Republic of the Philippines
Department of Environment and Natural Resources
MIMAROPA Region
PROVINCIAL ENVIRONMENT AND NATURAL RESOURCES OFFICE
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December 2, 2022

MEMORANDUM

FOR : The Regional Executive Director
DENR MIMAROPA Region
1515 DENR By the Bay Building, Roxas Boulevard,
Barangay 668, Ermita, Manila

: The Regional Director
MGB –MIMAROPA Region
1515 DENR By the Bay Building, Roxas Boulevard,
Barangay 668, Ermita, Manila

THRU : The OIC, ARD for Technical Services

FROM : Provincial Environment and
Natural Resources Officer

SUBJECT : **REPORT ON RESULT OF TOPOGRAPHIC SURVEY ON THE MOUNTAIN QUARRY IN SITIO DIPULAO, BRGY. POBLACION 6, CORON, PALAWAN**

Forwarded is the Memorandum dated 19 October 2022 of CENRO Coron, endorsing the appended result of the topographic survey of LGU-Coron dated 18 October 2022.

It is informed that the data obtained during the activity is being processed by LGU Coron and shall submit the revised rehabilitation plan based on the result once finished.

For information and record.

FELIZARDO B. CAYATOC

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RGT/EMU Doc. No. 10336

Republic of the Philippines
Department of Environment and Natural Resources
Community Environment and Natural Resources Office
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19 October 2022

MEMORANDUM

FOR : **The Regional Executive Director**
Department of Environment and Natural Resources
MIMAROPA Region

: **The Regional Director**
Mines and Geosciences Division
MIMAROPA Region

THRU : **The PENR Officer**
Provincial Environment and Natural Resources Office
Province of Palawan

FROM : **The Community Environment and Natural Resources Officer**
Coron, Palawan

SUBJECT : **REPORT ON RESULT OF TOPOGRAPHIC SURVEY ON THE MOUNTAIN QUARRY IN SITIO DIPULAO, BRGY. POBLACION 6, CORON, PALAWAN.**

Respectfully endorsing is the result of the topographic survey of LG-Coron dated 18 October 2022.

During the inter-agency meeting held last 23 June 2022, it was recommended to the Municipality of Coron to conduct an actual ground survey for their quarry area in Brgy. Poblacion 6. On 01 October 2022, a Real-Time Kinematic survey was conducted on the mentioned site. At present, the data obtained during the activity is being processed. Once done, the LGU-Coron shall submit the revised rehabilitation plan based on the its result.

For your information and record.

RODNEY G. VERIAN
OIC-CENRO

Republic of the Philippines
Department of Environment and Natural Resources
COMMUNITY ENVIRONMENT AND NATURAL RESOURCES OFFICE
MIMAROPA Region
Coron, Palawan

18 October 2022

MEMORANDUM

FOR : **The Community Environment and Natural Resources Officer**
Coron, Palawan

FROM : **The Undersigned**

SUBJECT : **REPORT ON RESULT OF TOPOGRAPHIC SURVEY ON THE MOUNTAIN QUARRY IN SITIO DIPULAO, BRGY. POBLACION 6, CORON, PALAWAN.**

Pursuant to Travel Order No. 2022-25, the undersigned, Casandra Lynda L. Jalac of Mines and Geosciences Bureau MIMAROPA Region participated in the undertaking of the topographic survey in the LGU-Coron site in Brgy. Poblacion 6, Coron, Palawan.

Background Information

An inter-agency meeting was held last 26 May 2022 to address the current issues occurring in Coron, Palawan. Among the issues discussed were the mountain quarries in Barangays Poblacion 6, San Nicolas, and Decalachao. The following proponents who conducted extraction in the mentioned areas were issued cease-and-desist orders and have left the sites without proper decommissioning and rehabilitation. This made the sites prone to geohazard risks (e.g., debris slide or landslide) that could affect the nearby community. Based on the consensus of the inter-agency task force, the proponents will rehabilitate the aforementioned areas. They were tasked to submit a rehabilitation plan that the Mines and Geosciences Bureau will evaluate. On 23 June 2022, a second inter-agency meeting was conducted to present the rehabilitation plan of the proponents, however, it was based not on actual data. Hence, the proponents were recommended to conduct an actual ground survey (e.g., Real-Time Kinematic or Total Station Survey).

