

EIA for the Development of New Yangon City Phase 1 Master Plan – Water

Scoping Report

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Scoping Report



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Findings and Suggestions on the Scoping Report for Development of New Yangon City Phase -1 Master Plan- Water

No	Findings	Suggestions	ERM and NYDC Response
1	Executive Summary		
	Executive summary was described with both English and Myanmar language.	To revise the executive summary according to suggestions.	The Executive summary has been revised in line with the changes made below.
2	Context of the Project		
	<p>It is stated that the proposed project will develop by New Yangon Development Co., Ltd, incorporated under the Yangon Regional Government and in paragraph 2 that there described the project for Stage 1 of Phase 1 will be implemented on the area of 91.3km in Twantay, Seikgyi Kanaungto, Hlaing Tharyar and Kyee Myin Daing Townships.</p> <p>For Stage 1 of Phase 1, the new Yangon City is split into the six groups based on the types of facilities such as bridges, roads, water, waste water, power and industrial zone. It is stated that this scoping report covers the “Water” facilities (Project).</p> <p>In table 2.1, it stated the construction period will be 2.5years and the target completion date will be on 31st December 2021.</p> <p>In heading 2.1, contact detail of the NYDC was described.</p> <p>In heading 2.2, it is stated that EIA will be conducted by the Environmental Resources Management (ERM) - Myanmar Ltd, Environmental Quality management (EQM), Resource and Environment Myanmar (REM) as third parties.</p>	<p>To include the status of project agreement or MOU between the project proponent and Yangon Regional Government</p> <p>To state separately the responsibility of each third parties; ERM, EQM and REM, on this report (eg: collecting data, reporting)</p>	<p>NYDC’s company registration certificate has been included in Appendix D. This has been mentioned in Section 2.2.</p> <p>Table 2.2 has been updated to state the responsibility of each third party consultant in the EIA.</p>

No	Findings	Suggestions	ERM and NYDC Response
	In Table 2.2, area of expertise for the each of key environmental and social consultants from third parties were stated.		
3	Overview of the Policy, Legal and Regulatory Framework		
	<p>In Table 3.2, 3.3, 3.4 and 3.5 relevant laws and regulations, procedures, international agreements and conventions and the standard facilities of EQEG were stated.</p> <p>There is no description about the commitment to follow above statements.</p> <p>It is found that the environmental and social policy of the project proponent is not included.</p>	<p>Out of laws mentioned in Table 3.1, it is needed to describe laws separately that the proposed project will follow.</p> <p>To include the agreement that the project proponent will follow laws and regulations stated in the report.</p> <p>To include that will be followed with the parameters of national drinking water quality standard which published by Ministry of Health and Sport in 2019.</p> <p>To include the environmental and social policy of the project proponent (NYDC).</p>	<p>Descriptions of the laws have been added in Table 3.1 under Section 3.2.2. The laws in Table 3.1 will all be followed for the Project with the relevant clauses extracted.</p> <p>Section 3.2.2 and Table 3.1 include the agreement that the Project Proponent will follow the relevant laws and regulations in the EIA Report.</p> <p>The national drinking water has been included in Section 3.3.</p> <p>NYDC's environmental and social policy of the project proponent will be provided in the EIA report.</p>
4	Project Description		
	It stated that the project area is defined as the location of water intake point, raw water pipeline and water treatment plant, the facilities will be located in Twantay Township, the water will be taken from Toe River, the	For the project description that need to be included project boundary with coordinate points (the point can be covered to whole NYDC project, with 6 points) and the points for water	The coordinate points have been included in Table 4.1 under Section 4.1.

No	Findings	Suggestions	ERM and NYDC Response
	<p>ground-breaking for New Yangon City is planned for 1 July 2019 and the completion date is target to 31 December 2021 and the proposed Project will be composed of:</p> <ul style="list-style-type: none"> • Water treatment plant; • Raw water pipeline; • Treated water distribution lines; and • Water intake point. <p>The capacity of the Water Treatment Plant (WTP) is proposed to be 60,000m³ per day and may reach up to 450,000 m³ per day in the future for total capacity, the system is specifically for the Industrial Zone and Resettlement Areas and the key water treatment process include Coagulation, Sedimentation, Filtration and Disinfection, the figure 4.1 is show for the locations of plan of water will be taken from Toe River, the Water Treatment Plant and water intake point</p> <p>Although described the figure 4.2 of general plan for Water treatment plant, that need to be described clearly with the labeling.</p> <p>It stated the proposed water treatment is divided into Administration Area and Production Area and the water treatment area includes raw water reservoir, raw water pump house, distribution shaft, flash mixing chamber coagulation flocculation sedimentation tank, sand filter, storage</p>	<p>intake point, raw water pipeline and water treatment plant are to be included.</p> <p>To describe the layout plan including the water distribution buildings (to be described with the appropriate scale map of the plan of the form blocks settlement)</p> <p>To include the estimate of the number of labors for this project.</p> <p>To describe the estimate project development schedule in detail for the construction period (to describe the estimate monthly schedule according to each of proposed buildings)</p> <p>Related with working hours of employers, it is needed to include the statement that the project proponent will follow not only the existing laws and regulations but also ILO standards; to include the local communities' perceptions and suggestions as there will be impacts on them by carrying out the construction during night time</p>	<p>The maps and layouts for proposed buildings and facilities within the water treatment plant have been put in Appendix B as mentioned in Section 4.3.1.1.</p> <p>The estimate no. of workers for this project specifically will be provided in the EIA report.</p> <p>The latest schedule is provided Table 2.1. The monthly breakdown schedule is not available as the construction tenders have not been awarded.</p> <p>The statement of 'working hours will comply with Myanmar relevant laws and International Labour Organisation (ILO) standards' has been added in Section 4.4.7. The local communities' perceptions and suggestions of the construction activities during night time will be further discussed in the EIA report.</p>

No	Findings	Suggestions	ERM and NYDC Response
	<p>reservoir, treated-water pump house, etc., that need to be described for their area needed and proposed activities are to be added in the layout plan.</p> <p>Although described the details of equipment and machinery are in table 4.6, the breakdown of number of workers from 2019 to 2025 are in table 4.7 and the number of vehicles for construction are in table 4.4, there has no description of proposed machinery equipment and raw materials for project needs (will be ordered from local or import from outside).</p> <p>The camps for the labors used in construction site are will be set up around 438units for temporary accommodation which anticipated to be set up in the Townships of Seikgyi Kanaungto and Dala are stated in Section 4.4.8 and figure 4.2.</p> <p>In table 4.8, it stated the volume of construction vehicles per year between 2021 and 2025.</p> <p>As the related with project alternatives there although described the location alternatives are in section 4.7, it has no describe the other facts.</p>	<p>There will be Greenhouse Gas Emission by using construction vehicles, so, it is needed to include the statement that the Greenhouse Gas Emission and Climate Change from the proposed Project will be carried out during the EIA study.</p> <p>According to the guidelines of EIA procedure at Clause 2 (L), the project alternatives need to be included.</p>	<p>The statement of including greenhouse gas emission and climate change in the EIA report has been added in Section 4.6.3.</p> <p>The report has discussed alternative water intake points. Details on project alternatives will be provided in the EIA report.</p>
5	Description of Surrounding Environment		
	<p>Study Area and Area of Influence Defining the Study Area and Area of Influence is described in heading (5.2).</p>	<p>Study Area and Area of Influence To describe with clear figure of Study Area and AOI from Construction of Water Treatment Plant and Water</p>	<p>The Water system covers the water intake point, raw water pipeline, Water Treatment Plant, and the treated water distribution lines within the Resettlement Area, and</p>

No	Findings	Suggestions	ERM and NYDC Response
	Five headings under Section (5) as Physical Characteristics, Biological Characteristics, Socio-Economic Characteristics, Cultural Characteristics and Visual Characteristics.	<p>Distribution Project, and Implementation period because the report included the Study area of Industrial Zone Project upon the Phase 1 of NYDC.</p> <p>To describe the Study Area and AOI with coordinates and to give the reasons of selecting these areas.</p> <p>In Figure 5.1, it needs to describe with the figure which can support the clear visibility of current environmental condition and land use.</p> <p>To make a list of villages inside the Study Area with distance from the project site.</p> <p>To describe the existing land use map to know the conditions before project started.</p>	<p>Industrial Zone. The EIA will also consider impacts from the temporary auxiliary support infrastructure such as project site offices, construction workers camp, concrete batching plant with the Phase 1 area. Figure 5.1 has been updated.</p> <p>The Study Area is defined as the wider area in which the environmental and social conditions are evaluated with the sources of risk, in order to determine interactions and the magnitude and significance of potential impacts resulting from the Project. For this Project, the Study Area is defined as a 2 km buffer around the Project Area (including water intake point, raw water pipeline, water treatment plant); encompassing the Townships neighbouring the Project Area. The 'Area of Influence' (Aol) is defined as the village tracts, wards and townships within or neighbouring the Project Area. Such description is stated in Section 5.2.</p> <p>Figure 5.2 under Section 5.3.1 has been added to show current environmental condition and land use.</p> <p>The list of villages within the Study Area has been added in Table 5.2 under Section 5.5.2. The distances of each village to the WTP has also been included in Table 5.2.</p> <p>Figure 5.2 under Section 5.3.1 has been added to show the land use of the Project and Study Area.</p>

No	Findings	Suggestions	ERM and NYDC Response
	<p>Physical Characteristics Two main forces dominant the Yangon river system: Increased water levels from the sea and Irrawaddy River is feeding the Yangon rivers during rainy season:</p> <ul style="list-style-type: none"> • Tidal range of Yangon River is about 5.9 m at spring tide and 2.6 m at neap tide. • Tidal range of Hlaing River is about 5.4 m at spring tide and 2 m at nap tide 	<p>To describe as “happened flood cases would be taken into consideration when EIA performing”, under Existing environmental information. To describe as “potential flood issues would be taken into consideration base on Royal Haskonging Flood Risk Consultant and AECOM Flood Assessment Report when EIA performing”.</p> <p>To describe as “EIA report will include the possibilities of river bank erosion for taking water from Toe River base on amount of water”</p>	<p>Based on the flood assessment carried out by Royal Haskoning, the risk of flooding will be taken into consideration during EIA stage as mentioned in Section 5.3.3.2.</p> <p>The EIA report will consider the likelihood of river bank erosion based on the amount of water intake from Toe River. This has been included in Section 5.3.3.2.</p>
	<p>Biological Characteristics Presented Mangrove species.</p> <p>Presented as Fauna survey has been carried in 2017 but surveys would be conducted to confirm the fauna presents.</p>	<p>To describe as following points will be included in EIA performing as:</p> <p>To collect the Primary data of Mangrove vegetation nearby project and describe with abundant, scattering, endangered species, sensitivity and species along the river bank.</p> <p>To observe the river flows and ecology of Toe River.</p>	<p>Primary data on flora and fauna in / near the Project Area will be collected in the EIA Stage as mentioned in Section 5.4.1 and 5.4.2.</p> <p>River flows and ecology of Toe River will be observed as mentioned in Section 5.3.3.2.</p>
	<p>Socio-Economic Characteristics Presented as socio-economic surveys would be carried out in Seikgyi Kanaungto, Kyee Myin Daing, Dala, Ahlone, Twantay and Hlaing Tharyar Townships.</p> <p>Presented as socio-economic data collected from Township GAD reports and Census data, (heading 5.5)</p>	<p>Socio-Economic Characteristics To describe as to carry out the socio-economic FIELD survey to AOI villages</p> <p>To include the statement that survey will be carried out before and during the project in order to identify the changes to socio-economic conditions</p>	<p>Section 5.5 has been updated to state that socio-economic data will be collected during EIA phase to identify impacts to local communities.</p> <p>Social surveys will be conducted for the EIA Report and the EIA Report will include additional social monitoring that is required.</p>

No	Findings	Suggestions	ERM and NYDC Response
6	Impact Assessments and Mitigation Measures		
	<p>Following points are not to result in a potentially significant impact have been scoped out with justification and will not be considered in more detail in the EIA Study. Impacts on air quality due to transportation of equipment, supplies and workforce</p> <p>Impacts to surface water and groundwater quality due to right of way clearance and access roads</p> <p>Impacts to landscape and visual character due to site preparation, excavation and filling works; use of PME for construction; and right of way clearance and access roads</p> <p>Impacts to demographic pattern, economy and livelihood due to transportation of equipment, supplies and workforce; and wastewater management</p> <p>Impacts to cultural heritage due to site preparation, excavation and filling works; use of PME for construction; and transportation of equipment, supplies and workforce Although "Rationale for Scoping out of Assessment" is mentioned with column, it should be describe base on numerical information. To report cogently of "Aspects Not Carried into the Impact Assessment" because of the construction period is 2.5 years long and many villages exist inside the area.</p>	<p>To report reasonably about the "not to result in a potentially significant impact and will not be considered in EIA study" (e.g., when reporting about the emission has no significant impact, it should be only after comparatively calculation base on the number of PME, emission, duration, etc.)</p> <p>To describe clearly about the "not to result in a potentially significant impact and will not be considered in EIA study"</p> <p>If the point "Impacts to cultural heritage due to site preparation, excavation and filling works; use of PME for construction; and transportation of equipment, supplies and workforce" is not going to be considered, it should be decided base on the survey data of whether cultural heritages exist in the project or not. That's why, data collection/survey of cultural heritage should be done systematically and decided base on the result.</p>	<p>Table 6.2 in Section 6.1.3.1 explains why certain impacts are scoped out (not considered leading to significant effects) for the EIA report. This is based on the provided impact assessment and is the objective of a scoping report (i.e., to scope in and out impacts).</p> <p>Section 6.1.3.2 lists out the scoped-in impacts (potential significant impacts that require further detailed assessment in the EIA report).</p> <p>The matrix on potential interactions and significance of impacts to receptors / receivers (Table 6.1) and Scoped out analysis (Table 6.2) considers the potential impacts. The assessment of impacts within the AOI will be provided in full in the EIA Report with associated mitigation measures.</p> <p>There is a monastery 350 m east to the water treatment plant. Impacts to cultural heritage will be scoped into the EIA. This has been included in Section 6.1.3.2.</p>
	<p>Section 6.2 presented significant impact assessment under construction and operational phases, and table 6.3 presented the potential mitigation measures.</p> <ul style="list-style-type: none"> - Air quality deterioration 	<p>To consider about the air pollution to existing villages (especially schools) and describe mitigation measures if there is any potential. (because of industrial zone)</p>	<p>One school is located 300 m east to the WTP (Kan Village). Air impacts to the school and mitigation measures will be further discussed in the EIA Report. A statement has been added in Section 5.5.6.1.</p>

No	Findings	Suggestions	ERM and NYDC Response
	<ul style="list-style-type: none"> - Increase of noise levels - Surface water and groundwater deterioration - Soil quality & topography deterioration - Waste management - Landscape and visual character deterioration - Ecology - Community health and safety affection - Demographic pattern, economy and livelihood affection - Occupational Health and Safety - Infrastructure services deterioration - Accidental events 	To include livelihood restoration plan and to focus on social and livelihood impact in EIA study because villagers' livelihood might be changed after the NYDC.	A Livelihood Restoration Plan will be created for the Project and provided in the EIA Report.
7	Cumulative Impacts		
	It has found out that the cumulative impacts from the New Yangon City Development as a whole are likely to include; air emissions, noise generation, impacts to water and soil, and livelihood impacts from six groups: bridges, major roads, water supply, waste water, power and industrial zone; these will be assessed in the EIA Report.	To include Hlaing Tharyar Industrial zone in EIA study which exists on the other side of Pann Hlaing River.	Section 5.5 includes a statement that the impact to Hlaing Tharyar Industrial Zone will be addressed in the EIA Report.
8	Public Consultation and Disclosure		
	<p>In Section 7.1.3 Stakeholder Mapping, farmers, local communities and vulnerable groups are described as primary stakeholder and government ministries, local authorities, CSOs/ NGOs are described as secondary stakeholders by the level of influence/ priority.</p> <ul style="list-style-type: none"> • Stakeholder Engagement Plan is described in Table 7.5. • Number of meetings and purpose of engagement (scoping phase) are described in Table 7.6. 	<p>To include the brief of presentation subjects for planned PCMs in EIA study.</p> <p>To include survey question forms for attendants.</p>	<p>The plan for proposed EIA public consultation meetings and presentation brief have been added in Section 7.3.1. The details of EIA phase public consultation meetings (date, location, attendees etc.) will be provided in the EIA report.</p> <p>The questionnaire that will be used in EIA public consultation meetings has been added in the Appendix C.</p>

No	Findings	Suggestions	ERM and NYDC Response
	<ul style="list-style-type: none"> Responses for questions from consultation meetings are observed as follow: <ul style="list-style-type: none"> Ground water from the Project Area will not be used About 85% of the land is farmland in the Project Area. Impacts for the changes of land utilization will be considered in the EIA Report. Monitoring plans will also be prepared and reported to the ECD every 6 months in order to confirm whether mitigation measures are effective. The villages in the Project area will remain untouched Public consultations will be carried when EIA study For the land acquisition, 20/80 Compensation Scheme will be applied rather than cash. The excavation of sand/soil from the Project Area will be considered in the EIA report in terms of the impact on the environment and people. To organize the PCM meetings while Hluttaw is off to let members of Hluttaw involve in PCMs. 	<p>To take the signatures of attendants and attached in EIA report</p> <p>To present the pre-defined area for land compensation according to 20/80 scheme and to include PCM results as the villagers are satisfied or not.</p>	<p>Noted, attendees' signatures will be provided in the EIA report.</p> <p>NYDC's resettlement memo will be provided in the EIA Report.</p>
9	Terms of Reference (TOR)		
	<ul style="list-style-type: none"> Sampling plan (methodology, sample frequency and sample sites) is described in Table 9.1 and Figure 9.1. <ul style="list-style-type: none"> Ambient air Ambient noise Groundwater and surface water quality Soil quality Biodiversity 	<p>To include Baseline Study which can cover the Socio-economic conditions of PAPs.</p>	<p>Section 9.6.2 has been updated to state that socio-economic data collection will be carried out to cover the socio-economic conditions of project affected people. Maps of the locations for EIA public consultation meetings and social baseline surveys have been respectively included in Figure 9.2 and Figure 9.3.</p>

No	Findings	Suggestions	ERM and NYDC Response
	<ul style="list-style-type: none"> Public consultation and disclosure will be undertaken across the various stakeholder groups identified. In section 9.6.2, it was mentioning that a sample survey of up to 300 households would be undertaken for Village and Household Questionnaires, Farmers Questionnaires, Women's Questionnaires. In Table 9.2, it was observed that EIA report would be prepared according to Law No.63. 		
10	General		
	<ul style="list-style-type: none"> To include about the information relating to proposed water distribution project. To extract and highlight the NYDC related information from Flood Risk Assessment Report. According to section (50) of EIA Law: to let public know about the project information and consultation, it needs to disclose on the web site of project proponent, on public notice boards and signboards, newspaper and media. To take the signatures of PCM attendants (local people, Civil Society Organization (CSO), Parliamentary bodies, regional government bodies) and to add the pictures of signatures. To prepare submit with a table which sectors have revised according to ECD comments. 		<p>Information on water distribution pipe network has been added in Section 4.3.4.</p> <p>Flood risk assessment information has been included in Section 5.3.3.2.</p> <p>Project information has been disclosed as per Article 50, this is mentioned in Section 7.3.2. NYDC has disclosed the scoping report on their website.</p> <p>Signatures of the PCM attendants will be provided in the EIA report.</p> <p>Noted.</p>

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Acronyms and Abbreviations

Name	Description
Aol	Area of Influence
CBD	Central Business District
ECC	Environmental Compliance Certificate
ECD	Environmental Conservation Department
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
EQEG	Environmental Quality (Emissions) Guidelines
EQM	Environmental Quality Management
ERM	Environmental Resources Management - Myanmar, Limited
FGD	Focus Group Discussions
IEE	Initial Environmental Evaluation
IFC	International Finance Corporation
ILO	International Labour Organization
JICA	Japan International Cooperation Agency
KPIs	Key Performance Indicators
Kw	Kilowatt
MOALI	Ministry of Agriculture, Livestock and Irrigation
MONREC	Ministry of Natural Resources and Environmental Conservation
MOTC	Ministry of Transport and Communications
NYDC	New Yangon Development Company Ltd.
OHS	Occupational Health and Safety
PAP	Project Affected Peoples
PM	Particulate Matter
PME	Powered Mechanical Equipment
ROW	Right of Way
Sq.km	Square kilometre
ToR	Terms of Reference
TSP	TOTAL Suspended Particles
WHO	World Health Organization
WT{	Water Treatment Plant
YCDC	Yangon City Development Committee
YESC	Yangon Electricity Supply Corporation
YRG	Yangon Region Government

1. EXECUTIVE SUMMARY

1.1 Introduction

The **New Yangon Development Company, Ltd. (NYDC)**, incorporated under the Yangon Regional Government, plans to develop the New Yangon City.

The New Yangon City is located in a semi-urban to rural area in Seikgyi Kanaungto, Twantay, Hlaing Tharyar and Kyee Myin Daing Townships to the West of Yangon, and covers a total of 88.3 square kilometres (sq.km). The priority infrastructure projects (Stage 1 of Phase 1) are split into six groups based on the types of facilities: Bridges, roads, water, waste water, power and industrial zone. This Scoping Report covers the “Water” facilities.

Environmental Resources Management (ERM)-Myanmar, Limited (ERM) has been commissioned by the NYDC to undertake an Environmental Impact Assessment (EIA) for the Project. This EIA will also consider social impacts. The EIA Report will be submitted to relevant Myanmar authorities for assessment in order to inform the decision to award an Environmental Compliance Certificate (ECC).

1.2 Policy and Regulatory Framework

Pursuant to *Section 7 of the Environmental Conservation Law* and *Articles 52 and 53* of the Environmental Conservation Rules of the Republic of the Union of Myanmar, the Project is required to undertake an EIA in order to obtain an ECC as per the decision of the Ministry of Natural Resources and Environmental Conservation (MONREC).

Applicable guidelines which will also be considered in preparing the EIA include:

- International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability (2012); and
- IFC Environmental, Health and Safety (EHS) guidelines, including:
 - General EHS Guidelines (2007);
 - Environmental, Health, and Safety Guidelines for Water and Sanitation (2007).

1.3 New Yangon City Overview

The New Yangon City is located in a semi-urban to rural area in Seikgyi Kanaungto, Twantay, Hlaing Tharyar and Kyee Myin Daing Townships to the West of Yangon. The New Yangon City covers a total of 88.3 square kilometres (sq.km). For Stage 1 of Phase 1, the New Yangon City is split into the following six groups based on the types of facilities:

- Bridges:
 - Bridge 1: connecting Kyee Myin Daing Township (near Bagaya Road and Kyee Myin Daing Kanner Junction) to the Project Area; and
 - Bridge 2: connecting Hlaing Tharyar Township to the Project Area.
- Roads:
 - Permanent Auxiliary Support Infrastructure: Road 1, Road 2, Road 3, Sub-arterial roads, Collector roads, and
 - Storm water network.
- Water:
 - Water treatment plant;
 - Raw water pipeline;
 - Treated water distribution lines; and

- Water intake point.
- Wastewater:
 - Wastewater pumping stations;
 - Wastewater pipe network;
 - Sewage water tanks; and
 - Wastewater treatment plant and its associated subsidiary facilities.
- Power:
 - Transformer substation (one 230 kV, two 66 kV) and switching station (one 33 kV);
 - Main Transmission lines (from National Grid / Independent Power Producer (IPP) to 230 kV substation); and
 - Distribution lines (internal transmission lines) including 66 kV, 33 kV and 11 kV lines.
- Industrial Zone:
 - Area for industrial facilities covering approximately 13 sq.km.

The overall Phase 1 Project Area would be 88.3 sq.km. The masterplan includes residential areas of 30.93 sq.km, commercial areas of 6.41 sq.km, industrial areas of 22.37 sq.km, transport and logistics of 1.51 sq.km, green spaces of 12.01 sq.km, villages of 11.97 sq.km, civic amenities of 2.33 sq.km, and utilities (physical infrastructure) of 0.77 sq.km. These will be considered in a Strategic Environmental Assessment (SEA) that will also cover the New Yangon City.

This Scoping Report covers the “Water” facilities (the ‘Project’). Separate Initial Environmental Examination (IEE) / Environmental Impact Assessments (EIAs) have been prepared to cover the bridges, roads, power, waste water treatment, and industrial zone facilities. Cumulative impacts of all facilities for the New Yangon City will be addressed in each IEE / EIA.

1.4 Project Description

The ground-breaking for New Yangon City is planned for January 2020. The duration of construction is expected to take two and a half years for the water treatment plant, and water intake facilities and transmission pipe. The target completion date is July 2022.

The proposed Project will be composed of:

- Water treatment plant;
- Raw water pipeline;
- Treated water distribution lines; and
- Water intake point.

1.5 Description of the Surrounding Environment

The **Project Area** is defined as the location of water treatment plant and the associated facilities. Water intake point, raw water pipeline and water treatment plant. The facilities will be located in Twantay Township. The water will be taken from Toe River which is located in the Southern Twantay boundary of Township.

This section presents the physical, environmental, socio-economic, cultural and visual characteristics of the **Study Area**. The **Study Area** is defined as the wider area in which the environmental and social conditions are evaluated with the sources of risk, in order to determine interactions and the magnitude and significance of potential impacts resulting from the Project. For this Project, the **Study Area** is defined as a 2 km buffer around the whole New Yangon City Phase 1 Development;

encompassing the Townships neighbouring the **Project Area**. This area definition also facilitates the comparison of cumulative impacts between the individual Project components.

The '**Area of Influence**' (**Aoi**) is defined as the village tracts, wards and townships within or neighbouring the Project Area. According to the desktop review, key environmental and social sensitivities of the proposed Project Area are summarised in the Table 1.1.

Table 1.1 Key Sensitivities of the Study Area

Receptor	Sensitivity
Terrestrial biodiversity	The Study Area is largely rural with small villages present. It is likely that there will be no natural forest of any significance in size in and around the Study Area. Mangrove vegetation could be present on the bank of the rivers and the Mangrove species expected to be present.
Ambient noise	There are no data currently available for ambient noise although as the Study Area is predominantly rural there are limited sources of noise pollution. Impacts of noise from construction and operation of the Project will need to be considered in the EIA Report.
Community and livelihoods	The Project is located in Twantay Township. Impacts to livelihoods of the neighbouring communities will need to be considered.
Water resources and drainage	Water resources are scarce in the Study Area particularly during the dry season. Local communities use water from the lakes/ ponds within Seikgyi Kanaungto and Twantay Townships which are filled in the rainy seasons. Water resources for the Project will need to be considered in the EIA Report.
Transport	Although the local community in the Project Area mostly travel by boat instead of by car to reach Yangon City, the Project may increase the current traffic levels in Hlaing Tharyar and Twantay Bridges. Impacts to the traffic need to be considered in the EIA Report.
Cultural heritage	There are known pagodas and monasteries within the Study Area which need to be considered in the EIA Report.

1.6 Key Potential Impact and Mitigation Measures

The Scoping Report focused on the potential impacts associated with the construction and operation of the water treatment plant and associated facilities. Potential environmental impacts during construction are likely to be temporary and localised to the Study Area. Potential impacts during operation, include those related to noise, terrestrial fauna, community health and safety, and occupational health and safety. In the EIA Report, these impacts will be assessed in detail and appropriate mitigation measures will also be provided.

The following impacts which are anticipated to have potential to generate significant impacts from the proposed Project are defined as requiring further detailed assessment and are carried out to the next stage of the EIA process.

Construction Phase:

- Impacts to ambient air quality from:
 - Site preparation, excavation and filling works;
 - Building and network construction;
 - Transportation of equipment, supplies, and workforce; and,
 - Temporary auxiliary support infrastructure.
- Impacts to ambient noise from:
 - Site preparation, excavation and filling works;

- Building and network construction;
- Transportation of equipment, supplies, and workforce; and,
- Temporary auxiliary support infrastructure.
- Impacts to surface water and groundwater quality from:
 - Site preparation, excavation and filling works;
 - Building and network construction;
 - Temporary auxiliary support infrastructure; and,
 - Storage, handling and disposal of waste, fuel, chemical, oil, gas.
- Impacts to soil quality and topography from:
 - Building and network construction;
 - Temporary auxiliary support infrastructure; and,
 - Storage, handling and disposal of waste, fuel, chemical, oil, gas.
- Impacts to landscape and visual character from:
 - Site preparation, excavation and filling works;
 - Building and network construction; and,
 - Temporary auxiliary support infrastructure.
- Impacts to terrestrial flora from:
 - Site preparation, excavation and filling works; and,
 - Building and network construction.
- Impacts to terrestrial fauna from:
 - Site preparation, excavation and filling works; and,
 - Building and network construction.
- Impacts to aquatic flora and fauna from:
 - Site preparation, excavation and filling works; and,
 - Temporary auxiliary support infrastructure.
- Impacts to community health and safety from:
 - Transportation of equipment, supplies, and workforce;
 - Labour, equipment, and services supply; and,
 - Temporary auxiliary support infrastructure.
- Impacts to demographic pattern, economy and livelihood from:
 - Site preparation, excavation and filling works.
- Impacts to occupational health and safety from:
 - Site preparation, excavation and filling works;
 - Building and network construction;
 - Transportation of equipment, supplies and workforce;
 - Labour, equipment, and services supply;
 - Temporary auxiliary support infrastructure; and,

- Storage, handling and disposal of waste, fuel, chemical, oil, gas.
- Impacts to infrastructure from:
 - Building and network construction;
 - Transportation of equipment, supplies and workforce;
 - Labour, equipment, and services supply;
 - Temporary auxiliary support infrastructure; and,
 - Storage, handling and disposal of waste, fuel, chemical, oil, gas.
- Impacts to cultural heritage from:
 - Site preparation, excavation and filling works;
 - Building and network construction; and
 - Transportation of equipment, supplies and workforce.

Operational Phase:

- Impacts to ambient air quality from operation of water pipe network and water treatment plant.
- Impacts to ambient noise and vibration from:
 - Operation of water pipe network and water treatment plant; and,
 - Maintenance of network and infrastructure.
- Impacts to surface water and groundwater quality from the operation of water pipe network and water treatment plant.
- Impacts to soil quality and topography from:
 - Operation of water pipe network and water treatment plant; and,
 - Maintenance of network and infrastructure.
- Impacts to aquatic flora and fauna from the operation of water pipe network and water treatment plant.
- Impacts to community health and safety from maintenance of network and infrastructure.
- Impacts to occupational health and safety from:
 - Operation of water pipe network and water treatment plant; and,
 - Maintenance of network and infrastructure.
- Impacts to infrastructure services from:
 - Operation of water pipe network and water treatment plant; and,
 - Maintenance of network and infrastructure.
- Impacts to cultural heritage from:
 - Operation of water pipe network and water treatment plant.

Accidental Events:

- Impacts to ambient air quality from fire and explosion.
- Impacts to surface water and groundwater quality from spills and leaks.
- Impacts to soil quality and topography from spills and leaks.
- Impacts to terrestrial flora from:

- Spills and leaks; and,
- Fire and explosion.
- Impacts to terrestrial fauna from:
 - Vehicle collision;
 - Spills and leaks; and,
 - Fire and explosion.
- Impacts to aquatic flora and fauna from spills and leaks.
- Impacts to community health and safety from:
 - Vehicle collision;
 - Spills and leaks; and,
 - Fire and explosion.
- Impacts to occupational health and safety from:
 - Vehicle collision;
 - Spills and leaks; and,
 - Fire and explosion.
- Impacts to cultural heritage from:
 - Spills and leaks; and
 - Fire and explosion.

1.7 Public Consultation and Disclosure

For the Scoping Phase, consultation meetings were held with various relevant stakeholders at the Kyee Myin Daing, Ahlone, Twantay, Seikgyi Kanaungto, and Hlaing Tharyar Townships. The consultation helped the Project to gather information on potentially affected people, and on potential data gaps and how these can be closed out in the EIA Report. Scoping consultation involved face-to-face meetings with a range of stakeholders in Yangon Region including a representative for the Chief Minister attended by other relevant Ministers, Regional level ECD and GAD, Members of Yangon Region Hluttaw, Member of Pyithu Hluttaw, Director from Department of Social Welfare, Township GADs, Ward and village administrators, Ward Patrons, CSOs/NGOs, related government departments and local communities and community representatives.

The date, time, location, stakeholder and purpose of each meeting undertaken during the Scoping Phase engagement is provided in Table 1.2.

Table 1.2 Consultation Activities Undertaken during Scoping

Date, time, location	Stakeholder	Purpose of Engagement
Wednesday 23 rd January, 2019	Chief Minister Office Meeting	<ul style="list-style-type: none"> ■ Present information on the Project ■ Get approval for township/ward and village level meetings ■ Gather concerns and suggestions from stakeholders
Wednesday 30 th January, 2019	Twantay Township GAD Office , Seikgyi Kanaungto Township GAD office and Kyee Myin Daing Township GAD Office	<ul style="list-style-type: none"> ■ Meeting arrangements and approvals

Date, time, location	Stakeholder	Purpose of Engagement
Thursday 31 st January, 2019	Ahlong Township GAD office and Hlaing Tharyar Township GAD Office	<ul style="list-style-type: none"> ■ Meeting arrangements and approvals
Friday 1 st February, 2019	Ahlong Township	<ul style="list-style-type: none"> ■ Present Project information to local government, ward administrators, local communities and other interested parties ■ Gather concerns and suggestions from stakeholders ■ Undertake socio-baseline data collection ■ Interview with Ward Administrators
Saturday 2 nd February, 2019	Twantay Township	<ul style="list-style-type: none"> ■ Present Project information to local government, ward administrators, local communities and other interested parties ■ Gather concerns and suggestions from stakeholders ■ Undertake socio-baseline data collection ■ Interview with Ward Administrators
Saturday 2 nd February, 2019	Kyee Myin Daing Township	<ul style="list-style-type: none"> ■ Present Project information to local government, ward administrators, local communities and other interested parties ■ Gather concerns and suggestions from stakeholders ■ Undertake socio-baseline data collection ■ Interview with Ward Administrators
Sunday 3 rd February, 2019	Seikgyi Kanaungto Township	<ul style="list-style-type: none"> ■ Present Project information to local government, ward administrators, local communities and other interested parties ■ Gather concerns and suggestions from stakeholders ■ Undertake socio-baseline data collection ■ Interview with Ward Administrators
Sunday 3 rd February, 2019	Hlaing Tharyar Township	<ul style="list-style-type: none"> ■ Present Project information to local government, ward administrators, local communities and other interested parties ■ Gather concerns and suggestions from stakeholders ■ Undertake socio-baseline data collection ■ Interview with Ward Administrators

1.8 Conclusions and Recommendations

The Scoping Study focused on the potential impacts associated with the construction and operation of the Water facilities associated with the New Yangon City Phase 1. Potential environmental impacts during construction are likely to be temporary and localised to the Project Area. Impacts during construction include air (dust) and noise emissions, vegetation clearance, land use change, terrestrial flora and fauna, aquatic flora and fauna, and demographic pattern, economy and livelihood. Potential impacts during operation, include those related to noise, terrestrial fauna, community health and safety, and occupational health and safety. Impacts from accidental events have been considered in this scoping and all the impacts will be assessed in detail in the EIA Study.

From a social perspective, the Project is located in Twantay Township. The scoping visit in January and February 2019 confirmed that the main concern from the communities in terms of environmental and social impacts were traffic, squatters, job opportunities and access to the new city.

Environmental baseline surveys for noise, ground water quality, and soil quality, surface water quality and terrestrial and aquatic biodiversity will be undertaken for the EIA study to inform the impact assessment. The sampling plan is provided in Table 1.3.

Table 1.3 Sampling Plan

Topic	Parameters	Total
Air Quality	NO ₂ , SO ₂ ,	27
Air Quality	PM ₁₀ , PM _{2.5}	18
Noise	Sound Level (LAeq in dB(A))	27
Ground Water Quality	pH value, Temperature, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Oil and Grease, Total Nitrogen, Total Phosphorus (TP), Total Suspended Solids (TSS), Total Phenols, Mercury (Hg), Arsenic (As), Zinc (Zn), Copper (Cu), Total Chromium (Cr), Ammonia, Chlorine, Sulphide, Nitrate, Fluoride, Total Coliform.	72
Surface Water Quality	pH value, Temperature, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Oil and Grease, Total Nitrogen, Total Phosphorus (TP), Total Suspended Solids (TSS), Total Phenols, Mercury (Hg), Arsenic (As), Zinc (Zn), Copper (Cu), Total Chromium (Cr), Ammonia, Chlorine, Sulphide, Nitrate, Fluoride, Total Coliform.	72
Soil Quality	pH, Iron (Fe), Cadmium (Cd), Lead (Pb), Zinc (Zn), Copper (Cu), moisture content	72
Biodiversity	Conduct habitat mapping and establish biodiversity indices, species inventory and identification of threatened species	9
	For Aquatic fauna, this will include interview of fishermen and local markets.	

As part of the EIA process, a detailed social baseline data collection will be undertaken to update the social baseline established in the Scoping Report and adequately assess the potential impacts from the Project on the local communities. The baseline study will cover the socio-economic conditions of the Project Affected People (PAP). This baseline will be established on the basis of Focus Group Discussions and interviews with local communities and other interested stakeholders in all Townships. Stakeholders will be asked questions using both checklists and informal interviews to find out the village and household level information on demographics, income, infrastructure, farming and livelihoods as per the following:

- **Village and Household Questionnaires:** Demographic profile, land holding; number of land owners and landless; types of school facilities; credit access; income sources; living standards; market access; health facility access; access to water source; cooking fuel type uses; fuelwood collection; type of diseases; electricity access; number of households with income; infrastructure; number of people by type of livelihood; number of people by type of livestock; number of members and meetings of support groups; and, type of support from and contribution to support group.
- **Farmers Questionnaire:** land holding size and shape; level of subsistence; role of men and women in agriculture; government agricultural scheme, credit source, reason amount, interest rate and payment method; use of hired labour; wage amount paid by gender; cost of labour, irrigation, fertilizers and transportation and land renting; market of cash crop; number of households by type of livestock raised, number of heads, percentage of home consumption and percentage for the market; source and issues of fodder acquisition; crop cycle by crop.
- **Women's Questionnaire:** number of women in the village, number of women headed households; role of women in community; opinion on equality of gender opportunities; influence on household decision; problems of women; quality of life rating; women's health problems;

disease outbreaks; causes of death and affected gender group; women's problem in employment; and percentage of women in farming.

Social baseline data collection (e.g. focus group discussions with farmers, women), and public consultation will be undertaken in Seikgyi Kanaungto, Twantay, Kyee Myin Daing, Hlaing Tharyar, Dala and Ahlone Township to assess whether the Project is likely to have any adverse impact.

Information will be disclosed as per the EIA Procedure, on the NYDC's website and Facebook page, in newspapers and at sign boards around the Project Area.

၁ အကျဉ်းချုပ် အစီရင်ခံစာ

၁.၁ နိဒါန်း

ရန်ကုန်တိုင်းဒေသကြီးအစိုးရလက်အောက်၌ တရားဝင်ဖွဲ့စည်းထားသော New Yangon Development Company, Ltd. (NYDC) သည် ရန်ကုန်မြို့သစ်ကို တည်ဆောက်ရန် စီစဉ်နေပါသည်။

ရန်ကုန်မြို့သစ်သည် ရန်ကုန်မြို့အနောက်ဘက်ရှိ ဆိပ်ကြီးခရိုင်တို့၊ တွံတေး၊ လှိုင်သာယာ နှင့် ကြည့်မြင်တိုင် မြို့နယ်များ ၏ ဆင်ခြေဖုံးနယ်မြေ ဧရိယာမှ မြို့ပြ၏တစ်စိတ်တစ်ပိုင်းဖြစ်သည့်နယ်မြေဧရိယာတွင် တည်ရှိပြီး၊ စုစုပေါင်း ၈၈.၃ စတုရန်း ကီလိုမီတာ (sq.km) မြေနေရာအကျယ်အဝန်းရှိပါသည်။ ဦးစားပေး အခြေခံအဆောက်အအုံစီမံကိန်းများ (စီမံကိန်းအဆင့် - ၁ ၏ လုပ်ငန်းအဆင့် - ၁) ကို အဆောက်အအုံနေရာအမျိုးအစားများဖြစ်သည့် တံတားများ၊ လမ်းများ၊ ရေ၊ စွန့်ပစ်ရေ၊ လျှပ်စစ်ဓာတ် အား နှင့် စက်မှုဇုန်တို့အပေါ်မူတည်၍ အုပ်စုခြောက်ခုအဖြစ် ခွဲပါသည်။ ဤနယ်ပယ်အတိုင်း အတာသတ်မှတ်ခြင်း အစီရင် ခံစာသည် “ရေ” နှင့် ပတ်သက်သည့် အဆောက်အအုံနေရာအတွက် ဖြစ်ပါသည်။

NYDC သည် စီမံကိန်းအတွက် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (EIA) ကို ဆောင်ရွက်ရန် Environmental Resources Management (ERM)-Myanmar, Limited (ERM) အား တာဝန်ပေးအပ်ပြီး ဖြစ်ပါသည်။ ဤပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းတွင် လူမှုဆိုင်ရာသက်ရောက်မှုများကိုလည်း ထည့်သွင်းသွားမည် ဖြစ်ပါသည်။ ပတ်ဝန်းကျင် ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာကို ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာလိုက်နာဆောင်ရွက်မှု သက်သေခံလက်မှတ် (ECC) ကို ရရှိရန် ဆုံးဖြတ်ချက်များ ချမှတ်ရာ၌ ဆန်းစစ်ခြင်းအတွက် သက်ဆိုင်ရာ မြန်မာနိုင်ငံရှိ အာဏာပိုင်အဖွဲ့အစည်းများကို တင်ပြသွားမည် ဖြစ်ပါသည်။

၁.၂ မူဝါဒ နှင့် ကြီးကြပ်ရေးဆိုင်ရာ မူဘောင်

ပြည်ထောင်စုသမ္မတ မြန်မာနိုင်ငံ၏ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေ၏ ပုဒ်မ ၇ နှင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေး နည်းဥပဒေ၏ ပုဒ်မ ၅၂ နှင့် ၅၃ တို့အရ၊ စီမံကိန်းသည် သယံဇာတ နှင့် သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေး ဝန်ကြီးဌာန (MONREC) ၏ ဆုံးဖြတ်ချက်နှင့်အညီ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဆိုင်ရာလိုက်နာဆောင်ရွက်မှု သက်သေခံ လက်မှတ် (ECC) ကို ရရှိရန် ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း (EIA) ကို ပြုလုပ်ဆောင်ရွက်ဖို့ လိုအပ်ပါသည်။

ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းကို ပြင်ဆင်ရေးသားရာတွင် ထည့်သွင်းစဉ်းစားသွားမည့် သက်ဆိုင်ရာ လမ်းညွှန်ချက်များတွင် အောက်ပါတို့ ပါဝင်သည် -

- သဘာဝပတ်ဝန်းကျင် နှင့် လူမှုဘဝရေရှည်ဖွံ့ဖြိုးတိုးတက်ရေးနှင့်ပတ်သက်၍ အပြည်ပြည်ဆိုင်ရာ ဘဏ္ဍာရေး ကော်ပိုရေးရှင်း (IFC) ၏ လုပ်ဆောင်မှု စံသတ်မှတ်ချက်များ (၂၀၁၂) ၊ နှင့်
- အပြည်ပြည်ဆိုင်ရာ ဘဏ္ဍာရေး ကော်ပိုရေးရှင်း (IFC) ၏ ပတ်ဝန်းကျင်၊ ကျန်းမာရေး နှင့် ဘေးကင်းရေး (EHS) လမ်းညွှန်ချက်များ နှင့် အောက်ပါတို့အပါအဝင် ဖြစ်ပါသည် -
 - အထွေထွေ ပတ်ဝန်းကျင်၊ ကျန်းမာရေး နှင့် ဘေးကင်းရေး (EHS) လမ်းညွှန်များ (၂၀၀၇)၊
 - ရေ နှင့် မိလ္လာရေးဆိုးနွတ်စနစ်တို့ အတွက် ပတ်ဝန်းကျင်၊ ကျန်းမာရေး နှင့် ဘေးကင်းရေး (EHS) လမ်းညွှန်များ (၂၀၀၇)။

၁.၃ ရန်ကုန်မြို့သစ်အကျဉ်း

ရန်ကုန်မြို့သစ်သည် ရန်ကုန်မြို့အနောက်ဘက်ရှိ ဆိပ်ကြီးခနောင်တို၊ တွံတေး၊ လှိုင်သာယာ နှင့် ကြည့်မြင်တိုင် မြို့နယ်များ ၏ ဆင်ခြေဖုံးနယ်မြေ ဧရိယာမှ မြို့ပြ၏တစ်စိတ်တစ်ပိုင်းဖြစ်သည့်နယ်မြေဧရိယာတွင် တည်ရှိပါသည်။ ရန်ကုန် မြို့သစ်သည် စုစုပေါင်း ၈၈.၃ စတုရန်း ကီလိုမီတာ (sq.km) မြေနေရာအကျယ်အဝန်းရှိပါသည်။ စီမံကိန်း အဆင့် (၁) ၏ လုပ်ငန်းဆင့် (၁) အနေဖြင့်၊ ရန်ကုန်မြို့သစ်ကို အောက်ပါ အဆောက်အအုံနေရာအမျိုးအစားများ အပေါ်မူတည်၍ အုပ်စုခြောက်ခုအဖြစ် ခွဲပါသည် -

■ တံတားများ

- တံတား (၁) - ကြည့်မြင်တိုင်မြို့နယ် (ဗားကရာလမ်း နှင့် ကြည့်မြင်တိုင်ကမ်းနားလမ်းဆုံအနီး) မှ စီမံကိန်းနယ် မြေ ဧရိယာသို့ဆက်ထားသော တံတား၊ နှင့်
- တံတား (၂) - လှိုင်သာယာမြို့နယ်မှ စီမံကိန်းနယ်မြေဧရိယာသို့ ဆက်ထားသော တံတား။

■ လမ်းများ

- အမြဲတမ်းအသုံးပြုမည့် ဆက်သွယ်ရေးလမ်းကြောင်း - လမ်းမကြီး ၁၊ လမ်းမကြီး ၂၊ လမ်းမကြီး ၃၊ ပင်မလမ်းမအခွဲများ၊ လမ်းသွယ်များ နှင့်
- မိုးရေ စီးဆင်းရာလမ်းကြောင်း။

■ ရေ

- ရေသန့်စင်ရေးစက်ရုံ။
- သဘာဝရေ ပိုက်လိုင်း၊
- သန့်စင်ထားသော ရေ ဖြန့်ဖြူးရေးလိုင်းများ၊ နှင့်
- ရေစတင်သွင်းသည့်နေရာ။

■ စွန့်ပစ်ရေ

- စွန့်ပစ်ရေမောင်းတင်ပေးသည့်စက်ရုံများ၊
- စွန့်ပစ်ရေပိုက်လမ်းကြောင်း၊
- မိလ္လာ ကန်များ၊ နှင့်
- စွန့်ပစ်ရေ သန့်စင်ရေးစက်ရုံ နှင့် ၎င်းနှင့် ဆက်စပ်နေသော အထောက်အကူပြု အဆောက်အအုံများ။

■ လျှပ်စစ်ဓာတ်အား

- ထရန်စဖော်မာ ဓာတ်အားခွဲရုံ (၂၃၀ ကေစီ ၁ရုံ၊ ၆၆ ကေစီ ၂ ရုံ) နှင့် ဓာတ်အားလွှဲပြောင်းရေးစက်ရုံ (၃၃ ကေစီ ၁ရုံ)
- ပင်မ လျှပ်စစ်ဓာတ်အားလိုင်း များ (မဟာဓာတ်အားလိုင်း/ Independent Power producer (IPP) မှ ၂၃၀ ကေစီ ဓာတ်အားခွဲရုံသို့)၊ နှင့်
- ၆၆ ကေစီ၊ ၃၃ ကေစီ နှင့် ၁၁ ကေစီ လိုင်းများ ပါဝင်သော ဖြန့်ဖြူးရေးလိုင်းများ (စီမံကိန်း အတွင်း လျှပ်စစ်ဓာတ်အားလိုင်းများ)။

■ စက်မှုဇုန်

- ၁၃ စတုရန်းကီလိုမီတာခန့် ကျယ်ဝန်းသည့် စက်မှုအဆောက်အအုံနေရာများအတွက် နယ်မြေဧရိယာ။

စီမံကိန်းအဆင့် (၁) တစ်ခုလုံး၏ စီမံကိန်းနယ်မြေဧရိယာမှာ ၈၈.၃ စတုရန်းကီလိုမီတာရှိမည် ဖြစ်ပါသည်။ ပင်မစီမံချက် (Masterplan) တွင် စုစုပေါင်း လူနေအိမ်နေရာ ၃၀.၉၃ စတုရန်းကီလိုမီတာ၊ ကူးသန်းရောင်းဝယ်ရေးလုပ်ငန်းနေရာ ၆.၄၁ စတုရန်းကီလိုမီတာ၊ စက်မှုလုပ်ငန်းနေရာ ၂၂.၃၇ စတုရန်းကီလိုမီတာ၊ သယ်ယူပို့ဆောင်ရေးနှင့် ထောက်ပံ့ရေး ဧရိယာ ၁.၅၁ စတုရန်းကီလိုမီတာ၊ စိမ်းလန်းစိုပြေရေးဧရိယာ ၁၂.၀၁ စတုရန်းကီလိုမီတာ၊ ကျေးရွာမြေဧရိယာ ၁၁.၉၇ စတုရန်းကီလိုမီတာ၊ အများပြည်သူနှင့်ဆိုင်သောနေရာအတွက် ၂.၃၃ စတုရန်းကီလိုမီတာနှင့် ဝန်ဆောင်မှုလုပ်ငန်းနေရာ ၀.၇၇ စတုရန်းကီလိုမီတာတို့ ပါဝင်ကြပါသည်။ ဤသည်တို့ကို မဟာဗျူဟာမြောက် ပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (SEA) ၌ ထည့်သွင်းစဉ်းစားသွားမည်ဖြစ်ပြီး ၎င်းမှာ ရန်ကုန်မြို့သစ်လည်း ပါဝင်သွားမည် ဖြစ်ပါသည်။

ဤနယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအစီရင်ခံစာသည် “ရေ” အဆောက်အအုံနေရာများ (‘စီမံကိန်း’) အတွက် ဖြစ်ပါသည်။ တံတားများ၊ လမ်းများ၊ စွန့်ပစ်ရေသန့်စင်ခြင်း၊ လျှပ်စစ်ဓာတ်အား နှင့် စက်မှုဇုန်အဆောက်အအုံနေရာများ ပါဝင်စေရန် သီးသန့်ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းများ (EIAs) နှင့် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်း (IEE) တို့ကို ပြင်ဆင်ပြုစုပြီးဖြစ်ပါသည်။ ရန်ကုန်မြို့သစ်အတွက် အဆောက်အအုံနေရာများအားလုံး၏ ဆက်စပ်သက်ရောက်မှုများကို ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းတစ်ခုချင်းစီနှင့် ကနဦးပတ်ဝန်းကျင်ဆန်းစစ်ခြင်းတို့တွင် ဖော်ပြသွားမည် ဖြစ်ပါသည်။

၁.၄ စီမံကိန်းအကြောင်းအရာ ဖော်ပြချက်

ရန်ကုန်မြို့သစ်အတွက် ပန္နက်ချခြင်းဆောင်ရွက်မှုကို ၂၀၂၀ ဇန်နဝါရီလ အတွက် စီစဉ်ထားပါသည်။ ရေသန့်စင် ရေးစက်ရုံ၊ ရေစတင်သွင်းသည့်နေရာ နှင့် သွယ်ယူရေးပိုက်လိုင်းတို့အတွက် တည်ဆောက်ရေးကာလမှာ နှစ်နှစ် ခွဲကြာမြင့် မည်ဟု ခန့်မှန်းထားပါသည်။ ရည်မှန်းထားသည့် ပြီးမြောက်မည့်နေ့စွဲမှာ ၂၀၂၂ ဇူလိုင်လ ဖြစ်ပါသည်။

အဆိုပြုစီမံကိန်းတွင် အောက်ပါတို့ ပေါင်းစပ်ပါဝင်ပါသည် -

- ရေသန့်စင်ရေးစက်ရုံ၊
- သဘာဝရေပိုက်လိုင်း၊
- သန့်စင်ထားသည့်ရေဖြန့်ဖြူးရေးလိုင်းများ၊ နှင့်
- ရေစတင်သွင်းသည့် နေရာ။

၁.၅ အနီးပတ်ဝန်းကျင်အကြောင်းအရာ ဖော်ပြချက်

စီမံကိန်းနယ်မြေဧရိယာ ကို ရေသန့်စင်ရေးစက်ရုံ၊ နှင့် ၎င်းနှင့် ဆက်သွယ်သည့် အဆောက်အအုံနေရာများ၊ ရေရယူ သောနေရာ၊ သဘာဝရေပိုက်လိုင်း နှင့် ရေသန့်စင်ရေးစက်ရုံတို့၏ တည်နေရာအဖြစ် သတ်မှတ်ပါသည်။ အဆောက် အအုံနေရာများသည် တွဲတေးမြို့နယ်တွင် တည်ရှိသွားမည် ဖြစ်ပါသည်။ ရေကို တွဲတေး မြို့နယ်၏ တောင်ဘက် နယ်နိမိတ်တွင် တည်ရှိနေသော တိုးမြှင့်မှု ရယူသွားမည် ဖြစ်ပါသည်။

ဤအပိုင်းသည် လေ့လာမှုနယ်မြေဧရိယာ ၏ သဘာဝမြေမျက်နှာပြင်၊ ပတ်ဝန်းကျင်၊ လူမှု-စီးပွား၊ ယဉ်ကျေးမှု နှင့် မြင်ကွင်းဆိုင်ရာ လက္ခဏာကို တင်ပြထားပါသည်။ စီမံကိန်းကြောင့် ဖြစ်ပေါ်လာနိုင်သောသက်ရောက်မှုများ၏ အပြန်အလှန်ချိတ်ဆက်မှုများ၊ ပမာဏ နှင့် အရေးပါမှုတို့ကို ဆုံးဖြတ်ရန် အန္တရာယ်ဖော်ပြမှုဖြင့် ပတ်ဝန်းကျင် နှင့် လူမှုအခြေအနေများရှိနေသည့် ပိုမိုကျယ်ပြန့်သည့်နယ်မြေဧရိယာအဖြစ် လေ့လာမှုနယ်မြေဧရိယာ ကိုသတ်မှတ် ပါသည်။ ဤစီမံကိန်းနှင့်စပ်လျဉ်း၍ လေ့လာမှုနယ်မြေဧရိယာ ကို စီမံကိန်းနယ်မြေဧရိယာ အနီးဖြစ်သော မြို့နယ်များ ကို ထည့်သွင်းလျက် ရန်ကုန်မြို့သစ်တစ်ခုလုံးအဆင့်ကာလ (၁) ဆောင်ရွက်မှုတစ်ခုကို ကြားခံ ၂ ကီလိုမီတာအဖြစ် သတ်မှတ်သည်။ ဤနယ်မြေဧရိယာသည် တစ်ခုချင်းစီစီမံကိန်းအစိတ်အပိုင်းများအကြား စပ်ဆက်သက်ရောက်မှုများ ၏ နှိုင်းယှဉ်မှုကိုလည်း အထောက်အကူဖြစ်စေပါသည်။

‘သက်ရောက်မှုရှိစေမည့်နယ်မြေဧရိယာ’ (AoI) ကို စီမံကိန်းနယ်မြေဧရိယာအတွင်း သို့မဟုတ် အနီးရှိ ကျေးရွာအုပ်စုများ၊ ရပ်ကွက်များ နှင့် မြို့နယ်များအဖြစ် သတ်မှတ်ပါသည်။ ထုတ်ဝေပြီးသားစာတမ်းများသုံးသပ်မှု (desktop review) အရ၊ အဆိုပြုစီမံကိန်းနယ်မြေဧရိယာ၏ အဓိကပတ်ဝန်းကျင် နှင့် လူမှုထိခိုက်လွယ်မှုများကို ဇယား ၁.၁ တွင် အကျဉ်းတင်ပြထားပါသည်။

ဇယား ၁.၁ လေ့လာမှုနယ်မြေဧရိယာ၏ အဓိကထိခိုက်လွယ်မှုများ

ပတ်ဝန်းကျင်နေရာ	ထိခိုက်လွယ်မှု
ကုန်းနေ ဇီဝမျိုး စုံမျိုး ကွဲများ	လေ့လာမှုနယ်မြေဧရိယာသည် ကျေးရွာငယ်များတည်ရှိမှုဖြင့် အဓိက ကျေးလက်နေရာဖြစ်ပါသည်။ လေ့လာမှုနယ်မြေဧရိယာအတွင်း နှင့် အနီးတစ်ဝိုက်တွင် အရွယ်အစားအားဖြင့် အရေးပါသော သဘာဝ သစ်တောရှိမည် မဟုတ်ပါ။ ဒီရေတောပေါက်ပင်များသည် မြစ်များ၏ ကမ်းပေါ်တွင် ရှိနေ နိုင်ပြီး၊ ဒီရေ တော တွင်နေထိုင်သော မျိုးစိတ်များရှိမည်ဟု မျှော်မှန်းပါသည်။
ဝန်းကျင်ဆူညံသံ	လက်ရှိအနေအထားတွင် အနီးဝန်းကျင်ဆူညံသံအတွက် အချက်အလက်များမရှိပါ။ လေ့လာမှု နယ်မြေဧရိယာမှာ ကျေးလက်နေရာများလွှမ်းမိုးနေသဖြင့်၊ ဆူညံသံညစ်ညမ်းမှုရင်းမြစ်များမှာ အ ကန့် အသတ်ဖြင့် ဖြစ်ပါသည်။ စီမံကိန်း၏ တည်ဆောက်ရေး နှင့် လည်ပတ်ရေးတို့မှ ဆူညံသံသက် ရောက်မှုများကို ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာတွင် ထည့်သွင်းစဉ်းစားရန် လိုအပ် သွားမည် ဖြစ်ပါသည်။
ရပ်ရွာ နှင့် အသက် မွေးဝမ်းကျောင်းများ	စီမံကိန်းသည် တွံတေး မြို့နယ်အတွင်း တည်ရှိပါသည်။ အနီးရပ်ရွာများ၏ အ သက် မွေးဝမ်းကျောင်း အပေါ် သက်ရောက်မှုများကို ထည့်သွင်းစဉ်းစားသွားရန် လိုအပ်ပါသည်။
ရေအရင်းအမြစ်များ နှင့် ရေနုတ်မြောင်း စနစ်	လေ့လာမှုနယ်မြေဧရိယာတွင် ရေအရင်းအမြစ်များမှာ ရှားပါးပါသည်။ အထူးသဖြင့် ခြောက်သွေ့ ရာ သီတွင် ရှားပါးပါသည်။ ဒေသခံရပ်ရွာလူထုသည် ဆိပ်ကြီးခနောင်တို နှင့် တွံတေးမြို့နယ်တို့ အတွင်းရှိ မိုးရာသီတွင် ရေပြည့်သော ကန်များ/ရေကန်ငယ်များ မှ ရေကို အသုံးပြုကြပါသည်။ စီမံကိန်းအ တွက် ရေအရင်းအမြစ်များကို ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာတွင် ထည့်သွင်းစဉ်း စားသွားရန် လိုအပ်ပါသည်။
သယ်ယူပို့ဆောင်ရေး	စီမံကိန်းနယ်မြေဧရိယာရှိ ဒေသခံရပ်ရွာလူထုသည် ရန်ကုန်မြို့သို့ရောက်ရှိရန် ကားများထက် စက်လှေ များဖြင့် အဓိကသွားလာလည်ပတ်ကြသော်လည်း၊ စီမံကိန်းသည် လှိုင်သာယာ နှင့် တွံတေးမြို့နယ် တို့တွင် လက်ရှိယာဉ်အသွားအလာအဆင့်ထက် တိုးပွားလာနိုင်ပါသည်။ ယာဉ်အသွား အလာအပေါ် သက်ရောက်မှုများကို ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်း အစီရင်ခံစာတွင် ထည့်သွင်း စဉ်းစားရန် လို အပ်ပါသည်။
ယာဉ်ကျေးမှု အမွေအနှစ်	ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာတွင် ထည့်သွင်းစဉ်းစားရန် လိုအပ်သည့် လေ့လာ မှုနယ်မြေဧရိယာအတွင်း၌ ထင်ရှားသော ဘုရားများ နှင့် ဘုန်းကြီးကျောင်းများလည်း ရှိပါသည်။

၁.၆ အဓိက ဖြစ်ပေါ်လာနိုင်သည့် သက်ရောက်မှု နှင့် အဆိုပြု လျော့ချမှု

နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာသည် ရေသန့်စက်ရေးစက်ရုံ နှင့် ၎င်းနှင့်သက်ဆိုင်သော အဆောက်အအုံနေရာတို့၏ တည်ဆောက်ရေး နှင့် လည်ပတ်ရေးတို့နှင့် ဆက်သွယ်သည့် ဖြစ်ပေါ်လာနိုင်သည့် သက်ရောက်မှုများအပေါ် အလေးပေးခဲ့ပါသည်။ တည်ဆောက်ရေးကာလ အတွင်း ဖြစ်ပေါ်လာ နိုင်သော ပတ်ဝန်းကျင် ဆိုင်ရာ သက်ရောက်မှုများသည် လေ့လာမှုနယ်မြေဧရိယာ၌ ယာယီ ကွက်၍ ဖြစ်ပေါ်နိုင်ပါသည်။ လည်ပတ်ရေး ကာလအတွင်း ဖြစ်ပေါ်လာနိုင်သော သက်ရောက်မှုများတွင် ဆူညံသံ နှင့်ဆက်သွယ်သောအရာများ၊ ကုန်းပေါ်ရှိ ဒေသရင်းသက်ရှိသတ္တဝါများ၊ အများပြည်သူကျန်းမာရေး နှင့် ဘေးကင်းရေး၊ နှင့် လုပ်ငန်းခွင် ကျန်းမာရေး နှင့် ဘေးကင်းရေးတို့ ပါဝင်ကြပါသည်။ ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်း အစီရင်ခံစာတွင် ဤသက်ရောက်မှုများကို အသေးစိတ် ဆန်းစစ်သွားမည် ဖြစ်ပြီး၊ သင့်လျော်သောလျော့ချရေး အစီအမံများကိုလည်း ဖော်ပြပေးသွားမည် ဖြစ်ပါသည်။

အဆိုပြုစီမံကိန်းမှအရေးပါသောသက်ရောက်မှုများဖြစ်ပေါ်လာနိုင်သည်ဟု မျှော်မှန်းထားသည့် အောက်ပါသက်ရောက်မှုများကို သတ်မှတ်ထားပြီး၊ နောက်ထပ်အသေးစိတ်ဆန်းစစ်ခြင်းကို လိုအပ်ကာ၊ ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ်ခြင်းလုပ်ငန်းစဉ်၏ နောက်အဆင့်တွင် ဆောင်ရွက်သွားမည် ဖြစ်ပါသည်။

တည်ဆောက်ရေးကာလအဆင့် -

- အနီးလေထုအရည်အသွေးအပေါ် သက်ရောက်မှုများ
 - လုပ်ငန်းခွင်ပြင်ဆင်ခြင်း၊ မြေတူးခြင်း နှင့် ဖြည့်ခြင်း၊
 - တည်ဆောက်ရေးနှင့် ကွန်ရက်များ တပ်ဆင်ခြင်း၊
 - ကိရိယာပစ္စည်း၊ ထောက်ပံ့မှုများ နှင့် အလုပ်သမားများ သယ်ယူပို့ဆောင်မှု၊
 - ယာယီထောက်ပံ့မှု အခြေခံအဆောက်အအုံ
- အနီးဆူညံသံအပေါ် သက်ရောက်မှုများ
 - လုပ်ငန်းခွင်ပြင်ဆင်ခြင်း၊ မြေတူးခြင်း နှင့် ဖြည့်ခြင်း၊
 - တည်ဆောက်ရေးနှင့် ကွန်ရက်များ တပ်ဆင်ခြင်း၊
 - ကိရိယာပစ္စည်း၊ ထောက်ပံ့မှုများ နှင့် အလုပ်သမားများ သယ်ယူပို့ဆောင်မှု၊
 - ယာယီထောက်ပံ့မှု အခြေခံအဆောက်အအုံ
- မြေပေါ်ရေ နှင့် မြေအောက်ရေ အရည်အသွေးတို့အပေါ် သက်ရောက်မှုများ
 - လုပ်ငန်းခွင်ပြင်ဆင်ခြင်း၊ မြေတူးခြင်း နှင့် ဖြည့်ခြင်း၊
 - တည်ဆောက်ရေးနှင့် ကွန်ရက်များ တပ်ဆင်ခြင်း၊
 - ယာယီထောက်ပံ့မှု အခြေခံအဆောက်အအုံ၊
 - စွန့်ပစ်ပစ္စည်း၊ လောင်စာဆီ၊ ဓာတုပစ္စည်း၊ ဆီ နှင့် ဓာတ်ငွေ့တို့ သိုလှောင်ခြင်း၊ ကိုင်တွယ်ခြင်းနှင့် စွန့်ပစ်ခြင်း
- မြေဆီလွှာ အရည်အသွေး နှင့် မြေမျက်နှာသွင်ပြင်တို့အပေါ် သက်ရောက်မှုများ
 - တည်ဆောက်ရေးနှင့် ကွန်ရက်များ တပ်ဆင်ခြင်း၊
 - ယာယီထောက်ပံ့မှု အခြေခံအဆောက်အအုံ၊

- စွန့်ပစ်ပစ္စည်း၊ လောင်စာဆီ၊ ဓာတုပစ္စည်း၊ ဆီ နှင့် ဓာတ်ငွေ့တို့ သိုလှောင်ခြင်း၊ ကိုင်တွယ်ခြင်းနှင့် စွန့်ပစ်ခြင်း
- မြေယာရှုခင်း နှင့် မြင်ကွင်းပုံစံတို့အပေါ် သက်ရောက်မှုများ
 - လုပ်ငန်းခွင်ပြင်ဆင်ခြင်း၊ မြေတူးခြင်း နှင့် ဖြည့်ခြင်း၊
 - တည်ဆောက်ရေးနှင့် ကွန်ရက်များ တပ်ဆင်ခြင်း၊
 - ယာယီထောက်ပံ့မှု အခြေခံအဆောက်အအုံ။
- ကုန်းပေါ်ရှိ ဒေသရင်းအပင်များအပေါ် သက်ရောက်မှုများ
 - လုပ်ငန်းခွင်ပြင်ဆင်ခြင်း၊ မြေတူးခြင်း နှင့် ဖြည့်ခြင်း၊
 - တည်ဆောက်ရေးနှင့် ကွန်ရက်များ တပ်ဆင်ခြင်း။
- ကုန်းပေါ်ရှိ ဒေသရင်း သက်ရှိသတ္တဝါများအပေါ် သက်ရောက်မှုများ
 - လုပ်ငန်းခွင်ပြင်ဆင်ခြင်း၊ မြေတူးခြင်း နှင့် ဖြည့်ခြင်း၊
 - တည်ဆောက်ရေးနှင့် ကွန်ရက်များ တပ်ဆင်ခြင်း။
- ရေထဲရှိ ဒေသရင်းအပင်များနှင့် သက်ရှိသတ္တဝါများအပေါ် သက်ရောက်မှုများ
 - လုပ်ငန်းခွင်ပြင်ဆင်ခြင်း၊ မြေတူးခြင်း နှင့် ဖြည့်ခြင်း၊
 - တည်ဆောက်ရေးနှင့် ကွန်ရက်များ တပ်ဆင်ခြင်း။
- ရပ်ရွာလူထုကျန်းမာရေး နှင့် ဘေးကင်းရေးတို့အပေါ် သက်ရောက်မှုများ
 - ကိရိယာပစ္စည်း၊ ထောက်ပံ့မှုများ နှင့် အလုပ်သမားများ သယ်ယူပို့ဆောင်မှု၊
 - အလုပ်သမား၊ ကိရိယာပစ္စည်း နှင့် ဝန်ဆောင်မှုထောက်ပံ့မှုများ၊
 - ယာယီထောက်ပံ့မှု အခြေခံအဆောက်အအုံ။
- လူဦးရေဆိုင်ရာပုံစံ၊ စီးပွားရေး နှင့် အသက်မွေးဝမ်းကျောင်းတို့အပေါ် သက်ရောက်မှုများ
 - လုပ်ငန်းခွင်ပြင်ဆင်ခြင်း၊ မြေတူးခြင်း နှင့် ဖြည့်ခြင်း၊
- လုပ်ငန်းခွင် ကျန်းမာရေး နှင့် ဘေးကင်းရေးတို့အပေါ် သက်ရောက်မှုများ
 - လုပ်ငန်းခွင်ပြင်ဆင်ခြင်း၊ မြေတူးခြင်း နှင့် ဖြည့်ခြင်း၊
 - တည်ဆောက်ရေးနှင့် ကွန်ရက်များ တပ်ဆင်ခြင်း၊
 - ကိရိယာပစ္စည်း၊ ထောက်ပံ့မှုများ နှင့် အလုပ်သမားများ သယ်ယူပို့ဆောင်မှု၊
 - အလုပ်သမား၊ ကိရိယာပစ္စည်း နှင့် ဝန်ဆောင်မှုထောက်ပံ့မှုများ၊
 - ယာယီထောက်ပံ့မှု အခြေခံအဆောက်အအုံ နှင့်
 - စွန့်ပစ်ပစ္စည်း၊ လောင်စာဆီ၊ ဓာတုပစ္စည်း၊ ဆီ နှင့် ဓာတ်ငွေ့တို့ သိုလှောင်ခြင်း၊ ကိုင်တွယ်ခြင်းနှင့် စွန့်ပစ်ခြင်း။
- အခြေခံအဆောက်အအုံဝန်ဆောင်မှုတို့အပေါ် သက်ရောက်မှုများ
 - တည်ဆောက်ရေးနှင့် ကွန်ရက်များ တပ်ဆင်ခြင်း၊
 - ကိရိယာပစ္စည်း၊ ထောက်ပံ့မှုများ နှင့် အလုပ်သမားများ သယ်ယူပို့ဆောင်မှု၊

- အလုပ်သမား၊ ကိရိယာပစ္စည်း နှင့် ဝန်ဆောင်မှုထောက်ပံ့မှုများ၊
- ယာယီထောက်ပံ့မှု အခြေခံအဆောက်အအုံ နှင့်
- စွန့်ပစ်ပစ္စည်း၊ လောင်စာဆီ၊ ဓာတုပစ္စည်း၊ ဆီ နှင့် ဓာတ်ငွေ့တို့ သိုလှောင်ခြင်း၊ ကိုင်တွယ်ခြင်းနှင့် စွန့်ပစ်ခြင်း။
- ယဉ်ကျေးမှု အမွေအနှစ်များအပေါ် သက်ရောက်မှုများ
 - လုပ်ငန်းခွင်ပြင်ဆင်ခြင်း၊ မြေတူးခြင်း နှင့် ဖြည့်ခြင်း၊
 - တည်ဆောက်ရေးနှင့် ကွန်ယက်များ တပ်ဆင်ခြင်း၊
 - ကိရိယာပစ္စည်း၊ ထောက်ပံ့မှုများ နှင့် အလုပ်သမားများ သယ်ယူပို့ဆောင်မှု။

လည်ပတ်ရေးကာလအဆင့် -

- ရေပိုက်လိုင်းလမ်းကြောင်းနှင့် ရေသန့်စင်ရေးစက်ရုံတို့ လည်ပတ်ခြင်း မှ အနီး လေထု အရည်အသွေးအပေါ် သက်ရောက်မှုများ၊
- အနီးဆူညံသံနှင့် တုန်ခါမှုများအပေါ်သက်ရောက်မှုများ
 - ရေပိုက်လိုင်းလမ်းကြောင်းနှင့် ရေသန့်စင်ရေးစက်ရုံတို့ လည်ပတ်ခြင်း နှင့်
 - ကွန်ရက်များနှင့် အခြေခံအဆောက်အအုံများ ပြုပြင်ထိန်းသိမ်းခြင်း။
- ရေပိုက်လိုင်းလမ်းကြောင်းနှင့် ရေသန့်စင်ရေးစက်ရုံတို့ လည်ပတ်ခြင်း မှ မြေပေါ်ရေ နှင့် မြေအောက်ရေတို့ပေါ် သက်ရောက်မှုများ၊
- မြေဆီလွှာ အရည်အသွေး နှင့် မြေမျက်နှာသွင်ပြင်တို့အပေါ် သက်ရောက်မှုများ
 - ရေပိုက်လိုင်းလမ်းကြောင်းနှင့် ရေသန့်စင်ရေးစက်ရုံတို့ လည်ပတ်ခြင်း နှင့်
 - ကွန်ရက်များနှင့် အခြေခံအဆောက်အအုံများ ပြုပြင်ထိန်းသိမ်းခြင်း။
- ရေပိုက်လိုင်းလမ်းကြောင်းနှင့် ရေသန့်စင်ရေးစက်ရုံတို့ လည်ပတ်ခြင်း တို့ကြောင့်ရေထဲရှိ ဒေသရင်းအပင်များ နှင့် သက်ရှိသတ္တဝါများအပေါ် သက်ရောက်မှုများ။
- ကွန်ရက်များနှင့် အခြေခံအဆောက်အအုံများ ပြုပြင်ထိန်းသိမ်းခြင်းတို့မှ ရပ်ရွာလူထု ကျန်းမာရေး နှင့် ဘေးကင်းရေးတို့အပေါ် သက်ရောက်မှုများ။
- လုပ်ငန်းခွင်ကျန်းမာရေး နှင့် ဘေးကင်းရေးတို့အပေါ် သက်ရောက်မှုများ
 - ရေပိုက်လိုင်းလမ်းကြောင်းနှင့် ရေသန့်စင်ရေးစက်ရုံတို့ လည်ပတ်ခြင်း နှင့်
 - ကွန်ရက်များနှင့် အခြေခံအဆောက်အအုံများ ပြုပြင်ထိန်းသိမ်းခြင်း။
- အခြေခံအဆောက်အအုံဝန်ဆောင်မှုများ အပေါ် သက်ရောက်မှုများ
 - ရေပိုက်လိုင်းလမ်းကြောင်းနှင့် ရေသန့်စင်ရေးစက်ရုံတို့ လည်ပတ်ခြင်း နှင့်
 - ကွန်ရက်များနှင့် အခြေခံအဆောက်အအုံများ ပြုပြင်ထိန်းသိမ်းခြင်း။
- ယဉ်ကျေးမှု အမွေအနှစ်များအပေါ် သက်ရောက်မှုများ
 - ရေပိုက်လိုင်းလမ်းကြောင်းနှင့် ရေသန့်စင်ရေးစက်ရုံတို့ လည်ပတ်ခြင်း။

