SHWE TAUNG MINING COMPANY LIMITED

Red Clay Quarry

Biannual Environmental Monitoring Report

(10 February 2025 to 9 August 2025)

This page is a record of all revisions of this document. All previous issues are hereby superseded and are to be destroyed.

					-	
	August 2025	Bi-annual reporting to ECD		Hein Latt Environmental Manager	Head of HSE	Kyaw Naing Soe Deputy MD of STM
Rev	Date	Description	Code / Ref.	Prepared by	Checked by	Approved by

Table of Contents

၁ စီမံကိန်း မိတ်ဆက်

၁.၁ အကျဉ်းချုပ်အစီရင်ခံစာ

မြေနီ(စက်မှုတွင်းထွက်ကုန်ကြမ်း)အလတ်စား လုပ်ကွက်သည် မန္တလေးတိုင်းဒေသကြီး၊ သာစည်မြို့နယ်၊ ယင်းမာပင်ကျေးရွာ အုပ်စု၊ မဒါန်းဒေသတွင် တည်ရှိပါသည် (ပုံ - ၁)။ ရွှေတောင်သတ္တုတူးဖော်ရေးကုမ္ပဏီလီမိတက်မှ ဆောင်ရွက်သည့် မြေနီလုပ်ကွက်မှထွက်ရှိလာသော ကုန်ကြမ်းများအား ရွှေတောင်ဘိလပ်မြေစက်ရုံသို့ ထောက်ပံ့ပေးပါသည်။ ထို့ကြောင့် မြေနီလုပ်ကွက်သည် ရွှေတောင်ဘိလပ်မြေစက်ရုံနှင့် ဆက်စပ်နေသည့် လုပ်ငန်းတစ်ခုဖြစ်ပါသည်။

၂၀၂၂ ခုနှစ်၊ ဩဂုတ်လ (၁၀) ရက်နေ့တွင် ရွှေတောင်သတ္တုတူးဖော်ရေးကုမ္ပဏီလီမိတက်သည် သယံဇာတနှင့်သဘာဝပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနမှ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှုအစီအစဉ်ကို အတည်ပြုချက် ရရှိခဲ့ပါသည်။ မြေနီ (စက်မှု တွင်းထွက်ကုန်ကြမ်း) အသေးစားလုပ်ကွက်သည် ၂၀၁၉ ခုနှစ်၊ မေလ (၃၁) ရက်နေ့တွင် ခွင့်ပြုမိန့် သက်တမ်းကုန်ဆုံးသွားသည့်အတွက် ၂၀၂၂ ခုနှစ်၊ အောက်တိုဘာလ (၆) ရက်နေ့တွင် သယံဇာတနှင့်သဘာဝ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဝန်ကြီးဌာနမှ မြေနီ (စက်မှုတွင်းထွက်ကုန်ကြမ်း) အလတ်စား ထုတ်လုပ်မှုလုပ်ငန်းအတွက် ခွင့်ပြုမိန့် ရရှိခဲ့ပါသည်။ မြေနီ (စက်မှုတွင်းထွက် ကုန်ကြမ်း) အလတ်စားလုပ်ကွက်အား ၂၀၂၃ ခုနှစ်၊ ဧပြီလတွင် စတင် ဆောင်ရွက်ခဲ့ပါသည်။ ထို့ကြောင့် ရွှေတောင်သတ္တုတူးဖော်ရေးကုမ္ပဏီလီမိတက်သည် ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဦးစီးဌာန၏ လုပ်ငန်းစဉ်များ၊ ပတ်ဝန်းကျင်ထိန်းသိမ်းရေးဥပဒေနှင့် နည်းဥပဒေများ၊ ပတ်ဝန်းကျင်စီမံခန့်ခွဲမှု အစီအစဉ်များကို လိုက်နာဆောင်ရွက်လျက်ရှိပြီး ယခုအခါတွင် **၂၀၂၅ ခုနှစ်၊ ဖေဖော်ဝါရီလ ၁၀ ရက်နေ့မှ ၂၀၂၅ ခုနှစ်၊ ဩဂုတ်လ ၉ ရက်နေ့အထိ** ပတ်ဝန်းကျင် စောင့်ကြပ်ကြည့်ရှုမှု အစီရင်ခံစာကို တင်ပြခြင်းဖြစ်ပါသည်။

1. Introduction

1.1 Executive Summary

The Red Clay quarry is located at Madan area, Yin Mar Pin Tract, Thazi Township, Mandalay Region as shown in (Figure 1). The Red Clay quarry is operated by Shwe Taung Mining (STM), subsidiary of Shwe Taung Cement (STC) which supply raw materials exclusively to the STC cement plant. The Red Clay quarry of STM are thus considered as associated facilities of the STC cement plant.

Shwe Taung Mining (STM) Co., Ltd. received the approval letter of Environmental Management Plan (EMP) from Environmental Conservation Department (ECD), Ministry of Natural Resources and Environmental Conservation (MONREC) for the project of the Red clay Quarry EMP report on 30th August 2022. However, the Red Clay Extraction (Small Scale) License was expired on 31st May 2019 and received the license renewal with Medium Scale Extraction from MONREC on 6th October 2022. The extraction of red clay started in April 2023. STM conducted environmental monitoring program in line with Environmental Management Plan and comply Environmental Conservation Law and Rules, the Procedure of ECD and submit this biannual environmental monitoring report from **10th February 2025 to 9th August 2025.**

1.2 Purpose of Environmental Monitoring

Monitoring is a means of verifying the effectiveness of the management and mitigation measures contained within the management plans listed in STM Red Clay EMP report.

1) The Environmental /Executives from HSE department of STM shall do the following:
   - Monitor and implement this ESMP at site;
   - Conduct Environmental monthly inspection checklist audit;
   - Monitor laboratory personnel while conducting their water sampling and testing method;
   - Assist and monitor the implementation of Waste Management; and
   - Monitor and review the air emission test result for compliance recommendation.
2) All inspection checklist audit finding that needs rectification shall be recorded in Environmental and Social tracker and will be assigned by Environmental Manager to concerned department head for rectification.
3) All water, effluent and air emission test results will be compiled for review and analyses by the Environmental Manager and approved by Head of HSE Department.
4) All generated waste according to their classification and final disposal will be entered to waste management matrix for monthly report.
5) The Environmental Executive will be implementing and monitoring within the project area, new infestation and according to BAP.

1.3 Health, Social and Environment (HSE) Department

Shwe Taung Cement Co., Ltd. established HSE Department and responsibility of HSE Department are as follows.

1) Implementation of Environmental Management Plans of approved EIA report of STM Red Clay Quarry, Comply Rules and Regulations of Environmental Conservation, report Environmental Monitoring
2) Supervise third party stakeholders, contractors and other organizations for environmental monitoring program
3) Monitoring environmental impact and report the relevant documents
4) Promote the ability of employees by conducting knowledge sharing training and awareness on environmental conservation.

2. Environmental Performance Indicators and Monitoring Schedule

Physical, biological and social environmental management components of particular significance have been identified as performance indicators. A comprehensive monitoring plan for each performance indicator has been prepared for all phases of the Project, presented in Table 1.

This includes the parameters to be measured, methods to be utilized, sampling locations, frequency of measurements, detection limits and responsibilities for implementation and supervision.

Impact monitoring will be undertaken during the life of the Project to verify the predicted levels of residual impacts from the Project and the effectiveness of the various management plans and mitigation measures.

Shwe Taung Mining Co., Ltd. will prepare an environmental monitoring report and submit it to the Ministry of Natural Resources and Environmental Conservation, MONREC every six months as per the EIA Procedure requirements.

Table – 1: Environmental Monitoring Program

Project Stage/ Component	Potential Impact	Parameters to be Monitored	Location	Measurements	Frequency	Responsibility
Operation / Red Clay Quarry	Inspection of mitigation compliance	General compliance with mitigation measures presented in the ESMP.	Project activity areas	Visual inspection of all active work areas and inspection of records	Monthly	STC HSE Department
Operation / Red Clay Quarry	Air Impacts	Carbon Monoxide, Nitrogen Dioxide, Hydrogen Sulphide(H2S), PM10, PM2.5, Sulfur dioxide (SO2), Oxygen (O2),	Yay Aye Village (for community health), 3 locations within Quarry Site when operation begin (for occupational health)	Standard analytical methods	Twice per year	STC HSE Department
Operation / Red Clay Quarry	Stream Water	pH, Total Dissolved Solids (TDS), Suspended Solids, Total Hardness, Total Alkalinity, Dissolved Solid, Chloride (as CL), Sulphate (SO4), Iron (Fe), Cyanide (CN), Arsenic (As), Ni, Cr, Cu, Pb, Zn	Sampling at: 1. Madan Stream, 2. Yay Aye Stream	Standard analytical methods	Twice per year	STC HSE Department
Operation / Red Clay Quarry	Effluent Water	pH, Total Dissolved Solids (TDS), Suspended Solids, Total Hardness, Total Alkalinity, Dissolved Solid, Chloride (as CL), Sulphate (SO4), Iron (Fe), Cyanide (CN), Arsenic (As), Ni, Cr, Cu, Pb, Zn	Sedimentation Pond at quarry site	Standard analytical methods	Twice per year	STC HSE Department

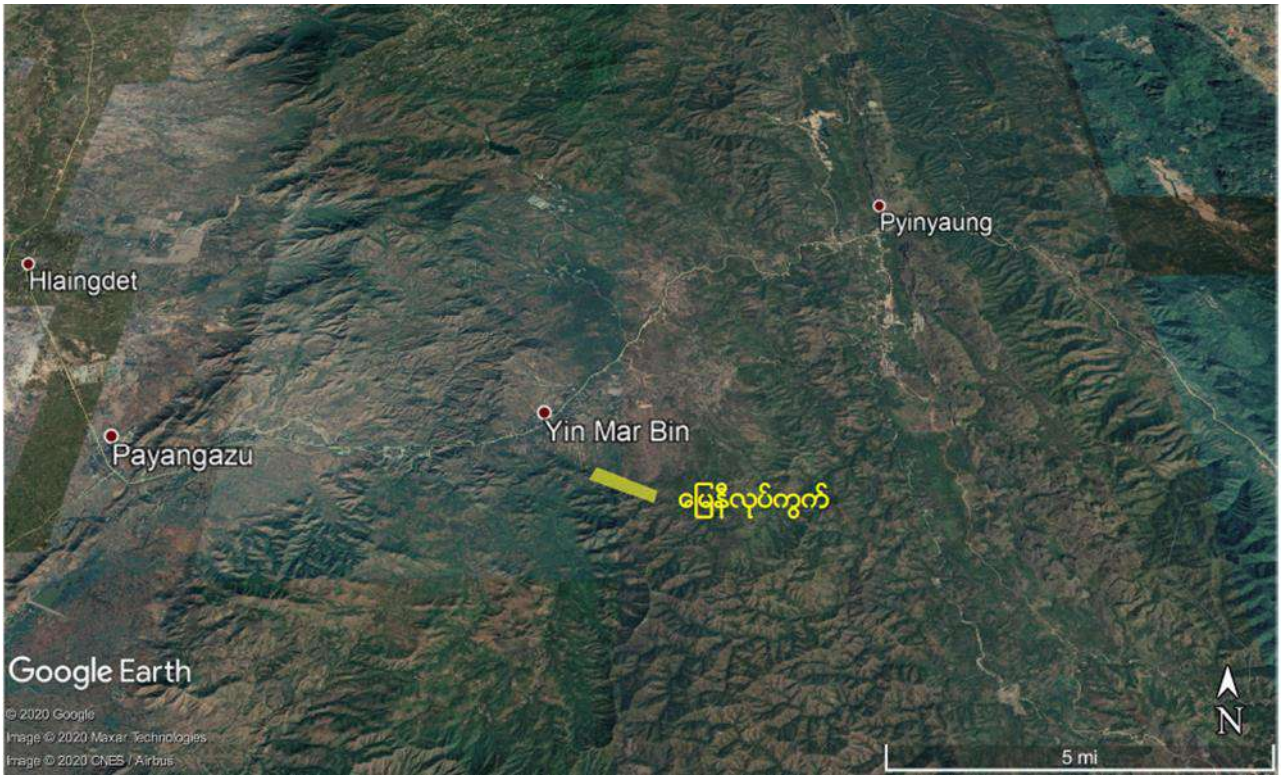
Project Stage/ Component	Potential Impact	Parameters to be Monitored	Location	Measurements	Frequency	Responsibility
Operation / Red Clay Quarry	Noise and Vibration	Check compliance with noise levels specified in Myanmar National Environmental Quality (Emission) Guidelines (2015) for noise.		Standard analytical methods	Twice per year	STC HSE Department
Operation / Red Clay Quarry	Soil Quality	SiO2, Fe2O3, Al2O3, Cu, Pb, Zn (mg/kg)	3 locations within Quarry Site when operation begin (Topsoil, Open Pit & Tailing Soil) (for occupational health)	Standard analytical methods	Twice per year	STC HSE Department
Operation / Red Clay Quarry	Waste Management	Fuel Storage, Waste Bins, Any Spill, Fire Prevention	Fuel Storage area and waste bins when operation begin	Visual inspection of all active work areas and inspection of records	Weekly	STC HSE Department
Operation / Red Clay Quarry	Biodiversity	Ecosystem Restoration Plantation, Floral Survey, Invasive Species Survey	Within Quarry area	Visual inspection of all active work areas and inspection of records	Twice per year	STC HSE Department

3. Project Information

3.1 Project Location

The 140 acres red clay quarry is located south east of the Yin Mar Pin village. An operating agreement for small-scale production of mineral was signed on 19th February 2019 with No. (1) Mining Enterprise of the Ministry of Natural Resources and Environmental Conservation (MONREC) and ended on 31st may 2019. New medium-scale production of mineral was signed on 6th October 2022 with No. (1) Mining Enterprise of the Ministry of Natural Resources and Environmental Conservation (MONREC) with 10 years extraction period.

