

ABACAN RIVER

SUMMARY SHEET FOR LAHAR MATERIAL SURVEY

PROJECT: LAHAR MATERIAL SURVEY	TEST SAMPLE NO. ABA-1
LOCATION: 10m upstream from Sabo Dam TL-1	DATE: 5-03-94
TYPE OF MATERIALS: Lahar Material (FA)	SOURCE: Abacan River

	TEST PIECE NO.		
	NO. 1	NO. 2	NO. 3
SIEVE ANALYSIS			
Cumulative % Passing			
Sieve Size 37.5 mm	100	100	100
25.0 mm	100	100	100
19.0 mm	100	100	100
12.5 mm	100	99.47	100
9.5 mm	97.62	99.33	99.14
4.75 mm	94.45	97.51	94.72
2.36 mm	88.76	91.53	85.63
1.18 mm	69.96	65.66	63.30
0.60 mm	41.93	26.88	33.18
0.30 mm	18.06	11.63	15.13
0.150 mm	0.96	4.74	4.91
0.075 mm	0.88	4.35	4.73
SPECIFIC GRAVITY	2.63	2.68	2.66
ABSORPTION (%)	2.42	7.41	4.95
UNIT WEIGHT (kg/m³)			
Rodded	1540.27	1594.88	1605.23
Loose	1391.05	1355.74	1370.80

WORKSHEET FOR SPECIFIC GRAVITY TEST

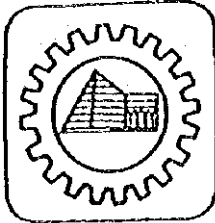
PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. ABA-1
LOCATION : ^{10m} upstream from Sabo Dam (LE-1)	DATE : 5-05-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : ABAGAN RIVER

I. COURSE AGGREGATE (WIRE BASKET METHOD)

ITEM	TEST PIECE NO.		
	NO.	NO.	NO.
1. WT. of SSD + basket in air, gr			
2. WT. of basket in air, gr			
3. WT. of SSD sample in air, gr, (1-2)			
4. WT. of sample + basket in the water, gr			
5. WT. of basket in water, gr			
6. WT. of sample in water, gr, (4-5)			
7. WT. of oven-dry sample, gr			
8. Bulk specific gravity (dry), $7/(3-6)$			
9. Bulk specific gravity (SSD), $3/(3-6)$			
10. Apparent specific gravity, $7/[(3-6)-(3-7)]$			
11. Absorption, %, $(3-7)/7 \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

	NO. 1	NO. 2	NO. 3
1. WT. of SSD sample, gr	500	500	500
2. WT. of pycnometer + water, gr	680.70	680.90	680.70
3. WT. of pycnometer + sample + water, gr	983.10	972.80	978.30
4. WT. of water, gr, (3-2)	302.40	291.90	297.60
5. WT. of oven-dry sample, gr	488.20	465.50	476.40
6. Bulk specific gravity (dry), $5/(500-4)$	2.47	2.24	2.35
7. Bulk specific gravity (SSD), $1/(500-4)$	2.53	2.40	2.47
8. Apparent specific gravity, $5/[(500-4)-(1-5)]$	2.63	2.68	2.66
9. Absorption, %, $(1-5)/5 \times 100$	2.42	7.41	4.95



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN SA-0040-94

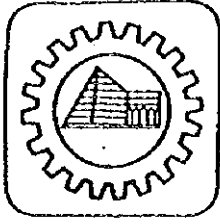
PROJECT LAHAR MATERIAL SURVEY				DATE OF REPORT 06-01-94			
SPECIFICATION			PURPOSE OF MATERIAL		SAMPLED BY AND DATE RDPCI/04-20-94		
SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 1, SAMPLE # 1					SOURCE: River, quarry, etc.) ABACAN RIVER		
WEIGHT OF SAMPLE			MOISTURE CONTENT (%) 0.70	QUANTITY REPRESENTED	MAN. SIZE (INCH)		
Original 500	Oven dry 496.50	Washed oven dry					
SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	0.00	0.00	100.00	100		
3/8"	9.5	11.70	2.38	97.62	98		
No. 4	4.75	15.60	3.17	94.45	94		
No. 8	2.38	28.00	5.69	88.76	89		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	92.50	18.80	69.96	70		
No. 20	0.84						
No. 30	.59	137.90	28.03	41.93	42		
No. 40	.42						
No. 50	.297	117.50	23.89	18.04	18		
No. 60	.250						
No. 80	.177						
No. 100	.149	84.00	17.08	0.96	1		
No. 200	.074	0.40	0.08	0.88	1		
PAN		4.30					
WASH							
TOTAL		491.90					

FINENESS MODULUS _____

UNIT WEIGHT PCF. _____

TESTED BY: MC MIRASOL DATE: 05-03-94
 CHECKED BY: GL ZERVOULAKOS DATE: 05-20-94

DRY LOOSE 1391.05
 DRY RODDED 1540.27



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WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 10m upstream from Sabo Dam (TL-1)
 TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-04C-94
 DATE: 5-05-94
 SOURCE: ABACAN-1, Sample # 1

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3.6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3.6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3.6) - (3.7)}$			
11.	ABSORPTION % $\frac{(3.7)}{7} \times 100$			

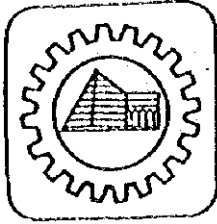
II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.70		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	983.10		
4.	WT. OF WATER GR. (3-2)	302.40		
5.	WT. OF OVEN-DRY SAMPLE GR.	488.20		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.47		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.53		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4) - (1.5)}$	2.63		
9.	ABSORPTION % $\frac{(1.5)}{5} \times 100$	2.42		

TESTED BY: M.C. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Perivolakob



R.D. POLICARPIO & CO., INC.

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MECHANICAL ANALYSIS

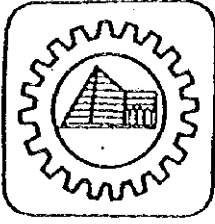
TRN: SA-0041-94

PROJECT LAHAR MATERIAL SURVEY		DATE OF REPORT 06-01-94
SPECIFICATION	PURPOSE OF MATERIAL	SAMPLED BY AND DATE RDPCI/04-20-94
SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 1, SAMPLE # 2		SOURCE: River, quarry, etc.) ABACAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	492.40		1.54		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH OC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	2.60	0.53	99.47	99		
3/8"	9.5	0.70	0.14	99.33	99		
No. 4	4.75	8.90	1.82	97.51	98		
No. 8	2.38	29.20	5.98	91.53	92		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	126.20	25.87	65.66	66		
No. 20	0.84						
No. 30	.59	189.20	38.78	26.88	27		
No. 40	.42						
No. 50	.297	74.40	15.25	11.63	12		
No. 60	.250						
No. 80	.177						
No. 100	.149	33.60	6.89	4.74	5		
No. 200	.074	1.90	0.39	4.35	4		
PAN		21.20					
WASH							
TOTAL		487.90					

FINENESS MODULUS _____	UNIT WEIGHT PCF. _____
TESTED BY: <u>MC MIRASOL</u> DATE: <u>05-03-94</u>	DRY LOOSE: <u>1355.74</u>
CHECKED BY: <u>GL ZERVOULAKOS</u> DATE: <u>05-20-94</u>	DRY RODDED: <u>1594.88</u>



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WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 10m upstream from Sebo Dam (TL-1)
 TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-041-94
 DATE: 5-05-94
 SOURCE: ABACAN-1, Sample # 2

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6) - (3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

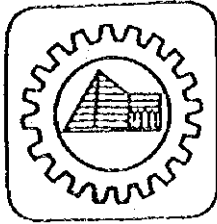
II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.90		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	972.80		
4.	WT. OF WATER GR. (3-2)	291.90		
5.	WT. OF OVEN-DRY SAMPLE GR.	465.50		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.24		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.40		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4 - (1-5)}$	2.68		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	7.41		

TESTED BY: M.G. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Zepoulakos



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MECHANICAL ANALYSIS

TRN SA-0042-94

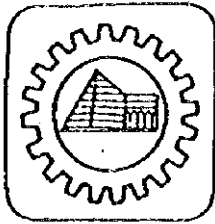
PROJECT LAHAR MATERIAL SURVEY				DATE OF REPORT 06-01-94			
SPECIFICATION		PURPOSE OF MATERIAL		SAMPLED BY AND DATE RDPCI/04-20-94			
SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 1, SAMPLE # 3				SOURCE: River, quarry, etc.) ABACAN RIVER			
WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)		
Original 500	Oven dry 494.50	Washed oven dry					
SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	0.00	0.00	100.00	100		
3/8"	9.5	4.20	0.86	99.14	99		
No. 4	4.75	21.70	4.42	94.72	95		
No. 8	2.38	44.60	9.09	85.63	86		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	109.50	22.33	63.30	63		
No. 20	0.84						
No. 30	.59	147.70	30.12	33.18	33		
No. 40	.42						
No. 50	.297	88.50	18.05	15.13	15		
No. 60	.250						
No. 80	.177						
No. 100	.149	50.10	10.22	4.91	5		
No. 200	.074	0.90	0.18	4.73	5		
PAN		23.20					
WASH							
TOTAL		490.40					

FINENESS MODULUS

UNIT WEIGHT PCF.

TESTED BY: **MC MIRASOL** DATE: **05-03-94**
 CHECKED BY: **GL ZERVOULAKOS** DATE: **05-20-94**

DRY LOOSE **1370.80**
 DRY RODDED **1605.23**



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WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 10m upstream from Sabo Dam (TL-1)
 TYPE OF MATERIALS: Lahar Material (P.A.)

TEST REPORT NO.: SG-042-94
 DATE: 5-05-94
 SOURCE: ABACAN-1, Sample # 3

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1. WT. OF SSD + BASKET IN AIR GR.			
2. WT. OF BASKET IN AIR, GR.			
3. WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4. WT. OF SAMPLE + BASKET IN WATER, GR.			
5. WT. OF BASKET IN WATER, GR.			
6. WT. OF SAMPLE IN WATER, GR. (4-5)			
7. WT. OF OVEN-DRY SAMPLE, GR.			
8. BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9. BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10. APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11. ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1. WT. OF SSD SAMPLE GR.	500		
2. WT. OF PYCNOMETER + WATER GR.	680.70		
3. WT. OF PYCNOMETER + SAMPLE + WATER GR.	978.30		
4. WT. OF WATER GR. (3-2)	297.60		
5. WT. OF OVEN-DRY SAMPLE GR.	476.40		
6. BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.35		
7. BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.47		
8. APPARENT SPECIFIC GRAVITY $\frac{5}{500-4-(1-5)}$	2.66		
9. ABSORPTION % $\frac{(1-5)}{5} \times 100$	4.95		

TESTED BY: M.G. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Zervoulakos

SUMMARY SHEET FOR LAHAR MATERIAL SURVEY

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. ABA-2
LOCATION : 10m upstream from Sabo Dam TH-	DATE : 5-02-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : Abacan River

	TEST PIECE NO.		
	NO. 1	NO. 2	NO. 3
SIEVE ANALYSIS			
Cumulative % Passing			
Sieve Size 37.5 mm	100	100	100
25.0 mm	100	100	100
19.0 mm	97.99	98.29	98.48
12.5 mm	97.66	95.44	95.59
9.5 mm	96.70	92.07	92.43
4.75 mm	91.90	87.59	87.90
2.36 mm	83.67	79.62	79.83
1.18 mm	68.66	63.84	63.96
0.60 mm	44.76	40.19	40.66
0.30 mm	18.05	18.35	18.56
0.150 mm	4.75	5.32	5.37
0.075 mm	3.72	5.22	5.26
SPECIFIC GRAVITY	3.01	2.60	2.76
ABSORPTION (%)	9.77	6.72	8.55
UNIT WEIGHT (kg/m³)			
Rodded	1505.44	1572.28	1592.52
Loose	1306.31	1368.92	1304.90

WORKSHEET FOR SPECIFIC GRAVITY TEST

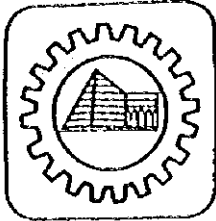
PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. ABA-2
LOCATION : 10m upstream from Sabo Dam (TH-1)	DATE : 5-03-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : ABACAN RIVER