မတော်တဆဖြစ်ရပ်များ -

- မီးလောင်ကျွမ်းခြင်းနှင့် ပေါက်ကွဲမှုတို့မှ အနီးလေထုအရည်အသွေးအပေါ် သက်ရောက်မှုများ၊
- ယိုဖိတ်မှုများ နှင့် ယိုစိမ့်မှုများမှ မြေပေါ်ရေနှင့် မြေအောက်ရေတို့အပေါ် သက်ရောက်မှုများ၊
- ယိုဖိတ်မှုများ နှင့် ယိုစိမ့်မှုများကြောင့် မြေဆီလွှာ အရည်အသွေး နှင့် မြေမျက်နှာသွင်ပြင်တို့အပေါ် သက်ရောက်မှုများ၊
- ကုန်းတွင်းရှိ ဒေသရင်းအပင်များ အပေါ် သက်ရောက်မှုများ
 - ယိုဖိတ်မှုများ နှင့် ယိုစိမ့်မှုများ၊
 - မီးလောင်ကျွမ်းခြင်း နှင့် ပေါက်ကွဲမှု။
- ကုန်းနေဒေသရင်း သတ္တဝါများ အပေါ် သက်ရောက်မှုများ
 - ယဉ်တိုက်မိခြင်း
 - ယိုဖိတ်မှုများ နှင့် ယိုစိမ့်မှုများ၊
 - မီးလောင်ကျွမ်းခြင်း နှင့် ပေါက်ကွဲမှု။
- ယိုဖိတ်မှုများ နှင့် ယိုစိမ့်မှုများကြောင့် ရေထဲရှိ ဒေသရင်းအပင်များ နှင့် သက်ရှိသတ္တဝါများအပေါ် သက်ရောက်မှုများ၊
- ရပ်ရွာလူထု ကျန်းမာရေး နှင့် ဘေးကင်းရေးတို့အပေါ် သက်ရောက်မှုများ၊
 - ယဉ်တိုက်မိခြင်း
 - ယိုဖိတ်မှုများ နှင့် ယိုစိမ့်မှုများ၊
 - မီးလောင်ကျွမ်းခြင်း နှင့် ပေါက်ကွဲမှု။
- လုပ်ငန်းခွင် ကျန်းမာရေး နှင့် ဘေးကင်းရေးတို့အပေါ် သက်ရောက်မှုများ
 - ယဉ်တိုက်မိခြင်း
 - ယိုဖိတ်မှုများ နှင့် ယိုစိမ့်မှုများ၊
 - မီးလောင်ကျွမ်းခြင်း နှင့် ပေါက်ကွဲမှု။
- ယဉ်ကျေးမှု အမွေအနှစ်များအပေါ် သက်ရောက်မှုများ
 - ယိုဖိတ်မှုများ နှင့် ယိုစိမ့်မှုများ၊
 - မီးလောင်ကျွမ်းခြင်း နှင့် ပေါက်ကွဲမှု။

၁.၇ အများပြည်သူနှင့် တိုင်ပင်ဆွေးနွေးခြင်း နှင့် ထုတ်ဖော်တင်ပြခြင်း

နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအဆင့်ကာလနှင့်ပတ်သက်၍ တိုင်ပင်ဆွေးနွေးမှုအစည်းအဝေးများကို ကြည့်မြင်တိုင်၊ အလုံ၊ တွံတေး၊ ဆိပ်ကြီးခနောင်တို၊ နှင့် လှိုင်သာယာ မြို့နယ်တို့တွင် အမျိုးမျိုးသော သက်ဆိုင်ရာ အကျိုးသက်ဆိုင်သူများနှင့် ကျင်းပခဲ့ပါသည်။ တိုင်ပင်ဆွေးနွေးမှုသည် ဖြစ်ပေါ်လာနိုင်သော ထိခိုက်ခံစားရနိုင်သူများနှင့် ဖြစ်ပေါ်လာနိုင်သည့် အချက်အလက်ကွာဟမှု၊ နှင့် ၎င်းတို့ကို ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းအစီရင်ခံစာတွင် မည်သို့ထည့်သွင်းဆောင်ရွက်သွားနိုင်သည်ကြောင်းတို့နှင့်ပတ်သက်သော သတင်းအချက်အလက်များကို စုဆောင်းရန် စီမံကိန်းအတွက် အထောက်အကူဖြစ်ခဲ့ပါသည်။ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းဆိုင်ရာ တိုင်ပင်ဆွေးနွေးမှုတွင် အခြားသက်ဆိုင်ရာ ဝန်ကြီးများက တက်ရောက်သည့် ဝန်ကြီးချုပ်အတွက် ကိုယ်စားလှယ်၊ တိုင်းဒေသကြီးအဆင့် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန နှင့် အထွေထွေအုပ်ချုပ်ရေး ဦးစီးဌာန၊ ရန်ကုန်တိုင်းဒေသကြီး

လွှတ် တော်ကိုယ်စားလှယ်များ၊ ပြည်သူ့လွှတ်တော် ကိုယ်စားလှယ်၊ လူမှုကယ်ဆယ်ရေးဦးစီးဌာနမှ ညွှန်ကြားရေးမှူး၊ မြို့နယ် အထွေထွေအုပ်ချုပ်ရေးဦးစီးဌာနများ၊ ရပ်ကွက် နှင့် ကျေးရွာ အုပ်ချုပ်ရေးမှူးများ၊ ရပ်ကွက်နာယကများ၊ CSOs/ NGOs၊ သက်ဆိုင်ရာ အစိုးရဦးစီးဌာနများ နှင့် ဒေသခံရပ်ရွာလူထု နှင့် ရပ်ရွာကိုယ်စားလှယ်များအပါအဝင် ရန်ကုန် တိုင်းဒေသကြီးတွင် သက်ဆိုင်သူအများအပြားဖြင့် မျက်နှာချင်းဆိုင် အစည်းအဝေးများ ပါဝင်ခဲ့ပါသည်။

နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းအဆင့်ကာလ ချိတ်ဆက်တိုင်ပင်ဆွေးနွေးမှုကာလအတွင်း ဆောင်ရွက်ခဲ့သည့် အစည်းအဝေးတစ်ခုချင်းစီ၏ နေ့စွဲ၊ အချိန်၊ နေရာ၊ သက်ဆိုင်သူ နှင့် ရည်ရွယ်ချက်တို့ကို ဇယား (၁.၂) တွင် တင်ပြ ထားပါသည်။

ဇယား ၁.၂ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းကာလအတွင်း ဆောင်ရွက်ခဲ့ သည့် တိုင်ပင်ဆွေးနွေးမှုလုပ်ငန်းများ

နေ့စွဲ၊ အချိန်၊ နေရာ	သက်ဆိုင်သူများ	ချိတ်ဆက်တိုင်ပင်ဆွေးနွေးမှု၏ ရည်ရွယ်ချက်
၂၀၁၉ ဇန်နဝါရီလ ၂၃ ရက် ဗုဒ္ဓဟူး နေ့	ဝန်ကြီးချုပ်ရုံးအစည်းအဝေး	<ul style="list-style-type: none"> ■ စီမံကိန်းဆိုင်ရာ သတင်းအချက်အလက်များ တင်ပြခြင်း ■ မြို့နယ်/ရပ်ကွက် နှင့် ကျေးရွာအဆင့် အစည်း အဝေး များအတွက် ခွင့်ပြုချက်ရယူခြင်း ■ သက်ဆိုင်သူများထံမှ စိုးရိမ်မှုများ နှင့် အကြံ ဉာဏ် များ ကောက်ယူစုဆောင်းခြင်း
၂၀၁၉ ဇန်နဝါရီလ ၃၀ ရက် ဗုဒ္ဓဟူးနေ့	တွဲတေးမြို့နယ် GAD ရုံး၊ ဆိပ်ကြီးခရိုင်တိုမြို့နယ် GAD ရုံး နှင့် ကြည့်မြင်တိုင်မြို့နယ် GAD ရုံး	<ul style="list-style-type: none"> ■ အစည်းအဝေးများ အစီအစဉ်ချခြင်း နှင့် ခွင့်ပြုချက်များ တောင်းခံခြင်း
၂၀၁၉ ဇန်နဝါရီလ ၃၁ ရက်ကြာ သပတေးနေ့	အလုံမြို့နယ် GAD ရုံး နှင့် လှိုင်သာယာမြို့နယ် GAD ရုံး	<ul style="list-style-type: none"> ■ အစည်းအဝေးများ အစီအစဉ်ချခြင်း နှင့် ခွင့်ပြုချက်များ တောင်းခံခြင်း
၂၀၁၉ ဖေဖော်ဝါရီလ ၁ ရက် သောကြာနေ့	အလုံမြို့နယ်	<ul style="list-style-type: none"> ■ ဒေသအစိုးရ၊ ရပ်ကွက်အုပ်ချုပ်ရေးမှူးများ၊ ဒေသခံ ရပ်ရွာလူထု နှင့် အခြားစိတ်ဝင်စားသူအုပ်စုများထံသို့ စီမံကိန်းဆိုင်ရာ သတင်းအချက်အလက်များကို တင်ပြခြင်း ■ သက်ဆိုင်သူများထံမှ စိုးရိမ်မှုနှင့်အကြံဉာဏ် များ ရယူခြင်း ■ လူမှုအခြေခံအချက်အလက်များကောက်ယူမှု ဆောင်ရွက်ခြင်း ■ ရပ်ကွက်အုပ်ချုပ်ရေးမှူးနှင့် အင်တာဗျူးဆောင်ရွက်ခြင်း
၂၀၁၉ ဖေဖော်ဝါရီလ ၂ ရက် စနေနေ့	တွဲတေးမြို့နယ်	<ul style="list-style-type: none"> ■ ဒေသအစိုးရ၊ ရပ်ကွက်အုပ်ချုပ်ရေးမှူးများ၊ ဒေသခံ ရပ်ရွာလူထု နှင့် အခြားစိတ်ဝင်စားသူအုပ်စုများထံသို့ စီမံကိန်းဆိုင်ရာ သတင်းအချက်အလက်များကို တင်ပြခြင်း ■ သက်ဆိုင်သူများထံမှ စိုးရိမ်မှုနှင့်အကြံဉာဏ် များ ရယူခြင်း ■ လူမှုအခြေခံအချက်အလက်များကောက်ယူမှု ဆောင်ရွက်ခြင်း ■ ရပ်ကွက်အုပ်ချုပ်ရေးမှူးနှင့် အင်တာဗျူးဆောင်ရွက်ခြင်း
၂၀၁၉ ဖေဖော်ဝါရီလ ၂ ရက် စနေနေ့	ကြည့်မြင်တိုင် မြို့နယ်	<ul style="list-style-type: none"> ■ ဒေသအစိုးရ၊ ရပ်ကွက်အုပ်ချုပ်ရေးမှူးများ၊ ဒေသခံ ရပ်ရွာလူထု နှင့် အခြားစိတ်ဝင်စားသူအုပ်စုများထံသို့ စီမံကိန်းဆိုင်ရာ သတင်းအချက်အလက်များကို တင်ပြခြင်း ■ သက်ဆိုင်သူများထံမှ စိုးရိမ်မှုနှင့်အကြံဉာဏ် များ ရယူခြင်း ■ လူမှုအခြေခံအချက်အလက်များကောက်ယူမှု ဆောင်ရွက်ခြင်း ■ ရပ်ကွက်အုပ်ချုပ်ရေးမှူးနှင့် အင်တာဗျူးဆောင်ရွက်ခြင်း

နေ့စွဲ၊ အချိန်၊ နေရာ	သက်ဆိုင်သူများ	ချိတ်ဆက်တိုင်ပင်ဆွေးနွေးမှု၏ ရည်ရွယ်ချက်
၂၀၁၉ ဖေဖော်ဝါရီလ ၃ ရက် တနင်္ဂနွေနေ့	ဆိပ်ကြီးခရိုင်တို မြို့နယ်	<ul style="list-style-type: none"> ■ ဒေသအစိုးရ၊ ရပ်ကွက်အုပ်ချုပ်ရေးမှူးများ၊ ဒေသခံ ရပ်ရွာလူထု နှင့် အခြားစိတ်ဝင်စားသူအုပ်စုများထံသို့ စီမံကိန်းဆိုင်ရာ သတင်းအချက်အလက်များကို တင်ပြခြင်း ■ သက်ဆိုင်သူများထံမှ စိုးရိမ်မှုနှင့်အကြံဉာဏ် များ ရယူခြင်း ■ လူမှုအခြေခံအချက်အလက်များကောက်ယူမှု ဆောင်ရွက်ခြင်း ■ ရပ်ကွက်အုပ်ချုပ်ရေးမှူးနှင့် အင်တာဗျူးဆောင်ရွက်ခြင်း
၂၀၁၉ ဖေဖော်ဝါရီလ ၃ ရက် တနင်္ဂနွေနေ့	လှိုင်သာယာမြို့နယ်	<ul style="list-style-type: none"> ■ ဒေသအစိုးရ၊ ရပ်ကွက်အုပ်ချုပ်ရေးမှူးများ၊ ဒေသခံ ရပ်ရွာလူထု နှင့် အခြားစိတ်ဝင်စားသူအုပ်စုများထံသို့ စီမံကိန်းဆိုင်ရာ သတင်းအချက်အလက်များကို တင်ပြခြင်း ■ သက်ဆိုင်သူများထံမှ စိုးရိမ်မှုနှင့်အကြံဉာဏ် များ ရယူခြင်း ■ လူမှုအခြေခံအချက်အလက်များကောက်ယူမှု ဆောင်ရွက်ခြင်း ■ ရပ်ကွက်အုပ်ချုပ်ရေးမှူးနှင့် အင်တာဗျူးဆောင်ရွက်ခြင်း

၁.၈ နိဂုံး နှင့် အကြံပြုချက်များ

နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းလေ့လာမှုသည် ရန်ကုန်မြို့သစ် အဆင့်ကာလ (၁) နှင့် ဆက်နွယ်သော တံတားများ၏ တည်ဆောက်ရေး နှင့် လည်ပတ်ရေးတို့ဖြင့်ပတ်သက်သည့် ဖြစ်ပေါ်လာနိုင်သည့် သက်ရောက်မှုများ အပေါ် အလေးပေးထားပါသည်။ တည်ဆောက်ရေးကာလအတွင်း ဖြစ်ပေါ်လာနိုင်သည့် ပတ်ဝန်းကျင်သက်ရောက်မှု များမှာ စီမံကိန်းနယ်မြေဧရိယာအတွင်း ယာယီကွက်၍ဖြစ်ပေါ်နိုင်ပါသည်။ တည်ဆောက်ရေးကာလအတွင်း သက် ရောက်မှုများတွင် လေ (ဖုန်မှုန့်) နှင့် ဆူညံသံထုတ်လွှတ်မှုများ၊ သဘာဝပေါက်ပင်များရှင်းလင်းမှု၊ မြေယာအသုံးပြုမှု ပြောင်း လဲခြင်း၊ ကုန်းပေါ်ရှိ ဒေသရင်းအပင်များနှင့် သက်ရှိသတ္တဝါများ၊ ရေထဲရှိ ဒေသရင်းအပင်များ နှင့် သက်ရှိ သတ္တဝါများ၊ နှင့် လူဦးရေအနေအထားပုံစံ၊ စီးပွားရေး နှင့် အသက်မွေးဝမ်းကျောင်းတို့ ပါဝင်သည်။ လည်ပတ်ရေး ကာလအတွင်း ဖြစ်ပေါ်လာနိုင်သည့် သက်ရောက်မှုများတွင် ဆူညံသံနှင့်ဆက်နွယ်သောအရာများ၊ ကုန်းပေါ်ရှိ ဒေသရင်းသက်ရှိသတ္တဝါများ၊ အများပြည်သူကျန်းမာရေး နှင့် ဘေးကင်းရေး၊ နှင့် လုပ်ငန်းခွင်ကျန်းမာရေး နှင့် ဘေး ကင်းရေးတို့ ပါဝင်ကြပါသည်။ မတော်တဆဖြစ်ရပ်များမှ သက်ရောက်မှုများကို ဤနယ်ပယ်အတိုင်းအတာ သတ်မှတ် မှုတွင် ထည့်သွင်းစဉ်းစားခဲ့ပြီး၊ သက်ရောက်မှုများအားလုံးကို ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းလေ့လာမှုတွင် အသေးစိတ်ဆန်းစစ်သွားမည် ဖြစ်ပါသည်။

လူမှုရေးရှုထောင့်မှကြည့်လျှင်၊ စီမံကိန်းသည် တွံတေးမြို့နယ်တို့တွင် တည်ရှိပါသည်။ ပတ်ဝန်း ကျင် နှင့် လူမှုသက်ရောက်မှုများအရ ရပ်ရွာများမှ အဓိကစိုးရိမ်မှုမှာ ယာဉ်အသွားအလာ၊ ကျူးကျော်သူများ၊ အလုပ်အကိုင် အခွင့်အလမ်းများ နှင့် မြို့သစ်သို့ သွားလာလက်လှမ်းမီမှုတို့ဖြစ်ကြကြောင်း ၂၀၁၉ ဇန်နဝါရီ နှင့် ဖေဖော်ဝါရီတို့တွင် နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်းကွင်းဆင်းလေ့လာမှုမှ အတည်ပြုခဲ့ပါသည်။

ထိခိုက်မှုဆန်းစစ်ခြင်းတွင် ထည့်သွင်းဆောင်ရွက်ရန် ဆူညံသံ၊ ရေအောက်ရေအရည်အသွေး၊ နှင့် မြေဆီလွှာအရည် အသွေး၊ မြေပေါ်ရေအရည်အသွေး နှင့် ကုန်းပေါ် နှင့် ရေထဲရှိ ဇီဝမျိုးစုံမျိုးကွဲများကို ပတ်ဝန်းကျင်ထိခိုက်မှု ဆန်းစစ် ခြင်း လေ့လာမှုအတွက် ပြုလုပ်ဆောင်ရွက်သွားမည် ဖြစ်ပါသည်။ နမူနာကောက်ယူမှုအစီအစဉ်ကို ဇယား (၁.၃) တွင် တင်ပြထားပါသည်။

ဇယား ၁.၃ နမူနာကောက်ယူမှုအစီအစဉ်

ခေါင်းစဉ်	ပါရာမီတာများ	စုစုပေါင်း
လေထု အရည်အသွေး	NO2, SO2,	၂၇
လေထု အရည်အသွေး	PM10, PM2.5	၁၈
ဆူညံသံ	အသံအဆင့် (LAeq in dB(A))	၂၇
မြေအောက်ရေ အရည်အသွေး	pH တန်ဖိုး၊ အပူချိန်၊ ဇီဝဓာတ် အောက်ဆီဂျင် ပါဝင်မှု (BOD)၊ ဓာတ် အောက်ဆီဂျင်ပါဝင်မှု (COD)၊ ဆီ နှင့် အဆီ၊ နိုက်ထရိုဂျင်ပါဝင်မှု၊ ဖော့စဖရပ်ပါဝင်မှု (TP)၊ အစိုင်အခဲပါဝင်မှု (TSS)၊ ဖီနောပါဝင်မှု၊ ပြဒါး (Hg)၊ အာဆင်နစ်ဓာတ် (As)၊ သွပ်ဓာတ် (Zn)၊ ကြေးနီဓာတ် (Cu)၊ ထရီမီယမ်ဒြပ်ပါဝင်မှု (Cr)၊ အမိုးနီးယားဓာတ်၊ ကလိုရင်းဓာတ်၊ ဆာလ ဖိုက်၊ နိုက်ထရိုဂျင်၊ ဖလိုရိုက်၊ ကာလီဖောင်းပါဝင်မှု။	၇၂
မြေပေါ်ရေ အရည်အသွေး	pH တန်ဖိုး၊ အပူချိန်၊ ဇီဝဓာတ် အောက်ဆီဂျင် ပါဝင်မှု (BOD)၊ ဓာတ် အောက်ဆီဂျင်ပါဝင်မှု (COD)၊ ဆီ နှင့် အဆီ၊ နိုက်ထရိုဂျင်ပါဝင်မှု၊ ဖော့စဖရပ်ပါဝင်မှု (TP)၊ အစိုင်အခဲပါဝင်မှု (TSS)၊ ဖီနောပါဝင်မှု၊ ပြဒါး (Hg)၊ အာဆင်နစ်ဓာတ် (As)၊ သွပ်ဓာတ် (Zn)၊ ကြေးနီ (Cu)၊ ထရီမီယမ်ဒြပ်ပါဝင်မှု (Cr)၊ အမိုးနီးယားဓာတ်၊ ကလိုရင်းဓာတ်၊ ဆာလ ဖိုက်၊ နိုက်ထရိုဂျင်၊ ဖလိုရိုက်၊ ကာလီဖောင်းပါဝင်မှု။	၇၂
မြေဆီလွှာ အရည်အသွေး	pH၊ သံဓာတ် (Fe)၊ ကက်ဒမီယံ (Cd)၊ ခဲ (Pb)၊ သွပ် (Zn)၊ ကြေးနီ (Cu)၊ အစိုဓာတ်ပါဝင်မှု	၇၂
ဇီဝမျိုးစုံမျိုးကွဲ	နေရင်းဒေသပုံဖော်မှုများ ဆောင်ရွက်ခြင်း နှင့် ဇီဝမျိုးစုံမျိုးကွဲအညွှန်း များ တည်ဆောက်ခြင်း၊ မျိုးစိတ်များစာရင်း နှင့် ခြိမ်းခြောက်ခံ မျိုးစိတ်များသတ်မှတ်ခြင်း။ ရေထဲရှိ သက်ရှိသတ္တဝါများနှင့်စပ်လျဉ်း၍ တံငါသည်များ နှင့် ဒေသ တွင်းဈေးရှိလူများနှင့် အင်တာဗျူးများ ဆောင်ရွက်မှုတို့ ပါဝင်မည် ဖြစ်ပါသည်။	၉

ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းလုပ်ငန်းစဉ်၏ အစိတ်အပိုင်းအနေဖြင့်၊ နယ်ပယ်အတိုင်းအတာသတ်မှတ်ခြင်း အစီရင်ခံစာတွင် လူမှုရေးအခြေခံအချက်အလက်များကို ခေတ်နှင့်အညီပြုလုပ်ရန် အသေးစိတ်လူမှုရေး အခြေခံအချက်အလက်များ စုဆောင်းမှုကို ဆောင်ရွက်သွားမည် ဖြစ်ပြီး ဒေသခံပြည်သူလူထု၏ လူမှုစီးပွား အခြေအနေများအပေါ် သက်ရောက်နိုင်ခြေရှိမှုကို အကဲဖြတ်သွားပါမည်။ အခြေခံလေ့လာခြင်းသည် စီမံကိန်းကြောင့် ထိခိုက်သက်ရောက်ခံရသူများ (PAP) ၏ လူမှုစီးပွားအခြေအနေများကို ခြုံငုံလေ့လာထား ပါသည်။ ဤအခြေခံအချက်အလက် ကို မြို့နယ်များအားလုံးရှိ ဒေသခံရပ်ရွာလူထု နှင့် အခြားစိတ်ဝင်စားသည့် သက်ဆိုင်သူများနှင့် အုပ်စုအလိုက် ဆွေးနွေးခြင်း နှင့် အင်တာဗျူးတို့အပေါ် အခြေပြု၍ တည်ဆောက်သွားမည် ဖြစ်ပါသည်။ လူဦးရေဆိုင်ရာ၊ ဝင်ငွေ၊ အခြေခံအဆောက်အအုံ၊ စိုက်ပျိုးမွေးမြူမှု နှင့် အသက်မွေးဝမ်းကျောင်းတို့နှင့် ပတ်သက်၍ ကျေးရွာ နှင့် အိမ်ထောင်စု အဆင့်သတင်းအချက်အလက်များကို သိရှိရန် စစ်ဆေးစာရင်းလွှာများ နှင့် အင်တာဗျူးများ နှစ်ရပ်လုံးကိုအသုံးပြု လျက် သက်ဆိုင်သူများကို အောက်ပါတို့အရ မေးမြန်းသွားမည် ဖြစ်ပါသည်။ -

- **ကျေးရွာ နှင့် အိမ်ထောင်စုဆိုင်ရာ မေးခွန်းများ** - လူဦးရေဆိုင်ရာ အချက်အလက်များ၊ မြေယာပိုင်ဆိုင်မှု၊ မြေယာပိုင် ဆိုင်သူများ နှင့် မြေယာမပိုင်ဆိုင်သူများ၏ အရေအတွက်၊ စာသင်ကျောင်းအဆောက်အအုံနေရာ အမျိုးအစား များ၊ ချေးငွေရရှိမှု၊ ဝင်ငွေရင်းမြစ်များ၊ နေထိုင်မှုစံသတ်မှတ်ချက်များ၊ ဈေးသို့သွားလာနိုင်မှု၊

ကျန်းမာရေးအဆောက်အအုံနေရာရှိမှု၊ ရေရင်းမြစ်သို့ လက်လှမ်းမီမှု၊ ချက်ပြုတ်ရေးလောင်စာအမျိုးအစား အသုံးပြုမှုများ၊ ထင်းခွေမှု၊ ရောဂါဘယအမျိုးအစား၊ လျှပ်စစ်ဓာတ်အားရရှိမှု၊ ဝင်ငွေရှိအိမ်ထောင်စုများအရေ အတွက်၊ အခြေခံ အဆောက်အအုံ၊ သက်မွေးဝမ်းကျောင်းအမျိုးအစားအရ လူ အရေအတွက်၊ အိမ်မွေး တိရစ္ဆာန်အမျိုးအစားအရ လူအရေအတွက်၊ အထောက်အကူပြုရေးအဖွဲ့များ၏ အသင်းဝင်အရေအတွက် နှင့် အစည်းအဝေးများ၊ နှင့် အထောက်အကူပြုရေးအဖွဲ့မှ အထောက်အကူအမျိုးအစားနှင့် အထောက်အကူပြုရေး အဖွဲ့သို့ ထည့်ဝင်မှု။

- **တောင်သူများအတွက် မေးခွန်းများ** - မြေယာပိုင်ဆိုင်မှုအရွယ်အစား နှင့် ပုံသဏ္ဌာန်၊ ဝမ်းရေးဖူလုံမှုအဆင့်၊ စိုက်ပျိုးရေးတွင် အမျိုးသားများ နှင့် အမျိုးသမီးများ၏ အခန်းကဏ္ဍ၊ အစိုးရ၏ စိုက်ပျိုးရေးဆိုင်ရာစီမံချက်၊ ချေးငွေရင်းမြစ်၊ ရရှိသောပမာဏ၊ အတိုးနှုန်း နှင့် ပေးချေသည့်နည်းလမ်း၊ အငှားလုပ်အားအသုံးပြုခြင်း၊ ကျားမအပေါ်မူတည်၍ ပေးသည့် လုပ်အားခပမာဏ၊ လုပ်အား၊ ရေသွင်းမှု၊ ဓာတ်မြေဩဇာ နှင့် သယ်ယူပို့ ဆောင်မှု နှင့် မြေယာငှားရသည့် ကုန်ကျစရိတ်၊ ဝင်ငွေရသီးနှံဈေးကွက်၊ အိမ်မွေတိရစ္ဆာန်မွေးသည့် အမျိုးအ စား၊ အိမ်ထောင်ဦးစီးအရေအတွက်၊ အိမ်တွင်း စားသုံးမှုရာခိုင်နှုန်း နှင့် ဈေးအတွက် ရာခိုင်နှုန်းတို့အရ အိမ် ထောင်စု အရေအတွက်၊ ကျွဲစားနွားစားသိုမှီးမှုရင်းမြစ်နှင့် ကိစ္စရပ်များ၊ သီးနှံဖြင့် သီးနှံလည်ပတ်မှု။
- **အမျိုးသမီးများအတွက် မေးခွန်းများ** - ကျေးရွာရှိ အမျိုးသမီးအရေအတွက်၊ အမျိုးသမီးအိမ်ထောင်ဦးစီးအရေ အတွက်၊ ရပ်ရွာတွင် အမျိုးသမီးများ၏ အခန်းကဏ္ဍ၊ ကျားမရေးရာအခွင့်အလမ်းဆိုင်ရာ ညီမျှမှုနှင့်ပတ်သက် ၍ အမြင်၊ အိမ်ထောင်စုဆုံးဖြတ်ချက်အပေါ် လွှမ်းမိုးမှု၊ အမျိုးသမီးများနှင့်ပတ်သက်သည့် ပြဿနာများ၊ ဘဝနေထိုင်မှုအရည်အသွေးနှုန်း၊ အမျိုးသမီးများ၏ ကျန်းမာရေးအခက်အခဲများ၊ ရောဂါဖြစ်ခြင်း၊ သေဆုံးမှု ဖြစ်ခြင်း နှင့် ကျားမဆိုင်ရာအပေါ် သက်ရောက်မှု၊ အမျိုးသမီးများ၏ အလုပ်ခန့်ခြင်းတွင် အမျိုးသမီးများ အတွက် အခက်အခဲ၊ နှင့် စိုက်ပျိုးမွေးမြူရာတွင် ပါဝင်သည့်အမျိုးသမီးများရာခိုင်နှုန်း။

စီမံကိန်းသည် ဆိုးကျိုးသက်ရောက်မှုရှိနိုင် မရှိနိုင်ကို ဆန်းစစ်ရန် လူမှုအခြေခံအချက်အလက်များကောက်ယူမှု (ဥပ မာ - လယ်သမားများ၊ အမျိုးသမီးများ နှင့် အုပ်စုအလိုက်ဆွေးနွေးမှုများ) နှင့် အများပြည်သူနှင့်တိုင်ပင်ဆွေးနွေးမှု တို့ကို ဆိပ်ကြီးခနောင်တို၊ တွံတေး၊ ကြည့်မြင်တိုင်၊ လှိုင်သာယာ၊ ဒလ နှင့် အလုံမြို့နယ်တို့၌ ဆောင်ရွက်သွားမည် ဖြစ်ပါသည်။

ပတ်ဝန်းကျင်ထိခိုက်မှုဆန်းစစ်ခြင်းဆိုင်ရာ လုပ်ထုံးလုပ်နည်းအရ NYDC ၏ ဝက်ဘ်ဆိုက် နှင့် Facebook စာမျက်နှာ၊ သတင်းစာများ နှင့် စီမံကိန်းနယ်မြေဧရိယာတစ်ဝိုက်တွင် ဆိုင်းဘုတ်များဖြင့် သတင်းအချက်အလက်များကို ထုတ်ပြန်ကြေညာသွားမည် ဖြစ်ပါသည်။

2. CONTEXT OF THE PROJECT

2.1 Project Background

The **New Yangon Development Company, Ltd.** (NYDC), incorporated under the Yangon Regional Government and The Special Companies Act, plans to develop the New Yangon City and its future extension area.

The New Yangon City is located in a semi-urban to rural area in Seikgyi Kanaungto, Twantay, Hlaing Tharyar and Kyee Myin Daing Townships to the West of Yangon. The New Yangon City covers a total of 88.3 square kilometres (sq.km). For Stage 1 of Phase 1, the New Yangon City is split into the following six groups based on the types of facilities (Figure 2.1):

- Bridges:
 - Bridge 1: connecting Kyee Myin Daing Township (near Bagaya Road and Kyee Myin Daing Kanner Junction) to the Project Area; and
 - Bridge 2: connecting Hlaing Tharyar Township to the Project Area.
- Roads:
 - Permanent Auxiliary Support Infrastructure: Road 1, Road 2, Road 3, Sub-arterial roads, Collector roads, and,
 - Storm water network.
- Water:
 - Water treatment plant;
 - Raw water pipeline;
 - Treated water distribution lines; and
 - Water intake point.
- Wastewater:
 - Wastewater pumping stations;
 - Wastewater pipe network;
 - Sewage water tanks; and
 - Wastewater treatment plant and its associated subsidiary facilities.
- Power:
 - Transformer substation (one 230 kV, two 66 kV) and switching station (one 33 kV);
 - Main Transmission lines (from National Grid / Independent Power Producer (IPP) to 230 kV substation); and,
 - Distribution lines (internal transmission lines) including 66 kV, 33 kV and 11 kV lines.
- Industrial Zone:
 - Area for industrial facilities covering approximately 13 sq.km.

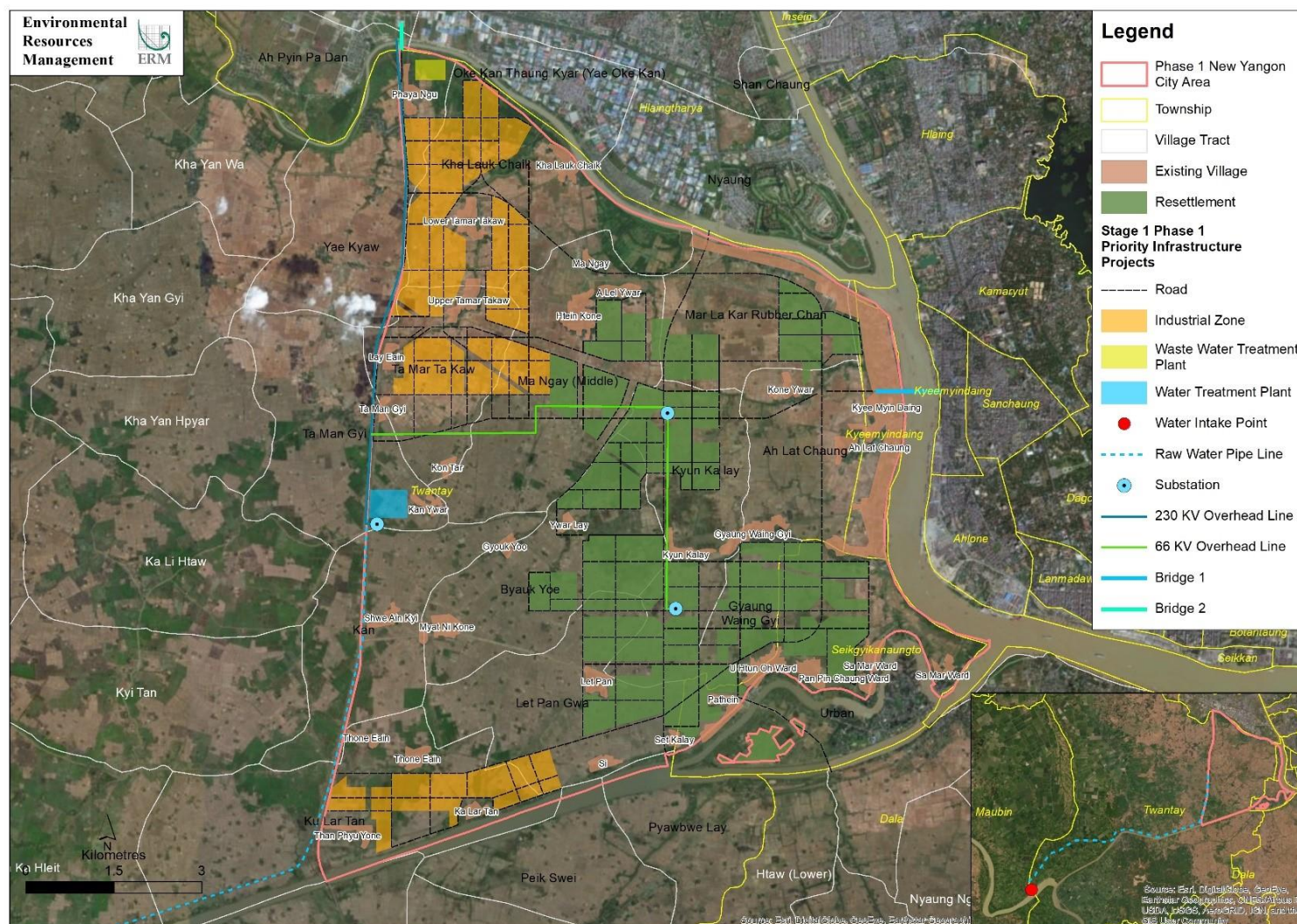


Figure 2.1 Overview of Stage 1 Phase 1 Priority Infrastructure Projects

The overall Phase 1 Project Area would be 88.3 sq.km. The masterplan includes residential areas of 30.93 sq.km, commercial areas of 6.41 sq.km, industrial areas of 22.37 sq.km, transport and logistics of 1.51 sq.km, green spaces of 12.01 sq.km, villages of 11.97 sq.km, civic amenities of 2.33 sq.km, and utilities (physical infrastructure) of 0.77 sq.km. These will be considered in a Strategic Environmental Assessment (SEA) that will also cover the New Yangon City.

The construction periods for the abovementioned facilities are summarized in Table 2.1.

Table 2.1 Construction Period for Six Groups of Facilities

Item	Detail Items	Construction Period (Years)	Target Construction Start Date (Estimate)	Target Completion Date (Estimate)
Bridges	Yangon River Bridge (Bridge 1)	2	January 2020	January 2022
	Pan Hlaing River New Bridge (Bridge 2)	1.5	January 2022	July 2023
Roads	Road 1	2.5	July 2022	January 2025
	Road 2	2	January 2020	January 2022
	Road 3	2.5	July 2021	January 2024
	Sub-arterial road*	3 / 8	January 2020	January 2023 / January 2028
	Collector road #	3 / 8	January 2020	January 2023 / January 2028
Industrial Zone		8	January 2020	January 2028
Water	Water Treatment Plant	2.5	January 2020	July 2022
	Water Intake Facilities and Transmission Pipe	2.5	January 2020	July 2022
Wastewater	Wastewater Treatment Plant; and Wastewater and Storm Water Collection System	2.5	January 2020	July 2022
Power	Substations and Transmission Lines	3	January 2020	January 2023

* The sub-arterial roads will be constructed in line with the development phasing of the Industrial Zone and Resettlement areas. As such, the target completion date depends on where the roads will be paved.

The collector roads will be constructed in line with the development phasing of the Industrial Zone and Resettlement areas. As such, the target completion date depends on where the roads will be paved.

Source: CCCC, 2019

This Scoping Report covers the “Water” facilities (Project). Separate Initial Environmental Examination (IEE) / Environmental Impact Assessments (EIAs) have been prepared to cover the bridges, roads, power, waste water treatment and industrial zone facilities. Cumulative impacts of all facilities for the New Yangon City will be addressed in each IEE / EIA.

2.2 Name and Address of the Proponent

Contact details of the NYDC are provided below:

Address: New Yangon Development Company, 56 Chindwin Road, Kamayut, Yangon, Myanmar

Telephone: +95 (9) 402111525

Email: comments@nydc.com.mm

NYDC's company registration certificate has been included in Appendix D.

2.3 Environmental and Social Experts

Environmental Resources Management (ERM)-Myanmar, Limited (ERM) has been selected by NYDC to conduct the EIAs for the individual components of the New Yangon City Phase 1. The environmental and social consultants that will prepare the EIA Study are presented in Table 2.2. ERM will be supported by local Myanmar consultants, Environmental Quality Management (EQM) and Resource and Environment Myanmar (REM), to conduct the public consultation and environmental baseline surveys.

2.4 Purpose of the Scoping Report

This Scoping Report focuses on the issues that are most important for Project planning, decision-making, and stakeholder interests by mapping the potential interactions between Project activities, which have the potential to cause an impact, and environmental and social receptors. The scoping exercise consisted of desk-based studies, site visits, and engagement activities to inform the baseline of the Project.

This Scoping Report will present the following information:

- An overview of the environmental and social policy, legal, and institutional framework related to the proposed Project (Section 3);
- Details on the Project description and alternatives considered (Section 4);
- A description of the baseline environment (Section 5);
- The methodology and approach to scoping, the key potential environmental and social impacts, as well as proposed mitigation measures (Section 6);
- The stakeholder identification, engagement plan, and disclosure plan for the Project (Section 7);
- Summary of the conclusions of the Scoping Study and recommendations for the EIA Study (Section 8); and

A Terms of Reference (ToR) that will help to determine the scope of the full EIA Report and Environmental Management Plan (EMP) including a description of the data gaps, further examination, studies, and actions required in order to obtain the required data to complete the EIA (Section 9).

Table 2.2 Key Environmental and Social Consultants for the Project

Name	Organisation	Academic Experience	Years' Experience	Area of Expertise	MONREC Consultation Registration Scheme	Responsibility
Craig Reid	ERM	BSc (Hons) Marine Biology	20	Ecology and Biodiversity. Risk Management and Hazard Identification.	ERM (No. 0016)	Overall accountability for EIA documentation
Rebecca Summons	ERM	MSc Marine Environmental Protection	8	Ecology and Biodiversity. Risk Management and Hazard Identification.	ERM (No. 0016)	Senior review of EIA documentation Writing the environmental baseline and impact assessment chapters
Myat Mon Swe	ERM	M.Eng Energy and Environmental Management	>10	Socio-economic. Facilitation of Meeting. Environmental Engineer.	Applied for under ERM (No. 0016)	Review the public consultation materials and social baseline write up
Khin Su Su Naing	ERM	MA International and Community Development	>10	Socio-economic. Facilitation of Meeting	Applied for under ERM (No. 0016)	Leading public consultation and stakeholder engagement
Aung Myo Win	ERM	BA English	3	Socio-economic. Facilitation of Meeting	Applied for under ERM (No. 0016)	Assisting with public consultation activities and social baseline write up
Sandi Auung Moe	ERM	B.Agr.Sc (Agribusiness Management), M.Agr.Sc (Agricultural Economics)	5	Socio-economic. Facilitation of Meeting	Applied for under ERM (No. 0016)	Assisting with public consultation activities and social baseline write up
Zinthaw Oo	ERM	BSc Engineer and Safety	3	Socio-economic. Facilitation of Meeting	Applied for under ERM (No. 0016)	Assisting with public consultation activities and social baseline write up

Name	Organisation	Academic Experience	Years' Experience	Area of Expertise	MONREC Consultation Registration Scheme	Responsibility
Thapye Myo	ERM	BSc Renewable Energy Engineering Diploma in Law	5	Legal Chapter	Applied for under ERM (No. 0016)	Writing the legal chapter of the EIA documentation
Zoe To	ERM	BA Anthropology, MSc Anthropology	2	Socio-economy	Applied for under ERM (No. 0016)	Writing the social baseline and impact assessment chapters of the EIA documentation
Tom Glenwright	ERM	PhD Marine Ecology	16	Water Pollution Control, Ground water and Hydrology	ERM (No. 0016)	Writing the physical (water) baseline and impact assessment chapters of the EIA documentation
Stuart Mackenzie	ERM	BSc Environmental Geography	10	Waste Management	ERM (No. 0016)	Writing the waste impact assessment chapter and Management Plan of the EIA documentation
Piers Touzel	ERM	MA Business Administration	15	Socio-Economy, Land use	ERM (No. 0016)	Reviewing the social baseline, impact assessment, and management plans
Man Ping To (Mandy To)	ERM	MSc Environmental Management	20	Noise and Vibration	ERM (No. 0016)	Writing the physical (noise) baseline and impact assessment chapters of the EIA documentation
Herve Bonnel	ERM	M.En Mechanical Engineer	19	Environmental Engineer	ERM (No. 0016)	Reviewing the Project Description chapter provided by NYDC
Chi Hung Wan (Frank Wan)	ERM	MSc Waste Management	30	Geology and Soil, Waste Management,	ERM (No. 0016)	Reviewing the physical baseline and impact assessment chapters of the EIA documentation

Name	Organisation	Academic Experience	Years' Experience	Area of Expertise	MONREC Consultation Registration Scheme	Responsibility
Tam Man Chong (Jovy Tam)	ERM	MA Marine Science and Ecology	10	Fisheries. Marine Ecology	ERM (No. 0016)	Reviewing the environmental baseline and impact assessment chapters of the EIA documentation
Ohnmar Tin May	EQM	PhD Environmental Toxicology, Technology and Management	14	Socio-economic baseline and impact assessment, Facilitation of Meeting	EQM (No. 0009)	Lead sub-consultant support for public consultation and stakeholder engagement deliverables
Thiha Htut	EQM	BSc Microbiology	5	Public Consultation	EQM (No. 0009)	Lead in field sub-consultant support for public consultation and stakeholder engagement deliverables
No No Lwin	EQM	BE Nautical Architecture	4	Public Consultation	EQM (No. 0009)	Support in field sub-consultant support for public consultation and stakeholder engagement deliverables
Thet Paing Phyo	EQM	BSc Forestry	6	Public Consultation	EQM (No. 0009)	Support in field sub-consultant support for public consultation and stakeholder engagement deliverables
Myat Myitzu	EQM	BSc Forestry	6	Public Consultation	EQM (No. 0009)	Support in field sub-consultant support for public consultation and stakeholder engagement deliverables
Soe Yu Htun	REM	BSc (Geology)	5	Environmental Baseline Surveys	REM (No 0002)	Undertaking the noise baseline surveys and write up of survey reports

Name	Organisation	Academic Experience	Years' Experience	Area of Expertise	MONREC Consultation Registration Scheme	Responsibility
De Hlaing Zaw.	REM	M.Res. (Geology)	4	Environmental Baseline Surveys	REM (No 0002)	Undertaking the noise baseline surveys and write up of survey reports
Myo Thura	REM	BSc (Geology)	6	Environmental Baseline Surveys	REM (No 0002)	Undertaking the noise baseline surveys and write up of survey reports
Lwin Moe	REM	BA (Geography)	6	Environmental Baseline Surveys	REM (No 0002)	Undertaking the noise baseline surveys and write up of survey reports
Nay Min Aun	REM	BSc (Geology)	7	Environmental Baseline Surveys	REM (No 0002)	Undertaking the water and soil baseline surveys and write up of survey reports
Thandar Tun	REM	MSc (Geology)	3	Environmental Baseline Surveys	REM (No 0002)	Undertaking the water and soil baseline surveys and write up of survey reports
Chan Thar	REM	BSc (Geology)	4	Environmental Baseline Surveys	REM (No 0002)	Undertaking the water and soil baseline surveys and write up of survey reports
Kyaw Bala	REM	BSc (Geology)	1	Environmental Baseline Surveys	REM (No 0002)	Undertaking the water and soil baseline surveys and write up of survey reports
Thet Naing Aung	REM	BSc (Zoology)	11	Environmental Baseline Surveys	REM (No 0002)	Undertaking the ornithology (birds) baseline surveys and write up of survey reports
Myat Ko Ko Hein	REM	BSC (Forestry)	5	Environmental Baseline Surveys	REM (No 0002)	Undertaking the flora and habitat mapping baseline surveys and write up of survey reports

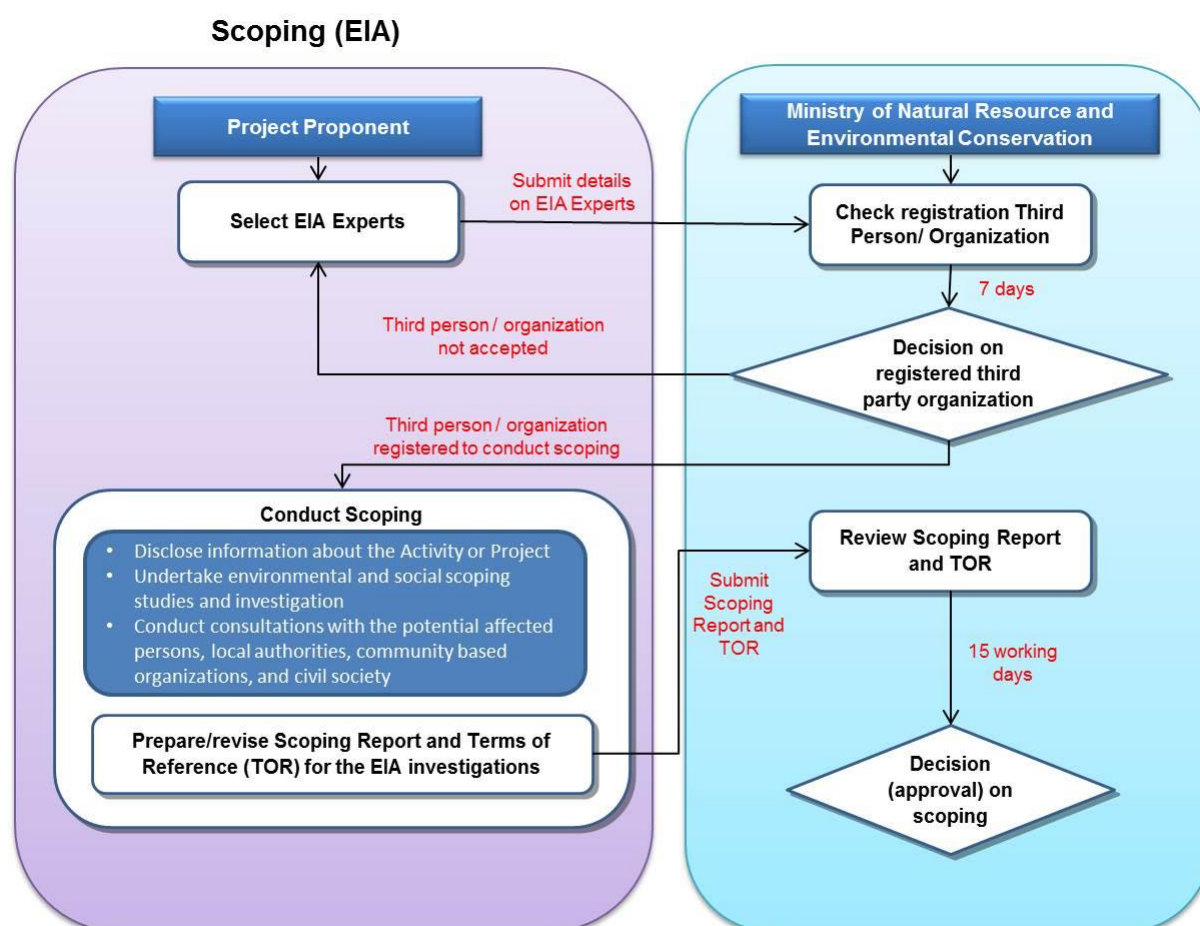
Name	Organisation	Academic Experience	Years' Experience	Area of Expertise	MONREC Consultation Registration Scheme	Responsibility
Wai Phyto Han	REM	MSc (Environmental Planning & Management)	3	Environmental Baseline Surveys	REM (No 0002)	Undertaking the flora baseline surveys and write up of survey reports
Swe Wut Hmone	REM	MSc (Botany)	4	Environmental Baseline Surveys	REM (No 0002)	Undertaking the flora baseline surveys and write up of survey reports
Naing Naing Win	REM	MSc (Zoology)	9	Environmental Baseline Surveys	REM (No 0002)	Undertaking the mammal and reptile baseline surveys and write up of survey reports
Than Than Htay	REM	MSc (Zoology)	6	Environmental Baseline Surveys	REM (No 0002)	Undertaking the entomology (insects) baseline surveys and write up of survey reports
Myat Thet Khaing	REM	M.Res (Zoology)	4	Environmental Baseline Surveys	REM (No 0002)	Undertaking the aquatic baseline surveys and write up of survey reports
Nyan Linn Maung	REM	BSc (Microbiology)	5	Environmental Baseline Surveys	REM (No 0002)	Support the fauna baseline surveys and write up of survey reports

3. OVERVIEW OF THE POLICY, LEGAL AND REGULATORY FRAMEWORK

The following section presents a summary of the regulatory requirements applicable to the EIA, Myanmar and international regulations, conventions, and guidelines relevant to the Project.

3.1 Overview of the Scoping Procedure in Myanmar

Figure 3.1 outlines the scoping phase of the EIA Process according to the EIA Procedure (2015).



Source: EIA Procedure, 2015

Figure 3.1 Scoping within the Myanmar EIA Procedure

3.2 Overview of Myanmar Regulatory Framework

3.2.1 Myanmar Regulatory Authorities

Key ministries, agencies, and state-owned enterprises that have jurisdiction or are typically involved in environmental and social impact assessment related to the Project include the following:

- **Ministry of Natural Resources and Environmental Conservation (MONREC):** The ECD of MONREC has ultimate responsibility in the environmental impact assessment process in Myanmar.
- **Ministry of Transport and Communication (MOTC):** The Directorate of Water Resources and Improvement of River Systems, and The Department of Meteorology and Hydrology are responsible for the management of water resources.

- **Ministry of Agriculture, Livestock and Irrigation (MOALI):** The Department of Agriculture, Department of Agricultural Land Management and Statistics, Department Irrigation and water utilization management and Department of Rural Development are responsible for land management and livelihood of the community.
- **Yangon Region Government (YRG):** YRG is the cabinet of Yangon Region. It is responsible for overseeing the development of new Yangon City project.
- **Yangon City Development Committee (YCDC):** YCDC is the administrative body of Yangon. It is responsible for the city's waste management, business licences and registries, water supply, roads and bridges, and environmental regulations.

The key laws related to environmental and social issues and hence relevant to the Project are listed in Table 3.1. A more detailed list of Myanmar legislation relevant to the Project will be included in the EIA Report.

3.2.2 Myanmar Legislation Relevant to the Project

Laws relating to environmental and social issues related to the Project and hence their relevance to the EIA Study are included in Table 3.1. The Project Proponent will commit to follow the laws and regulations stated in Table 3.1.

Table 3.1 Myanmar Legislation and Relevance to Project

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
The National Environment Policy, 1994		Under this policy, the main environmental body was the National Commission for Environmental Affairs (NCEA). Prior to the establishment of MONREC, environmental conservation was undertaken by various ministries and departments. In 1990, the NCEA was established to advise the government on environmental policy, to act as a focal point, as a coordinating body for environmental affairs, and to promote environmentally sound and sustainable development. The NCEA's main mission is to ensure sustainable use of environmental resources and to promote environmentally sound practices in industry and other economic activities, objectives and mandates.
The Constitution of the Republic of the Union of Myanmar, 2008	Article 37 (a)(b) , 45, 390	<p>The Constitution of the Union of Myanmar is the supreme law of the country and has provisions regarding the protection of the environment in Myanmar.</p> <p>The Project Proponent commits to comply as these three Articles in the Constitution provide a basis for legalising and institutionalising environmental health impact assessment and social impact assessment. They stipulate that:</p> <ul style="list-style-type: none"> ■ The Union is the ultimate owner of all lands and all natural resources above and below the ground, above and beneath the water and in the atmosphere in the Union; The Union shall enact necessary law to supervise extraction and utilization of State owned natural resources by economics forces; ■ The Union shall protect and conserve natural environment. ■ Every citizen has the duty to assist the Union in carrying out the following matters: <ul style="list-style-type: none"> (a) preservation and safeguarding of cultural heritage; (b) environmental conservation; (c) striving for development of human resources; (d) protection and preservation of public property.
Environmental Conservation Law, 2012	Clause 7(o), 14,15, 29	<p>The Project Proponent commits to comply with the following:</p> <ul style="list-style-type: none"> ■ That MONREC has the right to manage a proponent to (1) provide compensation for environmental impact and contribute funds, (2) the need for prior permission from MONREC for businesses that have been categorized for potentially causing impact on the environment and (3) the right to issuing permit with terms and conditions relating to environmental conservation. ■ To treat, emit, discharge and deposit substances which cause pollution in the environment in accordance with stipulated environmental quality standards. ■ That the owner or occupier of any business, material or place which causes a point source of pollution have to install or use an on-site facility or controlling equipment in

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>order to monitor, control, manage, reduce or eliminate environmental pollution. If it is impracticable, it has to be arranged to dispose the wastes in accordance with environmentally sound methods.</p> <p>To not violate any prohibition contained in the rules, notifications, orders, directives and procedures under the Environmental Conservation Law.</p>
Environmental Conservation Rules, 2014	Rule 69(a) (b)	<p>The Project Proponent commits:</p> <ul style="list-style-type: none"> ■ Not to emit, cause to emit, dispose, by any means, the pollutants and the hazardous waste or material (stipulated as such under the Law) at any place which may affect the public directly or indirectly. ■ Not to damage the ecosystem and the natural environment which is changing due to such system, except for carrying out with the permission of MONREC in the interest of the people.
Environmental Impact Assessment Procedure, 2015	Clause 87, 102(a)(b), 103, 104, 105, 106, 107, 108, 110, 113, 115, 117	<p>The EIA Procedure sets out the procedures for completing an IEE, EIA and/or Environmental Management Plan (EMP) in Myanmar. This includes information on project categorisation, responsibilities of project developers and ministries, EIA review, monitoring and auditing, amongst other issues.</p> <p>The Project Proponent commits to bear full legal and financial responsibility:</p> <ul style="list-style-type: none"> ■ For their actions and omissions and those of its contractors, subcontractors, officers, employees, agents, representatives, and consultants employed, hired, or authorised by the Project acting for or on behalf of the Project, in carrying out work on the Project; and ■ To support programs for livelihood restoration and resettlement in consultation with the Project Affected Peoples (PAP), related government agencies, and organizations and other concerned persons for all Adverse Impacts until PAPs have achieved socio-economic stability at a level not lower than that in effect prior to the commencement of the Project. <p>For EMP, the Project Proponent commits:</p> <ul style="list-style-type: none"> ■ To implement the EMP, all Project commitments, and conditions, ■ To ensure that all contractors and subcontractors of the Project comply fully with all applicable Laws, the Rules, this Procedure, the EMP, Project commitments and conditions when providing services to the Project. ■ To be responsible for, and to fully and effectively implement the requirements set forth in Environmental Compliance Certificate (ECC), applicable Laws, Rules, EIA Procedure and standards. ■ Project commitments and conditions when providing services to the Project and inform the Ministry with detailed information as to the propose project's potential adverse impacts. <p>For monitoring and reporting, Project Proponent commits:</p>

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> ■ To notify and identify in writing to the Ministry, providing detailed information as to the proposed Project's potential Adverse Impacts. ■ To engage in continuous, proactive, and comprehensive self-monitoring of the Project and activities related thereto, all Adverse Impacts, and compliance with applicable laws, the Rules, this EIA Procedure, standards, the ECC, and the EMP during all phases of the Project (pre-construction, construction, operation, decommissioning, closure and post-closure). ■ To notify and identify in writing to the Ministry for any breaches of his obligations or other performance failures or violations of the ECC and EMP as soon as reasonably possible and in any event, in respect of any breach which would have a serious impact or where the urgent attention of the Ministry is or may be required, to undertake within not later than twenty-four (24) hours, and in all other cases within seven (7) days of the Project Proponent becoming aware of such incident. ■ To submit monitoring reports to the Ministry not less frequently than every six (6) months, as provided in a schedule in the EMP, or periodically as prescribed by the Ministry. ■ To make a monitoring report as contemplated in Article 108 and Article 109 in accordance with the EMP schedule, (except as may relate to National Security concerns) publicly available on the Project's website, at public meeting places (e.g. libraries, community halls) and at the Project offices within ten (10) days of completing ■ To submit a digital copy of a monitoring report within ten (10) days of receiving such request via email or as may otherwise be agreed upon with the requestor for the request of any organisation or person. <p>For the purposes of monitoring and inspection, the event of emergency, the Project Proponent commits to</p> <ul style="list-style-type: none"> ■ Grant the ministry and/or its representatives, at any time during normal working hours, access to the Project's offices and to the Project site and any other location at which the Project activities or activities related to the Project are performed; ■ Grant, from time to time as and when the Ministry may reasonably require, the Ministry access to the Project's offices and to the Project site and any other location at which the Project activities or activities related to the Project are performed. ■ Grant full and immediate access to the Ministry at any time as may be required by the Ministry in the event of an emergency, or where, in the opinion of the Ministry, there is or may exist a violation or risk of violation of the compliance by the Project with all applicable environmental and social requirements. ■ Ensure that the Ministry's rights of access can extend to access by the Ministry to the Project's contractors and subcontractors. <p>For the Conditions and Revisions to Conditions prescribed in ECC, the Project Proponent commits to commence the implementation of the Project in accordance with the conditions</p>

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		attached to the ECC and including the EMP, within such time as may be prescribed by the Ministry upon receipt of the written approval from the relevant authority.
Environmental Quality (Emissions) Guidelines (EQEG), 2015		The Project Proponent commits to comply with the EQEG guidelines and its setting out for emission standards for air, noise, and effluent discharges for sector specific operations. The Project Proponent considers this emissions standards in its environment impact assessment and environmental management plan.
Myanmar Climate Change Policy, 2019	Article 12	<p>In actions to achieve the purpose of this Policy, Myanmar will be guided, inter alia, by the following guiding principles:</p> <p>(a) Sustainable development - Develop sustainably to meet the needs of the present without compromising the ability of future generations to meet their own needs, by ensuring the promotion of an economically, socially and environmentally sustainable future and a fair and equitable society;</p> <p>(b) Precaution - Take cost-effective measures to avoid, minimise and protect from environmentally harmful consequences where there are threats of serious or irreversible damage even if there is a lack of full scientific certainty;</p> <p>(c) Prevention - Take anticipatory action to prevent or minimise environmental damage before it occurs by avoiding, prohibiting or controlling threatening activities;</p> <p>(d) Environmental integrity - Promote, protect and conserve the natural environment and recognise its complete and intrinsic value, whether tangible or non-tangible, economic or non-economic, to the natural, cultural and spiritual heritage of Myanmar;</p> <p>(e) Shared responsibility and cooperation - Encourage, support and embrace the common and shared responsibility of all people for the protection, conservation, and equitable sharing of benefits and resources of the environment, and encourage wide cooperation across sectors and stakeholders at all levels, including the private sector.</p> <p>(f) Inclusiveness - Engage all people at all levels in decision-making and action, by supporting and embracing their diverse social, economic and cultural perspectives, participation and contributions without discrimination, particularly with respect to gender, ethnicity and age, in order to equitably share the benefits and opportunities of climate change adaptation, mitigation and low-carbon, climate-resilient development;</p> <p>(g) Good governance - Adopt transparent, participatory, and responsive processes to ensure that decision-making at all levels is inclusive, equitable, and accountable to all people in Myanmar, in accordance with the rule of law;</p>

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
	Article 13 (b), (c), (d)	<p>(h) Climate justice and equity - Promote and protect the rights of the people of Myanmar, in particular the poorest, most vulnerable and marginalised segments of society, including indigenous peoples, all ethnic groups, local communities, women, children, the elderly, and persons with disabilities to live in a healthy environment and a fair, equitable and sustainable society;</p> <p>(i) Gender equality and women's empowerment - Promote and protect gender equality and women's equal rights through strengthening gender-responsive climate change policy concerning adaptation, mitigation, finance, technology development and transfer and capacity building, and ensuring full and equal participation of women in decision-making.</p> <p>The Government of the Republic of the Union of Myanmar will take sector-relevant measures to implement this Policy and achieve its purpose by taking the following actions primarily in the six sectoral clusters listed below:</p> <p>Healthy ecosystems;</p> <p>i. Ensure that actions undertaken under Myanmar's national policies on environment, land use and forestry, including Myanmar's National Environmental Policy integrate climate change adaptation and mitigation considerations and are complementary to and/or support actions under this Policy;</p> <p>ii. Promote sustainable natural resource management, preserve, conserve, and rehabilitate biodiversity and natural ecosystems in order to ensure the provision of ecosystem services, recognising their contribution to climate change adaptation and mitigation, the benefits they generate to the people and Myanmar's high dependence on the quality and availability of ecosystem services;</p> <p>iii. Adopt environmentally sound technologies and good management practices, including ecosystem-based adaptation interventions, to improve and maintain the health and resilience of all ecosystems, including forest, water, land, coastal ecosystems and air quality in the face of future climate change impacts;</p> <p>iv. Enhance greenhouse gas sinks and reservoirs, and promote the reduction of greenhouse gas emissions from deforestation and forest degradation through sustainable management of forests and land use planning, based on the best available science;</p> <p>Low-carbon and resilient growth;</p> <p>i. Ensure that actions undertaken under Myanmar's Green Economy Framework and energy policies integrate climate change adaptation and mitigation considerations, are</p>

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>complementary to and/or support actions under this Policy, and encourage public-private partnerships to support a green economy;</p> <p>ii. Ensure that the energy, transport and industry sectors, including infrastructure, are well-integrated among each other, reliable, sustainable and resilient to current and future climate change impacts, recognising that they are vital to Myanmar's economic growth;</p> <p>iii. Decouple Myanmar's continued growth from increasing greenhouse gas emissions and contribute to the global climate change mitigation effort through sustainable, low-carbon energy, transport, industrial, and waste management systems, while ensuring that Myanmar's social and economic development needs are met; iv. Promote and prioritise sustainable and renewable energy sources and energy efficiency, in order to meet Myanmar's growing energy needs and ensure energy security in a low-carbon manner;</p> <p>v. Ensure equitable access to affordable, reliable, sustainable, and modern energy for all as a pathway to inclusive and sustainable development and eradicating poverty;</p> <p>vi. Promote sustainable natural resource extraction through transparent and responsible investments which are consistent with climate change adaptation and mitigation priorities, while generating local employment and economic benefits and protecting the environment and public health;</p> <p>vii. Ensure that urban and inter-city transportation networks and infrastructure are sustainable, low carbon and climate-resilient for all modes of transport, in particular for mass transit;</p> <p>viii. Increase the productivity and resource-efficiency of the industrial sector, an important sector for Myanmar's economy, through low-carbon growth and by developing competitive and innovative green industries, recognising the relative importance of this sector for Myanmar's economy, including its potential for job creation</p> <p>Resilient urban and rural settlements:</p> <p>i. Ensure that actions undertaken under Myanmar's national, sub-national, and local policies and plans on urban and rural settlements, including national building regulations, township and local development plans and land-use plans, integrate climate change adaptation and mitigation considerations and are complementary to and/or support actions under this Policy;</p> <p>ii. Ensure that human settlements are planned and developed in a climate-resilient manner and incentivise low-carbon approaches, while promoting long-term inclusivity, liveability, economic development and a high quality of life in rural and urban areas, recognising the</p>

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>interdependencies between urban and rural areas and the potential impact of climate change on rural urban migration, food security, water supply and livelihoods;</p> <p>iii. Ensure the active involvement of city, township and village stakeholders in identifying climate change challenges at local level, and devise plans, strategies and practical actions to adapt to climate change, mitigate its effects, and develop in a sustainable low carbon manner;</p> <p>iv. Ensure that territorial spatial planning at regional, district, city, township and village level fully addresses current and future climate-related risks and opportunities, and regularly assess and mitigate these risks in a timely and equitable manner through inclusive and participatory assessment and planning processes which take into account and strengthen local knowledge and capacities, including in land-use planning, rural and urban planning and city or township specific disaster risk management plans and actions</p>
National Land Use Policy, 2016		<p>The Project Proponent commits to comply the key provisions:</p> <ul style="list-style-type: none"> ■ To recognise and protect customary land tenure rights and procedures of the ethnic nationalities ■ To complete an EIA before considering a grant for individual land use right or lease of land; ■ To protect natural resources and ecological system that provide shared livelihood and socioeconomic development benefits to the surrounding communities; ■ To conduct, through public consultation, negotiation and participatory decision making if physical displacement is to be undertaken. <p>It should be noted that the provisions of this policy serve as a set of rules that guide the government and are not legally binding as other laws, such as the Land Acquisition Act. However, one of the aims of this policy was to guide the development and enactment of a National Land Law and allow for harmonization and implementation of the existing laws related to the land.</p>
The Land Acquisition Act, 1894 (Amended in 1954)		<p>Yangon Regional Government (YRG) on behalf of the Project Proponent commits to comply with the stipulations:</p> <ul style="list-style-type: none"> ■ For specifying a systematic approach for acquisition and compensation of land and other properties for development Projects, ■ For actions related to notifications, surveys, acquisition, and compensation and entitlements, along with disputes resolution, penalties and exemptions. ■ For disclosure of information on land ownership surveys to affected persons.

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
The Farmland Law, 2012	Clause 30 (a) (b)	<p>YRG on behalf of the Project Proponent commits to comply the stipulations: To utilise the farmland for other purposes in the interest of the public in respect of the application:</p> <ol style="list-style-type: none"> 1. The Central Farmland Management Body to give permission to utilise the paddy land for other purposes, with the recommendation of the Region or State Farmland Management Body; 2. The respective Region or State Government shall give permission to utilise the farmland for other purposes except paddy land, with the recommendation of the Region or State Farmland Management Body;
The Law of Protection of the Farmer Rights and Enhancement of their Benefits, 2013	Clause 20 (f)	<p>The Project Proponent commits to comply the stipulation for the Leading Body, in respect of agriculture and livestock breeding, to carry out the following:</p> <ul style="list-style-type: none"> ■ To guarantee in production, import, preparation, package, and sales of fertiliser and pesticides that they meet with the standards and are safe for use and to aware farmers the defects of fertiliser and pesticides without guarantee in time.
Vacant, Fallow and Virgin Land Management Act, 2012	Clause 16, 19	<p>The Project Proponent commits to comply the stipulation:</p> <ul style="list-style-type: none"> ■ for Person who is granted the right to use the vacant, fallow and virgin lands has to comply the conditions: <ol style="list-style-type: none"> (a). Land granted will use for the purpose granted and in relation to economic enterprise; (b). To carry out within four years from the date of grant according to the purpose granted (can revise by the Central Committee for lost time due to natural disaster and unstable security conditions); (c). Not to mortgage, give, sell, lease or otherwise transfer or divide without the permission of the Cabinet of the Union Government; (d). To fully pay the land revenue; (e). To comply the conditions prescribed by the Central Committee (f). To not explore other natural resources below and above ground except the purpose granted; (g). To surrender the natural resources found in the authorised land should the Government desire to extract. ■ That the Central Committee can resume the area required in the authorised land, if one of the following situation arises:- <ol style="list-style-type: none"> (a). If ancient cultural heritage are found; (b). If infrastructure project or Special project are desired to be constructed, in the interest of the State;

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>Except the permitted minerals, if other natural resources are found , which are permitted for production of mining;</p> <p>If natural resources are found in the authorised land which are permitted for the purposes described in Section 4, Sub-section (a),(b), and (d);</p>
Myanmar Investment Law, 2016	Clause (50)(d), (51), (65),	<p>The Project Proponent commits to comply with:</p> <ul style="list-style-type: none"> ■ The stipulation to register the land lease contract at the office of Registry of Deeds in accordance with the Registration Act. ■ To mention appointment, replacement, providing employment of staff and workers, ensuring to comply the entitlements and rights in the labour laws and rules, settling dispute regarding human rights issues. ■ The stipulation: <ul style="list-style-type: none"> (a). To respect and comply with the customs, traditions, and traditional culture of the ethnic groups; (e). To inform to the Commission if natural mineral resources or antique objects are found that are not related to the investment permitted; (f). Not to make any significant alteration of topography or elevation of the land on which is entitled to lease or to use, without the approval of the Commission; (g). To abide by applicable laws, rules, procedures and best standards practiced internationally for this investment so as not to cause damage, pollution, and loss to the natural and social environment and not to cause damage to cultural heritage; (h). To list and keep proper records of books of account and financial statement and necessary financial matters relating to the investments performed by permit or endorsement in accordance with internationally and locally recognised accounting standards; (i). To close and discontinue the investment only after the payment of compensation to employees in accordance with applicable laws for any breach of employment contracts, closure of investment, sale and transfer of investment, discontinuation of investment, or reduction of workforce; (j). To pay wages and salaries to employees in accordance with applicable laws, rules, procedures, directive and so forth during the period of suspension of investment for a credible reason; (k). To pay compensation and indemnification in accordance with applicable laws to the relevant employee or his successor for injury, disability, disease or death due to the work; (l). To supervise foreign experts, supervisors and their families, who employ in their investment, to abide by the applicable laws, rules, orders and directives, and the culture and traditions of Myanmar; (m). To respect and comply with the labour laws;

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>(n). To have the right to sue and to be sued in accordance with the laws;</p> <p>(o). To pay effective compensation for loss incurred to the victim, if there are damage to the natural environment and socioeconomic losses caused by logging or extraction of natural resources which are not related to the scope of the permissible investment, except from carrying out the activities required to conduct investment in a permit or an endorsement;</p> <p>(p). To allow the Commission to inspect in any places, when the Commission informs the prior notice to inspect the investment;</p> <p>To take in advance permit or endorsement of the Commission for the investments which need to obtain prior approval under the Environmental Conservation Law and the procedures of environmental impact assessment, before undertaking the assessment, and shall submit the situation of environmental and social impact assessment to the Commission along the period of activities of the investments which obtained permit or endorsement of the Commission.</p>
Myanmar Investment Rules, 2017	Clause 202, 203, 206, 212,	<p>The Project Proponent commits:</p> <ul style="list-style-type: none"> ■ To comply with all terms and conditions in the permit and other applicable laws when the investment is carried out. ■ To fully assist while negotiating with the Authority for settling the grievances of the local community that have been effected due to Investments. ■ To appoint expert foreigner as senior manager, technical and operational expert or advisor according to subsection (a) of the section 51 of the Law. <p>To obtain the permit or tax exemption or relief to insure the relevant insurance out of the following types of the insurance at any insurance business entitled to carry out insurance business within the Union based on the nature of the business: Property and Business Interruption Insurance; Engineering Insurance; Professional Liability Insurance; Bodily Injury Insurance; Marine Insurance; or Workmen Compensation Insurance; Life Insurance; Fire Insurance.</p>
The Import and Export Law, 2012	Clause 7	The Project Proponent, as a license holder, commits to comply not to violate the conditions contained in the license.
The Protection of Preservation of Cultural Heritage Region Law, 1998	Clause 13, 15, 22	<p>The Project Proponent commits:</p> <ul style="list-style-type: none"> ■ To apply for prior permission and must abide by provisions of existing laws for certain land-based construction works. ■ To comply the stipulation for the person desirous of carrying out construction works to abide by the provisions of other existing laws and also apply in accordance with the stipulations to the Department to obtain prior permission under this law.