Figure – 1: Location of Red clay Quarry



3.2 Project Description

Red Clay extraction is currently undertaken by open excavation approximately 700 m above sea level to provide raw material for the existing STC cement plant. The extracted red clay is transported by truck to the cement plant, which requires 25,000 tons of red clay per annum to meet the current production capacity.

During the reporting period of 10th February 2025 to 9th August 2025, there was no operation of red clay quarry.

4. Environmental Monitoring Program

4.1 Air Quality Monitoring

4.1.1 Dust Deposition Monitoring

Although dust deposition monitoring was not initially included in the Environmental Management Plan (EMP) for the Red Clay Quarry, STM conducted monitoring at two key locations—Yay Aye Village and Madan Village. This initiative aimed to assess and mitigate dust emissions from the Red Clay Quarry, surrounding areas and access roads. The monitoring was undertaken to ensure compliance with environmental standards and to minimize potential impacts on nearby communities. The results of the dust deposition monitoring conducted from February 2025 to August 2025 are presented in Table 2.

4.1.1.1 Location of Dust Deposition Monitoring

STM conducted the monthly monitoring for dust deposition near the red clay area. Figure 2 show the location of monthly Dust Monitoring near the red clay area.

Figure – 2: Location of Dust Deposition Monitoring

No	Monitoring Location	Latitude	Longitude
1	Madan Village (U Nyein's Home)	20°46'21.02"N	96°20'39.51"E
2	Yay Aye Village (U Soe Tint's Home)	20°45'56.50"N	96°20'26.86"E

4.1.1.2 Monitoring Result for Dust Deposition

Table – 2: Summary of Dust Deposition for Red Clay

Samplers: Nay Hlaing Oo		**Test Result**					
Place	**Australia & New Zealand Guideline (g/m2/Day)**	**10 Feb to 9 Mar 2025**	**10 Mar to 9 Apr 2025**	**10 Apr to 9 May 2025**	**10 May to 9 Jun 2025**	**10 Jun to 9 Jul 2025**	**10 Jul to 9 Aug 2025**
Madan Village (U Nyein' Home)	1.191	0.45	0.26	0.65	0.21	0.03	0.07
Yay Aye Village (U Soe Tint's Home)		0.16	0.50	0.51	Can't test	0.14	0.06

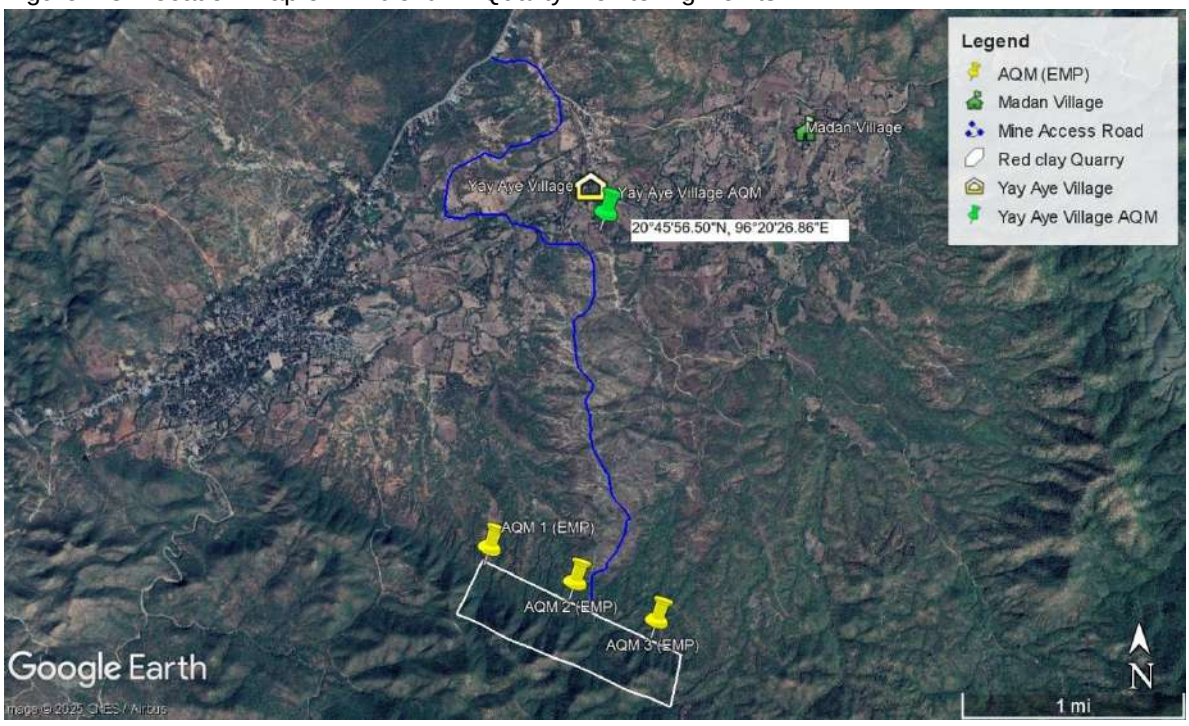
4.1.2 Ambient Air Monitoring

The Ambient Air Quality Monitoring (AQM) is crucial to evaluate the potential impact of quarry operations on the surrounding air quality and to ensure compliance with national and international air quality standards. Key pollutants such as particulate matter (PM10 and PM2.5), nitrogen dioxide (NO2), sulfur dioxide (SO2), carbon monoxide (CO), and other relevant parameters were systematically measured using advanced monitoring equipment. The data collected not only provides insights into the current air quality status but also informs the development of effective mitigation strategies to protect the environment and public health.

4.1.2.1 Location of Ambient Air Monitoring

The Environmental Management Plan (EMP) for the Red Clay Quarry includes air quality monitoring at three sampling points within the quarry to assess occupational health risks and at a surrounding village to evaluate potential community health impacts. As extraction activities have not yet commenced, HSE Department has been conducting air quality monitoring only at Yay Aye Village, the nearest location to potential receptors that could be affected. STM plans to expand monitoring to one of the designated locations within the quarry site, as specified in the EMP, once extraction activities commence. Figure 3 illustrates the monitoring locations for ambient air quality.

Figure – 3: Location Map of Ambient Air Quality Monitoring Points



No.	Monitoring Location		Latitude	Longitude	Remark
1	Monitoring Locations within Quarry Site (for occupational health)	AQM 1 in EMP	20°44'35.69"N	96°19'56.84"E	Will monitor when operation begin
2		AQM 2 in EMP	20°44'27.44"N	96°20'18.85"E	
3		AQM 3 in EMP	20°44'18.19"N	96°20'39.86"E	
4	Surrounding village (for community health)	Yay Aye Village	20°45'56.50"N	96°20'26.86"E	Monthly monitor

4.1.2.2 Ambient Air Monitoring Method

The portable HAZ-SCANNER™ EPAS wireless environmental perimeter air station is easily deployed as an ambient air quality monitor to measure and document critical U.S. EPA criteria pollutants including nitrogen dioxide, sulfur dioxide, ozone, carbon dioxide, particulates, and more. The EPAS provides direct readings in real time with data logging capabilities. (Detailed results are shown in Appendix-B.)

Web link: https://www.skcinc.com/catalog/pdf/instructions/EPAS%20manual%20v.3.1.pdf

4.1.2.3 Monitoring Result for Ambient Air Quality Monitoring

Table – 3: Summary of Ambient Air Quality Monitoring at Yay Aye village

Ambient Air Monitoring by Haz-scanner								
Machine Name: Haz-scanner (EPAS)			**Operator:** Nay Hlaing Oo					
			Location: Yay Aye Village (U Soe Tint's Home)					
	ECD/ WHO / IFC Guideline		**Test Result**					
Parameter	**Ave Period**	**Guideline Value in µg/m3**	**10 Feb to 9 Mar 2025**	**10 Mar to 9 Apr 2025**	**10 Apr to 9 May 2025**	**10 May to 9 Jun 2025**	**10 Jun to 9 Jul 2025**	**10 Jul to 9 Aug 2025**
Nitrogen dioxide	24 hours	200	62.09	60.89	85.27	Can't Monitor due to heavy rainfall	78.11	Sent to Nanova Co., Ltd for Calibration
Ozone		100	29.30	31.87	33.44		70.24	
PM10		50	**67.27**	**115.59**	42.64		6.35	
PM2.5		25	8.80	8.74	8.75		3.44	
Sulphur dioxide		20	3.77	**79.18**	**51.82**		**22.71**	
Carbon dioxide		ppm	79.81	29.75	37.93		176.38	
Carbon monoxide		10 ppm	0.17	0.60	0.21		0.11	
Remark: As there was no available baseline data for ambient air quality monitoring, STM used the Environmental Quality (Emission) Guidelines (EQEG) as the reference standard.								

4.1.3 Evaluation

The ambient air monitoring results indicate that while most parameters remained within guideline values, PM_{10} and SO_2 frequently exceeded their respective limits during the dry season months. PM_{10} levels peaked in February and March, primarily due to dry weather conditions, unpaved road traffic, and wind-blown dust, which are typical during the pre-monsoon period. Similarly, SO_2 concentrations surpassed the limit in March, April, and June, likely influenced by increased combustion sources such as forest fire or waste burning in the area. These exceedances highlight the need for seasonal dust suppression measures and stricter control of burning activities to maintain air quality within acceptable standards.

4.2 Water Quality Monitoring

Water quality monitoring is essential to ensure that quarry operations do not adversely impact local water resources. Regular monitoring is conducted in compliance with environmental regulations and standards to detect any potential contaminants and to assess the effectiveness of mitigation measures implemented on-site. The findings will support STM's commitment to sustainable operations and the protection of surrounding ecosystems and communities. (Detailed results are shown in Appendix-C.)

4.2.1 Location of Water Quality Monitoring

The Environmental Management Plan (EMP) for the Red Clay Quarry requires biannual water quality monitoring at sedimentation ponds, general operation water ponds, and two stream water sampling points near the work site. However, assessments indicated that there were no receptors in the area that could potentially be affected. Since extraction activities have not yet commenced, sedimentation ponds and general operation water ponds are not yet in place. In accordance with the Environmental Compliance Certificate, STM has relocated the monitoring sites to the nearest potential receptor locations anticipated to be impacted during future operations.

Monthly monitoring is conducted at these sites for baseline data collection. Parameters measured include pH, color, turbidity, calcium hardness, chloride (Cl), sulfate, total suspended solids (TSS), and nitrate, in accordance with WHO Drinking Water Guidelines and IFC Effluent Water Guidelines. Figure 4 compares the original EMP locations with the current monitoring sites. STM will commence monitoring of sedimentation ponds and general operation water ponds once extraction activities begin.

Figure – 4: Location Map of Water Quality Monitoring Around Red Clay Quarry

No	Location		Latitude	Longitude
1	Monitoring Locations in EMP	Yay Aye Stream Water in EMP	20°43'38.31"N	96°19'26.45"E
2		Madan Stream Water in EMP	20°43'44.46"N	96°21'14.97"E
3	Actual Monitoring Locations	Yay Aye Village (Tagondaing Stream)	20°46'9.44"N	96°20'23.10"E
4		Madan Village (Tagondaing Stream)	20°46'11.85"N	96°21'7.63"E

4.2.2 Monitoring Results for Water Quality

Table – 4: Monitoring Result of Stream Water Quality at Yay Aye village

Stream Water Analysis Yay Aye Village (Tagondaing Stream)								
Parameter	**WHO Drinking Water Guideline**	**Baseline Results**	**10 Feb to 9 Mar 2025**	**10 Mar to 9 Apr 2025**	**10 Apr to 9 May 2025**	**10 May to 9 Jun 2025**	**10 Jun to 9 Jul 2025**	**10 Jul to 9 Aug 2025**
pH	6.5 – 8.5	7.9	7.3	8	8.1	7.8	7.3	**8.6**
Color	15 PCU	-	0	25	10	**125**	**230**	-
Turbidity	5 NTU	-	1.29	0.48	1.83	**50**	**50**	-
Calcium hardness (CaCO3)	500 mg/l	213	*	*	*	*	*	-
Chloride (Cl)	250 mg/l	3.5	*	*	*	*	*	15
Sulphate (SO4)	200 mg/l	21	20	20	20	*	*	12
TSS	50 mg/l	25	1	3	1	**380**	**357**	20
Nitrate	50 mg/l	-	8.3	6.7	7.8	6.5	7.2	-
Remark: According to the current situation in Myanmar, there is an issue to buy some chemical reagent to analyze some water quality parameters. Therefore, we express as "*" for "No stock of chemical reagents".								

Table – 5: Monitoring Result of Stream Water Quality at Madan village

Stream Water Analysis Madan Village (Tagondaing Stream)								
Parameter	**WHO Drinking Water Guideline**	**Baseline Results**	**10 Feb to 9 Mar 2025**	**10 Mar to 9 Apr 2025**	**10 Apr to 9 May 2025**	**10 May to 9 Jun 2025**	**10 Jun to 9 Jul 2025**	**10 Jul to 9 Aug 2025**
pH	6.5 – 8.5	7.8	No Water	No Water	No Water	7.5	7.4	**8.6**
Color	15 PCU	-				**140**	**200**	-
Turbidity	5 NTU	-				**50**	**50**	-
Calcium hardness (CaCO3)	500 mg/l	210				*	*	-
Chloride (Cl)	250 mg/l	4				*	*	17
Sulphate (SO4)	200 mg/l	18				*	*	10
TSS	50 mg/l	22				**195**	**608**	35
Nitrate	50 mg/l	-				5.4	5	-
Remark: According to the current situation in Myanmar, there is an issue to buy some chemical reagent to analyze some water quality parameters. Therefore, we express as "*" for "No stock of chemical reagents".								

