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Department of Education  
Cordillera Administrative Region  
**DIVISION OF BAGUIO CITY**  
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Project: **CY 2018 QUICK RESPONSE FUND (BATCH 223)  
REPAIR/REHABILITATION/REPLACEMENT OF  
CLASSROOMS – CONSTRUCTION OF SLOPE  
PROTECTION**

Subject: **Specifications for Materials and Construction**

## 1. GENERAL NOTES

### A. RELATED SECTION

All applicable provisions of the different divisions of the Specifications for each work trade shall apply for all items cited in this Summary.

### B. INFERRED ITEMS AND WORK

Materials and workmanship deemed necessary to complete the works but NOT specifically mentioned in the Specifications, Work Drawings, or in the other Contract Documents, shall be supplied and installed by the Contractor without extra charge to the Owner. Such materials shall be of highest quality available, and installed or applied in a workmanlike manner at prescribed or appropriate locations.

### C. SPECIFICS

Materials specifically mentioned in this Summary shall be installed following efficient and sound engineering and construction practice, and especially as per manufacture's application for installation specifications which shall govern all works alluded to in these Specifications.

### D. CONSTRUCTION SAFETY

The contractor shall provide all necessary items needed to ensure safety to all workers, students, and all others at the job site.

## 2. SITE PREPARATION

1. Water, electricity and other utilities required during the project implementation shall be provided by the Contractor in coordination with the School Heads In charge.

## 3. CONSTRUCTION ITEMS

### A. EXCAVATION/ BACKFILLING/ SOIL COMPACTION

1. All necessary excavation and all other foundation works for foundation grade shall conform to dimension as indicated in the drawings verified in actual site.
2. The contractor shall control the grading in the vicinity of all excavated areas to prevent surface drainage running into excavations.

3. Compact fill shall be approved site-excavated material free from roots, stumps and other perishable or objectionable matter.
4. Select fill shall be placed where indicated shall consist of crushed gravel, crushed rock, or a combination thereof and other fill shall be from excavated materials.
5. The material shall be free from adobe, vegetable matters and shall be thoroughly tamped after placing clear of brush roots, vegetation matter and debris, scarified and thorough wetted to insure good bonding between ground.
6. Embankment shall be placed and compacted properly at every 200mm (8") depth loose measurement. **PROVIDE FIELD DENSITY TEST (FDT) RESULT EVERY LAYER.**
7. All excess excavated materials shall be hauled out from site. And if materials on site is not enough for backfilling, constructor shall provide said materials to complete necessary works, at his/her own cost.

#### B. CONCRETE STRUCTURES & REINFORCING STEEL BARS

1. All materials (cement, sand, gravel) to be used in this project shall be new and approved quality and have passed Standard Government Specifications. For cement use Portland, crushed gravel and crushed sand.
2. Cement for concrete shall conform to the requirements of specifications for Portland cement (ASTM C-150). **PROVIDE 2 QUALITY TEST RESULT SAMPLED IN 2 SEPARATE DELIVERY.**
3. All concrete works shall be done in accordance with the Standard Specifications for concrete materials as adopted by the government and the following proportions shall be used unless otherwise indicated on plans.
4. Proportioning of concrete shall conform to ASTM Standard. Concrete shall have a consistency that it will flow around reinforcing steel.
5. Pouring of concrete shall be properly coordinated with the implementing agency with the time and date; it shall be requested prior to the said activity. Such pouring of concrete shall not be allowed without the approval or go signal of the supervising project engineer, and without his/her presence in the site. Any violation in the procedure hereto shall be a ground for the implementing agency or the supervising engineer not to accept the project.
6. The required strength of concrete should be at least 3000 psi in 28 days. **PROVIDE COMPRESSION TEST RESULTS – 1 SET FOR EVERY POURING DATE.**
7. Mixing of concrete shall be done in a concrete mixer.
8. Unless otherwise shown on plans, reinforcing steel bars shall be structural grade deformed and approved quality. Reinforcing bars shall conform to the standard requirements of ASTM specifications for Billet Steel Bars for Concrete reinforcement.
9. All reinforcing bars shall be brand new, in good condition and of good quality, free from unwanted deformities and shall have no sign of deterioration such as rust, **The minimum splice length for all columns and beams must be 1.0m.**
10. Use Grade 40 RSB. **PROVIDE QUALITY TEST (STRENGTH, PHYSICAL AND CHEMICAL) EVERY SIZES OF RSB/EVERY DELIVERY WHICHEVER IS DEEMED NECESSARY TO THE SUPERVISING ENGINEER.**