I. COURSE AGGREGATE (WIRE BASKET METHOD)

ITEM	TEST PIECE NO.		
	NO.	NO.	NO.
1. WT. of SSD + basket in air, gr			
2. WT. of basket in air, gr			
3. WT. of SSD sample in air, gr, (1-2)			
4. WT. of sample + basket in the water, gr			
5. WT. of basket in water, gr			
6. WT. of sample in water, gr, (4-5)			
7. WT. of oven-dry sample, gr			
8. Bulk specific gravity (dry), $7/(3-6)$			
9. Bulk specific gravity (SSD), $3/(3-6)$			
10. Apparent specific gravity, $7/[(3-6)-(3-7)]$			
11. Absorption, %, $(3-7)/7 \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

	NO. 1	NO. 2	NO. 3
1. WT. of SSD sample, gr	500	500	500
2. WT. of pycnometer + water, gr	680.50	680.30	680.30
3. WT. of pycnometer + sample + water, gr	984.90	968.60	973.80
4. WT. of water, gr, (3-2)	304.40	288.30	293.50
5. WT. of oven-dry sample, gr	455.50	468.50	460.60
6. Bulk specific gravity (dry), $5/(500-4)$	2.33	2.21	2.23
7. Bulk specific gravity (SSD), $1/(500-4)$	2.56	2.36	2.42
8. Apparent specific gravity, $5/[(500-4)-(1-5)]$	3.01	2.60	2.76
9. Absorption, %, $(1-5)/5 \times 100$	9.77	6.72	8.55



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MECHANICAL ANALYSIS

TRN SA-0034-94

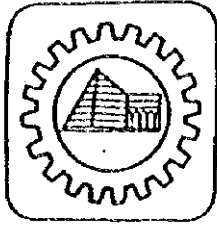
PROJECT LAHAR MATERIAL SURVEY				DATE OF REPORT 06-01-94			
SPECIFICATION			PURPOSE OF MATERIAL		SAMPLED BY AND DATE RDPCI/04-20-94		
SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 2, SAMPLE # 1					SOURCE: River, quarry, etc.) ABACAN RIVER		
WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)		
Original 500	Oven dry 489.60	Washed oven dry				2.12	
SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	9.80	2.01	97.99	98		
1/2"	12.7	1.60	0.33	97.66	98		
3/8"	9.5	4.70	0.96	96.70	97		
No. 4	4.75	23.40	4.80	91.90	92		
No. 8	2.38	40.10	8.23	83.67	84		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	73.10	15.01	68.66	69		
No. 20	0.84						
No. 30	.59	116.40	23.90	44.76	45		
No. 40	.42						
No. 50	.297	130.10	26.71	18.05	18		
No. 60	.250						
No. 80	.177						
No. 100	.149	64.80	13.30	4.75	5		
No. 200	.074	5.00	1.03	3.72	4		
PAN		18.10					
WASH							
TOTAL		487.10					

FINENESS MODULUS _____

UNIT WEIGHT PCF. _____

TESTED BY: **MC MIRASOL** *[Signature]* DATE: **05-02-94**
 CHECKED BY: **GL ZERVOULAKOS** *[Signature]* DATE: **05-20-94**

DRY LOOSE _____ **1306.31**
 DRY RODDED _____ **1505.44**



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 10 m upstream from Sabo Dam (TM-1)
 TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-034-94
 DATE: 5-03-94
 SOURCE: ABAKAN-2, Sample # 1

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3.5}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3.6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3.6) - (3.7)}$			
11.	ABSORPTION % $\frac{(3.7) - 7}{7} \times 100$			

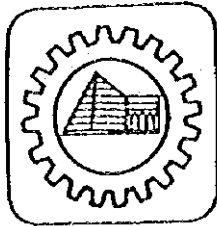
II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.50		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	984.90		
4.	WT. OF WATER GR. (3-2)	304.40		
5.	WT. OF OVEN-DRY SAMPLE GR.	455.50		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500.4}$	2.33		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500.4}$	2.56		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500.4 - (1.5)}$	3.01		
9.	ABSORPTION % $\frac{(1.5) - 5}{5} \times 100$	9.77		

TESTED BY: M.C. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Zepheros



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN SA-0035-94

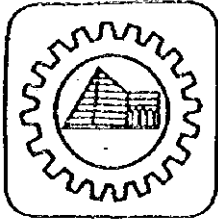
PROJECT LAHAR MATERIAL SURVEY				DATE OF REPORT 06-01-94			
SPECIFICATION		PURPOSE OF MATERIAL		SAMPLED BY AND DATE RDPCI/04-20-94			
SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 2, SAMPLE # 2				SOURCE: River, quarry, etc.) ABACAN RIVER			
WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)		
Original 500	Oven dry 490.60	Washed oven dry					1.92
SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH OC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	08.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	8.20	1.71	98.29	98		
1/2"	12.7	13.70	2.85	95.44	95		
3/8"	0.52	16.20	3.37	92.07	92		
No. 4	4.75	21.50	4.48	87.59	88		
No. 8	2.38	38.30	7.97	79.62	80		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	75.80	15.78	63.84	64		
No. 20	0.84						
No. 30	.59	113.60	23.65	40.19	40		
No. 40	.42						
No. 50	.297	104.90	21.84	18.35	18		
No. 60	.280						
No. 80	.177						
No. 100	.149	62.60	13.03	5.32	5		
No. 200	.074	0.50	0.10	5.22	5		
PAN		25.00					
WASH							
TOTAL		480.30					

FINENESS MODULUS _____

UNIT WEIGHT PCF. _____

TESTED BY: **MC MIRASOL** DATE: **05-02-94**
 CHECKED BY: **GL ZERVOULAKOS** DATE: **05-20-94**

DRY LOOSE **1368.92**
 DRY RODDED **1572.28**



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 10m upstream from Sabo Dam (TM-1)
 TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-035-94
 DATE: 5-03-94
 SOURCE: ABACAN-2, Sample # 2

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3.6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3.6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3.6) - (3.7)}$			
11.	ABSORPTION % $\frac{(3.7)}{7} \times 100$			

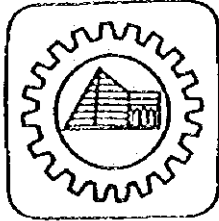
II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.30		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	968.60		
4.	WT. OF WATER GR. (3-2)	288.30		
5.	WT. OF OVEN-DRY SAMPLE GR.	468.50		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500.4}$	2.21		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500.4}$	2.36		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500.4 - (1.5)}$	2.60		
9.	ABSORPTION % $\frac{(1.5)}{5} \times 100$	6.72		

TESTED BY: M.C. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Zervoulakos



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN. SA-0036-94

PROJECT LAHAR MATERIAL SURVEY	DATE OF REPORT 06-01-94
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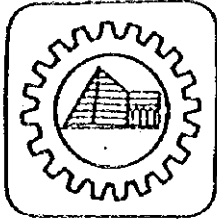
SPECIFICATION	PURPOSE OF MATERIAL	SAMPLED BY AND DATE RDPCI/04-20-94
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SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 2, SAMPLE # 3	SOURCE: River, quarry, etc.) ABACAN RIVER
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WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	479.70		4.23		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	7.20	1.52	98.48	88		
1/2"	12.7	13.70	2.89	95.59	96		
3/8"	9.5	15.00	3.16	92.43	92		
No. 4	4.75	21.50	4.53	87.90	88		
No. 8	2.38	38.30	8.07	79.83	80		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	75.30	15.87	63.96	64		
No. 20	0.84						
No. 30	.59	110.60	23.30	40.66	41		
No. 40	.42						
No. 50	.297	104.90	22.10	18.56	18		
No. 60	.260						
No. 80	.177						
No. 100	.149	62.60	13.19	5.37	5		
No. 200	.074	0.50	0.11	5.26	5		
PAN		25.00					
WASH							
TOTAL		474.60					

FINENESS MODULUS _____	UNIT WEIGHT PCF. _____
TESTED BY: <u>MC MIRASOL</u> DATE: <u>05-02-94</u>	DRY LOOSE <u>1304.90</u>
CHECKED BY: <u>GL ZERVOULAKOS</u> DATE: <u>05-20-94</u>	DRY RODDED <u>1592.52</u>



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 10m upstream from Sabo Dam (TM-1)
 TYPE OF MATERIALS: LaHar Material (P.A.)

TEST REPORT NO.: SG-036-94
 DATE: 5-03-94
 SOURCE: ABACAN-2, Sample # 3

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3.6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3.6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3.6) - (3.7)}$			
11.	ABSORPTION % $\frac{(3.7) - 7}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.30		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	973.80		
4.	WT. OF WATER GR. (3-2)	293.50		
5.	WT. OF OVEN-DRY SAMPLE GR.	460.60		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.23		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.42		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4 - (1-5)}$	2.76		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	8.55		

TESTED BY: M.C. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Zepoylakos

SUMMARY SHEET FOR LAHAR MATERIAL SURVEY

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. ABA-3
LOCATION : 10m upstream from Sabo Dam No.1	DATE : 5-06-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : Abacan River

	TEST PIECE NO.		
	NO. 1	NO. 2	NO. 3
SIEVE ANALYSIS			
Cumulative % Passing			
Sieve Size 37.5 mm	100	100	100
25.0 mm	100	100	100
19.0 mm	100	98.60	100
12.5 mm	99.48	96.53	100
9.5 mm	98.88	96.39	99.39
4.75 mm	95.71	92.34	95.28
2.36 mm	90.55	87.22	90.08
1.18 mm	71.85	62.89	67.46
0.60 mm	35.94	27.61	26.47
0.30 mm	12.75	4.84	8.59
0.150 mm	1.74	0.42	0.98
0.075 mm	1.04	0.38	0.70
SPECIFIC GRAVITY	2.86	2.83	2.76
ABSORPTION (%)	6.00	4.54	6.47
UNIT WEIGHT (kg/m³)			
Rodded	1637.25	1605.23	1630.18
Loose	1441.89	1419.29	1461.19

WORKSHEET FOR SPECIFIC GRAVITY TEST

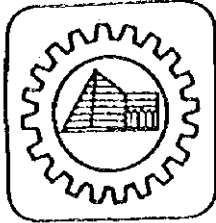
PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. ABA-3
LOCATION : 1km upstream Iron Sabo DAR (No. 1)	DATE : 5-07-94
TYPE OF MATERIALS Lahar Material (PA)	SOURCE : ABACAN RIVER

I. COURSE AGGREGATE (WIRE BASKET METHOD)

ITEM	TEST PIECE NO.		
	NO.	NO.	NO.
1. WT. of SSD + basket in air, gr			
2. WT. of basket in air, gr			
3. WT. of SSD sample in air, gr, (1-2)			
4. WT. of sample + basket in the water, gr			
5. WT. of basket in water, gr			
6. WT. of sample in water, gr, (4-5)			
7. WT. of oven-dry sample, gr			
8. Bulk specific gravity (dry), $7/(3-6)$			
9. Bulk specific gravity (SSD), $3/(3-6)$			
10. Apparent specific gravity, $7/[(3-6)-(3-7)]$			
11. Absorption, %, $(3-7)/7 \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

	NO. 1	NO. 2	NO. 3
1. WT. of SSD sample, gr	500	500	500
2. WT. of pycnometer + water, gr	680.90	680.90	680.60
3. WT. of pycnometer + sample + water, gr	987.70	990.40	980.10
4. WT. of water, gr, (3-2)	306.80	309.50	299.30
5. WT. of oven-dry sample, gr	471.70	478.30	469.60
6. Bulk specific gravity (dry), $5/(500-4)$	2.44	2.51	2.34
7. Bulk specific gravity (SSD), $1/(500-4)$	2.59	2.62	2.49
8. Apparent specific gravity, $5/[(500-4)-(1-5)]$	2.86	2.83	2.76
9. Absorption, %, $(1-5)/5 \times 100$	6.00	4.54	6.47



R.D. POLICARPIO & CO., INC.