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> ■ To conform to conditions prescribed by the Ministry of Culture for Buildings in cultural heritage regions.
Conservation of Water Resources and Rivers Law, 2006	Clause 10, 11(a), 19	<p>The Project Proponent commits to comply prohibitions for the following activities:</p> <ul style="list-style-type: none"> ■ No person shall anchor the vessels where vessels are prohibited from anchoring in the rivers and creeks. ■ No person shall dispose of engine oil, chemical, poisonous material and other materials which may cause environmental damage, or dispose of explosives from the bank or from a vessel which is plying, vessel which has berthed, anchored, stranded or sunk. ■ No one shall dispose of any substance into the river creek that may cause damage to waterway or change of watercourse from the bank or vessel.
The Protection of Biodiversity and Conservation Areas Law, 2018	Clause 39 (a) (g) (h) (i), 40 (a) (b), 41 (a) (b) (c)	<p>The Project Proponent commits to comply the stipulation that there may be charge with fine or imprisonment or both if guilty of:</p> <ul style="list-style-type: none"> ■ Hunting without a license ■ Dishonestly altering, adding or counterfeiting any documents, marks, facts and figures issued by the person designated as the Management Authority of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); ■ Altering, destroying or damaging the mark made on animals, plants or their specimens which are regulated for international trade ■ Importing, breeding, farming or possession of alien wild animal and wild plant species or any parts, derivatives or products without permission thereof ■ Killing or selling a protected wildlife species or possessing, transporting or transferring any part without permission thereof ■ Extracting, collecting or destroying in any manner protected wild plants within a subscribed area, without permission ■ Killing, hunting, wounding, collecting, selling, or transferring a completely protected wildlife species or wild animal regulated for international trade, or possessing or transporting any part or blood derivative or product without permission thereof ■ Extracting, collecting or destroying in any way without permission a completely protected wild plant or a wild plant regulated for international trade or collecting, possessing, selling, transporting or transferring in anyway without permission such wildlife plant or any derivative product thereof; ■ Import, export or re-export wildlife and wild plants regulated for international trade without the endorsement prescribed under subsection (a) and (b) of section 23.
The Protection and Preservation of Cultural Heritage Regions Law, 1998	Clause 13, 15, 22	<p>The Project Proponent commits:</p> <ul style="list-style-type: none"> ■ To apply for prior permission and must abide by provisions of existing laws for certain land-based construction works.

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> ■ To comply the stipulation for the person desirous of carrying out construction works to abide by the provisions of other existing laws and also apply in accordance with the stipulations to the Department to obtain prior permission under this law. ■ To conform to conditions prescribed by the Ministry of Culture for buildings in cultural heritage region.
The Protection and Preservation of Antique Objects Law, 2015	Clause 12, 13	<p>Project Proponent commits to comply the stipulation:</p> <ul style="list-style-type: none"> ■ For person who finds any object which has no owner or custodian, needs to inform the relevant Ward or village-tract administrator if he knows or it seems reasonable to assume that the said object is an antique object. ■ For a procedure to inform and the responsibility to inspect whether it is a real ancient monument or not and keep or cause to protect as may be necessary in accordance with the stipulation
The Protection and Preservation of Ancient Monuments Law, 2015	Clause 12, 13, 15, 20	<p>Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ For a person who finds an ancient monument over one hundred years old under the water or above ground to promptly inform the relevant Ward or Village-Tract Administrative Office. ■ For procedure to inform and the responsibility to inspect whether it is a real ancient monument or not and keep or cause to protect as may be necessary in accordance with the stipulation. ■ To apply prior permission from the Department before implementing <ol style="list-style-type: none"> extending towns, wards and villages; constructing or extending or repairing new buildings including hotels, factories and residential buildings or fencing or extending a fence; digging to search petroleum, natural gas, gem or mineral, piping petroleum and natural gas, constructing factories, connecting national grid, constructing communication tower, constructing or extending infrastructures such as road, bridge, airfield, irrigation and embankment; connecting underground electric cable, communication cable and other underground works; digging or extending wells, lakes, cannels and ponds; gold sieving, digging, burning bricks, digging well, lake, creek, ditch, gully, pit digging, refilling, levelling, mining, quarry, gravel digging and unearth sand, removing the mounds and hills which can damage the physical feature of the land; placing and fencing ancient monuments in a private compound and area; constructing a building which is not consistent with the terms and conditions stipulated according to the region by the Ministry near and at the surrounding of an ancient monument.

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> ■ For prohibitions not to damage to an ancient monuments within the specified area of an ancient monument without a written prior permission by carrying out: <ul style="list-style-type: none"> (a). taking photo, video, film or copying and modeling an ancient monument stipulated as a listed ancient monument for commercial purposes; (b). using machines which causes vibration within the specified place of an ancient monument and running various types of vehicles; (c). cultivating, gardening, breeding, fencing by blocking nearby an ancient monument or doing any other act which can affect an ancient monument; (d). emission of gas such as hot-air balloon which can affect an ancient monument; (e). landing and taking off and, flying airplane and helicopter which can directly or indirectly affect an ancient monument; (f). discarding chemical substance and rubbish which can affect an ancient monument and the environment.
Myanmar Fire Force Law, 2015	Clause 25	<p>The Project Proponent commits:</p> <ul style="list-style-type: none"> ■ To obtain the opinion of the Fire Services Department for the purpose of fire precaution and prevention, when laying down plans for construction for town, village and downtown or village development plans. ■ To comply the stipulations for the factory, workshop, highway bus, airport, jetty, hotel, motel, guest house, collective-owned building, market, work-site or business exposed to fire hazard of the owner or manager; <ul style="list-style-type: none"> (a). Not fail to form a reserve fire brigade (b). Not fail to provide materials and apparatuses for fire safety; in conformity with the directive of the Fire Services Department.
Motor Vehicle Law, 2015	Chapter 1, 2(v)	<p>The Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ for reducing environmental pollution caused by motor vehicles ■ for the right of the Department to issue directives, the standards, guidelines for the purposes of importing, manufacturing, assembling, maintaining to be safe in accident and environment conservation. ■ To take actions to conserve the green environment and the reduction in pollution of air, water, land and noises caused by motor vehicles.
Public Health Law, 1972	Clause 3, 5	<p>The Project Proponent commits to cooperate with the authorized person or organization in line with the stipulations:</p> <ul style="list-style-type: none"> ■ To abide by any instruction or stipulation for public health. ■ To accept any inspection, anytime, anywhere if it is needed.
The Protection and Prevention of Communicable Disease Law, 1995	Clause 3(a), 9, 11	<p>The Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ For the Department of Health to carry out immunisations and health education activities related to communicable diseases

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> ■ For all responsible persons to prepare report for an outbreak of a communicable disease to the nearest Health Officer. ■ For Health Officer to undertake investigations and medical examinations to prevent the control the spread of Principal Epidemic Disease.
Employment and Skill Development Law, 2013	Clause 5, 14, 15, 30	<p>The Project Proponent commits to comply the stipulation</p> <ul style="list-style-type: none"> ■ For the agreement, training and probation period as prescribed in: <ol style="list-style-type: none"> 1. If the employer has appointed the employee to work for an employment, the employment agreement shall be made within 30 days. But it shall not be related with government department and organization for a permanent employment. 2. If pre training period and probation period are stipulated before the appointment the said trainee shall not be related with the stipulation of sub-section (1). ■ For particulars to be included in the employment agreement: <ol style="list-style-type: none"> 1. the type of employment; 2. the probation period; 3. wage, salary; 4. location of the employment; 5. the term of the agreement; 6. working hour; 7. day off, holiday and leave; 8. overtime; 9. meal arrangement during the work hour; 10. accommodation; 11. medical treatment; 12. ferry arrangement to worksite and travelling; 13. regulations to be followed by the employees; 14. if the employee is sent to attend the training, the limited time agreed by the employee to continue to work after attending the training; 15. resigning and termination of service; 16. termination of agreement; 17. the obligations in accord with the stipulation of the agreement; 18. the cancellation of employment agreement mutually made between employer and employee; 19. other matters; 20. specifying the regulation of the agreement, amending and supplementing; 21. Miscellaneous. ■ For the worksite regulations contained in the employment agreement to be in compliance with any existing law and the benefits of the employee not to be less than those of the any existing law. <p>(a). For the employment agreement, the Ministry can issue the notification for paying the stipulated compensation to the employee by the employer, if the work is completed</p>

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>earlier than the stipulated period or the whole work or any part of it have to be terminated due to unexpected condition or the work has to be terminated due to various conditions.</p> <p>(b). For the employment agreement made under sub-section (a) to be related with daily wage workers, piece rate workers who are appointed temporarily in the government department and organization.</p> <p>(c). For the worksite regulations and benefits contained in the employment agreement mutually made between the employer and employee or among the employees to be amended as necessary, in accord with the existing law.</p> <p>(d). For the employer to send a copy of the employment agreement made between the employer and employee, to the relevant employment and labour exchange office within the stipulated period and to get the approval of it.</p> <p>(e). For the employment agreement made before the enforcement of this law has to be confirmed up to the end of the term of the original agreement.</p> <ul style="list-style-type: none"> ■ To carry out the training program in accordance with the work requirement in line with the policy of the skill development team to develop the skill relating to the employment for the workers who are proposed to appoint and working at present. ■ To carry out the training for each work or compounding the work individually or group-wise by opening on-job training, training systematically at worksite, sending outside training and training by using information technology system, for arranging the training program to enhance the employment skill of the workers; ■ For appointing the youths of 16 years as apprentices, to arrange the training for technology relating to the employment systematically in accord with the regulations prescribed by the skill development team. ■ For the employer of the industry and service business to put in to the fund monthly as put in fees without fail for the total wages of the subordinates and the supervisors' salary for not less than 0.5%; ■ To put in money paid under sub-section (a) not to be deducted from the wage and salary of the employees.
The Settlement of Labour Dispute Law, 2012	Clause 38, 39, 40, 51	<p>The Project Proponent commits to comply:</p> <ul style="list-style-type: none"> ■ Not to fail to negotiate and coordinate in respect of a complaint within the prescribed period without sufficient cause ■ Not to alter the conditions of service of workers involved in disputes prior to investigation by tribunals ■ For no party to strike or lock-out without negotiation, conciliation and arbitration by Arbitration Body. For the employer if commits acts without sufficient cause, to be liable to pay full compensation to workers as determined by Arbitration Body or Tribunal.
The Workmen Compensation Act, 1923 (amended in 1955, 1957, 2005)	Clause 3	The Project Proponent commits to comply the stipulations:

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<ul style="list-style-type: none"> ■ For the payment by certain classes of employers to their workmen of compensation for injury by accident. ■ For the liability for compensation of employer's, amount of compensation, compensation to be paid when due and penalty for default, method of calculating wages, review, commutation of half-monthly payments, payment of a lump sum amount, distribution of compensation, compensation not to be assigned, attached or charged, notice and claim, power to require from employers statements regarding fatal accidents, reports of fatal accidents and serious bodily injuries, medical examination, contracting, remedies of employer against stranger, compensation to be first charge on assets transferred by employer, special provisions relating to masters and seamen. ■ For any updating for revising the monetary amount as per the amendment law.
Labour Organisation Law, 2011	Clause 17, 18, 19, 20, 21, 22	<p>This Law was enacted, to protect the rights of the workers, to have good relations among the workers or between the employer and the worker, and to enable to form and carry out the labour organizations systematically and independently.</p> <p>Project Proponent commits to comply the stipulations as there mentions:</p> <ul style="list-style-type: none"> ■ That Labour Organisations are free to organise and negotiate workers' rights if not meeting labour laws. ■ That Labour Organisations may demand re-appointment of worker if cause of dismissal is related to labour organisation membership or activities or not conform to labour laws. ■ That Labour Organisations have the right to send representatives to conciliation tribunals. ■ That Labour Organisations have the right to participate and discuss workers' rights and interests with government and employers ■ That Labour Organisation have the right to participate in collective bargaining in accordance with labour laws. ■ That Labour Organisation may take collective actions in accordance with the relevant procedures, regulations and law.
Minimum Wages Law, 2013	Clause 12 (a-e), 13 (a-g)	<p>This Law was enacted to meet with the essential needs of the workers, and their families, who are working at the commercial, production and service, agricultural and livestock breeding businesses and with the purpose of increasing the capacity of the workers and for the development of competitiveness.</p> <p>Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ For the employer not to pay wage less than the minimum wage stipulated, do not have the right to deduct any other wage <p>For the employer to inform rates of minimum wage relating to the business, allow the entry and inspection of the inspection officer, give the sick worker holiday for medical treatment</p>

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		in accord with stipulation and give holiday for the matter of funeral of the family of worker without deducting from the minimum wage.
Payment of Wages Law, 2016	Clause 3, 4, 5, 7 (ii), 8, 9, 10, 14	<p>The Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ That salaries are to be paid at the end of the month or, depending on the size of the employing enterprise, between 5-10 days before the end of the month. The employer is permitted and required to withhold income tax and social security payments. Other deductions, e.g. for absence, may only be withheld in accordance with the law. ■ For the employer (a) to pay for salary either Myanmar Kyats or Foreign Cash permitted by National Bank of Myanmar. When delivery the salary (b) If the employer needs to pay the other opportunities or advantages, he can pay cash together with other materials according employee's attitude. ■ For finishing the contract, employer need to pay the salary (not more than one month) to employees. For the permanent worker, need to pay per monthly. If more than 100 employees, need to pay within the 5 days from the end of month. If fire the employees, need to pay salary within two days after fire. When employee dies due to the accident, need to pay money as an insurance to employee's family within two days. ■ For the employer to report to the Department with evidence of payment at later date agreed with the employee if the employer has difficulties to pay wages on time because of significant events (e.g. natural disaster). ■ For the employer to deduct expense which are allowance for accommodation and ferry service arranged by the employer, meal allowance, electricity charges, water service charges and income taxes liable to be paid by workers and cash paid in excess under mistake, which are not included in the expression of wages under this Law and not to deduct from the wages of the worker except the deduction as per clause 7. ■ For any deducting from the salary due to the employees' absence, the total cut salary not to be more than 50 % of his salary. ■ For overtime work, to allow the presiding overtime rate as set by the Law.
Leaves and Holidays Act, 1951	Clause 4	<p>The Project Proponent commits to comply with the stipulations:</p> <ul style="list-style-type: none"> ■ For employee to be granted to pay public holidays as announced by the Government in the Myanmar Gazette. On average, Myanmar has 26 public holidays per year, depending on the date of the variable holidays. ■ For additional rules to apply in accordance with other laws, such as the Social Security Law (2012) for employees contributing to the Social Security Fund. ■ To grant earned leave with average wages or average pay for a period of ten consecutive days by his employer during the subsequent period of twelve months to every employee who has completed a period of twelve months continuous service.

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
Social Security Law, 2012	Clause 11 (a)(b), 15(a), 16 (a), 18(b), 48(a), 49(a)(b), 51(a)(b), 53(a), 54(a)(b), 75	<p>The Project Proponent commits to comply the stipulations:</p> <ul style="list-style-type: none"> ■ For compulsory registration for social security system and benefits, the following establishments can be applied if they employ minimum number of workers and above determined by the Ministry of Labour in co-ordination with the Social Security Board: <ol style="list-style-type: none"> i. Production industries doing business whether or not they utilize mechanical power or a certain kind of power, works of production, repairing or services, or engineering works, mills, warehouses, establishments; ii. Government departments, Government organizations and regional administrative organizations doing business; iii. Development organizations; iv. Financial organizations, v. Companies, associations, organizations and their subordinate departments and branch offices doing business; vi. shops, commercial establishments, public entertaining establishments; vii. Government departments and Government organizations doing business or transport businesses owned by regional administrative body, and transport businesses carried out with the permission of such department, body or in joint venture with such department or body; viii. Construction works carried out for a period of one year and above under employment agreement; ix. Works carried out with foreign investment or citizen investment or joint ventured businesses; x. Works relating to mining and gemstone contained in any existing law; xi. Works relating to petroleum and natural gas contained in any existing law; xii. Ports and out-ports contained in any existing law; xiii. Works and organizations carried out with freight handling workers; xiv. Ministry of Labour and its subordinate departments and organizations; xv. Establishments determined by the Ministry of Labour from time to time, in co-ordination with the Social Security Board and with the approval of the Union Government; that they shall be applied with the provisions of compulsory registration for Social Security System and benefits contained in this Law. ■ For provisions of compulsory registration under sub-section (a) to continue to be applied by this Law even though any of the following situations occurs if it continues to carry out such work: <ol style="list-style-type: none"> i. carrying out work by employing under stipulated minimum number of workers but more than one worker; ii. changing the employer or changing the type of business. ■ For the Social security fund, to include the funds for health and social care, family assistant, invalidity benefit, superannuation benefit and survivors' benefit, unemployment benefit, other social security fund for social security system of

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>compulsory registration and contribution stipulated by the Ministry of labour, other social security fund and social security housing plan fund.</p> <ul style="list-style-type: none"> ■ For arranging insurance for the workers to enable to enjoy social security benefits by contributing to the social security fund. ■ For the employer to deduct contributions to be paid by worker from his wages together with contribution to be paid by him and pay to the social security fund and in such case he can incur the expense. ■ For the employer to effect insurance by registering for employment injury benefit insurance system contained in section 45 at the relevant township social security office and pay contribution to employment injury benefit fund in accord with stipulations in order that workers applied to provisions of compulsory registration may obtain the employment injury benefits. ■ For the inapplicability to the Workmen's compensation act. ■ For the employer (a) to pay contribution monthly to Employment Injury Benefit Fund at the rates stipulated under section 50. Moreover he shall also bear the expenses for paying as such; (b) to pay defaulting fee stipulated under section 88, in addition to the contribution if fails to contribute after effecting insurance for employment injury benefit. ■ For the employers and workers (a) to co-ordinate with the Social Security Board or insurance agency in respect of keeping plans for safety and health in order to prevent employment injury, contracting disease and decease owing to occupation and in addition to safety and educational work of the workers and accident at the establishment; ■ For the employer (a) to report to the relevant township social security office immediately if a serious employment accident occurs to his insured worker. There shall not be any delay without sufficient cause to report as such. (b) A team of officers and other staff who inspect the establishments, if it is found out the employment injury, death, and contracting disease, shall report to the relevant township social security office in accord with the stipulations. ■ For keeping records of work and lists.
Yangon City Development Committee Law, 2014 (amended in 2018)		<p>It has stated that the committee has the right to:</p> <ul style="list-style-type: none"> ■ To corporate for the inspection with the concerning authority and ■ To stipulate orders for the carriage, storage of chemical and related substances for not harming to public health and life ■ To manage the waste regarding for the hazardous. <p>There it has been prohibited for disposing chemical and its related substances in areas, which are not being allowed in the City Development area and mentioned offenses and penalties.</p> <p>The Project Proponent commits to comply the stipulations and undertake the necessary proceeding as per this law and notification issued by the committee.</p>

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
Myanmar National Building Code, 2016	Clause 1.B.1 (code no 1.3.1.1), code no 1.3.1.4	<p>The Project Proponent as a land use development project, including new construction, extension, retrofitting, increase of floor area, and changes in usage of buildings/land, commits:</p> <ul style="list-style-type: none"> ■ To comply the stipulations for the requirement of “Planning Permit” to be granted by “The Development Planning and Building Authority”, as in accordance with Section 1.B.1 of this Code (1.3.1.1) ■ To abide by the Myanmar Environmental Conservation Law of 2012 and to be in conformity with other land bylaws of the regional authorities.
National Energy Policy, 2014	Chapter 3, Clause 4	<p>The national energy policy aims to systematically explore the available energy resources of the country in order to supply the demand of the country and to export as value added products for surplus resources, thus ultimately targeting to sustainably improve the living standard of the country people.</p> <p>There mentions national energy policy, energy sector development plan, energy and electric power sector restructuring program, energy sector framework and strategy and work program.</p> <p>The Project Proponent commits to implement the project to support this policy.</p>
The Electricity Law, 2014	Clause 3(e) (f) (h), 8(a), 11, 14, 22(a), 30, 37, 41, 42, 44, 45, 48	<p>The Project Proponent commits to comply with the stipulations:</p> <ul style="list-style-type: none"> ■ That with the approval of the Union Government, the Ministry shall have the right to carry out businesses related to the large scale electric power exploration, construction, generation, transmission, distribution, trading and exchanging which the Union have the right to manage; ■ For carrying out the electrical business, the Ministry, relevant Region or State Government and Leading Bodies of Self-Administered Division or Self-Administered Zones have the right to obtain the required amount of land to use in accord with the existing laws; ■ For the person from local or foreign who desires to invest and operate in any electrical business to apply to obtain the permit to the authorized person to issue permit in accord with the stipulations. ■ For the right of the Ministry allow or refuse an application after scrutinizing, if the permit holder desires to sell electric power to the national grid. ■ For the permit holder to be liable for causing any damage or loss due to the negligence by him to any person or entity. ■ For the right of Ministry to inspect of electrical business and electrical equipment. ■ For the right of Ministry to issue required standardizations and techniques of inspection for electrical business. ■ That the Ministry has the right to determine regarding the specification of rates of electric power fee and service charges from the users of electric power the appropriate

Relevant Laws, Rules and Regulations	Relevant Articles	Commitments
		<p>rates of respective region with the approval of the Union Government. Such rates of electric power fee may be adjusted from time to time.</p> <ul style="list-style-type: none"> ■ For any person not to operate the electrical business without permit. ■ For permit holder not to operate any other electrical business except the business contained in the permit. ■ For any person not to operate the importing, manufacturing in the country, exporting, distributing and selling of the electrical equipment which are not consistent with the prescribed norm and standard.
Law protecting Ethnic Right, 2015	Clause 5	<p>The Project Proponent commits to comply the stipulations</p> <ul style="list-style-type: none"> ■ For the Equal right between the Ethnic living in Myanmar. It enacted that if an ethnic loose the right, he can complain to the Regional or State Government to get the equal chance and find the equal right. ■ That project matters shall be informed, coordinated and undertaken in consultation with ethnic groups if projects are in areas with ethnic groups.

3.3 Environmental Quality (Emissions) Guidelines

MONREC's Environmental Quality (Emissions) Guidelines (EQEG) were enacted in 2015. The standards that are applicable to this Project are presented from Table 3.2 to Table 3.5 provide the basis for regulation and control of effluent discharges in order to prevent pollution and protect the environment and people.

Portable water will meet the National Drinking Water Quality Standards of Myanmar, published by the Ministry of Health in 2019.

Table 3.2 EQEG Air Emissions Parameters

Parameter	Unit	Guideline Value ($\mu\text{g}/\text{m}^3$)
Nitrogen dioxide	1 year	40
	1 hour	200
Ozone	8 hour (daily) maximum	100
Particulate Matter (PM_{10}) ^a	1 year	20
	24 hour	50
Particulate Matter ($\text{PM}_{2.5}$) ^b	1 year	10
	24 hour	25
Sulphur Dioxide	24 hour	20
	10 minute	500

a Particulate matter in diameter $\leq 10\mu\text{m}$

b Particulate matter in diameter $\leq 2.5\mu\text{m}$

Table 3.3 EQEG Noise Levels Parameters

Receptor	One hour LAeq (dBA) ^a	
	Daytime 07:00 – 22:00 (10:00 - 22:00 for Public holidays)	Night Time 22:00 – 07:00 (22:00 - 10:00 for Public holidays)
Residential, institutional, educational	55	45
Industrial, commercial	70	70

a Equivalent continuous sound level in decibels (at the nearest sensitive receptor)

Table 3.4 EQEG Non-ionized Radiation Emissions

Frequency	Electric Field (V/m^a)	Magnetic Field (μT^b)
50 Hz ^c	5000	100
60 Hz ^c	4150	83

^a volts per meter; ^b micro tesla; ^c Hertz

Table 3.5 EQEG Site Runoff and Effluent Levels

Parameter	Unit	Guideline Value
5-day Biochemical oxygen demand	mg/l	50
Ammonia	mg/l	10
Arsenic	mg/l	0.1
Cadmium	mg/l	0.1
Chemical oxygen demand	mg/l	250
Chlorine (total residual)	mg/l	0.2
Chromium (hexavalent)	mg/l	0.1
Chromium (total)	mg/l	0.5
Copper	mg/l	0.5
Cyanide (free)	mg/l	0.1
Cyanide (total)	mg/l	1
Fluoride	mg/l	20
Heavy metals (total)	mg/l	10
Iron	mg/l	3.5
Lead	mg/l	0.1
Mercury	mg/l	0.01
Nickel	mg/l	0.5
Oil and grease	mg/l	10
Ph	S.U. ^a	6-9
Phenols	mg/l	0.5
Selenium	mg/l	0.1
Silver	mg/l	0.5
Sulphide	mg/l	1
Temperature increase	°C	<3 ^b
Total coliform bacteria	100 ml	400
Total phosphorus	mg/l	2
Total suspended solids	mg/l	50
Zinc	mg/l	2

^a Standard unit

^b At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity; when the zone is not defined, use 100 meters from the point of discharge

3.4 Relevant International Regulations and Guidelines

This section shows the International Agreements and Conventions which will have relevance to the Project and the Good International Industry Practice Guidelines that NYDC will consider in the process of the EIA preparation.

3.4.1 International Agreements and Conventions

Myanmar is a signatory to the international conventions listed in Table 3.6, which will have relevance to the proposed Project. A full list of international conventions, treaties, and agreements of relevance to the Project will be provided in the EIA Report.

Table 3.6 International Agreements and Conventions

Legislation	Relevance to the Project	Ratification Status (in Myanmar)
Vienna Convention for the Protection of the Ozone Layer 1988 and Montreal Protocol on Substances that Deplete the Ozone Layer 1989	The Project may use or generate ozone depleting substances.	Accession 16 th Sep 1998 (Vienna) & Accession 24 th Nov 1993 (Montreal)
Convention on Biological Diversity 1992	The Project will be located in terrestrial habitats.	Ratified 25 th Nov 1994
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal	The Project may generate hazardous wastes (e.g. used oils).	Entered into force 6 th April 2015
United Nations Framework Convention on Climate Change 1992 (UNFCCC) and Kyoto Protocol 1997	The Project construction will form part of Myanmar's total emissions output. However, there will be limited emissions during operation.	Entered in force 23 rd Feb 1995 (UNFCCC) and 16 th Feb 2005 (Kyoto Protocol)
Workmen's Compensation (Accidents) Convention 1925	The Project has risks to occupational health and safety.	Entered in force 16 February 1956
Workmen's Compensation (Occupational Diseases) Convention 1925 and its Revision 1934	The Project has risks to occupational health and safety.	Entered in force 30 Sept 1927; Revision entered in force 17 May 2016

3.4.2 Good International Industry Practice Guidelines

NYDC will undertake the impact assessment study and Project activities in a manner guided by good international industry practice (GIIP). Applicable guidelines which NYDC will consider in preparing the EIA include:

- International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability (2012); and
- IFC Environmental, Health and Safety (EHS) guidelines, including:
 - General EHS Guidelines (2007); and
 - Environmental, Health, and Safety Guidelines for Water and Sanitation (2007).

4. PROJECT DESCRIPTION

4.1 Project Location

The **Project Area** is defined as the location of water intake point, raw water pipeline and water treatment plant. The facilities will be located in Twantay Township. The water will be taken from Toe River which is located in the Southern Twantay boundary of Township.

The coordinate points of the New Yangon City Phase 1 Area, water intake point, raw water pipeline and Water Treatment Plant are listed in Table 4.1.

Table 4.1 Project Location Coordinate Points

Item	Coordinates*
New Yangon City Phase 1 Area	96.033387°E 16.877042°N, 96.129981°E 16.825630°N, 96.150740°E 16.766533°N, 96.102184°E 16.731149°N, 96.020524°E 16.712643°N and 96.012471°E 16.792693°N.
Water Intake Point	95.827689°E 16.655990°N
Raw Water Pipeline	95.827689°E 16.655990°N, 95.823705°E 16.665165°N, 95.848484°E 16.696575°N, 95.879285°E 16.711819°N, 95.922948°E 16.714322°N, 95.936174°E 16.726341°N, 95.936174°E 16.726341°N, 96.020791°E 16.733860°N and 96.033766°E 16.78725°N.
Water Treatment Plant	96.033766°E 16.78725°N

*There may be some deviation between these coordinated points as the areas are not straight lines between them.

4.2 Project Schedule

Ground-breaking for New Yangon City is planned for January 2020. The duration of construction is expected to take two and a half years for the water treatment plant, and water intake facilities and transmission pipe. The target completion date is July 2022.

4.3 Project Components

The proposed Project will be composed of:

- Water treatment plant;
- Raw water pipeline;
- Treated water distribution lines; and
- Water intake point.

The locations of the Water Treatment Plant and water intake point are shown in Figure 4.1.

4.3.1 Water Treatment Plant

The capacity of the Water Treatment Plant (WTP) is proposed to be 60,000m³ per day. The total capacity of the Water Treatment Plant may reach up to 450,000 m³ per day in the future according to NYDC's demand estimation. For Stage 1, the system is specifically for the Industrial Zone and Resettlement Areas, but it will be expanded to serve the whole New Yangon City in the future. According to socio-economic projection, the population of New Yangon City will reach 1,257,942 in 2050. The population projection from 2021 to 2050 is shown in Table 4.2. Key water treatment process include Coagulation, Sedimentation, Filtration and Disinfection. Figure 4.2 shows the water treatment process.

Table 4.2 Population Projection from 2021 to 2050

Year	Population Projection
2021	51,537
2022	121,104
2023	259,061
2024	447,550
2025	745,479
2026	767,032
2027	786,208
2028	805,863
2029	826,010
2030	846,660
2031	867,827
2032	889,522
2033	911,761
2034	934,555
2035	957,918
2036	977,077
2037	996,618
2038	1,016,551
2039	1,036,882
2040	1,057,619
2041	1,078,772
2042	1,100,347
2043	1,122,354
2044	1,144,801
2045	1,167,697
2046	1,185,213
2047	1,202,991
2048	1,221,036
2049	1,239,351
2050	1,257,942

Source: NYDC, 2019

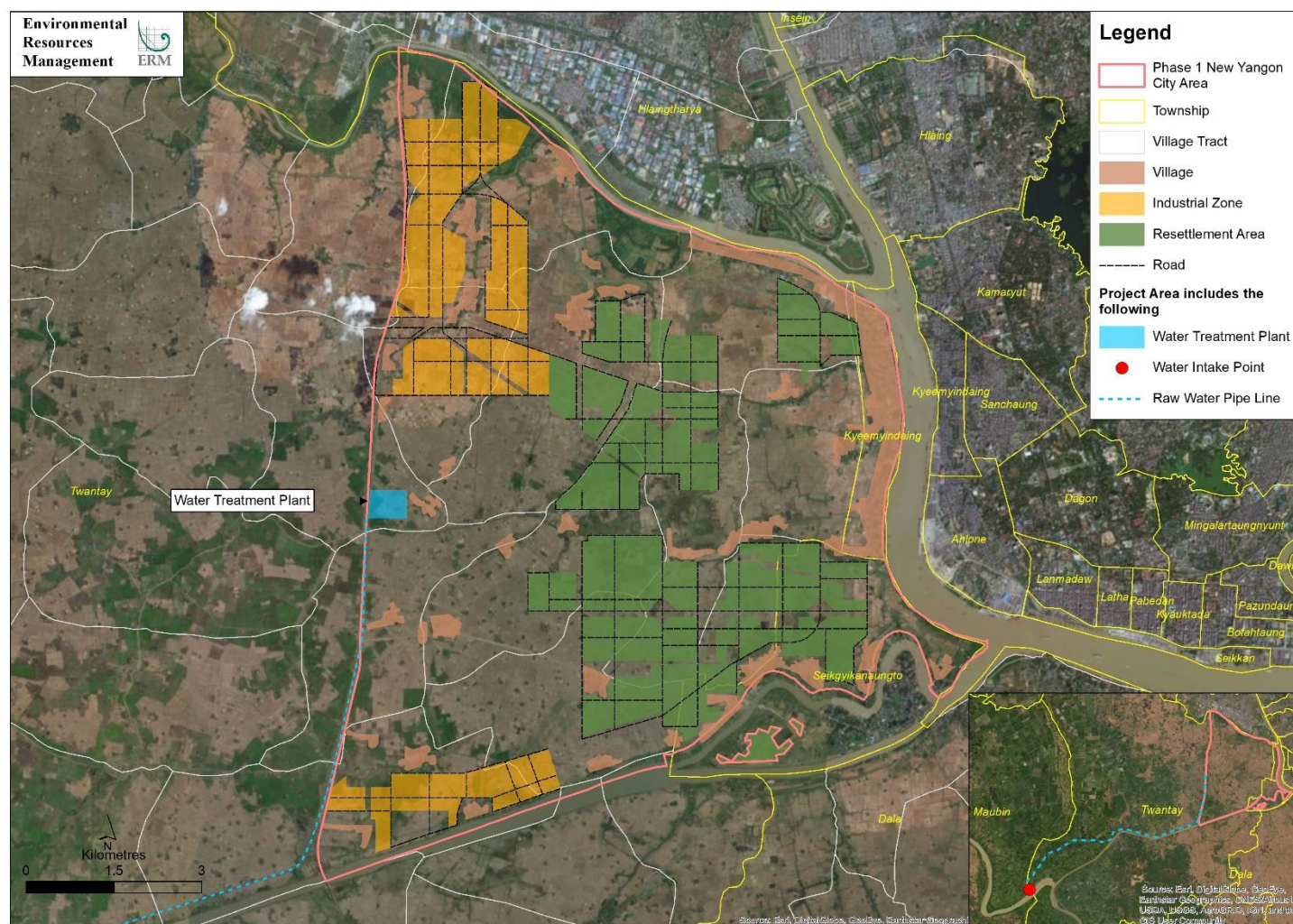
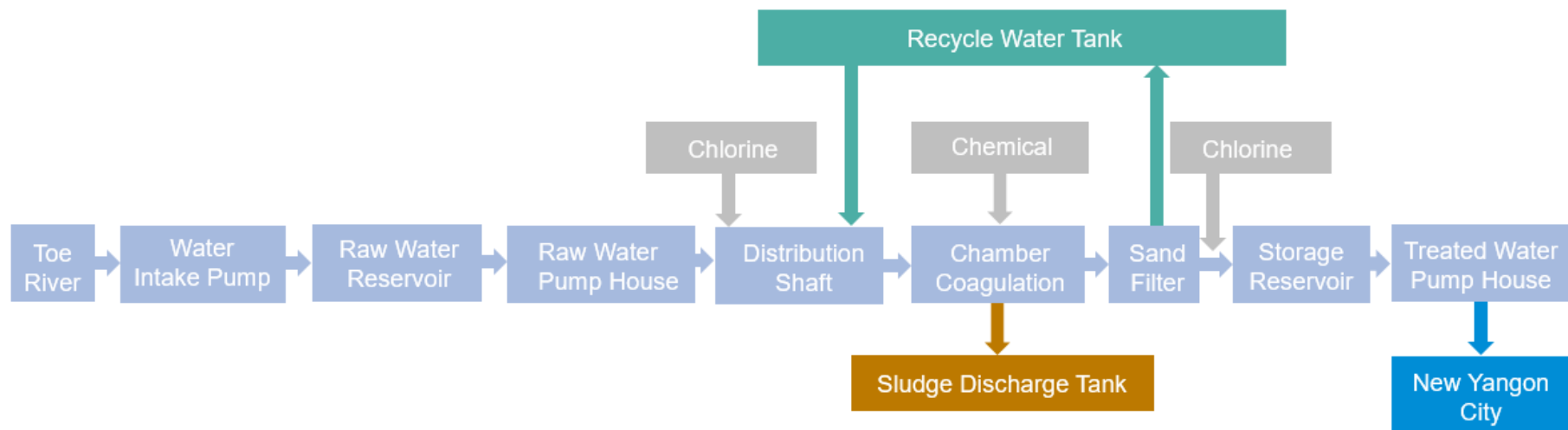


Figure 4.1 Project Location



Source: CCCC, 2019

Figure 4.2 Process Flow of WTP

4.3.1.1 Plant Layout Design

The proposed water treatment plant is divided into administration areas and production areas:

- Administration areas include administration building and parking etc.
- Production areas can be further divided into water treatment area and sludge water treatment area.

The water treatment area includes raw water reservoir, raw water pump house, distribution shaft, flash mixing chamber coagulation flocculation sedimentation tank, sand filter, storage reservoir, treated-water pump house, etc.

The sludge water treatment area includes recycle-water tank and sludge discharge tank etc. It is located in the southwest of the plant as a separate area to reduce the disturbance to other areas.

The maps and layouts for proposed buildings and facilities within the water treatment plant have been put in Appendix B.

4.3.1.2 Design of Hydraulic Elevation

The water level of distribution shaft is 4.75m above the ground level of the plant. The water level of suction well in treated-water pump station is 0.2 below the ground level of the plant. The total hydraulic head loss of treatment process is approximately 4.95m.

4.3.1.3 Components of the Water Treatment Process

The Water Treatment Process has the following component are listed in Table 4.3.

Table 4.3 Components of the WTP

Component	Description
Raw Water Reservoir	In order to ensure the reliability of water sources for the New Yangon City, a raw water reservoir with a net capacity of water supply for two days will be provided.
Raw Water Pump House	One raw water pump house will be provided for discharging raw water to distribution shaft by pumps.
Distribution Shaft	One distribution shaft with the function of distributing water through an overflow weir to ensure steady water distribution to the flash mixing chamber, the coagulation-flocculation tank and the sedimentation tank.
Flash Mixing Chamber Coagulation-Flocculation Sedimentation Tank	Two sets of flash mixing chamber, coagulation-flocculation tanks, and sedimentation tanks will be provided. <ul style="list-style-type: none"> ■ Flash Mixing Chamber: To form intensive turbulence so that chemicals could be dissolved in the water. ■ Flocculation Tank: Grid type flocculation tank will be used to allow for particle agglomeration. ■ Sedimentation Tank: Inclined-tube sedimentation process will be used, parallel inclined-tube will be set in sedimentation tank.
Sand Filter	Two sand filters will be provided. The filters will receive outflow from sedimentation tank and intercept suspended impurities. Particles greater than 2 to 5 μ m can be removed in this tank.
Storage Reservoir	Storage reservoir will be provided to store the treated water, regulate the volume difference between inflow and outflow, and ensure sufficient chlorine contact time. Two storage reservoirs will be constructed. Each reservoir is divided into two cells, and the effective volume of each storage reservoir is approximately 6000 m ³ .

Component	Description
Treated-water Pump House	One treated-water pump house will be provided with variable speed pumps. The treated water will be pumped to the distribute pipe network.
Backwash Pump House	One backwash pump house will be installed to provide air and water for filter backwash.
Chlorination House	One chlorination house will be provided to eradicate microorganisms, bacterium, algae and oxidised organism in water after chlorination.
Chemical House	One chemical house will be provided. Chemical solution will be stored, and prepared in the house. The solution will be carried out at chemical dosing point by pumps.
Recycle-water Tank	One recycle-water tank will be provided to collect waste backwash water and surface sweep water from sand filters. The waste water will be pumped to the sedimentation tanks for recycling use.
Sludge Discharge Tank	One sludge discharge tank will be provided to receive sludge mainly from sedimentation tank discontinuously. The treatment process of sludge shall be transported and dumped to the deposit area provided by the Government.
Gravity Thickening Tank	One gravity thickening tank will be provided to concentrate the sludge and decrease the moisture content of the sludge.
Sludge Storage Tank and Sludge Dewatering House	One (2 cells) sludge storage tank and one sludge dewatering house will be provided. The excess sludge can be stored in the sludge storage tank, and the sludge can be thickened and dewatered in dewatering house.

Source: CCCC, 2019

4.3.1.4 Other Ancillary Buildings

Other ancillary buildings in the WTP include: administration building (includes laboratory and main control centre), ware house, electrical house, guard room; as listed in Table 4.4.

Table 4.4 List of Ancillary Buildings

Item	Area	Quantity
Administration Building	1,500 m ²	1
Ware House	288 m ²	1
Guard Room	17 m ²	1
Garage	138 m ²	1
Electrical House of Raw Water Pump House	-	1
Electrical House of Backwash Pump House	-	1
Electrical House of Treated Water Pump House	-	1
Power Distribution Room	-	1

Source: CCCC, 2019

4.3.2 Raw Water Pipeline

4.3.2.1 Layout Design

A raw water pipeline is proposed to supply water to the WTP.

The raw water pipeline will be made of iron with a diameter of 1,200 mm and a total length of 35 km. The raw water pipeline will be laid underground mainly alongside the roads and the route of the raw water pipeline is as follows:

- The starting point of the raw water transmission pipeline is the intake pump station. The pipeline will be laid underground with the length of 4 km from the pump station to the adjacent existing highway.
- The remainder of the pipeline will be laid underground along the existing highway for about 31 km to the proposed WTP.
- The centre line of the pipeline is approximately 2-5 m from the side of highway.

In order to avoid collision with the municipal pipe, the burial depth of the raw water pipeline is normally not less than 700 mm.

4.3.2.2 Pipeline Ancillary Facilities

Isolation valves will be provided in the pipes to control and regulate the flow of water. If there is a malfunction in the pipeline, the valve shall be shut down to repair the broken pipe. Exhaust valves will be provided on the top points of the pipes. These are used to discharge gas in the pipes, avoiding the compression of water section and the increase of loss of water head. Drain valves will be provided on the low points of the pipes. Through the drain valve, the water will be drained to the valve manhole and be emptied by movable pumps.

4.3.3 Water Intake Point

4.3.3.1 Layout Design

The water intake system includes a water intake point which will be located on the Toe River. There will be a water intake pump station covering an area of 66 m x 86 m. When the capacity increases to 450,000 m³ per day, the total area for the pump station may be up to 100 m x 86 m. During the dry season, the measured flow of the Toe River is about 1,930m³/s. The main content of water intake includes intake head, artesian water diversion pipe and water intake pump house.

- Intake Head: In order to ensure good flow condition, and to prevent sand and floating debris, a grass and sand prevention intake head will be installed.
- Artesian Water Diversion Pipe: According to the topographic condition and water-level fluctuation, artesian water diversion pipe will be required.
- Water Intake Pump House: located near the bank of the Toe River. The raw water is transmitted from the intake head to the sump chamber of pump house through the artesian water diversion pipe. Three vertical long shaft pumps will be utilised in the Phase 1 development, two of which will be used at the same time and the rest one will be used as a backup. The pumps will run 12 hours per day in the initial stage to supply a flow rate of 6×104m³/d.

4.3.3.2 Inflow Water Quality

The quality of the raw water taken from the Toe River not currently known. The required inflow water quality should be in line with the parameters provided in Table 4.5 and Table 4.6.

Table 4.5 Designed Inflow Water Quality

No.	Parameter	Value
1	Color (TCU)	≤50
2	Turbidity (degrees)	≤2500
3	Order and taste	No odour
4	pH	6.5~8.5
5	Total hardness (calculated as calcium carbonate) (mg/L)	≤450
6	Dissolved iron (mg/L)	≤1.5
7	Manganese (mg/L)	≤1.0
8	Chloride (mg/L)	<250
9	Dissolved total solids (mg/L)	<500
10	Fluoride (mg/L)	≤1.0
11	Cyanide (mg/L)	≤0.05
12	Ammonia nitrogen (in terms of nitrogen) (mg/L)	≤1.0
13	Nitrate (in terms of nitrogen) (mg/L)	≤10
14	Total coliforms (units/L)	≤10000

Source: CCCC, 2018

Table 4.6 Inflow Water Quality

Organism	Guideline value
All water intended for drinking	
E.coli or thermotolerant coliform bacteria	Must not be detectable in any 100-ml sample
Treated water entering the distribution system	
E.coli or thermotolerant coliform bacteria	Must not be detectable in any 100-ml sample
Total coliform bacteria	Must not be detectable in any 100-ml sample
Treated water in the distribution system	
E.coli or thermotolerant coliform bacteria	Must not be detectable in any 100-ml sample
Total coliform bacteria	Must not be detectable in any 100-ml sample. In the case of large supplies, where sufficient samples are examined, must not be present in 95% of samples taken throughout any 12-month period.
Physical parameter	
Colour	15 TCU
electrical conductivity	1500m.mho/cm
taste and odours	Not objectionable
Temperature	acceptable
Turbidity	5 NTU
Inorganic constituents	
Aluminium	0.2mg/l
Ammonia	1.5mg/l
Chloride	250mg/l
Copper	1-2mg/l
Hardness	200mg/l as CaCO ₃
hydrogen sulphide	0.05mg/l
Iron	0.3mg/l
Manganese	0.1mg/l
pH	6.5-8.5
Sodium	200mg/l
Sulphate	250mg/l
total dissolved solids	1000mg/l
Zinc	3mg/l

Source: CCCC, 2019

4.3.4 Water Distribution Pipe Network

4.3.4.1 Water Distribution at Stage 1 Phase 1 Development

The water distribution pipe network will cover three areas including Industrial Zones, Municipal Roads, and Resettlement Areas. The interface between the municipal pipe network and the water treatment plant is 1 m outside the fence of the water treatment plant.

Table 4.7 summarises the details of water distribution pipes in each area.

Table 4.7 Summary of the Water Distribution Pipe Network in Industrial Zone, Municipal Road, and Resettlement Area

Area / Distribution Pipe Descriptions	Industrial Zone	Municipal Road	Resettlement Area
Type	Ductile iron pipes	Ductile iron pipes	Ductile iron pipes
Diameter	DN 200 – 1600	DN 400 – 1000	DN 200 - 600
Thickness	The minimum thickness of covering the pipe top will not be less than 1 m.	The requirement is the same as the pipes in Industrial Zone.	The requirement is the same as the pipes in Industrial Zone.
Arrangement	The distribution pipeline will be laid along both side of the collector roads.	Pipes will be laid at single side and along with the Municipal Road.	Pipes will be laid at single side and along with the roads.

Source: New Yangon City Phase 1 Development, China Communications Construction Company Ltd., Jan.2019

4.3.4.2 Pipeline Ancillary Facilities

Isolation Valve

Isolation valves will be provided in the pipes to control and regulate the water flow. If there is a malfunction in the pipeline, the valve will shut down in order to repair the broken pipe. A gate valve will be provided in the pipe with diameter nominal (DN) 200 – 300 and a butterfly valve will be provided in pipe with diameter larger than DN 400.

Exhaust Valves

Exhaust valves will be provided on the top points of the pipes to discharge gas in pipes, avoiding the compression of water section and the increase of loss of water head. The diameter of the exhaust valve will vary between 25 to 150 mm in diameter.

Drain Valve

Drain valves will be provided on the low points of the pipes through which the water will be drained to the valve manhole and be emptied by movable pumps.

4.4 Construction Activities

4.4.1 Raw Water Pipeline

Excavation and Supporting Design

DN1200 ductile iron pipes will be set up. If the slope excavation will cause potential safety hazard to the surrounding buildings, soil nail wall or spray cement mortar wall will be used. Excavations carried out on the stable soil should avoid timbering.

The space between pipes should be approximately 0.4 – 0.5m in order to make room for machinery and operating space.

Pipeline Foundation Treatment

If the pipeline is based on surface scarification backfill soil such as weak soil layer, all of the soil should be excavated and replaced by naturally graded sand clip. In order to ensure construction quality, disturbance of foundation soil should be avoided. Concrete coating measures should be used when parts of the pipeline are exposed.

Pipeline Backfill

After pipeline construction and inspection, pipe groove should be backfilled as soon as possible. The backfill should be within 500 mm from drain bottom to pipe top, organic matter and brick stone (apart from those that are bigger than 50 mm). The chest part of the tube backfill soil should be carried out by hand tamping.

Pipe Pressure Test

Hydrostatic test and closed water breath tests should be taken as soon as possible before the primary backfill. Pipeline pressure test should be done in section.

Road Destruction and Recovery

Part of the water supply pipelines are designed under existing road. Hence, the road recovery construction works should be carried out according to road grades after the pipe laying construction,

4.4.2 Access Roads

The existing road used as access road will be kept in the current condition. The main temporary road built in the construction site will be paved with crushed stone. Where required, access roads will be concrete to suit the construction vehicles using them. They will provide direct access where required from main public ROW to construction site.

4.4.3 Power Supply and Demand

Power will be supplied from the municipal electricity and diesel generators. Diesel generators shall be used as power supply partially during the construction of the transmission lines and substations. Main generators will generate 70 – 400 kW, depending on the construction organisation in the future. Discussions are ongoing with Yangon Electricity Supply Corporation (YESC) for provision of construction power supply.

The construction phase of Stage 1 Phase 1 of New Yangon City will approximately consume 5,780 kilowatts (kW) in total, in which 1,380 kW is from municipal electricity grid.

4.4.4 Water Supply and Demand

Water will come from Yangon River, rain water and municipal water supply. Water tank will also be prepared on site. Municipal water supply or rainwater will be used for concrete production, cement

stabilised base material and domestic water. Drinking water will be supplied by barrelled water or treated water from municipal water supply.

During the construction phase of Stage 1 Phase 1 of New Yangon City, the average water demand will be 14,200 tons, in which about 700 tons will be used for concrete production and cement stabilised base material.

4.4.5 Fuel Consumption

Diesel and petrol will be supplied from the local market. Equipment and machinery that will be used in the construction phase of Stage 1 Phase 1 of New Yangon City are listed in Table 4.8.

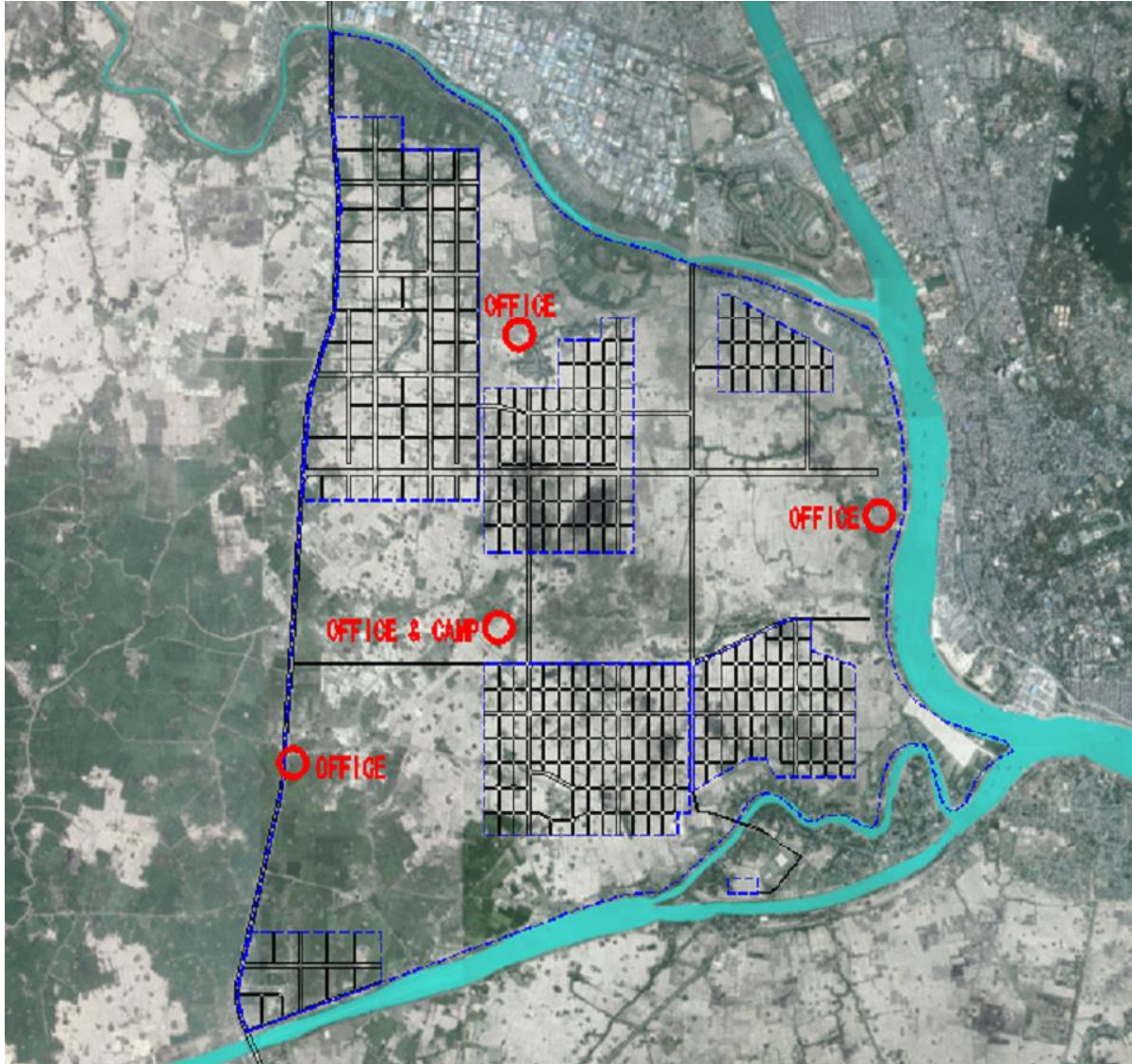
Table 4.8 Details of Equipment and Machinery

Equipment & Machinery	Details / Model
Roller	25 ton vibration
Roller	Twin steel wheel; 18 ton vibration
Excavator	PC 220
Dozer	TY 160
Loader	ZL 50
Dump truck	30 ton
Water truck	10m ³
Forklift	3 ton
Motor Grader	GR 165
Dozer	TY160
Truck crane	25 ton
Generator	400 Kilowatt (kW)
Generator	200 kW
Generator	150 kW
Generator	120 kW
Generator	Mobile 70 kW
Flat truck	13 meter
Truck crane	25 ton
Water pump	10 kW
Crawler hydraulic piling machine	BY-VH 250
Hydraulic rammer compactor	Excitation Force 700 KN
Hydraulic piling machine	YZY320
Tower crane	60
Sprinkler	10 ton
Tank truck	10 ton

Source: CCCC, 2019

4.4.6 Accommodation Camps

Around 438 units will be set up for temporary accommodation camps. The camps are anticipated to be set up in Twantay Township (Figure 4.3). The accommodation camps will comply with International Labour Organisation (ILO) and Myanmar guidelines.



Source: CCCC, 2019

Figure 4.3 Location of Accommodation Camps

4.4.7 Workforce

Table 4.9 shows the estimate number of workers required for the Stage 1 Phase 1 of New Yangon City per year. Subjected to mitigation measures, construction will be carried out during night time and holidays. Working hours will comply with Myanmar relevant laws and International Labour Organisation (ILO) standards.

Table 4.9 Breakdown of Number of Workers from 2020 to 2026

Year	Average Worker at Site	Workers from Neighbouring Townships	Worker Living Within the Staff Housing	Workers from New Yangon City Residents
2020	3,950	68%	27%	5%
2021	3,540	68%	27%	5%
2022	3,350	68%	27%	5%
2023	1,900	68%	27%	5%
2024	2,150	68%	27%	5%
2025	1,400	68%	27%	5%
2026	1,500	68%	27%	5%

Source: CCCC, 2019

4.4.8 Transportation

Table 4.10 shows the estimate volume of construction vehicles per year between 2020 and 2026. The daily average calculation of traffic flow is around three.

Table 4.10 Volume of Construction Vehicles per year between 2020 and 2026

Year	Average Vehicle Number at Site
2020	2,530
2021	2,470
2022	2,380
2023	1,780
2024	1,886
2025	1,320
2026	1,428

Source: CCCC, 2019

4.5 Operation and Maintenance Activities

The number of workers during operation is not yet known.

4.6 Emissions and Discharges

4.6.1 Wastewater Generation

The site runoff wastewater discharge limits during the construction phase are provided in Section 3.1.3, as per the EQEG.

4.6.2 Solid Waste

The solid waste generated from construction will be disposed of at a designated facility including hazardous materials. All solid waste shall be managed through a waste management plan.

4.6.3 Noise and Air Emission

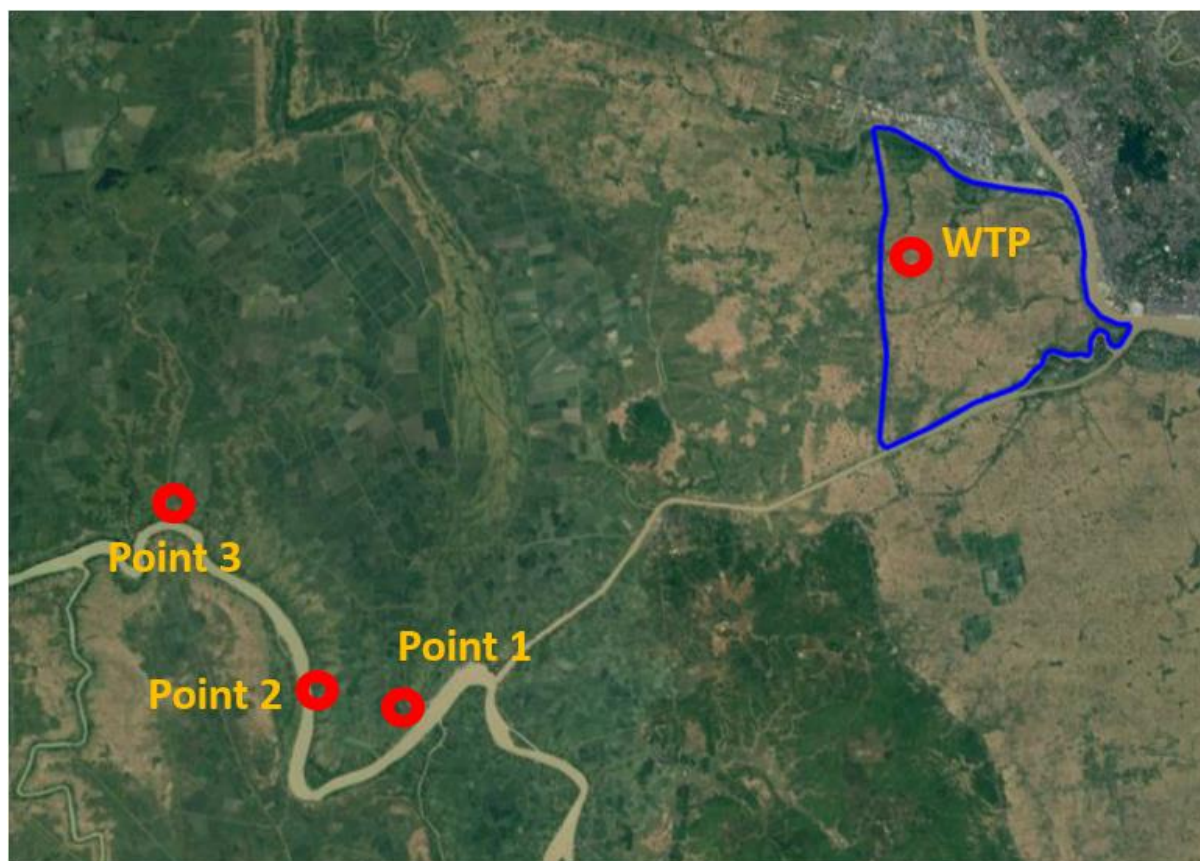
During construction and operation, noise and dust emissions may be generated by vehicle use, site works, and maintenance works. Additionally during construction phase, traffic increase in the project area may lead to an increase in carbon dioxide emissions, and outdoor air pollution; greenhouse gas emitted by construction vehicles will be further discussed in the EIA Report.

The emissions will comply with Environmental Quality (Emission) Guidelines (EQEG).

4.7 Project Alternatives

For water treatment plant, it was initially located towards the north of the Phase 1 of New Yangon City. It is subsequently moved towards the middle of the Phase 1 of New Yangon City.

Three different locations for water intake point have been considered (Figure 4.4).



Source: CCCC, 2019

Figure 4.4 Locations of Potential Water Intake Point

4.7.1 Point 1 (Current Selected Location)

The current selected location (Point 1 in *Figure 4.4*) is located on a concave bank of the Toe River, about 40 km from the water treatment plant (along the road). The elevation of this point is about 0.1 m and the width of the river at this point is about 800 m. Based on the site investigation, it is

suggested that the water quantity is sufficient and the water quality is good in the rainy season (CCCC, 2019).

The traffic of water intake point 1 is inconvenient. There is a single lane road at about 500 m from the point, and a double lane main road at about 4 km from the point. There are residential buildings approximately 500 m away from that point, and there may be access to municipal power grids. Most of the area surrounding water intake point 1 is farmland.

4.7.2 Point 2

Water intake point 2 is located on a concave bank of the Toe River, about 45 km from the water plant (along the road). The elevation is about 6 m and the width of the river at this point is about 360m.

Based on the site investigation, it is suggested that the water quantity is sufficient and the water is deep. However, there are many residential houses at the coastal area. If the sewage is mainly discharged into the river directly, it will produce a certain amount of pollution to the raw water and affect the raw water quality.

The traffic of water intake point 2 is relatively convenient. There is a single lane road at about 100 m from the point. The road should be broadened about 5 km to the main road. There are residential buildings approximately 500 m away from that point, therefore there may be access to municipal power grids. Residential buildings are located around the intake point so some resettlement may be required.

4.7.3 Point 3

Water intake point 3 is located on a concave bank of the Toe River, about 50 km from the water plant (along the road). The elevation is about 6 m and the width of the river at this point is about 350m.

Based on the site investigation, it is suggested that the water quantity is sufficient and the water is deep. However, there are many residential houses at the coastal area. If the sewage is mainly discharged into the river directly, it will produce a certain amount of pollution to the raw water and affect the raw water quality.

The traffic of water intake point 3 is conveniently located, and there is a single lane road at approximately 40 m from the point, and a double lane main road approximately 1 km from the point. There are residential buildings approximately 100m from that point, therefore there may be access to municipal power grids. Residential buildings are located around the intake point so some resettlement may be required.

4.7.4 Comparison and Selection of Water Intake Points

Based on the site investigation and the available information, the comparison of 3 points is shown in Table 4.11. Water intake point 1 has abundant water quantity, and it is relatively far away from the residential areas. Its water quality is relatively good and its location is easier to set up a sanitary protection zone. In addition, water intake point 1 is closer to the WTP, which can reduce construction cost and operational energy consumption.

However, the seawater influence boundary and salt concentration requires further studies at the next stage.

It has been agreed that the water intake point shall be within the Yangon Region in order to facilitate project approval and construction. Considering the above-mentioned elements, point 1 is selected as the water intake point for this project.

Table 4.11 Comparison of Water Intake Points

Item	Point 1	Point 2	Point 3
Source	Toe River	Toe River	Toe River
Water Quantity	Abundant	Abundant	Abundant
Water Quality	Good, but may be impacted by salt tide	Normal, may be polluted by municipal wastewater	Normal, may be polluted by municipal wastewater
Elevation	0.1 m	6 m	6 m
Length of Raw Water Transmission Pipeline	Approximately 40 km	Approximately 45 km	Approximately 50 km
Construction cost draft estimation of pump station and raw water transmission pipeline	Low	Middle	High
Operation energy consumption	Low	Middle	High
Access to external power	Convenient	Convenient	Convenient
Traffic	Inconvenient	Normal	Convenient

Source: CCCC, 2019

5. DESCRIPTION OF THE SURROUNDING ENVIRONMENT

5.1 Introduction

This Section describes the physical, biological, and social environment of the Study Area (as defined in Section 5.2). The information provided is based on a review of published information, as well as a review of available literature from NYDC and from ERM's in-house library.

The purpose of reviewing the baseline conditions is to present an understanding of the potential environmental and social sensitivities of the Study Area. Reviewing the baseline conditions allows NYDC to make an informed judgement on the appropriate level of impact assessment for the Project. More detailed information on the baseline environmental and social conditions in the Study Area, including the results of primary baseline surveys conducted for the Project will be provided in the EIA Report.

5.2 Defining the Study Area and Area of Influence

The **Project Area** is defined as the location of water intake point, raw water pipeline and water treatment plant. The facilities will be located in Twantay Township. The water will be taken from Toe River which is located in the Southern Twantay boundary of Township.

This section presents the physical, environmental, socio-economic, cultural and visual characteristics of the **Study Area**. The **Study Area** is defined as the wider area in which the environmental and social conditions are evaluated with the sources of risk, in order to determine interactions and the magnitude and significance of potential impacts resulting from the Project. For this Project, the **Study Area** is defined as a 2 km buffer around the whole New Yangon City Phase 1 Development; encompassing the Townships and areas neighbouring the **Project Area**. This area definition also facilitates the comparison of cumulative impacts between the individual Project components.

The '**Area of Influence**' (**Aoi**) is defined as the village tracts, wards and townships within or neighbouring the Project Area.

The **Study Area** and **Area of Influence** are shown in Figure 5.1.

The coordinate points of Study Area and AOI are listed in Table 5.1.

Table 5.1 Coordinate Points of Study Area and Area of Influence

Area	Coordinate Points*
Study Area	96.030341°N 16.875931°E, 96.125845°N 16.817293°E, 96.149967°N 16.763088°E, 96.022398°N 16.712378°E, between 95.819782°N 16.649092°E and 96.005510°N 16.737818°E (raw water pipeline), 96.013962°N 16.812752°E
Area of Influence	96.035137°N 16.876990°E, 96.122923°N 16.834604°E, 96.149967°N 16.763088°E, 96.022398°N 16.712378°E, between 95.819782°N 16.649092°E and 96.005510°N 16.737818°E (raw water pipeline), 96.013962°N 16.812752°E

**There may be some deviation between these coordinated points as the areas are not straight lines between them.*

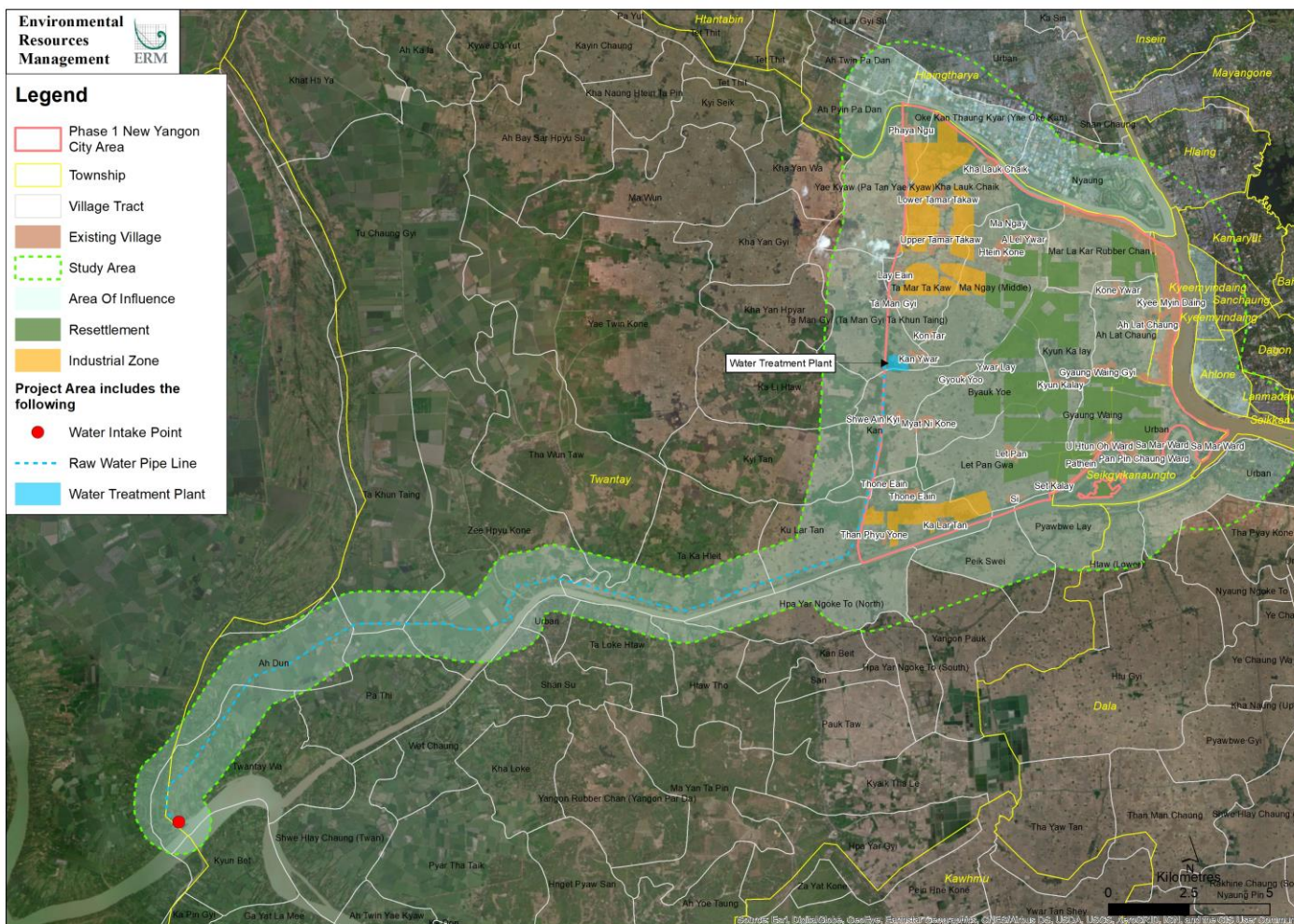


Figure 5.1 Study Area and Area of Influence

5.3 Physical Characteristics

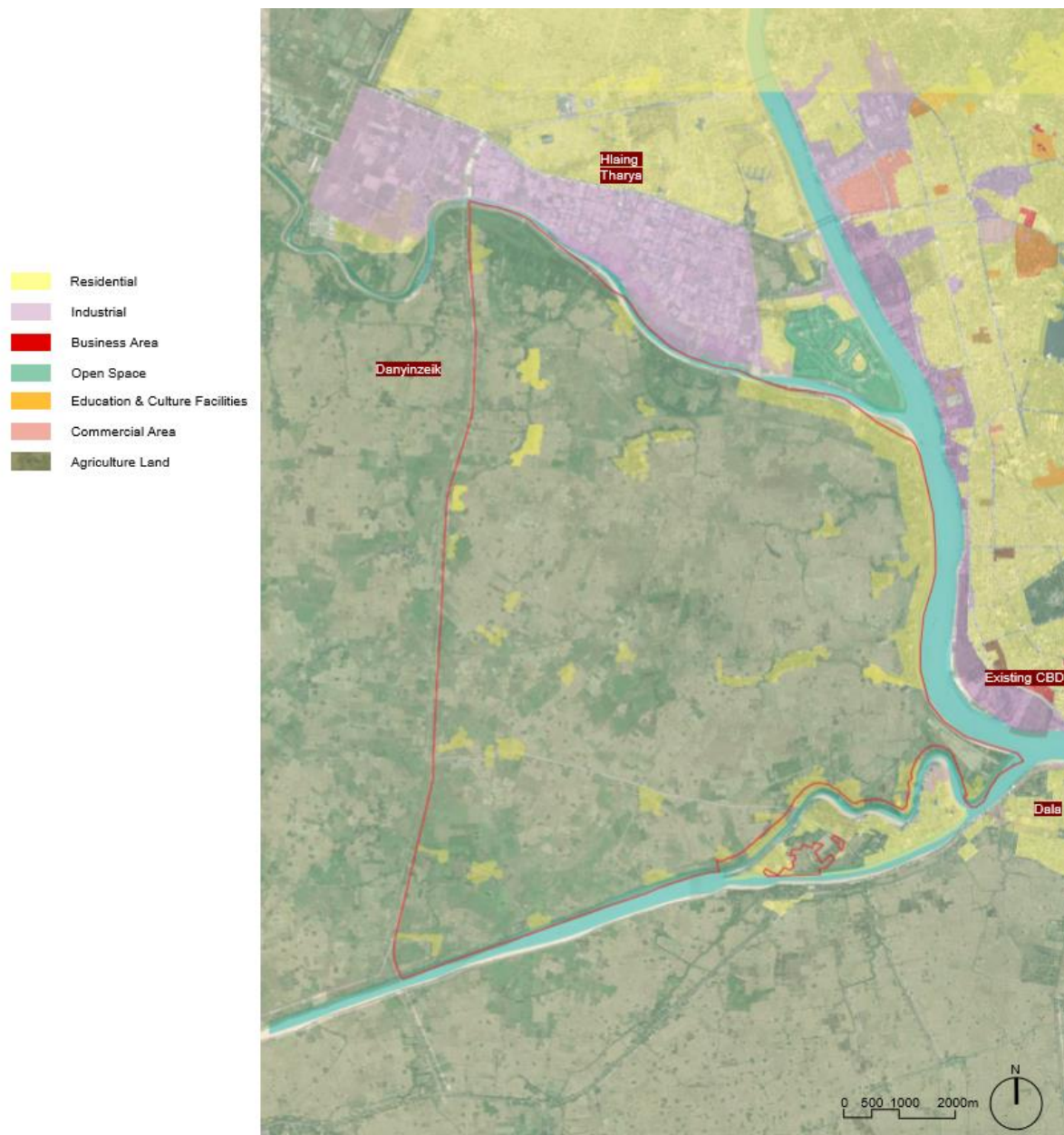
The Project Area is located in Twantay Townships to the West of Yangon. It is separated from the main urban centre of Yangon by the Hlaing River to the East, Hlaing Tharyar Township to the north, and from the Dala Township by the Twantay Canal to the south. Baseline information on physical environment at the Study Area is summarised in the following sections.

5.3.1 Geology and Topography

The geological landscape in this part of Myanmar is characterised by the Indo-Burman Ranges which branch southwards from the eastern Himalayas and the Irrawaddy Valley Basin also known as the Inner Myanmar Tertiary Basin.

Areas within the New Yangon City are prone to flooding due to the elevation relative to its surroundings. Pluvial flood can occur due to the runoff to low elevated points in the area with limited drainage capacity. Fluvial flooding can occur when the surroundings are lower than the water in the surrounding river or canal (Royal Haskoning DHV, 2019).

Figure 5.2 show the existing land use of the Project Area.