4.2.3 Evaluation

Due to the limitations of STM's laboratory, it was not possible to analyze the full set of water quality parameters specified in the Environmental Management Plan (EMP). However, STM has been conducting monthly analyses of basic water quality parameters. The consistently high color, turbidity, and TSS values are likely due to seasonal rainfall and surface runoff, which cause soil erosion and sediment inflow. To ensure comprehensive assessment and compliance with the EMP, STM has sent Yay Aye and Madan Stream water samples to an external laboratory for full parameter analysis and the results are attached in Appendix-C3 and C4.

4.3 Noise Monitoring

The nearest representative noise sensitive receptors (NSRs) that may potentially affect by the noise impact due to the Project is identified as Yay Aye village. STC operate noise monitoring twice a year and result is shown in Table – 6 below:

4.3.1 Location of Noise Monitoring Point

The Environmental Management Plan (EMP) for the Red Clay Quarry includes noise monitoring at three sampling points within the quarry to assess occupational health risks and at a surrounding village to evaluate potential community health impacts. As extraction activities have not yet commenced, STM has been conducting noise monitoring within the quarry site, as specified in the EMP. Figure 5 illustrates the monitoring locations for noise.

Figure – 5: Noise Quality Sampling Points

No.	Monitoring Location		Latitude	Longitude
1	Monitoring Locations within Quarry Site (for occupational health)	Noise 1 in EMP	20°44'35.69"N	96°19'56.84"E
2		Noise 2 in EMP	20°44'27.44"N	96°20'18.85"E
3		Noise 3 in EMP	20°44'18.19"N	96°20'39.86"E

4.3.2 Monitoring Result for Noise

Table – 6: Noise Monitoring Results in Yay Aye Village

Noise Monitoring Results							
Machine Name: KIMO DB 200			Operator: Nay Hlaing Oo				
Location	Real Time Results dB(A)		NEQEG and IFC Noise Level Guideline, dB(A)		Baseline Noise Levels, dB(A) At Quarry site		Remark
	Day	Night	Day	Night	Day	Night	
Noise 1	43.4	-	55	45	38	-	Residential Area
Noise 2	38.2	-					
Noise 3	45.4	-					

4.3.3 Evaluation

STM requires noise to be analyzed twice per year. To ensure a comprehensive assessment and compliance with the EMP, STM has measured real time noise data in designated locations within the quarry

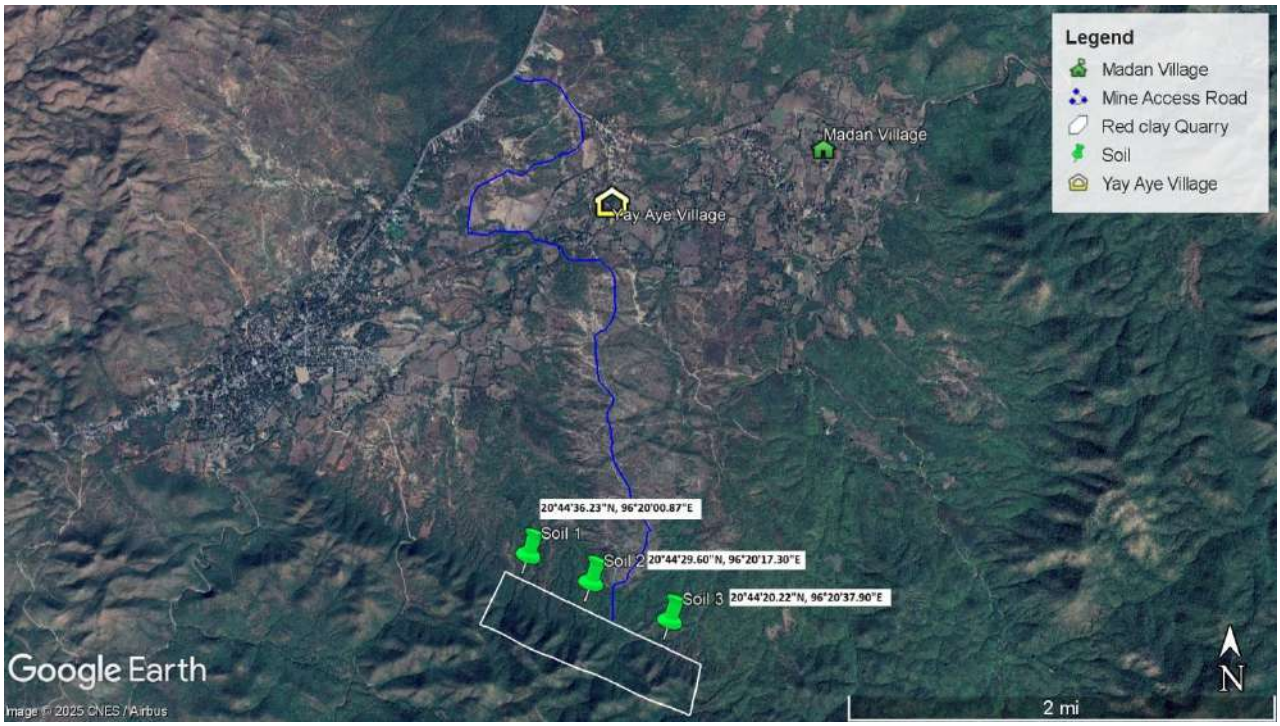
site as specified in the EMP. The daytime noise levels recorded at all three monitoring points near the quarry site are within the NEQEG and IFC daytime noise guideline of 55 dB(A).

4.4 Soil Quality Monitoring

To ensure a comprehensive assessment and compliance with the EMP, STM collected three soil samples within the quarry and sent to an external laboratory for full parameter analysis as specified in the EMP. Figure 6 illustrates the monitoring locations for soil quality.

4.4.1 Location of Soil Monitoring Point

Figure – 6: Location of Soil Quality Monitoring



No.	Monitoring Location		Latitude	Longitude
1	Monitoring Locations in EMP	Soil Quality Monitoring 1 in EMP	20°44'36.23"N	96°20'00.87"E
2		Soil Quality Monitoring 2 in EMP	20°44'29.60"N	96°20'17.30"E
3		Soil Quality Monitoring 3 in EMP	20°44'20.22"N	96°20'37.90"E

4.4.2 Monitoring Result for Soil

Table- 7: Soil Monitoring Results in Red Clay Quarry

Parameter	Unit	FAO Soil Bulletin 65 & Dutch Standard	Sample 1		Sample 2		Sample 3	
			Baseline	Test Result	Baseline	Test Result	Baseline	Test Result
Moisture	%	-	-	10.85	-	11.05	-	10.15
SiO_2	%	-	25.07	62.53	48.02	70.00	30.15	64.50
Fe_2O_3	%	-	19.18	9.43	36.01	6.72	15.11	7.36
Al_2O_3	%	-	18.25	13.25	28.16	13.66	22.04	13.04
Copper (Cu)	ppm	20-300	8.28	1.352	13.71	1.092	10.01	1.022
Lead (Pb)	ppm	85	17.16	3.34	20.14	2.16	18.12	3.96
Zinc (Zn)	ppm	15-150	15.07	0.7724	19.85	0.561	12.3	0.825

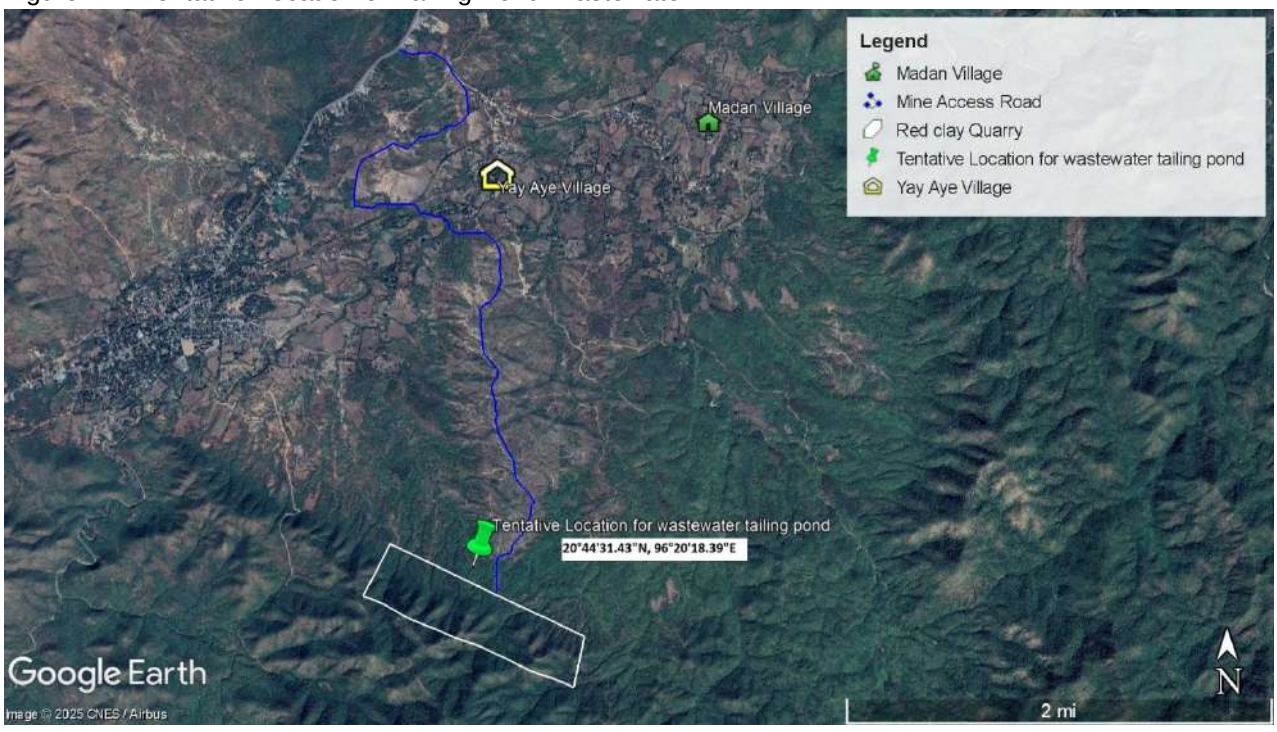
4.4.3 Evaluation

The test results from three soil samples indicate notable changes in both mineral content and heavy metal concentrations compared to baseline values. The SiO_2 content increased significantly across all samples, suggesting a higher proportion of silicate minerals, while Fe_2O_3 and Al_2O_3 contents decreased, possibly due to differences in mineral composition. Moisture content, recorded for the first time, ranged from 10.15% to 11.05%, reflecting typical soil conditions. Importantly, the concentrations of heavy metals—copper (Cu), lead (Pb), and zinc (Zn)—were substantially lower in the test results than in baseline levels. According to international standards, such as those provided by the Food and Agriculture Organization (FAO) Soil Bulletin 65 & Dutch Standard, these concentrations are well within the Maximum Permissible Limits (MPL) for agricultural soils, indicating no immediate risk of heavy metal contamination. These findings suggest that the current soil conditions are environmentally stable and suitable for agricultural or reclamation purposes.

4.5 Wastewater Quality Monitoring

The Environmental Management Plan (EMP) for the Red Clay Quarry includes biannual wastewater quality monitoring at one designated sampling point within the quarry. However, as extraction activities have not yet commenced, STM has not yet conducted wastewater quality monitoring. To ensure a comprehensive assessment and compliance with the EMP, **STM plans to initiate wastewater quality monitoring once the extraction activities begin.** Figure 7 illustrates the tentative monitoring location for wastewater quality.

Figure – 7: Tentative Location of Tailing Pond Wastewater



No.	Monitoring Location		Latitude	Longitude
1	Monitoring Locations in EMP	Wastewater Quality Monitoring 1 in EMP	20°44'31.43"N	96°20'18.39"E

4.6 Waste Management Monitoring

Currently, no waste is being generated as mining operations have not yet commenced. During the excavation process, hazardous waste such as oil spills, oil rags, and used lubricants from machinery maintenance, as well as non-hazardous waste including food waste and domestic waste from mine workers, will be systematically managed to minimize environmental impact.

To ensure proper waste management, hazardous waste will be stored separately and disposed of at the Meikhtila Incinerator in Meikhtila District, Mandalay Region, which is authorized by the Meikhtila City Development Committee. Waste bins will be provided, and a designated area will be allocated for the disposal of non-hazardous waste.

Additionally, the stability of abandoned soil will be closely observed throughout the monitoring period, encompassing the project phase, mine closure, and post-closure periods. This monitoring includes assessing erosion and sedimentation, evaluating the volume of waste released, and tracking the environmental impact. Furthermore, tree planting initiatives will be regularly reviewed to ensure successful re-vegetation and soil stabilization. The primary areas of focus for monitoring include the topsoil and waste disposal sites. STM will implement Shwe Taung's Waste Management Plan and Oil Spill Response Procedure during the operational phase of the red clay quarry.

5. Biodiversity Action Plan Implementation

Biodiversity Action Plan Implementation operated by STM outlines the strategic measures undertaken to preserve and enhance local biodiversity throughout the project's lifecycle. Comprehensive land clearance records are maintained to ensure that land disturbance is minimized and managed effectively. Additionally, ecosystem restoration activities, such as targeted plantation efforts, are implemented to rehabilitate and restore habitats affected by quarry activities. These initiatives are integral to STM's commitment to mitigating environmental impacts and supporting biodiversity conservation in the project area.