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MECHANICAL ANALYSIS

TRN: SA-0043-94

PROJECT **LAHAR MATERIAL SURVEY** DATE OF REPORT **06-01-94**

SPECIFICATION PURPOSE OF MATERIAL SAMPLED BY AND DATE
RDPCT/04-26-94

SAMPLED AT (stockpile, batch plant, place, etc.) SOURCE: River, quarry, etc.)
ABACAN # 3, SAMPLE # 1 ABACAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	499.10		0.18		

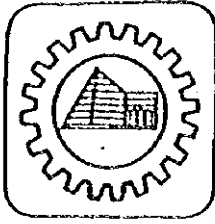
SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH OC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	2.60	0.52	98.48	99		
3/8"	9.5	3.00	0.60	98.88	99		
No. 4	4.75	15.80	3.17	95.71	96		
No. 8	2.38	25.70	5.16	90.55	91		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	93.20	18.70	71.85	72		
No. 20	0.84						
No. 30	.59	179.00	35.91	35.94	36		
No. 40	.42						
No. 50	.297	115.60	23.19	12.75	13		
No. 60	.250						
No. 80	.177						
No. 100	.149	54.90	11.01	1.74	2		
No. 200	.074	3.50	0.70	1.04	1		
PAN		5.20					
WASH							
TOTAL		498.50					

FINENESS MODULUS _____

UNIT WEIGHT PCF. _____

TESTED BY: MC MIRASOL DATE: 05-06-94
 CHECKED BY: GL ZERVOULAKOS DATE: 05-20-94

DRY LOOSE 1441.89
 DRY RODDED 1637.25



R.D. POLICARPIO & CO., INC.

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WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 10m upstream from Sabo Dam (No. 1)
 TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-043-94
 DATE: 5-07-94
 SOURCE: ABACAN-3, Sample # 1

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6) - (3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

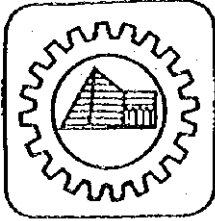
II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.90		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	987.70		
4.	WT. OF WATER GR. (3-2)	306.80		
5.	WT. OF OVEN-DRY SAMPLE GR.	471.70		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.44		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.59		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4 - (1-5)}$	2.86		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	6.00		

TESTED BY: M.C. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Zolovliskos



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0044-94

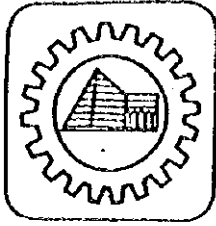
PROJECT LAHAR MATERIAL SURVEY				DATE OF REPORT 06-01-84			
SPECIFICATION		PURPOSE OF MATERIAL		SAMPLED BY AND DATE RDPCI/04-26-84			
SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 3, SAMPLE # 2				SOURCE: River, quarry, etc.) ABACAN RIVER			
WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)		
Original 500	Oven dry 498.70	Washed oven dry					0.26
SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	6.90	1.40	98.60	99		
1/2"	12.7	10.20	2.07	96.53	97		
3/8"	9.5	0.70	0.14	96.39	96		
No. 4	4.75	20.00	4.05	92.34	92		
No. 8	2.38	25.30	5.12	87.22	87		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	120.10	24.33	62.89	63		
No. 20	0.84						
No. 30	.59	174.20	35.28	27.61	28		
No. 40	.42						
No. 50	.297	112.40	22.77	4.84	5		
No. 60	.250						
No. 80	.177						
No. 100	.149	21.80	4.42	0.42	0		
No. 200	.074	0.20	0.04	0.38	0		
PAN		1.90					
WASH							
TOTAL		493.70					

FINENESS MODULUS _____

UNIT WEIGHT PCF. _____

TESTED BY: MC MIRASOL DATE: 05-06-84
 CHECKED BY: GL ZERVOULAKOS DATE: 05-20-84

DRY LOOSE 1419.29
 DRY RODDED 1605.23



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 10m upstream from Sabo Dam (No. 1)
 TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-044-94
 DATE: 5-07-94
 SOURCE: ABAGAN-3, Sample # 2

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3.6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3.6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3.6) - (3.7)}$			
11.	ABSORPTION % $\frac{(3.7) - 7}{7} \times 100$			

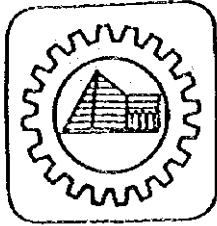
II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.90		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	990.40		
4.	WT. OF WATER GR. (3-2)	309.50		
5.	WT. OF OVEN-DRY SAMPLE GR.	478.30		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500.4}$	2.51		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500.4}$	2.62		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500.4 - (1.5)}$	2.83		
9.	ABSORPTION % $\frac{(1.5) - 5}{5} \times 100$	4.54		

TESTED BY: M.C. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Zebayakos



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0045-94

PROJECT LAHAR MATERIAL SURVEY	DATE OF REPORT 06-01-94
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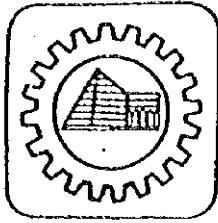
SPECIFICATION	PURPOSE OF MATERIAL	SAMPLED BY AND DATE RDPCI/04-26-94
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SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 3, SAMPLE # 3	SOURCE: River, quarry, etc.) ABACAN RIVER
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WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	499.40		0.12		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	0.00	0.00	100.00	100		
3/8"	9.5	3.00	0.61	99.39	99		
No. 4	4.75	20.30	4.11	95.28	95		
No. 8	2.38	25.70	5.20	90.08	90		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	111.80	22.62	67.46	67		
No. 20	0.84						
No. 30	.59	202.60	40.99	26.47	26		
No. 40	.42						
No. 50	.297	88.40	17.88	8.59	9		
No. 60	.250						
No. 80	.177						
No. 100	.149	37.60	7.61	0.98	1		
No. 200	.074	1.40	0.28	0.70	1		
PAN		3.50					
WASH							
TOTAL		494.30					

FINENESS MODULUS _____	UNIT WEIGHT PCF. _____
TESTED BY: <u>MC MIRASOL</u> DATE: <u>05-06-94</u>	DRY LOOSE: <u>1461.19</u>
CHECKED BY: <u>GL ZERVOULAKOS</u> DATE: <u>05-20-94</u>	DRY RODDED: <u>1630.18</u>



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 10m upstream from Sabo Dam (No. 1)
 TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-045-94
 DATE: 5-07-94
 SOURCE: ABACAN-3, Sample # 3

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1. WT. OF SSD + BASKET IN AIR GR.			
2. WT. OF BASKET IN AIR, GR.			
3. WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4. WT. OF SAMPLE + BASKET IN WATER, GR.			
5. WT. OF BASKET IN WATER, GR.			
6. WT. OF SAMPLE IN WATER, GR. (4-5)			
7. WT. OF OVEN-DRY SAMPLE, GR.			
8. BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9. BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10. APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11. ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1. WT. OF SSD SAMPLE GR.	500		
2. WT. OF PYCNOMETER + WATER GR.	680.80		
3. WT. OF PYCNOMETER + SAMPLE + WATER GR.	980.10		
4. WT. OF WATER GR. (3-2)	299.30		
5. WT. OF OVEN-DRY SAMPLE GR.	469.60		
6. BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.34		
7. BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.49		
8. APPARENT SPECIFIC GRAVITY $\frac{5}{500-4-(1-5)}$	2.76		
9. ABSORPTION % $\frac{(1-5)}{5} \times 100$	6.47		

TESTED BY: M.C. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Voulakos

SUMMARY SHEET FOR LAHAR MATERIAL SURVEY

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. ABA-4
LOCATION : 3 Km upstream from Friendship Bridge.	DATE : 4-12-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : Abacan Riv.er

	TEST PIECE NO.		
	NO. 1	NO. 2	NO. 3
SIEVE ANALYSIS			
Cumulative % Passing			
Sieve Size 37.5 mm	100	100	100
25.0 mm	100	100	100
19.0 mm	100	100	100
12.5 mm	97.88	98.39	98.67
9.5 mm	94.46	96.32	98.12
4.75 mm	85.40	87.25	93.36
2.36 mm	73.82	73.62	85.90
1.18 mm	50.07	48.56	70.95
0.60 mm	23.94	23.87	46.45
0.30 mm	13.46	9.74	23.03
0.150 mm	5.07	3.15	4.07
0.075 mm	4.28	2.84	3.68
SPECIFIC GRAVITY	2.57	2.53	2.62
ABSORPTION (%)	3.37	4.54	2.90
UNIT WEIGHT (kg/m3)			
Rodded	1714.45	1714.45	1610.88
Loose	1510.14	1639.13	1591.58

WORKSHEET FOR SPECIFIC GRAVITY TEST

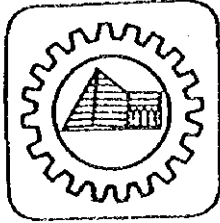
PROJECT: LAHAR MATERIAL SURVEY	TEST SAMPLE NO. ABA-4
LOCATION: ^{5 km} upstream from Friendship bridge.	DATE: 4-15-94
TYPE OF MATERIALS: Lahar Material (FA)	SOURCE: ABIGAN RIVER

I. COURSE AGGREGATE (WIRE BASKET METHOD)

ITEM	TEST PIECE NO.		
	NO.	NO.	NO.
1. WT. of SSD + basket in air, gr			
2. WT. of basket in air, gr			
3. WT. of SSD sample in air, gr, (1-2)			
4. WT. of sample + basket in the water, gr			
5. WT. of basket in water, gr			
6. WT. of sample in water, gr, (4-5)			
7. WT. of oven-dry sample, gr			
8. Bulk specific gravity (dry), $7/(3-6)$			
9. Bulk specific gravity (SSD), $3/(3-6)$			
10. Apparent specific gravity, $7/[(3-6)-(3-7)]$			
11. Absorption, %, $(3-7)/7 \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

	NO. 1	NO. 2	NO. 3
1. WT. of SSD sample, gr	500	500	500
2. WT. of pycnometer + water, gr	680.90	680.90	680.80
3. WT. of pycnometer + sample + water, gr	976.50	970.40	981.40
4. WT. of water, gr, (3-2)	295.60	289.50	300.60
5. WT. of oven-dry sample, gr	483.70	478.30	485.90
6. Bulk specific gravity (dry), $5/(500-4)$	2.37	2.27	2.44
7. Bulk specific gravity (SSD), $1/(500-4)$	2.45	2.38	2.51
8. Apparent specific gravity, $5/[(500-4)-(1-5)]$	2.57	2.53	2.62
9. Absorption, %, $(1-5)/5 \times 100$	3.37	4.54	2.90



R.D. POLICARPIO & CO., INC.

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MECHANICAL ANALYSIS

TRN SA-0001-94

PROJECT **LAHAR MATERIAL SURVEY** DATE OF REPORT **06-01-94**

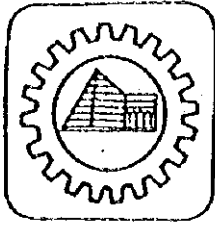
SPECIFICATION PURPOSE OF MATERIAL SAMPLED BY AND DATE
RDPCI/04-12-94

SAMPLED AT (stockpile, batch plant, place, etc.) SOURCE: River, quarry, etc.)
ABACAN # 4, SAMPLE # 1 ABACAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	494.00		1.21		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	10.40	2.12	97.88	98		
3/8"	9.5	16.80	3.42	94.46	94		
No. 4	4.75	44.50	9.06	85.40	85		
No. 8	2.38	56.90	11.58	73.82	74		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	116.70	23.75	50.07	50		
No. 20	0.84						
No. 30	.59	128.40	26.13	23.94	24		
No. 40	.42						
No. 50	.297	51.50	10.48	13.46	13		
No. 60	.250						
No. 80	.177	41.20	8.39	5.07	5		
No. 100	.149						
No. 200	.074	3.90	0.79	4.28	4		
PAN		21.00					
WASH							
TOTAL		491.30					

FINENESS MODULUS _____ UNIT WEIGHT PCF. _____
 TESTED BY: **MC MIRASOL** DATE: **04-14-94** DRY LOOSE: **1510.14**
 CHECKED BY: **GL ZERVOULAKOS** DATE: **05-20-94** DRY RODDED: **1714.45**



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 3km upstream from Friendship bridge
 TYPE OF MATERIALS: Lahar Materials (F.A.)

