



WARNOCK HERSEY  
INTERNATIONAL LIMITED

125 East 4th Ave., Vancouver 10, B.C. Phone 876-4111

Squamish Lake 671442  
COAST ELDRIDGE  
PROFESSIONAL SERVICES DIVISION

REPORT OF: **Aggregate Evaluation**  
AT: **Vancouver Laboratory**  
PROJECT: **Pit Evaluation**  
REPORTED TO: **Bel Aire Realty Ltd**  
**572 East Broadway**  
**Vancouver, B.C.**  
**Attn: Mr. Norm McNeill**

BE 434  
FILE NO. **480-0028-B28**  
DATE **May 16, 1974**  
REPORT NO. **3/74**  
ORDER NO.

INTRODUCTION

As requested we determined the suitability of one sample of sand and three samples of pit run aggregate for use as concrete and road material.

TEST RESULTS

A. Suitability As Concrete Material

Proportioning

	<u>Sample No.1</u>	<u>Sample No. 2</u>	<u>Sample No. 3</u>	<u>Sample No.4</u>
Coarse aggregate	59.1%	-	53.8%	66.6%
Fine Aggregate (passing #4 sieve)	40.9%	99.8%	46.2%	33.4%

Note: Sample No. 3 contained 22.3% of oversize material (>2").  
This fraction of the sample was excluded from all calculations.

Organic Impurities Test

	<u>Sample No.1</u>	<u>Sample No.2</u>	<u>Sample No.3</u>	<u>Sample No.4</u>	<u>CSA Specifications</u> <u>A 23.1 - 1973</u>
Colour	No. 3	No. 1	No. 2	No. 5	not darker than No. 3

/2

Bel Aire Realty Ltd  
 May 16, 1974  
 Page 2

TEST RESULTS - cont'd

Grading of Coarse Aggregate

Sieve Size	Percentage Passing			ASTM Specs C33-71a for 2" to No.4	CSA Specs A23.1 - 1973 for 1 1/2" to No. 4
	Sample No.1	Sample No.3	Sample No.4		
2 1/2"	100		100	100	
2"	98.1	100	98.1	95 - 100	100
1 1/2"	88.0	87.9	97.4		95 - 100
1"	73.8	68.3	88.0	35 - 70	-
3/4"	64.2	58.7	79.4		35 - 70
1/2"	46.4	41.6	58.1	10 - 30	
3/8"	34.1	30.0	40.1		10 - 30
No. 4				0 - 5	0 - 5

Grading of Fine Aggregate

Sieve Size	Percentage Passing				CSA Specifications A 23.1 - 1973
	Sample No.1	Sample No.2	Sample No.3	Sample No.4	
3/8"		100			100
No.4	100	99.8	100	100	95 - 100
8	59.2	99.5	77.9	63.2	80 - 100
16	28.7	92.0	51.4	27.6	50 - 85
30	12.2	60.0	32.0	10.7	25 - 60
50	3.8	25.7	18.8	6.9	10 - 30
100	1.3	4.9	8.4	4.6	2 - 10
200	0.7	1.4	3.5	3.3	max 3.0
Fineness Modulus	3.95	2.18	3.12	3.87	2.3 - 3.1

Bel Aire Realty Ltd  
 May 16, 1974  
 Page 3

TEST RESULTS - cont'd

B. Suitability As Road Material

Sieve Size	Percentage Passing			ASTM Specifications D1241-68	
	Sample No.1	Sample No.3	Sample No.4	Grading "A"	Grading "B"
2 1/2"	100		100		
2"	98.9	100	98.7	100	100
1 1/2"	93.0	93.5	98.2		
1"	84.6	83.0	92.0		75 - 95
3/4"	78.9	77.8	86.3		
1/2"	68.4	68.6	72.1		
3/8"	61.1	62.3	60.1	30 - 65	40 - 75
No. 4	40.9	46.2	33.4	25 - 55	30 - 60
10	20.2	32.8	18.0	15 - 40	20 - 45
20	8.0	19.0	5.7		
40	2.7	12.1	2.8	8 - 20	15 - 30
60	1.1	7.3	2.1		
100	0.5	3.9	1.6		
200	0.3	1.6	1.1	2 - 8	5 - 15

Sieve Size	Percentage Passing Sample No. 2	ASTM Specifications D1241-68	
		Gradation E	Gradation F
1"		100	100
3/8"	100	-	-
No. 4	99.7	55 - 100	70 - 100
10	99.0	40 - 100	55 - 100
20	78.2		
40	41.1	20 - 50	30 - 70
60	17.8		
100	5.0		
200	1.4	6 - 15	8 - 15

Bel Aire Realty Ltd  
May 16, 1974  
Page 4

REMARKS

Suitability As Concrete Material

The grading of the coarse aggregate of sample No. 1, 3 and 4 does not comply with ASTM Specifications for 2" to No. 4 or CSA Grading limits for 1 1/2" to No. 4.

The fine aggregate of all four samples does not comply with CSA Grading Requirements. Sample No. 1, 3 and 4 are too coarse and sample No. 2 is too fine. A blend of sample No. 2 with the fine aggregate of sample No. 3 may produce an acceptable grading.

Sample No. 1, 2 and 3 meet the requirements of the organic impurities test. Sample No. 4 contains injurious amounts of organic impurities and is not acceptable as concrete material.

Suitability As Road Material

The submitted materials lack the fine sand and fine mineral particles passing a No. 200 sieve necessary for road material. It is, therefore, unsuitable as sub-base, base course and surface course material under ASTM Specifications D 1241-68.

WARNOCK HERSEY INTERNATIONAL LIMITED  
Professional Services Division



Brian T. Shankey  
MANAGER, PHYSICAL TESTING DIVISION

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