It is essential to re-cultivate plant and animal species to prevent their loss due to operations within and around the quarry area. Efforts have been made to restore natural vegetation that was displaced during mine operations. Replanting activities have been undertaken to replace the lost vegetation and support the restoration of the local ecosystem.

The monitoring period will encompass the project phase, mine closure phase, and post-closure phase. Monitoring will focus on areas within the quarry site, including regions where land is actively used, zones with existing natural vegetation, and locations where replacement trees have been planted. These areas will be assessed to ensure effective land management and successful ecological restoration throughout all stages of the quarry's lifecycle.

The Environmental Conservation Department (ECD) conducted an inspection of the ground conditions at the Red Clay Quarry and the associated environmental activities undertaken by Shwe Taung Mining Co., Ltd on 15th February 2024. The ECD provided guidance to ensure that processes align with the commitments outlined in the Environmental Management Plan (EMP) reported by STM. Additionally, the ECD had submitted a detailed report of their inspection findings to the regional office.

5.1 Implementation of Ecosystem Restoration Plantation for Red Clay Quarry

In accordance with directives from the Forest Department, Shwe Taung Mining (STM) undertook a significant plantation effort on the Red Clay Quarry, planting 28 acres with various tree species, including *Albizia lebbek*, *Delonix regia*, *Senna siamea*, *Acacia mangium*, *Chukrasia tabularis*, *Casuarina equisetifolia*, and *Tectona grandis*. Tree planting is a critical strategy for land rehabilitation and re-establishing forest cover in areas impacted for mining activities.

STM maintained the total 198 Arces Ecosystem Restoration Plantation including 28-acre ERP for red clay mine production. During the reporting period of February 2025 to August 2025, STM conducted the ERP maintenances as follow. (Table-7)

Table – 7: Ecosystem Restoration Plantations maintenances at Near Apache & South Pyi Nyaung

Location	Particular	Feb	Mar	Apr	May	Jun	Jul
		Fire Protection	Site Preparation		1st Weeding	Patching	Patching
Near Apache	ERP 33 Ac	✓	-	-	✓	✓	✓
Near Apache	ERP 65 Ac	✓	-	-	✓	✓	✓
South Pyi Nyaung	ERP 100 Ac	✓	✓	✓	✓	✓	✓

Additionally, ongoing nursery maintenance for the 28-acre Ecosystem Restoration Plantation in the Pyi Nyaung Reserved Forest has been conducted to support the continued health and growth of the planted areas. The nursery plantation list at August 2025 is as follow. (Table-8)

Table – 8: Nursery Plant List

Nursery Plant List at HSE Department, STC, August 2025				
Common Name	**Scientific Name**	**South Pyi Nyaung**	**STC Plant Nursery**	**Grand Total Plants**
Mazali	*Senna siamea*	-	5130	5130
Padauk	*Pterocarpus macrocarpus*	2000	3126	5126
Tamalan	*Dalbergia oliveri*	-		-
Myanma Kokko	*Albizia lebbek*	-	7280	7280
Sit	*Albizia procera*	300	3060	3360
Kyun	*Tectona grandis*	-	-	-
Yin Daike	*Dalbergia cultrata*	-	-	-
Sein Pan	*Delonix regia*	-		-
Total		**2,300**	**18,596**	**20,896**

Figure – 8: Record of Fire Protection, Weeding & Patching Process in Ecosystem Restoration Plantation

Moreover, STM set no hunting and poaching policy and no illegal logging to maintain biodiversity. STM is committed to sustainability and protecting the environment in which we operate. Illegal poaching practices and illegal logging practices are strongly prohibited on STM premises. Offenders will be reported to the Forest Department and local police. Any employee caught engaging in illegal poaching or hunting and illegal logging will be suspended and their employment terminated if necessary.

Figure – 9: No Hunting & Poaching Policy and No Illegal Logging Policy of STM

On 6 March 2025, the Forest Department from Thazi Township conducted an inspection for the contract extension of the Red Clay Quarry. The inspection included verification of the quarry boundaries on-site using coordinate points from the official map, as well as an assessment of the current on-ground conditions of the quarry area. Subsequently, on 21 March 2025, the Forest Department carried out a follow-up visit to assess the status of the Ecosystem Restoration Plantation established for the Red Clay Quarry in South Pyi Nyaung.

Figure – 10: Forest Department Inspection for Contract Extension of Red Clay Quarry

6. Occupational Health and Safety

Workers are at risk of occupational health and safety incidents. Such incidents may be linked to the physical environment in which they operate, the procedures they have to abide by or the on-site health and safety culture.

Shwe Taung has existing occupational health and safety policies and procedures in place at the mudstone quarry and these are applicable for the expansion project. These procedures include requirements in terms of operational safety (blasting, excavator, ladder, crane and forklift management, working at height, personal protective equipment use, lifting operation, emergency management, etc.). STM has retained international consultants to assist with the review, update and implementation of its occupational health and safety procedures.

6.1 Fire Safety Measures

In compliance with the directives of the Myanmar Fire Services Department, STM has implemented a series of fire safety measures to mitigate fire hazards in the workplace. These measures include conducting regular fire drills and maintaining firefighting equipment.

The main objective of regular fire drills is to ensure all staff are familiar with fire safety protocols and the use of firefighting equipment. Training were conducted to familiarize staff with the operation of a fire truck in case of an emergency. Moreover, all employees were trained on the correct procedures to follow upon hearing the fire alarm. This includes how to safely evacuate to the nearest assembly area within a short timeframe. Staff were also trained to identify and use firefighting facilities such as fire hydrants, fire extinguishers, and other related equipment. Activities during the drill were meticulously documented, and photographs were taken to provide a visual record of the procedures and participation. Please see the updated “Emergency Preparedness Fire Drill Exercise Reports” in “Appendix – F”.

6.2 Occupational Hazard Prevention and First Aid Training

Ensuring the safety and well-being of our employees is paramount. STM conducts comprehensive training programs focused on occupational hazard prevention and first aid. These programs are meticulously documented with detailed procedures and photographic evidence to uphold high standards of health and safety compliance.

OHS training at STM encompasses a broad spectrum of critical safety topics. Employees receive training on energy isolation to prevent accidental startups, and on confined space and rescue equipment to ensure safe operations in restricted areas. Office safety training covers best practices for maintaining a safe work environment, while working at height training emphasizes the use of proper safety measures and equipment. Training for riggers and signalmen ensures safe rigging practices and effective communication during lifting operations. Hot work training covers procedures and precautions for tasks involving open flames or heat, and safety inductions provide new employees with essential safety knowledge.

Additional training includes belt conveyor guarding and machine cover to enhance machinery safety, first aid for immediate response to injuries, and scaffolding safety for the proper erection and use of

scaffolds. Programs such as "Take 2 Minutes" encourage employees to assess risks before starting tasks, and safety interaction and observation promote proactive safety discussions. Electrical safety training addresses procedures for working with electrical systems, while manual handling training teaches proper techniques to prevent injuries. Risk management training focuses on identifying, assessing, and mitigating workplace risks. STM has also installed road traffic signboards along the Apache main road and near the train station in Yay Aye Village to improve traffic safety and help prevent congestion.

Internally, STM conduct annual employee safety inductions to refresh safety protocols, permit to work training to ensure understanding of the permit system for hazardous tasks, and safe work procedure training. Risk assessment training is provided to develop techniques for evaluating and mitigating risks. Lototo (Lock Out, Tag Out, Try Out) training ensures the safe de-energization of equipment, and specific electrical training addresses managing electrical hazards. Regular office safety training and fire drills are also conducted to reinforce these practices.

A key component of STM's training is first aid. First aid training program equips employees with the skills necessary to provide immediate assistance in the event of an injury or health emergency. This includes basic first aid techniques, CPR, and the use of first aid equipment. Employees learn how to respond to a variety of medical situations, ensuring that they are prepared to act swiftly and effectively. This training is crucial in minimizing the impact of workplace injuries and can be life-saving in critical situations. Moreover, to safeguard occupational health, STM collaborates with the Social Security Board to conduct health check-ups using a mobile medical unit and arranges necessary medical care for employees as needed.

Figure –19: First Aid Trainings Records and Medical check-ups from Ministry of Health

OHS Manager
Shwe Taung Cement Co. ltd

Figure –20: Road traffic signboards along Apache Main Road and in Yay Aye Village

7. Corporate Social Responsibility

STM implements Corporate Social Responsibility (CSR) to communities and CSR activities of the during reporting period are described in Appendix-E.

8. Conclusion and Recommendation

STM Red clay Quarry demonstrates the implementation of Environment Monitoring Plan in which they are operating and has properly assessed the key potential environmental and social impacts associated with the Mudstone Quarry operation. It is ensuring that the Myanmar environmental legislative compliance and IFC standards of good practice during the red clay Quarry expansion project and operations in Thazi Township, Mandalay Region.

Mitigation measures have been implemented in accordance with the EMP. It is expected that environmental and social impacts will be effectively managed by STM through a robust Environmental Management System, implemented by a well-resourced, integrated, and competent HSE team, in line with the requirements of the STM Red Clay Quarry EMP and the commitments outlined in the Environmental Compliance Certificate.

The Environment Management Plan concludes that no major direct impacts are anticipated from this Project and all environmental impacts have been properly and progressively mitigated. These monitoring results will be properly communicated to stakeholders, especially local community, as per Stakeholders Engagement Plan. STM has regularly submitted biannual environmental monitoring reports to ECD and please see the status of red clay biannual environmental monitoring reports submission to ECD in Appendix-A. Moreover, biannual environmental monitoring reports are disclosed to community at Information Centers in Pyi Nyaung and Ku Pyin and has uploaded in Apache Cement Website https://www.apachecement.com/.

9. Appendix

APPENDIX-A

Table: Status of Red Clay Biannual Environmental Monitoring Reports Submission to ECD

ဝန်ကြီးရုံး အတည်ပြုချက် ရရှိသည့် ရက်စွဲ	(၆) လပတ် စောင့်ကြပ်ကြည့်ရှုမှု အစီရင်ခံစာ တင်ပြသည့် ရက်စွဲ	(၆) လပတ် စောင့်ကြပ်ကြည့်ရှုမှု အစီရင်ခံစာ တင်ပြသည့် အကြိမ် အရေအတွက်	စောင့်ကြပ်ကြည့်ရှုမှုအစီရင်ခံစာ တင်ပြသည့် အချိန်ကာလ အပိုင်းအခြား	မှတ်ချက်
၁၀.၈.၂၀၂၂	၂၉.၂.၂၀၂၄	ပထမအကြိမ်	၂၀၂၂ ခုနှစ် စက်တင်ဘာလမှ ၂၀၂၃ ခုနှစ် ဖေဖော်ဝါရီလအထိ	
		ဒုတိယအကြိမ်	၂၀၂၃ ခုနှစ် မတ်လမှ ၂၀၂၃ ခုနှစ် သြဂုတ်လအထိ	
		တတိယအကြိမ်	၂၀၂၃ ခုနှစ် စက်တင်ဘာလမှ ၂၀၂၄ ခုနှစ် ဖေဖော်ဝါရီလအထိ	
	၆.၉.၂၀၂၄	စတုတ္ထအကြိမ်	၂၀၂၄ ခုနှစ် ဖေဖော်ဝါရီလမှ ၂၀၂၄ ခုနှစ် ဇူလိုင်လအထိ	မန္တလေးတိုင်းရုံး၏ ညွှန်ကြားချက်အရ အစီရင်ခံစာ တင်ပြသည့် ကာလအပိုင်းအခြားအား ဝန်ကြီးရုံးအတည်ပြုသည့် ရက်စွဲအရ ပြန်လည်ညှိနှိုင်းပြင်ဆင်တင်ပြခဲ့ပါသည်။
	၂၅.၂.၂၀၂၅	ပဉ္စမအကြိမ်	၂၀၂၄ ခုနှစ် သြဂုတ်လမှ ၂၀၂၅ ခုနှစ် ဧနခါဝါရီလအထိ	၂၅-၂-၂၀၂၅ ရက်နေ့တွင် တင်ပြခဲ့သော အစီရင်ခံစာကို ပြန်လည်ပြင်ဆင်တင်ပြရန် မိတ္ထီလာခရိုင်ရုံး၏ ညွှန်ကြားချက်အရ ၂၀၂၅ ခုနှစ် မတ်လအတွင်း ပြန်လည်တင်ပြခြင်းဖြစ်ပါသည်။
	၁၇.၃.၂၀၂၅			
	၂၀၂၅ ခုနှစ် သြဂုတ်လ	**ဆဋ္ဌမအကြိမ်**	**၁၀.၂.၂၀၂၅ ရက်နေ့မှ ၉.၈.၂၀၂၅ ရက်နေ့အထိ**	
	ဆက်လက်တင်ပြရန်	***သတ္တမအကြိမ်***	***၁၀.၈.၂၀၂၅ ရက်နေ့မှ ၉.၂.၂၀၂၆ ရက်နေ့အထိ***	***၂၀၂၆ ခုနှစ် ဖေဖော်ဝါရီလ အတွင်း တင်ပြသွားမည် ဖြစ်ပါသည်။***