TEST REPORT NO.: SG-001-94
 DATE: 4-15-94
 SOURCE: ABACAN-4, Sample # 1

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.		
2.	WT. OF BASKET IN AIR, GR.		
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)		
4.	WT. OF SAMPLE + BASKET IN WATER, GR.		
5.	WT. OF BASKET IN WATER, GR.		
6.	WT. OF SAMPLE IN WATER, GR. (4-5)		
7.	WT. OF OVEN-DRY SAMPLE, GR.		
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3.6}$		
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3.6}$		
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3.6) - (3.7)}$		
11.	ABSORPTION % $\frac{(3.7) - 7}{7} \times 100$		

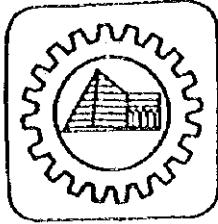
II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.90		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	976.50		
4.	WT. OF WATER GR. (3-2)	295.60		
5.	WT. OF OVEN-DRY SAMPLE GR.	483.70		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500 - 4}$	2.37		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500 - 4}$	2.45		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500 - 4 - (1.5)}$	2.57		
9.	ABSORPTION % $\frac{(1.5) - 5}{5} \times 100$	3.37		

TESTED BY: M.C. M^rasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Zepoulakos



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN: SA-0002-94

PROJECT **LAHAR MATERIAL SURVEY** DATE OF REPORT **06-01-94**

SPECIFICATION PURPOSE OF MATERIAL SAMPLED BY AND DATE
RDPCI/04-12-94

SAMPLED AT (stockpile, batch plant, place, etc.) SOURCE: River, quarry, etc.)
ABACAN # 4, SAMPLE # 2 ABACAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	494.00		1.21		

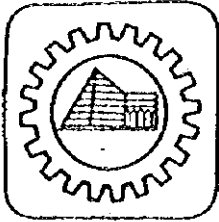
SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	7.90	1.61	98.39	98		
3/8"	9.5	10.20	2.07	96.32	96		
No. 4	4.75	44.60	9.07	87.25	87		
No. 8	2.38	67.00	13.63	73.62	74		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	123.20	25.06	48.56	49		
No. 20	0.84						
No. 30	.59	121.40	24.69	23.87	24		
No. 40	.42						
No. 50	.297	69.50	14.13	9.74	10		
No. 60	.250						
No. 80	.177						
No. 100	.149	32.40	6.58	3.15	3		
No. 200	.074	1.50	0.31	2.84	3		
PAN		14.00					
WASH							
TOTAL		491.70					

FINENESS MODULUS _____

UNIT WEIGHT PCF. _____

TESTED BY: MC MIRASOL DATE: 04-14-94
 CHECKED BY: GL ZERVOULAKOS DATE: 05-20-94

DRY LOOSE: 1639.13
 DRY RODDED: 1714.45



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 3km upstream from Friendship bridge
 TYPE OF MATERIALS: Lahar Material (P.A.)

TEST REPORT NO.: SG-002-94
 DATE: 4-15-94
 SOURCE: ABACAN-4, Sample # 2

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6) - (3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

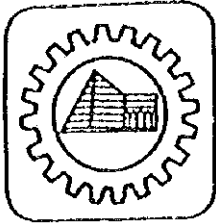
II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.90		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	970.40		
4.	WT. OF WATER GR. (3-2)	289.50		
5.	WT. OF OVEN-DRY SAMPLE GR.	478.30		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.27		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.38		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4 - (1-5)}$	2.53		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	4.54		

TESTED BY: M.C. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Maroulakos



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRANS-0003-94

PROJECT LAHAR MATERIAL SURVEY	DATE OF REPORT 06-01-94
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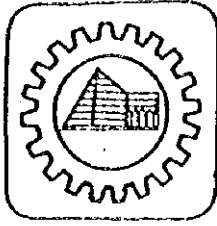
SPECIFICATION	PURPOSE OF MATERIAL	SAMPLED BY AND DATE RDPCI/04-12-94
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SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 4, SAMPLE # 3	SOURCE: River, quarry, etc.) ABACAN RIVER
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WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)
Original 500	Oven dry 492.00	Washed oven dry			
			1.63		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	6.50	1.33	98.67	99		
3/8"	9.5	2.70	0.55	98.12	98		
No. 4	4.75	23.30	4.76	93.36	93		
No. 8	2.38	36.50	7.46	85.90	86		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	73.10	14.95	70.95	71		
No. 20	0.84						
No. 30	.59	119.80	24.50	46.45	46		
No. 40	.42						
No. 50	.297	114.50	23.42	23.03	23		
No. 60	.250						
No. 80	.177						
No. 100	.149	92.70	18.95	4.07	4		
No. 200	.074	1.90	0.39	3.68	4		
PAN		18.00					
WASH							
TOTAL		489.00					

FINENESS MODULUS _____	UNIT WEIGHT PCF. _____
TESTED BY: MC MIRASOL <i>[Signature]</i> DATE: 04-14-94	DRY LOOSE 1591.58
CHECKED BY: GL ZERVOULAKOS <i>[Signature]</i> DATE: 05-20-94	DRY RODDED 1610.88



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 3km upstream from Friendship bridge
 TYPE OF MATERIALS: Labar Material (F.A.)

TEST REPORT NO.: SG-003-94
 DATE: 4-14-94
 SOURCE: ABACAN-4, Sample # 3

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3.6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3.6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3.6)-(3.7)}$			
11.	ABSORPTION % $\frac{(3.7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.80		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	981.40		
4.	WT. OF WATER GR. (3-2)	300.60		
5.	WT. OF OVEN-DRY SAMPLE GR.	485.90		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.44		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.51		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500-4-(1-5)}$	2.62		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	2.90		

TESTED BY: K.C. Mitasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Zepherianos

SUMMARY SHEET FOR LAHAR MATERIAL SURVEY

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. ABA-5
LOCATION : 1Km downstream from Capaya Bridge	DATE : 4-16-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : Abacan River

	TEST PIECE NO.		
	NO. 1	NO. 2	NO. 3
SIEVE ANALYSIS			
Cumulative % Passing			
Sieve Size 37.5 mm	100	100	100
25.0 mm	100	100	100
19.0 mm	97.51	100	100
12.5 mm	97.09	89.19	99.17
9.5 mm	97.09	98.04	98.75
4.75 mm	94.29	93.54	94.40
2.36 mm	89.99	86.79	88.84
1.18 mm	72.05	68.05	75.49
0.60 mm	35.49	33.19	50.77
0.30 mm	13.53	11.23	16.95
0.150 mm	5.08	1.67	2.16
0.075 mm	3.29	1.57	2.02
SPECIFIC GRAVITY	2.67	2.68	2.64
ABSORPTION (%)	1.22	1.87	2.38
UNIT WEIGHT (kg/m3)			
Rodded	1675.85	1510.14	1967.71
Loose	1592.05	1383.99	1512.97

WORKSHEET FOR SPECIFIC GRAVITY TEST

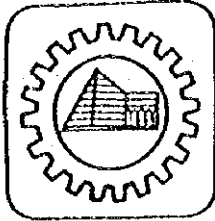
PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. ABA-5
LOCATION : 1km downstream from Capaya bridge	DATE : 4-18-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : ABACAN RIVER

I. COURSE AGGREGATE (WIRE BASKET METHOD)

ITEM	TEST PIECE NO.		
	NO.	NO.	NO.
1. WT. of SSD + basket in air, gr			
2. WT. of basket in air, gr			
3. WT. of SSD sample in air, gr, (1-2)			
4. WT. of sample + basket in the water, gr			
5. WT. of basket in water, gr			
6. WT. of sample in water, gr, (4-5)			
7. WT. of oven-dry sample, gr			
8. Bulk specific gravity (dry), $7/(3-6)$			
9. Bulk specific gravity (SSD), $3/(3-6)$			
10. Apparent specific gravity, $7/[(3-6)-(3-7)]$			
11. Absorption, %, $(3-7)/7 \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

	NO. 1	NO. 2	NO. 3
1. WT. of SSD sample, gr	500	500	500
2. WT. of pycnometer + water, gr	680.70	680.70	680.80
3. WT. of pycnometer + sample + water, gr	990.00	988.20	984.10
4. WT. of water, gr, (3-2)	309.30	307.50	303.30
5. WT. of oven-dry sample, gr	494.00	490.80	488.40
6. Bulk specific gravity (dry), $5/(500-4)$	2.59	2.55	2.48
7. Bulk specific gravity (SSD), $1/(500-4)$	2.62	2.60	2.54
8. Apparent specific gravity, $5/[(500-4)-(1-5)]$	2.67	2.68	2.64
9. Absorption, %, $(1-5)/5 \times 100$	1.22	1.87	2.38



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN SA-0004-94

PROJECT LAHAR MATERIAL SURVEY	DATE OF REPORT 06-01-94
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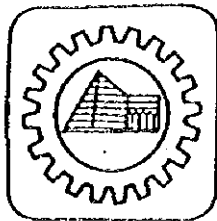
SPECIFICATION	PURPOSE OF MATERIAL	SAMPLED BY AND DATE RDPCI/04-14-94
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SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 5, SAMPLE # 1	SOURCE: River, quarry, etc.) ABACAN RIVER
---	---

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	498.00		0.40		

SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	12.40	2.49	97.51	98		
1/2"	12.7	2.10	0.42	97.09	97		
3/8"	9.5	0.00	0.00	97.09	97		
No. 4	4.75	13.90	2.80	94.29	94		
No. 8	2.38	21.40	4.30	89.99	90		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	89.20	17.94	72.05	72		
No. 20	0.84						
No. 30	.59	181.80	36.56	35.49	35		
No. 40	.42						
No. 50	.297	109.20	21.96	13.53	14		
No. 60	.250						
No. 80	.177						
No. 100	.149	42.00	8.45	5.08	5		
No. 200	.074	8.90	1.78	3.29	3		
PAN		16.30					
WASH							
TOTAL		497.20					

FINENESS MODULUS _____	UNIT WEIGHT PCF. _____
TESTED BY: <u>MC MIRASOL</u> DATE: <u>04-16-94</u>	DRY LOOSE <u>1592.05</u>
CHECKED BY: <u>GL ZERVOULAKOS</u> DATE: <u>05-20-94</u>	DRY RODDED <u>1675.85</u>



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 1km downstream from Capaya bridge
 TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-004-94
 DATE: 4-18-94
 SOURCE: ABACAN-5, Sample # 1

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

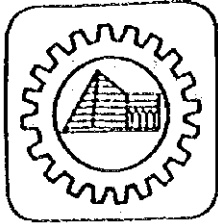
II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.70		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	990.00		
4.	WT. OF WATER GR. (3-2)	309.30		
5.	WT. OF OVEN-DRY SAMPLE GR.	494.00		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500.4}$	2.59		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500.4}$	2.62		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500.4-(1-5)}$	2.67		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	1.22		

TESTED BY: N.G. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: O.L. Zepoulakos



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN SA-0005-94

PROJECT **LAHAR MATERIAL SURVEY** DATE OF REPORT **06-01-94**

SPECIFICATION PURPOSE OF MATERIAL SAMPLED BY AND DATE
RDPCI/04-14-94

SAMPLED AT (stockpile, batch plant, place, etc.) SOURCE: River, quarry, etc.)
ABACAN # 5, SAMPLE # 2 ABACAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	497.00		0.60		

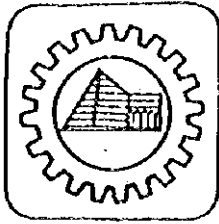
SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	4.00	0.81	99.19	99		
3/8"	9.5	5.70	1.15	98.04	98		
No. 4	4.75	22.20	4.50	93.54	94		
No. 8	2.38	33.30	6.74	86.79	87		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	92.50	18.74	68.05	68		
No. 20	0.84						
No. 30	.59	172.10	34.86	33.19	33		
No. 40	.42						
No. 50	.297	108.40	21.96	11.23	11		
No. 60	.250						
No. 80	.177	47.20	9.56	1.67	2		
No. 100	.149						
No. 200	.074	0.50	0.10	1.57	2		
PAN		7.80					
WASH							
TOTAL		493.70					

FINENESS MODULUS _____

UNIT WEIGHT PCF. _____

TESTED BY: **HC MIRASOL** DATE: **04-16-94**
GL ZERVOULAKOS DATE: **05-20-94**
 CHECKED BY: _____

DRY LOOSE **1383.99**
 DRY RODDED **1510.14**



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 1km downstream from Capaya bridge
 TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-005-94
 DATE: 4-18-94
 SOURCE: ABACAN-5, Sample # 2