Source: AECOM, 2019

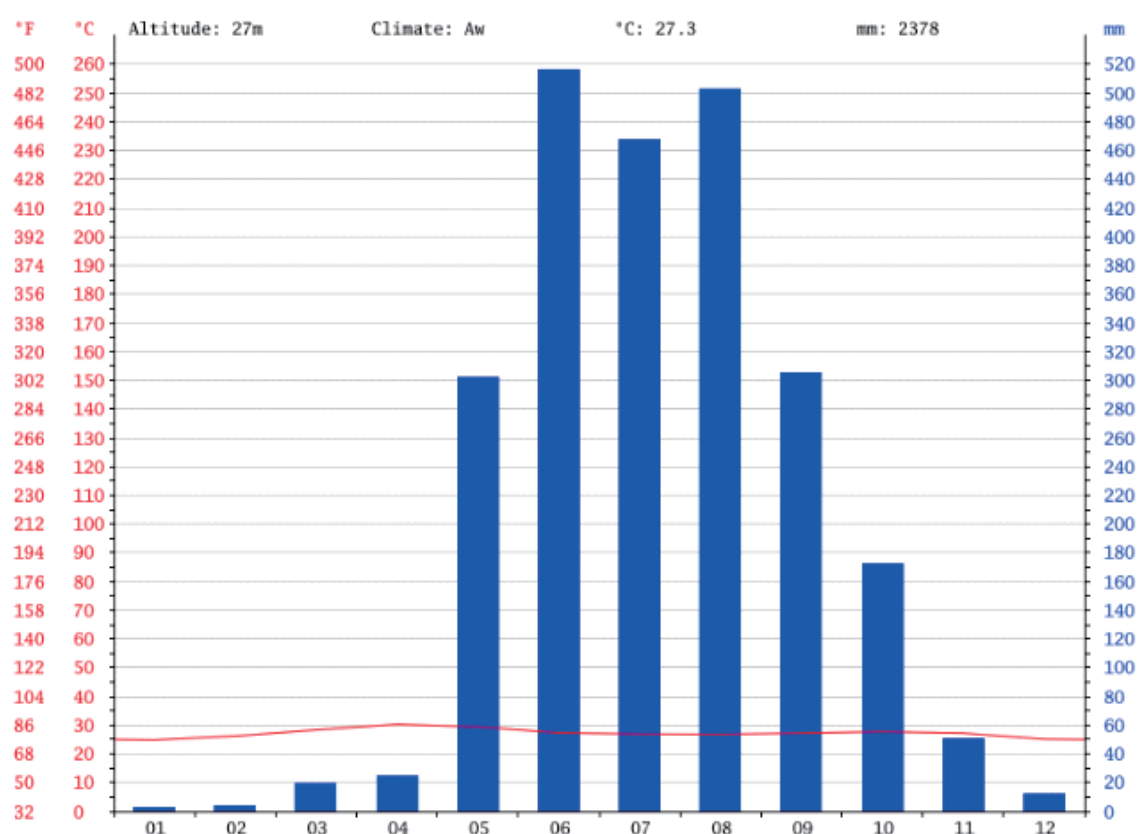
Figure 5.2 Surrounding Land Use of the Project Area

5.3.2 Climate

Myanmar is characterised by a tropical to subtropical monsoon climate with three well defined seasons: hot, dry inter-monsoonal (mid-February to mid-May); rainy southwest monsoon (mid-May to late October); and cool relatively dry northeast monsoon (late October to mid-February) (Ministry of Environmental Conservation and Forestry, 2012).

The southwest monsoon starts in late March or early April with local turbulence that includes cyclones, bringing winds that can reach up to 200 – 300 km/h. From October to mid-March the northeast monsoon brings a dry and cool climate. Due to widely differing topographical profiles throughout Myanmar and its range of latitudes, its climate conditions differ widely from one place to another (Ministry of Forestry, 2005).

In Yangon, as with Myanmar in general, there is much less rainfall in summer. The average maximum temperature is 29°C while average annual rainfall is 2,378 mm (Figure 5.3). The driest month is January, with 3 mm of rainfall and June is the wettest month with an average of 516 mm. The warmest month is April, with an average temperature of 30°C. January has the lowest average temperature of the year; 25 °C. During the year, the average temperatures vary by 5.5 °C (Climate Data Website, 2018).



Source: Climate Data website, 2018

Figure 5.3 Average Monthly Temperature and Rainfall Chart of Yangon, Myanmar

5.3.3 Natural Hazards

Myanmar is exposed to multiple natural hazards including cyclones, earthquakes, and flooding. These are discussed in the following sections.

5.3.3.1 Storms and Cyclones

Gale force winds (17.2 m s^{-1} or over) are mainly associated with local rain squalls and with severe tropical storms or cyclones. The central region off the coast receives the worst buffeting during the summer monsoon. The threat of cyclones with winds above 32.7 m s^{-1} affects different areas at different times of the year, affecting all areas though the major tracks do not pass over the Andaman Sea (OCHA, 2011). They are most frequent from mid-May to early December.

5.3.3.2 Flooding

Areas within the New Yangon City are prone to flooding due to the elevation relative to its surroundings. Pluvial flooding can occur due to the runoff to low elevated points in the area with limited drainage capacity. Fluvial flooding can occur when the surroundings are lower than the water in the surrounding river or canal (Royal Haskoning DHV, 2019).

The average tidal range of the Yangon River is about 5.9 m at spring tide and 2.6 m at neap tide. Modelling of the discharge of Yangon River indicates discharges ranging from $<500 \text{ m}^3/\text{s}$ in April to approximately $7,000 \text{ m}^3/\text{s}$ in August, with tidal water level variations of around 1 m to 6 m based on water level measurements at Monkey Point downstream of Study Area (De Koning & Janssen, 2015). In the Ayeyarwady Delta, which includes the Yangon River, drainage, salt intrusion, and flood protection are the main concerns (EO Earth Website, 2016).

Two main forces dominant the Yangon river system that can result in fluvial floods (Royal Haskoning DHV, 2019). These have been considered in the Project design:

- **Increased water levels from the sea:** the area knows a strong tide that comes from the Gulf of Martaban. The spring tide range is approximately 5.4 metre in the Hlaing River, and the neap tide range is approximately 2.0 metre. In addition, storm surges can increase the offshore water levels.
- **Increased discharges during the monsoon period:** the Irrawaddy River is feeding the Yangon rivers with rainfall from the Irrawaddy River Basin and water levels increase with an additional (approximate) 0.7 metre.

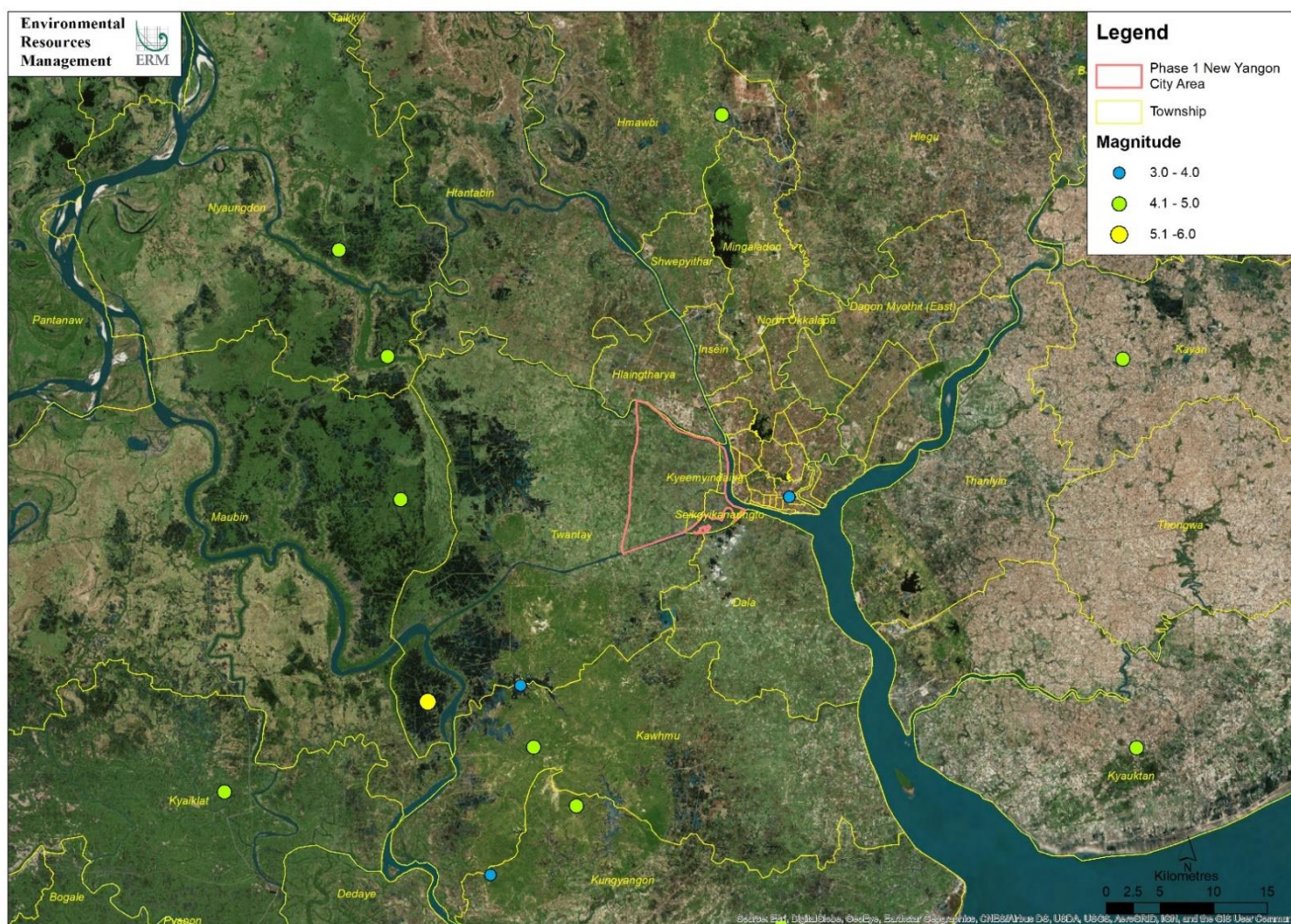
As part of the Phase 1 development, NYDC initiated a strategic flood risk assessment to ensure that the proposed development takes account of flood risk. Royal Haskoning DHV (RHDHV) were selected as the consultant to conduct New Yangon City's flood risk assessment for Phase 1. The following are some of the main conclusions can be drawn from the flood risk assessment.

- The New Yangon City is prone to flooding due to the following three flood sources: tide and storm surge (coastal), river discharge (fluvial), and rainfall (pluvial). Among the three flood sources, coastal flood (in terms of days) is usually with shorter duration than fluvial flood (in terms of weeks).
- The flood risk profile for New Yangon City shows that the flood risk in the existing situation without flood protection is fairly high. Sea level rise will strongly impact the flood risk profile of New Yangon City in terms of economic risk as well as loss-of life. Implementation of flood risk reduction measures is recommended (Royal Haskoning DHV, 2019).

Based on the flood risk assessment carried out by Royal Haskoning, the risk of flooding will be taken into consideration during EIA stage. The EIA report will consider the likelihood of river bank erosion based on the amount of water intake from Toe River. River flows and ecology of Toe River will also be observed.

5.3.3.3 Earthquake Risk

A review of available literature has shown that Myanmar is seismologically unstable and vulnerable to earthquakes due to its location in the active Alpide seismotectonic belt and the young Alpine Himalayan-Sumatran orogenic belt (Willige et al., 2009). Historic records show that at least 15 major earthquakes with magnitudes $M \geq 7.0$ RS have occurred in Myanmar in the last hundred years. These earthquakes occurred within Myanmar in the last century, in Yangon Region, these include on 27 March, 16 May, and 21 May 1931 and 1970. Figure 5.4 presents the locations of historic earthquakes in Yangon.



Source: USGS Website

Figure 5.4 Historic Earthquakes in Yangon

5.3.4 Water Quality and Water Resources Management

In Yangon city, municipal water supply can only reach 38% of the population. For the rest of the population, they often find alternatives in other sources such as groundwater, tube wells, and private water vendors etc., which are untreated and unlikely to meet the bacteriological guidelines for drinking (Another Development & East Asia Institute 2018).

5.3.4.1 Surface Water Quality

A study carried out in 2013 (Hiroshi Sakai, et al, 2013) sampled river waters within ~12 km upstream and ~3 km downstream in proximity to the New Yangon City. The total coliform level of the river waters in Yangon was close to 50 total coliforms ml⁻¹, indicating that river can be used for drinking water after advanced treatment. Amongst the sampling points on the Yangon River, the sampling point downstream of the Project Site has significantly higher (21 fold higher) total coliform level than those sampling points in the centre of the river.

Analysis of chemical levels in river water samples indicated that the dissolved organic carbon (DOC) was less than 3mg C L⁻¹. Levels of the Chlorine (Cl⁻) ion increased downstream. The levels of Bromine (Br) ion and Arsenic (As) displayed a similar trend, although the increase was not as marked. In contrast to the elemental measurements, DOC, dissolved total nitrogen (DTN), and nitrate were stable along the river flow. It was therefore assumed that the sources of Cl⁻, Br⁻ and As were different from those of carbon and nitrogen. Overall, lake and river water quality were considered good in terms of their chemical parameters, but levels of bacterial contamination are concerns (Hiroshi Sakai, et al, 2013).

5.3.4.2 Groundwater Utilization

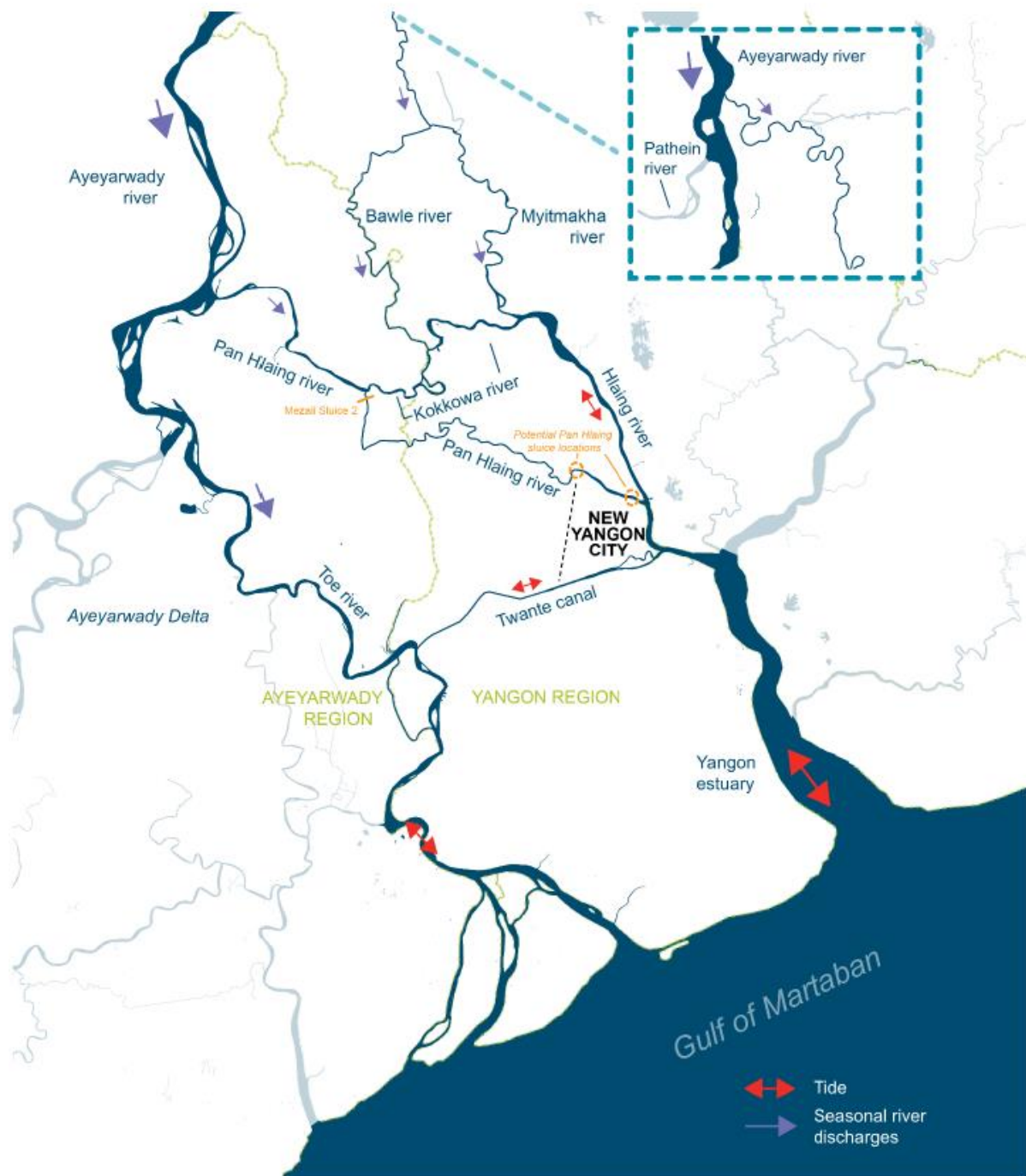
Ground water is an important source of water supply for various uses and is used to meet the needs of city dwellers. Ground water is especially important for Yangon City, as many local communities rely on groundwater for domestic purposes. The number of tube wells increased from 17 in 1983 to 442 in 2014, operated solely by YCDC (Another Development & East Asia Institute, 2018).

Consequently, ground water depletion is progressing at a fast rate given the conditions in Yangon city. Population dynamics, rural-urban migration, urban area expansion, industrialization, improved living standard and insufficient water supply account for the increasing ground water usage in Yangon. Although 85% of the city is covered by high potential area, it mainly depends on the long term rechargeable value. This implies that the more groundwater extraction exceeds the rate of rechargeable value, the more the potential ground water source decreases (Another Development & East Asia Institute, 2018).

5.3.4.3 Fluvial-Coastal System

New Yangon City is surrounded by the Pan Hlaing River in the north, the Hlaing River in the east and the Twantay Canal in the south. These three channels are part of a larger hydraulic system in Yangon Region (Figure 5.5).

The Twantay Canal is a manmade canal to create a shortcut between Yangon and the Irrawaddy region for navigation. As the river system is morphologically active, the outer bend of the Yangon River started to erode, creating the possibility of a direct shortcut between the Hlaing and the Twantay Canal and loss of land. Therefore, the river bend was stabilised by the river bank protection which was completed in 1914. The Pan Hlaing River used to be the main navigation route towards Nyaungdone, however, the river siltated and vessels were rerouted through the Kokkowa River. To regulate water inflow into the Pan Hlaing River, gate Mezali Sluice 2 was constructed in 2014 to 2016 (Royal Haskoning DHV, 2019).



Source: Royal Haskoning DHV, 2019.

Figure 5.5 Overview of the Hydraulic System around New Yangon City

5.3.4.4 Drainage System

Precipitation that falls within the New Yangon City will infiltrate in the ground or runoff through natural creeks and manmade ditches and drainage canals. The natural creeks are connected to the hydraulic river system and they are therefore tidal. These creeks can speed up the infiltration of fluvial flood water into the area. However, when properly designed, they could function as a drain and add value to the liveability of the area by bringing water and nature into the city (Royal Haskoning DHV, 2019).

5.3.5 Ambient Air Quality

Air quality monitoring was first conducted in Yangon in 2007 by the Department of Medical Research and Yangon City Development Committee (YCDC). The monitoring results indicated that particulate matter (as Total Suspended Particles (TSP) and PM₁₀) were the main pollutants of concern. The PM₁₀ levels in Yangon are two to three times higher than the guideline value set by the World Health Organization (WHO) of 50 µg/m³. Comparison between the residential, commercial, and industrial areas of Yangon showed that the commercial areas typically have higher levels of TSP and PM₁₀ compared to residential and industrial sites.

5.3.6 Soil Quality

Soil characteristics in Yangon are classified as predominantly Gleysol. The Study Area is located on Meadow (Gleysol) and Meadow Alluvial soil (Fluvic Gleysols). The Meadow soil distributes near the river plains where occasional tidal floods occur and are typically non-carbonate, and they usually contain large amount of salts. Meadow Alluvial soil can be found in the flood plains. They have the texture of silty clay loam and are rich in plant nutrients (Union of Myanmar, 2009).

5.3.7 Ambient Noise

Ambient noise levels (LAeq) may have the potential to exceed the EQEG limits for the night time noise standards and daytime noise standards, depending on the effect of noise emission sources in the area e.g., cars, motorcycles. However, as the Project Area is predominantly rural there can be expected to be limited sources of noise pollution.

5.4 Biological Characteristics

5.4.1 Terrestrial Flora and Habitats

The Study Area is largely rural with small villages present. It is likely that there will be no natural forest of any significance in size in and around the Project Area. Mangrove vegetation could be present on the bank of the rivers and the Mangrove species expected to be present may include *Acanthus ilicifolius*, *Aegiceras corniculatum*, *Albizia lebbek*, *Albizia procera*, *Alternanthera sessilis* and etc. Primary data on mangroves, other flora, and habitats will be collected during the EIA baseline study.

5.4.2 Fauna

Based on a survey ERM carried out in 2017, the species previously recorded in and around the Study Area include a range of common farmland, urban, and wetland species. Previous studies have recorded a range of bird, mammal, invertebrate, reptile, and fish species from both direct observation and interviews with local community members. As part of the Project, surveys will be conducted to confirm the terrestrial and aquatic fauna presents, particularly the presence of any protected or threatened species. Some examples of fauna found in the Study Area are shown in Figure 5.6. Primary data on fauna will be collected during EIA baseline study.



Oriental Garden Lizard *Calotes versicolor*



Oriental Garden Lizard *Calotes versicolor*



Blue Crested Lizard *Calotes mystaceus*



East Indian Brown Mabuya *Mabuya multifasciata*

Source: ERM (2017)

Figure 5.6 Examples of Fauna in Study Area

5.4.3 Protected and Sensitive Areas

Protected areas and key biodiversity areas and their distance to the Project Area is summarised in Table 5.2.

Table 5.2 Protected and Key Biodiversity Areas and Distance to the Project Area

Protected Area / Key Biodiversity Areas	Details and Key Species	Nearest Distance from the Project Area
Hlawga National Wildlife Park	<ul style="list-style-type: none"> Area: 6 km² Year Designed: 2012 Columba punicea (Pale-capped pigeon) (VU) 	19 km north
Hlawga Reservoir KBA	<ul style="list-style-type: none"> Area: 23 km² Year Designated: 2012 Dalbergia cultrata (Yin-daik) (EN), Dipterocarpus alatus (Kanyin-byu) (EN), Hopea odorata (Thingan) (VU). 	14 km north
Payagyi Terrestrial KBA	<ul style="list-style-type: none"> Area: 2 km² Year Designated: 2012 Grus Antigone (Sarus crane) (VU), Congregatory waterbirds 	18 km west
Maletto Inn fresh water KBA	<ul style="list-style-type: none"> Area: 386 km² Year Designated: 2012 Grus Antigone (Sarus crane) (VU), Emberiza aureola (Yellow-breasted Bunting) (EN), Congregatory water birds 	17 km west

Source: Myanmar Biodiversity, Myanmar Key Biodiversity Areas

5.5 Socio-Economic Characteristics

The following sections provide an overview of the social setting of the Study Area. The Study Area from a social perspective includes the Townships of Seikgyi Kanaungto, Kyee Myin Daing, Dala, Ahlone, Twantay, and Hlaing Tharyar. The information was based data collected from scoping consultation, a review of published information and ERM's in-house library.

During the EIA baseline study, primary socio-economic data will be collected in the Study Area in order to identify the Project's impacts to local communities. Social baseline survey will be carried out before the Project in order to identify its impacts to socio-economic conditions. Meanwhile, it is noted that Hlaing Tharyar Industrial Zone is north to the Project Area (on the northern bank of Pun Hlaing River). The impact to the abovementioned Industrial Zone will also be taken account in the EIA report.

5.5.1 Overview of Townships in Study Area

The following is an overview of information on the Townships in the Study Area based on information collected from local GADs, Township GAD reports and Census data.

5.5.1.1 Seikgyi Kanaungto

Seikgyi Kanaungto (Figure 5.7) is located in the Southern District of Yangon and lies about eight feet above sea level. The total area of the township is three square miles. It is bordering with Dala Township, Twantay Township, Kyee Myin Daing Township and, Yangon River. Seikgyi Kanaungto Township experiences high and low tide and 90% of the township experiences temporary flooding during the rainy season. Twantay Canal and Kanaungto Creek cross east to west. Most of the water sources in the area are salty and cannot be used for agriculture and drinking water purposes. There are nine wards and all of them live in urban areas. 96% of population are Myanmar and Karen, Chin and Rakhine people share the other 4%.



Source: ERM (2019)

Figure 5.7 Seikgyi Kanaungto Township

5.5.1.2 Twantay

Twantay (Figure 5.8) is located in the Southern District of Yangon and about 15 feet above sea level. The total area of the township is 279 square miles. It is bordering with Kyee Myin Daing Township, Dala Township and Seikgyi Kanaungto Township to the east, Maubin Township and Nyaung Tone Township to the west and Htantapin and Hlaing Tharyar Township to the north. 90% of township is covered by flat land there are plenty of rivers and creeks; Pan Hlaing River flows from west to east,

Twantay canal flows west to east, Toe River and Kattiya creek flows from north to south. There are eight townships and 65 village tracts and about 19% of them live in urban and 81% of them in rural area. 60% of the Township is covered by the forest and 20% out of 60% are reserved forest area. 76% of population are Bamar, 22% are Karen and other 2% are Chin, Mon and Rakhine.



Source: ERM (2019)

Figure 5.8 Twantay Township

5.5.1.3 Kyee Myin Daing

Located 35 feet above sea level, Kyee Myin Daing Township is split by the Yangon River. The total area of the township is five square miles. The Township is bordering with Sanchaung Township to the east, Ahlone and Seikgyi Kanaungto Townships to the south, Twantay Township to the west and Kamayut and Hlaing Tharyar Township to the north. The water from the river is salty and not suitable for drinking and agriculture purposes. There are 22 wards and all live in urban area. 97% of population are Bamar and other 4% share to Kachin, Kayah, Kayin, Chin, Mon, Rakhine, Shan and others.

5.5.1.4 Hlaing Tharyar

Hlaing Tharyar Township (Figure 5.9) is located in Northern District of Yangon and about 100 feet above sea level. The total area of the township is 23 square miles. It is bordering with Insein Township to the east, Htantapin Township to the west, Twantay Township to the south and Shwepyithar Township to the north. Pan Hlaing River crosses from west to east and flows into Hlaing River which crosses from north to south. There are 20 wards and nine Village Tracts and about 80% live in urban and 20% in rural area. 94% of population are Bamar and other 6% share to Kachin, Kayah, Kayin, Chin, Mon, Rakhine and Shan.



Source: ERM (2019)

Figure 5.9 Hlaing Tharyar Township

5.5.1.5 Ahlone

Ahlone Township is located in Western District of Yangon and about eight feet above sea level. The total area of the township is 1 square mile. The Township is bordering with Dagon Township to the east, Yangon River in the west, Lanmataw Township and the Port to the south and Kyee Myin Daing to the north. There are 11 wards and all live in urban area. 79% of population are Bamar, 6% Kayin and 15% are Kachin, Kayah, Chin, Mon, Rakhine and others.

5.5.1.6 Dala

Dala Township is located in Southern District of Yangon and about 12 feet above sea level. The total area of the township is 86.51 square miles. The Township is bounded by the Yangon River in the north and east, Kauk Hmuu Township in the South and Twantay Township in the West. There are 24 wards, 23 village tracts and 54 villages in this township. 96% of population are Bamar, 1% Kayin and others.

5.5.2 Overview of Villages in Study Area

A total of 52 villages fall within the Study Area. Their distances to the WTP are summarised in Table 5.3.

Table 5.3 Distances between Water Treatment Plant and Villages within Study Area

Village	Distance to the Water Treatment Plant
Phaya Ngu	6,700 m North
Htin Su	6,600 m North
Ah Pyin Pa Dan	8,700 m North
Ah Twin Pa Dan	7,700 m North
Ma Myo Su	5,500 m North
Lower Tamar Takaw	5,300 m North
Oke Kan	7,800 m Northeast
Kha Lauk Chaik	6,700 m Northeast
Kha lauk Kha Lu	4,600 m North
Upper Tamar Takaw	3,900 m Northeast
Ma Ngay	5,500 m Northeast
Htein Kone	4,800 m Northeast
A Lel Ywar	5,500 m Northeast
Lay Eain	2,500 m North
Nyaung	8,000 m Northeast
Ta Man Gyi	1,600 m North
Ta Khun Taing	1,700 m North
Wa Yone Seik	6,800 m Northeast
Kon Tar	1,000 m Northeast
Daing Su	9,000 m Northeast
Kan Ywar	500 m East
Kone Ywar	6,900 m Northeast
Ywar Lay	2,800 m East
Gyouk Yoo	2,000 m East
Aye	8,700 m Northeast
Shwe Ain Kyi	1,800 m South
Kyun Kalay	4,800 m East
Myat Ni Kone	2,100 m South
Ah Lat Chaung	7,800 m East
Gyaung Waing Gyi	5,800 m East
Let Pan	4,200 m Southeast
Kyi Tan	3,500 m South
U Htun Oh Ward	6,600 m Southeast
Thone Eain	4,000 m South
Pathein	6,300 m Southeast
Set Kalay	6,000 m Southeast

Village	Distance to the Water Treatment Plant
Si	5,300 m Southeast
Sa Mar Ward	8,300 m Southeast
Ka Lar Tan	5,000 m South
Hpa Yar Gyi Su	5,700 m South
Let Pan Kone	6,700 m Southeast
Than Phyu Yone	5,000 m South
Pyawbwe Lay	7,200 m Southeast
Hpa Yar Ngoke To	7,500 m South
Kan Pat Yoe	8,000 m Southwest
Kan Beit	8,500 m Southwest
Tar Wa	10,000 m Southwest
Mya Thiha	11,200 m Southwest
Ma Daing	11,900 m Southwest
Kan Kone	12,600 m Southwest
Twantay Urban	13,700 m Southwest
Agga Tan	26,000 m Southwest

5.5.3 Population and Demographics

Population information from Townships in the Study Area encompassing the Townships neighbouring of the whole New Yangon City Phase 1 Development are included in Table 5.4.

Table 5.4 Overview of the Demographics of the Study Area

District/Township	Total Population	Percentage of Urban Population	Household	Number of women per 100 men
Twantay	227,953	19%	52,307	103
Seikgyi Kanaungto	33,944	100%	7,778	102
Kyee Myin Daing	101,287	100%	22,551	114
Hlaing Tharyar	414,209	77%	80,701	110
Ahlone	54,843	100%	10,928	118
Dala	150,564	69%	35,223	105

Source: Township General Administration Department, 2017

The birth rate has been noticeably declining in the Study Area since the last 10 years (Department of Population, 2018). Most people are Bamar, followed by Kayin and Mon. The dominant religion is Buddhism, although Christianity, Islam and Hinduism are also reported in the area.

5.5.4 Livelihood and Economy

Although Seikgyi Kanaungto and Twantay Township are within the Yangon Region, the business development rate is slow compared to the Townships across the river. Businesses include agriculture, river transportation, and casual workers (i.e. workers who provide services according to the fluctuating demands) who work in Yangon. In addition, in the Study Area, there is small scale fishing and dredging activities. The majority of the dredging is undertaken in Dala Township.

Dredging vessels observed in the Yangon River and stockpiles of dredged materials in Dala are shown in Figure 5.10 and Figure 5.11.



Source: ERM (2017)

Figure 5.10 Sand Dredger



Source: ERM (2017)

Figure 5.11 Stockpiles of dredged material in Dala Township

There are 63 small scale businesses with 254 labours, one private dry and wet dockyard with 210 labours, one private rice mill with 59 labours in Seikgyi Kanaungto and there are 55 small scale

businesses with 270 labours, two private car maintenance workshops with 10 labours and 68 private businesses with 288 labours in Twantay Township.

Hlaing Tharyar Township is one of the biggest and most populated townships in Yangon Region. There are a few government and company staff, and most of the labourers work in industries. As the town is located on Yangon – Patheingyi Highway road, it has good transportation facility and can trade goods from Ayeyarwaddy Township. There are 92 small scale businesses with 287 labours, one state owned garment factory with 596 staffs and 802 private companies with 126,475 labours (2017 Township General Administration Department Reports).

Kyee Myin Daing and Ahlone Townships are located in the economically important area and most of the residents in the area rely on service-related business. There are 16 small scale businesses with 184 labours, six private businesses with 194 labours and two state owned saw mills with 346 labours in the Kyee Myin Daing Township. There are also 11 small scale businesses with 67 labours, two private businesses with 141 labours, one state owned electricity distribution service with 94 staffs and one state owned furniture factory with 365 staffs in Ahlone Township (2017 Township General Administration Department Reports).

Dala Township is one of the economically important areas in Yangon Region. In Dala Township, there are 2 government industries with 380 labours, 14 private industries with 75 labours and 27 small scale businesses with 38 labours (2017 Township General Administration Department Reports).

A breakdown of the common livelihood types for Townships in the Study Area is presented in Table 5.5.

Table 5.5 Livelihoods in the Study Area

Township	Livelihood
Kyee Myin Daing	Cultivation, Fishing, Casual Labour, Government Service, Private Companies, Casual Labour, Self Employed, Dock Service, Business (Shop)
Hlaing Tharyar	Business (Shop), Industrial Workers, Casual labour, Government Service, Private Companies
Twantay	Cultivation, Business (Sewing Robe for monks/shops), Government Service, Private Company, Industrial Workers, Agricultural labourers, Fishing
Seikgyi Kanaungto	Cultivation, fishing, Casual labour, Sampan Service, Government Service, Company Staff
Dala	Casual Labour, Government Service, Services and Trading, Agriculture, Others
Ahlone	Casual Labour, Company Staff, Government Service, Self Employed, Business (Shop)

Source: ERM Field Data (2019)

Hlaing Tharyar Township is one of the biggest and most populated townships in Yangon Region and the population is mostly comprised of migrant workers from Ayeyarwaddy Region (ERM data collection, 2019). The migrant workers work in the Hlaing Tharyar industrial zone particularly in garment factories and food processing factories. In Hlaing Tharyar Township, the proportion of employed persons working in manufacturing is the highest compared to other types of employment; at 29 %.

5.5.5 Agriculture and Livestock

There are a number of agricultural plots grown by the local villagers from Seikgyi Kanaungto and Twantay Township. Paddy is the main crop and grown only during the rainy season (Figure 5.12). There are other seasonal crops grown such as black gram and green gram. No agricultural activities are reported in Hlaing Tharyar Township. There are 118,523 acres of agricultural land in Twantay Township, 87 acres in Seikgyi Kanaungto Township, and 1,767 acres in Kyee Myin Daing Township

and 46,294 acres in Dala Township but there is no agricultural land in Ahlone and Hlaing Tharyar Townships. For livestock rearing, the community raise pigs, sheep, goats, chickens, ducks and cows/buffalos for domestic use. However, agriculture is not the main source of income in the Study Area.



Source: ERM (2019)

Figure 5.12 Paddy Field in Twantay Township

5.5.6 Infrastructure and Public Services

5.5.6.1 Education

The Study Area has access to good education as primary school enrolment rate in Seikgyi Kanaungto, Hlaing Tharyar, Kyee Myin Daing, Ahlone and Dala Townships are 100% and Twantay is 97% and literacy rate in Ahlone, Kyee Myin Daing, Hlaing Tharyar, Twantay and Dala Townships are 100% and Seikgyi Kanaungto Township is 99%. The number of schools from townships in the Study Area are summarised in Table 5.6. One school is located 300 m east of the WTP in Kan Village. Impacts to the school and mitigation measures will be further discussed in the EIA Report. A typical Basic Education High School is shown in Figure 5.13.

Table 5.6 Number of Schools in the Study Area

Township	University	High School	Middle School	Primary School	Nursery School	Monastic Education
Seikgyi Kanaungto	-	2	1	14	1	-
Twantay	-	8	22	183	2	1
Kyee Myin Daing	-	7	5	11	13	2
Hlaing Tharyar	1	8	18	32	16	16
Ahlone	-	7	1	6	2	-
Dala	-	11	-	53	3	29

Source: 2017 Township General Administration Department Reports



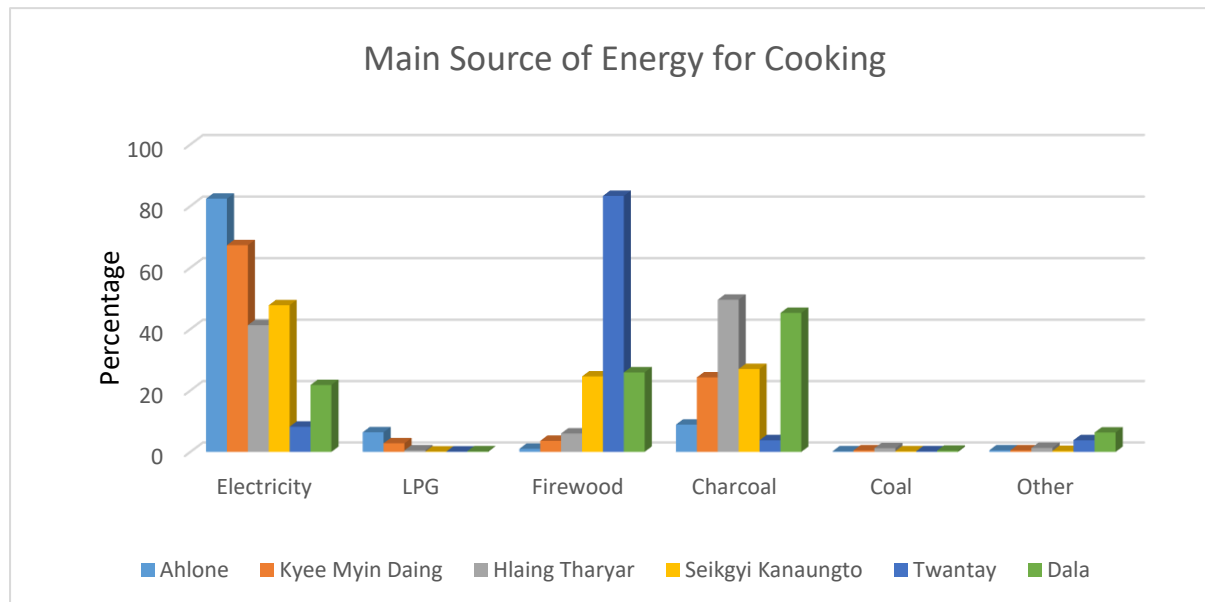
Source: ERM (2019)

Figure 5.13 High School in Seikgyi Kanaungto Township

5.5.6.2 Electricity and Energy

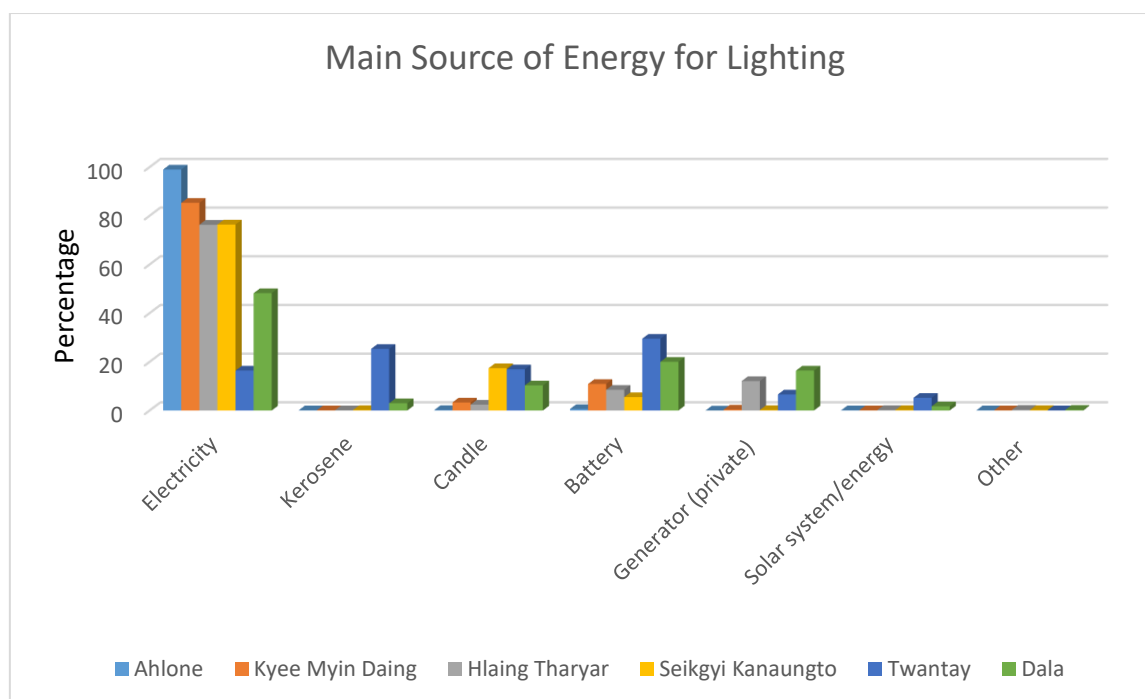
Most of the households in the Study Area have access to electricity. According to Township Census Reports, all townships in the Study Area have access to National Grid. Ahlone township residents use electricity as main source for cooking while Twantay township residents use firewood as main source for cooking. Residents from Kyee Myin Daing use more than 60% from electricity and the other 40% shared to firewood and charcoal for cooking activities. Hlaing Tharyar township residents use electricity and charcoal for cooking. Seikgyi Kanaungto residents use electricity, fire and charcoal for cooking. Dala township residents use electricity, firewood and charcoal for cooking. Figure 5.14 shows the percentages of energy sources used for cooking from Townships in the Study Area (Department of Population, 2018).

About 80% of Ahlone Township residents use electricity as the main source of lighting while Twantay residents have less than 10% to access to electricity for lighting and they mainly have to depend on battery and candle for lighting. Kyee Myin Daing, Hlaing Tharyar and Seikgyi Kanaungto residents have access to electricity from 60% to 80% and about 50% of Dala residents have access to electricity as main source of lighting. Figure 5.15 shows the percentages of energy sources used for lighting from Townships in the Study Area.



Source: The 2014 Myanmar Population and Housing Census, Township Report

Figure 5.14 Energy Sources use for Cooking from Townships in the Study Area



Source: The 2014 Myanmar Population and Housing Census, Township Report

Figure 5.15 Energy Sources use for Lighting from Townships in the Study Area

5.5.6.3 Water Source

Most households in the vicinity of the Study Area use water from the lakes/ ponds within Seikgyi Kanaungto, Twantay and Dala Townships which are filled in the rainy seasons. These water sources may be scarce in the dry season. The local community in Hlaing Tharyar Township buy drinking water as well as from improved water sources (public water utility). Ahlone and Kyee Myin Daing Townships have access to public water utility and also have access to tube wells.

For domestic water (i.e., washing/cooking), the community from Seikgyi Kanaungto, Twantay and Dala Townships use the water from lakes and ponds whereas the households from Hlaing Tharyar, Ahlone and Kyee Myin Daing Townships use tube wells, public assets and borehole.

5.5.6.4 Transportation

Around 500 boats have been observed within Seikgyi Kanaungto Township (Figure 5.16). Around 100 boats cross to Yangon daily between 5:30 am to 8:00 pm and the journey takes around 15 minutes. Travelling to Yangon by car can take around two hours (depending on traffic; Figure 5.17). Therefore, the local community depends on boat transport to reach Yangon City. The community in Twantay Township mostly use the ferry boat from Dala crossing the Yangon River, which takes about 10 minutes. A bridge is also being constructed connecting Yangon to Dala which will have entrances in downtown Yangon's Phonegyi Road and in the town of Dala, which will provide a quicker alternative to crossing the Yangon River by ferry or using the more remote existing bridge. In Dala Township, the local community mostly use bicycle and motorcycle for transportation.

Hlaing Tharyar Township has bridge access to Yangon. As it is closely bordered with Ayeyarwaddy Region, there is one highway bus terminal, Dagon Ayeyar Highway Bus Terminal which is mainly for the buses going to that Region.



Source: ERM (2017)

Figure 5.16 Water Transport in Seikgyi Kanaungto Township



Source: ERM (2019)

Figure 5.17 Road Transport in Hlaing Tharyar Township

5.5.6.5 Health

The villages in the Study Area have good access to public health services. Hlaing Tharyar Township has two public and two private hospitals and 133 private clinics for health services. Table 5.7 shows the number of health facilities from townships in the Study Area. Table 5.8 shows the health care rate in the Study Area and nearby. A small clinic in Seikgyi Kanaungto Township is shown in Figure 5.18.

Table 5.7 Health Facilities from Townships in the Study Area

Township	Hospital		Clinic	Rural Health Centre
	Public	Private		
Seikgyi Kanaungto	1	-	6	4
Twantay	3	-	-	41
Kyee Myin Daing	3	-	65	5
Hlaing Tharyar	2	2	133	2
Ahlone	-	2	48	-
Dala	3	-	3	6

Source: GAD Township Profile, 2017

Table 5.8 Health Care Rate in the Townships in the Study Area

Township	Medical doctor and total populations ratio	Nurse and total population ratio	Rural Health Assistant and total population ratio
Seikgyi Kanaungto	1:4,849	1:5,657	-
Twantay	1:32,564	1:12,664	1:37,992
Kyee Myin Daing	1:16,881	1:7,791	1:101,287
Hlaing Tharyar	1:37,655	1:18,827	1:414,209
Ahlone	1:27,422	1:9,141	1:27,422
Dala	1:25,760	1:8,586	1:77,281

Source: GAD Township Profile, 2017



Source: ERM (2019)

Figure 5.18 Township Hospital in Seikgyi Kanaungto Township

5.6 Cultural Characteristics

Yangon Region has a number of culturally significant areas, particularly Buddhist sites. There are also pagodas (Figure 5.19) and monasteries located in the Study Area that are considered as important cultural centres for the local communities. Table 5.9 shows the numbers of different religious monuments from townships in the Study Area.

Table 5.9 Religious monuments from Townships in the Study Area

Townships	Pagodas	Monasteries	Nunneries	Church	Mosque	Hindu Temple
Seikgyi Kanaungto	16	15	-	-	1	6
Twantay	104	263	32	61	5	11
Kyee Myin Daing	9	21	-	7	1	5
Hlaing Tharyar	3	157	6	-	-	-
Ahlone	6	9	-	4	2	4
Dala	38	87	7	-	-	-

Source: 2017 Townships General Administration Department Reports



Source: ERM (2019)

Figure 5.19 Pagoda in Seikgyi Kanaungto Township

5.7 Visual Characteristics

The New Yangon City Development would be potentially visible to communities living in the townships of Hlaing Tharyar, Kyee Myin Daing, Seikgyi Kanaungto, Twantay, Dala, and Ahlone. A visual assessment of the Project and the New Yangon City will be conducted in the EIA Report.

6. KEY POTENTIAL IMPACT AND MITIGATION MEASURES

6.1 Introduction and Approach

This section of the Scoping Report presents the methodology used to conduct the impact assessment. This methodology has been developed by ERM and is based on good international industry practice.

6.1.1 Project Impacts

This section aims to identify the key environmental and social impacts of the Project through a scoping process. Potential impacts have been identified through a systematic process whereby the activities (both planned and unplanned) associated with the Project have been considered with respect to their potential to interact with environmental and social resources / receptors. A Scoping Matrix has been developed to support this assessment and to enable the identification of interactions in a consistent way. Scoping also aims to identify key data gaps and ways to fill those gaps.

The following key activities were undertaken for this Scoping Study:

- Gathered information on Project activities in the Project Area from Township level consultation meetings;
- Listed the potentially relevant environmental and socio-economic receptors in the Projects' Area of Influence;
- Mapped potential interactions between Project activities and environmental and socio-economic receptors; and
- Taking into consideration the information gathered on the extent and nature of Project activities and the existing condition/ sensitivities of the receptors, the potential interactions have been prioritised in terms of their potential to cause significant impacts.

6.1.2 Cumulative Impacts

In addition to the Project impacts; an assessment of cumulative impacts will be provided in the EIA Report. The Project is part of the wider New Yangon City Development which includes the six groups of facilities:

- Bridges:
 - Bridge 1: connecting Kyee Myin Daing Township (near Bagaya Road and Kyee Myin Daing Kanner Junction) to the Project; and
 - Bridge 2: connecting Hlaing Tharyar Township to the Project
- Roads:
 - Permanent Auxiliary Support Infrastructure: Road 1, Road 2, Road 3, Sub-arterial roads, Collector roads, and
 - Storm water network.
- Water:
 - Water treatment plant;
 - Raw water pipeline;
 - Treated water distribution lines; and
 - Water intake point.
- Wastewater:

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- Wastewater pumping stations;
 - Wastewater pipe network;
 - Sewage water tanks; and
 - Wastewater treatment plant and its associated subsidiary facilities.
- Power:
- Transformer substation (one 230 kV, two 66 kV) and switching station (one 33 kV);
 - Main Transmission lines (from National Grid / Independent Power Producer (IPP) to 230 kV substation); and
 - Distribution lines (internal transmission lines) including 66 kV, 33 kV and 11 kV lines.
- Industrial Zone:
- Area for industrial facilities covering approximately 13 sq.km.

The cumulative impacts from the New Yangon City Development as a whole are likely to include; air emissions, noise generation, impacts to water and soil, and livelihood impacts; these will be assessed in the EIA Report.

6.1.3 Impact Identification

Risks were identified for both planned (routine and non-routine) and unplanned (accidents/incidents) activities. Potential impacts were then determined based on the physical activity or hazard type e.g. air emissions, noise, etc.

Table 6.1 provides a summary matrix of the screening exercise. The potential impact sources are listed down the first vertical column of the 'matrix' and the receptors listed across the horizontal axis. The matrix identifies the key aspects of the Project that have the potential to interact with the surrounding environmental and social receptors and cause potential impacts, with no mitigation in place.

Table 6.1 Potential Interactions and Significance of Impacts to Receptors / Receivers

Project Activities (below) / Project Receptors (right)	Physical Environment						Biological Environment			Human Environment				
	Ambient Air Quality	Ambient Noise & Vibration	Surface Water & Groundwater Quality	Hydrology & Hydrogeology	Soil Quality & Topography	Landscape & Visual Character	Terrestrial Flora	Terrestrial Fauna	Aquatic Flora & Fauna	Community Health & Safety	Demographic Pattern, Economy & Livelihood	Occupational Health & Safety	Infrastructure Services	Cultural Heritage
Construction Phase														
Site preparation, excavation and filling works														
Building and network construction														
Transportation of equipment, supplies, and workforce														
Labour, equipment, and services supply														
Temporary auxiliary support infrastructure														
Storage, handling and disposal of waste, fuel, chemical, oil, gas														
Operational Phase														
Labour, equipment and services supply														
Operation of water pipe network and water treatment plant														

Project Activities (below) / Project Receptors (right)	Physical Environment						Biological Environment			Human Environment				
	Ambient Air Quality	Ambient Noise & Vibration	Surface Water & Groundwater Quality	Hydrology & Hydrogeology	Soil Quality & Topography	Landscape & Visual Character	Terrestrial Flora	Terrestrial Fauna	Aquatic Flora & Fauna	Community Health & Safety	Demographic Pattern, Economy & Livelihood	Occupational Health & Safety	Infrastructure Services	Cultural Heritage
Maintenance of network and infrastructure														

Accidental Events

Vehicle collision														
Spills / Leaks														
Fire and explosion														

Key

	An interaction is not reasonably expected
	An interaction is reasonably possible but none of the resulting impacts are likely to lead to significant effects
	The interaction is reasonably possible and at least one of the resulting impacts is likely to lead to an effect that is significantly negative
	The interaction is reasonably possible and at least one of the resulting impacts is likely to lead to an effect that is significantly positive

6.1.3.1 Scoped Out Impacts

Potential interactions that were deemed not to result in a potentially significant impact (grey in the matrix) have been scoped out with justification and will not be considered in more detail in the EIA Study. The rationale for scoping out these impacts is provided as Table 6.2.

Table 6.2 Aspects Not Carried into the Impact Assessment

Impact	Rationale for scoping out of assessment
Construction Phase	
Impacts on surface water and groundwater quality due to transportation of equipment, supplies and workforce	Potential impacts to surface water from excavation, waste, and other construction activities will be considered in the EIA Report. However, the transport of equipment / workers are not likely to be source significant source of impact on local water resources and has been scoped out of the assessment. It is anticipated that the impacts of the transportation of equipment, supplies and workforce on surface water and ground water quality will be managed and reduced by implementing good industry practices.
Impacts to soil quality and topography due to site preparation, excavation and filling works; and transportation of equipment, supplies and workforce	Potential impacts to soil quality from waste, and other construction activities will be considered in the EIA Report. However, site preparation works and vehicle movement are unlikely to occur given that there will be limited use of any chemicals / hazardous materials. With proper handling of chemicals and hazardous substances, contamination of soil is expected to be unlikely to happen.
Impacts to aquatic flora and fauna due to building and infrastructure construction	The Project Area is located at the semi-urban and rural area in Twantay Township. The land is primarily used for agriculture. No effluents will be discharged into the Pan Hlaing river, Twantay Canal, or other creeks. Potential impacts to aquatic flora and fauna from site preparation, excavation and filling works will be considered in the EIA. However, potential impacts from building and infrastructure construction are unlikely to impact aquatic flora and fauna.
Impacts to community health and safety due to site preparation, excavation and filling works; and building and infrastructure construction	Potential impacts to community health and safety from transportation of equipment, supplies, and workforce; labour, equipment, and services supply; and temporary auxiliary support infrastructure construction are considered in the EIA. However, there is limited scope for impacts due to site preparation and building construction as these impacts limited to the Project Area. With proper management of construction activities, impacts on community health and safety are not anticipated.
Operation Phase	
Impacts to surface water and groundwater quality due to maintenance of network and infrastructure	Potential impacts to surface and ground water from the operation of wastewater pipe network and wastewater treatment plant will be considered in the EIA Report. However, impacts to surface water and groundwater quality from transportation network are not likely given the location of the Industrial Zones. It is anticipated that the impacts on surface water and groundwater quality can be managed and reduced by implementing good industry practices.
Impacts on aquatic flora and fauna due to maintenance of network and infrastructure	Potential impacts to aquatic flora and fauna from the operation of wastewater pipe network and wastewater treatment plant will be considered in the EIA Report. However, no effluents will be discharged into the Pan Hlaing river, Twantay Canal, or other creeks. Wastewater

Impact	Rationale for scoping out of assessment
	generated during operation phase will be properly treated. Impacts on aquatic flora and fauna from maintenance works are not anticipated.

6.1.3.2 Scoped-In Impacts

As presented in Section 6.2, there have been interactions between the resources/receptors and project activities that have been identified as likely to lead to significant impacts which should be further investigated during the EIA. Those interactions which have been identified as unlikely to result in significant impacts have been scoped out and do not require further assessment in the EIA.

The following impacts which are anticipated to have potential to generate significant impacts from the proposed Project as presented in Table 6.1 are defined as requiring further detailed assessment and are carried out to the next stage of the EIA process.

Construction Phase

The scoped-in impacts during construction phase include the following:

- Impacts to ambient air quality from:
 - Site preparation, excavation and filling works;
 - Building and network construction;
 - Transportation of equipment, supplies, and workforce; and,
 - Temporary auxiliary support infrastructure.
- Impacts to ambient noise from:
 - Site preparation, excavation and filling works;
 - Building and network construction;
 - Transportation of equipment, supplies, and workforce; and,
 - Temporary auxiliary support infrastructure.
- Impacts to surface water and groundwater quality from:
 - Site preparation, excavation and filling works;
 - Building and network construction;
 - Temporary auxiliary support infrastructure; and,
 - Storage, handling and disposal of waste, fuel, chemical, oil, gas.
- Impacts to soil quality and topography from:
 - Building and network construction;
 - Temporary auxiliary support infrastructure; and,
 - Storage, handling and disposal of waste, fuel, chemical, oil, gas.
- Impacts to landscape and visual character from:
 - Site preparation, excavation and filling works;
 - Building and network construction; and,
 - Temporary auxiliary support infrastructure.
- Impacts to terrestrial flora from:
 - Site preparation, excavation and filling works; and,

- Building and network construction.
- Impacts to terrestrial fauna from:
 - Site preparation, excavation and filling works; and,
 - Building and network construction.
- Impacts to aquatic flora and fauna from:
 - Site preparation, excavation and filling works; and,
 - Temporary auxiliary support infrastructure.
- Impacts to community health and safety from:
 - Transportation of equipment, supplies, and workforce;
 - Labour, equipment, and services supply; and,
 - Temporary auxiliary support infrastructure.
- Impacts to demographic pattern, economy and livelihood from:
 - Site preparation, excavation and filling works.
- Impacts to occupational health and safety from:
 - Site preparation, excavation and filling works;
 - Building and network construction;
 - Transportation of equipment, supplies and workforce;
 - Labour, equipment, and services supply;
 - Temporary auxiliary support infrastructure; and,
 - Storage, handling and disposal of waste, fuel, chemical, oil, gas.
- Impacts to infrastructure from:
 - Building and network construction;
 - Transportation of equipment, supplies and workforce;
 - Labour, equipment, and services supply;
 - Temporary auxiliary support infrastructure; and,
 - Storage, handling and disposal of waste, fuel, chemical, oil, gas.
- Impacts to cultural heritage from:
 - Site preparation, excavation and filling works;
 - Building and network construction; and
 - Transportation of equipment, supplies and workforce.

Operational Phase

The scoped-in impacts during operational phase include the following:

- Impacts to ambient air quality from operation of water pipe network and water treatment plant.
- Impacts to ambient noise and vibration from:
 - Operation of water pipe network and water treatment plant; and,
 - Maintenance of network and infrastructure.

- Impacts to surface water and groundwater quality from the operation of water pipe network and water treatment plant.
- Impacts to soil quality and topography from:
 - Operation of water pipe network and water treatment plant; and,
 - Maintenance of network and infrastructure.
- Impacts to aquatic flora and fauna from the operation of water pipe network and water treatment plant.
- Impacts to community health and safety from maintenance of network and infrastructure.
- Impacts to occupational health and safety from:
 - Operation of water pipe network and water treatment plant; and,
 - Maintenance of network and infrastructure.
- Impacts to infrastructure services from:
 - Operation of water pipe network and water treatment plant; and,
 - Maintenance of network and infrastructure.
- Impacts to cultural heritage from:
 - Operation of water pipe network and water treatment plant.

Accidental Events

The scoped-in impacts for accidental include the following:

- Impacts to ambient air quality from fire and explosion.
- Impacts to surface water and groundwater quality from spills and leaks.
- Impacts to soil quality and topography from spills and leaks.
- Impacts to terrestrial flora from:
 - Spills and leaks; and,
 - Fire and explosion.
- Impacts to terrestrial fauna from:
 - Vehicle collision;
 - Spills and leaks; and,
 - Fire and explosion.
- Impacts to aquatic flora and fauna from spills and leaks.
- Impacts to community health and safety from:
 - Vehicle collision;
 - Spills and leaks; and,
 - Fire and explosion.
- Impacts to occupational health and safety from:
 - Vehicle collision;
 - Spills and leaks; and,
 - Fire and explosion.

- Impacts to cultural heritage from:
 - Spills and leaks; and
 - Fire and explosion.

6.2 Impact Mitigation

Table 6.3 provides an overview of the proposed mitigation measures for the Projects' potential impacts. While not exhaustive, this table demonstrates the range of established mitigation measures available to address potential interactions from the installation / construction and operation of the substations and transmission lines. The complete list of proposed mitigation measures will be included in the EIA Report.

Table 6.3 Preventative and Mitigation Measures Likely to be used in the Construction and Operation Phase for the Water Facilities of the New Yangon City

Potential Impact	Potential Mitigation Measures
Air quality deterioration	<p>Air Emissions</p> <ul style="list-style-type: none"> ■ Ensure there is the maximum possible distance between the stockpiles and receptors; ■ Cover and/or water stockpiles of dusty materials such as excavated spoils, dredged materials, filling materials to avoid fugitive dust where required; ■ Provide site hoarding along the Project Area boundary higher than the Project activities which may generate dust and fugitive emissions; ■ Cover, pack, water or hydro seed the surcharge if it is left for a long time, e.g. overnight; ■ Totally enclose any skip hoist for material transport with impervious sheeting; ■ Provide material handling sources such as conveyors and bins with similar measures that also have control equipment such as covers or water sprays; ■ Implement a watering and sprinkling regime in particular during the dry season, when and where necessary, for example, in the morning and in the afternoon, watering in area which have a lot of dust; the number of watering car will be assigned due to practical demand; ■ If scaffolding is erected around the perimeter of a building under construction, provide effective dust screens, sheeting or netting to enclose the scaffolding from the ground floor level of the building, or if a canopy is provided at the first floor level, from the first floor level up to the highest level of the scaffolding; ■ Provide a wheel washing facility at the exit of the Project Area to reduce the likelihood of dusty materials being deposited beyond the Project Area boundary or implement a policy to ensure checking and cleaning of roads immediately beyond the Project Area boundary; ■ Emission control measures (including height of emission stack) to be determined following quantitative dispersion air modelling; and ■ Alarms for fuel gas leaks <p>Vehicle emissions/pollutants</p> <ul style="list-style-type: none"> ■ Maintain all diesel-powered equipment to reduce emissions of NO_x and SO₂; ■ Switch off machinery and equipment when it is not in operation; ■ Apply dust suppression methods where required; ■ Use low sulphur fuels in HGVs and diesel-powered equipment in collaboration with best management practices for construction phase; and ■ Use alternative fuels and fuel mixes where possible.
Increase of noise levels	<ul style="list-style-type: none"> ■ Only well-maintained equipment should be operated on-site; ■ Regular maintenance of equipment such as lubricating moving parts, tightening loose parts and replacing worn out components should be conducted; ■ Machines and construction plant items (e.g. trucks) that may be in intermittent use should be shut down or throttled down between work periods; ■ The number of equipment operating simultaneously should be reduced as far as practicable; ■ Equipment known to emit noise strongly in one direction should be orientated so that the noise is directed away from nearby noise sensitive receptors as far as practicable; ■ Noise impacts from activities (such as piling and blasting activities) should be properly reduced by shielded by implementing control measures (e.g. erecting temporary noise barriers and deflectors) whenever applicable;

Potential Impact	Potential Mitigation Measures
	<ul style="list-style-type: none"> Noisy plant (such as bulldozers, backhoes, rollers and drop hammer) should be located as far away from noise sensitive receptors as practicable; Transportation of materials on and off site through existing community areas should be avoided if necessary; Material stockpiles and other structures should be utilised, where practicable, to screen noise from on-site construction activities; Noise barriers such as berms and vegetation shall be installed to limit noise at plant boundary, if deemed necessary following noise modelling; Monitoring for noise and vibration at sensitive receptors during construction and operation; and Silencers, mufflers or acoustic enclosures shall be installed to reduce sound power level of noisy equipment if deemed necessary.
Surface water and groundwater deterioration	<p>Construction Site Run-off and Drainage</p> <ul style="list-style-type: none"> Exposed soil surfaces should be protected by paving or fill material as soon as possible to reduce the potential of soil erosion; Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms; Use methods for minimising sediment runoff, as appropriate to the conditions on-site, such as wheel cleaning facilities; Design drainage pipes and culverts for the controlled release of storm flows; Protect temporary trafficked areas on-site with coarse stone ballast or equivalent; Regularly, and particularly following rainstorms, inspect and maintain drainage systems and erosion control and silt removal facilities to ensure proper and efficient operation at all times; Mulch to stabilise exposed areas, where practicable and appropriate; Re-vegetate areas promptly, where practicable and appropriate; Provide measures to prevent the washing away of construction materials, soil, silt or debris into any drainage system of open stockpiles of construction materials; Construct wells/ sediment basins for the separation of oil in the wash water and storm water drains; and Install onsite wastewater treatment facilities or processes such as filtration, flocculation or biochemical treatment before discharge to river. <p>General Construction Activities</p> <ul style="list-style-type: none"> Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering the receiving waters. Stockpiles of cement and other construction materials should be kept covered when not being used; Oils, fuels and chemicals should only be used and stored in designated areas which have pollution prevention facilities. The bund should be drained of rainwater after a rain event; The oil contaminated water will be collected and handled by local licensed waste water sub-contractors (if available, to be determined at the later stage); On site oil-water separators and holding facilities should be installed to accommodate and unanticipated releases of oily water; Proper guidelines and procedures should be developed for immediate clean-up actions following any spillages of oil, fuel or chemicals; and Surface run-off from bunded areas should pass through oil/water separators prior to discharge to the storm water system <p>Sewage Generated from On-site Workforce</p> <ul style="list-style-type: none"> Where no public sewage treatment system is available, sanitary waste water will be treated by domestic waste water unit. The contractor will provide the domestic waste water unit which is designed and installed to treat all domestic wash and wastewater and sewage during construction. All effluents shall comply with legal guidelines for emissions into the environment, as appropriate;

Potential Impact	Potential Mitigation Measures
	<ul style="list-style-type: none"> ■ All other chemical waste or oil contaminated water will be collected by local licensed waste water treatment sub-contractor (to be determined at a later stage); and ■ Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewers via grease traps. The foul sewer should then lead to the temporary sewage treatment plant prior to discharge or reuse as greywater. <p>Storage and Handling of Lube Oils and Chemicals</p> <ul style="list-style-type: none"> ■ Chemical storage areas should be provided with locks and be sited on sealed areas; ■ The storage areas of lube oil and chemicals should be surrounded by bunds or other containment devices to prevent spilled oil, fuel and chemicals from reaching receiving waters; ■ Guidelines and procedures should be established for immediate clean up actions following any spillages of oil, fuel or chemicals; and ■ Surface run off from bunded areas should pass through oil traps prior to discharge to the storm water system. <p>Waste water/ Site Run off</p> <ul style="list-style-type: none"> ■ All wastewater from Project Area (include wastewater from production area, discharge from bottom of boiler, domestic wastewater, storm water, floor washing water etc.) will be fully collected and treated to comply with applicable standards at a wastewater treatment plant; and ■ Implement monitoring system to periodically monitor waste water discharge quality.
Soil quality & topography deterioration	<p>Top soil impacts</p> <ul style="list-style-type: none"> ■ Reuse of topsoil as backfill where ever possible; ■ Scheduling activities (as far as possible) to avoid extreme weather event such as heavy rainfall and high winds; ■ Re-vegetating areas with temporary land use, conducting 'progressive rehabilitation'; ■ Minimizing the amount of soil handling; ■ Stabilising exposed areas; ■ Covering or spraying water on stockpiles of excavated material or backfill; and ■ Reducing or preventing sediment runoff through use of settlement ponds, silt fences. <p>Soil compaction</p> <ul style="list-style-type: none"> ■ Demarcating routes for movement of heavy vehicles; ■ Stripping and placing soils when dry, and not when wet; ■ Restricting the height of topsoil stockpiles to minimise compaction, restricted to 2m. <p>Soil and groundwater contamination</p> <ul style="list-style-type: none"> ■ Use of spill or drip trays to contain spills and leaks; ■ Use of spill control kits to contain and clean small spills and leaks; ■ Storage of chemicals, fuel, and oil in adequately bunded impervious areas, as per international bunding and storage requirements; ■ Appropriate management of domestic wastewater; ■ Appropriate management, storage and disposal of waste;

Potential Impact	Potential Mitigation Measures
	<ul style="list-style-type: none"> ■ Implement a training program to familiarise staff with emergency procedures and practices; and ■ Implementation of a periodic soil and groundwater management programme.
Waste Management	<p>General</p> <ul style="list-style-type: none"> ■ To establish waste management priorities and hierarchy at the outset of activities based on an understanding of potential environmental, health and safety risks and impacts; ■ Use appropriate waste containers and build secondary containment around chemical or waste storage on-site to avoid spillage of waste and leakage of leachate; ■ Periodically review applicable regulations to ensure that the necessary waste disposal permits and licenses are obtained; ■ To minimise windblown litter and dust during the transportation of waste by either covering the load on the trucks or by transporting the waste in enclosed trucks; and ■ Siting of chemical and waste storage should consider nearby receptors, i.e. site away from watercourses or portable water sources. <p>Waste Reduction Measures</p> <ul style="list-style-type: none"> ■ Processes should be designed and operated to prevent or minimise the quantities of wastes generated and hazards associated with the waste generated; ■ To explore opportunities for reuse of inert construction waste (excavated soil and rock) within the Project Area or other construction projects. The removed soil during site preparation will be utilised as far as possible for surface cover at places on the Site where backfilling takes place, with the rest (together with vegetation wastes) being contracted for disposal; ■ To segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal; ■ To segregate, prior to disposal, construction waste, steel and other metals, to the extent practicable, for re-use and/or recycling to minimise the quantity of waste to be disposed of to the dump site; ■ To properly store the construction materials to minimise the potential damage or contamination of the materials; and ■ To implement a construction materials inventory management system to minimise over-supply of the construction materials, which lead to disposal of the surplus materials at the end of the construction period. <p>Construction Waste from New Building/Structure Construction</p> <ul style="list-style-type: none"> ■ To minimise over ordering and waste of materials such as ready mixed concrete and cement grouts; ■ To designate suitable areas of the worksites for segregation and storage of the various materials; and ■ All waste must be sent to appropriate waste treatment facility, by the appropriate transport means and audited to ensure facility is licensed and capable of handling the receiving materials. <p>Hazardous Waste</p> <ul style="list-style-type: none"> ■ Hazardous waste from the Project shall be disposed at licensed facilities. However, the availability of the hazardous waste treatment facilities shall be determined at the full EIA stage. The contractor should store and dispose of the hazardous waste in accordance with the applicable guidelines. The contractor should report the hazardous waste treatment arrangements to the local authorities (if required); ■ Segregate hazardous waste from non-hazardous waste;

Potential Impact	Potential Mitigation Measures
	<ul style="list-style-type: none"> Where practicable, adopt processes which generate reduced quantities or even no hazardous waste, or less dangerous types of hazardous waste; Hazardous waste should be stored so as to prevent or control accidental releases to air, soil and water resources. Where practicable: <ul style="list-style-type: none"> the storage area should be clearly labelled and demarcated; readily available information on chemical compatibility should be provided to employees, including labelling each container to identify its contents; hazardous waste should be store in a manner that prevents the commingling or contact between incompatible wastes and allows for inspection between containers to monitor leaks or spills; hazardous waste should be store in closed containers away from direct sunlight, wind and rain; hazardous waste storage area should have an impermeable floor and containment, of capacity to accommodate 110% of the volume of the largest waste container; and hazardous waste storage areas have adequate ventilation, fire prevention system (if needed). On-site and off-site transportation of waste should be conducted so as to prevent or minimise spills, release and exposures to employees and public; Maintenance facilities should be located on hard standings within a bunded area. Sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within areas appropriately equipped to control these discharges; and Where onsite treatment of waste is conducted, the waste shall be stored and contained so as to ensure no material is released to the environment and/or river, and waste streams are segregated. <p>General Refuse</p> <ul style="list-style-type: none"> To provide separate labelled bins for recyclable materials deposit to encourage waste recycling. Consider participation in a local collection scheme if one is available; To store general refuse in enclosed bins or covered skips to minimise the occurrence of wind-blown litter or odour nuisance; To provide a contained refuse collection area and collect contaminated surface run-off within this area for treatment. If practicable this area must be enclosed to minimise the potential for odour nuisance and the occurrence of wind-blown litter; To collect refuse frequently (at least on a weekly basis) to minimise odour, pest and litter impacts; and To ensure general refuse is disposed of at the disposal site approved by the local authorities. <p>Operational Waste Management</p> <ul style="list-style-type: none"> To provide the necessary facilities, receptacles and transport for the temporary storage, removal and disposal of different types of wastes (do not mix hazardous waste with general refuse); To store general refuse generated from the power plant in enclosed bins in designated storage areas; To separate recyclables from the waste streams so as to facilitate the recycling of these materials; To develop recycling programmes for paper, aluminium cans and plastics bottles; and To store, handle and dispose of hazardous waste in accordance with good practices and comply with all the relevant statutory requirements for management of hazardous waste.
Landscape & visual	<ul style="list-style-type: none"> The following measures and good site practices are recommended: The extent of the construction areas should be limited; The earthworks and cut and fill areas should be blended into the landscape;

Potential Impact	Potential Mitigation Measures
character deterioration	<ul style="list-style-type: none"> ■ Cut and fill slopes as well as areas disturbed by construction activity are suitably top soiled and vegetated as soon as is possible after final shaping; ■ All existing large trees (if any) that fall outside the earthworks area will be retained where possible; ■ Felled trees should be replaced where possible and surround perimeter of site with replanted native trees; ■ Natural colours should be used for buildings and other structures within the construction site; ■ Site hoarding will be constructed where required. The colour of the hoarding should blend in with the surrounding environment; ■ The laydown area, which will no longer be required for the operational stage, should be landscaped with suitable vegetation after the construction work is completed; ■ Reduce the height from which floodlights are fixed and identify zones of high and low lighting requirements with the focus of the lights being inward, rather than outward; ■ Avoid up lighting of structures but rather direct the light downwards and focused on the object to be illuminated; ■ All external light fittings shall not allow light to shine upwards; ■ All security and street/road lighting shall have “blinkers” or be specifically designed to ensure light is directed downwards while preventing side spill; and ■ Area lighting on tall masts should be confined to the lower landform elevations.
Ecology	<p>General mitigation measures are typically applied in the following order of priority, are:</p> <ul style="list-style-type: none"> ■ Avoidance: Potential impacts should be avoided to the maximum extent practicable by adopting suitable alternatives; ■ Minimisation: Unavoidable impacts should be minimised by taking appropriate and practicable measures such as constraints on the intensity of works operations or timing of works operations; and ■ Compensation: The loss of important species and habitats may be provided for elsewhere as compensation. Enhancement and other conservation measures should always be considered whenever possible.
Community health and safety affectation	<ul style="list-style-type: none"> ■ Community Grievance System Implementation; ■ Environmental Quality Monitoring; and ■ Workers Code of Conduct implementation. <p>A Stakeholder Engagement Management Plan will also be prepared. It will include different measures to maintain a pro-active communication process with the stakeholders of the Project.</p>
Demographic pattern, economy and livelihood affectation	<ul style="list-style-type: none"> ■ The agriculture land and other facilities that are within the Project's area will be compensated through a Compensation Plan; ■ A Community Grievance System and a Workers Code of Conduct will be implemented; and ■ The hiring of local workers will be prioritized.
Occupational Health and Safety	<ul style="list-style-type: none"> ■ Corporate Occupational Health and Safety (OHS) policy applicable to all operations; ■ OHS Manual of Procedures, including ambient air quality monitoring procedure; ■ Development of a multi-year OHS training plan for its staff; ■ Definition of OHS Key Performance Indicators (KPIs) for monitoring and reporting; and

Potential Impact	Potential Mitigation Measures
	<ul style="list-style-type: none"> ■ Consolidated annual OHS performance reports.
Infrastructure services deterioration	<ul style="list-style-type: none"> ■ Camps for construction and operational workforces should be properly sited and designed to reduce demand on local infrastructure services; ■ Map out traffic routes with speed limit and restriction of traffic hours to reduce pressure on road infrastructure; and ■ A Community Grievance Mechanism will be implemented
Accidental events	<ul style="list-style-type: none"> ■ All buildings fitted with fire alarms systems; ■ Fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. Establishment of secondary containment for fuel storage and hazardous materials; ■ The storage areas of oil, fuel oil and chemicals should be surrounded by bunds or other containment devices to prevent spilled oil, fuel and chemicals from reaching receiving waters; ■ Guidelines and procedures should be established for immediate clean up actions following any spillages of oil, fuel or chemicals; ■ Surface run off from bunded areas should pass through oil/gas traps prior to discharge to the storm water system; ■ Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering the receiving waters; ■ Oils, fuels and chemicals should only be used and stored in designated areas which have pollution prevention facilities. The bund should be drained of rainwater after a rain event; ■ The oil contaminated water will be collected and handled by local licensed waste water sub-contractors (if available, to be determined at the later stage); and ■ On site oil-water separators and holding facilities should be installed to accommodate unanticipated releases of oily water.

