

REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS  
OFFICE OF THE SECRETARY  
MANILA

097.13 DPWH  
12.13.2006

DEC 11 2006

DEPARTMENT ORDER ) SUBJECT: Use of Dolomites as  
NO. 61 ) Aggregate in Portland  
Series of 2006 ) Cement Concrete Pavement  
12-13-06 )

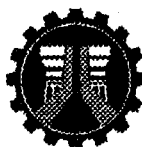
In line with the continuing efforts to upgrade the construction technology thru the adoption of successful research studies, this Department has approved the use of Dolomites as Aggregate in Portland Cement Concrete Pavement, subject to the specifications hereto attached. A Certificate of Conditional Approval had been issued by this Department, accrediting the use of Dolomite in DPWH Projects from June 2006 until June 2011.

This order takes effect immediately.

HERMOGENES E. ERDANE, JR.  
Acting Secretary



WIN6U00121



Republic of the Philippines  
Department of Public Works and Highways  
Office of the Secretary

# CERTIFICATE OF CONDITIONAL APPROVAL

## Product Accreditation

This is to certify that

**DOLOMITE**

produced by:

**Philippine Mining Service Corporation**  
**Pugalo, Alcoy, Cebu 6023**

is duly accredited for use in DPWH projects as aggregates in Portland Cement Concrete Pavement, subject to its specifications (hereto attached) pursuant to the provisions of DPWH Department Order No. 189, series of 2002.

This accreditation shall remain in force until expiry date printed below, subject to compliance with the requirements of the aforementioned Department Order.

Conditional Approval No.	:	009
Date Issued	:	June 2006
Expiry Date	:	June 2011

**HERMOGENES E. EBDANE, JR.**  
Acting Secretary



WIN6U00090

## **DPWH STANDARD SPECIFICATION FOR**

### **THE USE OF DOLOMITES AS AGGREGATE IN PORTLAND CEMENT CONCRETE**

#### **1.0 Description**

This Item shall consist of pavement of Portland Cement Concrete with Dolomite as aggregate with or without reinforcement, constructed on the prepared base in accordance with this Specification and in conformity with lines, grades, thickness and typical cross-section shown on the Plans.

#### **2.0 Material Requirements**

##### **2.1 Portland Cement**

It shall conform to the applicable requirements of Item 700, Hydraulic Cement. Only Type I Portland Cement shall be used unless otherwise provided for in the Special Provisions. Different brands or the same brands from different mills shall not be mixed nor shall they be used alternately unless the mix is approved by the Engineer. However, the use of Portland Pozzolan Cement Type IP meeting the requirements of AASHTO M 240 / ASTM C 695, Specifications for Blended Hydraulic Cement shall be allowed, provided that trial mixes shall be done and that the mixes meet the concrete strength requirements, the AASHTO/ASTM provisions pertinent to the use of Portland Pozzolan Type IP shall be adopted.

Cement which, for any reason, has become partially set or which contains lumps of caked cement will be rejected. Cement salvaged from discarded or used bags shall not be used.

Samples of Cement shall be obtained in accordance with AASHTO T 127.

##### **2.2 Dolomite Aggregates**

It shall be washed thoroughly with fresh water and shall be made in order to remove the impurities and other chemical constituents that might have an adverse effect on the performance of the concrete pavement. Laboratory tests shall be conducted to check the presence of Alkali – Carbonate in the Dolomites.

###### **2.2.1 Fine Aggregate**

It shall consist of Dolomite aggregate having hard, strong and durable particles. Natural sand, stone screening or other inert materials with similar characteristics or combination thereof is allowed to be used as substitute of Dolomite aggregates. Fine aggregate from different sources of supply shall not be mixed or stored in the same pile nor used alternately in the same class of concrete without the approval of the Engineer.

It shall not contain more than three (3) mass percent of material passing the 0.075 mm (No. 200 sieve) by washing nor more than one (1) mass percent each of clay lumps or shale.

If the fine aggregate is subjected to five (5) cycles of the sodium sulfate soundness test, the weighted loss shall not exceed 10 mass percent.

The fine aggregate shall be free from injurious amounts of organic impurities. If subjected to the colorimetric test for organic impurities and a color darker than the standard is produced, it shall be rejected. However, when tested for the effect of organic impurities of strength of mortar by AASHTO T 71, the fine aggregate may be used if the relative strength at 7 and 28 days is not less than 95 mass percent.