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1. WT OF SSD + BASKET IN AIR GR.			
2. WT. OF BASKET IN AIR, GR.			
3. WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4. WT. OF SAMPLE + BASKET IN WATER, GR.			
5. WT. OF BASKET IN WATER, GR.			
6. WT. OF SAMPLE IN WATER, GR. (4-5)			
7. WT. OF OVEN-DRY SAMPLE, GR.			
8. BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9. BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10. APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6) - (3-7)}$			
11. ABSORPTION % $\frac{(3-7)}{7} \times 100$			

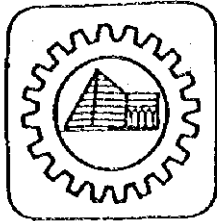
II. FINE AGGREGATES (PYCNOMETER METHOD)

1. WT. OF SSD SAMPLE GR.	500		
2. WT. OF PYCNOMETER + WATER GR.	680.70		
3. WT. OF PYCNOMETER + SAMPLE + WATER GR.	988.20		
4. WT. OF WATER GR. (3-2)	307.50		
5. WT. OF OVEN-DRY SAMPLE GR.	490.80		
6. BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.55		
7. BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.60		
8. APPARENT SPECIFIC GRAVITY $\frac{5}{500-4 - (1-5)}$	2.68		
9. ABSORPTION % $\frac{(1-5)}{5} \times 100$	1.87		

TESTED BY: N.C. Nirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. [Signature]



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

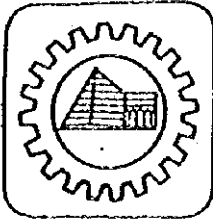
TRN SA-0006-94

PROJECT LAHAR MATERIAL SURVEY				DATE OF REPORT 06-01-94			
SPECIFICATION		PURPOSE OF MATERIAL		SAMPLED BY AND DATE RDPCI/04-14-94			
SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 5, SAMPLE # 3				SOURCE: River, quarry, etc.) ABACAN RIVER			
WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)		
Original 500	Oven dry 498.70	Washed oven dry				0.26	
SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	4.10	0.83	99.17	99		
3/8"	9.5	2.10	0.42	98.75	99		
No. 4	4.75	21.60	4.35	94.40	94		
No. 8	2.38	27.60	5.56	88.84	89		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	86.30	13.35	75.49	75		
No. 20	0.84						
No. 30	.59	122.80	24.72	50.77	51		
No. 40	.42						
No. 50	.297	168.00	33.82	16.95	17		
No. 60	.250						
No. 80	.177	73.50	14.79	2.16	2		
No. 100	.149	0.70	0.14	2.02	2		
No. 200	.074						
PAN		10.10					
WASH							
TOTAL		496.80					

FINENESS MODULUS _____ UNIT WEIGHT PCF. _____

TESTED BY: **MC MIRASOL** DATE: **04-16-94** DRY LOOSE: **1512.97**

CHECKED BY: **GL ZERVOULAKOS** DATE: **05-20-94** DRY RODDED: **1967.71**



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 1km downstream from Capaya bridge
 TYPE OF MATERIALS: Lahar Material (P.A.)

TEST REPORT NO.: SG-006-94
 DATE: 4-18-94
 SOURCE: ABACAN-5, Sample # 3

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1. WT. OF SSD + BASKET IN AIR GR.			
2. WT. OF BASKET IN AIR, GR.			
3. WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4. WT. OF SAMPLE + BASKET IN WATER, GR.			
5. WT. OF BASKET IN WATER, GR.			
6. WT. OF SAMPLE IN WATER, GR. (4-5)			
7. WT. OF OVEN-DRY SAMPLE, GR.			
8. BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9. BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10. APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6) - (3-7)}$			
11. ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1. WT. OF SSD SAMPLE GR.	500		
2. WT. OF PYCNOMETER + WATER GR.	680.80		
3. WT. OF PYCNOMETER + SAMPLE + WATER GR.	984.10		
4. WT. OF WATER GR. (3-2)	303.30		
5. WT. OF OVEN-DRY SAMPLE GR.	488.40		
6. BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.48		
7. BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.54		
8. APPARENT SPECIFIC GRAVITY $\frac{5}{500-4 - (1-5)}$	2.64		
9. ABSORPTION % $\frac{(1-5)}{5} \times 100$	2.38		

TESTED BY: *H.C. Mirasol*

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: *G.L. Zepeda*

SUMMARY SHEET FOR LAHAR MATERIAL SURVEY

PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. ABA-6
LOCATION : 10km downstream from Capaya Bridge	DATE : 4-16-94
TYPE OF MATERIALS : Lahar Material (FA)	SOURCE : Abacan River

	TEST PIECE NO.		
	NO. 1	NO. 2	NO. 3
SIEVE ANALYSIS			
Cumulative % Passing			
Sieve Size 37.5 mm	100	94.73	100
25.0 mm	100	88.83	100
19.0 mm	99.70	87.96	100
12.5 mm	99.70	86.02	98.22
9.5 mm	99.21	85.53	98.08
4.75 mm	97.57	83.21	96.87
2.36 mm	94.92	80.73	95.72
1.18 mm	89.86	75.08	92.80
0.60 mm	67.32	60.22	85.96
0.30 mm	29.96	21.53	54.07
0.150 mm	5.04	3.46	8.92
0.075 mm	4.96	3.40	7.87
SPECIFIC GRAVITY	2.23	2.20	2.24
ABSORPTION (%)	4.76	5.13	4.12
UNIT WEIGHT (kg/m³)			
Rodded	1207.46	1383.99	1176.86
Loose	1113.31	1287.95	1148.61

WORKSHEET FOR SPECIFIC GRAVITY TEST

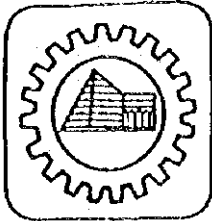
PROJECT : LAHAR MATERIAL SURVEY	TEST SAMPLE NO. ABA-6
LOCATION : 10km downstream from Capaya bridge	DATE : 4-19-94
TYPE OF MATERIALS Lahar Material (FA)	SOURCE : ABACAN RIVER

I. COURSE AGGREGATE (WIRE BASKET METHOD)

ITEM	TEST PIECE NO.		
	NO.	NO.	NO.
1. WT. of SSD + basket in air, gr			
2. WT. of basket in air, gr			
3. WT. of SSD sample in air, gr, (1-2)			
4. WT. of sample + basket in the water, gr			
5. WT. of basket in water, gr			
6. WT. of sample in water, gr, (4-5)			
7. WT. of oven-dry sample, gr			
8. Bulk specific gravity (dry), $7/(3-6)$			
9. Bulk specific gravity (SSD), $3/(3-6)$			
10. Apparent specific gravity, $7/[(3-6)-(3-7)]$			
11. Absorption, %, $(3-7)/7 \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

	NO. 1	NO. 2	NO. 3
1. WT. of SSD sample, gr	500	500	500
2. WT. of pycnometer + water, gr	680.60	680.60	680.60
3. WT. of pycnometer + sample + water, gr	943.50	939.90	946.80
4. WT. of water, gr, (3-2)	262.90	259.50	266.20
5. WT. of oven-dry sample, gr	477.30	475.60	480.20
6. Bulk specific gravity (dry), $5/(500-4)$	2.01	1.98	2.05
7. Bulk specific gravity (SSD), $1/(500-4)$	2.11	2.08	2.14
8. Apparent specific gravity, $5/[(500-4)-(1-5)]$	2.23	2.20	2.24
9. Absorption, %, $(1-5)/5 \times 100$	4.76	5.13	4.12



R.D. POLICARPIO & CO., INC.

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MECHANICAL ANALYSIS

TRSA-0007-94

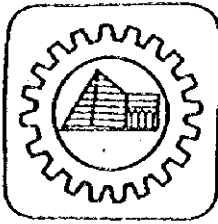
PROJECT LAHAR MATERIAL SURVEY				DATE OF REPORT 06-01-94			
SPECIFICATION		PURPOSE OF MATERIAL		SAMPLED BY AND DATE RDPCI/04-14-94			
SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 6, SAMPLE # 1				SOURCE: River, quarry, etc.) ABACAN RIVER			
WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)		
Original 500	Oven dry 498.70	Washed oven dry					0.26
SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	1.50	0.30	99.70	100		
1/2"	12.7	0.00	0.00	99.70	100		
3/8"	9.5	2.40	0.49	99.21	99		
No. 4	4.75	8.10	1.64	97.57	98		
No. 8	2.38	13.10	2.65	94.92	95		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	25.00	5.06	89.86	90		
No. 20	0.84						
No. 30	.59	106.40	21.54	68.32	68		
No. 40	.42						
No. 50	.297	189.50	38.36	29.96	30		
No. 60	.250						
No. 80	.177						
No. 100	.149	123.10	24.92	5.04	5		
No. 200	.074	0.40	0.08	4.96	5		
PAN		24.50					
WASH							
TOTAL		494.00					

FINENESS MODULUS _____

UNIT WEIGHT PCF. _____

TESTED BY: MC MIRASOL DATE: 04-16-94
 CHECKED BY: GL ZERVOULAKOS DATE: 05-20-94

DRY LOOSE 1113.31
 DRY RODDED 1207.46



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 10km downstream from Capaya bridge
 TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-007-94
 DATE: 4-19-94
 SOURCE: AB&CAN-6, Sample # 1

I. COURSE AGGREGATE (WIRE BASKET METHOD)

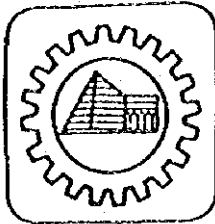
1. WT. OF SSD + BASKET IN AIR GR.			
2. WT. OF BASKET IN AIR, GR.			
3. WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4. WT. OF SAMPLE + BASKET IN WATER, GR.			
5. WT. OF BASKET IN WATER, GR.			
6. WT. OF SAMPLE IN WATER, GR. (4-5)			
7. WT. OF OVEN-DRY SAMPLE, GR.			
8. BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3-6}$			
9. BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3-6}$			
10. APPARENT SPECIFIC GRAVITY, $\frac{7}{(3-6)-(3-7)}$			
11. ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1. WT. OF SSD SAMPLE GR.	500		
2. WT. OF PYCNOMETER + WATER GR.	680.60		
3. WT. OF PYCNOMETER + SAMPLE + WATER GR.	943.50		
4. WT. OF WATER GR. (3-2)	262.90		
5. WT. OF OVEN-DRY SAMPLE GR.	477.30		
6. BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500-4}$	2.01		
7. BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500-4}$	2.11		
8. APPARENT SPECIFIC GRAVITY $\frac{5}{500-4-(1-5)}$	2.23		
9. ABSORPTION % $\frac{(1-5)}{5} \times 100$	4.76		

TESTED BY: M.C. Miresol
 CHECKED AND NOTED BY: G. S. Zervoulakos

DATE REPORTED 6-01-94



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN SA-0008-94

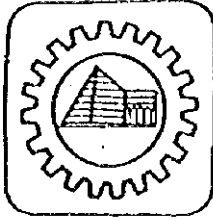
PROJECT LAHAR MATERIAL SURVEY				DATE OF REPORT 06-01-94			
SPECIFICATION		PURPOSE OF MATERIAL		SAMPLED BY AND DATE RDPCI/04-14-94			
SAMPLED AT (stockpile, batch plant, place, etc.) ABACAN # 6, SAMPLE # 2				SOURCE: River, quarry, etc.) ABACAN RIVER			
WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN SIZE (INCH)		
Original 500	Oven dry 497.60	Washed oven dry				0.48	
SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	26.10	5.27	94.73	95		
1"	25.4	29.20	5.90	88.83	89		
3/4"	19.1	4.30	0.87	87.96	88		
1/2"	12.7	9.60	1.94	86.02	86		
3/8"	9.5	2.40	0.49	85.53	86		
No. 4	4.75	11.50	2.32	83.21	83		
No. 8	2.38	12.30	2.48	80.72	81		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	28.00	5.65	75.08	75		
No. 20	0.84						
No. 30	.59	73.60	14.86	60.22	60		
No. 40	.42						
No. 50	.297	191.60	38.69	21.53	22		
No. 60	.250						
No. 80	.177						
No. 100	.149	89.50	18.07	3.46	3		
No. 200	.074	0.30	0.06	3.40	3		
PAN		16.80					
WASH							
TOTAL		495.20					

FINENESS MODULUS _____

UNIT WEIGHT PCF. _____

TESTED BY: MC MIRASOL DATE: 04-16-94
 CHECKED BY: GL ZERVOULAKOS DATE: 05-20-94

DRY LOOSE 1287.95
 DRY RODDED 1383.99



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 10km downstream from Capaya bridge
 TYPE OF MATERIALS: Lahar Material (F.A.)