7. PUBLIC CONSULTATION AND DISCLOSURE

This section summarises the scoping methodology and approach for stakeholder identification and analysis undertaken as part of the Project. An overview of the scoping consultations undertaken to date and recommendations for consultation and disclosure required as part of the EIA Study is also provided.

7.1 Scoping Approach

The methodology for stakeholder engagement includes the primary identification of stakeholders and sorting them according to their impact on the Project and the impact the Project will have on them. The stakeholders may include individuals, groups, and organisations.

7.1.1 Scoping Stakeholder Engagement Objectives

The preliminary stakeholder identification and analysis will need to be further consolidated and based around a detailed stakeholder consultation programme during the EIA Study. The importance of such an analysis lies in the role played by such an understanding in the assessment of the socio-political environment surrounding the Project. It allows for:

- Identification of key stakeholders, their primary groupings and sub groupings;
- Identification of the interests, concerns and potential risks surrounding the stakeholders, as well as conflicts of interests (if any);
- Identification of key groups/ individuals who need to be informed about the Project;
- Identification of the impact and influence of the Project on the stakeholders and of the stakeholders on the Project;
- Generation of information essential to the planning, implementation and monitoring of the Project; and
- Development of a framework for participatory planning and implementation of various Project activities.

The process of stakeholder identification and analysis should allow for the formulation of a robust engagement strategy, which will then provide opportunity for the concerned stakeholders to be involved in the process of identification of areas of concerns as well as formulation of mitigation strategies for the same. This in turn should allow for the stakeholders to develop an understanding of the Project as well as the maintenance of positive relations between stakeholders and the Project Proponent.

7.1.2 Stakeholder Characterisation

This section provides a brief characterisation of the broad stakeholder groups identified for the Project.

7.1.2.1 National Authorities

This group of stakeholders include relevant ministries and governmental departments regulating the Project. The authorities which are likely to have the maximum influence on the Project include the following:

- Ministry of Electricity and Energy (MoEE);
- Ministry of Industry;
- Ministry of Transport and Communication;
- Ministry of Construction;

- Ministry of Agriculture, Livestock and Irrigation (MOALI)
- Ministry of Planning and Finance;
- Ministry of Natural Resources and Environmental Conservation (MONREC);
- Directorate of Water Resources and Improvement of River Systems (DWIR);
- Environmental Conservation Department (ECD);
- Myanmar Port Authority (MPA); and,
- Myanmar Investment Commission (MIC).

Engagement with the national authorities is expected to fulfil the following objectives:

- Seek clarity on the expectations on stakeholder engagement and disclosure;
- Get necessary permission to engage with government departments at different levels as well as to hold consultations in the Project Area of Interest; and
- Get access to useful data from national as well as regional offices.

7.1.2.2 Regional and Local Authorities

These stakeholder groups are defined as those agencies of the government, at the regional and district levels who have the power to regulate or otherwise influence the Project in terms of establishing policy, granting permits and approvals for the Project, monitoring and enforcing compliance with the applicable rules and regulations and making available the necessary infrastructure and resources for the Project. These departments are also store houses of relevant information both for the impact assessment as well as to help implement management plans.

Engagement with the regional authorities is expected to fulfil the following needs:

- Seek expectations on stakeholder engagement and disclosure;
- Get necessary permission to engage with regional government departments as well as hold consultations in the Project Area of Interest;
- Provide introductory letters to meet various regional/local government departments and agencies;
- Obtain regional level data and information; and
- Get specific contacts of people to meet in the region, as well as necessary instructions

Engagement with the local level administration is aimed at the following: Obtain necessary local permissions for meetings:

- Seek an understanding of the specific issues and stakeholder concerns at the local level. For example, information on any important development or conflict could be important intelligence to obtain;
- Obtain district and township level social and environmental data;
- Provide introductions to key people at the township and village tract level;
- Provide introductions to representatives of the administration to join; and observe the consultation process; and
- Provide guidance on local security do's and don'ts.

Some of the key authorities at the regional and local level include the following:

- Yangon Regional Government (YRG);
- Yangon City Development Committee (YCDC);

- District and Township General Administration Department (GAD);
- Regional Environmental Conservation Department (ECD);
- Regional Members of Parliament;
- Directorate of Industrial Supervision & Inspection; and,
- Department of Rural Development
- Department of Public Health

7.1.2.3 Projected Affected Communities and Individuals

This group includes people who may be directly or indirectly affected by the Project's presence and activities and their representatives (leaders and other influential people).

This group will include (but not be limited to) the following:

- Village Tract Leaders;
- Village Leaders;
- Civil Society Organizations (CSOs);
- Vulnerable groups, including but not limited to subsistence farmers, fishermen, migrant workers, minority communities, and women.

The various stakeholder groups will be engaged directly as well as through their representatives, including traditional leaders, elected representatives, opinion leaders, and other influential entities. In addition, the Project will consult specifically with people representing potentially vulnerable or marginalised groups such as women, young people, landless people, the sick and disabled, and, potentially, ethnic minorities.

ERM had undertaken previous stakeholder consultations as part of EIA studies for various projects in Yangon Region. Based on that, the six townships located in the vicinity of the Project are identified in the Project Area of Interest: Twantay, Kyee Myin Daing, Hlaing Tharyar, Seikgyi Kanaungto, Dala and Ahlone Townships. The corresponding village tract / villages of these five townships were then selected for engagement based on potential interaction with the Project's activities.

A list of the relevant townships and villages for the stakeholder consultation is presented in Table 7.1. It should be noted that the list of relevant townships and villages to be engaged has not yet taken into account the ongoing engagement/communication between NYDC and the communities as part of the general consultation in the area. As such, the list of townships and villages to be engaged may be revised. Additional villages may be added to the list.

Table 7.1 List of Townships and Villages proposed to be engaged for the Project

Township / Village	Included in Engagement and Rationale
Kyee Myin Daing (East) Township	Yes, this is required to inform the township and villages as the Bridge 1 and roads will be located in Kyee Myin Daing (East)
Kyee Myin Daing (West) Township	Yes, this is required to inform township and wards as the Bridge 1 will be located in Kyee Myin Daing (West).
Seikgyi Kanaungto Township	Yes, this is required to inform the township and villages as the roads will be located in Seikgyi Kanaungto.
Hlaing Tharyar Township	Yes, this is required to inform township and wards as the Bridge 2 will be located in Hlaing Tharyar.
Ahlone Township	Yes, this is required to inform township and wards as the Bridge 1 will be located near Ahlone. (Outside the project area)
Twantay Township	Yes, this is required to inform the township and villages as the Bridge 2, Roads, Industrial Zones, Waste Water and Water Treatment Plants and Transformer substation and Transmission Lines and distribution lines will be located in Twantay.
Dala Township	Yes, this is required to inform the Village Tracts and Villages as the Project Area (the parts in Seikgyi Kanaungto Township) is close to Dala Township.
Kha Lauk Chaik, Yae Kyaw, Ta Mar Ta Kaw, Ma Ngay Village Tracts	Yes, this is required to inform the Village Tracts and Villages as the Bridge 2, Roads, Industrial Zones, Waste Water Treatment Plant and Transformer substation and Transmission Lines and distribution lines will be located in those Village Tracts.
Ku Lar Tan, Byauk Yoe and Kan Village Tracts	Yes, this is required to inform the Village Tracts and Villages as the Roads, Industrial Zones, Waste Water and Water Treatment Plants and Transformer substation and Transmission Lines and distribution lines will be located in those Village Tracts.
Let Pan Gwa, Kyun Ka lay, Gyaung Waing and Ah Lat Chaung Village Tracts	Yes, this is required to inform the Village Tracts and Villages as the Roads and Industrial Zone located near those villages.

7.1.2.4 NGOs and Civil Society Organizations (CSOs)

This group includes those who may have an interest in the Project and its social and environmental aspects and non-governmental organisations representing their interests. It includes members of the wider general public in the state and region, civil society organisations such as cooperatives, professional associations, cultural groups, and citizens' associations, environmental and social groups and universities and other academic and research institutions undertaking work relevant to the Project, who may have views on the Project or information that will be useful for the assessment of Project impacts.

Some national/international NGOs/CSOs that have local presence in Yangon Region include:

- Myanmar Centre for Responsible Business (MCRB);
- World Wildlife Fund (WWF);
- Wildlife Conservation Society (WCS);
- Flora and Fauna International (FFI);
- Myanmar Green Network (MGN);

- Myanmar Alliance for Transparency and Accountability (MATA);
- Earth Rights International (ERI);
- EcoDev;
- International Commission of Jurists;
- Myanmar Environmental Rehabilitation-conservation Network (MERN);
- Myanmar Women Affairs Federation;
- Myanmar Maternal and Child Welfare Association;
- Youth Empowerment Association;
- Water, Research and Training Centre (WRTC);
- Water Mothers;
- Ayate Sit CSO (Twantay);
- Twantay Network; and
- Myat Thandar (Twantay);
- Oxfam;
- Earth Right International;
- International Commission of Jurists;
- Paung Ku;
- PLAN;
- Land Core Group
- GRET;
- Hlaing Tharyar Red Cross;
- Hlaing Tharyar Youth Network;
- Person with Disability Network;
- Hlaing Tharyar Institutional Network;
- Social Protection;
- Hlaing Tharyar Development Association

The engagement process will identify other relevant CSOs and NGOs that work with the communities.

7.1.2.5 Media

Usage of media and engagement may be required during the EIA stage or for the purpose of disclosure and information dissemination.

7.1.2.6 Project Partners and Contractors

Other development investors may be active on the western part of Yangon River. This may lead to cumulative impacts from these project activities. It is therefore essential to liaise with other investors to reduce and mitigate potential cumulative impacts associated with other activities in the area.

7.1.3 Stakeholder Mapping

Stakeholder mapping is a process of examining the relative influence that different individuals and groups have over a Project as well as the influence of the Project over them. The purpose of a stakeholder mapping is to:

- Identify each stakeholder group;
- Study their profile and the nature of the stakes;
- Understand each group's specific issues and concerns as well as expectations from the Project; and
- Gauge their influence on the Project.

On the basis of such an understanding, the stakeholders are categorised into high influence/priority, medium influence/ priority and low influence/priority. The stakeholders who are categorised as high influence are those who have a high influence on the Project or are likely to be heavily impacted by the Project activities, and are thus a priority for engagement and consultation. Similarly, the stakeholders categorised as medium influence are those who have a moderate influence on the Project or that they are to be impacted by the Project but it is unlikely to be substantial. Stakeholders with low influences are those who have a minimal influence on the decision making process or are to be minimally impacted by the Project and are thus low on the Projects engagement list.

Table 7.2 provides a brief profile of the various stakeholders identified with their key concerns in terms of the Project activities and their degree of influence.

Table 7.2 Stakeholder Mapping

Stakeholders	Stakeholder Profile	Level of Influence/priority
Primary Stakeholders		
Farmers and local communities	This stakeholder group is comprised of those individuals and households who undertake farming within and near the Project.	High
Vulnerable Groups, including women, elderly, handicapped etc.	This stakeholder group is comprised of those members of the community who due to their socio-economic status are perceived to be more susceptible to the impacts from the project and will required special considerations including the disabled, widows and elderly.	Medium
Secondary Stakeholders		
Government Ministries	<p>This stakeholder group is comprised of the central and region level government departments. These authorities may influence the project in terms of establishing policies, and implementation of the project. This stakeholder group comprises of ministries such as:</p> <ul style="list-style-type: none"> ■ Ministry of Electricity and Energy (MoEE). ■ Ministry of Industry. ■ Ministry of Transport and Communication. ■ Ministry of Construction. ■ Ministry of Agriculture, Livestock and Irrigation ■ Ministry of Planning and Finance. ■ Ministry of Natural Resources and Environmental Conservation (MONRC). 	High

Stakeholders	Stakeholder Profile	Level of Influence/priority
	<ul style="list-style-type: none"> ■ Directorate of Water Resources and Improvement of River Systems (DWIR). ■ Environmental Conservation Department (ECD). ■ Myanmar Port Authority (MPA). ■ Myanmar Investment Commission (MIC). 	
Local Authorities	<p>This stakeholder group is comprised of the local government bodies, who have the power to regulate or otherwise influence the Project in terms of establishing policy, granting permits and approvals for the Project, monitoring and enforcing compliance with the applicable rules and regulations and making available the necessary infrastructure and resources for the Project. These departments are also a store house of relevant information. The authorities which are likely to have the maximum influence on the Project include the authorities such as:</p> <ul style="list-style-type: none"> ■ Yangon Regional Government (YRG). ■ Yangon City Development Committee (YCDC). ■ District and Township General Administration Department (GAD). ■ Regional Environmental Conservation Department; ■ Regional Members of Parliament... ■ Directorate of Industrial Supervision & Inspection. ■ Department of Rural Development. ■ Department of Public Health. 	High
NGOs and Civil Society Organisations	<p>This group includes all other people in society who may have an interest in the Project and its social and environmental aspects and non-governmental organisations representing their interests. It includes members of the wider general public in the state and district, civil society organisations, such as religious groups, cooperatives, professional associations, cultural groups and citizens' associations, environmental and social groups and universities and other academic and research institutions undertaking work relevant to the Project, who may have views on the Project or information that will be useful for the assessment of impacts.</p>	High
Local Media	<p>Local media is important for disclosure of information to communities.</p>	High

7.2 Scoping Consultations / Site Visits

7.2.1 Methodology and Purpose

The Project developed a preliminary Stakeholder Engagement Plan (SEP) which contained an overview of the relevant stakeholder groups to be consulted and the estimate schedule for

engagement activities. During the scoping, information was disclosed to various stakeholders, which included:

- Brief details about the Project;
- EIAs and SEA process, study and measures;
- Purpose of the consultations;
- Expectations from the local stakeholders in regards to the consultation etc.; and
- The likely adverse impacts to the public and/or environment.

7.2.1.1 Meeting Structure

The meetings are conducted at the regional level with a representative for the Chief Minister of Yangon, Regional level ECD and GAD, Members of Yangon Region Hluttaw, Member of Pyithu Hluttaw, Director from Department of Social Welfare and Township GADs from the Project Area. At the Township level, meetings were held with Township GADs, Ward and village administrators, Ward Patrons, CSOs/NGOs, related government departments and local communities.

The meetings were structured as follows:

- Presentation of Project and Project Proponent (in Myanmar language);
- Presentation of the proposed EIAs and SEA study and measures
- Question and Answer Session; and
- Focus Group Discussions (FGDs) and interviews; break out groups with key stakeholder such as Village Tract Leaders etc.

7.2.1.2 Usage of Tools

Tools to support and document the engagement process are shown in Table 7.3.

Table 7.3 Tools used for Stakeholder Consultations

Checklists/Tools	Purpose
Presentation	Approximately 25 slides which include information on the Project Proponent, information on the Project activities and timeline, potential impacts and mitigation, and contacts details.
Focus Group Discussion	A list of questions was utilised for the following groups: <ul style="list-style-type: none"> ■ Village Profile ■ Farmers ■ Households ■ Women's Group
Maps and other visual tools	A large map that shows the Study Area used during meetings to discuss potential impacts and locations of key fauna species.

The following data were collected from the questionnaires mentioned in Table 7.3:

- **Village and Household Questionnaires:** Demographic profile, land holding; number of land owners and landless; types of school facilities; credit access; market access; health facility access; access to water source; cooking fuel type uses; fuelwood collection; type of diseases; electricity access; number of households with income; infrastructure; number of people by type of livelihood; number of people by type of livestock; number of members and meetings of support groups; and, type of support from and contribution to support group.
- **Community Leader Questionnaire:** Demographic profile, land holding; types of school facilities; market access; health facility access; access to water source; cooking fuel type uses; type of

diseases; electricity access; infrastructure; number of people by type of livelihood; number of people by type of livestock; number of members and meetings of support groups; and knowledge on the proposed project.

- **Farmers Questionnaire:** land holding size and shape; level of subsistence; role of men and women in agriculture; government agricultural scheme, credit source, reason amount, interest rate and payment method; use of hired labour; wage amount paid by gender; cost of labour, irrigation, fertilizers and transportation and land renting; market of cash crop; number of households by type of livestock raised, number of heads, percentage of home consumption and percentage for the market; source and issues of fodder acquisition; crop cycle by crop.
- **Women's Questionnaire:** number of women in the village, number of women headed households; role of women in community; opinion on equality of gender opportunities; influence on HH decision; problems of women; quality of life rating; women's health problems; disease outbreaks; causes of death and affected gender group; women's problem in employment; and percentage of women in farming.

Table 7.4 lists of the community leader interviews that were carried out in each village/ward and the number of participants.

Table 7.4 Community Leader Interviews in each Village/Ward

Township	Village/Ward
Ahlone	Saw Yan Paing (West) Ward
Ahlone	Lut Latt Yay Ward
Ahlone	Saw Yan Paing (North)
Ahlone	Kayin Chan Ward
Kyee Myin Daing	Sat San Ought Yone Alat Chaung Ward
Kyee Myin Daing	Sat San Ward
Kyee Myin Daing	Alat Chaung Ward
Kyee Myin Daing	Ought Yone Ward
Hlaing Tharyar	Ward (20)
Hlaing Tharyar	Ward (14)
Hlaing Tharyar	Ward (8)
Twantay	Tamar Ta Kaw Village
Twantay	Ma Ngay Village
Twantay	Gaung Wine Gyee Village
Seikgyi Kanaungto	Gaung Wine Layy Village
Seikgyi Kanaungto	Pan Pin Chaung Ward
Seikgyi Kanaungto	Pan Pin Chaung Ward

7.2.1.3 Stakeholder Engagement Plan

Potential relevant stakeholders and potentially affected communities were identified through a preliminary site visit, discussions with the Consortium and a review of google earth imagery. A top-down approach was followed, firstly the national level stakeholder were consulted and contacted such as Chief Ministers and Regional GADs. These discussions allowed the survey team to gain permission to enter the villages and also helped to map out which villages were closest to the Project Area and could be potentially affected. The stakeholder engagement plan is provided in Table 7.5.

Table 7.5 Stakeholder Engagement Plan

Level	Stakeholder Group	Purpose of Engagement	Method of Engagement
National	<ul style="list-style-type: none"> ■ Ministry of Electricity and Energy (MoEE); ■ Environmental Conservation Department (ECD); ■ Ministry of Natural Resource and Environmental Conservation (MONREC (Naypyidaw); ■ Ministry of Industry; ■ Ministry of Transport and Communication; ■ Ministry of Construction; ■ Ministry of Agriculture, Livestock and Irrigation. 	<ul style="list-style-type: none"> ■ Seek clarity on the expectations on stakeholder engagement and disclosure; ■ Get necessary permission and contacts to engage with government departments at different levels as well as to hold consultations in the Study Area; and ■ Get access to useful data from national as well as regional offices. 	<ul style="list-style-type: none"> ■ Meetings and Semi Structured Interviews.
Regional	<ul style="list-style-type: none"> ■ Yangon Regional Government (YRG); ■ Yangon City Development Committee (YCDC); ■ General Administration Department (GAD); ■ Township Development Committee; ■ Environmental Conservation Department; ■ Department of Rural Development; ■ Regional Members of Parliament; ■ Department of Highways; ■ Department of Bridges; ■ Directorate of Industrial Supervision & Inspection; ■ Department of Urban and Housing Development (DUHD); ■ Department of Electric power Transmission and system Control (DPTSC); ■ NYDC Committee; ■ Yangon Region Electrical Committee; ■ Yangon Region Water Committee; ■ Representatives from Twantay Canal Improvement Works project and Pan Hlaing Sluice Project. 	<ul style="list-style-type: none"> ■ Seek expectations on stakeholder engagement and disclosure; ■ Seek introductory letters to meet various government departments and agencies; ■ Seek clarity on the range of permission and approvals required at different levels of regional government; ■ Obtain regional level data and information; and ■ Seek an understanding of the requirements and plan for government presence/participation in the consultation process. 	<ul style="list-style-type: none"> ■ Meetings and Semi Structured Interviews.
Township / District	<ul style="list-style-type: none"> ■ Township / District GAD; ■ Township Development Committees; and ■ Local CSOs and NGOs. 	<ul style="list-style-type: none"> ■ Obtain necessary local permissions for meetings; ■ Provide an understanding of the specific issues and stakeholder concerns at the local level; ■ Obtain district and township level social and environmental data; and ■ Provide introductions to key people at the township and village tract level. 	<ul style="list-style-type: none"> ■ Meetings, Individual interviews.

Level	Stakeholder Group	Purpose of Engagement	Method of Engagement
Village Tract / Village	<ul style="list-style-type: none"> ■ Village Leaders, Community Opinion Leaders; ■ Women; ■ Farmers; ■ Local community; and ■ Village representatives of schools, hospitals etc. 	<ul style="list-style-type: none"> ■ Obtain information on local potential impacts from the Project; and ■ Obtain village tract and village level social and environmental data. 	<ul style="list-style-type: none"> ■ Village Meetings, Focus Group Discussions, Project affected people, and Interviews.

7.2.2 Summary of Meetings and Key Findings

For the Scoping Phase, consultation meetings were held with various relevant stakeholders at the Kyee Myin Daing, Ahlone, Twantay, Seikgyi Kanaungto, and Hlaing Tharyar Townships. The consultation helped the Project to gather information on potentially affected people, and on potential data gaps and how these can be closed out in the EIA Report. Scoping consultation involved face-to-face meetings with a range of stakeholders in Yangon including a representative for the Chief Minister attended by other relevant Ministers, Regional level ECD and GAD, Members of Yangon Region Hluttaw, Member of Pyithu Hluttaw, Director from Department of Social Welfare, Township GADs, Ward and village administrators, Ward Patrons, CSOs/NGOs, related government departments and local communities and community representatives.

The date, time, location, stakeholder and purpose of each meeting is provided in Table 7.6.

Table 7.6 Consultation Activities Undertaken during Scoping

Date, time, location	Stakeholder	Purpose of Engagement
Wednesday 23 rd January, 2019	Chief Minister Office Meeting	<ul style="list-style-type: none"> ■ Present information on the Project ■ Get approval for township/ward and village level meetings ■ Gather concerns and suggestions from stakeholders
Wednesday 30 th January, 2019	Twantay Township GAD Office , Seikgyi Kanaungto Township GAD office and Kyee Myin Daing Township GAD Office	<ul style="list-style-type: none"> ■ Meeting arrangements and approvals
Thursday 31 st January, 2019	Ahlong Township GAD office and Hlaing Tharyar Township GAD Office	<ul style="list-style-type: none"> ■ Meeting arrangements and approvals
Friday 1 st February, 2019	Ahlong Township	<ul style="list-style-type: none"> ■ Present Project information to local government, ward administrators, local communities and other interested parties ■ Gather concerns and suggestions from stakeholders ■ Undertake socio-baseline data collection ■ Interview with Ward Administrators
Saturday 2 nd February, 2019	Twantay Township	<ul style="list-style-type: none"> ■ Present Project information to local government, ward administrators, local communities and other interested parties ■ Gather concerns and suggestions from stakeholders ■ Undertake socio-baseline data collection ■ Interview with Ward Administrators
Saturday 2 nd February, 2019	Kyee Myin Daing Township	<ul style="list-style-type: none"> ■ Present Project information to local government, ward administrators, local communities and other interested parties ■ Gather concerns and suggestions from stakeholders ■ Undertake socio-baseline data collection ■ Interview with Ward Administrators
Sunday 3 rd February, 2019	Seikgyi Kanaungto Township	<ul style="list-style-type: none"> ■ Present Project information to local government, ward administrators, local communities and other interested parties ■ Gather concerns and suggestions from stakeholders ■ Undertake socio-baseline data collection ■ Interview with Ward Administrators
Sunday 3 rd February, 2019	Hlaing Tharyar Township	<ul style="list-style-type: none"> ■ Present Project information to local government, ward administrators, local communities and other interested parties ■ Gather concerns and suggestions from stakeholders ■ Undertake socio-baseline data collection ■ Interview with Ward Administrators

The minutes of the meetings and photos from the consultation are provided in Appendix A; some photos of the meeting are also provided in Figure 7.1.



Figure 7.1 Photos from the Scoping Consultation Meetings

7.2.3 Key Queries Raised During Consultation Meetings

Table 7.7 summarises the key questions raised during consultation and how these will be considered in the EIA study.

Table 7.7 Key Questions

Questions	Responses	EIA Consideration
Land Compensation		
How will the company deal with land compensation?	A 20/80 compensation scheme was agreed with the Security, Peace, Stability and Rule of Law Working Committee. The previous government set 15/85 land compensation scheme however a 20/80 scheme is fairer.	The EIA will provided a high level review of the resettlement / compensation process.
What is the development plan for farmland compensation?	The compensated lands will be upgraded to residential lands from farming land.	
Electricity		
Where the power source for this project?	The Project may potentially get electricity from the Mee Lin Chaint (1350 MW) power plant (in Ayeyarwady Region). The Yangon Regional Government discussed with Union Minister of Ministry of Electricity and Energy regarding the electricity requirements for the project and Union Minister agreed to provide the power to NYDC. NYDC is also looking for private power investor producing as a secondary option of power source. Transformer substations will be constructed within the new city and will provide 24 hour electricity for all industries.	The EIA Report will consider the potential impact on existing infrastructure and services to ensure there is no significant impact on current power supply.
Roads and Transportation		
Will there be an underground transportation system?	All the transportation facilities will be above ground.	The impacts from road construction, increased traffic, and impacts on existing local infrastructure (roads) / local communities will be considered in the EIA Report.
What will be the width of roads in the New City?	The roads will be at least two lanes and included drainage on both sides. Some major roads will be up to four lanes.	The impacts from road construction, increased traffic, and impacts on existing local infrastructure (roads) / local communities will be considered in the EIA Report.
During Cyclone Nargis, Twantay-Hlaing Tharyar Road was not flooded but the Kha Lauk Chaik-	NYDC has commissioned a dedicated Flood Risk Assessment which will be conducted by Royal Haskoning for the	The design of the Project incorporates flooding risk.

Questions	Responses	EIA Consideration
Seikgyi Kanaungto road was flooded. The road level should be as high as possible and as high as the Twantay-Hlaing Tharyar Road to ensure it is protected from flooding.	Project. In accordance with good international practice, Royal Haskoning conducted flood analysis for 100-year events, considering tidal flooding, climate change, and precipitation. Flood protection for the Industrial Zones and Resettlement Areas will be prioritised. After that, the Project will upgrade the flood protection of the other infrastructure facilities as per the progress of the Project.	The EIA Report will contain an Emergency Response Plan, which will include natural disasters, to ensure that there are no accidental impacts to the environment or people from construction or operation of the Project.
Bridge		
Is there any bridge construction in the Seikgyi Kanaungto Township?	For the whole Project, it is proposed to construct twelve bridges; two bridges will be built in Stage 1 of Phase 1. The design and location for all bridges for Phase 1 will be confirmed at the end of February 2019.	There will be a separate EIA for bridge construction and operation for the whole Project.
Construction		
Where will the Project use sand and soil? We suggest the Project does not excavate the soil from the Twantay, Kawhmu, and Kungyankone area. We recommend to take the soil from the river bank.	We are planning to excavate from other areas (i.e., not the Project Area) as well as potentially excavating soil from the lake in the Project Area and Twantay channel.	The excavation of sand/soil from the Project Area will be considered in the EIA report in terms of the impact on the environment and people.
Water and Waste Water		
Will there be a storm water collection system?	A water treatment plant and storm water collection system is included as part of the project.	The impacts of wastewater and storm water drainage will be considered in the EIA Report and the impact to local communities and environment.
Is it correct that the project will take the water from Toe River?	Water intake will be from Toe River; this has been studied by JICA, who prepared the 2040 Master Plan for Yangon Region. The water quality has been tested which suggested that the quality is good to use as a water source. Ground water from the Project Area will not be used due to its quality and concerns about land subsidence.	The impacts of water intake from the Toe River will be considered in the EIA Report. The EIA Report will specify that no groundwater from the Project Area will be utilised given the poor quality and potential impact on existing water resources.
Land Utilization		
Is all the land within the Project Area farm land?	About 85% of the land is farmland in the Project Area.	Impacts for the changes of land utilisation will be considered in the EIA Report.
Environment		

Questions	Responses	EIA Consideration
What about villages outside of Project Area's clean environment? Based on experiences with existing industrial zones, it is observed that after a few decades the environment will become affected. Will villages in Hlaing Tharyar Township have environmental impacts?	Our EIA will not just focus on the Project Area. We also assess the surrounding area and include this in our mitigation recommendations. We will conduct primary baseline surveys and if the current baseline is degraded, it means that we will adopt stricter environmental management and mitigation measures for the Project. Furthermore, monitoring plans will also be prepared and reported to the ECD every 6 months in order to confirm whether mitigation measures are effective.	Environmental impacts and mitigation measures will be considered in the EIA Report for the Project Area and all surrounding areas in the Area of Influence (i.e., area where impacts may occur).
Urban Management		
Will there be any physical displacement for the people living in the Project Area?	The villages in the Project area will remain untouched and there will also be green spaces between the new developed areas and the existing villages.	Impacts on the villages in the Project Area from construction and operation of the Project will be considered in the EIA Report.
How will the city manage the population increase in the future and what is the process for the Bill of Materials (BoM) and Quality Control (QC)?	There is a Master Plan prepared by AECOM and includes a consultant to countercheck the process of BoM and QC.	Population increases will be assessed in the EIA Report in terms of resource use and associated impacts.
When will the community settle in the New City?	The industries will be constructed in 2022 and there will be job opportunities for locals after this time.	Social impacts will be considered in the EIA Report.
Does NYDC have any plans regarding the squatter areas for the New City?	NYDC understands the current squatter issues and ensure adequate workers' accommodation is included in the Project Area. The construction workers will be required leave the Project Area once construction is complete.	The influx of workers for construction and operation phases and the impacts from this influx on local communities and environment (including squatters) will be considered in the EIA Report.
Is there any plan to include an area for the administrative departments?	NYDC will include administrative department areas that cover approximately 5% of the resettlement areas.	-
Are there any hotel zones in the Project Area?	There will be an approximately 20 square kilometre commercial and residential development areas, which include areas for hotels and condominiums.	-
There are 2.3 million of disabled persons according to census data. How is the project designed so services and	NYDC considered the design for disabled persons as per American with Disabilities Act (ADA) compliance, and Myanmar National Building Codes for buildings and infrastructure.	-

Questions	Responses	EIA Consideration
infrastructure are assessable for disabled persons?		
People from different economic statuses want to purchase houses in this Project Area. How many options are there for them?	There will be different types of housing starting from one storied to up to mid to high rise buildings. We designed for the estimated 1.2 million people. Everyone can buy houses depending upon the amount of money they have. Houses will vary from private compounds and condominiums to affordable housing.	-
Will the cemeteries from Seikgyi Kanaungto and Ah Lat Chaung be combined into one?	The existing cemeteries will remain as they are.	Cultural impacts will be considered in the EIA report.
Waste Management		
What is the Waste Management system?	There will be industrial and residential waste. For industrial waste, we are discussing with interested investors including DOWA company, which is currently waste management facility in Thilawa. All the waste from the Project and the city will be managed in line with National Standards and Guidelines.	In terms of waste management, generation, and disposal, all environmental and social impacts will be considered in the EIA Report.
Where will waste be discharged and how many acres will be set up for a dumpsite?	There is a plan for industrial waste and municipal waste will be disposed of like Thilawa industrial Zone.	In terms of waste management, generation, and disposal, all environmental and social impacts will be considered in the EIA Report.
Employment Opportunity		
Will there be employment opportunities for local people?	There will be employment opportunities for people who live in and around the new city during the construction and operation of the Project.	Positive impacts from jobs will be considered in the EIA Report.
I would like to request the company to create employment opportunities for disable persons.	NYDC will record your suggestion and try to implement.	Positive impacts from jobs will be considered in the EIA Report.

7.3 Future Engagement and Disclosure

7.3.1 Engagement

During the EIA Phase, there will be Village and Township level public consultation meetings in Ahlone, Kyee Myin Daing, Seikgyi Kanaungto, Twantay, Hlaing Tharyar, and Dala Townships in Yangon Region. The purpose and structure of these meetings will be the same as the Scoping Phase consultations. FGDs and socio-economic surveys will be conducted among key stakeholders, as shown in the Appendix C. Social and environmental baseline data collection and results, stakeholder

concerns during scoping consultations and preliminary identification of potential impacts and proposed mitigation measures will be presented during the EIA consultation meetings.

7.3.2 Disclosure

As per the requirements of Article 50 of the EIA Procedure, NYDC will disclose information on the Project in two newspapers (one in English and one in Myanmar). Project information will be available on NYDC's website and signboards will be posted at the site office.

In compliance with potential lenders requirements to undertake meaningful consultations, information on the findings of the EIA, mitigation and beneficial measures in the EMP will be disclosed to the public and project affected people. Community meetings will be held in directly affected wards and villages to explain how the impacts and risks will be managed by the Project.

The advertisements for the scoping stage that were announced in The Global New Light of Myanmar (English) and The Mirror (Burmese) are provided in Figure 7.2 and Figure 7.3.

The Scoping Report will be shared on NYDC website (<https://www.nydc.com.mm/>).



ENVIRONMENTAL IMPACT ASSESSMENTS & STRATEGIC ENVIRONMENTAL ASSESSMENT OF THE DEVELOPMENT OF NEW YANGON CITY PHASE 1 MASTERPLAN

New Yangon Development Company Ltd. ("NYDC") proposes to develop the New Yangon City in Seikgyi Kanaungto, Twantay, Hlaing Tharyar, and Kyee Myin Daing Township, Yangon Region, Myanmar. For Stage 1 of Phase 1 of the Project, the New Yangon City is split into the following six groups based on the types of facilities: Bridges, Roads, Power, Industrial Zone, Water, and Wastewater.

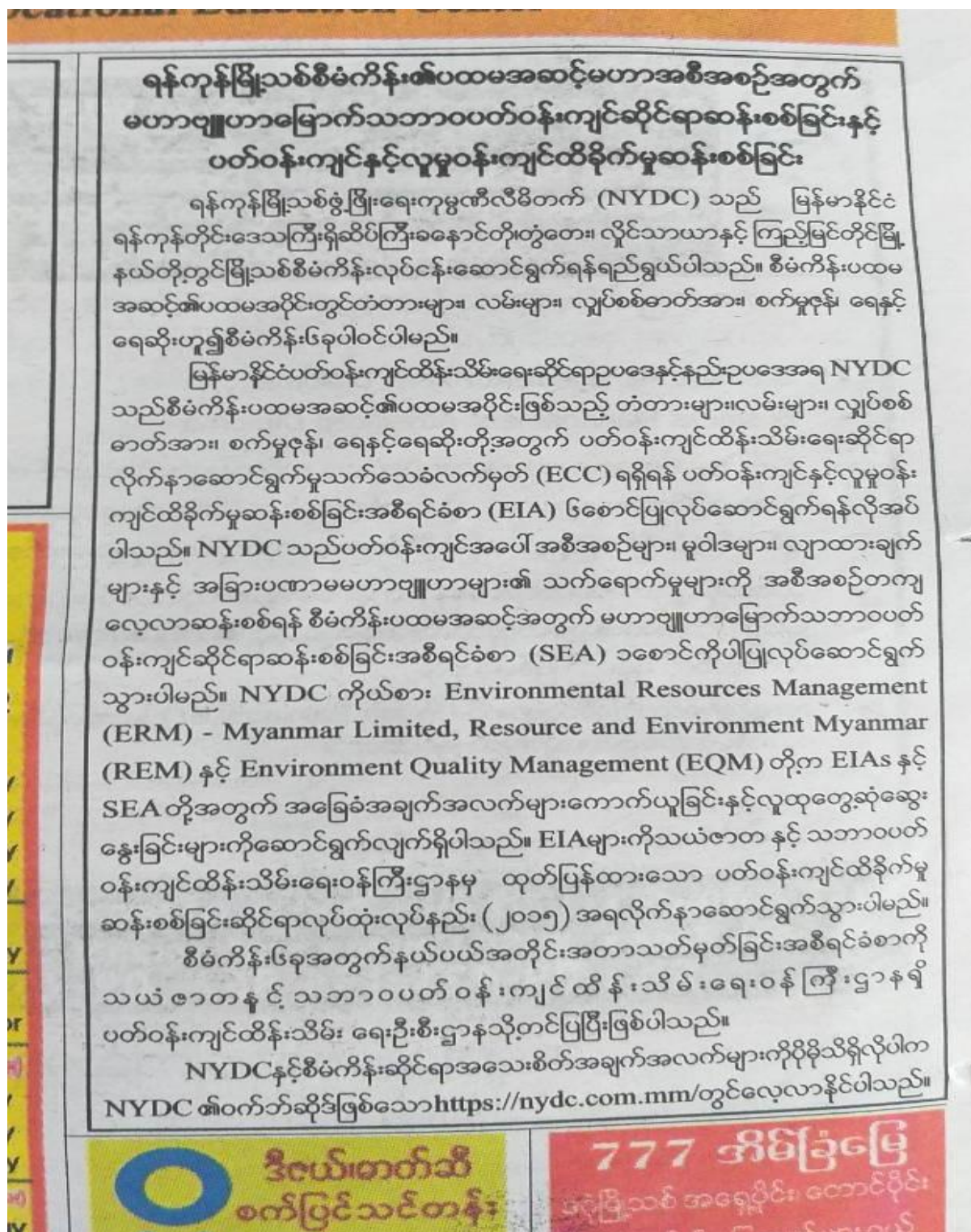
Under the Environmental Conservation Law and Rules of the Republic of the Union of Myanmar, NYDC is required to undertake six Environmental Impact Assessments (EIAs) for Bridges, Roads, Power, Industrial Zone, Water, and Wastewater in order to obtain an Environmental Compliance Certificate (ECC) for Stage 1 of Phase 1. NYDC will also undertake one Strategic Environmental Assessment (SEA) for Phase 1, to systematically analyse the impacts of plans, policies, programmes and other strategic initiatives on the environment. Environmental Resources Management (ERM) - Myanmar Limited, Resource and Environment Myanmar (REM) and Environment Quality Management (EQM), on behalf of NYDC, are currently undertaking the EIAs & SEA, which include baseline surveys and stakeholder engagement. The EIAs will be conducted in accordance with the Ministry of Natural Resources and Environmental Conservation (MONREC)'s EIA Procedure(2015).

The scoping reports for the six project components have been submitted to the Environmental Conservation Department (ECD) of the MONREC.

More information about NYDC and the Projects can be found at NYDC website <https://nydc.com.mm/>.

English version of the Public Consultation advertisement published on 29th April, 2019

Figure 7.2 Newspaper Advertisement (Global New Light of Myanmar)



Myanmar version of the Public Consultation advertisement published on 29th April, 2019

Figure 7.3 Newspaper Advertisement (The Mirror)

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions of the Scoping Study

The Scoping Study focused on the potential impacts associated with the construction and operation of the Project. Potential environmental impacts during construction are likely to be temporary and localised to the Project Area. Impacts during construction include air (dust) and noise emissions, vegetation clearance, land use change, local infrastructure, and livelihoods and economy. Potential impacts during operation, include those related to noise, local infrastructure, livelihoods and economy, and landscape/visual amenity. Impacts from accidental events have been considered in this scoping and all the impacts will be assessed in detail in the EIA Study.

From a social perspective, the Project is located in Twantay Township. The scoping visit in February 2019 confirmed that this was the main concern from the communities in terms of environmental and social impacts were traffic, squatters and access to the new city.

8.2 Recommendations for EIA Study

The Scoping Study makes the following recommendations for the EIA Study which are explained in more detail in Section 9;

- Environmental baseline surveys for noise, ground water quality, and soil quality, marine water quality, marine sediment quality, marine benthos, and terrestrial biodiversity will be undertaken for the EIA study to inform the impact assessment.
- NYDC will manage the environmental and social risks identified through the Environmental and Social Management System (ESMS) and prepare an Environmental Management Plan (EMP) for the Project.
- Social baseline data collection (e.g. focus group discussions with farmers, women), and public consultation will be undertaken in Seikgyi Kanaungto, Twantay, Kyee Myin Daing, Hlaing Tharyar, Dala and Ahlone Township to assess whether the Project is likely to have any adverse impact.
- Information will be disclosed as per the EIA Procedure, on the NYDC's website, in newspapers and at sign boards around the Project Area.
- NYDC will conduct traffic surveys, flood risk assessments, and finalise the master plan for the EIA Study.

9. TERMS OF REFERENCE FOR THE EIA STUDY

9.1 Introduction

A key outcome of scoping includes the creation of the Terms of Reference (ToR) for the EIA Study. The EIA Study will then be carried out according to the ToR. This section sets out the following:

- EIA objectives;
- Overview of activities to complete the EIA process;
- Desktop studies;
- Baseline survey methodology and locations;
- Stakeholder engagement;
- Impact assessment methodology; and
- Outline structure for the EIA Report.

9.2 EIA Objectives

The purpose of the EIA is to assess the potential impacts of the Project activities on the environment (including biological, physical, and socio-economic resources), and where applicable to design mitigation or enhancement measures to remove, reduce, or avoid negative impacts to the environment or people.

9.3 EIA Steps

Following on from the Scoping Phase of the Project, ERM will:

- Update and finalise the technical Project description as further details become available;
- Collect additional baseline data through desktop research and baseline surveys to complete a comprehensive description of the environmental and social conditions;
- Conduct additional stakeholder consultation;
- Develop mitigation and enhancement measures and outline an EMP including an approach for monitoring; and
- Report findings in a comprehensive EIA Report and present the mitigation and enhancement measures.

9.4 Desktop Review

In order to assess potential Project impacts, baseline environmental and social conditions relevant to Project impacts and risks shall be described for the Study Area. It will cover the range of physical, biological, socio-economic, and cultural features that are likely to be affected. Information will be presented for different spatial levels (e.g. Project Area, and Study Area) where applicable.

Secondary data to be used will include; statistical records, census records, government reports, NGO publications, academic studies and texts, topographic maps, aerial photos, and satellite imagery. Project engineering studies will also be reviewed for quantitative information on environmental elements.

9.5 Baseline Environmental Surveys

Primary data will be collected by international and Myanmar specialists applying industry-recognised survey and analysis methods. The sampling data collected in the Study Area will be used in all EIAs and the SEA. Results will be used respectively in each EIA and to help address cumulative impacts. Details are provided in the following sections.

9.5.1 Sampling Locations

Table 9.1 shows the sampling plan, and Figure 9.1 shows the sampling points location.

Table 9.1 Sampling Plan

Topic	Parameters	Number of Sites	Sample per Site	Total	Monitoring Frequency
Air Quality	NO ₂ , SO ₂ ,	27	1	27	One season, four weeks continuous monitoring with diffusion tubes
Air Quality	PM ₁₀ , PM _{2.5}	18	1	18	One season, 24 hrs continuous monitoring with machine
Noise	Sound Level (LAeq in dB(A))	27	1	27	One season, day time (07:00-22:00) and night time (22:00-07:00) monitoring for 24 hours for two days (1 weekday and 1 weekend)
Ground Water Quality	pH value, Temperature, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Oil and Grease, Total Nitrogen, Total Phosphorus (TP), Total Suspended Solids (TSS), Total Phenols, Mercury (Hg), Arsenic (As), Zinc (Zn), Copper (Cu), Total Chromium (Cr), Ammonia, Chlorine, Sulphide, Nitrate, Fluoride, Total Coliform.	24	3	72	One season, in situ and lab analysis using existing well locations in villages
Surface Water Quality	pH value, Temperature, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Oil and Grease, Total Nitrogen, Total Phosphorus (TP), Total Suspended Solids (TSS), Total Phenols, Mercury (Hg), Arsenic (As), Zinc (Zn), Copper (Cu), Total Chromium (Cr), Ammonia, Chlorine, Sulphide, Nitrate, Fluoride, Total Coliform.	24	3	72	One season, in situ and lab analysis in Yangon River, Twantay Canal, local creeks and ponds, and Toe River
Soil Quality	pH, Iron (Fe), Cadmium (Cd), Lead (Pb), Zinc (Zn), Copper (Cu), moisture content	24	3	72	One season

Topic	Parameters	Number of Sites	Sample per Site	Total	Monitoring Frequency
Biodiversity	Conduct habitat mapping and establish biodiversity indices, species inventory and identification of threatened species	9	Within 500m of the Project Area and water pipeline route	9	One season
	For Aquatic fauna, this will include interview of fishermen and local markets.				



Figure 9.1 Sampling Points Location

9.5.2 Sampling Methodology

9.5.2.1 Ambient Air Monitoring

Baseline ambient air monitoring to be conducted within the Study Area (2km buffer around the whole New Yangon City Phase 1 Development; encompassing the Townships neighbouring the **Project Area**). Sample locations are selected by the nearest sensitive receptors locations off-site. Air quality monitoring locations were selected by identifying potentially affected communities, with consideration given to the prevailing wind conditions and Project activities. There is limited local monitoring of meteorology and therefore the Weather Research and Forecasting Model data was used to generate meteorological data for the purpose of reviewing climatic conditions, review regional air quality and identify representative sensitive receptors.

A total of 27 air quality monitoring sites have been established at locations in the Study Area. At each monitoring location, measurements of NO_x, NO₂ and SO₂ will be taken using Palmes type diffusion tubes and measurements of PM₁₀ and PM_{2.5} will be undertaken using the direct reading of HAZ-SCANNER Environmental Perimeter Air Station (EPA).

Diffusion tubes are passive samplers that consist of small plastic tubes which contain a chemical reagent to absorb the pollutant to be measured directly from the air. The preparation and analysis of the diffusion tubes is undertaken to BS EN 13528. The technique is widely recognised internationally, including by the IFC, US EPA and UK Environment Agency. There is best practice guidance, adopted by this assessment, available from the US EPA and from the UK Department for the Environment, Food and Rural Affairs (DEFRA) on the siting and deployment of tubes. The analysis of the exposed tubes is completed through Ion Chromatography (United Kingdom Accreditation Service (UKAS) Accredited Method ISO/IEC 17025:2005).

9.5.2.2 Ambient Noise Monitoring

Baseline ambient noise monitoring to be conducted within the Study Area. Noise monitoring (db(A)) will be conducted at selected locations that can reflect the exposure of the nearest local community's and sensitive locations (e.g., houses, schools, monasteries, etc.) and duration and frequency will be recorded for 24hrs continuously for (two) consecutive days at each site, covering a weekday and a weekend day, using the Sound level Meter (Model: SL-4023SD) along with SD card real time data recorder (USB/RS232). The monitoring procedures, data analysis and interpretation are carried out in accordance with the guidelines of USEPA and the operational manufacture.

9.5.2.3 Ground Water and Surface Water Quality

In general, water samples will be collected by using clean sampling dipper in order to avoid sample contamination from other sources according to the standard operation procedures. Before sample collection, the appropriate measures including wearing of disposable and powder less gloves and rinsing of sampling dipper with native water will be carried out so as to condition, or equilibrate to the sample environment and make sure that all cleaning-solution residues are removed. The water-sampling dipper is immersed approximately 1m depth into the flowing stream and then filled into the sample bottles. Total dissolved solid (TDS), conductivity, chlorine, PH value, temperature will be measured on-site at the sampling locations according to the standard operation procedures.

The sample bottles will be partially filled and rinsed with the water to be sampled (rinse water). In order to avoid suspended sand particles, the water for rinsing will collect at the edge of the stream in an area of low-flow turbidity and then drained the rinse water.

After sample collection, sample bottles will be kept in a cooling box with ice/ice packs until the laboratory. All water sample will be sent to ALS Hong Kong Laboratory and measured the following parameters.

United States Environmental Protection Agency (USEPA) (2002) standard method for chemical analysis of water and wastewater and American Public Health Association (APHA) (2005) Standard method for examination of water and wastewater will be used to analyse the surface and ground water quality.

9.5.2.4 Soil Quality

Soil samples will be collected from drill -holes dug approximately 1 m depth by soil auger (hand auger drill). During sample collection, gloves will be worn, and glove and soil auger will be rinsed with clean water. Samples will be transferred into wide-mouth glass bottles and sent to an internationally accredited laboratory (ALS Hong Kong Laboratory) in Hong Kong. The soil samples will be collected according to the standard procedure and kept in cooling box at 4°C till the respective laboratory. Dutch Standards for Soil Quality will be used to analyse the data.

9.5.2.5 Biodiversity

Terrestrial Flora (Wet Season)

Surveys will be conducted to:

- Determine the presence of species of conservation significance¹ (Critically Endangered, Endangered and Vulnerable on the IUCN Red List of Threatened Species; endemic species; and Myanmar Protected species).
- Determine the presence of any invasive species within the Project Area and at the cooling water outflow (according to the Global Invasive Species Database and Myanmar national listings).

Transect surveys will be used to identify the aforementioned species. GPS reference locations are to be made for all individual species identified.

Representative samples are to be taken of different vegetation communities within the Study Area. Mapping of mangrove health and extent within this area is to occur. Particular focus should be on identifying individuals of the Critically Endangered Mangrove species, *Sonneratia griffithii*, if present.

Undertake vegetation class/land use mapping to show the type, condition and distribution of vegetation classes of the surveyed area. This mapping may occur through satellite image/aerial photograph interpretation and a series of inspections to confirm vegetation class distribution. Qualitative descriptions and a photographic record of the vegetation classes and conditions are to be provided based on field observations.

Birds and Mammals

Surveys will be conducted for mammals and birds within the Study Area, covering the range of habitats including paddy, woodland, mangroves etc. Representative areas along transmission line route using relevant techniques (villager interviews, transect surveys). The surveys should focus on the presence of species of conservation significance. Surveys will determine the presence of any invasive species within the Project Area (according to the Global Invasive Species Database and Myanmar national listings).

Aquatic/Marine/Mangrove

Aquatic/Marine/Mangrove survey at the bridge locations and water intake locations will be conducted outflow using relevant techniques (transect surveys, nocturnal and diurnal inspection of habitats). Surveys are to be conducted at representative locations to sample to all habitats present, including

¹ CR, EN and VU on the IUCN Red List of Threatened Species; migratory and endemic species; congregatory and Myanmar Protected species

paddy, woodland, mangroves etc. The surveys will focus on the presence of species of conservation significance. Data on fish species will be collected from local community interviews.

9.6 Stakeholder Engagement and Socio-economic Data Collection

The stakeholder engagement to be undertaken is presented in the following sections. This is required to inform stakeholders about the Project as well as to fill any data gaps identified which will be necessary to conduct a robust impact assessment.

9.6.1 Public Consultations for the EIA

During the EIA, public consultation and disclosure will be undertaken across the various stakeholder groups identified. For the potentially affected communities, consultation and disclosure will be undertaken in Seikgyi Kanaungto, Twantay, Kyee Myin Daing, Hlaing Tharyar, Dala and Ahlone Township. The public consultation meetings locations during the EIA stage are shown in Figure 9.2. The public consultations will be advertised in the national papers.

The consultation process was guided by the following key principles:

- **Inclusive:** The consultations were organised to ensure representation of potentially affected and interested stakeholders. Separate focus group discussions (FGDs) were undertaken with fishermen and boat owners.
- **Sharing of information:** At the township and village level consultations, special emphasis was given to build community level understanding of the Project and all the information was provided in Myanmar language.
- **Participatory:** Stakeholders were encouraged to actively participate in the consultations and were always given the opportunity to ask questions.

The approach to consultation, informed by these principles, is described below. The stakeholder consultation meetings will be structured as followed:

- **Introductions and information disclosure:** Introduce NYDC, the Project, the EIA, the proposed stakeholder engagement process, the potential environmental and social impacts and mitigation to help the stakeholders understand the Project and NYDC's intentions for engagement.
- **Question and answer session** for all stakeholders in the town hall meeting to raise concerns, comments or ask questions to which NYDC can directly respond.

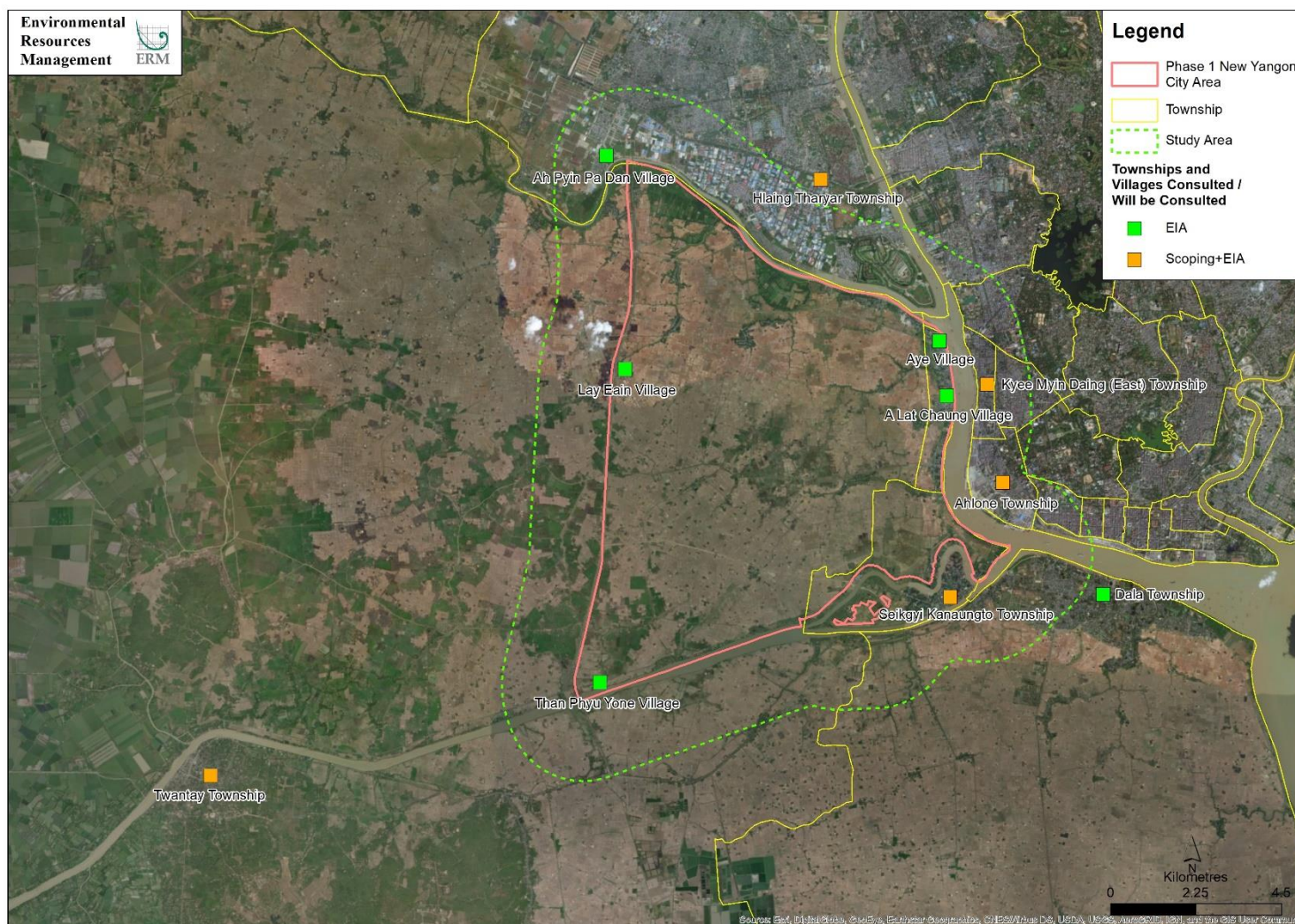


Figure 9.2 Public Consultation Meetings Locations

9.6.2 Socio-economic Data Collection

As part of the EIA process, a detailed baseline data collection will be undertaken to update the baseline established in the Scoping Report and adequately assess the potential impacts from the Project on the local communities. The baseline study will cover the socio-economic conditions of the Project Affected People (PAP). Figure 9.3 shows the social baseline survey locations. This baseline will be established on the basis of Focus Group Discussions and interviews with local communities and other interested stakeholders in all Townships. Stakeholders will be asked questions using both checklists and informal interviews to find out the village and household level information on demographics, income, infrastructure, farming and livelihoods as per the following:

- **Village and Household Questionnaires:** Demographic profile, land holding; number of land owners and landless; types of school facilities; credit access; income sources; living standards; market access; health facility access; access to water source; cooking fuel type uses; fuelwood collection; type of diseases; electricity access; number of households with income; infrastructure; number of people by type of livelihood; number of people by type of livestock; number of members and meetings of support groups; and, type of support from and contribution to support group.
- **Farmers Questionnaire:** land holding size and shape; level of subsistence; role of men and women in agriculture; government agricultural scheme, credit source, reason amount, interest rate and payment method; use of hired labour; wage amount paid by gender; cost of labour, irrigation, fertilizers and transportation and land renting; market of cash crop; number of households by type of livestock raised, number of heads, percentage of home consumption and percentage for the market; source and issues of fodder acquisition; crop cycle by crop.
- **Women's Questionnaire:** number of women in the village, number of women headed households; role of women in community; opinion on equality of gender opportunities; influence on household decision; problems of women; quality of life rating; women's health problems; disease outbreaks; causes of death and affected gender group; women's problem in employment; and percentage of women in farming.

A sample survey of up to 300 households within the townships mentioned above will be administered to allow for a detailed understanding of the baseline and the potential impacts of the Project to be established. In order to minimise disruption to local residents, this would be combined stakeholder consultation.



Figure 9.3 Social Baseline Survey Locations

9.7 Impact Assessment Methodology

The principal impact assessment steps are summarised in *Figure 9.4* and comprise:

- Impact prediction: to determine what could potentially happen to resources/receptors as a consequence of the proposed Project and its associated activities.
- Impact evaluation: to evaluate the significance of the predicted impacts by considering their magnitude or likelihood of occurrence (for unplanned events), and the sensitivity, value and/or importance of the affected resource/receptor.
- Mitigation and enhancement: to identify appropriate and justified measures to mitigate negative impacts and enhance positive impacts.
- Residual impact evaluation: to evaluate the significance of impacts assuming effective implementation of mitigation and enhancement measures. Major impacts are considered “significant” in Figure 9.4.

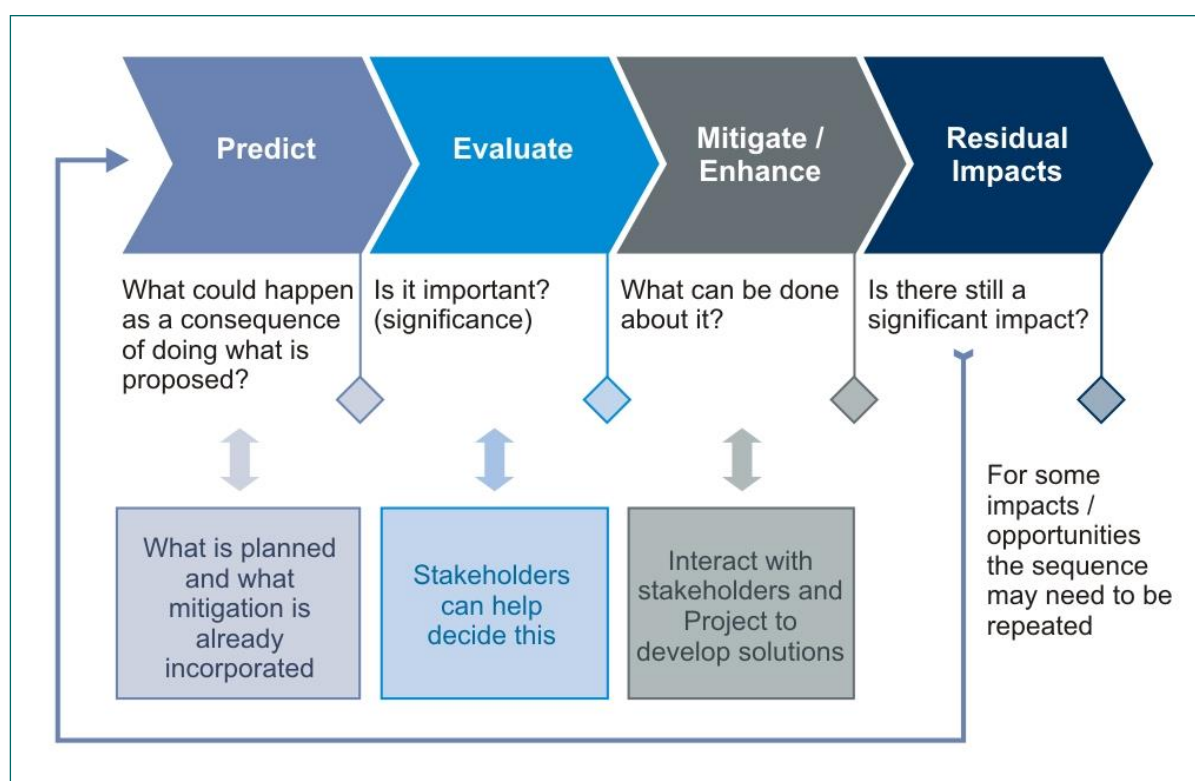


Figure 9.4 Impact Assessment Process

The above methodology will be used to predict, evaluate and assess potential impacts in the Report.

9.8 Structure of the EIA Report

An outline of the proposed contents of the EIA Report is provided in Table 9.2 which follows the EIA Procedure (2015). It is important to note that the table of contents may be revised based on the requirements of the Myanmar authorities.

Table 9.2 Structure of the EIA Report

Chapter No.	Contents Heading	Explanatory Note
	Cover Pages	Title page, acknowledgements, authors and contributors, table of contents (including lists of figures, tables, and maps)
	Commitment Letter	Letter from proponent to commit to robustness of EIA and adopting all mitigation measures.
1	Executive Summary	Summary of the entire EIA Report.
2	Introduction	<ul style="list-style-type: none"> ■ Presentation of the Project Proponent ■ Presentation of the Environmental and Social Experts
3	Policy, Legal and Institutional Framework	<ul style="list-style-type: none"> ■ Corporate Environmental and Social Policies Policy and Legal Framework, including existing laws and rules, other related environmental law and rules, International Conventions, Treaties and Agreements, and international standards, guidelines ■ Institutional Framework ■ Project's Environmental and Social Standards
4	Project Description and Alternative Selection	<ul style="list-style-type: none"> ■ Project Background ■ Project Location, overview map and site layout maps ■ Comparison and Selection of Alternatives ■ Description of the Selected Alternative (per phase)
5	Description of the Surrounding Environment	<ul style="list-style-type: none"> ■ Setting the Study Limits ■ Methodology and Objectives ■ Physical Components including air, noise, soil, water, environmental quality data, and climate data ■ Biological Components including biodiversity maps, and vegetation cover maps ■ Socio-Economic Components including land use maps, population distribution, and maps of other socio-economic indicators ■ Cultural Components including maps with location of cultural, historical, and religious importance ■ Visual Components including landscape
6	Impact and Risk Assessment and Mitigation Measures	<ul style="list-style-type: none"> ■ Impact Assessment Methodology ■ Identify potential physical, biological, social, socioeconomic, cultural, and visual impacts; this shall include identification of potential impacts; develop mitigation measures, assess Residual Impacts and prepare a comprehensive monitoring plan ■ Relevant maps in proper scale clearly indicating the location of sources of Adverse Impacts, images, aerial photos, satellite images, the areas, people, assets or features impacted, sensitive habitats, vulnerable areas or settlements and the nature of the impacts
7	Cumulative Impact Assessment	<ul style="list-style-type: none"> ■ Methodology and Approach ■ Cumulative Impact Assessment
8	Environmental Management Plan	<ul style="list-style-type: none"> ■ Monitoring Plan ■ Reporting Requirements ■ List of EIA Commitments ■ Management sub-plans
9	Public Consultation and Disclosure	<ul style="list-style-type: none"> ■ Purpose of consultation undertaken for Project ■ Methodology and approach ■ Summary of consultation ■ Summary of main comments received and how comments taken into account during EIA process ■ Further consultation and disclosure
10	Conclusions and Recommendations	Main conclusions of the EIA Report and recommendations for future actions.

Chapter No.	Contents Heading	Explanatory Note
	Appendices	These will include technical annexes with details of specific surveys, and other required information.

REFERENCES

- Ahlone Township Data. 2017. General Administration Department
- Another Development & The East Asia Institute. 2018. *Access to Clean and Safe Water in Yangon – A Case of Municipal Water Provision in Insein Township*.
- China Communications Construction Company Limited. 2019. *New Yangon City Phase 1 Development – Pre-Project Document*.
- China Communications Construction Company Limited. 2019. *20190309-Water Intake Point Selection and Layout of Raw Water Transmission Pipeline of NYC Phase 1*.
- Climate Data Website. 2018. *Climate: Myanmar*. Accessed: 7 December 2018. Retrieved from: <http://en.climate-data.org/location/317/>
- De Koning, R.J. and M.P.J. Janssen. 2015. *Delft 3D-Flow Model of the Yangon Port Area*. Accessed: 27 November 2018. Retrieved from: <https://repository.tudelft.nl/islandora/object/uuid:96917480-dc97-421e-b55e-6c560ce44264/datastream/OBJ/download>.
- Department of Population. April 2018. *Township Census Report – Yangon*. Accessed: 10 January 2019. Retrieved from: <http://www.dop.gov.mm/en/state-region/yangon>
- EO Earth Website. 2016. *Water Profile of Myanmar*. Accessed: 7 December 2018. Retrieved from: <http://www.eoearth.org/view/article/156974/>
- Ministry of Environmental Conservation and Forestry. 2012. *Myanmar's National Adaptation Programme of Action (NAPA) to Climate Change*.
- Ministry of Forestry. 2005. *National Action Programme of Myanmar to Combat Desertification in the Context of United Nations Convention to Combat Desertification (UNCCD)*. Retrieved from: <https://knowledge.unccd.int/sites/default/files/naps/myanmar-eng2005.pdf>
- Royal Haskoning DHV. 2019. *Strategic Flood Risk Assessment New Yangon City – Final Report*.
- Sakai, Hiroshi, Yatsuka Kataoka, and Kensuke Fukushima. 2013. *Quality of Source Water and Drinking Water in Urban Areas of Myanmar*. Accessed: 7 December 2018. Retrieved from: <https://www.hindawi.com/journals/tswj/2013/854261/>
- Theilen-Willige, Barbara and George Pararas-Carayannis. 2009. "Natural Hazard Assessment of SW Myanmar – A Contribution of Remote Sensing and GIS Methods to the Detection of Areas Vulnerable to Earthquakes and Tsunami/ Cyclone Flooding." *Science of Tsunami Hazards*, 2(2), 108-128
- Union of Myanmar. 2009. *Hazard Profile – Myanmar*.
- United Nations Office for the Coordination of Humanitarian Affairs (OCHA), 2011. https://www.preventionweb.net/files/4164_ochamyahazardv3110606.pdf. Accessed 2 July 2018.
- Yangon Region, Northern District, Township General Administration Department. 2017. "Hlaing Tharyar Township Information"
- Yangon Region, Southern District, Township General Administration Department. 2017. "Dala Township Information"
- Yangon Region, Southern District, Township General Administration Department. 2017. "Seikgyi Kanaungto Township Information"
- Yangon Region, Southern District, Township General Administration Department. 2017. "Twantay Township Information"

Yangon Region, Western District, Township General Administration Department. 2017. “Ahlone Township Information”

Yangon Region, Southern District, Township General Administration Department. 2017. “Kyee Myin Daing Township Information”

APPENDIX A SCOPING STAKEHOLDER ENGAGEMENT MATERIALS AND MEETING MINUTES

Meeting of Minutes: Stakeholder Engagement Meeting for the Development of New Yangon City

Detail:

Project	The Development of New Yangon City	Region / State	Yangon
Venue	Meeting Room - 3, Yangon Region Government's Office		
Objective	Chief Minister Meeting		
Date	23 rd January 2019		
Time	14:00 – 16:00 PM		

- The Chief Minister was not able to attend the meeting and requested H.E. Daw Nilar Kyaw to attend in his place.
- Daw Aye Aye Khine (Head of City Planning and Development, NYDC) introduced the meeting and gave a brief explanation of the Project.
- Daw Khin Su Su Naing (Senior Consultant, ERM) gave an overview of the Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) process as per the Myanmar EIA Procedure and a brief explanation of the scoping study.

Question and Answer Section

Suggestion from Daw Nilar Kyaw, Minister of Electricity, Industry, Roads and Transport

- An official letter including the proposed stakeholder engagement schedule should be submitted to the Yangon Regional Government in order to get approval for the future stakeholder consultation meetings.

Comment from U Khin Win, Regional Hluttaw Representative, Kyee Myin Daing Township

- If the eleven villages from Kyee Myin Daing are not included in the Project Area, it is recommended that NYDC should explain this to the villagers. Are the eleven villages in the western part of Kyee Myin Daing Township included in the project area?

Response from Daw Nilar Kyaw, Minister of Electricity, Industry, Roads and Transport

- The Project Area was confirmed by the former government and is continuing as planned. The brown highlighted areas are the villages (from slide 8 of the presentation) and these will not be included in the Project Area.

Response from Daw Aye Aye Khine, NYDC

- Those villages are located in the Project Area will remain untouched and there will be green spaces between the new developed areas and the existing villages.

Response from Daw Khin Su Su Naing, ERM

- We will consider these villages in the impact assessment.

Comment from U Kyaw Nanda Aung, Regional Hluttaw Representative, Kyee Myin Daing Township

- These eleven villages might be included in the future phases of the project although they are not included in the initial stage of development. Therefore, the impact assessment should consider them as well.

Comment from U Thet Htun Win, Hluttaw Representative (Chairman of Transportation, Communication, Construction and Industry of Yangon Region Hluttaw)

- The Master Plan should be presented to the Public.
- Where is the power source for the new city?
- How many gallons of water will be required and where will it be from?
- Where will the population be settled in the new city?
- The old city has a problem with water shortage. Where is the water reservoir area for the project?
- Where will the administration area be in the new city?
- What is the capital investment to implement the project?
- How many acres of land will be acquired for the project and how many people will be impacted by the Project?

Response from Daw Nilar Kyaw, Minister of Electricity, Industry, Roads and Transport

- Any queries of land acquisition should be raised in the upcoming Master Plan Final Presentation, which will be held on 15 February as today meeting is focusing on SEA/EIA study of the project.
- A 20/80 compensation scheme was agreed with the Security, Peace, Stability and Rule of Law Working Committee. The previous government set 15/85 land compensation scheme, however, a 20/80 scheme is more fair.
- Water and Electricity issues are under discussion with the Union Ministry.
- The Project has a plan to get electricity from the Mee Lin Chaint (1350 MW) power plant (in Ayeyarwady Region).
- Fresh water is planned to intake from the Toe River and is working together with Water Management Committee regarding the matter.
- The capital investment will practice Public Private Partnership (PPP) system.
- The Union level will manage the project but have not assigned to any focal ministry yet. Yangon Regional Government is currently taking responsibility for the project.

Comment from U KyawHtwe, Amyotha Hluttaw Representative

- Will the Project seek approval from Parliament when the Master Plan is completed in March 2019?
- The 20/80 compensation scheme can be practiced for land acquisition only if landowners agree.

Response from Daw Nilar Kyaw, Minister of Electricity, Industry, Roads and Transport

- Land acquisition process was already completed till the eighth-stage by the previous government. The next step is to confirm how to compensate. Land owners said they prefer to receive land than cash, as land is more important in Yangon Region.
- In addition, the four existing “New Dagon Townships” will be upgraded with particular plans (especially for electricity, road and drinking water).

Comment from Dr. Kyaw Zin Oo, Regional Hluttaw Representative, Twantay Township

- Is there any plan to fix the roads in Twantay Township prior to the project construction?

Response from Daw Nilar Kyaw, Minister of Electricity, Industry, Roads and Transport

- The townships included in the New Yangon Development Plan are not included in any of other budgets so it will be submitted to Chief Minister.

Comment from U Zaw Win, Pyithu Hluttaw Representative, Kyee Myin Daing Township

- Kyee Myin Daing Township is densely populated with 18 wards and four villages. The livelihood of the communities from the Kyee Myin Daing (West) Township is different from the Kyee Myin Daing (East) Township and Kyee Myin Daing (West) Township want to improve their income and livelihood options.

Within the Township, 75% of the people agree and support the project. However, the dissemination of project information to local people is limited.

- Parliament members have meetings in Nay Pyi Taw and Regional Parliament meetings will start on 21st January, the schedule of the stakeholder engagement should consider this. The weekday meetings are not feasible for Parliament members. The meeting should be scheduled on parliament representative availability.

Response from Daw Nilar Kyaw, Minister of Electricity, Industry, Roads and Transport

- NYDC should take this into account and change the schedule.

Comment from Dr. Aung Myint Maw, Deputy Head of the Environmental Conservation and Cleaning Department

- Will the cemeteries from Seikgyi Kanaungto and Ah Lat Chaung be combined into one?
- If the population is 1.2 million, waste discharge per day will be 600 tons. Where will waste be discharged and how many acres will be set up for a dumpsite and it should be included in the Master Plan and Urban Plan?

Response from Daw Aye Aye Khine, NYDC

- The existing cemeteries will remain as they are.

There is a plan for industrial waste and municipal waste management and industrial waste will be disposed of like Thilawa Industrial Zone.

Comment from U Kyaw Zaeya, Secretary of Regional Hluttaw Representative (Planning and Commerce Committee)

- Conflicts between the local workers and foreigners should be minimised and salary gaps between local and international employees should be managed and justified.
- How will the city manage the population increase in the future?
- What is the process of Bill of Quantities (BOQ) and Quality Control (QC)?

Response from Daw Khin Su Su Naing, ERM

- Employment opportunities for local communities will be included in the EIA study.

Comment from U Thet Htun Win, Hluttaw Representative (Chairman of transportation, Communication, Construction and Industry Committee)

- The location of the cemeteries and the waste disposal should not be changed often.
- The areas of the administration buildings should be defined.
- In the future, the resident population will increase. Meetings with the related government departments should be held.
- The structural design of the project should be counter checked and costing should be independently audited.
- The investment is based on profit; therefore an independent consultant should be appointed to assess and audit.

Response from Daw Aye Aye Khine, NYDC

- The area for the administration infrastructure will be defined for the project and it is under discussion with the relevant departments
- A Quantity Surveyor consultant has been assigned to counter check the Bill of Quantities (BoQ) submitted by CCCC. The information provided by China Communications Construction Company (CCCC) to date has been checked.

- The estimated population in 2050 is 1.2 million.
- The master plan prepared by AECOM includes a consultant to countercheck the work, including BoQ and Quality Control.

Comment from Dr. Kay Thi Kyaw, Director, Department of Social Welfare

- The Project should protect women and elderly people and should prepare management plans and mechanisms considering potential crime and rape cases for migrant women and children.