The fine aggregate shall be well-graded from coarse to fine and shall conform to Table 1.

**Table 1 – Grading Requirements for Fine Aggregate**

Sieve Designation	Mass Percent Passing
9.5 mm (3/8 in)	100
4.75 mm (No. 4)	95 – 100
2.36 mm (No. 8)	-
1.18 mm (No. 16)	45 – 80
0.600 mm (No. 30)	-
0.300 mm (No. 50)	5 – 30
0.150 mm (No. 100)	0 – 10

### **2.2.2 Coarse Aggregate**

It shall consist of Dolomite aggregates having hard, strong, durable pieces and free from any adherent coatings.

It shall contain not more than one (1) mass percent of material passing the 0.075 mm (No. 200) sieve, not more than 0.25 mass percent of clay lumps, nor more than 3.5 mass percent of soft fragments.

If the coarse aggregate is subjected to five (5) cycles of the sodium sulfate soundness test, the weighted loss shall not exceed 12 mass percent.

It shall have a mass percent of wear not exceeding 40 when tested by AASHTO T 96.

The gradation of the coarse aggregate shall conform to Table 2.

Only one grading specification shall be used from any one source.

**Table 2 – Grading Requirement for Coarse Aggregate**

Sieve Designation		Mass Percent Passing		
Standard Mm	Alternate U. S. Standard	Grading A	Grading B	Grading C
75.00	3 in.	100	-	-
63.00	2-1/2 in.	90-100	100	100
50.00	2 in.	-	90-100	95-100
37.5	1-1/2 in.	25-60	35-70	-
25.0	1 in.	-	0-15	35-70
19.0	¾ in.	0-10	-	-
12.5	½ in.	0-5	0-5	10-30
4.75	No. 4	-	-	0-5

### 2.3 Water

Same as subsection 311.2.4.

### 2.4 Reinforcing Steel

Same as subsection 311.2.5.

### 2.5 Joint Fillers

Same as subsection 311.2.6.

### 2.6 Admixtures

Same as subsection 311.2.7.

### 2.7 Curing Materials

Same as subsection 311.2.8.

### 2.8 Calcium Chloride/Calcium Nitrate

It shall conform to AASHTO M 144, if specified or permitted by the Engineer, as accelerator.

### 2.9 Storage of Cement and Aggregate

Same as subsection 311.2.10.

### 2.10 Proportioning, Consistency and Strength of Concrete using Dolomite Aggregates

Same as subsection 311.2.11.

### 3.0 Construction Requirements

The Construction requirements shall be in accordance with Item 311 Portland Cement Concrete Pavement subsection 311.3 Construction Requirements.

### 4.0 Method of Measurement

The area to be paid for under this Item shall be the number of square meters ( $m^2$ ) of concrete pavement placed and accepted in the completed pavement. The width for measurements will be the width from outside edge to outside edge of completed pavement as placed in accordance with the Plans or as otherwise required by the Engineer in writing. The length will be measured horizontally along the centerline of each roadway or ramp. Any curb and gutter placed shall not be included in the area of concrete pavement measured.

### 5.0 Basis of Payment

The accepted quantity, measured as prescribed in Section 4, shall be paid for at the contract unit price for Portland Cement Concrete Pavement with Dolomites as Aggregates, which price and payment shall be full compensation for preparation of roadbed and finishing of shoulders, unless otherwise provided by the Special Provisions, furnishing all materials, for mixing, placing, finishing and curing all concrete, for furnishing and placing all joint materials, for sawing weakened plane joints, for fitting the prefabricated center metal joint, for facilitating and controlling traffic, and for furnishing all labor, equipment, tools and incidentals necessary to complete the Item.

Payment will be made under:

Pay Item Number	Description	Unit of Measurement
	Portland Cement Concrete Pavement with Dolomites as Aggregates (Plain)	Square meter
	Portland Cement Concrete Pavement with Dolomites as Aggregates (Reinforced)	Square meter

#### REFERENCES :

1. USE OF DOLOMITES AS AGGREGATE IN PORTLAND CEMENT CONCRETE PAVEMENT (FINAL REPORT) BY DPWH – BRS – RDD (JUNE 2004)
2. DPWH STANDARD SPECIFICATION FOR HIGHWAYS, BRIDGES AND AIRPORTS, VOLUME II (2004)