service c) North Jakarta Environment Department

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN

MRT East – West Line Phase 1 Stage 1

Figure 3.1. Environmental Monitoring Plan Map

ENVIRONMENTAL MANAGEMENT PLAN-ENVIRONMENTAL MONITORING PLAN
MRT East – West Line Phase 1 Stage 1

Isi

Environmental Monitoring Plan..... 1

Table 3.1. Significant Impact Monitoring Plan (result of management direction to Andal) 2

Table 3.2. Other Environmental Impact Monitoring Plans 21

Figure 3.1. Enviromental Monitoring Plan Map 48