Response from Daw Khin Su Su Naing, ERM

- The SEA/EIA studies will be prepared in accordance with the UN Sustainable Development Goals and Myanmar Sustainable Development Plan, which consider gender equality and health.
- Regarding the stakeholders, we practice an inclusive and transparent process regarding the dissemination of information.
- ***Response from Daw Nilar Kyaw, Minister of Electricity, Industry, Roads and Transport*** In the Township Level public consultation meeting, representatives from Hluttaw would like to participate so the meetings should be held during weekends.

Suggestion from U Khin Win, Regional Hluttaw Representative, Kyee Myin Daing Township

- An observation trip to Kyee Myin Daing (other side of the river) is advised prior to the Township stakeholder engagement to get a clear understanding of the challenges for the upcoming engagement.

Comment from U Thant Zin, Chief Executive Officer, Yangon Electricity Supply Corporation

- A 230kV transmission line crosses the New Yangon City area which is managed by the Union Government and cannot be used for the Project. There will be 500 kV lines in the Project as well as smaller 11kV, 33kV and 66kV distribution lines. The connection to the national grid is still to be confirmed, this will either be from Hlaing Tharyar or Western University. The distribution lines should be underground cable system and overhead lines should not be used for all power and distribution lines.

Response from Daw Nilar Kyaw, Minister of Electricity, Industry, Roads and Transport

- We already instructed the Project to design for an underground cable system. The 230kV lines can be an underground system however, the distribution should be an underground system as well.

Attendance List

No	Name	Position	Department
1.	H.E. Daw Nilar Kyaw	Minister	Ministry of Electricity, Industry, Roads and Transportation, Yangon Region
2.	Dr. Kay Thi Kyaw	Director	Department of Social Welfare
3.	U Ye Swe	Deputy Director	Environmental Conservation, Yangon Region
4.	U Nay Win Aung	District Administrator	Southern District, Yangon Region
5.	U Aung San Win	Head of Department	Water and Sanitation Department, Yangon City Development Council (YCDC)
6.	Dr. Aung Myint Maw	Deputy Head of Department	Environmental Conservation and Sanitation Department, YCDC
7.	U Zaw Thein	Township Officer	Seikgyi Kanaungto, General Administration Department (GAD)
8.	U Zarni Win	Township Officer	Kyee Myin Daing, GAD
9.	Daw Khin Thida Tin	Director	Environmental Conservation Department
10.	U Tint Lwin	Chairman	Region Hluttaw (Parliament)
11.	Daw Thet Htar New Win	People Accounting Committee's Secretary	Yangon Region Hluttaw (Parliament)
12.	U Zaw Win	Pyithu Hluttaw Representative	Kyee Myin Daing Township
13.	U Kyaw Nanda Aung	Regional Hluttaw (Parliament) Representative	Yangon Regional Hluttaw
14.	U Thet Htun Win	Chairman	Transportation, Communication, Construction and Industry Committee
15.	U Than Naing Oo	Member	Transportation, Communication, Construction and Industry Committee
16.	Dr. Kyaw Zin Oo	Regional Hluttaw (Parliament) Representative	Twantay Township
17.	U Kyaw Zaeya	Secretary of Regional Hluttaw (Parliament)	Finance, Planning and Commence Committee
18.	U Khin Win	Regional Hluttaw (Parliament) Representative	Kyee Myin Daing Township
19.	U Kyaw Htway	Amyothar Hluttaw (Parliament) Representative	Yangon Region
20.	U Myo Aung Htay	Secretary	Yangon Regional Government
21.	U Thant Zin	Chief Executive Officer	Yangon Electricity Supply Corporation
22.	U Zaw Moe Aung	Regional Head	Department of Agricultural Land Management and Statistics
23.	U Moe Khaing Tun	Township Officer	Twantay Township, General Administration Department

NYDC / ERM Attendees

No	Name	Position	Department
1.	Dr. Ye Moe Myint	Director	NYDC
2.	Daw Aye Aye Khine	Head of City Planning and Development Dept.	NYDC
3.	Daw Wint Wint Htet Hlaing	Head of Corporate Development Dept.	NYDC
4.	U Hlaing Win	Communication and Authority Manager	NYDC
5.	Daw Hnin Ei Ei Phyo	Assistant Officer II	NYDC
6.	Tessa Morton	City Planner I	NYDC
7.	Shiki Osawa	City Planner I	NYDC
8.	Aye Mya Thinzar	Assistant Constant	ERM
9.	Becky Summons	Senior Consultant	ERM
10.	Khin Su Su Naing	Senior Consultant	ERM

Photos



Meeting of Minutes: Stakeholder Engagement Meeting for the Development of New Yangon City

Detail:

Project	The Development of New Yangon City	Region / State	Yangon
Venue	GAD Office Meeting Room, Ahlone Township GAD Office.		
Objective	Ahlone Township Meeting – Scoping Phase		
Date	1 st February 2019		
Time	1:00 – 3:00 PM		

- Daw Aye Aye Khine (Head of City Planning and Development, NYDC) introduced the meeting and gave a brief explanation of the Project.
- Daw Khin Su Su Naing (Senior Consultant, ERM) gave an overview of the Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) process as per the Myanmar EIA Procedure and a brief explanation of the scoping study.

Question and Answer Section

Comment from U San Lwin, Head of the Saw Yan Paing North Ward

- Is NYDC a private or non-profit company? How will NYDC return the 10 billion MMK which will be used for establishment of the company?
- Is there any underground transportation system planned for this New Yangon Development Project?

Response from Daw Aye Aye Khine, NYDC

- The NYDC is an entity incorporated under the Special Companies Act and was established to undertake the development of the New Yangon City. NYDC is 100% owned by the Yangon Regional Government who provided 10 billion MMK to NYDC for the City Development which is used to prepare the Master Plan, consultancy fees and construction and operational costs.
- NYDC's task also includes looking for investors and facilitate for the project. The percentage of the profit from investors will be returned to the country.
- All the transportation facilities will be above ground.

Comment from U Thein Myint, Htar Nay Ward Patron

- The project will take the water from Toe River, is it correct? Is there any plan for a storm water collection system?
- Please explain why the project is called “New Yangon City”?
- Can electricity be provided in the 12 years duration; 2018 – 2030?

Response from Daw Aye Aye Khine, NYDC

- Water intake will be from Toe River and this has been studied by JICA, who prepared the 2040 Master Plan for Yangon Region. The water quality has been tested which suggested that the quality is good to use as a

water source. Ground water from the project area will not be used due to its quality and concern for land subsidence.

- A water treatment plant and storm water collection system is included as part of the project.
- The Yangon Regional Government discussed with Union Minister of Ministry of Electricity and Energy regarding the electricity requirements for the project and Union Minister agreed to provide the power to NYDC. NYDC is also looking for private power investor producing as a secondary option of power source. Transformer substations will be constructed within the new city and will provide 24 hour electricity for all industries.

Comment from U Myo Thint Zaw, Ahlone Township GAD Officer

- Has this New Yangon Development Project been approved by the Union Government?
- You mentioned that 20% of the land will be returned to the landowner, please clarify that?

Response from Daw Aye Aye Khine, NYDC

- Yangon Regional Government is handling the necessary approval requirements from Union. Most of the farming land cannot be used for agriculture purpose since Nargis 2008 due to its quality. The land owners agreed to the proposed land compensation scheme as they prefer to get land rather than just cash compensation.
- The land acquisition strategy was approved since last administration. It was reapproved by current government.

Comment from Dr. May Thiri, Deputy Officer from Ahlone Township Health Department

- Is all the land within the project area farm land?
- When will the community settle in this new city and work?
- Which sectors will the investors come from for this new city?
- Will this project offer employment opportunities for the local communities?

Response from Daw Aye Aye Khine, NYDC

- About 85% of the land is farmland in the Project area.
- Two Bridges (Bagaya Bridge and Pan Hlaing Bridge) and roads will be constructed with the aim to finish in 2021. The industries will be constructed in 2022 and there will be job opportunities for locals after this time.
- Many industries such as garment, food, furniture, electronic, chemical, and service industries, will be located in the industrial zone.
- There will be employment opportunities for people who live in and around the new city.

Comment from U Myo Ko Ko Win, Officer from Fire Services Department

- Is there any plan to include an area for the fire services department?

Response from Daw Aye Aye Khine, NYDC

- NYDC will include administrative departments' areas approximately 5% of the resettlement areas which will include fire stations.

Comment from U Win Shwe, Administrator of the Sin Min Ward

- There are many squatter areas in Hlaing Tharyar Township. Does NYDC have any plans considering this for the new city?

Response from Daw Aye Aye Khine, NYDC

- NYDC understands the current squatter issues current issues and ensure adequate workers' accommodation is included in the Project area. The construction workers will leave the Project Area once construction is complete.

Response from Daw Khin Su Su Naing, Senior Consultant from ERM

- The ESIA will consider and study those impacts and proposed mitigation measures to the Project.

Attendance List

Sr	Name	Occupation/Organization	Address
1	U Than Htwe	Patron	Sin Min Ward
2	U Saw Maung Chaw	Patron	Kayin Chan Ward
3	U Maung Aye	Patron	Saw Yan Paing (north) Ward
4	U Htun Htun	Patron	Saw Yan Paing (north) Ward
5	U Than Zaw Sein	Patron	Kayin Chan Ward
6	U Kyaw Thein	Township Deputy Police Head	Ahlong Township Police Office
7	U Nyunt Phone	Patron	Thit Taw ward
8	U Kyaw Than Soe	Custom department	
9	U Myat Kyaw	Patron	Htar Nar Ward
10	U Ba Myint	Deputy Education Officer	
11	U San Lwin	Ward Administrator	Saw Yan Paing (north) Ward
12	U Hein Myint	Patron	Htar Nay Ward
13	U Wai Soe Htet	Lawyer	
14	Dr.May Thiri	Deputy officer, Public Health Department	Alone Township
15	Daw Tin Tin	Staff Officer Corporative Department	
16	U Lin Aung Khaing	Clerk (Ayeyarwady)	
17	Daw Khin Myo	Librarian	
18	U Myo Ko Ko Win	Officer, Fire Services Department	Alone Township
19	U Naing Lin Oo	100 Administrator	Lut Lat Yay Ward
20	U Win Shwe	Ward Administrator	Sin Min Ward
21	U Than Hteik	Ward Administrator	Saw Yan Paing (south) Ward
22	U Win tin	Committee Chairman	Saw Yan Paing (west) Ward
23	U Htein Lin	Ward Administrator	Htar Nar Ward
24	U Myin San	Myanmar Green Network	
25	Daw Myint Myint Ohn	Township Deputy Staff Officer	Alone Township
26	U Bo Bo Thwin	Ward Administrator	Lut Lat Yay Ward
27	U Kyaw Aye	Patron	Hlaw Kar street
28	U Soe Myint	Administrator for 100 households	
29	U Hla Thein Hlaing	Patron	Forest Ward
30	U Htay win	Ward Administrator	Saw Yan Paing (east) Ward
31	Daw Aye Khine		Aung Zeya Yeik Mon Ward
32	U Maung Maung Aung	Patron	Galun Ward
33	U Myint Aung	Ward Administrator	Galun Ward
34	U Maung Maung Htun	Township Municipal Administrator	
35	U Sit Maung		Saw Yan Paing (North)
36	U Myo Thein Zaw	Alone Township GAD Officer	Alone Township

Photos





Meeting of Minutes: Stakeholder Engagement Meeting for the Development of New Yangon City

Detail:

Project	The Development of New Yangon City	Region / State	Yangon
Venue	GAD Office Meeting Room, Twantay Township		
Objective	Twantay Township Meeting – Scoping Phase		
Date	2 nd February 2019		
Time	10:00 AM – 12:00 PM		

- U Moe Khaing Htun, Twantay Township Administration Officer explained that the Project commenced in 2017 and has been gathering the opinions of the local farmers with regards to land acquisition. The agreement is 20% of the farmland will be compensated to the farmers and 80% of the farmland will be used for the Project. The land category will be upgraded from farmland to urban land. A list of farmland owners who have agreed to the proposed scheme has been collected. 92% of land owners in the Project Area have agreed and the other 8% are in the category of disagree, cannot contact or no comment.
- Daw Aye Aye Khine (Head of City Planning and Development, NYDC) introduced the meeting and gave a brief explanation of the Project.
- Daw Khin Su Su Naing (Senior Consultant, ERM) gave an overview of the Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) process as per the Myanmar EIA Procedure and a brief explanation of the scoping study.

Question and Answer Section

Comment from U Nay Win Shein, Kalar Tan Thone Ein Village Administrative Officer

- We are aware that this Project is a Union level Project and understand that the land will be acquired for the Project. I would like to know when the farmers' land will be compensated, at the beginning of the Project or later.
- Village roads will be upgraded after the project. What will be the width of the village roads?

Response from Daw Aye Aye Khine, NYDC

- The main infrastructure construction is scheduled to commence this year and major components of the resettlement areas such as roads, drainage, electricity, and storm water systems will be completed in around three years; expected to be in 2021.
- There will be four different types of roads and the width of the roads will be designed based on the numbers of users. Roads and railway systems are all designed in conjunction with our traffic consultant, "Oriental Consultant Global" and have been included in the master plan.
- Local roads will be at least two lanes and include drainage on both sides. Some major village roads will be up to four lanes wide.

Comment for U Thaung Tin, Farmer, Sat San Village

- How will the 20% of compensated land be returned and where will it be located?

Response from U Moe Khaing Htun, Township Administration Officer, Twantay Township

- The relevant village tract level land management department will be responsible for the location of the land and will consider the distance to roads and other important locations. The Township level land management department will supervise and check the results. There will be transparency and fairness at all stages.

Comment for U Khin Maung Yin, Yangon South-West Development Group

- During Cyclone Nargis, Twantay-Hlaing Tharyar Road was not flooded but the Kha Lauk Chaik-Seikgyi Kanaungto road was flooded. The road level should be raised as much as the Twantay-Hlaing Tharyar to protect from flooding.
- A dam was constructed at Kokowa River and there has been no flood from Ayeyarwaddy River for three years.

Response from Daw Aye Aye Khine, NYDC

- The Twantay – Hlaing Tharyar road was upgraded after cyclone Nargis. Therefore, its level is considered as 100-year flood proof level. NYDC has instructed a Flood Risk Assessment by Royal Haskoning for the Project. In accordance with good international practice, Royal Haskoning conducted flood analysis for 100-year event, considering tidal flooding, climate change, and precipitation.
- Flood protection for Stage 1 of Industrial Zones and Resettlement Areas will be prioritised. After that, the Project will upgrade the flood protection of the other infrastructure facilities as per the progress of the Project; Royal Haskoning will assist with this.

Comment for U Hla Myo, Twantay CSO, Myanmar Archaeology Association

- We noted that 20% of farmlands will be compensated. We would like to know the plans for farmland compensation.
- Where will the Project take sand and soil? We suggest the Project does not excavate the soil from the Twantay, Kawhmu, and Kungyankone area. We recommend to take the soil from the side of the river.
- If the ground level of new city is increased, could the areas on the other side of river (Seik Kan and Downtown) be flooded? If dams and embankments at Nyaungdone are not strong, flood can occur in this area.
- It would be great if the lakes and stream in this area could be excavated again.
- There is a port near the new bridge location in Kyee Myin Daing and we hope the dockyard near the Department of Marine Administration will not be required to be removed.

Response from Daw Aye Aye Khine, NYDC

- We are considering to obtain soil from other areas (i.e., not the Project Area) as well as excavation of soil from the lake in the Project Area and Twantay channel.
- The land category will be changed and 20% of the compensated lands will be upgraded to urban land from farmland. The Project plans to create job opportunities for local residents. Job opportunities for industry will start in 2022 and NYDC is discussing with investors to provide vocational trainings to workers.
- NYDC doesn't have authority to directly manage the land compensation.
- We will give garment, food, and furniture industries the first priority. Electronics and Chemicals will be the second priority and service industries will be the third priority in industrial zones.
- We commissioned Royal Haskoning to conduct the land level assessment and they will conduct the assessment in conjunction with relevant departments, such as YCDC.

Comment for U Tint Lwin, Assistant Director, Planning Department

- Is the name of the project confirmed as 'New Yangon'?
- There are a lot of industrial zones in Yangon but access to adequate electricity is an issue. How will power for the Project be supplied; national grid or own source?

Response from Daw Aye Aye Khine, NYDC

- Approximately 25% of the Project Area will be industrial zone as the Project aims to create more job opportunities.
- Electricity is important for the industrial zone and there are currently two potential sources for electricity. YRG discussed with Ministry of Electricity and Energy (MOEE) for the electricity supply from national grid and also with private power producers.
- The name 'New Yangon' has been confirmed by the Yangon Regional Government; but we will pass the stakeholders' comments to higher level management.

Comment for U Khin Maung Win, Engineer, YCDC

- I would like to know the area of storm water storage compared to the whole city area, public areas, population ratio, and waste management system.

Response from Daw Aye Aye Khine, NYDC

- Green and water space will be approximately 12%; nearly 12.3 square kilometers. This will include public parks, corridor plantation, and green buffer areas between the new city and existing villages.
- There will be industrial and residential waste. For industrial waste, we are now talking with interested investors including DOWA company, which is currently managing waste in Thilawa. All the waste from the project and the city will be managed in line with National standards and guidelines.

Comment for U Hla Myo, Twantay CSO, Myanmar Archaeology Association

- The current industrial zone area had been called 'Mat Hlaing Si Yin Su' for 147 years and was named by British during colonial period. If you are considering alternate names, I recommend this name – "Mat Hlaing Si Yin Su Industrial Zone'.

Response from Daw Aye Aye Khine, NYDC

- Thank you and noted.

Response from Daw Khin Su Su Naing, ERM

- Thank you very much to everyone for the comments today; they will be recorded and considered in our report.

Attendance List

No	Name	Occupation/Organization	Address
1	Daw Thin Thin Htwe	Librarian	Twantay
2	Daw Mar Mar Moe	Economic Bank Staff	Twantay
3	U Khin Zaw		Kone Village
4	U Myo Haling	Information And Public Relations	Twantay
5	U Mg Mg Thant	Police Force	Twantay
6	U Moe Kyaw Thu	Village Administrative Officer	Gyaung Wine Gyi Village
7	U Htun Kywal	Village Administrative Officer	-
8	U Htun Lwin	Village Administrative Officer	A Latt Chaung Village
9	Daw Win Win Khaing	Village Administrative Officer	Oae Bo Village
10	U Nyunt Shwe	Port Authority	Twantay
11	U Aung Than	Village Patron	Set San Village
12	U Myint Aung	Village Patron	Bawga Village
13	U Thaug Lwin	Village Administrative Officer	Set San Village
14	U Moe Myint	Village Patron	War Yone Sate Village
15	U Aung Kyaw Moe	Village Patron	Out Yone
16	U Khin Htun	Village Patron	Twantay
18	U Win Zaw		Twantay
19	U Hla Naing	Village Administrative Officer	Kyun Ka Lay Village
20	Daw Myint Myint Zaw	Clerk	Lat Pan Gwa Village
21	U Khin Maung Myint	Village Administrative Officer	Ta Man Gyi Village
22	Daw Aye Aye Aung	Township Education Officer	Twantay
23	U Chit Khin		Twantay
24	U Win Naing		Twantay
25	U Zaw Latt	100 Household Head	Kone Village
26	U Zaw Win Kyaw	Assistant Supervisor from Livestock Breeding & Veterinary Department	Twantay
27	U Wan Kyin	Village Committee	Ta Mar Ta Kaw Village
28	U Myint Swe	Village Patron	Pa Dan Yay Kyaw Village
29	U Soe Kyi	Village Committee	Kha Lout Chaikhe Village
30	U Myint Oo	Farmer	Twantay
31	U Win Sein	Village Administrative Officer	Pa Dan Yay Kyaw Village
32	U San Nyein	Village Patron	Pa Dan Yay Kyaw Village
33	U Myo Aung	Village Administrative Officer	Twantay
34	U Myint Zaw	Village Patron	Kan Village
35	Usaw Maung Than	Ward Officer	Fire Service
36	U Aung Nyein	Clerk	Pa Dan Yay Kyaw Village
37	U Maung Maung Khin	Village Committee	Twantay
38	U Khin Maung Yin	Village Committee	Taung Da Yan Village
39	U Thein Soe	Village Patron	Pa Da Yay Kyaw Village
40	U Kyaw Ngwe	Village Patron	Pa Dan Yay Kyaw Village

No	Name	Occupation/Organization	Address
41	U Sein Thaung	Village Committee	Kyun Ka Lay Village
42	U Khin Aung		War Yone Sate Village
43	U Khin Zaw Lwin	Village Administrative Officer	Htin Kone Village
44	U Tin Htay	Incharge	Ma Ngay Village
45	U Aung Win	Village Administrative Officer	Ta Mar Ta Gaw Village
46	U San Win	Incharge	Ywar Lay Village
47	U Zaw Win Bo	New Yangon City Committee	Htein Kone
48	U Tun Aye	New City Region Committee	Kalatan Thone Eain Village
49	U Kyaw Shwe	New Yangon City Committee	Byauk Yoe
50	U Min Aung	New Yangon City Committee	Lat Pan Village
51	U Mya Lwin	New City Region Committee	A Latt Chaung
52	U Tin Nyo		Kalar Tan
53	U Khin Zaw Aung		A Lal Ywar Village
54	U Kyaw Thaung		Tamatakaw
55	U Myint Aye		Twantay
56	U Myint Sein		Latt Pan Ywar Village
57	U Aung Ko Ko Soe	Clerk	Ta Man Gy Village
58	U Thaung Tin		Latt Pan Vilage
59	U Khin Maung Win	Executive Officer (Township Development Committee)	Twantay
60	U Hla Myo	CSO (Myanmar Archaeology Association)	Twantay
61	U Hla Soe	Township Health Officer (1)	Twantay
62	U Aung Than	Forest Department	Twantay
63	U Sat Mo Aung	Clerk	Kyun Kalay
64	U Ye Htet Naing		A Latt Chaung Village
65	U Zin Thu		Gyaung Win Gye Village
66	U Kaung Sat Aung	Legal Department	Twantay
67	U Myo Htut Thu	In Charge	Latt Pan Village
68	U Myo Myint Oo	Legal Department	Twantay
69	U Ni Win Shein	Village Administrative Officer	Kalatan Thone Eain Village
70	U Win Naing Htun	Assistant Staff Officer/ Department Of Agriculture Land Management And Statistics	Twantay
71	U Hla Than	Village Administrative Officer	Kha Lout Chaing Village
72	U Zaw Lin Htwe	Clerk	Ma Ngyay Ah Lal Village
73	U Myo Aung	Village Administrative Officer	Kan Ywar Village
74	U Myint Zaw	Village Leader	Kan Ywar Village
75	U Moe Khaing Htun	Township Administrative Officer	Twantay
76	U Tint Lwin	Assistant Director, Planning Department	Twantay

Photos



Meeting of Minutes: Stakeholder Engagement Meeting for the Development of New Yangon City

Detail:

Project	The Development of New Yangon City	Region / State	Yangon
Venue	GAD office Meeting Room, Kyee Myin Daing Township GAD Office		
Objective	Kyee Myin Daing Township Meeting – Scoping Phase		
Date	2 nd February 2019		
Time	2:00 – 4:00 PM		

- Daw Aye Aye Khine (Head of City Planning and Development, NYDC) introduced the meeting and gave a brief explanation of the Project.
- Daw Khin Su Su Naing (Senior Consultant, ERM) gave an overview of the Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) process as per the Myanmar EIA Procedure and a brief explanation of the scoping study.

Question and Answer Section

Statement from U Zaw Win, Htuttaw Representative (Pyithu Hluttaw)

- The livelihood on the other side of Kyee Myin Daing Township (*in the Project Area*) is different from the city side. Hlaing River separates the wards. Therefore, Pyithu Hluttaw representatives welcome this NYDC project to improve the livelihood of the local communities.
- The Htuttaw representatives request to the Regional Government to be well informed of the Project during the Project progress and to be invited for meetings related to the Project.
- 75% of the local communities and most of the Hluttaw representatives agree with the Project. Local communities would like the bridge to be built first.

Statement from U Khin Win, Htuttaw Representative (Regional Government)

- All participants are welcome to ask any Project related questions.

Statement from U Kyaw Nanda Aung, Htuttaw Representative (Regional Government)

- All participants in this meeting are welcome to ask any questions related to SEA and EIA study of the Project. But note that this meeting is not focused on the land acquisition.

Comment from U Tin Sein, War Yone Seik Aye Ywar Ward Patron

- Local communities from the Aye Ywar Ward would like to get the employment from this Project. Please consider them.

Response from Daw Aye Aye Khine, NYDC

- There will be employment opportunities during the construction and operation phase of the industrial zone.

Response from Daw Khin Su Su Naing, ERM

- ERM will collect socio-economic data of the local communities in the Project Area. The potential impacts will be considered on livelihoods including potential positive impacts of job creation.

Comment from U Mya Than, Baw Ga Ward Patron

- When will the NYDC project be completed? We will support all the requirements when ERM conduct the social, environmental, and biological surveys.

Response from Daw Aye Aye Khine, NYDC

- The project is planned to be completed within 30 years, but the construction of the bridge 1 (connecting the Kyee Myin Daing Township to New City) will be complete within 3 years.

Comment from U Zaw Win, Htuttaw Representative (Pyithu Hluttaw)

- It is noted that the bridge 1 will be connected from Myay Ni Gone to New City at first. But later come to know that the bridge will be built at 220m north of Bagaya Junction, upstream of Yangon River. Are there any compensation plans considered for the houses which will need to be removed due to construction? Access roads should be completed before the establishment of New City.

Response from Daw Aye Aye Khine, NYDC

- The potential impact for the construction of Bridge 1 has been considered through surveys and the location was presented to Yangon Regional Government, Ministry of Construction and Myanmar Port Authority. It has been approved conceptually.

Comment from U Philip Tun Hla Aung, Land Core Group member

- I would like to know the time frame for the environmental and socio-economic studies.
- Which methods will be used during the impact assessment study?
- Will there be any vocational training programs for the local communities?

Response from Daw Aye Aye Khine, NYDC

- The Project aims to support the employment opportunities for the local communities and is planning to include vocational schools for local communities to become skill labours, so they are able to work in various industries for the project.

Response from Daw Khin Su Su Naing, ERM

- The baseline data collection for the physical, environmental, and socio-economic characteristics will take about two months.
- Face to face interview with ward leaders will also be undertaken after this meeting.

Comment from U Philip Tun Hla Aung, member of the Land Core Group

- Can socio-economic data collection be completed within two months?
- What is the sample sizes to be collected within the three townships?
- How many villages will be selected for the socio-economic survey?
- Is there any publication of socio-economic survey questionnaires in the ERM website?

Response from Daw Khin Su Su Naing and Ms Rebecca Summons, ERM

- At this stage, ERM is collecting the township demographic baseline data and holding discussions with local communities to understand the required household surveys and data collection required for the population of the Project area.
- The socio-economic survey questionnaires have been prepared in line with the nature of the project and the related impacts. ERM can send you examples of our survey questionnaire if you require; these are not available on our website as they are project specific.
- ERM will conduct face to face interviews, Focus Group Discussions with women and vulnerable groups and Household survey data collection.

Attendance List

Sr	Name	Occupation/Organization	Address
1	U Zaw Win	Hluttaw Representative (Pyithu Hluttaw)	Kyee Myin Daing Township
2	U Kyaw Nanda Aung	Hluttaw Representative (Regional)	Kyee Myin Daing Township
3	U Khin Win	Hluttaw Representative (Regional)	Kyee Myin Daing Township
4	U Soe Myint Han	Ward Administrator	Zaykalay Ward
5	U Tin Tun	Municipal Committee	Zaykalay Ward
6	U Soe Myint	Patron	
7	U Taung Aye	Patron	Zaykalay Ward
8	U Thein Htut	Patron	
9	U Mya Than	Patron	Baw Ga Ward
10	U Chan Myae oo	Patron	Baw Ga Ward
11	U Aung Kyaw Htay	In Charge	Aye Ywar Ward (west)
12	Daw Win Win Khaing	Clerk	Ohe Bo Ward
13	U Hla Htay	In Charge	Sat San Ward
14	U Khin Tun	-	-
15	U Thein Tun	Patron	Zaykalay Ward
16	U Mya Than	Patron	Baw Ga Ward
17	U Soe Myint	Patron	Zaykalay Ward
18	U Zaw Lin	Ward Administrator	War Yone Seik Aye Ywar Ward
19	U Than Tun	Administrator for 100 Households	War Yone Seik Aye Ywar Ward
20	U Khin Zaw	Patron	War Yone Seik Aye Ywar Ward
21	U Min Zaw	Community member	
22	U Ohn Myint	Patron	Sat San Ward
23	U Tin Sein	Patron	War Yone Seik Aye Ywar Ward
24	U Tun Lin	Patron	Thar Du (West) Ward
25	U Ye Tun Naing	Ward Administrator	Oh Bo Ward
26	U Philip Tun Hla Aung	Member of the Land Core Group	Thadu Ward
27	U Aung Than	Patron	A Latt Chaung Ward
28	U Zaw Htet Aung	Clerk	Zaykalay Ward
29	U Min Thiha	Patron	A Latt Chaung Ward
30	U Myint Aung	In Charge	Out Gon Ward
31	U Tun Win	Ward Administrator	Baw Ga Ward
32	U Mya Aung	Patron,	Baw Ga Ward
33	U Tin Win	Patron	Baw Ga Ward
34	U Soe Gye	-	-
35	U Thaung Lwin	Ward Administrator	A Latt Chaung Ward
36	U Aung Kyaw Soe	Patron	Out Gon Ward

Photos





Meeting of Minutes: Stakeholder Engagement Meeting for the Development of New Yangon City

Detail:

Project	The Development of New Yangon City	Region / State	Yangon
Venue	GAD office Meeting Room, Seikgyi Kanaungto Township GAD Office.		
Objective	Seikgyi Kanaungto Township meeting – Scoping Phase		
Date	3 rd February 2019		
Time	10:00 – 12:00 PM		

- U Zaw Thein (Seikgyi Kanaungto Township GAD Officer) explained that most of the local communities from Seikgyi Kanaungto Township go to Yangon every day to work as there are not much employment opportunities. If there is industrial zone in the New City, local communities could get more employment opportunities and will not need to go outside of their township for work. All attendees are welcome to ask questions related to the Project.
- Daw Aye Aye Khine (Head of City Planning and Development, NYDC) introduced the meeting and gave a brief explanation of the Project.
- Daw Khin Su Su Naing (Senior Consultant, ERM) gave an overview of the Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) process as per the Myanmar EIA Procedure and a brief explanation of the scoping study

Question and Answer Section

Comment from U Linn Naing, Kanaungto East Ward Patron

- In 2017, Kamaryut media interviewed us to find out if we supported the NYDC project or not. We answered that we all support the Project.
- We are aware that there will be more employment opportunities for local communities from the Project.
- We heard that the bridges will be constructed by a Singaporean company. Can you give us an information about that company?

Response from Daw Aye Aye Khine, NYDC

- The project targets to support 600,000 employment opportunities in 2025 and 900,000 in 2050.
- The NYDC has signed a Framework Agreement with China Communications Construction Company Ltd (CCCC) and submitted a detailed project proposal which includes infrastructure works related to Stage 1 Phase 1 of the Project on 30 April 2018.
- NYDC adopted the “Swiss Challenge model” that lays the foundation for fair competition, efficiency, and transparency. This model gives the opportunity to the company who is qualified and competent to undertake the first phase of the development and allows them to submit a set of Pre-Project Documents (PPDs) which include technical specifications, financial proposal, and business model. It does not mean that CCCC has been awarded the contract for all the infrastructure works in Phase 1.

- If there is a company who can offer a lower bid, CCCC is entitled to either match the offer or withdraw the bid. If the CCCC choose to withdraw the bid, the winning company will be awarded the offer and be obliged to reimburse all costs incurred for the PPD to CCCC.
- Industrial zones will be operational from 2022 and there will be more employment opportunities for the local communities.

Comment from U Kyaw Than, Dockyard service

- Are there any bus stations and hotel zones in the Project area?
- Is there any bridge construction in the Seikgyi Kanaungto Township?
- Why will the New City take 30 years to complete?
- Will there be any physical displacement for the people living in the Project area?

Response from Daw Aye Aye Khine, NYDC

- The Project will allocate 5% of resettlement areas as administrative areas and the project includes a public transportation system.
- There will be approximately 20 square kilometre commercial and residential development areas, which include area for hotels and condominiums.
- There won't be any physical displacement. The current residential areas (villages) will be buffered from the Project Area.
- The Project is designed with a 30 year plan as the idea is for long term development.
- In total, there is a plan to build twelve bridges; two bridges will be built in Stage 1 of Phase 1. The design and location for all bridges for Phase 1 will be confirmed at the end of February 2019.

Response from Daw Sandar Min, Hluttaw Representative (Regional Government)

- There won't be any physical displacement. Green spaces will separate the local community and the Project Area.
- The industrial zone will be initially completed in Phase 1 and can create job opportunities for the community. After that, the resettlement area will be implemented.
- Transportation systems are considered for the Project.

Comment from U Yin Htwe Thet, Farm land owner and Trader

- Part of Seikgyi Kanaungto Township is included in the Project Area. It includes approximately 17 acre of compensated land; the compensation has been agreed and is processing.
- Will the public infrastructure area take count of the 20 % of compensated farming land?
- Why did NYDC decide to work with CCCC for this project?
- Farmers do not need 20% to be returned as they do not need much. The project can compensate the land which farmers really require and the remaining land can be invested in the Project on behalf of the farmers for long term benefit.
- Why does the Project give the first right of refusal to CCCC?

Response from Daw Aye Aye Khine, NYDC

- The public infrastructure locations are considered as part of the Project Area and there is approximately 17 acre of compensated land.
- It is important for NYDC to work with companies which have expertise, experience, and financial capabilities according to the Project scope and size. NYDC welcomes CCCC's project proposal to lay the groundwork for the tender process as NYDC believes the company has the required capability and sufficient experience of planning, designing, financing, and constructing, as well as experience of regional development projects similar to this Project.
- CCCC is the world's largest highway and bridge design and construction company and is Asia's largest international contractor. CCCC is a publicly traded company listed in Hong Kong, and is one of the China's largest state-owned enterprises.

Comment from U Hla Moe, Kanaungto (West) Ward

- The location of Industrial Zone is quite far from the Seikgyi Kanaungto Township. Is there any plan to upgrade the road access and construct a road from Seikgyi to the Industrial Zone area?

Response from Daw Aye Aye Khine, NYDC

- Location for the roads construction will be discussed with the experts and will be constructed as required.

Comment from U Hla Maung, Myanmar Red Cross Society

- We all welcome this Project as Seikgyi Kanaungto Township will become developed and there will be employment opportunities for locals when this project is successful.

Comment from U Zaw Thein, Seikgyi Kanaungto Township GAD Officer

- The Project was approved by the last government.

Attendance List

Sr	Name	Occupation/Organization	Address
1	U Zaw Thein	Township Administrator	Seikgyi Kanaungto Township
2	Daw Sandar Min	Hluttaw Representative (Regional)	Seikgyi Kanaungto Township
3	U Thet Naing Moe	Deputy Staff Officer, Department of Agriculture Land Management and Statistics	
4	U Kyaw Naing Oo		Dala Township
5	U Htay Aung		Pan Pin Chaung Ward
6	U Maung Maung Oo	Farmer	Samar Ward
7	Daw Wutt Yee Htun	Clerk, General Administrative Department	Pan Pin Chaung Ward
8	Daw Naw Ester Than Htay	Cleaner, General Administrative Department	Kanaungto (West) Ward
9	U Yazar Htun	Patron	Kanaungto (East) Ward
10	U Than Naing	Trader	Samar Ward
11	U Wai Yang Htun	Information and Public Relations Department	Kanaungto (East) Ward
12	U Tin Win	Trader	Samar Ward
13	U Hla Tin	Headmaster, Basic Education Primary School	BEPS (15)
14	Daw Khin Win Shwe	Farmer	Seikgyi Kanaungto Township
15	Daw San San Hlaing	Clerk	Seikgyi Kanaungto Township
16	U Yin Htwe Thet	Farmer and Trader	Seikgyi Kanaungto Township
17	U Ther Naing Soe	Department of Agriculture Land Management and Statistics	Seikgyi Kanaungto Township
18	U Htay Myint	Administrator for 10 Households	Samar Ward
19	Daw Khin Aye Lwin	Local person	Seikgyi Kanaungto Township
20	U Myint San	Patron	Shwe Let Pan Village
21	U Aung Kyaw Khant	Administrator for 10 Households	Kanaungto (West) Ward
22	U Thet Myint Win		Kanaungto (East) Ward
23	U Aung Myo Naing		Kanaungto (East) Ward
24	U Hla Maung	Myanmar Redcross Society	Seikgyi (West) Ward
25	U Thant Zin Htun		Seikgyi Kanaungto Township
26	U Kyi Thein	Trader	Seikgyi (East) Ward
27	U Kan Aye		Seikgyi (East) Ward
28	U Ye Myint		Seikgyi (West) Ward
29	Daw Zar Chi Seint	Staff Officer, Information and Public Relations Department	Thin Baw Seik Street
30	U Soe Yin	Dockyard service	Seikgyi (East) Ward
31	U Kyaw Zin Htike	Dockyard service	Seikgyi (East) Ward
32	U Kyaw Thu		Seikgyi (West) Ward
33	Daw Thida Htwe	Clerk	Seikgyi (West) Ward
34	U Htun Khaing		Seikgyi Kanaungto Township
35	U Myint Soe	Patron	Seikgyi (West) Ward
36	U Hla Nyein	Patron	Seikgyi (East) Ward
37	U San Nyut	Administrator for 10 households	Kanaungto (East) Ward
38	U Kyaw Win	Administrator for 10 households	Samar Ward
39	U Khin Hlaing	Administrator for 100 households	Samar Ward

Sr	Name	Occupation/Organization	Address
40	U Kyaw Aye	Commission Chairman	Gaung Wine Lay Ward
41	U Phone Thant	Farmer	Tha Khin Ba Thaug Ward
42	U Aye Thein		Kanaungto (East) Ward
43	U Kyaw Hlaing	Community Group	Pan Pin Chaung Ward
44	Daw Shu Tin	Maternal and Child Welfare Association	Kanaungto (West) Ward
45	U Tun Naing		Seikgyi (West) Ward
46	U Aung Myo		U Tun O Ward
47	U Soe Moe Khant		U Tun O Ward
48	U Aung Nyein		U Tun O Ward
49	Daw Than Than Sint		Kanaungto (East) Ward
50	U Lay Naing Oo	Construction	Yauk Street
51	U Maung Sein		Seikgyi (East) Ward
52	U San Thein		Samar Ward
53	U Tin Yee		Seikgyi Kanaungto Township
54	U Hla Wai		Seikgyi Kanaungto Township
55	U Sein Hla Tun	10 Households Head	Seikgyi Kanaungto Township
56	U Khaing Zaw Linn		Seikgyi (East) Ward
57	U Aung Myat Thu		Bo Tayza Street
58	U Sit Aung		U Tun O Ward
59	U Nyan Win		Samar Ward
60	U Sithu Aung	Deputy Range officer, Forest Department	Seikgyi Kanaungto Township
61	U Kyaw Aung Min	Agricultural Department	Seikgyi Kanaungto Township
62	Daw Win Win Shwe	Mantel and Child Welfare Association	Seikgyi Kanaungto Township
63	U San Myaing		Seikgyi Kanaungto Township
64	U Phyto Chit Htun		U Tun O Ward
65	U Win Myint		Seikgyi (West) Ward
66	U Win Htay		Seikgyi (West) Ward
67	U Lwin Ko Latt		Bo Min Yaung Ward
68	U Naing Lin Htun		Kanaungto (East) Ward
69	U Ko Ko Lay		Seikgyi (East) Ward
70	Daw Mar Mar	Myanmar Women Affair Federation	Kanaungto (West) Ward
71	U Soe Hlaing	Ward Administrator	Seikgyi (West) Ward
72	U Hla Wai	Ward Administrator	U Tun O Ward
73	U Zaw Zaw		Seikgyi (West) Ward
74	U Sein Hla Maung		Kanaungto (West) Ward
75	U Aung Myo Swe		U Tun O Ward
76	U Tin Htun Hlaing		Padauk Street
77	U Aung Kyaw Soe		Bo Ba Htoo Street
78	U Than Shwe		Kanaungto (East) Street
79	U Hla Htwe		Seikgyi (East) Ward
80	U Htay Myint	Ward Patron	Kanaungto (East) Ward

Sr	Name	Occupation/Organization	Address
81	U Naing Lin Aung	Ward Administrator	Gaung Wine lay Ward
82	U Min Min Htun		Gaung Wine lay Ward
83	U Mya Nwe		Kanaungto (West) Ward
84	U Kyin Htun		Kanaungto (East) Ward
85	U Aung Kyaw Myint		Seikgyi (West) Ward
86	U Htay Lwin	Assistant Director, Directorate of Water Resources and Improvement of River Systems	Seikgyi Kanaungto Township
87	U Myo Win Ko	Manager	Seikgyi Kanaungto Township
88	Daw Khin Yee	Farmer	Tha Khin Ba Thaug Ward
89	U Aung Naing Myo	Ward Administrator	Pan Pin Chaung Ward
90	U Myint Zaw	Patron	Kanaungto (West) Ward
91	U Mya Thaug	Patron	Kanaungto (East) Ward
92	U Khin Maung	Patron	Seikgyi Kanaungto Township
93	Daw Ohnmar Win	Farmer	Seikgyi Kanaungto Township
94	Daw Myint Khin	Farmer	Seikgyi Kanaungto Township
95	U Than Naing	Ward Administrator	Kanaungto (West) Ward
96	U Aung Than		Seikgyi Kanaungto Township
97	U Kyaw Than	Dock Service	Seikgyi Kanaungto Township
98	U Myin Maung Yee		Seikgyi Kanaungto Township
99	U Tin Maung Yee	Patron	Seikgyi (East) Ward
100	U Sai	Patron	Samar Ward
101	U Aung Win	Patron	Samar Ward
102	U Than Nwet	Patron	Seikgyi (East) Ward
103	U Maung Maung Lat	Staff, Post and Telecommunication Department	Seikgyi Kanaungto Township
104	U Hla Moe	Trader	Kanaungto (West) Ward
105	U Thar Htun	Farmer	Pan Pin Chaung Ward
106	U Lwin	Farmer	Pan Pin Chaung Ward
107	U Kyaw Aung	Farmer	Pan Pin Chaung Ward
108	U Htun Min Htike	Water and Sanitation Department	Seikgyi Kanaungto Township
109	U Myint Zaw Hein	General Administrative Department	Seikgyi Kanaungto Township
110	U Soe Aung	Private Company	Tha Khin Ba Thaug Ward
111	U Zaw Zaw Aung		Kanaungto (East) Ward
112	U Ye Yint Htun		Seikgyi (East) Ward
113	Daw Nu Nu Yin	Clerk	Seikgyi (West) Ward
114	Daw Khay Mar Thein	Senior Clerk	Seikgyi Kanaungto Township
115	Daw Thandar Aung	Accountant	Seikgyi (West) Ward
116	Daw Mya Thet Lwin	Accountant	Seikgyi (East) Ward
117	Daw Hnin Soe Oo	Junior clerk	Seikgyi Kanaungto Township
118	Daw Moe Thuzar	Junior clerk	Seikgyi Kanaungto Township
119	Daw Su Mon Htet	Office helper	Seikgyi Kanaungto Township

Photos





Meeting of Minutes: Stakeholder Engagement Meeting for the Development of New Yangon City

Detail:

Project	The Development of New Yangon City	Region / State	Yangon
Venue	Ka Naung Meeting Room, Hlaing Tharyar Township		
Objective	Hlaing Tharyar Township Meeting – Scoping Phase		
Date	3 rd February 2019		
Time	2:00 PM – 4:00 PM		

- Daw Aye Aye Khine (Head of City Planning and Development, NYDC) introduced the meeting and gave a brief explanation of the Project.
- Daw Khin Su Su Naing (Senior Consultant, ERM) gave an overview of the Strategic Environmental Assessment (SEA) and Environmental Assessment (EIA) process as per the Myanmar EIA Procedure and a brief explanation of the scoping study.

Question and Answer Section

Comment from U Myint Naing Kyaw, Myanmar Center for Responsible Business Officer

- How will the project prevent settlement of squatters?
- There are 2.3 million of disabled persons according to census data. How is the project designed so services and infrastructure are assessable?

Response from Daw Aye Aye Khine, NYDC

- Squatter problems need to be solved with combined actions. NYDC take responsibility for the management of construction workers via their contractors. Our rules are that when construction is complete, all the workers must leave the area. We will try to provide job opportunities for them to improve the livelihood and economy. The government is also helping them by planning to implement affordable housing projects.
- We considered design for disabled persons, American with Disabilities Act (ADA) compliance, and Myanmar National Building Codes for buildings and infrastructure.

Response from Daw Khin Su Su Naing, ERM

- We will include an assessment of worker influx impacts in our assessment report including settlement, health, and safety sectors.

Comment from U Win Tin, Ward 9 Administrative Officer

- Will there be resettlement plans for the existing squatters?

Response from Daw Aye Aye Khine, NYDC

- The Yangon Regional Government may have a project for squatters. New Yangon City does not have project for existing squatters. Our project does have an affordable housing planning.

Comment from U Khin Win, Ward Patron, Ward 15

- In terms of both poor families and squatters; how many years will the project take to set up this affordable housing planning? 30 years? 20 years?

Response from Daw Aye Aye Khine, NYDC

- The two bridges will finish construction at 2021 and industrial zones at 2022. We estimated the number of workers who will be required to work in industrial zones. We have an affordable housing planning so that

workers can purchase housing with their earnings. We are now working with the policy for as soon as industries start operating.

Comment from U Khin Aung Htun, Ward 19 Administrative Officer

- From rich to poor, different types of people who want to buy houses. How many options are there for them?

Response from Daw Aye Aye Khine, NYDC

- We have different types of housing starting from one storied to up to mid to high rise buildings. We designed carefully for the estimated 1.2 million people. Everyone can buy houses depending upon the amount of money they have. Houses will vary from private compounds and condominiums to affordable housing.

Comment from U Zayar Min Oo, Yay Okkan Village Administrative Officer

- There are environmental impacts due to industrial zones. The Project focuses on positive results as job opportunities, economic developments. Villages in the Project Area will be converted to towns but what are the plans for villages at the Hlaing Tharyar Township?

Response from Daw Aye Aye Khine, NYDC

- The Project will not remove or claim any houses in the villages. Furthermore, boundary areas between new town areas and village areas will be connected with green spaces. So that villagers won't get the feeling of being separated.

Comment from U Zayar Min Oo, Yay Okkan Village Administrative Officer

- What about villages outside of project area's clean environment? Due to industrial zones, after a few decades, the environment will be affected. Will villages in Hlaing Tharyar Township have environmental impacts?

Response from Daw Khin Su Su Naing and Ms. Rebecca Summons, ERM

- Our environmental impact assessment will not only focus on the Project Area itself. We also assess the surrounding area and cover this in our mitigation plans. We will conduct baseline surveys and if the current baseline is degraded, we will adopt strict environmental management and mitigation measures for the Project. Furthermore, monitoring plans will also be prepared and reported to the ECD every 6 months in order to confirm whether mitigation measures are effective.

Comment from U Myo Nay Aung, Ward 1 Administrative Officer

- I think the main challenge for new cities is the waste water drainage system, so we want the project to focus on that.
- There will be a lot of transportation needs when the city is implemented. It would be great if the bridges are constructed quickly. Bridge 2 is only two lanes and we think it is too narrow for the current amount of traffic.

Response from Daw Aye Aye Khine, NYDC

- For waste from municipal, industrial and commercial sectors, service companies will manage. Industrial waste will be initially treated in the compound and then sent to a waste water treatment plant. Waste water discharges from our city will be in accordance with national standards. We collaborated with Royal Haskoning for the design of the drainage channel, storm water, and flood drainage.
- The new Pan Hlaing bridge will be two lanes and it will be constructed next to the existing two lane bridge so totally there will be four lanes.

Comment from Daw Ngai Ngai Win, Vice secretary, Hlaing Tharyar Disabilities Group

- I would like to request the company to create job opportunities for disabled persons.

Response from Daw Aye Aye Khine, NYDC

- Thank you, we will record your suggestion and try to implement.

Comment from U Khin Maung Win, Member, Hlaing Tharyar Disabilities Group

- I would like to say thank you for considering for disabled persons. There are no platforms for wheel chairs for public transportation and bridges. We would like to request the company to arrange these in this project.

Response from Daw Aye Aye Khine, NYDC

- Thank you, we will record your suggestion. We are currently considering for disabilities in the design.

Response from Daw Khin Su Su Naing, ERM

- Thank you everyone, we will include all the discussion in the scoping report.

Attendance List

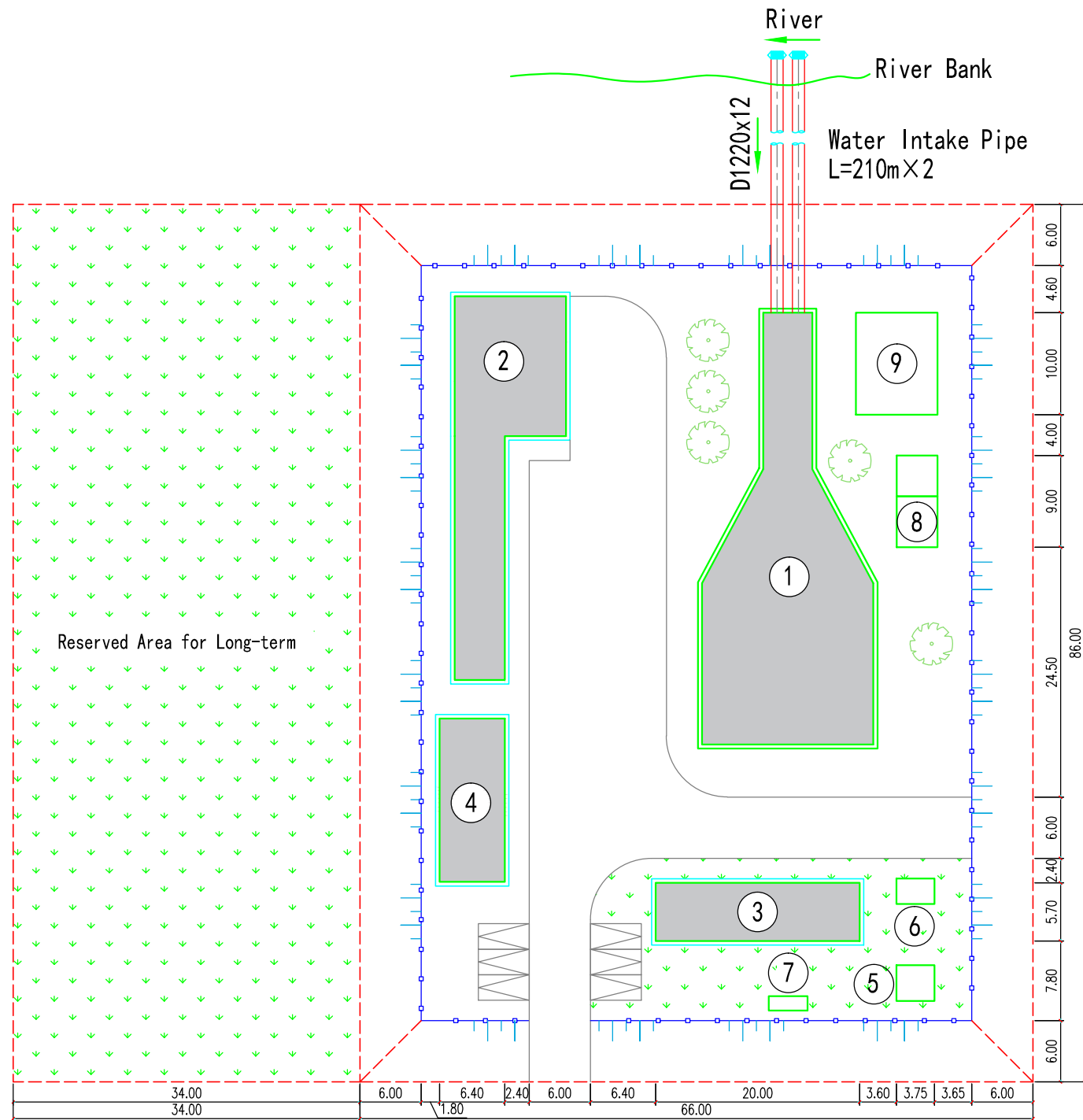
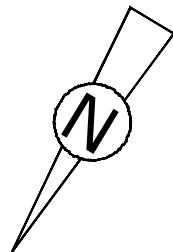
Sr	Name	Occupation/Organization	Address
1	U Maung Maung Lwin		Ward 14
2	U Kyaw Naing Oo		Yay Oakkan Ward
3	U Aung Htun		Kalar Gyi Su Ward
4	Ko Myo San		Hlaing Tharyar
5	Hein Zar Lin		Hlaing Tharyar
6	Dr.Lay Lay Thin	Public Health Officer	Hlaing Tharyar
7	U Kan Shein		Ward 9
8	U Htun Lay		Ward 8
9	U Thein Soe Naing		Ward 9
10	U Nyunt Win		Ward 10
11	U Kyaw Min Oo	Ward Administrative Officer	Ward 8
12	U Tin Htun	Ward Administrative Officer	Ward 1
13	U Win Tin	Ward Administrative Officer	Ward 9
14	U Than Zaw	Ward Administrative Officer	Nyaung Ward
15	U Mya Ko	Ward Administrative Officer	Ward 11
16	Daw Ngal Ngal Win	Lin Yaung Chi Disability Organization Officer	Hlaing Tharyar
17	Daw San San Win	Palt Kaing Shin Organization Officer	Hlaing Tharyar
18	Myint Naing Kyaw	Myanmar Center for Responsible Business Officer	Hlaing Tharyar
19	U Khin Maung Win	Hlaing Tharyar Disabilities Group Member	Hlaing Tharyar
20	U Khin Win	Ward Patron	Ward 15
21	U Kyi Hlaing		Ward 14
22	U Myo Aung		Ka Lar Gyi Su Ward
23	U Thaung Hlaing Soe	100 Household Head	Ka Sin village
24	U Myo Nay Aung	Ward Administrative Officer	Ward 1
25	U Than Oo	Ward Administrative Member	Ward 1
26	U Aung Kyaw soe	Ward Administrative Officer	Ward 4
27	U Myo Thein	Nway Thaw Lat Myar Group Member	Hlaing Tharyar
28	U Aung Aung		Ward 13
29	Daw Hla Hla Sint	Maternal and Child Welfare Association Member	Hlaing Tharyar
30	U Than Htun		Ward 14
31	U Myo Kyaw Kyaw		Ward 18
32	Daw Mya Sandar Min	Myanmar Women's Affair Federation Township Secretary	Hlaing Tharyar
33	U Aye San		Yay Oakkan Ward
34	U Thein Sint	Ward Administrative Officer	Kalar Gyi Su Ward
35	U Khin Aung Htun	Ward Administrative Officer	Ward 19

36	U Myint Swe	100 Household Head	Ward 19
37	U Aye Than		Ward 14
38	U Nanda Htun		Ward 13
39	U Than Shwe	Ward Administrative Officer	Ward 1
40	U Zayar Min Oo	Ward Administrative Officer	Yay Oakkan Ward
41	Daw Nwe Nwe Win	Hlaing Tharyar Disabilities Group Vice secretary	Hlaing Tharyar

Photo



APPENDIX B WATER TREATMENT PLANT DRAWINGS



List of Structure

NO.	Name	Specification	Structure	Qty.	NO.	Name	Specification	Structure	Qty.
①	Water Intake Pump House	LXB=42. 3X14. 4m	R. C.	1	⑥	Valve Chamber	LXB=3. 75X2. 5m	R. C.	1
②	Power Distribution House	LXB=37. 6X10. 9m	Frame	1	⑦	Septic Tank	LXB=3. 8X1. 4m	R. C.	1
③	Administration Building	LXB=5. 7X20m	Frame	1	⑧	Cooling System	LXB=9X4m		1
④	Ware House	LXB=16X6. 4m	Frame	1	⑨	Domestic Water Supply System	LXB=10X8m		1
⑤	Flow Meter Chamber	LXB=3. 5X3. 75m	R. C.	1					

NOTES:

- 1.The dimensions are in m.
- 2.The total capacity of water intake pump house is 180000m³/d, the capacity of Phase 1 stage 1 is 60000m³/d.
- 3.There is 1 water intake pump station and it covers an area of 66mX86m.
- 4.The pump station carries reserved area for long-term with total area of 100mX86m.

图号 相关图纸 REFERENCE DRAWINGS

DRG No. 图纸名称 DRG TITLE.

A	02. 07. 2018	FOR DISCUSSION					
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业主 CLIENT



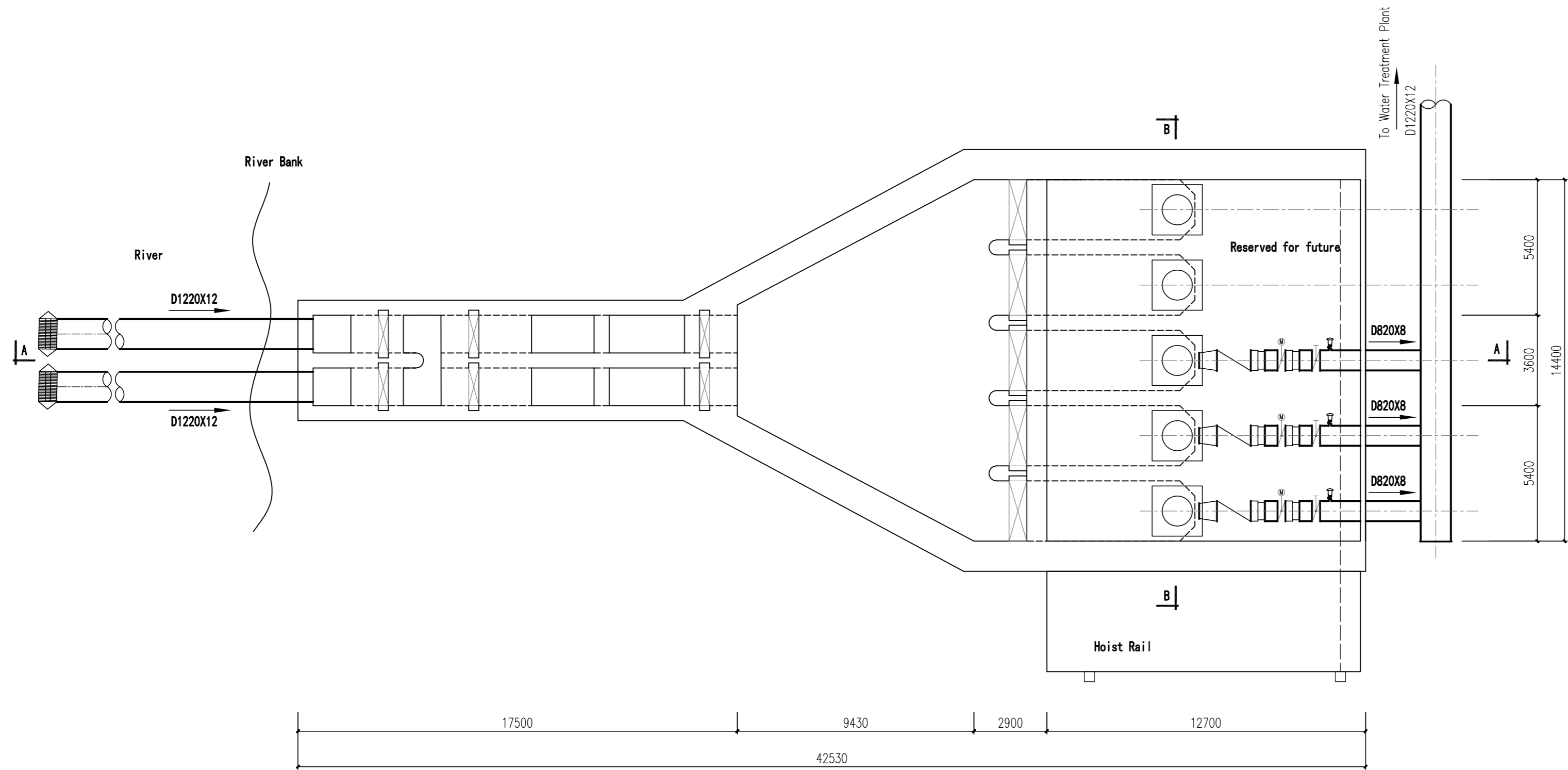
NEW YANGON CITY PHASE 1 DEVELOPMENT

PLAN OF WATER INTAKE PUMP STATION

图号
DRG No. WIT-DR-01-M-0001 版号
REV. A

比例 DRG SCALE 1:400 图框比例 PLOT SCALE A2(1:1)

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Plan of Water Intake House 1:150

- NOTES:
- 1.The elevations are in m, otherwise in mm.
 - 2.There is 1 water intake pump house and it was shown in the figure.
 - 3.The total capacity of water intake pump house is 180000m3/d, the capacity of Phase 1 stage 1 is 60000m3/d.

相关图纸 REFERENCE DRAWINGS

图号 DRG No. 图纸名称 DRG TITLE.

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NEW YANGON CITY PHASE 1 DEVELOPMENT

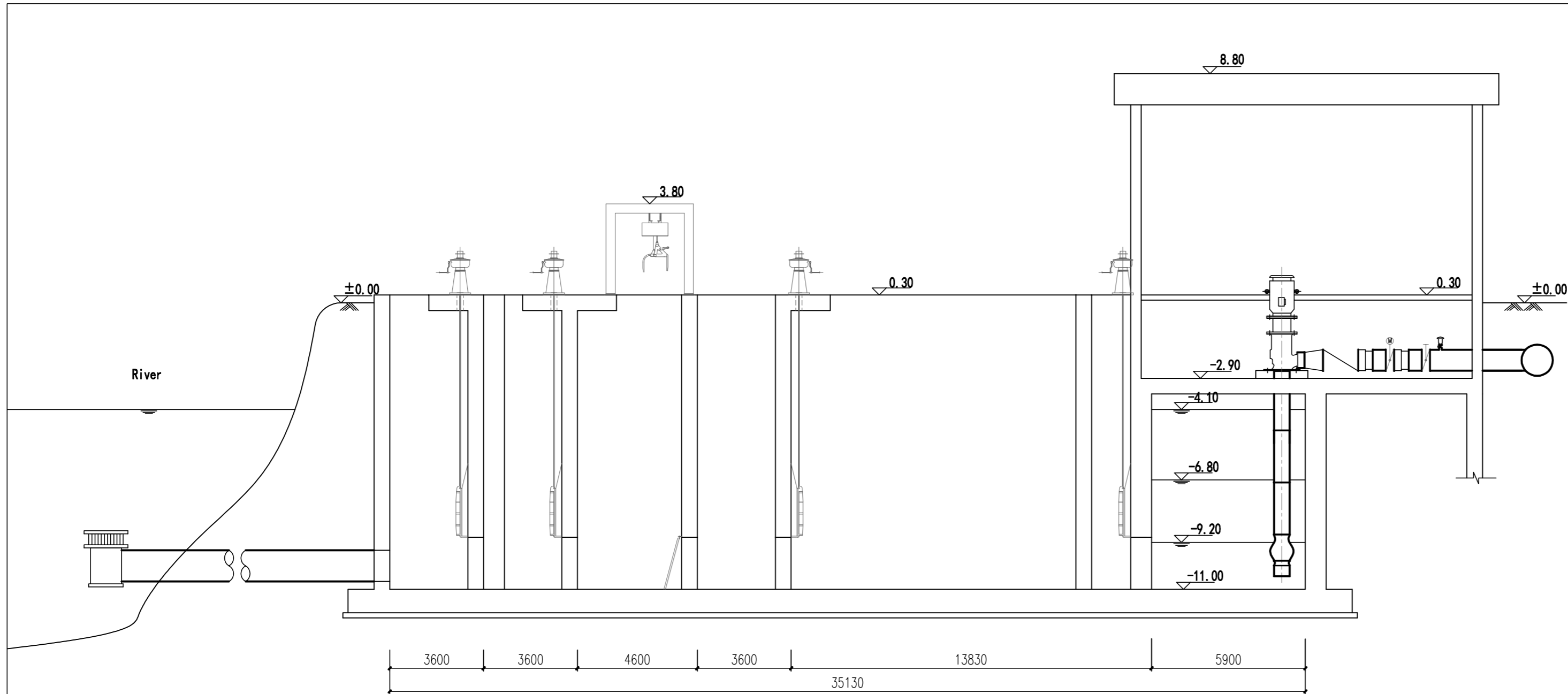
PLAN OF WATER INTAKE PUMP HOUSE

图号
DRG No. WIT-DR-02-M-0001

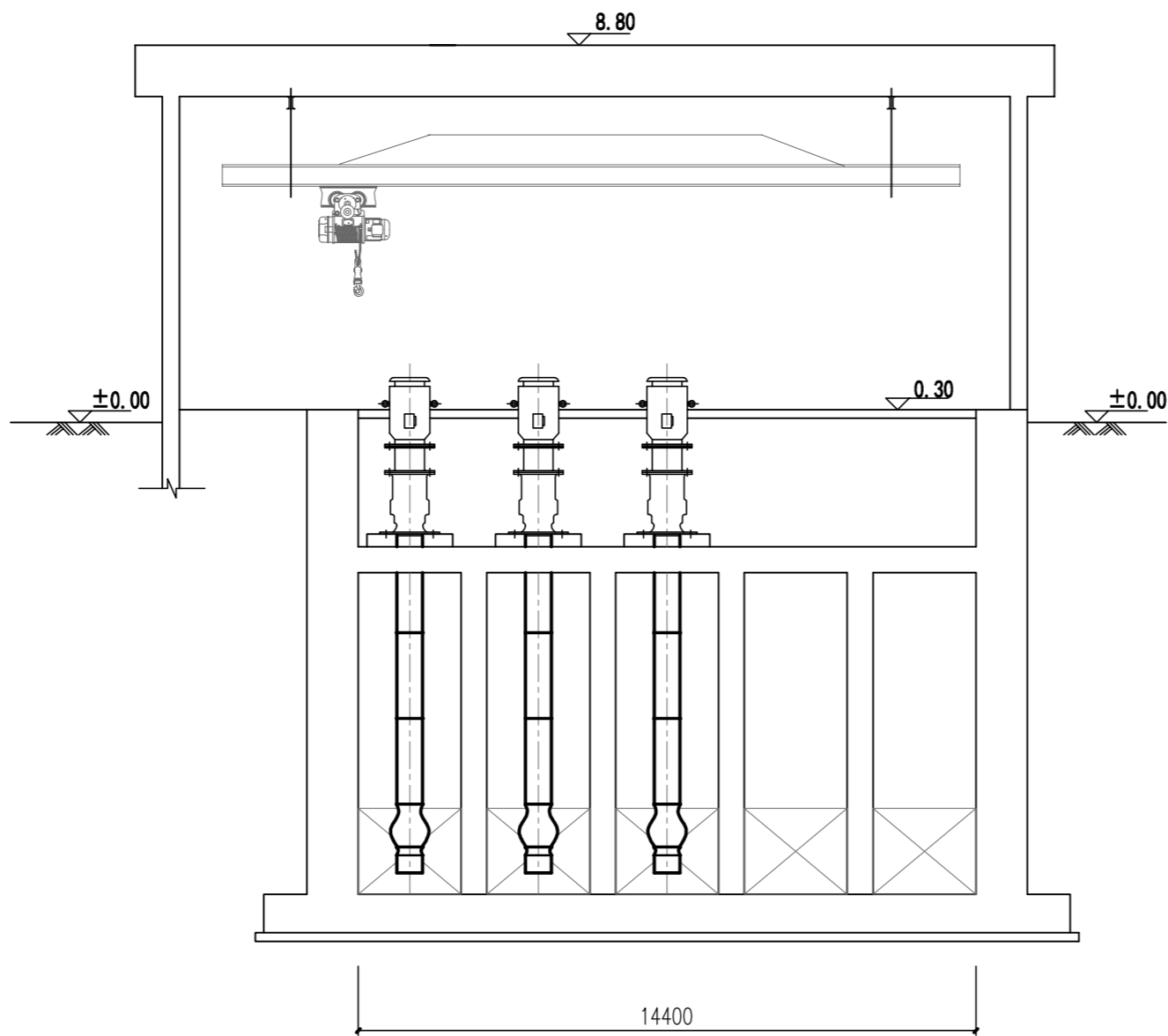
版号
REV. A

比例 DRG SCALE 1:150 图框比例 PLOT SCALE A2(1:1)

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Section A-A 1:150



Section B-B 1:150

NOTES:

- 1.The elevations are in m, otherwise in mm.
2. There is 1 water intake pump house and it was shown in the figure.
3. The total capacity of water intake pump house is 180000m3/d, the capacity of Phase 1 stage 1 is 60000m3/d.

相关图纸 REFERENCE DRAWINGS

图号 DRG No. 图纸名称 DRG TITLE.

A	02.07.2018	FOR DISCUSSION					
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业主 CLIENT



NEW YANGON CITY PHASE 1 DEVELOPMENT

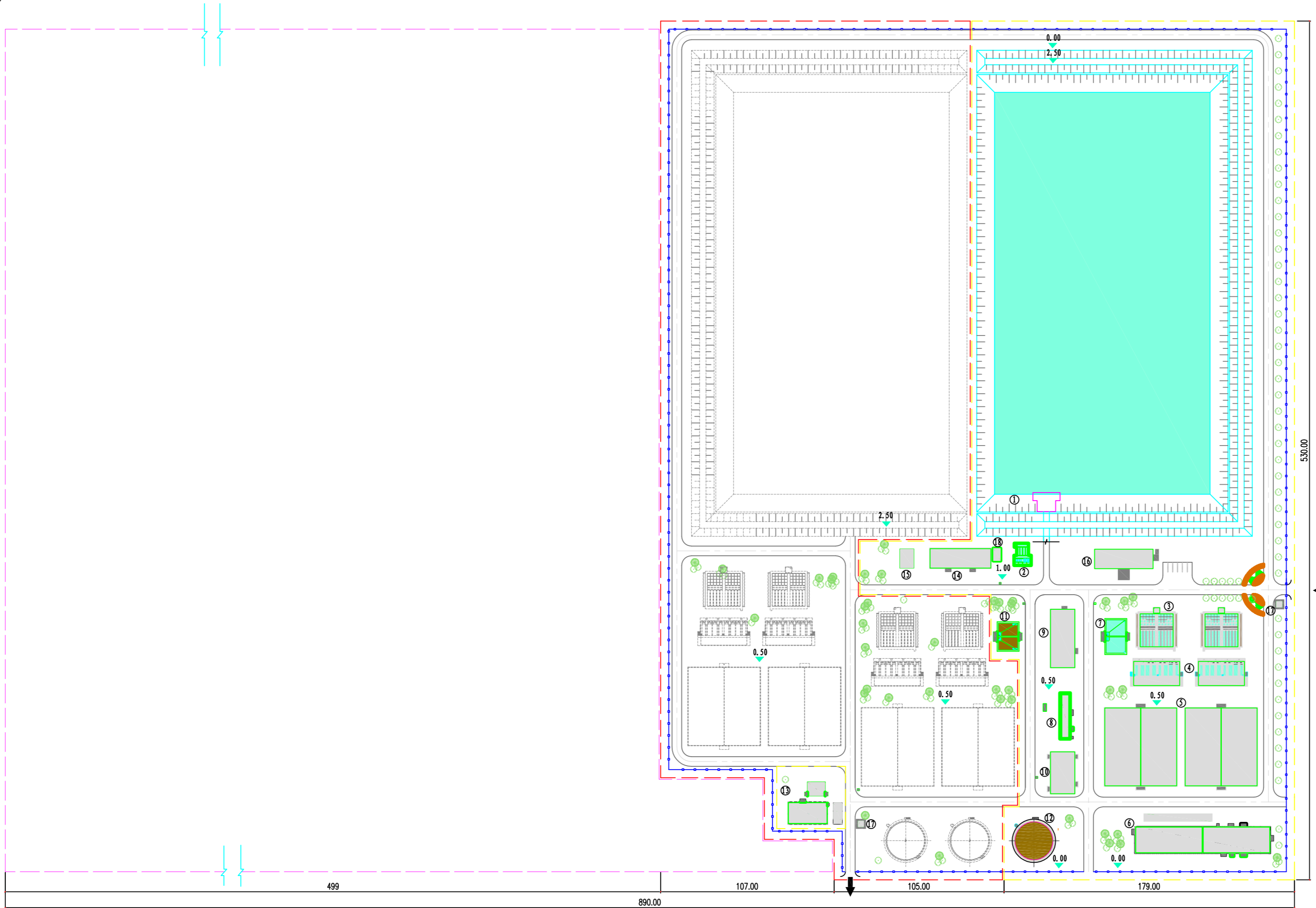
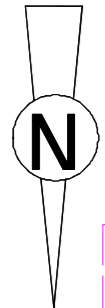
SECTION OF WATER INTAKE PUMP HOUSE

图号
DRG No. WIT-DR-02-M-0002

版号
REV. A

比例 DRG SCALE 1:150 图框比例 PLOT SCALE A2(1:1)

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General Plan of WTP

1:2000

List of Structure (Building)

No.	Item	Dimension	Structure	Unit	QTY	Remark	No.	Item	Dimension	Structure	Unit	QTY	Remark
①	Raw Water Reservoir	LXBH=27.0mX15.5mX5.5 m	R.C Frame	Set.	2	⑦	Recycle-water Tank	LXBH=12.0mX20.6mX4.6 m	R.C	Set.	1		⑬
	Raw Water Pump House	LXB=20mX13m H on the ground=11.3m H under ground=6.6m		Set.	1								
②	Distribution Shaft	LXBH=13.0mX10mX5.4m	R.C	Set.	1	⑧	Backwash Pump House	LXB=H on the ground=21.0mX6.0mX7.65m LXB=H under ground=8.5mX6.0mX3.0m	R.C Frame	Set.	1		⑭
③	Flash Mixing Chamber Coagulation and Sedimentation Tank	LXBH=25.55mX25.0mX5.0m	R.C	Set.	2	⑨	Power Distribution House 3	LXBH=7.0mX6.0mX4.8m	Frame	Set.	1		⑮
④	Sand Filter	LXBH=28.40mX14.92mX4.60m	R.C	Set.	2	⑩	Chemical House	LXBH=36.0mX15.0mX7.4m	Frame	Set.	1		⑯
⑤	Storage Reservoir	LXBH=48.0mX44.35mX3.3m	R.C	Set.	2	⑪	Chlorination House	LXBH=25.8mX15.0mX8.4m	Frame	Set.	1		⑰
⑥	Treated-water Pump House	LXB=50.4mX16.0m H on the ground=7.7m H under ground=4.8m	R.C Frame	Set.	1	⑫	Sludge Discharge Tank	LXBH=12.0mX16.6mX5.3m	R.C	Set.	1		⑱
	Power Distribution House 2	LXBH=33mX16.0mX5.1m		Set.	1	⑬	Gravity Thickening Tank	φ24m, H=5.72m	R.C	Set.	2		
							Sludge Dewatering House	LXBH=24.0mX13.0mX10.8m	Frame	Set.	1		

NOTE:

- The dimensions are in m, otherwise in mm.
- The area of phase 1 stage 1 is 105500m², the area of phase 1 stage 1 & stage 2 is 202500m², the area of phase 1 stage 1 & 2 and long-term is 472000m².