APPENDIX- B
Ambient Air Quality Results of Yay Aye Village

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 1440

Start Date 10-02-2025 4:27:00 PM

End Date 11-02-2025 4:26:00 PM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	**67.2708**	**8.80208**	**79.8131**	**.165715**	**33.0277**	**14.95**	**1.43958**	**0**	**60.7548**	**21.0034**	**182.276**	**.068125**	**10.0765**	**0**	**0**	**0**	**0**
Max	327	66	131	.74	86	35	23	0	100	31	359	2.1	10.5	0	0	0	0
Min	2	1	41	0	2	1	0	0	15	12	3	0	9.6	0	0	0	0
EPAS 919217	**67.2708**	**8.80208**	**79.8131**	**.165715**	**33.0277**	**14.95**	**1.43958**	**0**	**60.7548**	**21.0034**	**182.276**	**.068125**	**10.0765**	**0**	**0**	**0**	**0**
	327	66	131	.74	86	35	23	0	100	31	359	2.1	10.5	0	0	0	0
	2	1	41	0	2	1	0	0	15	12	3	0	9.6	0	0	0	0
Daily Thu, Oct 2, 2025	**71.7924**	**15.2185**	**69.0618**	**.237130**	**21.6622**	**13.9668**	**3.86534**	**0**	**54.4415**	**21.1942**	**157.116**	**.012582**	**10.2536**	**0**	**0**	**0**	**0**
	135	66	101	.74	68	31	23	0	85	31	229	1.3	10.5	0	0	0	0
	18	1	43	.08	2	1	0	0	22	15	134	0	9.7	0	0	0	0
Ave Period 24 02-10-2025 11:59 PM	**71.7924**	**15.2185**	**69.0618**	**.237130**	**21.6622**	**13.9668**	**3.86534**	**0**	**54.4415**	**21.1942**	**157.116**	**.012582**	**10.2536**	**0**	**0**	**0**	**0**
	135	66	101	.74	68	31	23	0	85	31	229	1.3	10.5	0	0	0	0
	18	1	43	.08	2	1	0	0	22	15	134	0	9.7	0	0	0	0
Daily Sun, Nov 2, 2025	**65.1955**	**5.85714**	**84.7477**	**.132938**	**38.2441**	**15.4012**	**.326241**	**0**	**63.6524**	**20.9159**	**193.823**	**.093617**	**9.99533**	**0**	**0**	**0**	**0**
	327	65	131	.72	86	35	22	0	100	31	359	2.1	10.2	0	0	0	0
	2	1	41	0	2	1	0	0	15	12	3	0	9.6	0	0	0	0
Ave Period 24 02-11-2025 04:26 PM	**65.1955**	**5.85714**	**84.7477**	**.132938**	**38.2441**	**15.4012**	**.326241**	**0**	**63.6524**	**20.9159**	**193.823**	**.093617**	**9.99533**	**0**	**0**	**0**	**0**
	327	65	131	.72	86	35	22	0	100	31	359	2.1	10.2	0	0	0	0
	2	1	41	0	2	1	0	0	15	12	3	0	9.6	0	0	0	0

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 1408

Start Date 14-03-2025 10:45:00 AM

End Date 15-03-2025 10:12:00 AM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	**115.591**	**8.74360**	**29.75**	**.603224**	**32.3877**	**16.2585**	**30.2201**	**0**	**33.8899**	**24.8586**	**278.789**	**.111292**	**10.0101**	**0**	**0**	**0**	**0**
Max	469	58	85	2.01	89	122	121	0	64	35	360	3.4	10.5	0	0	0	0
Min	2	1	0	0	2	1	0	0	8	16	0	0	9.3	0	0	0	0
EPAS 919217	**115.591**	**8.74360**	**29.75**	**.603224**	**32.3877**	**16.2585**	**30.2201**	**0**	**33.8899**	**24.8586**	**278.789**	**.111292**	**10.0101**	**0**	**0**	**0**	**0**
	469	58	85	2.01	89	122	121	0	64	35	360	3.4	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	8	16	0	0	9.3	0	0	0	0
Daily Fri, Mar 14, 2025	**61.8955**	**13.7069**	**11.4805**	**.417622**	**11.4528**	**10.5383**	**25.1811**	**0**	**20.5786**	**29.0238**	**294.519**	**.197106**	**10.1730**	**0**	**0**	**0**	**0**
	137	58	51	.83	58	122	72	0	48	35	360	3.4	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	8	19	0	0	9.6	0	0	0	0
Ave Period 24 14-03-2025 11:59 PM	**61.8955**	**13.7069**	**11.4805**	**.417622**	**11.4528**	**10.5383**	**25.1811**	**0**	**20.5786**	**29.0238**	**294.519**	**.197106**	**10.1730**	**0**	**0**	**0**	**0**
	137	58	51	.83	58	122	72	0	48	35	360	3.4	10.5	0	0	0	0
	2	1	0	0	2	1	0	0	8	19	0	0	9.6	0	0	0	0
Daily Sat, Mar 15, 2025	**185.230**	**2.30668**	**53.4437**	**.843931**	**59.5383**	**23.6769**	**36.7553**	**0**	**51.1533**	**19.4567**	**258.389**	**0**	**9.79885**	**0**	**0**	**0**	**0**
	469	9	85	2.01	89	33	121	0	64	32	320	0	10	0	0	0	0
	8	1	12	.4	2	1	3	0	22	16	2	0	9.3	0	0	0	0
Ave Period 24 15-03-2025 10:12 AM	**185.230**	**2.30668**	**53.4437**	**.843931**	**59.5383**	**23.6769**	**36.7553**	**0**	**51.1533**	**19.4567**	**258.389**	**0**	**9.79885**	**0**	**0**	**0**	**0**
	469	9	85	2.01	89	33	121	0	64	32	320	0	10	0	0	0	0
	8	1	12	.4	2	1	3	0	22	16	2	0	9.3	0	0	0	0

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 1440

Start Date 25-04-2025 4:58:00 AM

End Date 26-04-2025 4:57:00 AM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	**42.6423**	**8.75**	**37.9270**	**.210375**	**45.3541**	**17.0597**	**19.7770**	**0**	**51.6006**	**29.525**	**198.756**	**1.11701**	**10.2461**	**0**	**0**	**0**	**0**
Max	129	68	114	.94	131	40	76	0	95	36	359	8.3	10.6	0	0	0	0
Min	2	1	0	0	2	1	0	0	25	23	8	0	9.7	0	0	0	0
EPAS 919217	**42.6423**	**8.75**	**37.9270**	**.210375**	**45.3541**	**17.0597**	**19.7770**	**0**	**51.6006**	**29.525**	**198.756**	**1.11701**	**10.2461**	**0**	**0**	**0**	**0**
	129	68	114	.94	131	40	76	0	95	36	359	8.3	10.6	0	0	0	0
	2	1	0	0	2	1	0	0	25	23	8	0	9.7	0	0	0	0
Daily Fri, Apr 25, 2025	**50.8152**	**10.7267**	**45.9185**	**.212276**	**56.6672**	**21.2504**	**17.9220**	**0**	**57.0148**	**28.1847**	**191.480**	**.360157**	**10.2676**	**0**	**0**	**0**	**0**
	128	68	114	.94	131	40	76	0	95	36	359	5.3	10.6	0	0	0	0
	2	1	0	0	2	1	0	0	25	23	8	0	9.7	0	0	0	0
Ave Period 24 25-04-2025 11:59 PM	**50.8152**	**10.7267**	**45.9185**	**.212276**	**56.6672**	**21.2504**	**17.9220**	**0**	**57.0148**	**28.1847**	**191.480**	**.360157**	**10.2676**	**0**	**0**	**0**	**0**
	128	68	114	.94	131	40	76	0	95	36	359	5.3	10.6	0	0	0	0
	2	1	0	0	2	1	0	0	25	23	8	0	9.7	0	0	0	0
Daily Sat, Apr 26, 2025	**11.3221**	**1.17449**	**7.30201**	**.203087**	**2**	**1**	**26.8859**	**0**	**30.8523**	**34.6610**	**226.637**	**4.01744**	**10.1637**	**0**	**0**	**0**	**0**
	129	6	16	.91	2	1	65	0	38	36	330	8.3	10.2	0	0	0	0
	2	1	0	.15	2	1	7	0	26	33	43	.6	9.7	0	0	0	0
Ave Period 24 26-04-2025 04:57 AM	**11.3221**	**1.17449**	**7.30201**	**.203087**	**2**	**1**	**26.8859**	**0**	**30.8523**	**34.6610**	**226.637**	**4.01744**	**10.1637**	**0**	**0**	**0**	**0**
	129	6	16	.91	2	1	65	0	38	36	330	8.3	10.2	0	0	0	0
	2	1	0	.15	2	1	7	0	26	33	43	.6	9.7	0	0	0	0

Main | Preferences | Header | Data | Report

Environmental Report

Record Cnt 1260

Start Date 11-06-2025 12:16:00 AM

End Date 11-06-2025 9:15:00 PM

	PMA ug/m3		CO2 ppm	CO ppm	NO2 ppb	O3 ppb	SO2 ppb	PrpM mm	RH %	TmpC Deg. C	WDir Deg.	WSpd mph	Pwr V				
Ave	**6.35317**	**3.43650**	**176.380**	**.109777**	**41.5492**	**35.8388**	**8.66825**	**.052690**	**96.0007**	**24.0626**	**143.916**	**.050793**	**9.78833**	**0**	**0**	**0**	**0**
Max	125	113	232	1.1	267	123	82	1.49	100	30	360	2.5	10.2	0	0	0	0
Min	2	1	95	0	2	1	0	0	60	22	0	0	9.1	0	0	0	0
EPAS 919217	**6.35317**	**3.43650**	**176.380**	**.109777**	**41.5492**	**35.8388**	**8.66825**	**.052690**	**96.0007**	**24.0626**	**143.916**	**.050793**	**9.78833**	**0**	**0**	**0**	**0**
	125	113	232	1.1	267	123	82	1.49	100	30	360	2.5	10.2	0	0	0	0
	2	1	95	0	2	1	0	0	60	22	0	0	9.1	0	0	0	0
Daily Sun, Jan 1, 1989	**6.35317**	**3.43650**	**176.380**	**.109777**	**41.5492**	**35.8388**	**8.66825**	**.052690**	**96.0007**	**24.0626**	**143.916**	**.050793**	**9.78833**	**0**	**0**	**0**	**0**
	125	113	232	1.1	267	123	82	1.49	100	30	360	2.5	10.2	0	0	0	0
	2	1	95	0	2	1	0	0	60	22	0	0	9.1	0	0	0	0
Ave Period 24 01-01-1989 09:15 PM	**6.35317**	**3.43650**	**176.380**	**.109777**	**41.5492**	**35.8388**	**8.66825**	**.052690**	**96.0007**	**24.0626**	**143.916**	**.050793**	**9.78833**	**0**	**0**	**0**	**0**
	125	113	232	1.1	267	123	82	1.49	100	30	360	2.5	10.2	0	0	0	0
	2	1	95	0	2	1	0	0	60	22	0	0	9.1	0	0	0	0

APPENDIX-C

Water Results

APPENDIX - C1

Tagondaing Stream Water Results (Yay Aye Village)

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Stream Water**
Location	**Yeaye Village**
Date of sample collection	**21.02.2025**
Date of sample examination	**22.02.2025**
Date of completing	**26.02.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
p^H	7.3	6.5 ~ 8.5	
Colour(True)	0 PCU	15 PCU	
Turbidity	1.29 NTU	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	20 mg/l	200mg/l	
Total Suspended Solid(TSS)	1 mg/l	50mg/l	
Nitrate	8.3 mg/l	50mg/l	

Tested by

Han Ko Win
Team Leader
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye Naing Soe
Manager
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Stream Water**
Location	**Yeaye Village**
Date of sample collection	**14.03.2025**
Date of sample examination	**15.03.2025**
Date of completing	**17.03.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	8	6.5 ~ 8.5	
Colour(True)	25	15 PCU	
Turbidity	0.48	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	20	200mg/l	
Total Suspended Solid(TSS)	3	50mg/l	
Nitrate	6.7	50mg/l	

Tested by

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye Naing Soe
Manager
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Stream Water**
Location	**Yeaye Village**
Date of sample collection	**26.04.2025**
Date of sample examination	**27.04.2025**
Date of completing	**28.04.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	8.1	6.5 ~ 8.5	
Colour(True)	10	15 PCU	
Turbidity	1.83	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	20	200mg/l	
Total Suspended Solid(TSS)	1	50mg/l	
Nitrate	7.8	50mg/l	

Tested by

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye' Naing Soe
Manager
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Stream Water**
Location	**Yeaye Village**
Date of sample collection	**28.05.2025**
Date of sample examination	**28.05.2025**
Date of completing	**29.05.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.8	6.5 ~ 8.5	
Colour(True)	125	15 PCU	
Turbidity	50	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	380	50mg/l	
Nitrate	6.5	50mg/l	

Tested by

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Stream Water**
Location	**Yeaye Village**
Date of sample collection	**18.06.2025**
Date of sample examination	**19.06.2025**
Date of completing	**21.06.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
p^H	7.3	6.5 ~ 8.5	
Colour(True)	230	15 PCU	
Turbidity	50	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	357	50mg/l	
Nitrate	7.2	50mg/l	

Tested by

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APPENDIX - C2

Tagondaing Stream Water Results (Madan Village)

APACHE
PORTLAND CEMENT
THE STRENGTH TO BUILD

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Stream Water**
Location	**Madan Village**
Date of sample collection	**28.05.2025**
Date of sample examination	**28.05.2025**
Date of completing	**29.05.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
P^H	7.5	6.5 ~ 8.5	
Colour(True)	140	15 PCU	
Turbidity	50	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	195	50mg/l	
Nitrate	5.4	50mg/l	

Tested by

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Shwe Taung Cement Co., Ltd.