The field survey in the quarry site situated in Sitio Dipulao, Brgy. Poblacion 6 was held on 01 October 2022.

Purpose and Scope

The field campaign was conducted to acquire actual ground data. This data will be used as a basis for the decommissioning plan of the mountain quarry site. The topographic survey includes taking measurements using Real-Time Kinematic (RTK), photo documentation, and an assessment of the geology of the area.

Figure 1. Location map of the mountain quarry in Sitio Dipulao, Brgy. Poblacion 6, Coron, Palawan. Google Earth Pro (n.d.). Satellite Image of the Quarry Site. Retrieved 18 October 2022.

Findings and Observations

Methodology

The survey employed Real-Time Kinematic (RTK) with Global Navigation Satellite Systems (GNSS) to map out the topography of the quarry site. RTK is a type of surveying technique that measures points using two GNSS in. The first antenna, called the base station, is placed in a fixed location whereas the second antenna, known as the rover, roams to acquire data from each selected point in the surveyed area (Figure 1). Acquisition of data, like the distance and feature, is accomplished by determining the relative position of the rover relative to the base station (*Guidelines for real time kinematic (RTK) surveying*, 2019; *How to improve your surveying techniques with RTK,* 2022). Equipment used for this specific survey is Horizon Kronos C3.

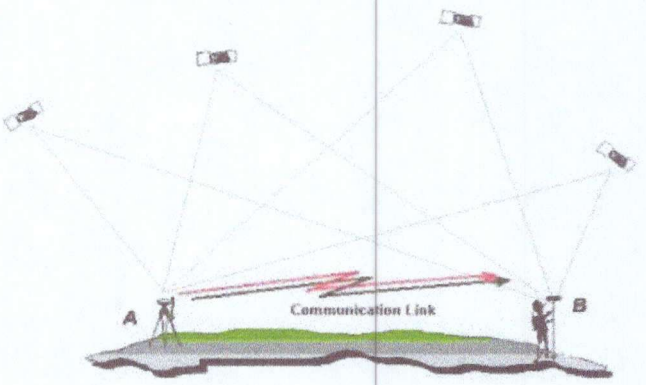

Figure 1. Schematic diagram of how RTK survey works. **A** represents the base station and **B** act as the rover.

Site Geology

The island of Busuanga is primarily composed of olistostrome of Late Permian to Late Jurassic chert and slate of Liminangcong Formation and Late Jurassic to Early Cretaceous sandstone of Guinlo Formation (MGB, 2010). As observed in the area, it is made up of highly sheared and folded bedded chert intercalated with laminae of sandstone and slate (Figure 2). Some blocks of sandstone and sulfur-bearing mudstone were also noted (Figure 3). The chert are commonly massive and quite resistant to weathering, however, existing bedding planes within the rock lower its strength and promote fractures. Sandstone and siltstone, on the other

hand, are easily friable and highly weathered into clayey soil. The soil and regolith cover on each site ranges from 15-20 cm.