LEGEND:

- Wall
- Road
- Phase 1 stage 1
- Phase 1 stage 2 & Phase 2
- Phase 1 stage 1 boundary
- Phase 1 stage 2 & Phase 2 boundary
- long-term phase boundary

相关图纸 REFERENCE DRAWINGS

图号 DRG No. 图纸名称 DRG TITLE.

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专业负责 CHIEF DESIGNER	日期 DATE
校对 CHECKED BY	日期 DATE
设计 DESIGNED BY	日期 DATE
业主 CLIENT	

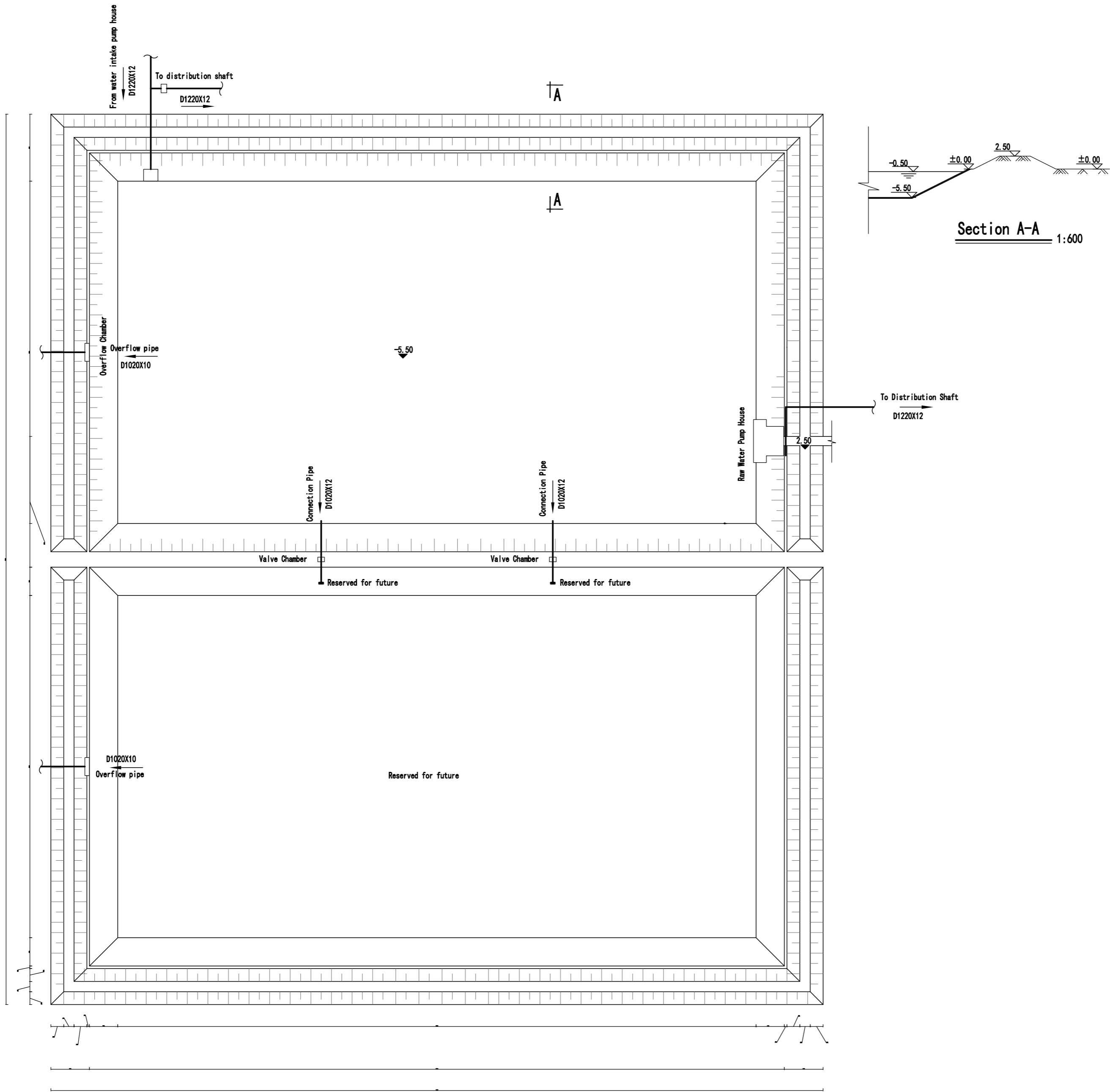


中国交通建设股份有限公司
CHINA COMMUNICATIONS CONSTRUCTION COMPANY LIMITED

NEW YANGON CITY PHASE 1 DEVELOPMENT

GENERAL LAYOUT OF WTP

图号 DRG No. WTP-DR-00-M-0001	版号 REV. A
比例 DRG SCALE 1:2000	图框比例 PLOT SCALE A2(1:1.5)
项目经理 P.M	版权所有 COPYRIGHT RESERVED



Plan of Raw Water Reservoir

1:1200

NOTES:
1.The elevations are in m, otherwise
in mm.

相关图纸 REFERENCE DRAWINGS

图号 DRG No. 图纸名称 DRG TITLE.

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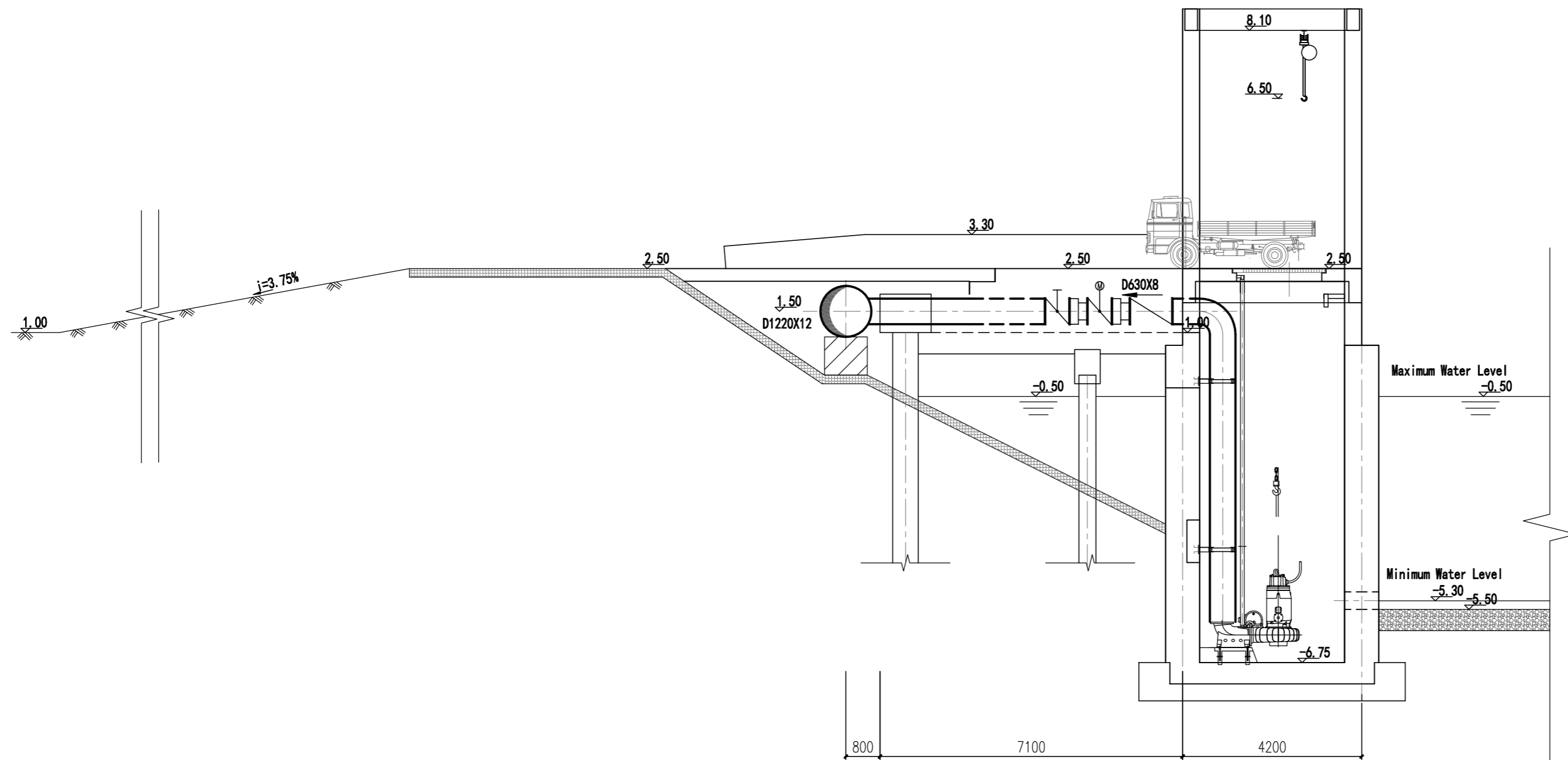
RAW WATER RESERVOIR

图号
DRG No. WTP-DR-01-M-0001

版号
REV. A

比例 DRG SCALE 1:1200 图框比例 PLOT SCALE A2(1:1)

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Section A-A
1:100

NOTES:
1.The elevations are in m, otherwise
in mm.

相关图纸 REFERENCE DRAWINGS

图号 DRG No.	图纸名称 DRG TITLE.
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CLIENT



NEW YANGON CITY PHASE 1 DEVELOPMENT

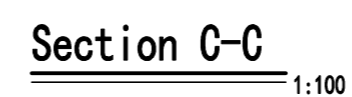
SECTION OF RAW WATER PUMP HOUSE

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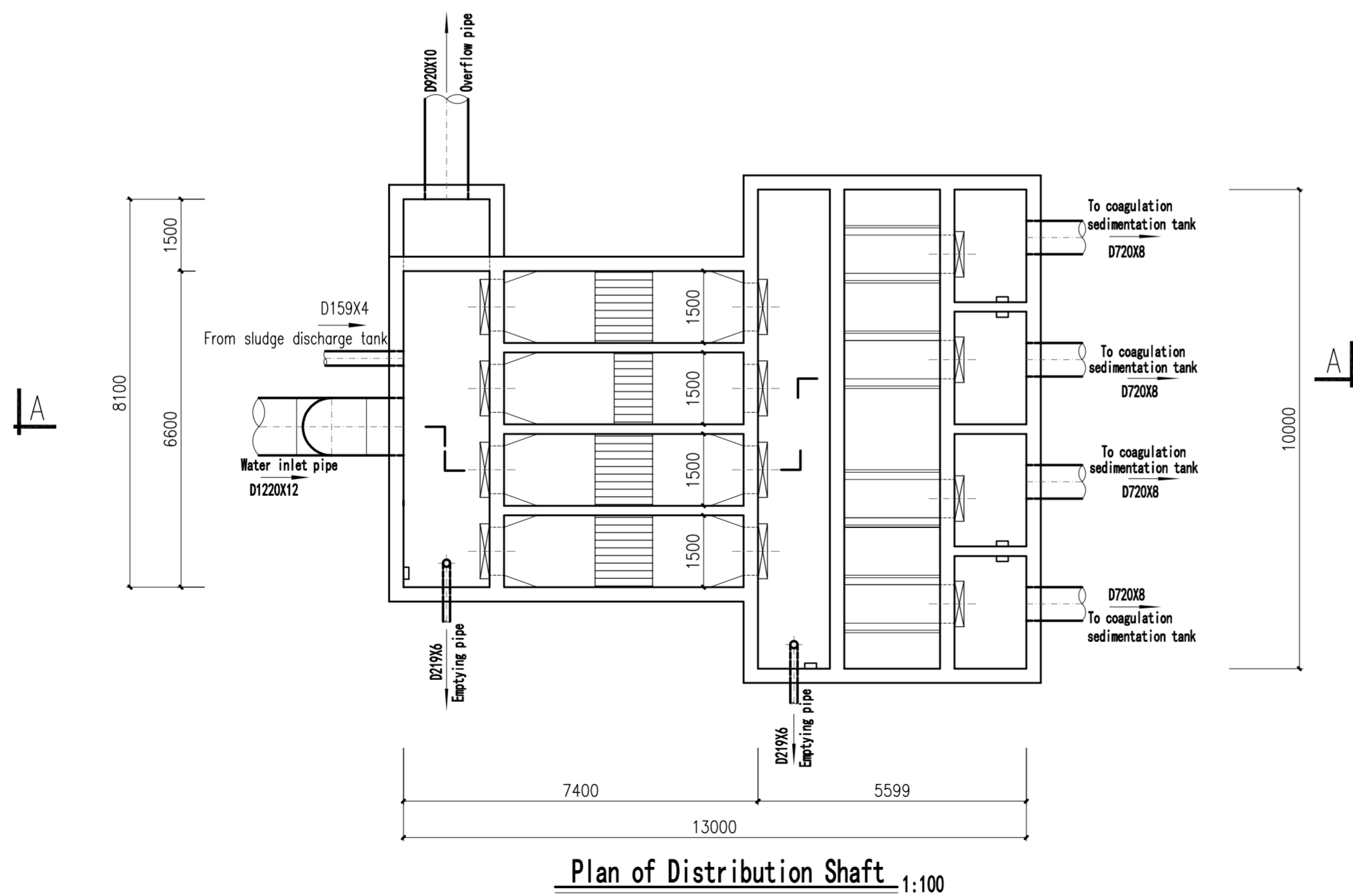
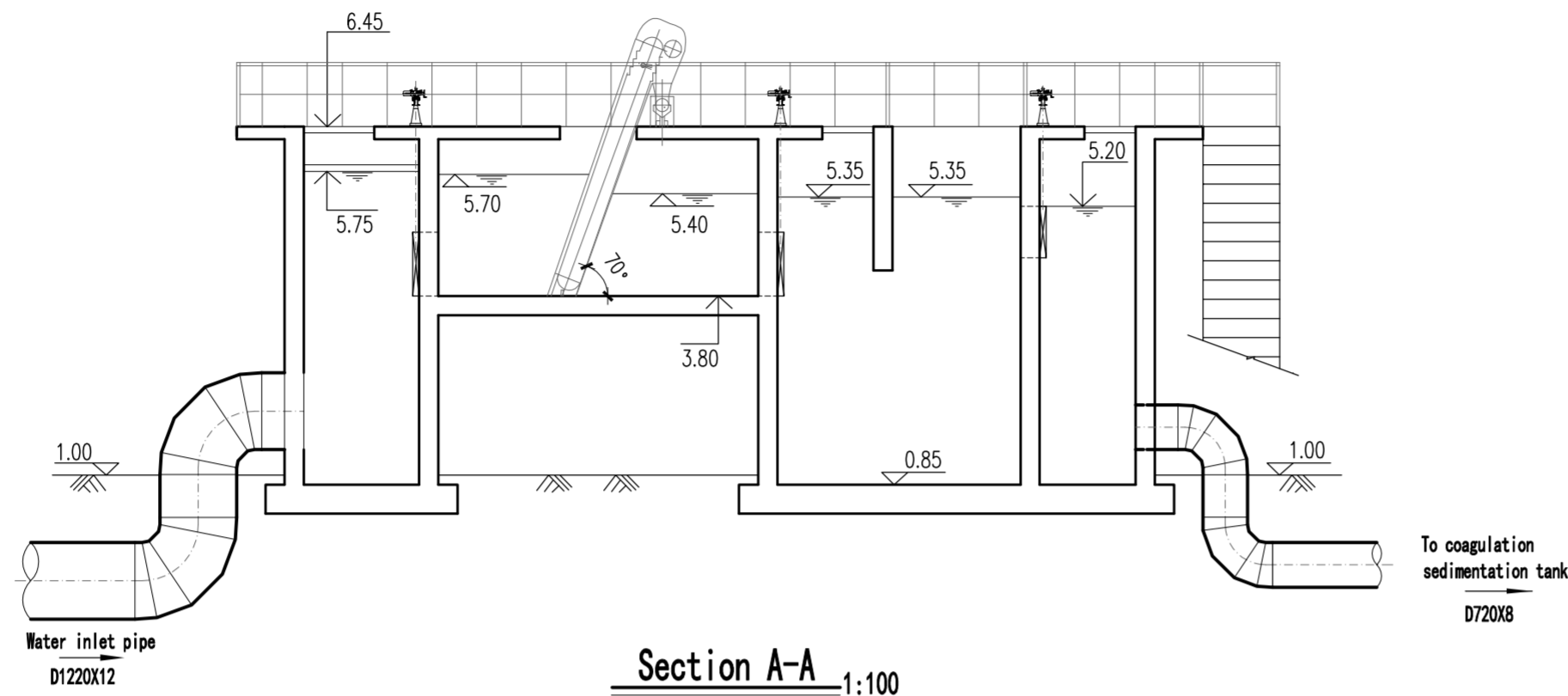
版号 REV.	A
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比例 DRG SCALE	1:100	图框比例 PLOT SCALE	A2(1:1)
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NOTES:
1. The elevations are in m, otherwise in mm.

相关图纸 REFERENCE DRAWINGS

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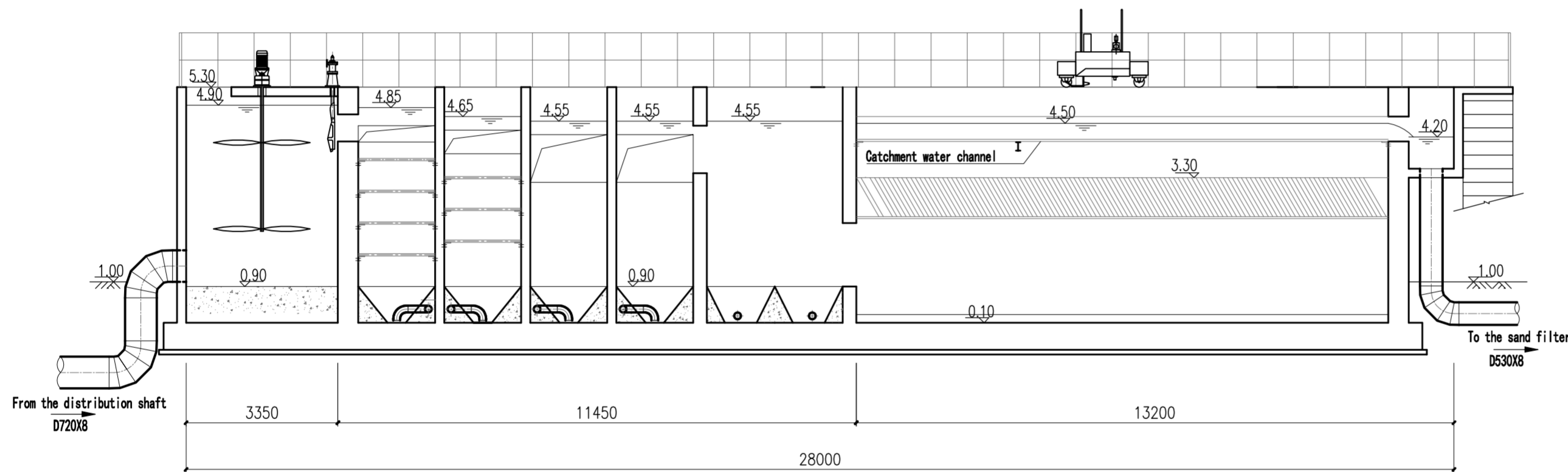
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NEW YANGON CITY PHASE 1 DEVELOPMENT

PROCESS DRAWING OF DISTRIBUTION SHAFT

图号 DRG No.	WTP-DR-02-M-0001	版号 REV.	A
比例 DRG SCALE	1:100	图框比例 PLOT SCALE	A2(1:1)
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Section A-A
1:100

NOTES:
1.The elevations are in m, otherwise
in mm.

相关图纸 REFERENCE DRAWINGS

图号 DRG No. 图纸名称 DRG TITLE.

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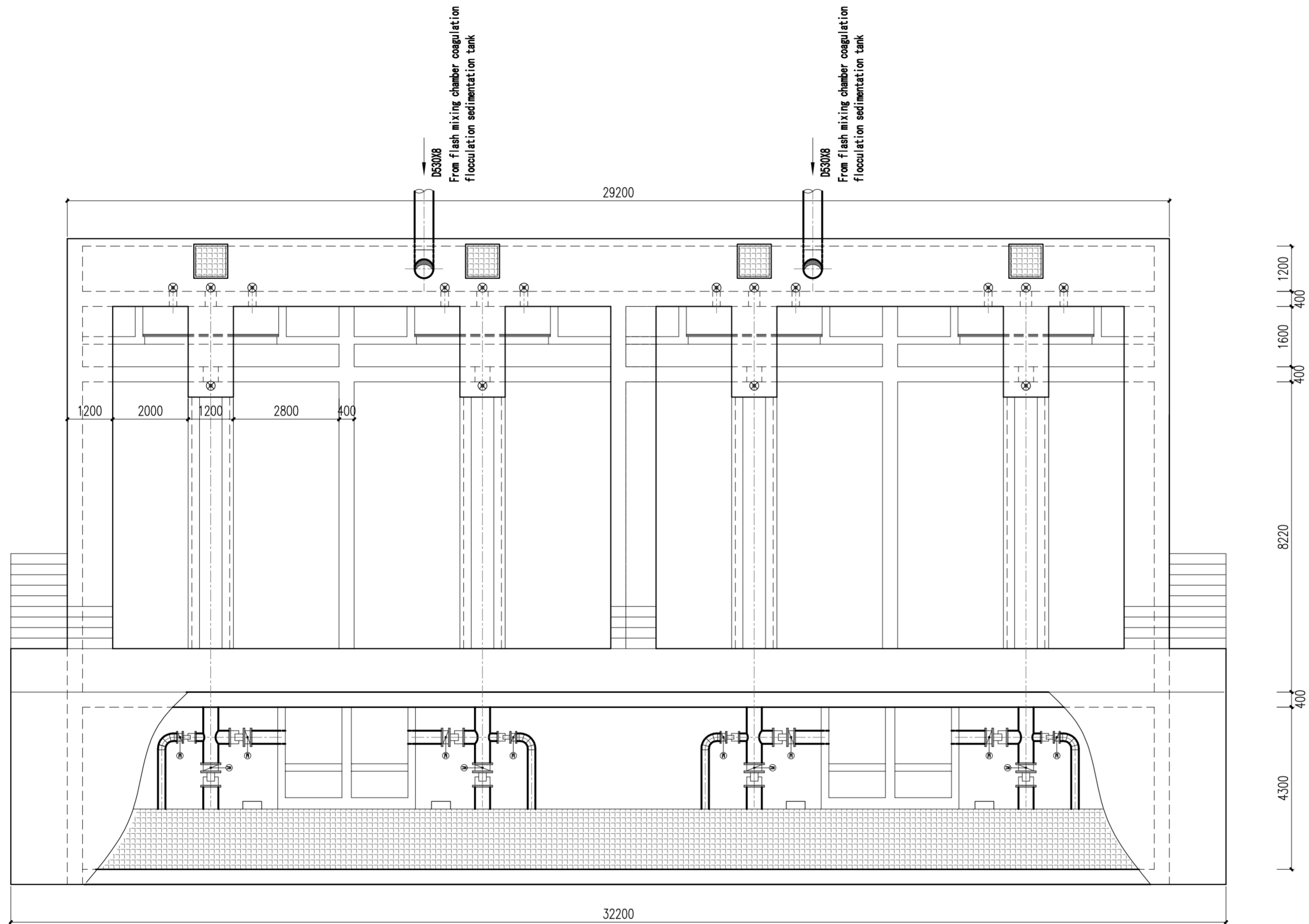
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NEW YANGON CITY PHASE 1 DEVELOPMENT

SECTION OF FLASH MIXING CHAMBER
COAGULATION AND SEDIMENTATION TANK

图号 DRG No.	WTP-DR-03-M-0002	版号 REV.	A
比例 DRG SCALE	1:100	图框比例 PLOT SCALE	A2(1:1)
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Top Floor Plan of Sand Filter 1:100

NOTES:
1.The elevations are in m, otherwise in mm.

相关图纸 REFERENCE DRAWINGS

图号 DRG No. 图纸名称 DRG TITLE.

A	02. 07. 2018	FOR DISCUSSION					
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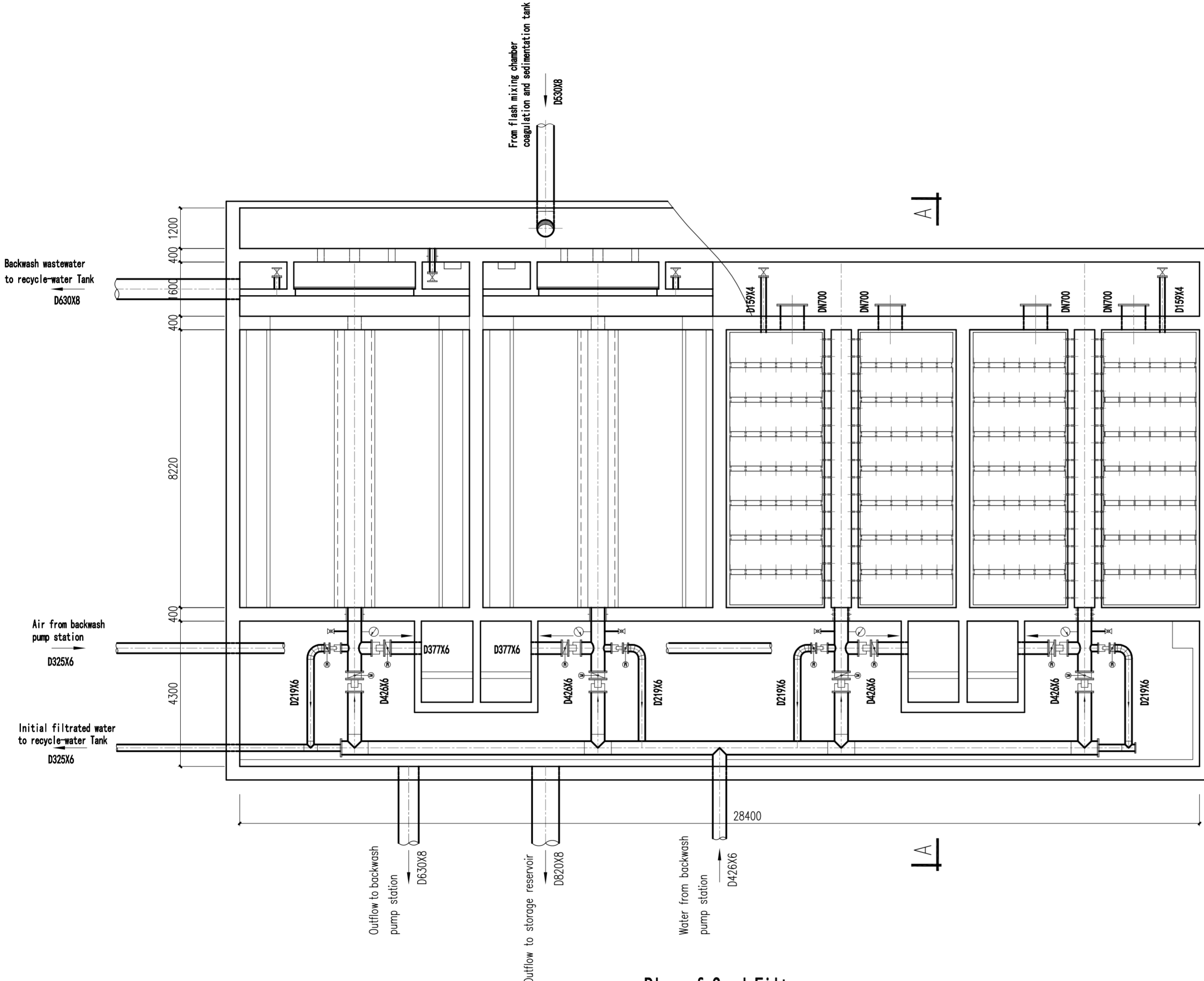
NEW YANGON CITY PHASE 1 DEVELOPMENT

TOP FLOOR PLAN OF SAND FILTER

图号 DRG No.	WTP-DR-04-M-0001	版号 REV.	A
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比例 DRG SCALE 1:100 图框比例 PLOT SCALE A2(1:1)

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Plan of Sand Filter 1:100

NOTES:
1.The elevations are in m, otherwise in mm.

相关图纸 REFERENCE DRAWINGS

图号	DRG No.	图纸名称	DRG TITLE.
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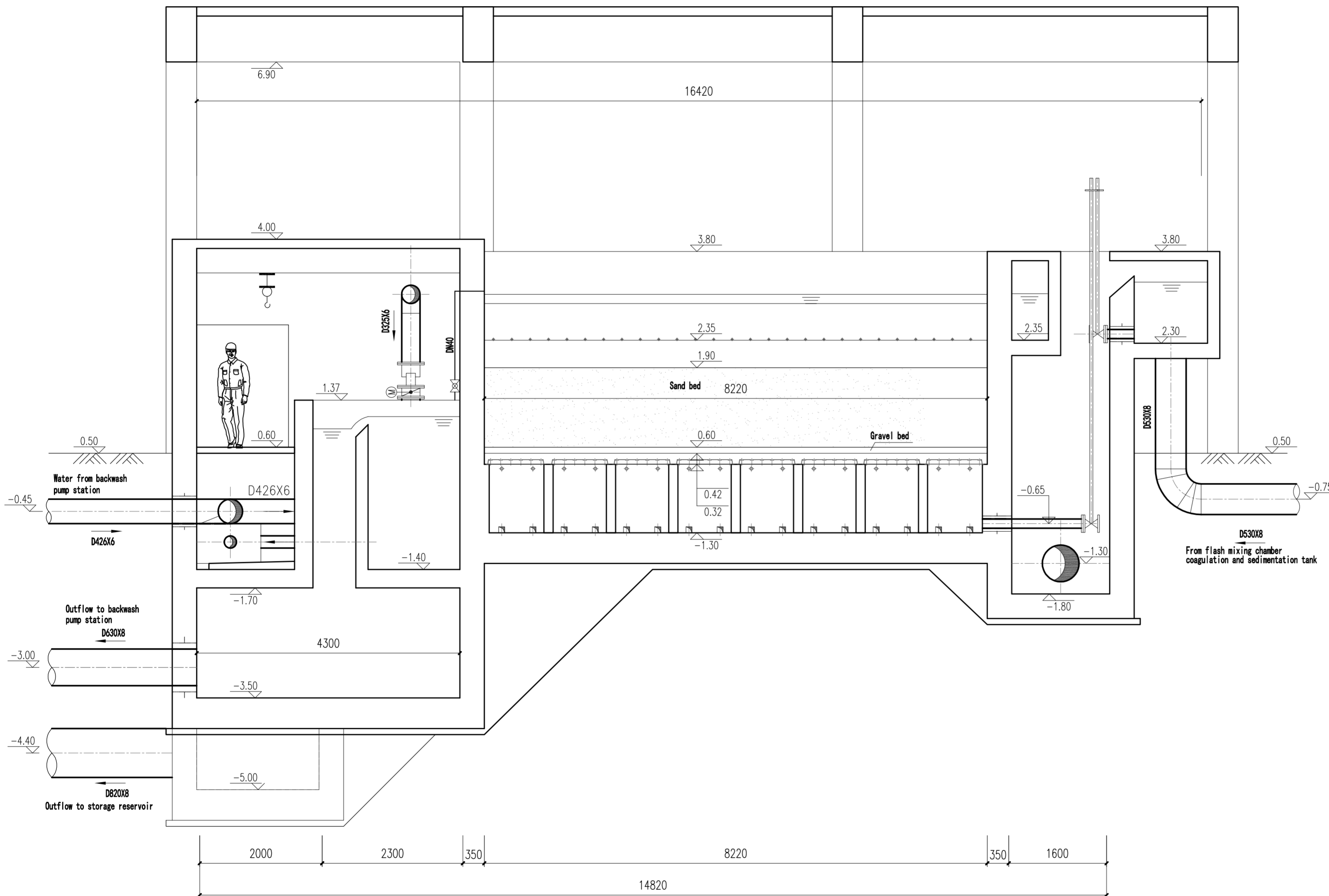
NEW YANGON CITY PHASE 1 DEVELOPMENT

PLAN OF SAND FILTER

图号	版号
DRG No.	REV.
WTP-DR-04-M-0002	A

比例	DRG SCALE	1:100	图框比例	PLOT SCALE	A2(1:1)
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Section A-A 1:50

NOTES:
1.The elevations are in m, otherwise in mm.

相关图纸 REFERENCE DRAWINGS

图号 DRG No. 图纸名称 DRG TITLE.

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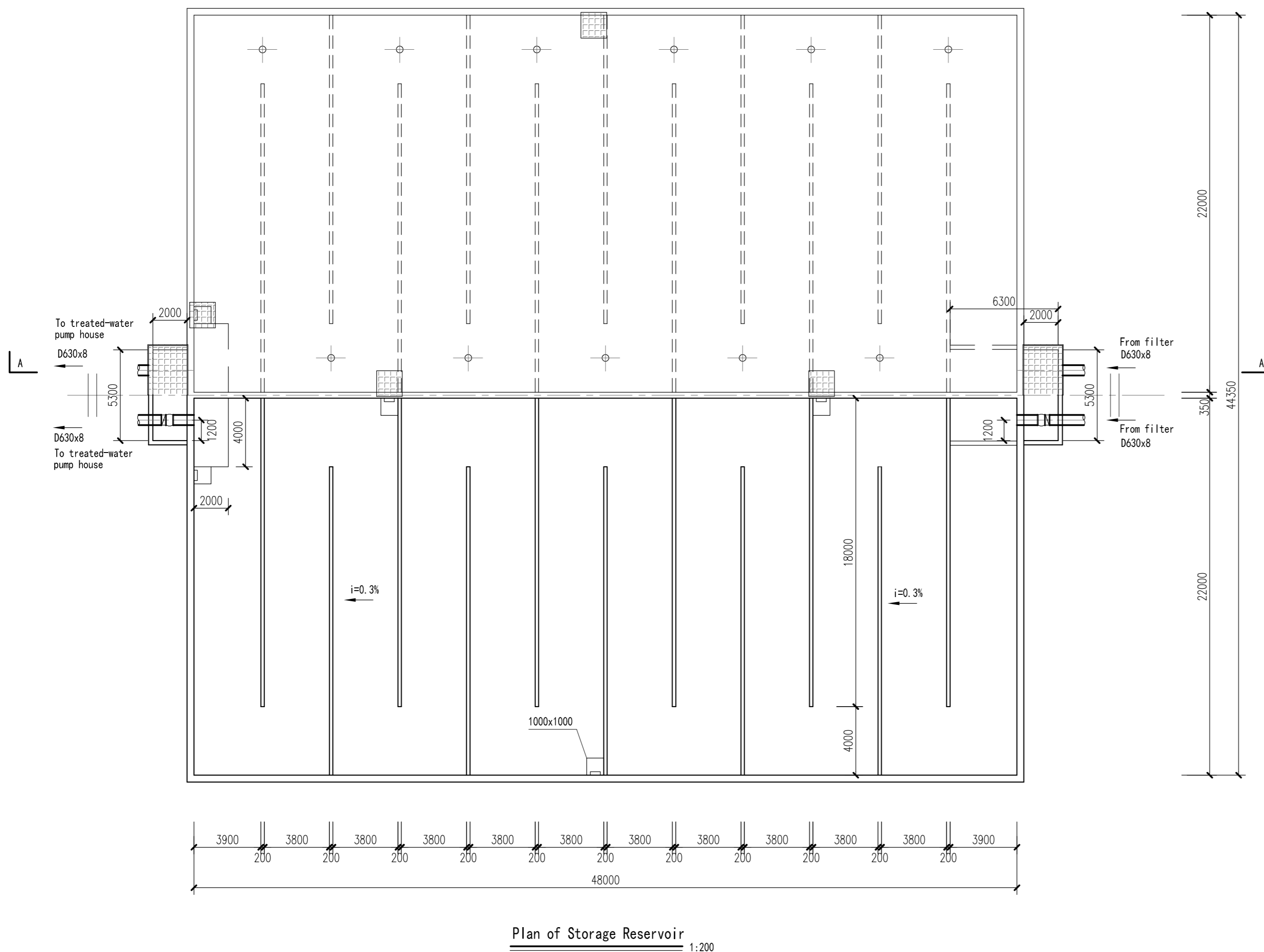
NEW YANGON CITY PHASE 1 DEVELOPMENT

SECTION OF SAND FILTER

图号	WTP-DR-04-M-0003	版号	A
DRG No.		REV.	

比例 DRG SCALE 1:50 图框比例 PLOT SCALE A2(1:1)

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1. The elevations are in m, otherwise in mm.
2. There are 2 storage reservoirs, 1 of them is shown in the figure.

图号	DRG No.	图纸名称	DRG TITLE.
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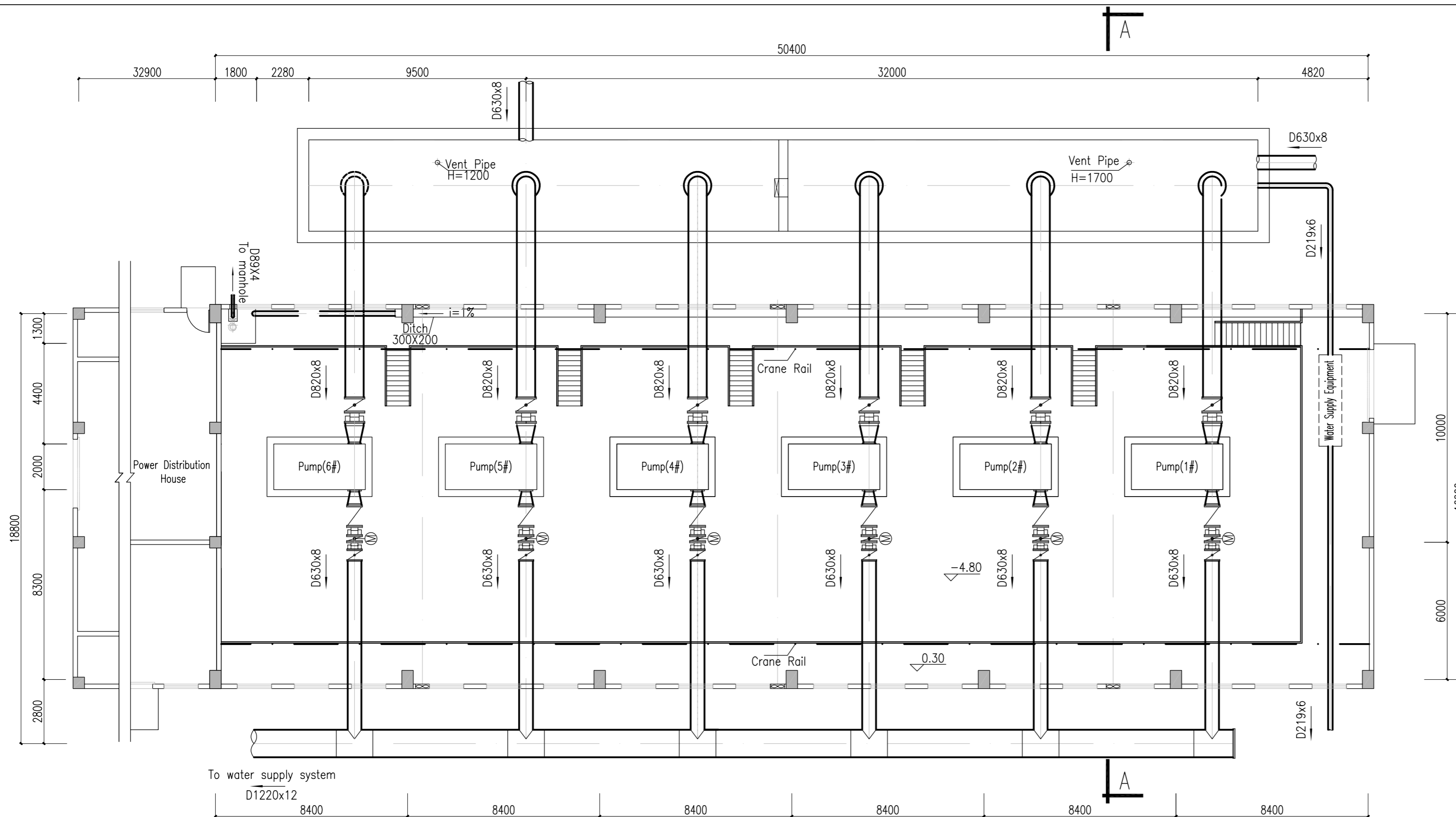
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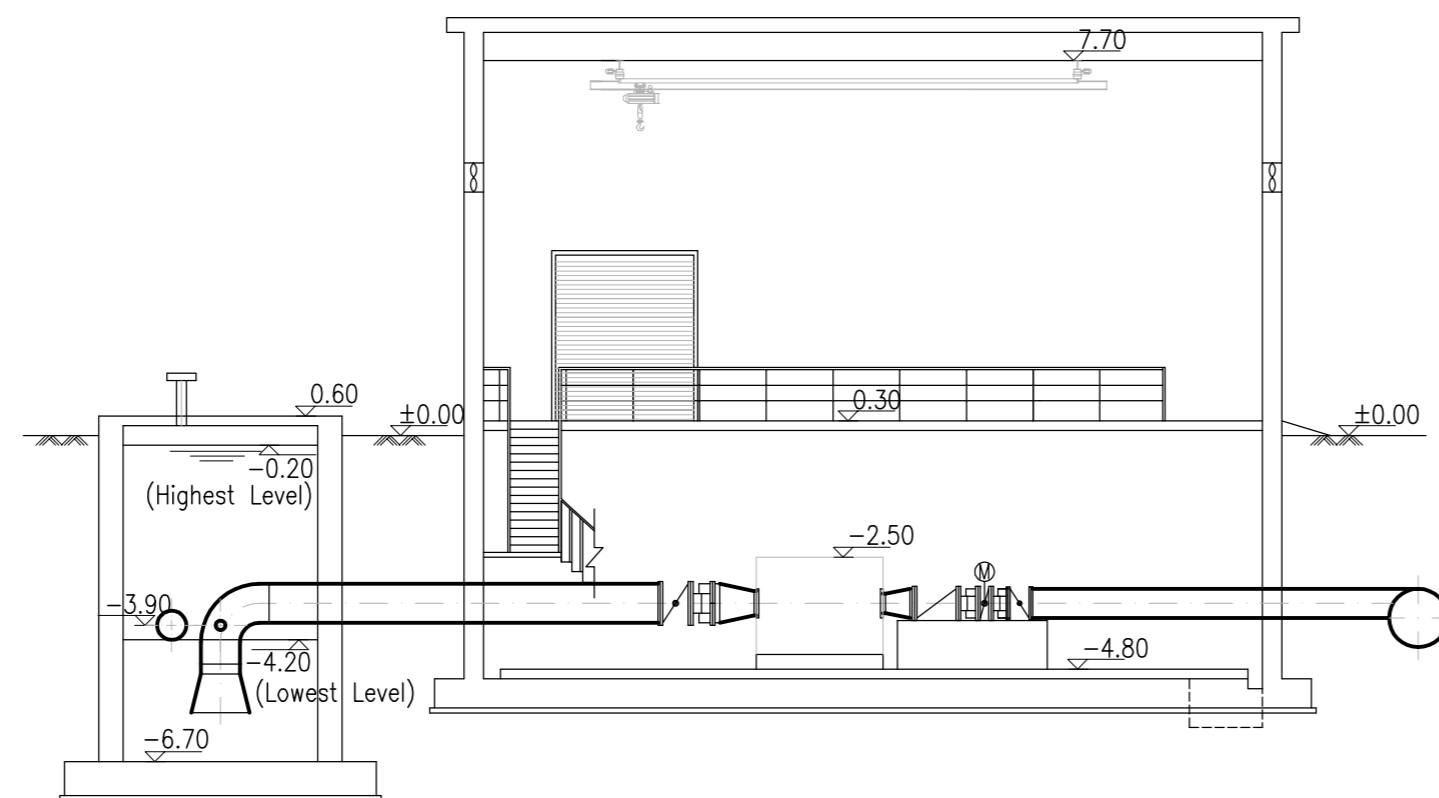
NEW YANGON CITY PHASE 1 DEVELOPMENT

PROCESS DRAWING OF STORAGE RESERVOIR

图号 DRG No.	WTP-DR-05-M-0001	版号 REV.	A
比例 DRG SCALE	1:200	图框比例 PLOT SCALE	A2(1:1)
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Plan of Treated-Water Pump House 1:150



Section A-A 1:150

NOTES:

1. The elevations are in m, otherwise in mm.

相关图纸 REFERENCE DRAWINGS

图号 DRG No. 图纸名称 DRG TITLE.

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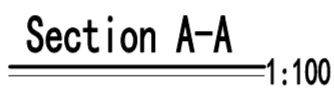
NEW YANGON CITY PHASE 1 DEVELOPMENT

PROCESS DRAWING OF TREATED-WATER PUMP HOUSE

图号 WTP-DR-06-M-0001 版号 A
DRG No. REV.

比例 DRG SCALE 1:150 图框比例 PLOT SCALE A2(1:1)

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Plan of Recycle Water Tank

1. The elevations are in m, otherwise in mm.

图号	DRG No.	图纸名称	DRG TITLE.
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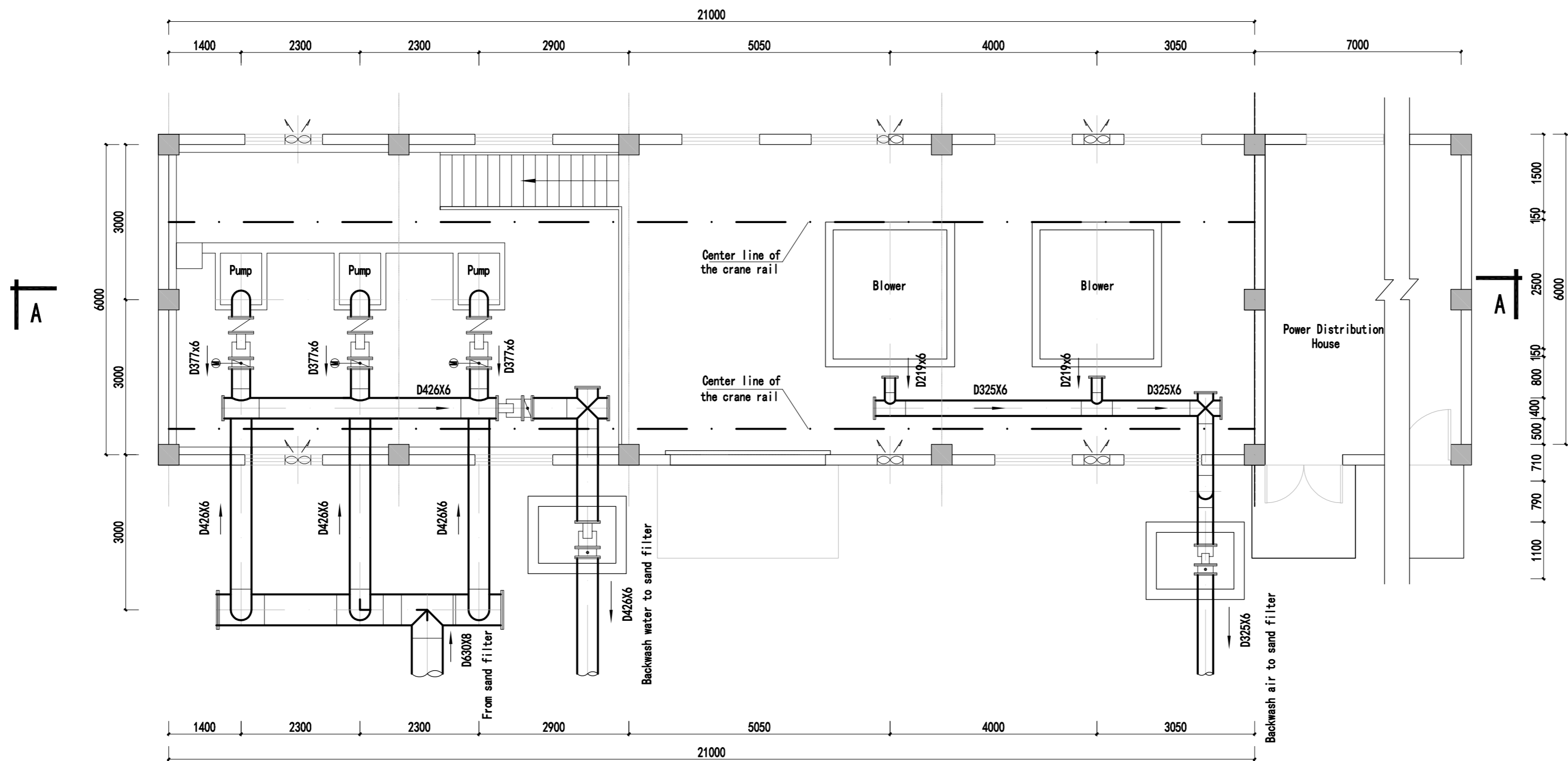
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专业负责 CHIEF DESIGNER	日期 DATE
校对 CHECKED BY	日期 DATE
设计 DESIGNED BY	日期 DATE
业主 CLIENT	



NEW YANGON CITY PHASE 1 DEVELOPMENT

PROCESS DRAWING OF RECYCLE-WATER TANK

图号 DRG No.	WTP-DR-07-M-0001	版号 REV.	A
比例 DRG SCALE	1:100	图框比例 PLOT SCALE	A2(1:1)
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Plan of Backwash Pump House 1:75

- NOTES:
1. The elevations are in m, otherwise in mm.
 2. The backwash pump, blower and ancillary equipment is arranged in the house, which can supply air

相关图纸 REFERENCE DRAWINGS

图号 DRG No. 图纸名称 DRG TITLE.

A	02.07.2018	FOR DISCUSSION					
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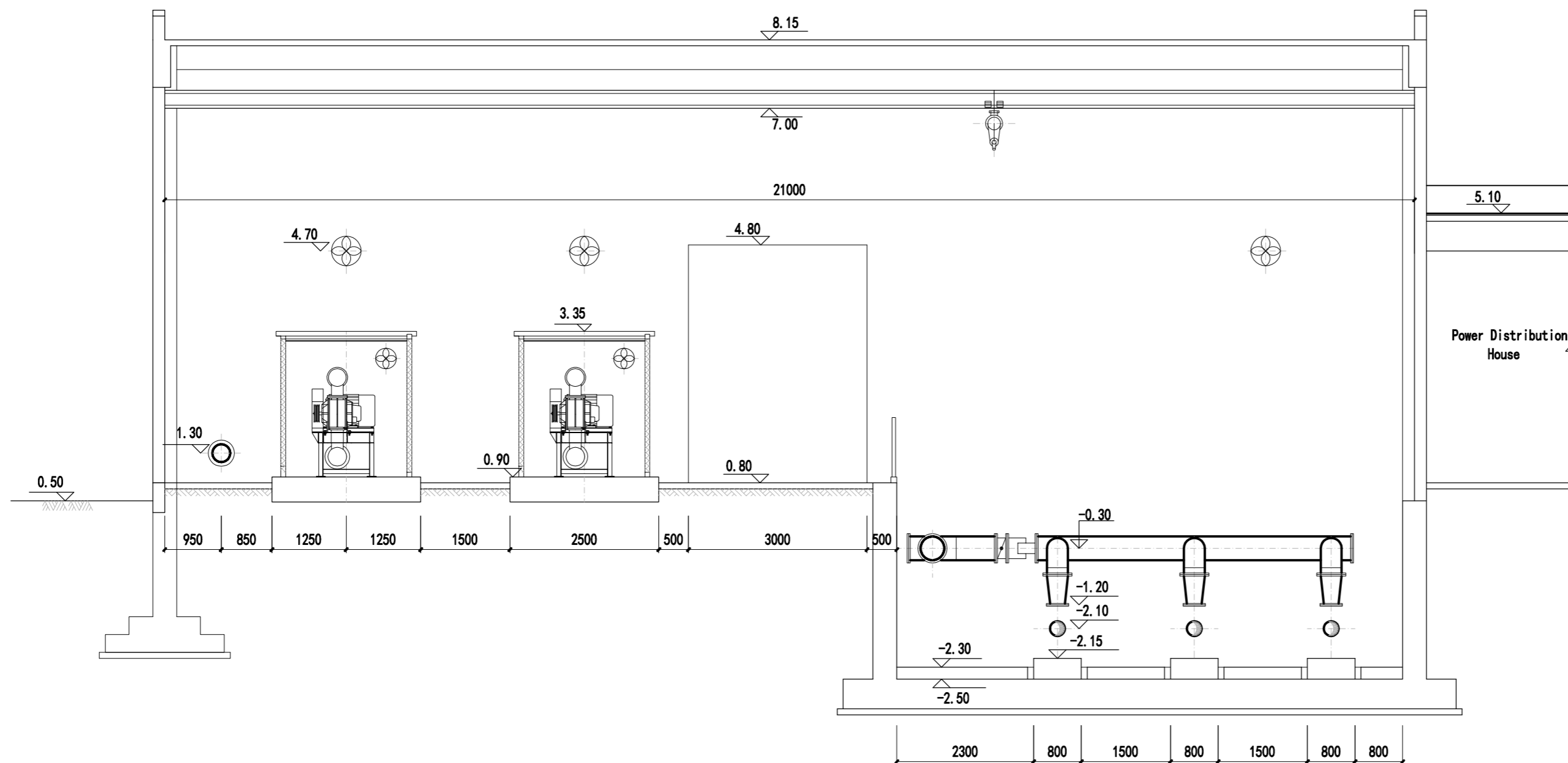
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NEW YANGON CITY PHASE 1 DEVELOPMENT

PLAN OF BACKWASH PUMP HOUSE

图号 DRG No.	WTP-DR-08-M-0001	版号 REV.	A
比例 DRG SCALE	1:75	图框比例 PLOT SCALE	A2(1:1)
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Section A-A
1:75

- NOTES:
1. The elevations are in m, otherwise in mm.
 2. The backwash pump, blower and ancillary equipment is arranged in the house, which can supply air

相关图纸 REFERENCE DRAWINGS

图号 DRG No.	图纸名称 DRG TITLE.
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A	02.07.2018	FOR DISCUSSION					
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业主
CLIENT



NEW YANGON CITY PHASE 1 DEVELOPMENT

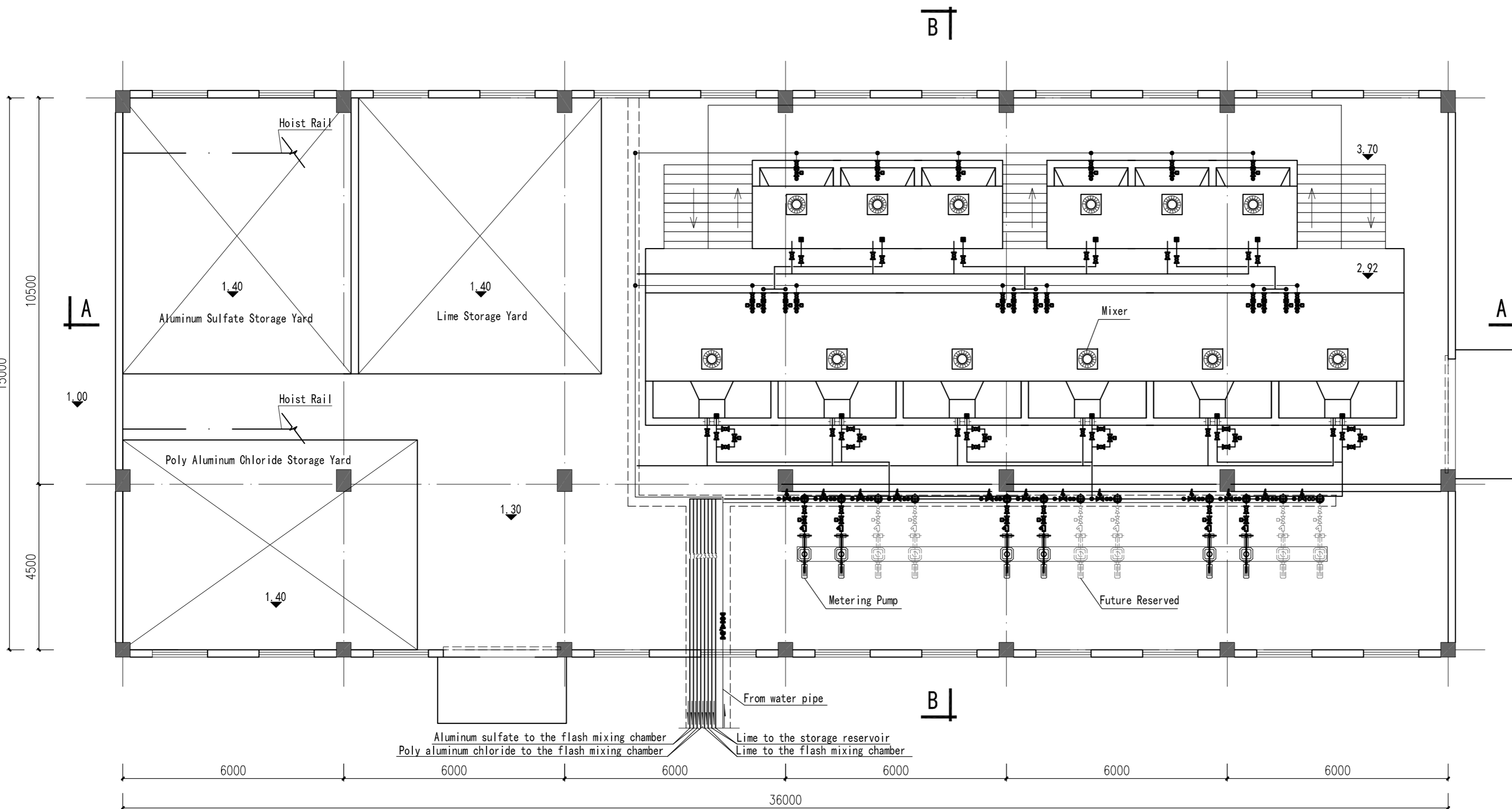
SECTION OF BACKWASH PUMP HOUSE

图号 DRG No.	WTP-DR-08-M-0002
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版号 REV.	A
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比例 DRG SCALE	1:75	图框比例 PLOT SCALE	A2(1:1)
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Plan of Chemical House
1:100

NOTES:
1.The elevations are in m, otherwise in mm.

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图号 DRG No.	图纸名称 DRG TITLE.

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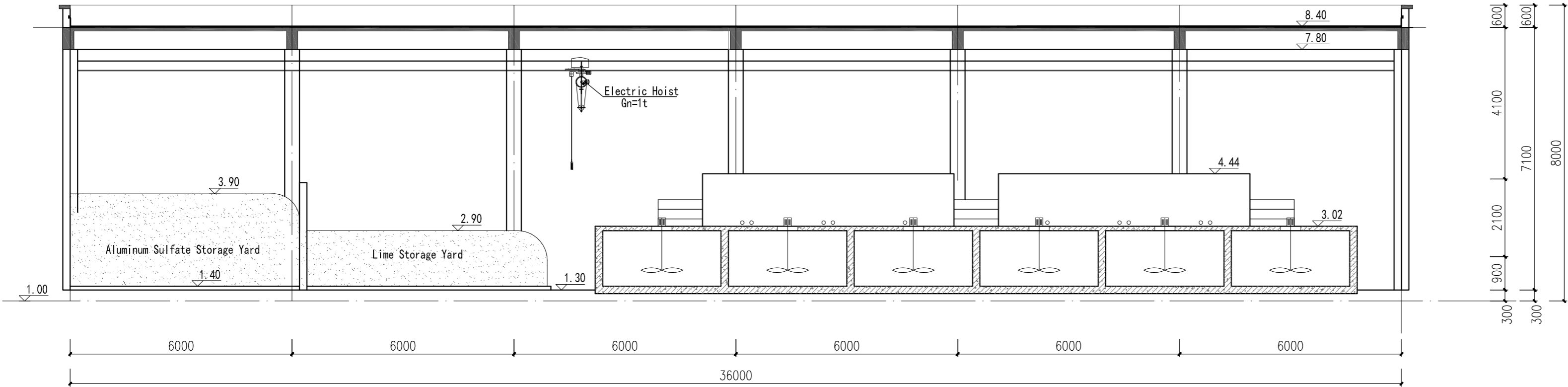
NEW YANGON CITY PHASE 1 DEVELOPMENT

PLAN OF CHEMICAL HOUSE

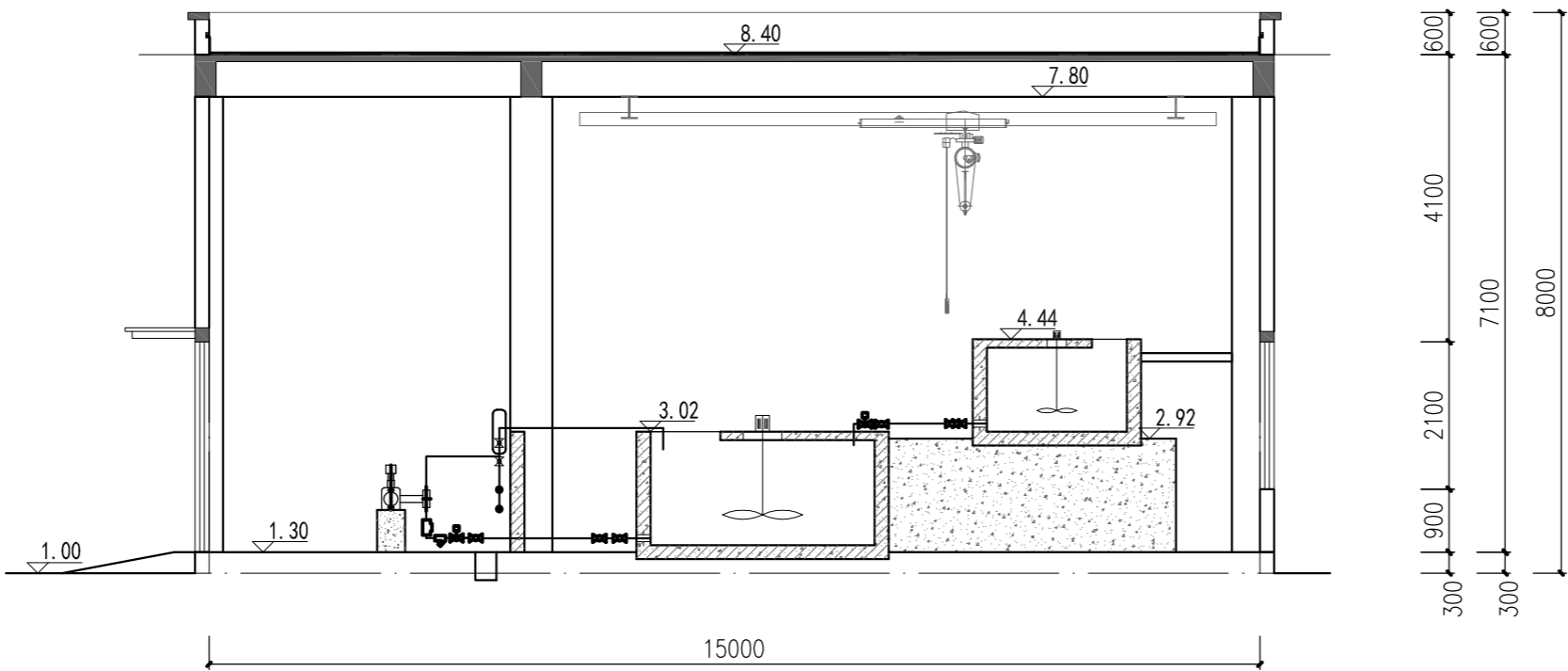
图号 DRG No.	WTP-DR-09-M-0001	版号 REV.	A
比例 DRG SCALE	1:100	图框比例 PLOT SCALE	A2(1:1)
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NOTES:

1.The elevations are in m, otherwise in mm.



Section A-A
1:100



Section B-B
1:100

相关图纸 REFERENCE DRAWINGS

图号	DRG No.	图纸名称	DRG TITLE.
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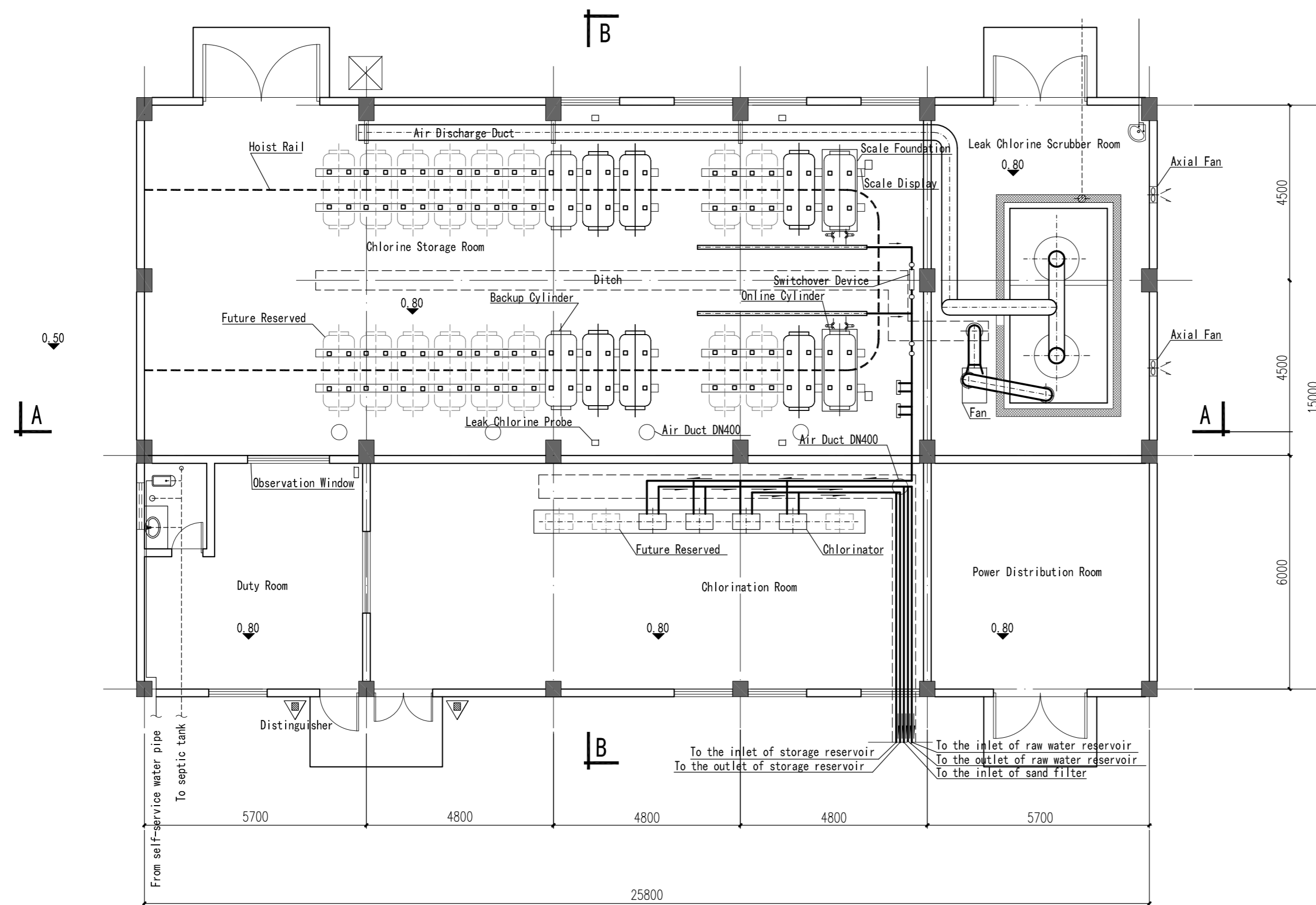
NEW YANGON CITY PHASE 1 DEVELOPMENT

SECTION OF CHEMICAL HOUSE

图号	WTP-DR-09-M-0002	版号	A
DRG No.		REV.	

比例 DRG SCALE 1:100 图框比例 PLOT SCALE A2(1:1)

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Plan of Chlorination House
1:100

NOTES:
1.The elevations are in m, otherwise in mm.

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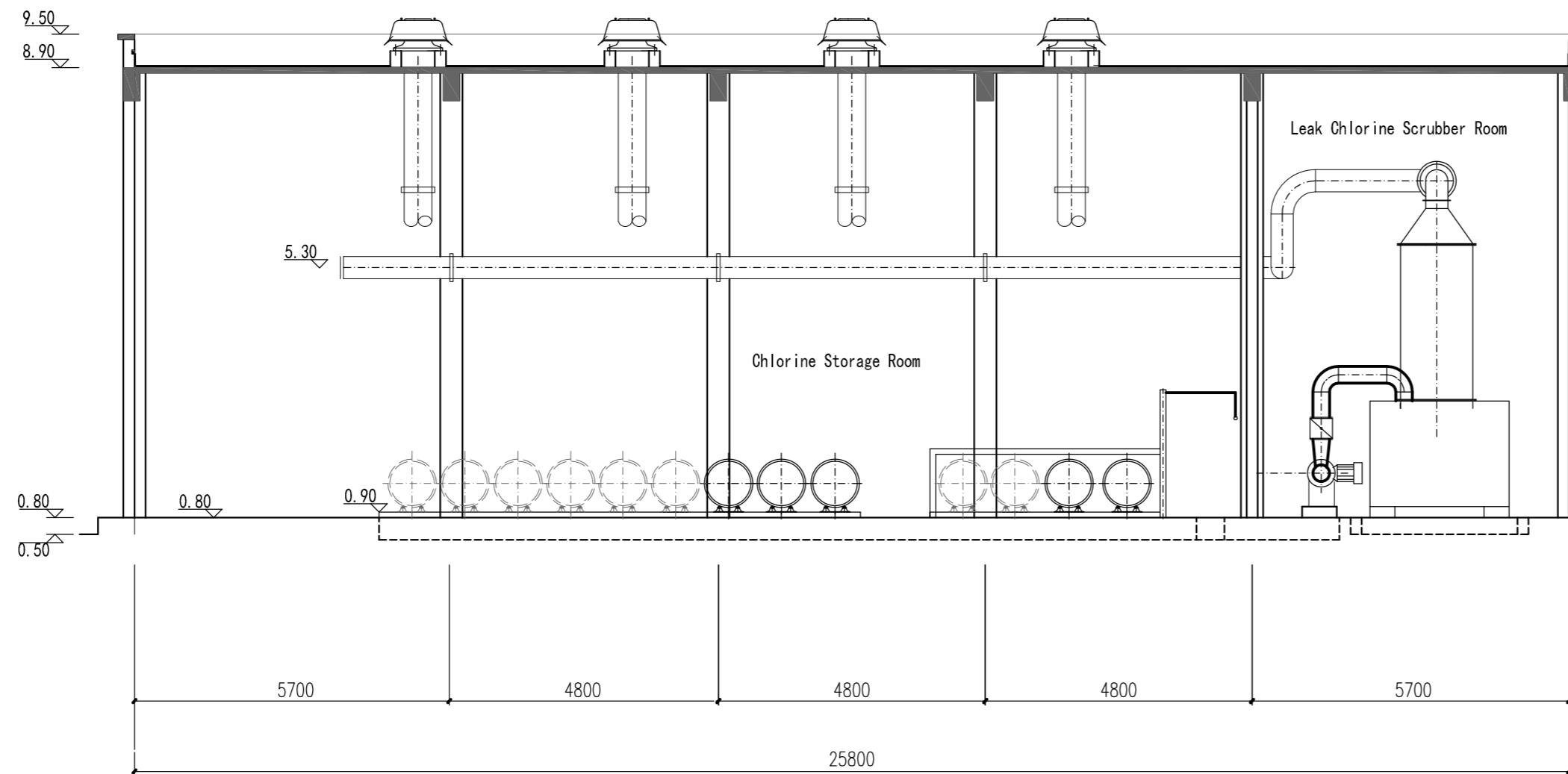
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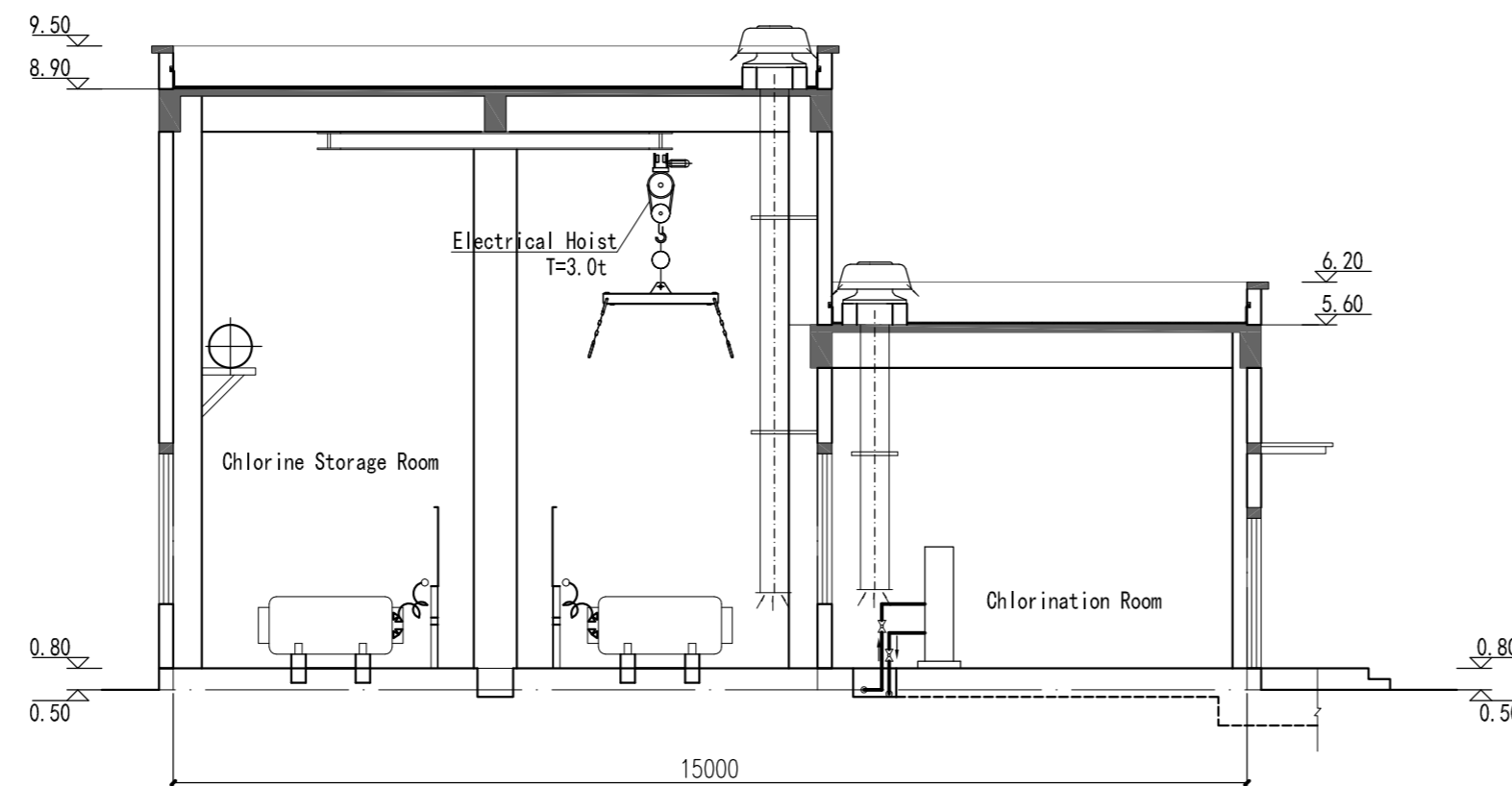
NEW YANGON CITY PHASE 1 DEVELOPMENT

PLAN OF CHLORINATION HOUSE

图号 DRG No.	WTP-DR-10-M-0001	版号 REV.	A
比例 DRG SCALE	1:100	图框比例 PLOT SCALE	A2(1:1)
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Section A-A
1:100



Section B-B
1:100

NOTES:

1.The elevations are in m, otherwise in mm.