TEST REPORT NO.: SG-008-94
 DATE: 4-19-94
 SOURCE: ABACAN-6, Sample # 2

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3.6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3.6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3.6) - (3.7)}$			
11.	ABSORPTION % $\frac{(3.7)}{7} \times 100$			

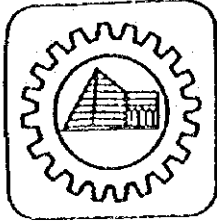
II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.60		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	939.90		
4.	WT. OF WATER GR. (3-2)	259.30		
5.	WT. OF OVEN-DRY SAMPLE GR.	475.60		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500.4}$	1.98		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{500.4}$	2.08		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500.4 - (1.5)}$	2.2		
9.	ABSORPTION % $\frac{(1.5)}{5} \times 100$	5.13		

TESTED BY: M.C. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Zepoulakos



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

MECHANICAL ANALYSIS

TRN SA-0009-94

PROJECT **LAHAR MATERIAL SURVEY** DATE OF REPORT **06-01-94**

SPECIFICATION PURPOSE OF MATERIAL SAMPLED BY AND DATE
RDPCI/04-14-94

SAMPLED AT (stockpile, batch plant, place, etc.) SOURCE: River, quarry, etc.)
ABACAN # 6, SAMPLE # 3 ABACAN RIVER

WEIGHT OF SAMPLE			MOISTURE CONTENT (%)	QUANTITY REPRESENTED	MAN. SIZE (INCH)
Original	Oven dry	Washed oven dry			
500	496.80		0.64		

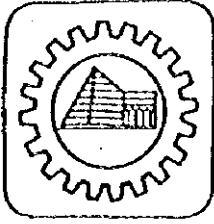
SIEVE SIZE	SIEVE OPENING (M.M)	INDIVIDUAL WEIGHT RETAINED	INDIVIDUAL PERCENT RETAINED	PERCENT PASSING 10TH DC	PERCENT PASSING	SPECS PERCENT PASSING	CUM. PERCENT RETAINED
2-1/2"	60.5						
2"	52.8						
1-1/2"	38.1	0.00	0.00	100.00	100		
1"	25.4	0.00	0.00	100.00	100		
3/4"	19.1	0.00	0.00	100.00	100		
1/2"	12.7	8.80	1.78	98.22	98		
3/8"	9.5	0.70	0.14	98.08	98		
No. 4	4.75	6.00	1.21	96.87	97		
No. 8	2.38	5.70	1.15	95.72	96		
No. 10	2.00						
No. 12	1.65						
No. 16	1.10	14.40	2.92	92.80	93		
No. 20	0.84						
No. 30	.59	33.80	6.84	85.96	86		
No. 40	.42						
No. 50	.297	157.50	31.89	54.07	54		
No. 60	.250						
No. 80	.177	223.00	45.15	8.92	9		
No. 100	.149						
No. 200	.074	5.20	1.05	7.87	8		
PAN		38.80					
WASH							
TOTAL		493.90					

FINENESS MODULUS _____

UNIT WEIGHT PCF. _____

TESTED BY: HC KIRASOL DATE: 04-16-94
GL ZERVOULAKOS DATE: 05-20-94
 CHECKED BY: _____ DATE: _____

DRY LOOSE 1148.61
 DRY RODDED 1176.86



R.D. POLICARPIO & CO., INC.

ENGINEERS * CONTRACTORS * BUILDERS

WORKSHEET FOR SPECIFIC GRAVITY & ABSORPTION

PROJECT: LAHAR MATERIAL SURVEY
 LOCATION: 10km downstream from Capaya bridge
 TYPE OF MATERIALS: Lahar Material (P.A.)

TEST REPORT NO.: SG-009-94
 DATE: 4-19-94
 SOURCE: ABACAN-6, Sample # 3

I. COURSE AGGREGATE (WIRE BASKET METHOD)

1.	WT. OF SSD + BASKET IN AIR GR.			
2.	WT. OF BASKET IN AIR, GR.			
3.	WT. OF SSD SAMPLE IN AIR, GR. (1-2)			
4.	WT. OF SAMPLE + BASKET IN WATER, GR.			
5.	WT. OF BASKET IN WATER, GR.			
6.	WT. OF SAMPLE IN WATER, GR. (4-5)			
7.	WT. OF OVEN-DRY SAMPLE, GR.			
8.	BULK SPECIFIC GRAVITY (DRY), $\frac{7}{3.6}$			
9.	BULK SPECIFIC GRAVITY (SSD), $\frac{3}{3.6}$			
10.	APPARENT SPECIFIC GRAVITY, $\frac{7}{(3.6) - (3.7)}$			
11.	ABSORPTION % $\frac{(3-7)}{7} \times 100$			

II. FINE AGGREGATES (PYCNOMETER METHOD)

1.	WT. OF SSD SAMPLE GR.	500		
2.	WT. OF PYCNOMETER + WATER GR.	680.60		
3.	WT. OF PYCNOMETER + SAMPLE + WATER GR.	948.60		
4.	WT. OF WATER GR. (3-2)	266.20		
5.	WT. OF OVEN-DRY SAMPLE GR.	480.20		
6.	BULK SPECIFIC GRAVITY (DRY) $\frac{5}{500.4}$	2.05		
7.	BULK SPECIFIC GRAVITY (SSD) $\frac{1}{300.4}$	2.14		
8.	APPARENT SPECIFIC GRAVITY $\frac{5}{500.4 - (1.5)}$	2.24		
9.	ABSORPTION % $\frac{(1-5)}{5} \times 100$	4.12		

TESTED BY: M.C. Mirasol

DATE REPORTED 6-01-94

CHECKED AND NOTED BY: G.L. Edjvoulakos

PART II

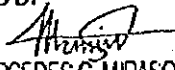
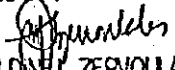
LAHAR-CEMENT MIXTURE TEST



LAHAR MATERIAL SURVEY - COMPRESSIVE STRENGTH OF MOLDED LAHAR-CEMENT CYLINDERS
(ASTM D 1632-87)

CASTING DATE :	09-15-94		SAMPLING POINT :	Lahar materials w/c was used for embankment mat'l of open dikes of sand pocket @ immediate up-stream of route 329.
TESTING DATE :	09-18-94			
AGE (DAYS) :	3 DAYS		CEMENT CONTENT :	10%



SAMPLE NO.	DIAMETER (inch)			AREA sq. in	MAXIMUM LOAD, kg	COMPRESSIVE STRENGTH		AVERAGE PSI
	D1	D2	MEAN			kgf/sq. in	PSI	
S-1	280	280	280	6.16	500.00	81.17	178.98	173.01
S-2	280	280	280	6.16	400.00	64.94	143.18	
S-3	280	280	280	6.16	550.00	89.29	196.83	

TESTED BY:  MERCEDES C. MIRASOL LABORATORY TECHNICIAN	CHECKED BY:  GERALDINE L. ZERVOULAKOS QUALITY CONTROL TECHNICIAN
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LAHAR MATERIAL SURVEY - FLEXURAL STRENGTH OF MOLDED LAHAR-CEMENT BEAM
(USING 3RD POINT LOADING)

CASTING DATE :	09-15-94		SAMPLING POINT :	Lahar materials w/c was used for embankment mat'l of open dikes of sand pocket @ immediate up-stream of route 329.
TESTING DATE :	09-18-94			
AGE (DAYS) :	3 DAYS		CEMENT CONTENT :	10%

SAMPLE NO.	SIZE (inch)			MAXIMUM LOAD, kg	FLEXURAL STRENGTH		AVERAGE PSI
	WIDTH, B	DEPTH, D	LENGTH, L		kgf/sq. in	PSI	
S-1	3.00	3.00	9.00	200.00	66.67	147.00	147.00
S-2	3.00	3.00	9.00	200.00	66.67	147.00	
S-3	3.00	3.00	9.00	200.00	66.67	147.00	


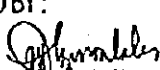
TESTED BY:  MERCEDES C. MIRASOL LABORATORY TECHNICIAN	CHECKED BY:  GERALDINE L. ZERVOULAKOS QUALITY CONTROL TECHNICIAN
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THE GOVERNMENT OF THE PHILIPPINES
 THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
 THE STUDY ON FLOOD AND MUDFLOW CONTROL
 FOR SACOBIA-BAMBAN/ABACAN RIVER
 DRAINING FROM MT. PINATUBO
 JAPAN INTERNATIONAL COOPERATION AGENCY

LAHAR MATERIAL SURVEY - COMPRESSIVE STRENGTH OF MOLDED LAHAR CEMENT CYLINDERS
(ASTM D 1632-87)

CASTING DATE :	09-15-94		SAMPLING POINT :	Lahar materials w/c was used for embankment mat'l of open dikes of sand pocket @ immediate up-stream of route 329.
TESTING DATE :	09-22-94			
AGE (DAYS) :	7 DAYS		CEMENT CONTENT :	10 %



SAMPLE NO.	DIAMETER (inch)			AREA sq. in	MAXIMUM LOAD, kg	COMPRESSIVE STRENGTH		AVERAGE PSI
	D1	D2	MEAN			kg/sq. in	PSI	
S-1	250	250	250	491	900.00	183.30	404.18	396.69
S-2	250	250	250	491	900.00	183.30	404.18	
S-3	250	250	250	491	850.00	173.12	381.72	

TESTED BY:  MERCEDES C. MIRASOL LABORATORY TECHNICIAN	CHECKED BY:  GERALDINE ZERVOLAKOS QUALITY CONTROL TECHNICIAN
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LAHAR MATERIAL SURVEY - FLEXURAL STRENGTH OF MOLDED LAHAR CEMENT BEAM
(USING 3RD POINT LOADING)

CASTING DATE :	09-15-94		SAMPLING POINT :	Lahar materials w/c was used for embankment mat'l of open dikes of sand pocket @ immediate up-stream of route 329.
TESTING DATE :	09-22-94			
AGE (DAYS) :	7 DAYS		CEMENT CONTENT :	10 %

SAMPLE NO.	SIZE (inch)			MAXIMUM LOAD, kg	FLEXURAL STRENGTH		AVERAGE PSI
	WIDTH, B	DEPTH, D	LENGTH, L		kg/sq. in	PSI	
S-1	3.00	3.00	9.00	300.00	100.00	220.50	196.00
S-2	3.00	3.00	9.00	250.00	83.33	183.75	
S-3	3.00	3.00	9.00	250.00	83.33	183.75	

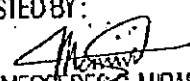

TESTED BY:  MERCEDES C. MIRASOL LABORATORY TECHNICIAN	CHECKED BY:  GERALDINE ZERVOLAKOS QUALITY CONTROL TECHNICIAN
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THE GOVERNMENT OF THE PHILIPPINES
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 FOR SACOBIA-BAMBAN/ABACAN RIVER
 DRAINING FROM MT. PINATUBO
 JAPAN INTERNATIONAL COOPERATION AGENCY

**LAHAR MATERIAL SURVEY - COMPRESSIVE STRENGTH OF MOLDED LAHAR-CEMENT CYLINDERS
(ASTM D 1632-87)**

CASTING DATE :	09-17-94		SAMPLING POINT :	Lahar materials w/c was used for embankment mat'l of open dikes of sand pocket @ immediate up-stream of route 329.
TESTING DATE :	09-20-94			
AGE (DAYS) :	3 DAYS		CEMENT CONTENT :	15 %



SAMPLE NO.	DIAMETER (inch)			AREA sq. in	MAXIMUM LOAD, kg	COMPRESSIVE STRENGTH		AVERAGE PSI
	D1	D2	MEAN			kg/sq. in	PSI	
S-1	2.80	2.80	2.80	6.16	1,400.00	227.27	501.14	477.27
S-2	2.80	2.80	2.80	6.16	1,300.00	211.04	465.34	
S-3	2.80	2.80	2.80	6.16	1,300.00	211.04	465.34	