Lab & Quality Control Department

Water Quality Test Report

Nature of water	**Stream Water**
Location	**Madan Village**
Date of sample collection	**18.06.2025**
Date of sample examination	**19.06.2025**
Date of completing	**21.06.2025**

Description of Analysis	Analysis Results	WHO Drinking water Guideline	Remark
p^H	7.4	6.5 ~ 8.5	
Colour(True)	200	15 PCU	
Turbidity	50	5 NTU	
Calcium Hardness	-	500 mg/l as $CaCO_3$	no stock chemical
Chloride(as Cl)	-	250mg/l	no stock chemical
Sulphate(as SO_4)	-	200mg/l	no stock chemical
Total Suspended Solid(TSS)	608	50mg/l	
Nitrate	5	50mg/l	

Tested by

Thet Naing Win
Chemist
Lab & QC Department
Shwe Taung Cement Co., Ltd.

Approved By

Ye Naing Soe
Head of Lab & Quality Control Dept;
Lab & QC Department
Shwe Taung Cement Co., Ltd.

APPENDIX - C3

Tagondaing Stream Water (Yay Aye Village)

Tested by External Laboratory

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.688283

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 1 of 2

W0725 458

WATER QUALITY TEST RESULTS FORM

Client: Shwe Taung Cement Co.,Ltd.
Nature of Water: Tagondaing Stream Water
Location: Yay Aye Village, Thazi, Mandalay.
Date and Time of collection: 17.7.2025
Date and Time of arrival at Laboratory: 18.7.2025
Date and Time of commencing examination: 21.7.2025
Date and Time of completing: 23.7.2025

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
pH	8.6		6.5 - 8.5
Colour (True)	-	TCU	15 TCU
Turbidity	-	NTU	5 NTU
Conductivity	-	micro S/cm	
Total Hardness	168	mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness	-	mg/l as $CaCO_3$	
Magnesium Hardness	-	mg/l as $CaCO_3$	
Total Alkalinity	204	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity	-	mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)	-	mg/l as $CaCO_3$	
Bicarbonate (HCO_3)	-	mg/l as $CaCO_3$	
Iron	0.27	mg/l	0.3 mg/l
Chloride (as CL)	15	mg/l	250 mg/l
Sodium Chloride (as NaCL)	-	mg/l	
Sulphate (as SO_4)	12	mg/l	500 mg/l
Total Solids	-	mg/l	1500 mg/l
Total Suspended Solids	20	mg/l	
Total Dissolved Solids	320	mg/l	1000 mg/l
Manganese	-	mg/l	0.05 mg/l
Phosphate	-	mg/l	
Phenolphthalein Acidity	-	mg/l	
Methyl Orange Acidity	-	mg/l	
Salinity	-	ppt	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature:
Name: Zaw Hein Oo
B.Sc (Chemistry)
Sr.Chemist
ISO Tech Laboratory

Approved by
Signature:
Name: Thinzar Theint Theint
B.E (Civil)
Senior Engineer
ISO Tech Laboratory

(a division of WEG Co., Ltd.)
No.18, Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-880100172, 09-880100173, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Délft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.698283

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 2 of 2

W0725 458

WATER QUALITY TEST RESULTS FORM

Client	Shwe Taung Cement Co.,Ltd.
Nature of Water	Tagondaing Stream Water
Location	Yay Aye Village, Thazi, Mandalay.
Date and Time of collection	17.7.2025
Date and Time of arrival at Laboratory	18.7.2025
Date and Time of commencing examination	21.7.2025
Date and Time of completing	23.7.2025

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
Temperature (°C)	-	°C	
Fluoride (F)	-	mg/l	1.5 mg/l
Lead (as Pb)	Nil	mg/l	0.01 mg/l
Arsenic (As)	Nil	mg/l	0.01 mg/l
Nitrate ($N.NO_3$)	-	mg/l	50 mg/l
Chlorine (Residual)	-	mg/l	
Ammonia Nitrogen (NH_3)	-	mg/l	
Ammonium Nitrogen (NH_4)	-	mg/l	
Dissolved Oxygen (DO)	-	mg/l	
Chemical Oxygen Demand (COD)	-	mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20 °C)	-	mg/l	
Cyanide (CN)	0.021	mg/l	0.07 mg/l
Zinc (Zn)	Nil	mg/l	3 mg/l
Copper (Cu)	Nil	mg/l	2 mg/l
Silica (SiO_2)	-	mg/l	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature:
Name: Zaw Hein Oo
B.Sc (Chemistry)
Sr.Chemist
ISO Tech Laboratory

Approved by
Signature:
Name: Thinzar Theint Theint
B.E (Civil)
Senior Engineer
ISO Tech Laboratory

APPENDIX - C4

Tagondaing Stream Water (Madan Village)

Tested by External Laboratory

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.688283

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 1 of 2

W0725 459

WATER QUALITY TEST RESULTS FORM

Client	Shwe Taung Cement Co.,Ltd.
Nature of Water	Tagondaing Stream Water
Location	Madan Village, Thazi, Mandalay.
Date and Time of collection	17.7.2025
Date and Time of arrival at Laboratory	18.7.2025
Date and Time of commencing examination	21.7.2025
Date and Time of completing	23.7.2025

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
pH	8.6		6.5 - 8.5
Colour (True)	-	TCU	15 TCU
Turbidity	-	NTU	5 NTU
Conductivity	-	micro S/cm	
Total Hardness	154	mg/l as $CaCO_3$	500 mg/l as $CaCO_3$
Calcium Hardness	-	mg/l as $CaCO_3$	
Magnesium Hardness	-	mg/l as $CaCO_3$	
Total Alkalinity	204	mg/l as $CaCO_3$	
Phenolphthalein Alkalinity	-	mg/l as $CaCO_3$	
Carbonate ($CaCO_3$)	-	mg/l as $CaCO_3$	
Bicarbonate (HCO_3)	-	mg/l as $CaCO_3$	
Iron	0.47	mg/l	0.3 mg/l
Chloride (as CL)	17	mg/l	250 mg/l
Sodium Chloride (as NaCL)	-	mg/l	
Sulphate (as SO_4)	10	mg/l	500 mg/l
Total Solids	-	mg/l	1500 mg/l
Total Suspended Solids	35	mg/l	
Total Dissolved Solids	290	mg/l	1000 mg/l
Manganese	-	mg/l	0.05 mg/l
Phosphate	-	mg/l	
Phenolphthalein Acidity	-	mg/l	
Methyl Orange Acidity	-	mg/l	
Salinity	-	ppt	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by
Signature: Zaw Hein Oo
Name: B.Sc (Chemistry)
Sr.Chemist
(a division of WEG Co., Ltd.) ISO Tech Laboratory

Approved by
Signature: Thinzar Theint Theint
Name: B.E (Civil)
Senior Engineer
ISO Tech Laboratory

No.18, Lanthit Road, Nanthargone Quarter, Insein Township, Yangon, Myanmar.
Ph: 01-640955, 09-880100172, 09-880100173, 01-644506, E-mail: isotechlaboratory@gmail.com, Website: weg-myanmar.com

ISO TECH LABORATORY

Laboratory Technical Consultant: U Saw Christopher Maung
B.Sc Engg: (Civil), Dip S.E(Delft) Lecturer of YIT (Retd). Consultant (Y.C.D.C), LWSE 001.
Former Member (UNICEF, Water quality monitoring & Surveillance Myanmar)

ISO 9001:2015 Cert. No.688283

WTL-RE-001
Issue Date - 01-12-2012
Effective Date - 01-12-2012
Issue No - 1.0/Page 2 of 2

W0725 459

WATER QUALITY TEST RESULTS FORM

Client	Shwe Taung Cement Co.,Ltd.
Nature of Water	Tagondaing Stream Water
Location	Madan Village, Thazi, Mandalay.
Date and Time of collection	17.7.2025
Date and Time of arrival at Laboratory	18.7.2025
Date and Time of commencing examination	21.7.2025
Date and Time of completing	23.7.2025

Results of Water Analysis

			WHO Drinking Water Guideline (Geneva - 1993)
Temperature (°C)	-	°C	
Fluoride (F)	-	mg/l	1.5 mg/l
Lead (as Pb)	Nil	mg/l	0.01 mg/l
Arsenic (As)	Nil	mg/l	0.01 mg/l
Nitrate ($N.NO_3$)	-	mg/l	50 mg/l
Chlorine (Residual)	-	mg/l	
Ammonia Nitrogen (NH_3)	-	mg/l	
Ammonium Nitrogen (NH_4)	-	mg/l	
Dissolved Oxygen (DO)	-	mg/l	
Chemical Oxygen Demand (COD)	-	mg/l	
Biochemical Oxygen Demand (BOD) (5 days at 20 °C)	-	mg/l	
Cyanide (CN)	0.022	mg/l	0.07 mg/l
Zinc (Zn)	Nil	mg/l	3 mg/l
Copper (Cu)	Nil	mg/l	2 mg/l
Silica (SiO_2)	-	mg/l	

Remark: This certificate is issued only for the receipt of the test sample.

Tested by

Signature:

Name: Zaw Hein Oo
B.Sc (Chemistry)
Sr.Chemist
ISO Tech Laboratory

Approved by

Signature:

Name: Thinzar Theint Theint
B.E (Civil)
Senior Engineer
ISO Tech Laboratory

APPENDIX-D

Soil Test Results

APPENDIX-D1

Soil Test Results by LQC Department

SHWE TAUNG CEMENT CO.,LTD

LAB & QUALITY CONTROL DEPARTMENT

(LATERITE,Bauxite & Red Clay) CHEMICAL COMPOSITIONS RESULTS

Department	LQC
Form No	LQC-FOM-003-002-002
Month	Jul-25

Sample Type - Red Clay (Madan)

Sender - U Hein Latt, Ph-09255113077

Reporting Date - 24.07.2025

Sr. No	Receiving Date	Testing Date	Sample Code	Location	Sender	H_2O%	Chemical Compositions (%)										Remark
							LOI	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Na_2O	K_2O	SO_3	Total (%)	
1	21.07.2025	22.07.2025	Red Clay	Madan - 01	U Hein Latt	10.85	5.69	62.53	13.25	9.43	-0.10	0.75	-0.86	2.92	0.32	93.92	
2	21.07.2025	22.07.2025	Red Clay	Madan - 02	U Hein Latt	11.05	5.74	70.00	13.66	6.72	0.17	0.71	-0.48	3.17	0.39	100.07	
3	21.07.2025	22.07.2025	Red Clay	Madan - 03	U Hein Latt	10.15	4.54	64.50	13.04	7.36	-0.08	0.99	-0.62	3.13	0.33	93.20	

Ye` Naing Soe
Lab & Quality Control Department
Shwe Taung Cement Co.,Ltd.
Apache Cement Factory
Pyi Nyaung Village, Tharzi Tsp
Mandalay Division
Ph 09255112932
Email: yensoe@shwetaungbm.com

APPENDIX-D2

Soil Test Results

Tested by External Laboratory

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ
နိုက်ပျိုးရေး၊ မွေးမြူရေးနှင့် ဆည်မြောင်းဝန်ကြီးဌာန
နိုက်ပျိုးရေးဦးစီးဌာန
(မြေအသုံးချရေးဌာနခွဲ)
ရန်ကုန်မြို့

စာအမှတ်- ဓခ- ၂(၁)/၂၀၂၅-၂၀၂၆ (148)
နေ့စွဲ၊ ၂၀၂၅ ခုနှစ်၊ ဇူလိုင်လ (31) ရက်

အကြောင်းအရာ။ **မြေနမူနာ ဓာတ်ခွဲအဖြေများပေးပို့ခြင်း**

ရည်ညွှန်းချက် ။ **Shwe Taung Mining Co., Ltd မှ (18.7.2025)** နေ့တွင် ပေးပို့သော နမူနာ။

အထက်အကြောင်းအရာပါ ကိစ္စနှင့်ပတ်သက်၍ ရည်ညွှန်းစာဖြင့် ပေးပို့လာသော **မြေနမူနာ (၃ - မျိုး)** အား ဓာတ်ခွဲစစ်ဆေးပြီးဖြစ်၍ ဓာတ်ခွဲ တွေ့ရှိချက် အဖြေများကို ဤစာနှင့်အတူ ပူးတွဲပေးပို့ပါသည်။

(ဒေါက်တာသန္တာညီ)
ဒုတိယညွှန်ကြားရေးမှူး
ဓာတ်ခွဲခန်းတာဝန်ခံ
မြေအသုံးချရေးဌာနခွဲ

မိတ္တူကို-
ရုံးလက်ခံ

DEPARTMENT OF AGRICULTURE (LAND USE)

SOIL ANALYTICAL DATA SHEET AND SOIL INTEPRETATION OF RESULTS

Shwe Taung Mining Co., Ltd (18.7.2025))

Region - မန္တလေးတိုင်းဒေသကြီး။ Sheet No. 1

Township - သာစည်မြို့နယ်၊ ယင်းမာပင်ကျေးရွာအုပ်စု၊ မဒါန်းဒေသ။ Sr No. S 1 - 3 /2025

Sr No.	Sample	Soil Analytical Data	
		Moisture %	Exchangeable Al^{3+} (meq/100g)
1	Soil Sample 1	5.992	0.075
2	Soil Sample 2	5.964	0.05
3	Soil Sample 3	4.224	0.05

(ဒေါက်တာသန္တာညီ)
ဒုတိယညွှန်ကြားရေးမှူး
ဓာတ်ခွဲခန်းတာဝန်ခံ
မြေအသုံးချရေးဌာနခွဲ

DEPARTMENT OF AGRICULTURE (LAND USE)

SOIL ANALYTICAL DATA SHEET

Shwe Taung Mining Co., Ltd (18.7.2025))

Region - မန္တလေးတိုင်းဒေသကြီး။ Sheet No. 2

Township - သာစည်မြို့နယ်၊ ယင်းမာပင်တောရိုးရွာအုပ်စု၊ မဒါန်းဒေသ။ Sr No. S 1 - 3 /2025