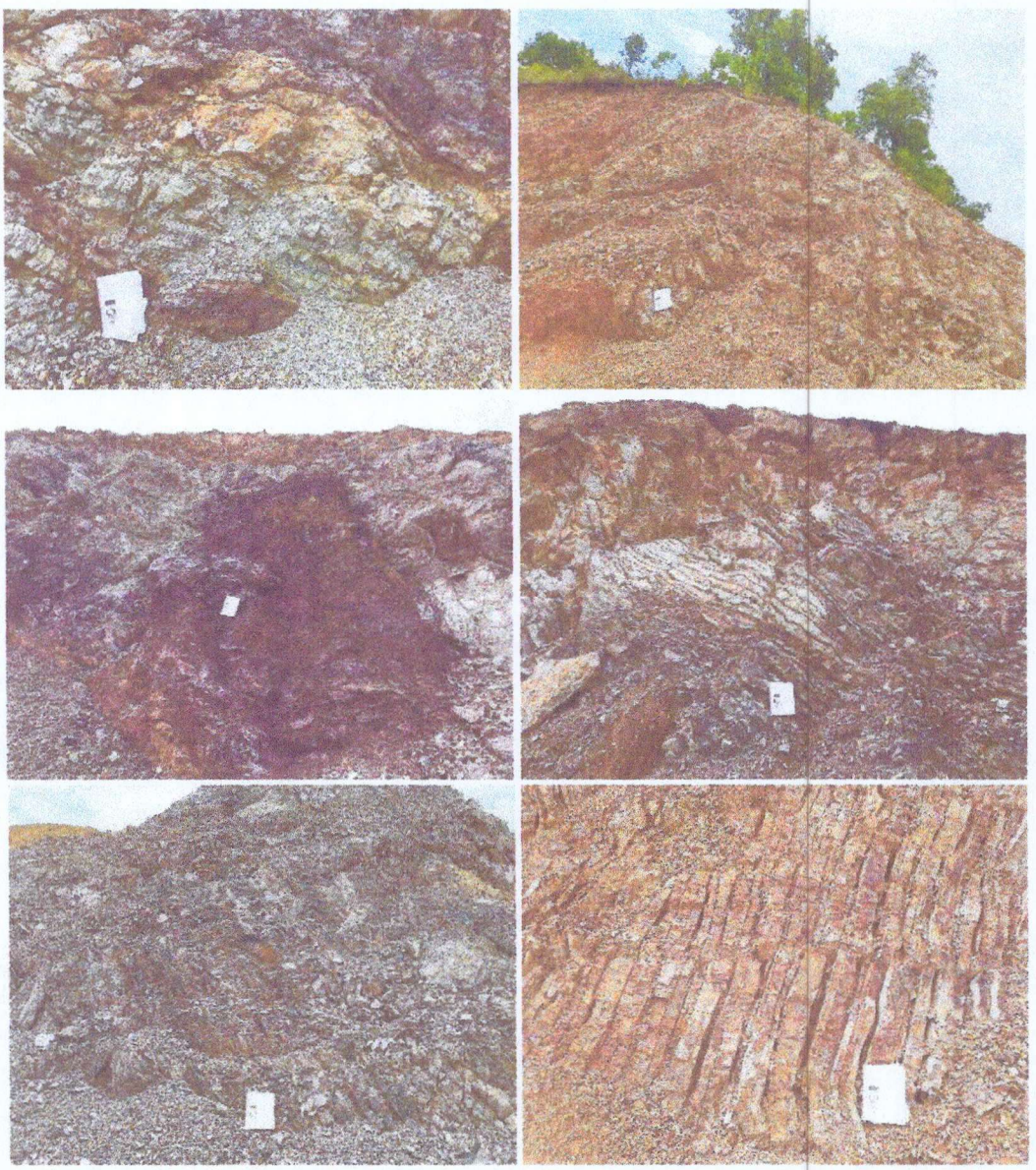

Figure 2. Observed chert rocks in the quarry site. Color, bed thickness, and dip angle vary relative to each point. Intercalated between each bed is laminae of sandstone and silt.