## 4. GROUTED RIPRAP/STONE MASONRY

### A. MATERIAL REQUIREMENTS

#### 1. STONES

Stones for Riprap shall consist of rock as nearly as rectangular in section as is practical. The stones shall be sound, durable, dense, resistant to the action of air and water, and suitable in all respect for the purpose intended. Use **Stone #1**.

#### 2. MORTAR

Mortar for grouted riprap, shall consist of sand, Portland cement (ASTM C-150) and water, mixed in the proportion of to attain **1:3 Grout Mixture**. **PROVIDE QUALITY TEST FOR AGGREGATES (SAND & GRAVEL)**

Mortar for stone masonry, shall consist of sand, Portland cement (ASTM C-150) and water, mixed in the proportion of to attain **1:5 Grout Mixture**. **PROVIDE QUALITY TEST FOR AGGREGATES (SAND & GRAVEL)**

### B. CONSTRUCTION REQUIREMENTS

#### 1. EXCAVATION

The bed for riprap shall be excavated to the required depths and properly compacted, trimmed and shaped.

The riprap shall be founded in a toe trench dug below the depth of scour as shown on the plans. The toe trench shall be filled with stone of the same material as that specified for the riprap.

#### 2. PLACING

Each stone shall be laid with its longest axis perpendicular to the slope in close contact with each adjacent stone. The riprap shall be thoroughly rammed into place as construction progresses and the finished surface shall present an even, tight surface.

#### 3. GROUTING

In every layer of stones and in the space between of it, shall then be filled with cement mortar throughout the thickness of the riprap. Sufficient mortar shall be used to completely fill all voids, except that the face of the stones shall be left exposed. After grouting is completed, the surface shall be cured for a period of at least three days.

#### 4. WEEPHOLES

The weep holes shall be placed horizontally at the lowest points where free outlets for water can be obtained and shall be spaced not more than 2m center to center in a staggered manner. The length of the weep holes shall not be less than the thickness of the grouted riprap and shall be at least 75mm diameter PVC.

## 5. STEEL WORKS/ METAL WORKS

1. Use 2", S-40 G.I. pipes.

## 6. CLEANING UP AND ACCEPTANCE

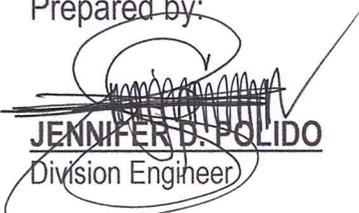
- A. Upon completion of all the works covered, it is the duty of the contractor to remove and clean all surfaces including surroundings from unnecessary materials, dirt and other unsightly objects. All finished work shall be inspected and approved by engineer/architect. Any portion of the work not in conformity to standards shall be removed and or repaired at no extra cost before the final turnover of the building to the owner.

----- END OF SPECIFICATIONS -----

### NOTES:

1. SIZES INDICATED IN PLANS AND ESTIMATES ARE NOMINAL SIZES.
2. ALL SPECIFIED TESTS SHOULD BE WITNESSED BY THE SUPERVISING ENGINEER OF THE IMPLEMENTING OFFICE.
3. IF NECESSARY, ACCOMPLISHED SCOPE OF WORKS SHALL BE SUBJECTED TO GROUND PENETRATING RADAR TEST &/OR REBOUND HAMMER TEST/CORE TEST, AT CONTRACTOR'S COST.

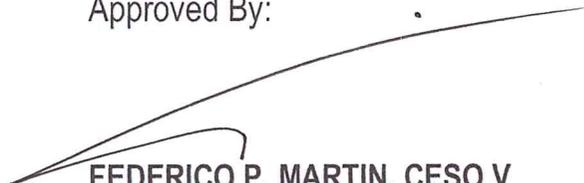
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