Sr No.	Sample	Zinc (Zn) (ppm)	Copper (Cu) (ppm)	Iron (Fe) ppm	Lead (Pb) (ppm)
1	Soil Sample 1	0.7724	1.352	24.1	3.34
2	Soil Sample 2	0.561	1.092	37.4	2.16
3	Soil Sample 3	0.825	1.022	17.61	3.96

မှတ်ချက်။ ။မြေနမူနာတင်ခဲ့အဖြေများအရ Lead (Pb), Copper (Cu), Iron (Fe) နှင့် Zinc (Zn) ပါဝင်မှုသည် စိုက်ပျိုးမြေတွင် ပါဝင်သင့်သည့် MPL(Maximum Permissible Limit) များထက် ကျော်လွန်ခြင်းမရှိပါ ။ (Ref : FAO, WAO))

(ဒေါက်တာသန္တာညီ)
ဒုတိယညွှန်ကြားရေးမှူး
ဓာတ်ခွဲခန်းတာဝန်ခံ
မြေအသုံးချရေးဌာနခွဲ

APPENDIX-E

Corporate Social Responsibility

Corporate Social Responsibility(CSR)

ရွှေတောင်ဘိလပ်မြေကုမ္ပဏီနှင့် ရွှေတောင်သတ္တုတူးဖော်ထုတ်လုပ်ရေးကုမ္ပဏီတို့မှ ဒေသဖွံ့ဖြိုးရေးအတွက် ဆောင်ရွက်ထားရှိမှုများ

စဉ်	အကြောင်းအရာ	Feb - 2025	Mar - 2025	Apr - 2025	May - 2025	Jun - 2025	Jul - 2025	Total
၁	လမ်းပန်းဆက်သွယ်ရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	744,000			4,154,400	2,352,000	691,200	7,941,600
၂	သန့်ရှင်းသောရေ ရရှိရေးအတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	572,200			900,000			1,472,200
၃	လျှပ်စစ်မီးလင်းရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း				501,600			501,600
၄	ပညာရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	4,761,500	958,600	703,800	480,200	1,913,600	2,494,600	11,312,300
၅	ကျန်းမာရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း					540,000	72,000	612,000
၆	လူမှုရေးနှင့် ကယ်ဆယ်ရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	279,800	1,998,400	2,204,800	2,543,200	2,778,400	1,359,600	11,164,200
၇	ဘာသာသာသနာရေး ဖွံ့ဖြိုးတိုးတက်စေရန်အတွက် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း	1,000,600	1,300,000		542,400		1,208,000	4,051,000
၈	သဘာဝဘေးအန္တရာယ်ကျရောက် ပျက်စီးမှုများတွင် ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း			236,277,100	234,131,500	211,782,000	331,996,000	1,014,186,600
စုစုပေါင်း		7,358,100	4,257,000	239,185,700	243,253,300	219,366,000	337,821,400	1,051,241,500

Corporate Social Responsibility(CSR)

လမ်းပန်းဆက်သွယ်ရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ၂၀၂၅ခုနှစ်၊ မေလနှင့် ဇွန်လအတွင်း သာစည်မြို့နယ်၊ ယင်းမာပင်ကျေးရွာအုပ်စု၊ ယင်းမာပင်ကျေးရွာ၊ ညောင်ပင်သာရပ်ကွက်၊ အနောက်ပိုင်းရှိ အလျား(၁၁၀၀) ၊ အနံ(၁၈) ပေရှိသော ကျေးရွာလမ်းအား ကွန်ကရစ်လမ်းခင်းရန်အတွက် လိုအပ်သော ဘိလပ်မြေအိတ်များကို လှူဒါန်းခြင်း။

ပညာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ၂၀၂၅-၂၆ ပညာသင်နှစ်အတွက် ပြည်ညောင်နှင့် ကူပြင်ကျေးရွာ အခြေခံပညာကျောင်းများတွင် လိုအပ်လျက်ရှိသော ဆရာမ(၆)ဦးအား လစာငွေများ ထောက်ပံ့ပေးခြင်း။

ပုံ- ၂၀၂၅-၂၆ ပညာသင်နှစ်အတွက် ပြည်ညောင်နှင့်ကူပြင်ကျေးရွာ အခြေခံပညာကျောင်းများမှ ကျောင်းသား/ကျောင်းသူ (၁၀)ဦးအား ပညာသင် ထောက်ပံ့ကြေး ပေးအပ်ခြင်း။

ပုံ- ပြည်ညောင်ကျေးရွာရှိ Information Center & Library နှင့် ကူပြင်ကျေးရွာရှိ ထာဝရအလင်းတန်း စာကြည့်တိုက်များတွင် လစဉ်စာအုပ်များဝယ်ယူထားပေးခြင်း။

ပုံ- ပြည်ညောင်ကျေးရွာ၊ အခြေခံပညာအထက်တန်းကျောင်းမှ ယင်းမာပင်ကျေးရွာ၊ အခြေခံပညာအထက်တန်းကျောင်းသို့ G12 ကျောင်းသား/သူများ စာမေးပွဲ သွားရောက်ဖြေဆိုနိုင်ရန်အတွက် အကြိုအပို့ ပြုလုပ်ပေးခြင်း။

Corporate Social Responsibility(CSR)

ပညာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ၂၀၂၅ခုနှစ်၊ ဖေဖော်ဝါရီလတွင် ကူပြင်ကျေးရွာ၊ အခြေခံပညာ အလယ်တန်းကျောင်းတွင် "ကူးစက် တတ်သောရောဂါများအကြောင်း သိကောင်းစရာ" ခေါင်းစဉ်ဖြင့် စာဖတ်ပွဲ ကျင်းပခြင်း။

ပုံ- ပြည်ညောင်ကျေးရွာ၊အခြေခံပညာအထက်တန်းကျောင်းရှိ နှစ်ထပ်ကျောင်းဆောင်၏ ခေါင်ဝိုးနှင့် မျက်နှာကျက်များ ပြုပြင်ရန်နှင့် အိမ်သာ(၈)လုံးတွဲ အတွက် အိမ်သာကျင်းအသစ်တည်ဆောက်ရန် ကုန်ကျစရိတ်ကူညီပံ့ပိုး လှူဒါန်းခြင်း။

ကျန်းမာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ - ပြည်ညောင်ကျေးရွာအုပ်စုအတွင်းရှိ ဒေသနေပြည်သူများအတွက် ခွေးရူးပြန်ကာကွယ်ဆေး(၃)ဦးစာ ကနဦးမတည် လှူဒါန်းခြင်း။

ပုံ - ပြည်ညောင်ကျေးရွာရှိ ဖြူစင်လူငယ်ပရဟိတအသင်းမှ အောက်စီဂျင်အိုး (၆) အိုး ကို အောက်စီဂျင်ဖြည့်ပေးခြင်း။

ရေရရှိရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ပြည်ညောင်ကျေးရွာ အခြေခံပညာ အထက်တန်းကျောင်းအတွက် သုံးရေ ကူညီပံ့ပိုးပေးခြင်း။

ပုံ- ကူပြင်ကျေးရွာရှိ သောက်ရေသန့်စက်တွင် ပြုပြင်ရန် လိုအပ်သော Magnetic connector အား ဝယ်ယူ၍ တပ်ဆင်ပေးခြင်း။

Corporate Social Responsibility(CSR)

ဘာသာသာသနာရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- ကူပြင်ကျေးရွာ (၁၂)ကြိမ်မြောက် မဟာပဋ္ဌာန်းရွတ်ဖတ်ပူဇော်ပွဲနှင့် ဆွမ်းဆန်စိမ်းလောင်းလှူသည့်ပွဲတွင် ဆန်နှင့် ဝတ္ထုငွေ လောင်းလှူခြင်း။

ပုံ- ပဲခူးမြို့၊ ပဲခူးတက္ကသိုလ်အနီး ဆုတောင်းပြည့်ကျောင်းတိုက်သို့ နဝကမ္မ အလှူငွေ ထည့်ဝင်လှူဒါန်းပေးခြင်း။

ပုံ- ကူပြင်ကျေးရွာ (၁၂)ကြိမ်မြောက် မဟာပဋ္ဌာန်းရွတ်ဖတ်ပူဇော်ပွဲနှင့် ဆွမ်းဆန်စိမ်းလောင်းလှူသည့်ပွဲတွင် ဆန်နှင့် ဝတ္ထုငွေ လောင်းလှူခြင်း။

ပုံ- ပြည်ညောင်ကျေးရွာရှိ အမှတ်(၅)ရပ်ကွက်၌ ဓမ္မာရုံဆောက်လုပ်ရာတွင် လိုအပ်သော ဘိလပ်မြေအိတ်များကို လှူဒါန်းခြင်း။

လူမှုရေးနှင့်ကယ်ဆယ်ရေး ဖွံ့ဖြိုးတိုးတက်စေရန် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ -၂၀၂၄ ခုနှစ်၊ အောက်တိုဘာလမှ စတင်၍ လစဉ် ကူပြင်ကျေးရွာရှိ အသက်အရွယ်ကြီးရင့်သော အဖိုးအဖွားများအား ကူညီထောက်ပံ့ပေးခြင်း။

ပုံ- ပြည်ညောင်ကျေးရွာ ဘောလုံးကွင်းအသစ် တည်ဆောက်ရာတွင် လိုအပ်သော ဘိလပ်မြေအိတ်များ လှူဒါန်းခြင်း။

Corporate Social Responsibility(CSR)

သဘာဝဘေးအန္တရာယ်ကျရောက်ပျက်စီးမှုများအတွက် အထောက်အကူပြု ပံ့ပိုးကူညီ ဆောင်ရွက်ပေးခြင်း

ပုံ- သာစည်မြို့နယ်၊ လှိုင်းတက်ကျေးရွာ၊ ငလျင်ဘေးဒဏ်ကြောင့် ထိခိုက်ပျက်စီးသွားသော ရွှေဆင်းလှဘုရား ရှင်းလင်းရေးလုပ်ငန်းများဆောင်ရွက်ရန်အတွက် စက်ယန္တရားကြီးများ အသုံးပြု၍ ကူညီပေးခြင်း။

ပုံ- ပျော်ဘွယ်မြို့ နှင့် ရမည်းသင်းမြို့၊ ငလျင်ဘေးဒဏ်ကြောင့် ထိခိုက်ပျက်စီးသွားသောစေတီများ နှင့် ပျက်စီးအဆောက်ဦးများ ရှင်းလင်းရေးလုပ်ငန်းများ ဆောင်ရွက်ရန်အတွက် စက်ယန္တရားကြီးများ အသုံးပြု၍ ကူညီပေးခြင်း။

ပုံ- ပျော်ဘွယ်မြို့၊ မြို့ကံဦးကျောင်းရှိ စာသင်သား ရဟန်းသံဃာများနှင့် ပျော်ဘွယ်မြို့နေ ပြည်သူလူထုများ သောက်သုံးရေသန့် အခက်အခဲ မရှိစေရန်အတွက် တစ်နာရီ(1000)လီတာကျ RO - သောက်ရေသန့်စက် တပ်ဆင်လှူဒါန်းပေးခြင်း။

ပုံ- သာစည်မြို့ရှိ ငလျင်ကြောင့် သေဆုံးသွားသော မီးရထားဝန်ထမ်း(၁)ဦးနှင့် ထိခိုက်ဒဏ်ရာရရှိ သွားသော ဝန်ထမ်း(၄)ဦး အတွက် လူမှုရေးစရိတ် ထောက်ပံ့ခြင်း။

APPENDIX-F

Emergency Preparedness Fire Drill Exercise Report

EMERGENCY PREPAREDNESS

WILDFIRE DRILL REPORT

(18 Feb 2025, APACHE CEMENT FACTORY)

Prepare by : Cho Thazin Thein

Position : Safety Manager

Department : OHS

Contact No : 09255113710

SHWE TAUNG
CEMENT CO.,LTD.

Title: Wildfire at Old weighbridge behind forests

Contents

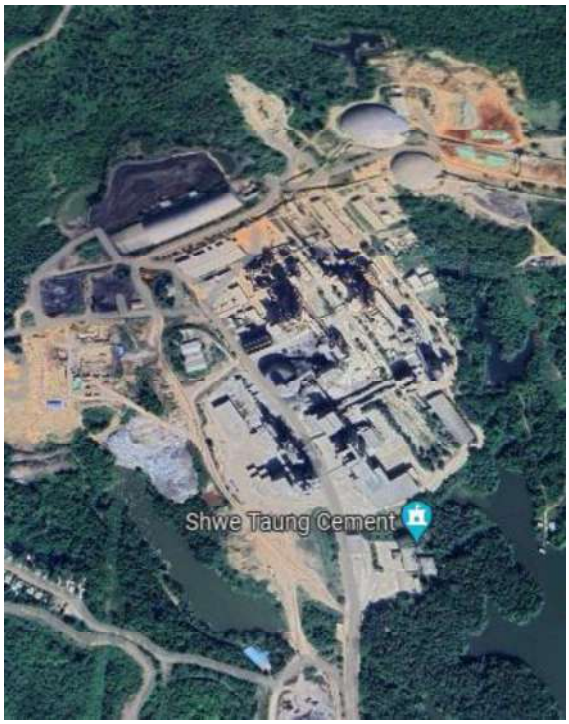
Introduction

Apache Cement Plant is situated at Pyi Nyaung Village, Thazi Township, Meiktila District, Mandalay Division.

This is recommended that ERT Emergency Response Team is prepared for any type of emergency that may occur.