TESTED BY:  MERCEDES C. MIRASOL LABORATORY TECHNICIAN	CHECKED BY:  GERALDINE L. ZERVOULAKOS QUALITY CONTROL TECHNICIAN
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**LAHAR MATERIAL SURVEY - FLEXURAL STRENGTH OF MOLDED LAHAR-CEMENT BEAM
(USING 3RD POINT LOADING)**

CASTING DATE :	09-17-94		SAMPLING POINT :	Lahar materials w/c was used for embankment mat'l of open dikes of sand pocket @ immediate up-stream of route 329.
TESTING DATE :	09-20-94			
AGE (DAYS) :	3 DAYS		CEMENT CONTENT :	15 %

SAMPLE NO.	SIZE (inch)			MAXIMUM LOAD, kg	FLEXURAL STRENGTH		AVERAGE PSI
	WIDTH, B	DEPTH, D	LENGTH, L		kg/sq. in	PSI	
S-1	3.00	3.00	9.00	400.00	133.33	294.00	245.00
S-2	3.00	3.00	9.00	300.00	100.00	220.50	
S-3	3.00	3.00	9.00	300.00	100.00	220.50	

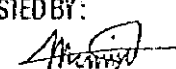

TESTED BY:  MERCEDES C. MIRASOL LABORATORY TECHNICIAN	CHECKED BY:  GERALDINE L. ZERVOULAKOS QUALITY CONTROL TECHNICIAN
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THE GOVERNMENT OF THE PHILIPPINES
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 FOR SACOBIA-BAMBAN/ABACAN RIVER
 DRAINING FROM MT. PINATUBO
 JAPAN INTERNATIONAL COOPERATION AGENCY

LAHAR MATERIAL SURVEY - COMPRESSIVE STRENGTH OF MOLDED LAHAR-CEMENT CYLINDERS
(ASTM D 1632-87)

CASTING DATE :	09-17-94		SAMPLING POINT :	Lahar materials w/c was used for embankment mat'l of open dikes of sand pocket @ immediate up-stream of route 329.
TESTING DATE :	09-24-94			
AGE (DAYS) :	7 DAYS		CEMENT CONTENT :	15 %

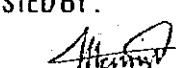
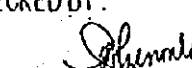
SAMPLE NO.	DIAMETER (inch)			AREA sq. in	MAXIMUM LOAD, kg	COMPRESSIVE STRENGTH		AVERAGE PSI
	D1	D2	MEAN			kg/sq. in	PSI	
S-1	2.50	2.50	2.50	4.91	1,700.00	345.23	763.44	673.63
S-2	2.50	2.50	2.50	4.91	1,400.00	285.13	628.72	
S-3	2.50	2.50	2.50	4.91	1,400.00	285.13	628.72	

TESTED BY :	CHECKED BY :	
 MERCEDES C. MIRASOL	 GERALDINE J. ZERVOLAKOS	
LABORATORY TECHNICIAN	QUALITY CONTROL TECHNICIAN	

LAHAR MATERIAL SURVEY - FLEXURAL STRENGTH OF MOLDED LAHAR-CEMENT BEAM
(USING 3RD POINT LOADING)

CASTING DATE :	09-17-94		SAMPLING POINT :	Lahar materials w/c was used for embankment mat'l of open dikes of sand pocket @ immediate up-stream of route 329.
TESTING DATE :	09-24-94			
AGE (DAYS) :	7 DAYS		CEMENT CONTENT :	15 %

SAMPLE NO.	SIZE (inch)			MAXIMUM LOAD, kg	FLEXURAL STRENGTH		AVERAGE PSI
	WIDTH, B	DEPTH, D	LENGTH, L		kg/sq. in	PSI	
S-1	3.00	3.00	9.00	450.00	150.00	330.75	343.00
S-2	3.00	3.00	9.00	450.00	150.00	330.75	
S-3	3.00	3.00	9.00	500.00	166.67	367.50	

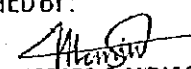

TESTED BY :	CHECKED BY :	
 MERCEDES C. MIRASOL	 GERALDINE J. ZERVOLAKOS	
LABORATORY TECHNICIAN	QUALITY CONTROL TECHNICIAN	

THE GOVERNMENT OF THE PHILIPPINES
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 DRAINING FROM MT. PINATUBO
JAPAN INTERNATIONAL COOPERATION AGENCY

LAHAR MATERIAL SURVEY - COMPRESSIVE STRENGTH OF MOLDED LAHAR-CEMENT CYLINDERS
(ASTM D 1632-87)

CASTING DATE :	09-30-94		SAMPLING POINT :	Lahar materials w/c was used for embankment mat'l of open dikes of sand pocket @ immediate up-stream of route 329.
TESTING DATE :	10-03-94			
AGE (DAYS) :	3 DAYS		CEMENT CONTENT :	20%

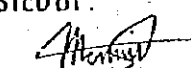

SAMPLE NO.	DIAMETER (inch)			AREA sq. in	MAXIMUM LOAD, kg	COMPRESSIVE STRENGTH		AVERAGE PSI
	D1	D2	MEAN			kg/sq. in	PSI	
S-1	280	280	280	6.16	1,400.00	227.27	501.14	548.83
S-2	280	280	280	6.16	1,600.00	259.74	572.73	
S-3	280	280	280	6.16	1,600.00	259.74	572.73	

TESTED BY:  MERCEDES C. MIRASOL LABORATORY TECHNICIAN	CHECKED BY:  GERALDINE L. PERIVOULAKOS QUALITY CONTROL TECHNICIAN
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LAHAR MATERIAL SURVEY - FLEXURAL STRENGTH OF MOLDED LAHAR-CEMENT BEAM
(USING 3RD POINT LOADING)



CASTING DATE :	09-30-94		SAMPLING POINT. :	Lahar materials w/c was used for embankment mat'l of open dikes of sand pocket @ immediate up-stream of route 329.
TESTING DATE :	10-03-94			
AGE (DAYS) :	3 DAYS		CEMENT CONTENT :	20%

SAMPLE NO.	SIZE (inch)			MAXIMUM LOAD, kg	FLEXURAL STRENGTH		AVERAGE PSI
	WIDTH, B	DEPTH, D	LENGTH, L		kg/sq. in	PSI	
S-1	3.00	3.00	9.00	400.00	133.33	294.00	269.50
S-2	3.00	3.00	9.00	300.00	100.00	220.50	
S-3	3.00	3.00	9.00	400.00	133.33	294.00	

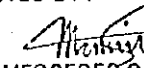

TESTED BY:  MERCEDES C. MIRASOL LABORATORY TECHNICIAN	CHECKED BY:  GERALDINE L. PERIVOULAKOS QUALITY CONTROL TECHNICIAN
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THE GOVERNMENT OF THE PHILIPPINES
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 DRAINING FROM MT. PINATUBO
 JAPAN INTERNATIONAL COOPERATION AGENCY

LAHAR MATERIAL SURVEY - COMPRESSIVE STRENGTH OF MOLDED LAHAR-CEMENT CYLINDERS
(ASTM D 1632-87)

CASTING DATE :	09-30-94	SAMPLING POINT :	Lahar materials w/c was used for embankment mat'l of open dikes of sand pocket @ immediate up-stream of route 329.					
TESTING DATE :	10-07-94							
AGE (DAYS) :	7 DAYS							
		CEMENT CONTENT :	20%					
SAMPLE NO.	DIAMETER (inch)			AREA sq. in	MAXIMUM LOAD, kg	COMPRESSIVE STRENGTH		AVERAGE PSI
	D1	D2	MEAN			kg/sq. in	PSI	
S-1	250	250	250	491	1,600.00	325.87	718.53	748.47
S-2	250	250	250	491	1,800.00	366.60	808.35	
S-3	250	250	250	491	1,600.00	325.87	718.53	
TESTED BY:		CHECKED BY:						
 MERCEDES C. MIRASOL		 GERALDINE L. ZERVOLAKOS						
LABORATORY TECHNICIAN		QUALITY CONTROL TECHNICIAN						

LAHAR MATERIAL SURVEY - FLEXURAL STRENGTH OF MOLDED LAHAR-CEMENT BEAM
(USING 3RD POINT LOADING)

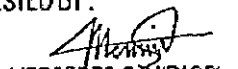

CASTING DATE :	09-30-94	SAMPLING POINT :	Lahar materials w/c was used for embankment mat'l of open dikes of sand pocket @ immediate up-stream of route 329.				
TESTING DATE :	10-07-94						
AGE (DAYS) :	7 DAYS						
		CEMENT CONTENT :	20%				
SAMPLE NO.	SIZE (inch)			MAXIMUM LOAD, kg	FLEXURAL STRENGTH		AVERAGE PSI
	WIDTH, B	DEPTH, D	LENGTH, L		kg/sq. in	PSI	
S-1	3.00	3.00	9.00	450.00	150.00	330.75	379.75
S-2	3.00	3.00	9.00	500.00	166.67	367.50	
S-3	3.00	3.00	9.00	600.00	200.00	441.00	
TESTED BY:		CHECKED BY:					
 MERCEDES C. MIRASOL		 GERALDINE L. ZERVOLAKOS					
LABORATORY TECHNICIAN		QUALITY CONTROL TECHNICIAN					

THE GOVERNMENT OF THE PHILIPPINES
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FOR SACOBIA-BAMBAN/ABACAN RIVER
DRAINING FROM MT. PINATUBO
JAPAN INTERNATIONAL COOPERATION AGENCY

LAHAR MATERIAL SURVEY - COMPRESSIVE STRENGTH OF MOLDED LAHAR-CEMENT CYLINDERS
(ASTM D 1632-87)

CASTING DATE :	09-10-94	SAMPLING POINT :	Lahar materials w/c was used for dikes at San Francisco Bridge.
TESTING DATE :	09-13-94	CEMENT CONTENT :	10 %
AGE (DAYS) :	3 DAYS		

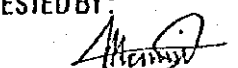

SAMPLE NO.	DIAMETER (inch)			AREA sq. in	MAXIMUM LOAD, kg	COMPRESSIVE STRENGTH		AVERAGE PSI
	D1	D2	MEAN			kg/sq. in	PSI	
S-1	2.80	2.80	2.80	6.16	1,000.00	162.34	357.95	357.95
S-2	2.80	2.80	2.80	6.16	1,000.00	162.34	357.95	
S-3	2.80	2.80	2.80	6.16	1,000.00	162.34	357.95	

TESTED BY:  MERCEDES C. MIRASOL LABORATORY TECHNICIAN	CHECKED BY:  GERALDINE J. ZERVOLAKOS QUALITY CONTROL TECHNICIAN
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LAHAR MATERIAL SURVEY - FLEXURAL STRENGTH OF MOLDED LAHAR-CEMENT BEAM
(USING 3RD POINT LOADING)

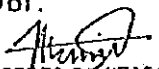
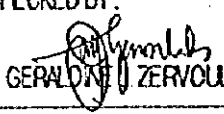
CASTING DATE :	09-10-94	SAMPLING POINT :	Lahar materials w/c was used for dikes at San Francisco Bridge.
TESTING DATE :	09-13-94	CEMENT CONTENT :	10 %
AGE (DAYS) :	3 DAYS		

SAMPLE NO.	SIZE (inch)			MAXIMUM LOAD, kg	FLEXURAL STRENGTH		AVERAGE PSI
	WIDTH, B	DEPTH, D	LENGTH, L		kg/sq. in	PSI	
S-1	3.00	3.00	9.00	200.00	66.67	147.00	196.00
S-2	3.00	3.00	9.00	200.00	66.67	147.00	
S-3	3.00	3.00	9.00	400.00	133.33	294.00	

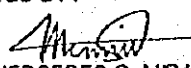
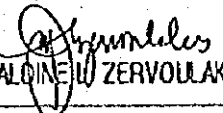
TESTED BY:  MERCEDES C. MIRASOL LABORATORY TECHNICIAN	CHECKED BY:  GERALDINE J. ZERVOLAKOS QUALITY CONTROL TECHNICIAN
---	---