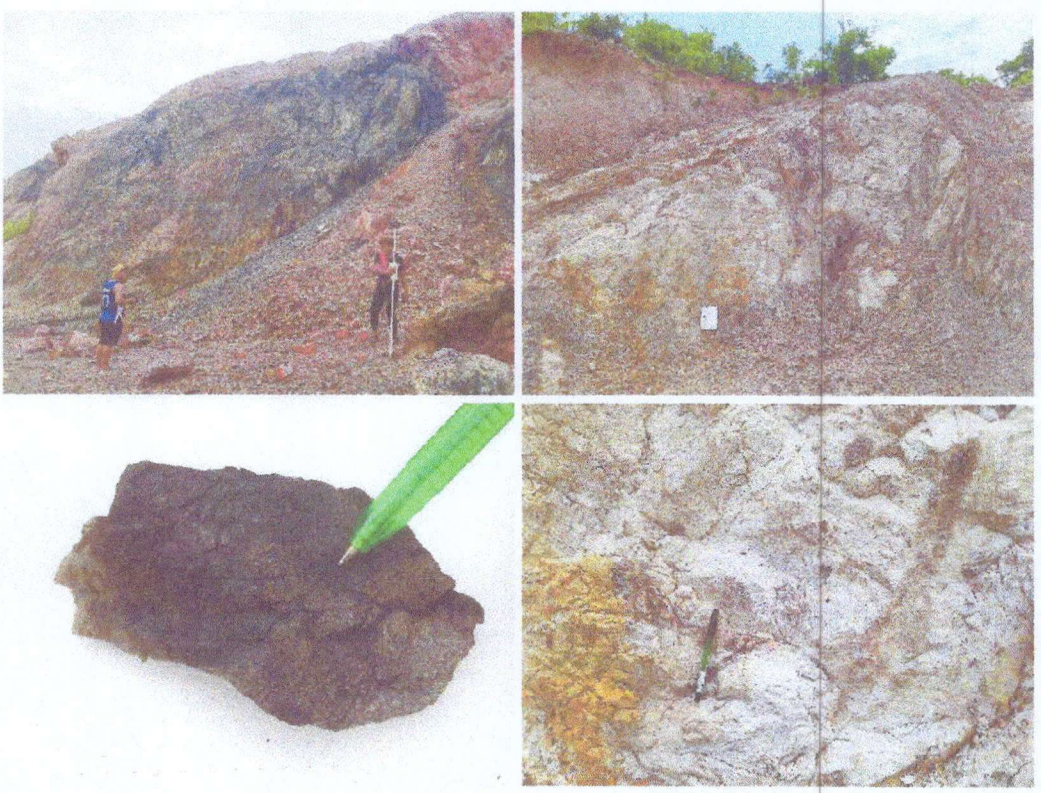

Figure 3. The exposure of sulfur-bearing mudstone and sandstone.

Data Processing

The processing of the gathered data will be handled by the proponent. It was mentioned that they will use AutoCAD to model the site. The processed data will be made accessible by the proponent once they are available.

Comments and Recommendations

1. Commend to the surveying team during the conduct of the survey as it was observed that numerous data points were obtained to map out the area. A higher number of data points will result in a higher resolution result.

2. To LGU-Coron, to immediately submit the revised rehabilitation plan once data is processed. Furthermore, to expedite this activity as landslides are stirring in the area.

For your reference, record, and further instruction(s).

Casandra Lynda Jalac
Science Research Specialist II
MGB MIMAROPA – Embedded Personnel

Photo Documentation

Some images taken during the calibration of the RTK equipment and actual data reading in the area.

References

Guidelines for real time kinematic (RTK) surveying. Canadian GIS & Geomatics. (2019, August 30). Retrieved October 18, 2022, from https://canadiangis.com/guidelines-for-real-time-kinematic-rtk-surveying.php

How to improve your surveying techniques with RTK. Position Partners. Retrieved October 18, 2022, from https://www.positionpartners.com.au/news/rtk-surveying/

Mines and Geosciences Bureau (MGB). (2010). *Geology of the Philippines (Second Edition)*. Quezon City, Philippines: Mines and Geosciences Bureau, Department of Environment and Natural Resources