Location of Apache Cement Factory

Name	**: Pyi Nyaung**
Company Name	**: Shwe Taung Cement Co.Ltd (Apache Cement)**
City	**: Tharzi Township**
State	**: Mandalay Devision**
Country	**: Myanmar**



Objective

- To ensure that everyone knows what to do in case of emergency
- To ensure all individuals in the workplace familiar with escape routes, emergency exits and safety protocols
- To practices everyone safety evacuate the nearest AA in an orderly manner
- Trained person aware on how to rescue injury person who trap inside the fire
- To familiarize on the usage of fire truck & firefighting such as Fire Hose Reel and fire extinguisher

ERT role and responsibilities

ERT Controller

- The ERT controller shall be a senior member of the management and in charge of liasing with Company Management as per crisis management.
- She is person who is the overall in-charge of the emergency response operations and liaises with senior officials of government agencies such as MFBD, FGLLID etc.
- Direct all counter measures and emergency procedure to control and decide on the evacuation of the plant area site.

Firefighting Team

- Conduct firefighting in the event of a fire emergency
- Coordinate the rescue of personnel with Rescue Team member from the scene of fire
- Remove any flammable fire

Rescue Team

- Coordinating the evacuation & rescue of personnel
- Cooperating with firefighting team on the rescue of personnel
- Cooperating with respective person in charge of the personnel on the rescue of missing personnel from their working areas
- Reporting to ERT Lead on the status of their rescue

Traffic Control Team

- Security shall control the crowd
- To clear the access and egress for Ambulance path
- To point the incident place to firetruck driver

Headcount Team

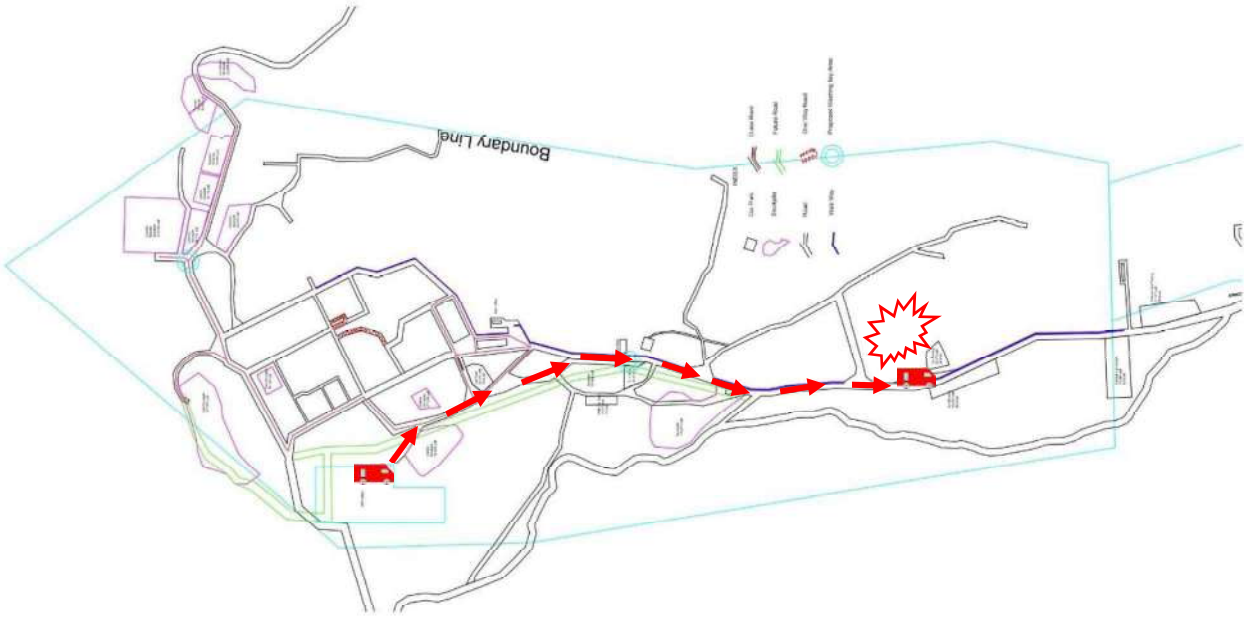
- Counting and make sure that all personnel are accountable at assembly area.
- If anyone is missing, immediately report to evacuation team
- Liaise with the respective person in charge from work group and collate the headcounts

Communication Team

- To arrange the ambulance
- To inform the Clinic
- To arrange the budget

Scenario

- About 10:45 am, on of WHS staff was found wildfire starting behind old weighbridge.
- He call to STC hotline number
- He communicates with his team and try to mitigate wildfire used by fire hook



LEGENT	
	Wildfire
	Fire truck route
	Fire truck

Event

The events are recorded and listed below:

Estimated Time	Events(s)
10:45 am	Wildfire starting at old bridge behind forests
10:46 am	WHS staff who is call to hotline number
10:50 am	Try to mitigate wildfire used by fire hook
11:00 am	Fire truck arrived wildfire location
11:15 am	Fire was put up
11:20 am	Debrief

Wildfire Drill Result

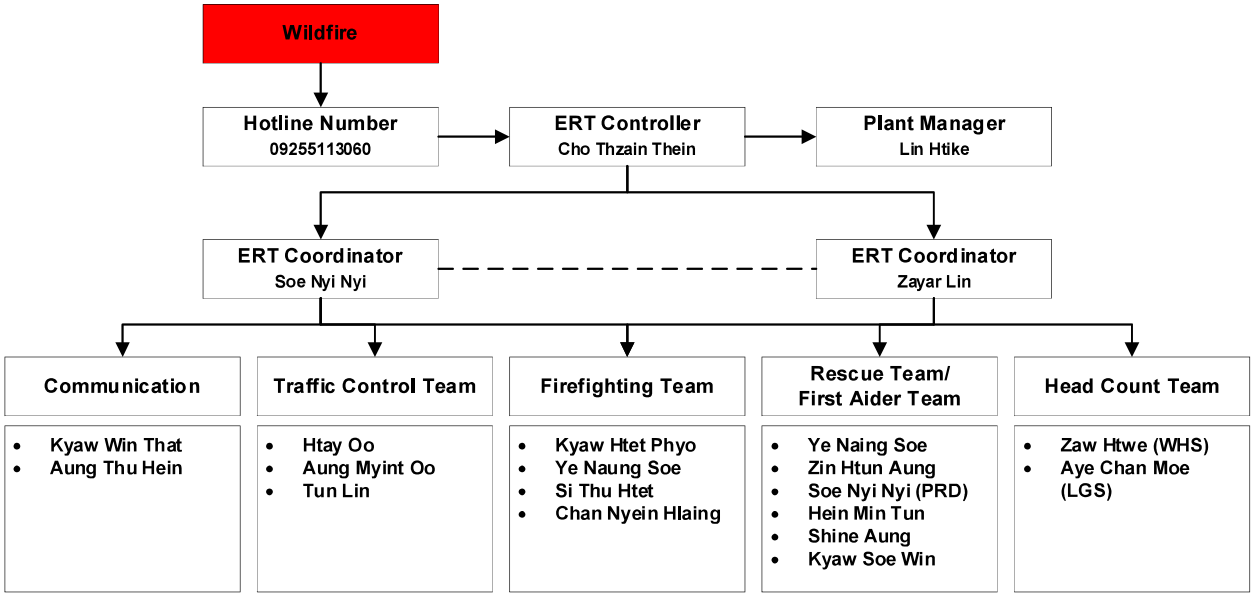
1. Total participation: 15
    a. Firefighting team: 4
    b. Traffic control team: 2
    c. WHS staffs: 3
    d. Truck drivers and helpers: 6
2. Assemble Time Record: Approximately 20 ~ 35 minutes

Debrief

1. Recap on the basic procedures when occurred wildfire:
    a. Call to emergency hot line-09255113060
    b. If need, turn off the electrical supply in building
    c. If need, turn off the equipment and machinery on site
    d. Move to the assembly area; fast and slowly
    e. At the assembly area, respective dept-in-charge will act as head count officer to take head count and register in the attendance sheet
    f. Wait for further instructions by ERT coordinator / ERT controller

Appendixes

a. Process details flow chart



b. Emergency contact list

STC Contact Numbers		
Name	Position	Contact numbers
Mon Kham	COO (STC)	09255112909
Lin Htike	Plant Manager	09255112918
Daw Nan Maw Maw Aye	HOD	09 255112651
Daw Cho Thazin Thein	OHS Manager	09255113710
U Zaw Hlaing Oo	HOD	09255111988
Thiha Soe	HOD	09255112897

Key Personnel	**Pager / Hand phone**
Police	199
Ambulance (Phyu Sin Myitta)	09968014931/09976897934
Rescue dept	0673404666/0673404777
Factory and general labour law inspection dept	095032471
Fire Service (Yin Mar Pin Station)	09445921400 /191
Meiktala General Hospital	095 84497
Fire Service (Thar Zi Station)	0642069131

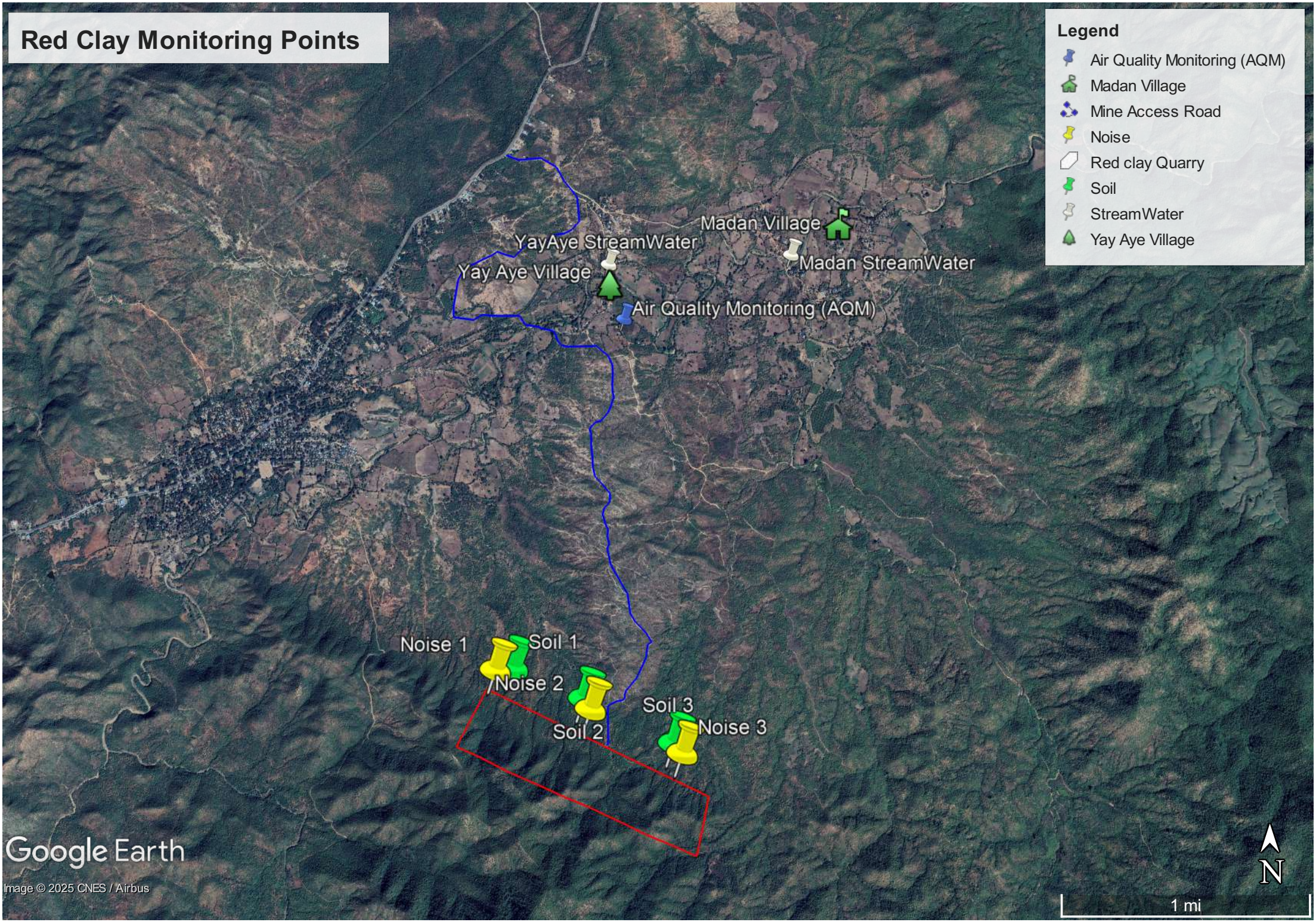
c. Try to mitigate wildfire used by fire hook


d. Fire truck arrived wildfire location and preparing of firefighting accessories


e. Firefighting team extinguished wildfire by using fire truck


APPENDIX-G

Monitoring Photo Records


Red Clay Monitoring Points
Legend
Air Quality Monitoring (AQM)
Madan Village
Mine Access Road
Noise
Red clay Quarry
Soil
StreamWater
Yay Aye Village
Madan Village
YayAye StreamWater
Madan StreamWater
Yay Aye Village
Air Quality Monitoring (AQM)
Noise 1
Soil 1
Noise 2
Soil 2
Soil 3
Noise 3
Google Earth
Image © 2025 CNES / Airbus
N
1 mi

Water Quality Monitoring Photo Records

Tagondaing Stream Water (Yay Aye Village)

Tagondaing Stream Water (Madan Village)

Noise Monitoring Photo Record

Sample 1

Sample 2

Sample 3

Soil Quality Monitoring

Sample 1

Sample 2

Sample 3

Ambient Air Quality Monitoring

Dust Deposition Monitoring

Madan Village

Yay Aye Village