THE GOVERNMENT OF THE PHILIPPINES
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 DRAINING FROM MT. PINATUBO
 JAPAN INTERNATIONAL COOPERATION AGENCY

LAHAR MATERIAL SURVEY - COMPRESSIVE STRENGTH OF MOLDED LAHAR-CEMENT CYLINDERS
(ASTM D 1632-87)

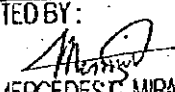
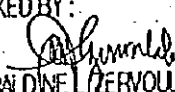
CASTING DATE :	09-10-94		SAMPLING POINT :	Lahar materials w/c was used for dikes at San Francisco Bridge.				
TESTING DATE :	09-17-94		CEMENT CONTENT :	10%				
AGE (DAYS) :	7 DAYS							
SAMPLE NO.	DIAMETER (inch)			AREA sq. in	MAXIMUM LOAD, kg	COMPRESSIVE STRENGTH		AVERAGE PSI
	D1	D2	MEAN			kg/sq. in	PSI	
S-1	2.50	2.50	2.50	4.91	1,000.00	203.67	449.08	471.54
S-2	2.50	2.60	2.50	4.91	1,150.00	234.22	516.45	
S-3	2.50	2.50	2.50	4.91	1,000.00	203.67	449.08	
TESTED BY:			CHECKED BY:					
 MERCEDES C. MIRASOL			 GERALDINE W. ZERVOULAKOS					
LABORATORY TECHNICIAN			QUALITY CONTROL TECHNICIAN					

LAHAR MATERIAL SURVEY - FLEXURAL STRENGTH OF MOLDED LAHAR-CEMENT BEAM
(USING 3RD POINT LOADING)

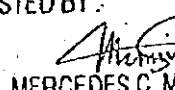
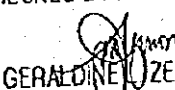
CASTING DATE :	09-10-94		SAMPLING POINT :	Lahar materials w/c was used for dikes at San Francisco Bridge.				
TESTING DATE :	09-17-94		CEMENT CONTENT :	10%				
AGE (DAYS) :	7 DAYS							
SAMPLE NO.	SIZE (inch)			MAXIMUM LOAD, kg	FLEXURAL STRENGTH		AVERAGE PSI	
	WIDTH, B	DEPTH, D	LENGTH, L		kg/sq. in	PSI		
S-1	3.00	3.00	9.00	300.00	100.00	220.50	294.00	
S-2	3.00	3.00	9.00	300.00	100.00	220.50		
S-3	3.00	3.00	9.00	600.00	200.00	441.00		
TESTED BY:			CHECKED BY:					
 MERCEDES C. MIRASOL			 GERALDINE W. ZERVOULAKOS					
LABORATORY TECHNICIAN			QUALITY CONTROL TECHNICIAN					

THE GOVERNMENT OF THE PHILIPPINES
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LAHAR MATERIAL SURVEY - COMPRESSIVE STRENGTH OF MOLDED LAHAR-CEMENT CYLINDERS
(ASTM D 1632-87)

CASTING DATE :	09-09-94		SAMPLING POINT :	Lahar materials w/c was used for dikes at San Francisco Bridge				
TESTING DATE :	09-12-94		CEMENT CONTENT :	15 %				
AGE (DAYS) :	3 DAYS							
SAMPLE NO.	DIAMETER (inch)			AREA sq. in	MAXIMUM LOAD, kg	COMPRESSIVE STRENGTH		AVERAGE PSI
	D1	D2	MEAN			kol/sq. in	PSI	
S-1	280	280	280	6.16	1,100.00	178.57	333.75	387.78
S-2	280	280	280	6.16	1,050.00	170.45	375.65	
S-3	280	280	280	6.16	1,100.00	178.57	333.75	
TESTED BY :			CHECKED BY :					
 MERCEDES C. MIRASOL			 GERALDINE JERVOLAKOS					
LABORATORY TECHNICIAN			QUALITY CONTROL TECHNICIAN					

LAHAR MATERIAL SURVEY - FLEXURAL STRENGTH OF MOLDED LAHAR-CEMENT BEAM
(USING 3RD POINT LOADING)

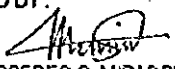

CASTING DATE :	09-09-94		SAMPLING POINT :	Lahar materials w/c was used for dikes at San Francisco Bridge				
TESTING DATE :	09-12-94		CEMENT CONTENT :	15 %				
AGE (DAYS) :	3 DAYS							
SAMPLE NO.	SIZE (inch)			MAXIMUM LOAD, kg	FLEXURAL STRENGTH		AVERAGE PSI	
	WIDTH, B	DEPTH, D	LENGTH, L		kol/sq. in	PSI		
S-1	3.00	3.00	9.00	400.00	133.33	294.00	294.00	
S-2	3.00	3.00	9.00	400.00	133.33	294.00		
S-3	3.00	3.00	9.00	400.00	133.33	294.00		
TESTED BY :			CHECKED BY :					
 MERCEDES C. MIRASOL			 GERALDINE JERVOLAKOS					
LABORATORY TECHNICIAN			QUALITY CONTROL TECHNICIAN					

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JAPAN INTERNATIONAL COOPERATION AGENCY

LAHAR MATERIAL SURVEY - COMPRESSIVE STRENGTH OF MOLDED LAHAR CEMENT CYLINDERS
(ASTM D 1632-87)

CASTING DATE :	09-09-94		SAMPLING POINT :	Lahar materials w/c was used for dikes at San Francisco Bridge.
TESTING DATE :	09-16-94			
AGE (DAYS) :	7 DAYS		CEMENT CONTENT :	15%

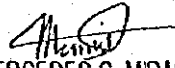

SAMPLE NO.	DIAMETER (inch)			AREA sq. in	MAXIMUM LOAD, kg	COMPRESSIVE STRENGTH		AVERAGE PSI
	D1	D2	MEAN			kg/sq. in	PSI	
S-1	2.50	2.50	2.50	4.91	1,200.00	244.40	538.90	546.38
S-2	2.50	2.50	2.50	4.91	1,250.00	254.58	561.35	
S-3	2.50	2.50	2.50	4.91	1,200.00	244.40	538.90	

TESTED BY:	CHECKED BY:	
 MERCEDES C. MIRASOL	 GERALDINE L. ZERVOLAKOS	
LABORATORY TECHNICIAN	QUALITY CONTROL TECHNICIAN	

LAHAR MATERIAL SURVEY - FLEXURAL STRENGTH OF MOLDED LAHAR CEMENT BEAM
(USING 3RD POINT LOADING)

CASTING DATE :	09-09-94		SAMPLING POINT :	Lahar materials w/c was used for dikes at San Francisco Bridge.
TESTING DATE :	09-16-94			
AGE (DAYS) :	7 DAYS		CEMENT CONTENT :	15%

SAMPLE NO.	SIZE (inch)			MAXIMUM LOAD, kg	FLEXURAL STRENGTH		AVERAGE PSI
	WIDTH, B	DEPTH, D	LENGTH, L		kg/sq. in	PSI	
S-1	3.00	3.00	9.00	400.00	133.33	294.00	343.00
S-2	3.00	3.00	9.00	450.00	150.00	330.75	
S-3	3.00	3.00	9.00	550.00	183.33	404.25	

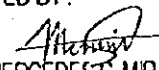

TESTED BY:	CHECKED BY:	
 MERCEDES C. MIRASOL	 GERALDINE L. ZERVOLAKOS	
LABORATORY TECHNICIAN	QUALITY CONTROL TECHNICIAN	

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 JAPAN INTERNATIONAL COOPERATION AGENCY

**LAHAR MATERIAL SURVEY - COMPRESSIVE STRENGTH OF MOLDED LAHAR-CEMENT CYLINDERS
(ASTM D 1632-87)**

CASTING DATE :	09-14-94		SAMPLING POINT :	Lahar materials w/c was used for dikes at San Francisco Bridge.
TESTING DATE :	09-17-94			
AGE (DAYS) :	3 DAYS		CEMENT CONTENT :	20%



SAMPLE NO.	DIAMETER (inch)			AREA sq. in	MAXIMUM LOAD, kg	COMPRESSIVE STRENGTH		AVERAGE PSI
	D1	D2	MEAN			kg/sq. in	PSI	
S-1	2.80	2.80	2.80	6.16	1,000.00	162.34	357.96	393.75
S-2	2.80	2.80	2.80	6.16	1,100.00	178.57	393.75	
S-3	2.80	2.80	2.80	6.16	1,200.00	194.81	429.55	

TESTED BY:  MERCEDES C. MIRASOL	CHECKED BY:  GERALDINE U. ZERVOULAKOS
LABORATORY TECHNICIAN	QUALITY CONTROL TECHNICIAN

**LAHAR MATERIAL SURVEY - FLEXURAL STRENGTH OF MOLDED LAHAR-CEMENT BEAM
(USING 3RD POINT LOADING)**

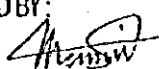
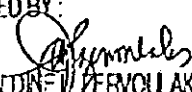
CASTING DATE :	09-14-94		SAMPLING POINT :	Lahar materials w/c was used for dikes at San Francisco Bridge.
TESTING DATE :	09-17-94			
AGE (DAYS) :	3 DAYS		CEMENT CONTENT :	20%

SAMPLE NO.	SIZE (inch)			MAXIMUM LOAD, kg	FLEXURAL STRENGTH		AVERAGE PSI
	WIDTH, B	DEPTH, D	LENGTH, L		kg/sq. in	PSI	
S-1	3.00	3.00	9.00	500.00	166.67	367.50	318.50
S-2	3.00	3.00	9.00	500.00	166.67	367.50	
S-3	3.00	3.00	9.00	300.00	100.00	220.50	

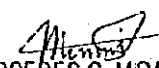

TESTED BY:  MERCEDES C. MIRASOL	CHECKED BY:  GERALDINE U. ZERVOULAKOS
LABORATORY TECHNICIAN	QUALITY CONTROL TECHNICIAN

THE GOVERNMENT OF THE PHILIPPINES
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LAHAR MATERIAL SURVEY - COMPRESSIVE STRENGTH OF MOLDED LAHAR-CEMENT CYLINDERS
(ASTM D 1632-87)

CASTING DATE :		09-14-94		SAMPLING POINT :		Lahar materials w/c was used for dikes at San Francisco Bridge.		
TESTING DATE :		09-21-94		CEMENT CONTENT :		20 %		
AGE (DAYS) :		7 DAYS						
SAMPLE NO.	DIAMETER (inch)			AREA sq. in	MAXIMUM LOAD, kg	COMPRESSIVE STRENGTH		AVERAGE PSI
	D1	D2	MEAN			kg/sq. in	PSI	
S-1	2.50	2.50	2.50	4.91	1,300.00	264.77	583.81	613.75
S-2	2.60	2.60	2.50	4.91	1,400.00	285.13	628.72	
S-3	2.50	2.50	2.50	4.91	1,400.00	285.13	628.72	
TESTED BY :		CHECKED BY :						
 MERCEDES C. MIRASOL		 GERALDINE U. ZERVOLAKOS						
LABORATORY TECHNICIAN		QUALITY CONTROL TECHNICIAN						

LAHAR MATERIAL SURVEY - FLEXURAL STRENGTH OF MOLDED LAHAR-CEMENT BEAM
(USING 3RD POINT LOADING)

CASTING DATE :		09-14-94		SAMPLING POINT :		Lahar materials w/c was used for dikes at San Francisco Bridge.	
TESTING DATE :		09-21-94		CEMENT CONTENT :		20 %	
AGE (DAYS) :		7 DAYS					
SAMPLE NO.	SIZE (inch)			MAXIMUM LOAD, kg	FLEXURAL STRENGTH		AVERAGE PSI
	WIDTH, B	DEPTH, D	LENGTH, L		kg/sq. in	PSI	
S-1	3.00	3.00	9.00	600.00	200.00	441.00	404.25
S-2	3.00	3.00	9.00	500.00	166.67	367.50	
S-3	3.00	3.00	9.00	550.00	183.33	404.25	
TESTED BY :		CHECKED BY :					
 MERCEDES C. MIRASOL		 GERALDINE U. ZERVOLAKOS					
LABORATORY TECHNICIAN		QUALITY CONTROL TECHNICIAN					

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