相关图纸 REFERENCE DRAWINGS

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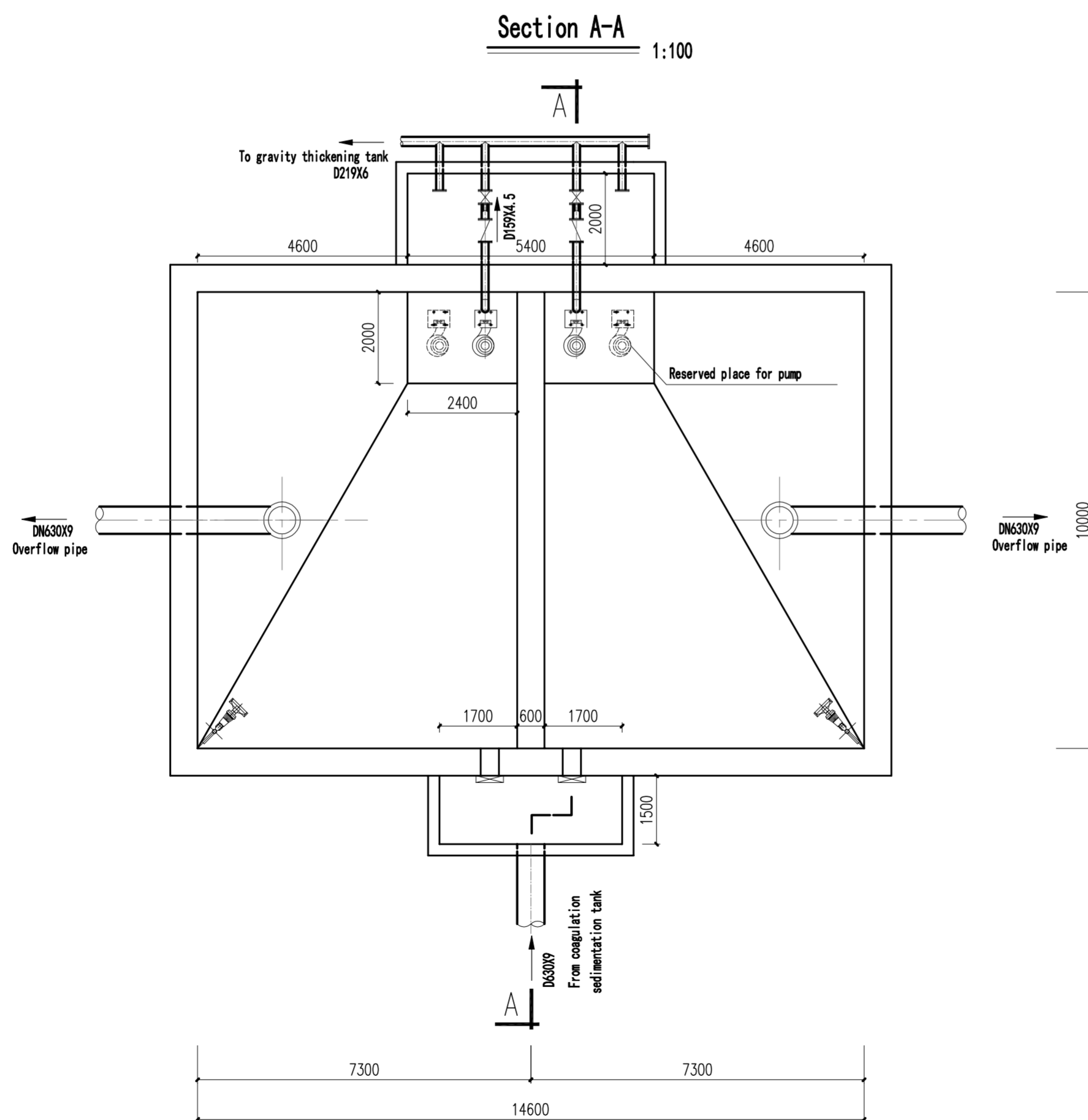
NEW YANGON CITY PHASE 1 DEVELOPMENT

SECTION OF CHLORINATION HOUSE

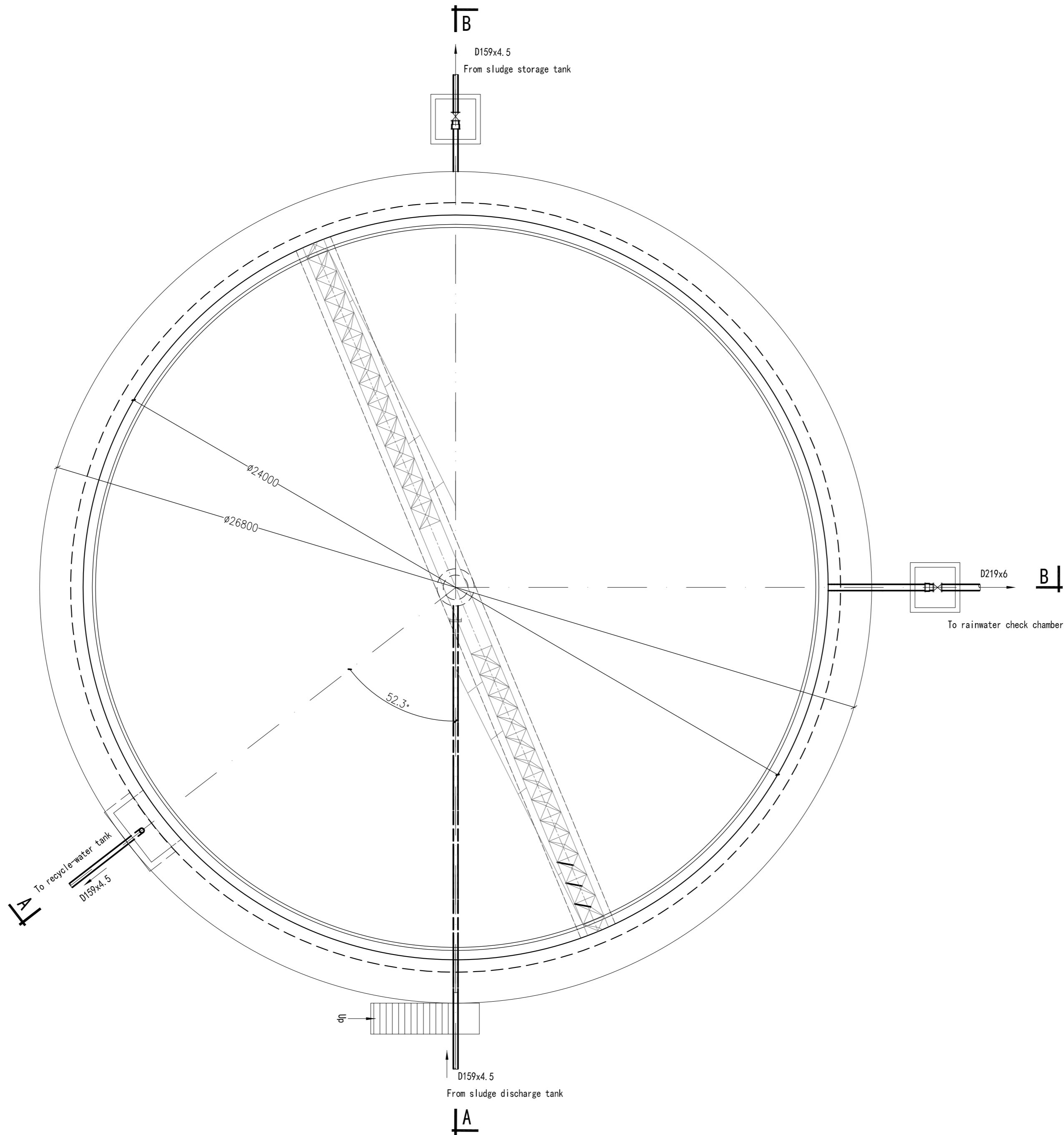
图号
DRG No. WTP-DR-10-M-0002 版号
REV. A

比例 DRG SCALE 1:100 图框比例 PLOT SCALE A2(1:1)

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图号 DRG No.	WTP-DR-11-M-0001	版本号 REV.	A
比例 DRG SCALE	1:100	图框比例 PLOT SCALE	A2(1:1)
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Plan of Gravity Thickening Tank

1:100

NOTES:

- 1.The elevations are in m, otherwise in mm.
- 2.There is 1 gravity thickening tank in the stage one of the short term.

相关图纸 REFERENCE DRAWINGS

图号 DRG No. 图纸名称 DRG TITLE.

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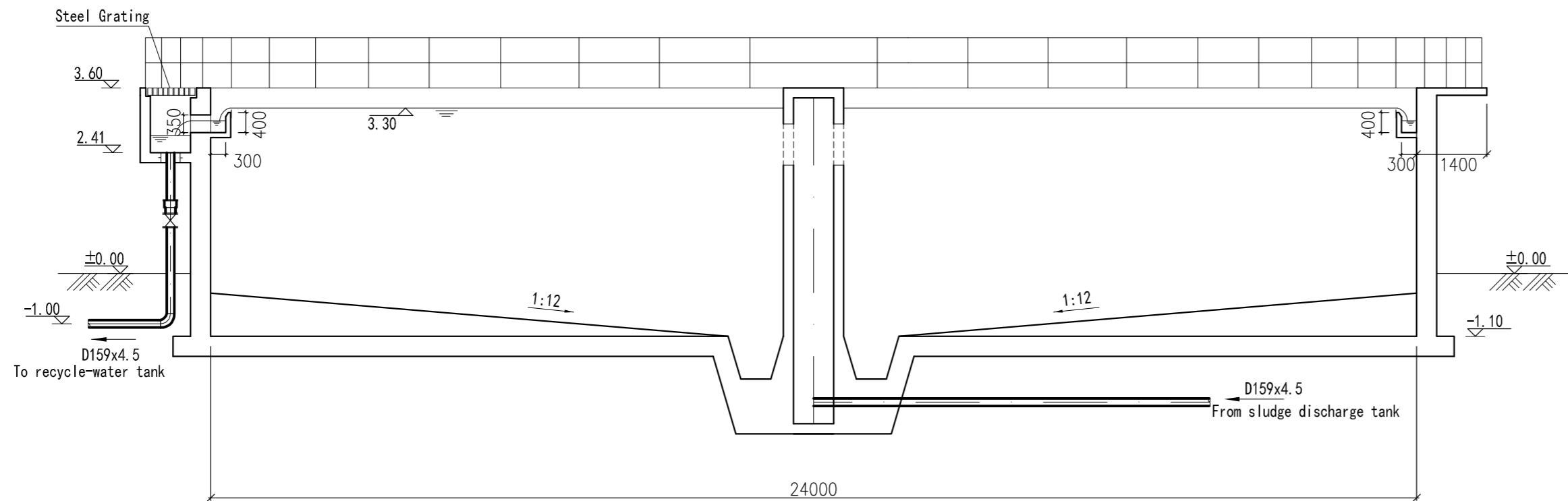


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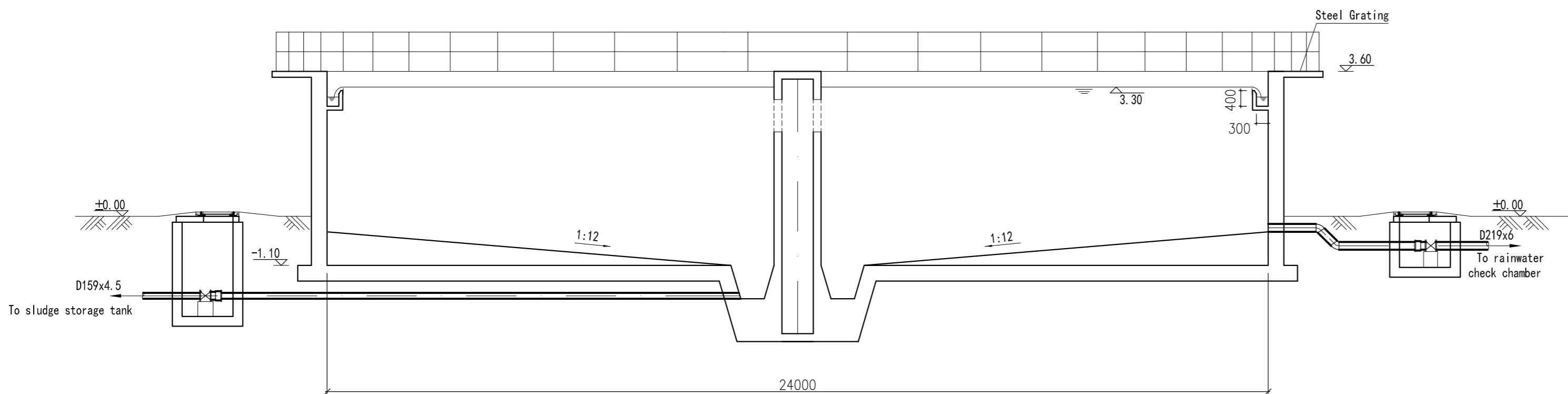
NEW YANGON CITY PHASE 1 DEVELOPMENT

PLAN OF GRAVITY THICKENING TANK

图号 DRG No.	WTP-DR-12-M-0001	版号 REV.	A
比例 DRG SCALE	1:100	图框比例 PLOT SCALE	A2(1:1)
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Section A-A
1:100



Section B-B
1:100

NOTES:

- 1.The elevations are in m, otherwise in mm.
- 2.There is 1 gravity thickening tank in the stage one of the short term.

相关图纸 REFERENCE DRAWINGS

图号 DRG No.	图纸名称 DRG TITLE.
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业主 CLIENT



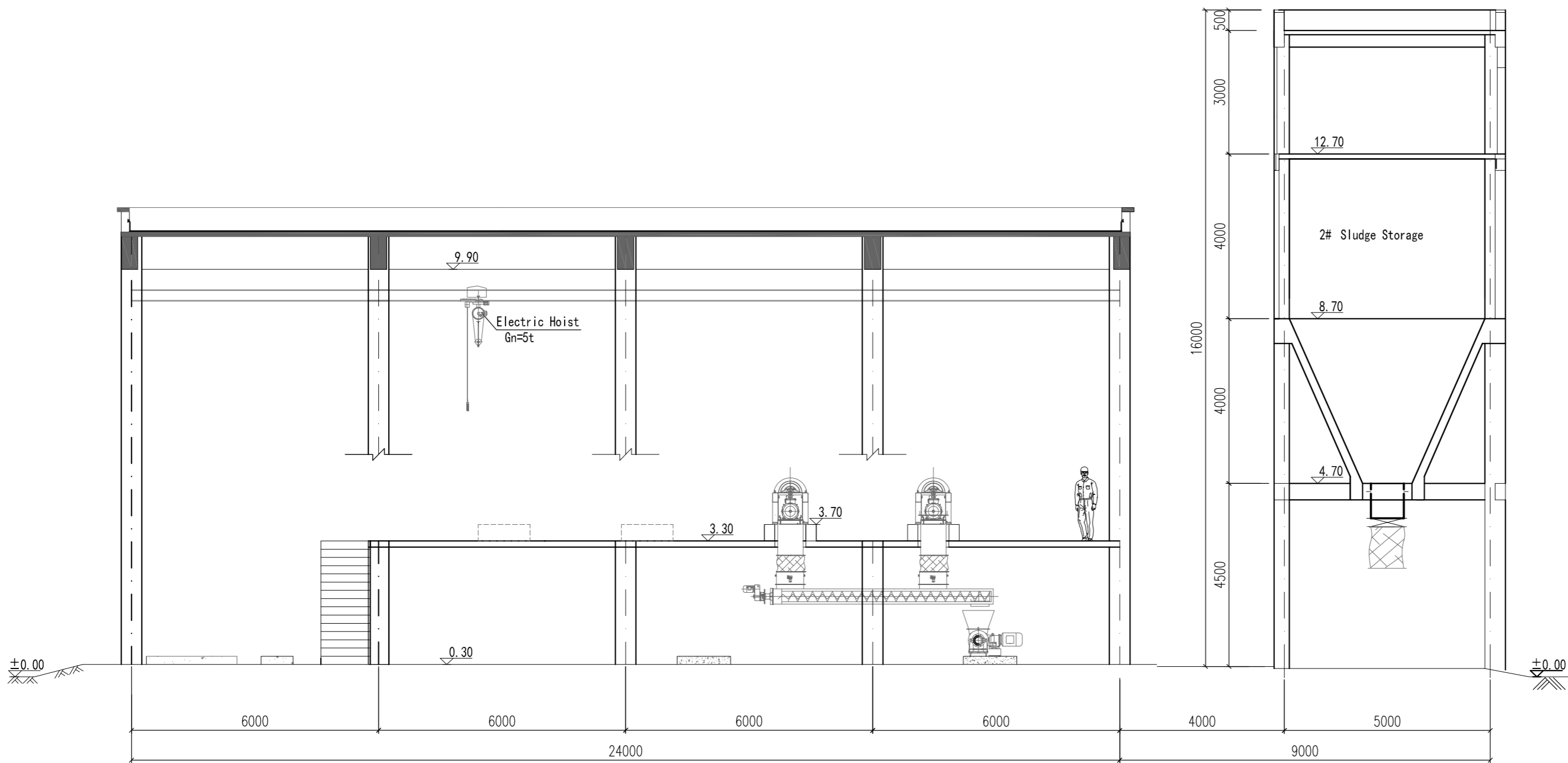
NEW YANGON CITY PHASE 1 DEVELOPMENT

SECTION OF GRAVITY THICKENING TANK

图号 DRG No.	WTP-DR-12-M-0002	版号 REV.	A
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比例 DRG SCALE	1:100	图框比例 PLOT SCALE	A2(1:1)
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Section A-A
1:100

NOTES:

1.The elevations are in m, otherwise in mm.

相关图纸 REFERENCE DRAWINGS

图号 DRG No. 图纸名称 DRG TITLE.

A

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NEW YANGON CITY PHASE 1 DEVELOPMENT

SECTION A-A OF SLUDGE DEWATERING HOUSE

图号

WTP-DR-13-M-0002

版号

A

DRG No.

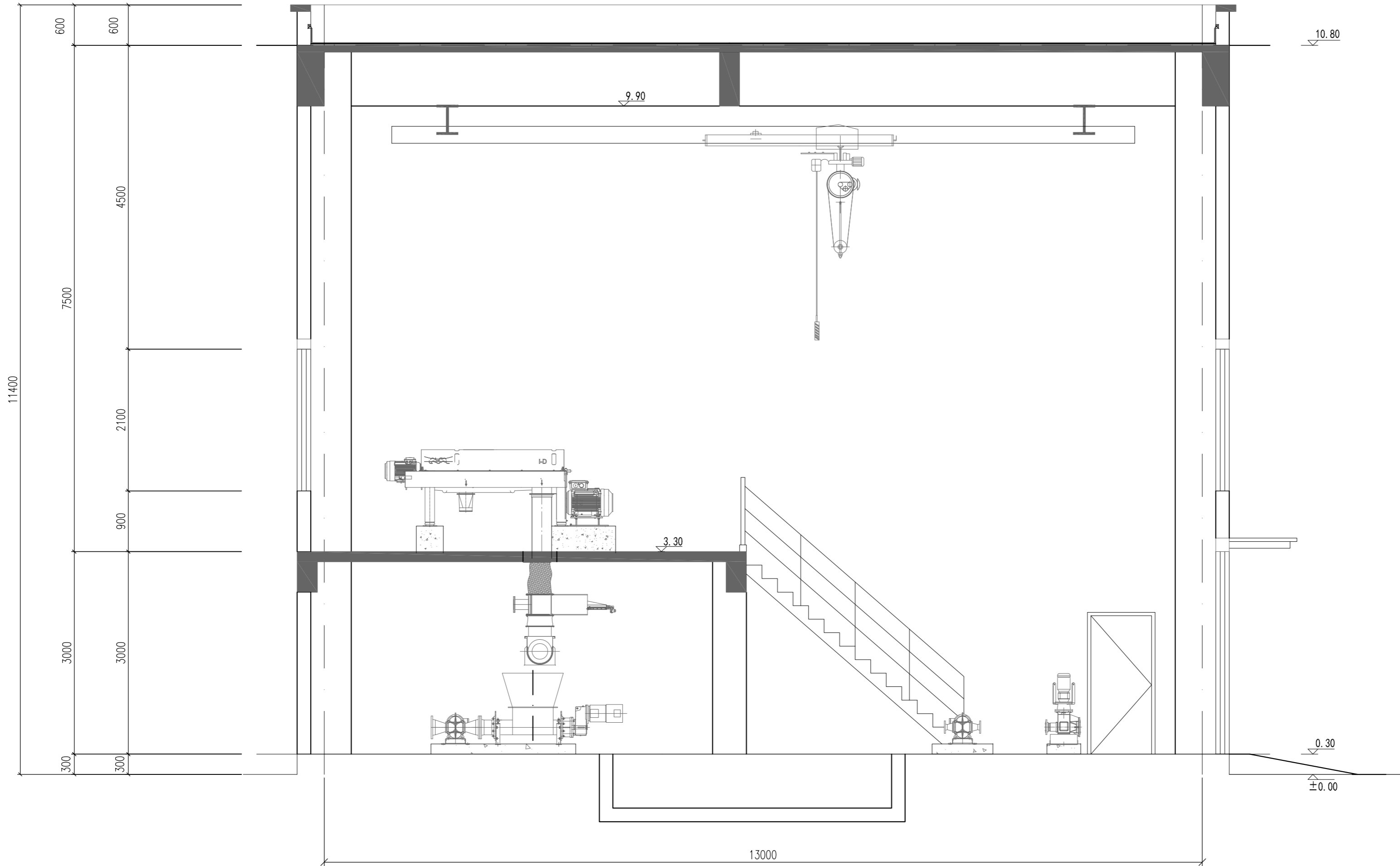
REV.

比例

1:100

图框比例

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Section B-B
1:50

NOTES:

1. The elevations are in m, otherwise in mm.

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NEW YANGON CITY PHASE 1 DEVELOPMENT

SECTION B-B OF SLUDGE DEWATERING HOUSE

图号 DRG No.	WTP-DR-13-M-0003	版号 REV.	A
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比例 DRG SCALE	1:50	图框比例 PLOT SCALE	A2(1:1)
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APPENDIX C SOCIO-ECONOMIC SURVEY QUESTIONNAIRE

Community Questionnaire: Village Socio-economic Survey (Village leader)

Location Details			
Village: ကျေးရွာအမည်		Township: မြို့နယ်	
Village Tract: ကျေးရွာအုပ်စုအမည်		District: ခရိုင်	
State/Regionပြည်နယ်/တိုင်း		Coordinates: ကိုအော်ဒီနိတ်	
VTL Name		VTL Signature	

Village Level Primary Information

1.	Population လူဦးရေ	a. Total စုစုပေါင်း	b. Male ကျား	c. Female မ	
2.	Number of households အိမ်ထောင်စုဦးရေ				
3.	Ethnicity လူမျိုး	Ethnicity လူမျိုး	No. of HHs အိမ်ထောင်စုဦးရေ	Ethnicity လူမျိုး	No. of HHs အိမ်ထောင်စုဦးရေ
	a.	Bamar ဗမာ		b.	Rakhine ရခိုင်
	c.	Kachin ကချင်		d.	Shan ရှမ်း
	e.	Kayah ကယား		f.	Indian အိန္ဒိယ
	g.	Kayin ကရင်		h.	Chinese တရုတ်
	i.	Chin ချင်း		j.	Other (.....)
	k.	Mon မွန်		l.	Other (.....)
4.	When was the village founded? ရွာကိုမည်သည့်အချိန်တွင်တည်ထောင်သနည်း။				
5.	Are there any rivers cross the village? ရွာကို ဖြတ်စီးသွားသည့်မြစ်ရှိပါက ဖော်ပြရန်				
6.	How far is the river from your village habitation? (Name of river) ရွာနှင့်မြစ်အကွာအဝေး (မြစ်အမည်ဖော်ပြရန်)				
7.	Are there any instances of disaster in the village, please mention year? Can you remember how it affected the community? သင့်ရွာတွေ့ကြုံဖူးသော သဘာဝဘေးအန္တရာယ် ဖြစ်ပွားသောခုနှစ်။ ရွာကိုမည်သို့ထိခိုက်သနည်း။				

Livelihood စားဝတ်နေရေး

What do people do to support themselves?

8.	Number of people engaged in these sources of livelihood အလုပ်လုပ်ကိုင်မှု အခြေအနေ	Source of livelihood အဓိက စားဝတ်နေရေး အလုပ်	Number of HHs engaged အိမ်ထောင်စုပေါင်း	Primary Role of Man ¹ and Woman ² အမျိုးသား နှင့် အမျိုးသမီး ၂ တို့၏ အရေးပါမှု
	a.	Cultivator စိုက်ပျိုးရေး <input type="checkbox"/>		
	b.	Agricultural laborers လယ်စာရင်းငှား <input type="checkbox"/>		
	c.	Fishing ငါးဖမ်းခြင်း <input type="checkbox"/>		

		d. Business (SME, shop, trading etc.) <input type="checkbox"/> စီးပွားရေး (ဥပမာ-ဈေးဆိုင်၊ ကုန်သွယ်ရေး၊ စသဖြင့်)		
		e. Hunting တောလိုက်ခြင်း <input type="checkbox"/>		
		f. Making coal မီးသွေးဖုတ်ခြင်း <input type="checkbox"/>		
		g. Livestock rearing မွေးမြူရေး <input type="checkbox"/>		
		h. Casual Labour/ temporary work ကျဘန်း <input type="checkbox"/>		
		i. Other အခြား <input type="checkbox"/>		
		j. Government service အစိုးရဝန်ထမ်း <input type="checkbox"/>		
		k. Private companies ကိုယ်ပိုင်ကုမ္ပဏီ <input type="checkbox"/>		
		l. Money from relatives (remittance) ဆွေးမျိုးများမှ ထောက်ပံ့ခြင်း <input type="checkbox"/>		
Fishing ငါးဖမ်းခြင်း				
8	How do you classify the boats?			
	Type of Boats လှေအမျိုးအစား	Size (feet) အရွယ်အစား	Carrying Capacity သယ်ဆောင်နိုင်သောဦးရေ	Motor capacity မော်တာ (မြင်းကောင်ရေအား)
	Distance covered (in kms) သွားနိုင်သောအကွာအဝေး	Usually moves in Depth of (in mts.) သွားနိုင်သောရေ၏အနက်	Number of HHs အိမ်ထောင်စုပေါင်း	
	1)			
	2)			
	3)			
9	How many households in the village are full time fishermen and have no land ရွာတွင်မြေမရှိဘဲ အချိန်ပြည့်ငါးဖမ်းလုပ်ငန်းလုပ်သည့် အိမ်ထောင်စုပေါင်း			
10	How many families are fishermen and also have agricultural land ရွာတွင်မြေရှိပြီး ငါးဖမ်းလုပ်ငန်းလုပ်သည့် အိမ်ထောင်စုပေါင်း			
11	What are the main types of fish catch ဖမ်းမိရရှိနိုင်သည့် ငါးအမျိုးအစားများ			
	Type of Fish ငါးအမျိုးအစား	Specific season/ round the year ရာသီ	Big boat/ Medium Boat/ Small Boat (အသေး/အလတ်/အကြီး)	Distance from the river at which they are usually found မည်မျှဝေးဝေးသွားဖမ်းရပါသနည်း
	1.			
	2.			
	3.			
	4.			
	5.			
	6.			
	7.			
	8.			

12	What is the main market for selling fish? မည်သည့်ဈေးတွင်ပြန်လည်ရောင်းချပါသနည်း	1. Local (village) ဒေသတွင်း <input type="checkbox"/> 2. National နိုင်ငံတွင်း <input type="checkbox"/> 3. Export နိုင်ငံခြားသို့တင်ပို့ခြင်း <input type="checkbox"/>																											
13	What is the usual kind of fishing method? အသုံးပြုသည့် ငါးဖမ်းနည်းများ	1. Net Fishing ငါးဖမ်းပိတ် <input type="checkbox"/> 2. Line Fishing တန်းချ <input type="checkbox"/> 3. Other Fishing																											
Land																													
14	Do people engage in cultivation in this village? ရွာသားများအနေဖြင့် စိုက်ပျိုးရေးကို အခြေခံကြပါသလား	a. Yes, <input type="checkbox"/> b. No <input type="checkbox"/>																											
15	Do families own the land that they cultivate / farm? And if so, do they also live on the land? လယ်လုပ်သူမိသားစုများမှာ ထိုမြေကိုပိုင်ဆိုင်ပါသလား။ ပိုင်ဆိုင်ပါကထိုမြေပေါ်တွင်နေထိုင်ကြပါသလား။ If they don't own the land, who do they lease from and how is the system managed? အကယ်၍မပိုင်ဆိုင်ပါကမည်သူကငှားတို့ကိုငှားရမ်း၍လုပ်ခလစာမည်မျှရသနည်း။																												
16	If the answer to the previous question is yes, how many families are engaged in agriculture? စိုက်ပျိုးရေးလုပ်ငန်းအားအခြေခံ လုပ်ကိုင်ပါက လုပ်ကိုင်သည့် အိမ်ထောင်စုပေါင်း																												
17	What is the average land holding size per family in the village? (<i>mention in acres or any other unit but specify</i>) ပျမ်းမျှ မြေယာပိုင်ဆိုင်မှု (ဧက)																												
	Provide the approximate proportion of land under each category <i>Specify the utilization of the land according to its categorization. E.g. agriculture, housing, playground, recreational etc.</i>	<table border="1"> <thead> <tr> <th>i. Type of land အမျိုးအစား</th> <th>ii. Proportion မြေယာပိုင်ဆိုင်မှု အချိုး</th> <th>iii. Utilization အသုံးချမှု (သီးနှံအမည်/ ရောင်စုံရန်/ စားရန်)</th> </tr> </thead> <tbody> <tr> <td>a. LE (wet) လယ်</td> <td></td> <td></td> </tr> <tr> <td>b. Ya (dry) ယာ</td> <td></td> <td></td> </tr> <tr> <td>c. Kaing (cultivable waste land, island etc.) ကိုင်း</td> <td></td> <td></td> </tr> <tr> <td>d. Taungya (shifting cultivation) ရွှေ့ပြောင်း တောင်ယာ</td> <td></td> <td></td> </tr> <tr> <td>e. Garden ဥယျာဉ်ခြံမြေ</td> <td></td> <td></td> </tr> <tr> <td>f. Reserved forest ကြိုးဝိုင်းတော</td> <td></td> <td></td> </tr> <tr> <td>g. Current fallow ပလပ်မြေ</td> <td></td> <td></td> </tr> <tr> <td>h. Other (specify) အခြား</td> <td></td> <td></td> </tr> </tbody> </table>	i. Type of land အမျိုးအစား	ii. Proportion မြေယာပိုင်ဆိုင်မှု အချိုး	iii. Utilization အသုံးချမှု (သီးနှံအမည်/ ရောင်စုံရန်/ စားရန်)	a. LE (wet) လယ်			b. Ya (dry) ယာ			c. Kaing (cultivable waste land, island etc.) ကိုင်း			d. Taungya (shifting cultivation) ရွှေ့ပြောင်း တောင်ယာ			e. Garden ဥယျာဉ်ခြံမြေ			f. Reserved forest ကြိုးဝိုင်းတော			g. Current fallow ပလပ်မြေ			h. Other (specify) အခြား		
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18	Do people use any irrigation methods for their field? ရေသွင်းစိုက်ပျိုးမှုရှိပါက ရေသွင်းသည့်နည်းလမ်း																												

19	How many families use irrigation sources for their field? ရေသွင်းစိုက်ပျိုးသည့် အိမ်ထောင်စုအရေအတွက်																												
20	What percentage of the total agricultural land will be irrigated? ရာခိုင်နှုန်းမည်မျှ ရေသွင်းစိုက်ပျိုးပါသနည်း																												
Crops သီးနှံ																													
21	<p>Sample crops: Monsoon Paddy (မိုးစပါး) , Summer Paddy (နေ့စပါး) , Oil Seeds (ဆီထွက်သီးနှံ) , Peas (ပဲပင်) , Pulses (ပဲတောင့်) , Maize (ပြောင်း) , Wheat (ဂျုံ) , Potatoes (အာလူး) , Sweet Potato (ကန်စွန်းဥ) , Onion (ကြက်သွန်နီ) , Garlic (ကြက်သွန်ဖြူ) , Ginger (ဂျင်း) , Turmeric (နနွင်း) , Chili (ငြုပ်) , Fruits (သစ်သီးဝလံ) , Vegetables (ဟင်းသီးဟင်းရွက်) , Sugar cane (ကြံ) , Nippa Palm (အုန်းထန်းပင်) , Coconut (အုန်းပင်) , Betel nut/ leaf (ကွမ်း) , Toddy (ထန်းပင်).</p> <p>We should just stress on getting the important crops which are either important for the survival of the HHs or are important for the income it brings to the household. Please pick from the options mentioned above, if the community needs help.</p>																												
	What are the major crops grown in the village. အဓိကစိုက်ပျိုးသည့် သီးနှံ	1..... 2..... 3..... 4..... 5.....																											
Livestock မွေးမြူရေး																													
22	Number of households rearing these livestock (tick the appropriate option) မွေးမြူရေးဆောင်ရွက်သည့် အိမ်ထောင်စုအရေအတွက်	<table border="1"> <thead> <tr> <th>Type အမျိုးအစား</th> <th>Number of Households having the livestock holdings အိမ်ထောင်စုအရေအတွက်</th> <th>Main Use မွေးမြူခြင်းရည်ရွယ်ချက် Eat ¹/ Trade² (စားရန်/ရောင်းရန်)</th> </tr> </thead> <tbody> <tr> <td>Buffalo ကျွဲ</td> <td><input type="checkbox"/> _____</td> <td></td> </tr> <tr> <td>Goats/Sheep ဆိတ်/ သိုး</td> <td><input type="checkbox"/> _____</td> <td></td> </tr> <tr> <td>Horse မြင်း</td> <td><input type="checkbox"/> _____</td> <td></td> </tr> <tr> <td>Cattle နွား</td> <td><input type="checkbox"/> _____</td> <td></td> </tr> <tr> <td>Ducks ဘဲ</td> <td><input type="checkbox"/> _____</td> <td></td> </tr> <tr> <td>Chickens ကြက်</td> <td><input type="checkbox"/> _____</td> <td></td> </tr> <tr> <td>Pigs ဝက်</td> <td><input type="checkbox"/> _____</td> <td></td> </tr> <tr> <td>Others အခြား</td> <td><input type="checkbox"/> _____</td> <td></td> </tr> </tbody> </table>	Type အမျိုးအစား	Number of Households having the livestock holdings အိမ်ထောင်စုအရေအတွက်	Main Use မွေးမြူခြင်းရည်ရွယ်ချက် Eat ¹ / Trade ² (စားရန်/ရောင်းရန်)	Buffalo ကျွဲ	<input type="checkbox"/> _____		Goats/Sheep ဆိတ်/ သိုး	<input type="checkbox"/> _____		Horse မြင်း	<input type="checkbox"/> _____		Cattle နွား	<input type="checkbox"/> _____		Ducks ဘဲ	<input type="checkbox"/> _____		Chickens ကြက်	<input type="checkbox"/> _____		Pigs ဝက်	<input type="checkbox"/> _____		Others အခြား	<input type="checkbox"/> _____	
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23	How many households fall into these Annual Income Levels? တစ်နှစ်ဝင်ငွေ	<table border="1"> <thead> <tr> <th>Level of monthly income ဝင်ငွေ အဆင့်</th> <th>Number of HH falling under the categories အိမ်ထောင်စုအရေအတွက်</th> </tr> </thead> <tbody> <tr> <td>a. Less than 25,000 Kyats < ၂၅,၀၀၀ ကျပ်</td> <td></td> </tr> <tr> <td>b. 25-50,000 Kyats ၂၅,၀၀၀- ၅၀,၀၀၀ ကျပ်</td> <td></td> </tr> <tr> <td>c. 50-100,000 Kyats ၅၀,၀၀၀- ၁၀၀,၀၀၀ ကျပ်</td> <td></td> </tr> <tr> <td>d. 100,000-200,000 Kyats ၁၀၀,၀၀၀- ၂၀၀,၀၀၀ ကျပ်</td> <td></td> </tr> <tr> <td>e. 200,000-300,000 Kyats ၂၀၀,၀၀၀- ၃၀၀,၀၀၀ ကျပ်</td> <td></td> </tr> <tr> <td>f. More than 300,000 Kyats > ၃၀၀,၀၀၀ ကျပ်</td> <td></td> </tr> </tbody> </table>	Level of monthly income ဝင်ငွေ အဆင့်	Number of HH falling under the categories အိမ်ထောင်စုအရေအတွက်	a. Less than 25,000 Kyats < ၂၅,၀၀၀ ကျပ်		b. 25-50,000 Kyats ၂၅,၀၀၀- ၅၀,၀၀၀ ကျပ်		c. 50-100,000 Kyats ၅၀,၀၀၀- ၁၀၀,၀၀၀ ကျပ်		d. 100,000-200,000 Kyats ၁၀၀,၀၀၀- ၂၀၀,၀၀၀ ကျပ်		e. 200,000-300,000 Kyats ၂၀၀,၀၀၀- ၃၀၀,၀၀၀ ကျပ်		f. More than 300,000 Kyats > ၃၀၀,၀၀၀ ကျပ်														
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Village Infrastructure ကျေးရွာအခြေခံအဆောက်အအုံ																													
24	Distance to the following facilities (in time mile) အကွာအဝေးဖော်ပြရန်																												

	Infrastructure အခြေခံအဆောက်အအုံ	i. Facilities available ii. (Yes/ No) ရှိ/မရှိ ဖော်ပြရန်	iii. Distance from Village (in Minutes) အကွာအဝေး (မိနစ်ဖြင့်ဖော်ပြရန်)	iv. Preferred mode of Transport သယ်ယူပို့ဆောင်ရေး	Mode of Transport အသုံးပြုသည့်အမျိုးအစား
	Health Center ကျန်းမာရေးစင်တာ				1) Walking လမ်းလျှောက် 2) Bicycle, စက်ဘီး 3) Motor- cycle မော်တော်ဆိုက်ကယ် 4) Car ကား 5) Boat ဂေ
	Seed/grain bank မျိုးစေ့ဘဏ်				
	Cyclone shelter ဆိုင်ကလုန်း အဆောက်အအုံ				
	Hand pumps လက်နှိပ်ပန့်				
	Grocery shops ကုန်စုံဆိုင်				
	Chemist /Pharmacy ဆေးဆိုင်				
	Post office စာတိုက်				
	Bank ဘဏ်				
	Other (specify) အခြား.....				
25	Access to Road Facilities in the village (tick the appropriate) ရွာလမ်း	a. No Road (reaching all the way to the village); လမ်းမမရှိပါ b. Rough Track (Bullock Cart or Walking only); လမ်းလျှောက်ရန်/ နွားလှည်းနှင့်သွားရန် c. Accessible by trawlargee but not cars/trucks; ထော်လာဂျီနှင့်သာသွားရန် d. Accessible by car/ truck in dry weather only; နွေရာသီတွင်သာ ကား/ထရပ်ကားဖြင့်သွားရန် e. Accessible by car/truck in all-weather ရာသီတိုင်း ကား/ထရပ်ကားဖြင့်သွားရန်			
Availability, access and proximity to the education services ပညာရေး		i. Facility ပုံစံ	ii. Distance (km or mile) အကွာအဝေး (ကီလိုမီတာ/ မိုင်)	iii. Quality (Good ¹ /bad ² /no comments ³) အရည်အသွေး (ကောင်း/ညံ့/ မသိပါ)	
26	Operational Education System ပညာရေးစနစ်	a. Nursery နေ့ကလေးထိန်း			
		b. Primary မူလတန်း			
		c. Middle အလယ်တန်း			
		d. Secondary အထက်တန်း			
		e. University တက္ကသိုလ်			
		f. Vocational training institute သက်မွေးပညာသင်ကျောင်း			
		g. Religious School ဘုန်းတော်ကြီးပညာသင်			
27	Market (when and	a. Every day market နေ့စဉ်ဈေး			

	where) ဈေး (ဖွင့်ချိန် / နေရာ)	b. Weekly market (for basic provisions) တစ်ပတ်တစ်ခါဈေး		
		c. Monthly market (for trade) တစ်လတစ်ခါဈေး		
		d. Occasional market အခါအားလျော်စွာဖွင့်သည့်ဈေး		
28	Operational Health System ကျန်းမာရေးစနစ်	a. Town council မြို့နယ်ဆေးရုံ		
		b. Station hospital တိုင်းအဆင့်ဆေးရုံ		
		c. Rural health center ဆေးခန်း		
		d. Rural health Sub-center Rural health Sub-center (eg local mid-wife)ကျေးလက်ဆေးပေးခန်း (သားဖွားဆရာမ)		
		e. Village health committee ကျေးရွာကျန်းမာရေးဧကန်မတီ		
29	Credit Facility ချေးငွေဆိုင်ရာပုံစံ			
A	How do people borrow money? ငွေချေးနိုင်မှုအခြေအနေ	1. Family မိသားစု 2. Friends/ Neighbours သူငယ်ချင်း/ အိမ်နီးချင်း 3. Licensed creditor အမိန့်ရအပေါင်ဆိုင် 4. Bank ဘဏ် 5. Savings group ငွေစုအုပ်စု 6. Other (specify): အခြား _____		
B	What is the interest rate? အတိုးနှုန်း	<input type="checkbox"/> <input type="checkbox"/>% per (period ¹ ကာလ ^၁ : year ^၂ နှစ် ၂, month ^၃ လ ၃) <input type="checkbox"/> <input type="checkbox"/> No interest အတိုးမဲ့		
C	Why do people borrow money? ငွေချေးယူရသည့် အကြောင်းရင်း	1. Repairing/buying boats (လှေပြင်ရန်/ဝယ်ရန်) 2. Repairing or buying fishing equipment (ငါးဖမ်းပစ္စည်းဝယ်ရန်/ ပြင်ရန်) 3. Food (အစားအစာ) 4. Medical facilities (ဆေးဝါး) 5. For Marriage (လက်ထပ်ထိမ်းမြားရန်) 6. For house construction (အိမ်ဆောက်ရန်) 7. For Business (စီးပွားရေးလုပ်ရန်) 8. Others (education, land etc). အခြား (ပညာရေး /မြေဝယ်ရန်)		
30	Identify the five main health challenges in the village according to the following အဓိကရင်ဆိုင်ရသော ကျန်းမာရေးပြဿနာ ငါးမျိုးကိုဖော်ပြပေးပါ။	a. General b. အထွေထွေ	c. Especially among women အမျိုးသမီး	d. Especially among children ခလေး
		A. Diarrhoea ဝမ်းလျောခြင်း		
		B. Malaria ငှက်ဖျား		
		C. Respiratory tract infection (cold, cough etc) အအေးမိဖျားနာ		
		D. Cholera ကာလဝမ်းရောဂါ		
		E. Tuberculosis တီဘီအဆုန်နာ		
		F. HIV/AIDS		

		G. Guinea worm သံကောင်		
		H. Sexually transmitted infection ကာလသားရောဂါ		
		I. High blood pressure သွေးတိုး		
		J. Skin rash/itches အရေပြားရောဂါ		
		K. Other အခြား		
31	Access to Electricity လျှပ်စစ်ရရှိမှု	a. Type of electricity supply ရရှိသည့်အခြေခံ	b. No. of HHs utilizing အိမ်ထောင်စုအရေအတွက်	c. Power Consumption/day နေ့စဉ်သုံးစွဲသည့်ပမာဏ
		a. Government Electricity/ National Grid နိုင်ငံတော်		
		b. Electricity Organized by the Village ရပ်ရွာ အခြေခံ		
		c. Electricity by private/ commercial generator ဂျင်နရေတာ		
		d. Solar နေရောင်ခြည်စွမ်းအင်သုံး		
		e. No electricity လျှပ်စစ်မသုံးစွဲပါ		
32	Cooking fuel ချက်ပြုတ်သည့် လောင်စာ	What type of cooking fuel is used in the community? 1) Firewood 2) Charcoal 3) Electricity 4) Other ချက်ပြုတ်သည့်အခါတွင် မည့်ကဲ့သို့ သော လောင်စာအမျိုးအစားကို အသုံးပြုသနည်း။ ၁) ထင်း ၂) မီးသွေး ၃) လျှပ်စစ် ၄) အခြား		
Water Services ရေအရင်းအမြစ်				
33	Water sources ရေအရင်းအမြစ် Where do people get drinking water? သောက်ရေမည်ကရရှိပါသနည်း	a. River (မြစ်) b. Creek (ချောင်း) c. Pond (ရေကန်) d. Brick Well (အုတ်စီရေတွင်း) e. Hand –Dug Well (လက်ရက်တွင်း) f. Tube Well (Motor Pump) (ရေစုပ်စက်-မော်တာပန့်) g. Tube Well (Hand Pump) (တုံကင်) h. Spring Water (natural) (ပိုက်သွယ်တန်း-သဘာဝ) i. Spring Water (stored) (ပိုက်သွယ်တန်း- သိုလှောင်) j. Public Water Supply (အစိုးရရေပိုက်)		

	k. Rain Water Storage Tank (မိုးရေသိုလှောင်ကန်) l. Other အခြားဖော်ပြရန် (Specify).....			
	Option 1..... ပထမအခြေအနေ	Option 2..... ဒုတိယအခြေအနေ	Option 3..... တတိယအခြေအနေ	
a.	Distance from the village ရွာမှ အကွာအဝေး			
b.	Availability of water (In months)လစဉ်ရေ ရရှိမှုအခြေအနေ			
c.	Quality (Good/ Average/ Bad) အရည်အသွေး (ကောင်း/သင့်/ညံ့)			

34. Priority wise Key expectations for the village စီမံကိန်းနှင့် ပတ်သက်၍ ကျေးရွာအတွက် အဓိကကျပြီး ဦးစားပေးရမည့် မျှော်မှန်းချက်များ

	i. Men အမျိုးသား		ii. Women အမျိုးသမီး		iii. Youth လူငယ်
A		A		A	
B		B		B	
C		C		C	

Social Group Support

Try to understand the social networks in the village. Try to understand through a discussion on the existence of these groups, role they perform and then try to fill in the information in the table below.

Use these codes for the following one question:
Nature of support – 1. None II. Monetary III. Farming IV. House Construction V. Other (specify)

35	Type of Group အုပ်စုအမျိုးအစား	Number of Members အဖွဲ့ဝင်အရေအတွက်	Frequency of Meeting (In months) လစဉ်တွေ့ဆုံသည့် အကြိမ်အရေအတွက်	Nature of Support Received အထောက်အပံ့ရရှိမှု	Any contribution to group အခြား ကူညီထောက်ပံ့မှု
	a. Youth Group လူငယ်အုပ်စု				
	b. Fishing Group ငါးဖမ်းအုပ်စု				
	c. Farming Group လယ်သမားအုပ်စု				
	d. Hunter Group အမဲလိုက်အုပ်စု				
	e. Community Group ရပ်ကွက်အုပ်စု				
	f. Religious Group ဘာသာရေးအသင်း				
	g. Low Interest Micro Credit group အသေးစားငွေချေး				
	h. Other (specify) အခြားဖော်ပြရန်				

36	Does the village have some kind of fishing association or cooperative? ငါးလုပ်ငန်းဆိုင်ရာ	
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	အသင်း/အဖွဲ့အစည်းရှိပါသလား	
	How does the fishing association work? မည်သို့ဆောင်ရွက်လေ့ရှိသနည်း	

Non-governmental Organizations Operational in the community အစိုးရမဟုတ်သောအဖွဲ့အစည်းများဆောင်ရွက်ပေးမှု

Use these options for the following questions:

Nature of Work – Health, Sanitation, Education, Livelihood, Water supply, Micro-credit, Environment conservation, Other (specify),

Benefits Received – Technical training, Medical Supplies, Other Capacity Building, Credit Group Formation, Other (specify)

37	Are their NGOs or CSOs operational in the area? အစိုးရမဟုတ်သောအဖွဲ့အစည်းများနှင့် လူမှုရေးရာအဖွဲ့အစည်းများရှိပါသလား	a. Yes, b. No If the answer is <u>yes</u> , move to the next question, otherwise skip		
38	i. NGO name / CSO name အမည်	ii. Nature of Work လုပ်ငန်း	iii. Benefits Received အကျိုးကျေးဇူး	

Sacred sites, graves and heritage sites ထိန်းသိမ်းစောင့်ရှောက်ရမည့် နေရာ - ဂူ၊ ယဉ်ကျေးမှုဆိုင်ရာအမွေအနှစ်

39	i. Object အမည်	ii. Location's Name နေရာအမည်	iii. Distance from village (in mins or kms or mile) အကွာအဝေး (မိနစ်/ကီလိုမီတာ/မိုင်)	iv. Likely to fall within the Project area or not စီမံကိန်းဧရိယာတွင်းမှာပါဝင်မှုရှိ/မရှိ

Knowledge about the Project စီမံကိန်းနှင့် ပတ်သက်သည့်ဗဟုသုတ

40	Do you have any information regarding the proposed Project? စီမံကိန်းနှင့် ပတ်သက်၍သိရှိပါသလား	a. Yes, I know about the Project သိရှိပါသည် b. Yes, somewhat သိသလိုလိုရှိပါသည် c. No မသိရှိပါ d. No response ဘာမှမပြောလိုပါ		
41	If Yes, from where did you hear about the Project? သိပါက မည်သို့သိရှိခဲ့ပါသနည်း If No. how would like being communicated about the project? မသိဘူး ဆိုပါက မည်ကဲ့သို့ သောနည်းလမ်းများဖြင့်စီမံကိန်းအကြောင်းကို မိတ်ဆက်ပေးရန် လိုအပ်ပါသနည်း	a. Government Department (အစိုးရဌာနများ) b. Technical Surveyors (နည်းပညာအရတိုင်းထွာမှုများမှ) c. Newspapers (သတင်းစာများ) d. Neighbours (အိမ်နီးချင်းများ) e. Community Elders/ Traditional leaders ကျေးရွာခေါင်းဆောင်များ f. Direct Contact with the community member လူမှုရေးအဖွဲ့အစည်းအဖွဲ့ဝင်များမှ g. Radio ရေဒီယို h. Any Other(specify) အခြားရှိကတော်ပြရန်		

GRS Grievance redressal system

42	Information Disclosure system in the village. ရွာမှ သတင်းအချက်အလက်ဖြန့်ဝေမှုစနစ်။	
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	<p>a. How information made available to the community? To the community? ရွာလူထုမှ သတင်းအချက်အလက်ဘယ်လိုရလဲ။ Is it through community radio, Television, public address system, newspapers, notice, meetings in the community etc. ရေဒီယို၊ TV၊ သတင်းစာ၊----</p>	
43	<p>Grievance redressal system in the village ရွာမှာဆိုးရုံးနစ်နာမှု အတွက်ဘယ်လိုလုပ်ဆောင်ပေးလဲ။</p> <p>a. What kind of grievance situations arises for the community? ရွာမှာထိခိုက်မှုအမျိုးအစားဘယ်လိုရှိလဲ။</p> <p>b. How are these grievances settled? ဘယ်လိုဆောင်ရွက်ပေးလဲ။</p> <p>c. What is the role of village level institutions in addressing these grievances? နစ်နာချက်တွေကိုကိုင်တွယ်ဆောင်ရွက်တဲ့အခါ ရပ်ရွာတွေအဆင့်အခန်းကဏ္ဍကဘယ်လိုလဲ။</p>	
44	<p>What kinds of grievances are typically raised by the community? လူ့အဖွဲ့အစည်းတွေမှာဘယ်လိုမျိုးနစ်နာချက်တွေ ပေါ်ပေါက်လဲ။</p> <p>a. What is the role of the related department in handling these grievances? နစ်နာချက်တွေကိုဖြေရှင်းတဲ့အခါ နစ်နာချက်တွေကို သက်ဆိုင်ရာဌာနများမှ ဘယ်လိုလုပ်ဆောင်ပေးပါသလဲ။</p> <p>b. What is the role of the Client in handling the grievances? စီမံကိန်းပိုင်ရှင်မှ မည်သို့တာဝန်ယူဆောင်ရွက်ပေးသနည်း</p> <p>c. Are they handled in a similar fashion like the general grievances in the community? ရပ်ရွာတွေမှာအထွေထွေနစ်နာ ချက်တွေကိုဘယ်လိုလုပ်ဆောင်ပေးလဲ။</p>	
45	<p>General understanding of vulnerability in the village ရွာ၏ အထွေထွေ ထိခိုက်မှုရှိနိုင်မည့်သူများ</p> <p>a. What is the understanding of vulnerability in the village? ရွာမှာထိခိုက်နိုင်မှုရှိတဲ့လူတွေကိုဘယ်လိုခွဲခြားသိနိုင်လဲ။</p> <ul style="list-style-type: none"> • Poor ဆင်းရဲ • Disabled မသန်မစွမ်း • Old age အသက်ကြီးသူ • Widow မှဆိုးဖို/မှဆိုးမ <p>b. Why are they considered vulnerable by the community? ကျေးရွာအဖွဲ့အစည်းအနေဖြင့်ထိခိုက်မှုတွေကိုမည်သို့ စဉ်းစားပေးပါသနည်း</p> <p>c. What are the support systems (if any) to help these people? ရွာသူ/သားတွေကိုဘယ်လိုထောက်ပံ့မှုမျိုးလုပ်ဆောင်ပေးလဲ</p>	
46	<p>Previous experience of any project in the area. အရင်တုန်းကစီမံကိန်းများရှိခဲ့သလား။</p> <p>a. Are there past experiences of other projects in the area? Or engagement with other operators or large companies?</p> <p>b. ဤနေရာတွင် အခြားမည်သည့်ကုမ္ပဏီ(သို့) စီမံကိန်းများရှိပါသလား။</p> <p>c. Was there any issue with the community? ကျေးရွာအဖွဲ့အစည်းနဲ့ ပတ်သက်ပြီးအတွေ့ကြုံရှိလား။</p>	

Any Special observations from the village	
47	-

Farmers' Focus Group Discussion

Instructions to the Project Company Staff: Greet the respondent and please introduce yourself briefly to the respondent.

We are conducting a survey in the villages that may be affected by the Cement Plant project, which is being undertaken as a part of the Environmental Impact assessment (EIA) for the project. In order to understand the nature of impact of this project on assets in the area, we are undertaking a survey of some of the communities (villages/ Towns) that may get affected as a result of this project. Based on the results of this survey, a socio economic baseline would be created and impact assessment done for the project area. There are no rights or wrong answers. We only seek your responses and opinions regarding some of the issues. We assure that these details will be kept confidential. The interview might take 40 to 45 minutes. We seek your cooperation in this regard.

May we proceed? Thank you.

Enumerator Details:

Name:	1)	Contact Phone No:	1)	Signature:	1)
	2)		2)		2)
	3)		3)		3)
	4)		4)		4)
	5)		5)		5)

Date: (DD/MM/YY)

Location Details

Village:		Township:	
Village Tract:		District:	
State/Region		Coordinates:	

Name and Identification Number (by survey team)/...../...../...../.....

A.	Land Ownership farming and Renting practices				
1.	What is the average land holding size in the village?				
2.	Reason for such holding size in the village.				
3.	Can you please give the break-up of the land ownership in the village, according to the major social groups in the area?				
	Land size based categorisation	Buddhist	Christian	Muslim	Other
	Landless				
	Marginal				

	Small				
	Semi Medium				
	Medium				
	Large				
4.	Are women able to claim ownership of the land in the community? Especially once the male member in the family has faced sudden demise/ death?				
5.	How is the land availability in your village and nearby areas? Is the land buying and selling among the villagers common? Please mention the reasons for the same?				
6.	Who takes decision on the land purchase in the community?				
B	DEPENDENCE ON AGRICULTURE				
7.	Is farming the main economic activity in this settlement? As major form of subsistence or primarily for selling purposes or for both?				
8.	What are the main crops grown in the area				
9.	What are the major agriculture equipments that you primarily use for any kind of cultivation or farming activity? Are you easily able to source the equipments from the market or elsewhere? Why?				
C	CHANGING AGRICULTURE PRACTICES				
10.	Are people shifting from Agriculture? If yes what are the reasons?				
11.	Has there been change in the productivity? If yes, what has been the reason for such change?				
12.	Has there been a change in the form of agriculture undertaken in terms of crops produced, or techniques used? If yes, what has been the driver of such change?				
13.	Are the youths getting into agriculture? Please mention the reason for the same?				
D	DIVISION OF LABOUR				
14.	Do women also engage in farming like the men? Why? If yes, should they be promoted for taking up farming activities in the region?				

15.	What are the activities that women do in farming? What are the jobs that men do in farming?	
16.	Do children support the farming process? How? When (e.g. during school holidays)? What activities do they do? Do they help with the use of pesticides/herbicides?	
17.	What is the availability of labour and migrant opportunities?	
E	GOVERNMENT SCHEMES and NGO Presence	
18.	What are the various agricultural schemes of the government in the villages? How many farmers are availing these schemes? What kind of support has government provided you till date related to farming? Is there any present programme of the Agriculture department in which you are involved?	
19.	Does the Government run any kind of farming support programmes in the community? Do they have any field action programme in the community?	
20.	Are there any NGOs/ company CSR working in your area on the improvement of the farming practices? If yes, what are they working upon? Has it been useful for	
	you? Do you think extension of such services will help you improve farming activities?	
F	ACCESS TO CREDIT	
21.	Do the farmers usually take credit for farming or not? If yes, what is the purpose of such credit? Is the credit crop specific?	
22.	What is the typical amount of such loan? What are the sources of loan? What is the interest rate on the loan? What is the payment method for the repayment of such loans?	
G	COOPERATIVE SOCIETIES	
23.	Are there agriculture or Dairy Cooperative societies in the village?	
24.	Please mention and also mention the membership of these cooperative societies? What will be the percentage of women having membership to such societies?	
H	AGRICULTURAL LABOUR PRACTICES	

25.	Is it common to hire labour to help with the farming? If yes, are hired people local or do people travel seasonally? Which are the villages from which they usually come? Or they are from the same village? Is there a preference for men or women as labourers? If yes, reasons for the same	
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I.	Expenditure on Agriculture	Mention in Numbers
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26.	wage paid per male Labour per day	
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27.	Wage per women labour per day	
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28.	Total cost of per(Bigha/ Acre) of land on average for crop cycle	
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	Crop	Total Expenditure on Labour per crop Cycle	Expenditure on irrigation per crop cycle	Expenditure seed/ fertilizer/ Transportation
A				
B				
C				
D				
E				
F				
G				

J	LAND RENTING PRACTICES
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29.	Do the land renting practices occur in your community? If yes, what is the reason for the same.	
-----	---	--

30.	If user, what is the relationship of the user to the owner (tick the applicable options)	(1=Relative, 2= Not related/ other villager)
-----	--	--

31.	If agreement, terms of agreement (tick the applicable options)	1= Freely lend; 2= rent ; 3 = tenant farming ; 4= paid with part of the crop ; 5= Other agreement : precision.....
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32.	Duration of User agreement (tick the applicable options)	1. Agriculture Cycle 3. Specify, Other.....	2. One year
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M	MARKETING OF PRODUCE
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33.	How do you sell your farm produce? (Cash Crops)	1. At the farm 2. Local market in the town 3. Take by vehicle to the major town
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N	LIVESTOCK OWNERSHIP
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	a. Livestock	b. Number (or %) of HHs engaged	c. Average number of livestock heads	% of HHs using it for self-consumption	% of HHs using it for business
i.	Cattle (milk)				

ii.	Cattle (meat)				
iii.	Goats				
iv.	Pigs				
v.	Poultry				
vi.	Horses				
vii.	Other (specify)				
1.	Source of Fodder				
2.	Is managing fodder an issue in the community?				

O. CROP CYCLE PATTERN IN THE COMMUNITY					
35.	No. of Crop Cycles	1. 2. 3.	(Kindly tick mark the number of Crop cycles)		
	First cycle Crop	Crop 1	Crop 2	Crop 3	Crop 4
	Name of the crop				
	Month (From- to)				
	Sowing Period				
	Harvesting period				
	Grown on which kind of land				
	Crop grown in parallel				
	Selling %				
	Self-Consumption %				
	Second cycle Crop	Crop 1	Crop 2	Crop 3	Crop 4
	Name of the crop				
	Month (From- to)				
	Sowing Period				
	Harvesting period				
	Grown on (which kind of land)				

	Crop grown in parallel				
	Selling %				
	Self-Consumption %				
	Third Cycle Crop	Crop 1	Crop 2	Crop 3	Crop 4
	Name of the crop				
	Month (From- to)				
	Sowing Period				
	Harvesting period				
	Grown on (which kind of land)				
	Crop grown in parallel				
	Selling %				
	Self-Consumption %				

Women's Focus Group Discussion

Enumerator Details:					
<i>Name:</i>	1)	Contact Phone No:	1)	<i>Signature:</i>	1)
	2)		2)		2)
	3)		3)		3)
	4)		4)		4)
	5)		5)		5)
<i>Date: (DD/MM/YY)</i>					
Location Details					
<i>Village:</i>		<i>Township:</i>			
<i>Village Tract:</i>		<i>District:</i>			
<i>State/Region</i>		<i>Coordinates:</i>			

GENERAL

1.	How many women are there in the village? Women Voters in the village? How many widowed women in the village?	
2.	Are there any women headed households? If yes, how many in the village?	
3.	What role do women play in: - the community? - local leadership/politics?	
4.	What is the average daily schedule? What time does the day start and end? For a day, how much time do women spend in doing their mainwork? Do men help women with domestic chores?	

LEADERSHIP ROLES

5.	How many women are in leadership position in the community?	
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OWNERSHIP

6.	What are the ownership patterns in the village? What are the typical assets owned by women in the family (land, property, Jewellery etc.)	
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7.	Are the ownership rights for girl child defined? What right do newly-wed women have?	
SOCIAL STATUS		
8.	Do you think men and women are given equal opportunities?	
9.	What influence do women have in decisions made within the household? (e.g. marriage, children, other family issues)	
10.	If there is a dispute to resolve between a husband and wife, how is this resolved? Who helps resolve this?	
1sa 1.	Do girls access formal education? Until what level? How does it compare with boys? If there is a difference, why does it exist and what do you think about it?	
12.	What are the main problems faced by women/girls in general? What do you think the reason for this is?	
13.	How would you rate your quality of life (good, average, bad)? What do you like/dislike about your quality of life?	
14.	What wishes and hopes do you have for your daughters and their lives?	
15.	Are there any women's associations / groups? What do they do?	
ACCESS TO SERVICES		
16.	What are the main health problems faced by women in the community? <i>Ask the group to priorities the top three.</i>	
17.	Have there been any serious disease outbreaks in your community in the past year?	
18.	What are the main causes of death in your village? Why? What groups (<i>men, women, children</i>)?	
19.	Is smoking or drinking alcohol common within your village? If so, among which groups and what ages? How does it affect the women?	
20.	Where do you access your healthcare? What type of facility is it? (<i>Private, government, religious, traditional etc.</i>) How far is it from the village (miles)? Indicate distance and time taken to walk/travel.	

21.	Are you satisfied with the levels of healthcare available to you and your family? What are the main problems if any? (e.g. distance, long queues, opening hours, condition of hospital or clinic, medical supplies, costs)	
22.	Do you have to pay for healthcare? Which type of care do you pay for? Can you tell us the price that you have to pay for the diseases or treatment which you have to afford commonly?	
23.	Are there any health programmes in the area? If yes, which ones?	
24.	Are Sexually Transmitted Infections (STIs) common? Which ones are more common (e.g. syphilis, Hepatitis, HIV)?	
25.	What sexual health and family planning services are provided to women in the village?	
26.	How is knowledge regarding sexual health transferred to the younger generation?	
27.	How do you avoid getting pregnant? What are the modern/traditional ways?	
28.	What is the practice of birth delivery generally practised- Home based through traditional nurses or institutional delivery in the hospitals?	
LIVELIHOOD & INCOME		
29.	What are the income generating sources for women in the community? Which are the main economic activities undertaken by women?	Please describe the special roles of women.
	On the farm?	
	Fishing?	
	Firewood collection and selling?	
	Gathering of non-timber forest products?	
30.	How many women in the community are working in the formal sector? How many are working in various industries? What types of jobs?	

31.	Roughly, what is women's contribution to family income? Does it increase their status in the family or increase their say in the decisionmaking?	
32.	Are there households where men or other family members who migrate seasonally or annually for work? How does this impact on the family?	
33.	What significant changes have taken place in women's role since previous generations? Why? Will this change again in the future? Why?	
34.	What is the main problem faced by working women, especially in formal employment or informal employment?	
FARMING (AGRICULTURE, Livestock) (if farming community)		
35.	How many women in the village are engaged in farming? <ul style="list-style-type: none"> • % of HHs where women are engaged in farming. • % of HHs where women are engaged as paid farm workers 	
36.	<ul style="list-style-type: none"> • Do women have ownership over land? • What proportions of women in the village have their own lands? • Is the women ownership over land is more common in certain caste/sub groups? 	
37.	What is the role of women in various agricultural activities? <ul style="list-style-type: none"> • Land preparation • Buying of seeds and fertilizers • Sowing • Weeding • Harvesting • Winnowing and Packaging • Taking to the market for sale • Managing finance 	
38.	What are the normal working hours for women working in the field? <ul style="list-style-type: none"> • Own farm/ Benefits • Others farm / Benefits wages\ Are the wages equal for female agricultural worker? Are they separately paid or paid as a family?	

39.	Do children support the farming process? How? When (e.g. during school holidays)? What activities do they do? Do they help with the use of pesticides/herbicides?	
40.	What are the main crops grown & in what months?	
41.	What are the main livestock reared? What are the roles and responsibility of women in livestock rearing <ul style="list-style-type: none"> • Fodder collection • Buying and selling of cattle • Grazing • Shed management • Dung cakes preparation • Milking • Selling of milk or taking it to cooperatives • Vaccination and veterinary services- health management 	
42.	Is agricultural/farming produce used for self-consumption or selling in the market? What portion? Does this differ from crop to crop? Can you specify in terms of the crops that they grow?	
43.	Where are the fields located? Indicate distance and radius from the village. How far women farm workers have to travel for work? <ul style="list-style-type: none"> • Is the Farm labour work available throughout the year • Do you face competition with the migrant? 	
44.	What are the main challenges faced by women farmers in the village?	
FISHING (if fishing community)		
45.	Do the women engage in fishing in this community? How many women are involved in fishing? Or on an average how many families engage in fishing from a typical village or everybody does it?	
46.	Where do people in the village fish? Do people in other villages fish in the areas you fish? Are these rivers or seasonal streams or small water bodies with continuous water supply throughout the year?	

47.	What fish species are currently available? What size fish do you typically catch? How many fish do you catch?/ day ?	
48.	If fishing is done, are there specific seasons for the same or its year around practice?	
49.	Is fish sold for earning income? If yes, who is responsible for selling the fishes? Where is the fish sold- in the town, nearby town or in the market?	
50.	What proportion of an average catch is eaten by the fisherman's family and how much of it is sold out?	
51.	Will these fishing areas be affected because of the project Operations? Would there be substantial loss of income or source of livelihood for some of the families?	
SOCIAL STATUS AND EQUALITY		
52.	How do they compare with the aspirations of women – would women like to be more/less involved?	
53.	If there is a dispute to resolve between a husband and wife, how is this resolved? Who helps resolve this? Are women generally satisfied with the outcomes?	
54.	What are the main problems faced by women/girls in general? What do you think the reason for this is?	
QUALITY OF LIFE		
55.	How would you rate your quality of life (good, average, bad)? What do you like/dislike about your quality of life? Please explain (e.g. Access to Recreation, availability of personal time, and opportunity of engagement with other women in the village, access to Mobile etc., participation in cultural activities)	
PROJECT RELATED IMPACTS- perceptions on Industry, expectations and Concerns		
56.	What do you know about the proposed project	
57.	Do you anticipate any positive impacts from the project? Describe	
58.	Do you anticipate any negative impacts from the project? Describe	

59.	Do you have any ideas for mitigation / enhancement measures for the issues described above (project impacts / benefits), especially in relation to women?	
60.	Do you think that there will be any impact on your life owing to the following?	
	a) Forest as a source of resources like medicines, firewood, food, and other income generation sources	
	b) Traditional Forest	
	c) Religious sites (the ones you pray including graves, shrines, etc.)	
	d) Fishing sites	
	e) Agricultural land and related food insecurity	
	f) Availability of land	
	g) Pollution	
	h) Increased crime in the area	
	i) Increased influx of the people in the area	
	j) Market in the area	
	k) Increase in the food prices in the area	
	l) Any other traditional livelihood	
	m) Any other issue of significant concern for the women	

APPENDIX D NYDC'S COMPANY REGISTRATION CERTIFICATE



Myanmar Companies Online Registry - Company Extract

Company Name (English)

NEW YANGON DEVELOPMENT COMPANY LIMITED

Company Name (Myanmar)

-

Company Information

Registration Number	Registration Date	Status
114946508	12/12/2017	Registered
Company Type	Foreign Company	Small Company
Private Company Limited by Shares under the Special Company Act 1950	No	-
Principal Activity	Date of Last Annual Return	Previous Registration Number
-	-	1SC/2017-2018(YGN)

Addresses

Registered Office In Union	56 Chindwin Road Kamayut Township Yangon Region, Myanmar
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Officers

Name:	DAW HLAING MAW OO	Type:	Director
Date of Appointment:	20/06/2019	Date of Birth:	07/05/1958
Nationality:	Myanmar	N.R.C./Passport:	12/YAKANA(N)020880
Gender:	Female	Business Occupation:	Secretary, Yangon City Development Committee
Name:	MR. GEORGE YONG-BOON YEO	Type:	Director
Date of Appointment:	N/A	Date of Birth:	13/09/1954
Nationality:	Singapore	N.R.C./Passport:	E5784654J
Gender:	Male	Business Occupation:	Director
Name:	U SOE LWIN	Type:	Director
Date of Appointment:	20/06/2019	Date of Birth:	17/11/1953
Nationality:	Myanmar	N.R.C./Passport:	12/DAGANA(N)024566
Gender:	Male	Business Occupation:	Vice-Mayor, Yagon City Development Committee
Name:	U THEIM WAI (A.K.A MR. SERGE PUN)	Type:	Director
Date of Appointment:	N/A	Date of Birth:	08/05/1953
Nationality:	Myanmar	N.R.C./Passport:	12/MAGATA(N)084053
Gender:	Male	Business Occupation:	Director
Name:	U TUN MYAT	Type:	Director
Date of Appointment:	N/A	Date of Birth:	20/09/1942



Myanmar Companies Online Registry - Company Extract

Company Name (English)

NEW YANGON DEVELOPMENT COMPANY LIMITED

Company Name (Myanmar)

-

Nationality:	Myanmar	N.R.C./Passport:	12/KATATA(N)026265
Gender:	Male	Business Occupation:	Retired UN assistant secretary general

Ultimate Holding Company

Name of Ultimate Holding Company	Jurisdiction of Incorporation	Registration Number
Yangon Region Government	Myanmar	Established by the Constitution of the Republic of the Union of Myanmar (2008)

Share Capital Structure

Total Shares Issued by Company	Currency of Share Capital
1,000,000	MMK

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	1,000,000	10,000,000,000.00	0.00

Members

Name of Company:	YANGON CITY DEVELOPMENT COMMITTEE
Registration Number:	Established by the Yangon City Development Law (2013)
	Jurisdiction of Incorporation: Myanmar

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	1	10,000.00	0.00

Name of Company:	YANGON REGION GOVERNMENT
Registration Number:	Established by the Constitution of the Republic of the Union of Myanmar (2008)
	Jurisdiction of Incorporation: Myanmar

Class	Description	Total Number	Total Amount Paid	Total Amount Unpaid
ORD	Ordinary	999,999	9,999,990,000.00	0.00

Mortgages and Charges

Form / Filing Type	Effective Date
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No records available

Details about all mortgages and charges can be accessed from the Company Profile Filing History at no charge.

Filing History



Myanmar Companies Online Registry - Company Extract

Company Name (English)

NEW YANGON DEVELOPMENT COMPANY LIMITED

Company Name (Myanmar)

-

Form / Filing Type

D-1 | Particulars of directors and secretary

Effective Date

08/07/2019

B-4 | Application for re-registration of a private company limited by shares formed under the Special Company Act 1950

17/01/2019

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