



CONTINENTAL PLACER INC.

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January 10, 2018

Mr. Tom Severino
Severino Trucking Co., Inc.
512 Raymond Rd
Candia, NH 03034

RE: Noise Analysis Riverwoods Development - Durham, NH

Mr. Severino:

Continental Placer Inc. (CPI) understands that Severino Trucking Co., Inc. (Severino) is planning to crush blasted bedrock on site at the subject development project. There is a concern about the noise the crushing process will make. CPI has conducted numerous noise studies pertaining to the mining industry and rock crushing is very common to the industry. Based on the processing equipment to be used at the site, a comparable combined plant noise level of 74.5 dBA at 100 feet was used. This noise level was chosen based on a similar noise study CPI completed in October 2017 (see attached).

The current primary noise source is vehicular traffic noise from Route 108 and Route 4. The Federal Highway Administration has developed noise criteria to be used for noise impacts. An excerpt from the criteria is presented below:

Noise impact occurs when the predicted levels approach or exceed the noise abatement criteria (NAC)... noise impacts can occur under either of two separate conditions: (1) when noise levels are unacceptably high (absolute level); or (2) when a proposed project will substantially increase the existing noise environment (substantial increase)...

Noise Abatement Criteria (NAC) Hourly A-Weighted Sound Level in Decibels (dBA)*

Activity Category	L _{eq} (h)	L ₁₀ (h)	Description of Activity Category
A	57 (Exterior)	60 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.

L10 - the sound level that is exceeded 10 percent of the time (the 90th percentile) for the period under consideration.

L10(h) - the hourly value of L10.

Leq - the equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as a time-varying sound level during the same period.

Leq(h) - the hourly value of *Leq*.

A noise impact analysis was performed to determine the potential for adverse noise impact at the identified receptor locations utilizing only attenuation due to line of sight distance. It is well known and widely accepted that distance is a critical factor when evaluating potential noise impacts. Sound levels decrease as the distance between the source and the receptor increase. The basic attenuation of noise over distance (i.e. the inverse square law) is approximately 6 dBA per doubling of distance. The noise generated by the rock crusher will be 74.5 dBA at a distance of 100 feet. The nearest receptors are shown below.

Figure 1: Noise Receptors



The line of sight distance to Receptor #1 is approximately 775 feet, to Receptor #2 is approximately 960 feet and to Receptor #3 is approximately 925 feet. Using the inverse square law to predict the noise generated by the on-site rock crusher indicates that the noise level at Receptor #1 will be 56.7 dBA, at Receptor #2 will be 54.9 dBA and at Receptor #3 will be 55.2 dBA. The most conservative ambient noise level stated in the Federal Highway Administration is between 57 and 60 dBA.

The noise levels created by the rock crushing activity will create noise levels at the nearest receptors at or below the Federal Highway Administration's noise abatement criteria and should not be considered an impact.

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The observations and conclusions contained in this report are based on site conditions and the data provided by the contractor. If conditions or data, different from those relied upon to complete this report are discovered, CPI must be promptly informed so the continuing applicability of this report can be assessed, and revisions made as necessary.

If we can be of any further assistance in this or any other matter, please do not hesitate to call.

Sincerely,
CONTINENTAL PLACER INC

A handwritten signature in black ink, appearing to read "Brent J. Tardif".

Brent J. Tardif, PG
Senior Geologist

Attached: Noise Data

Plant Area PA1 100' direct LOS

10/10/2017

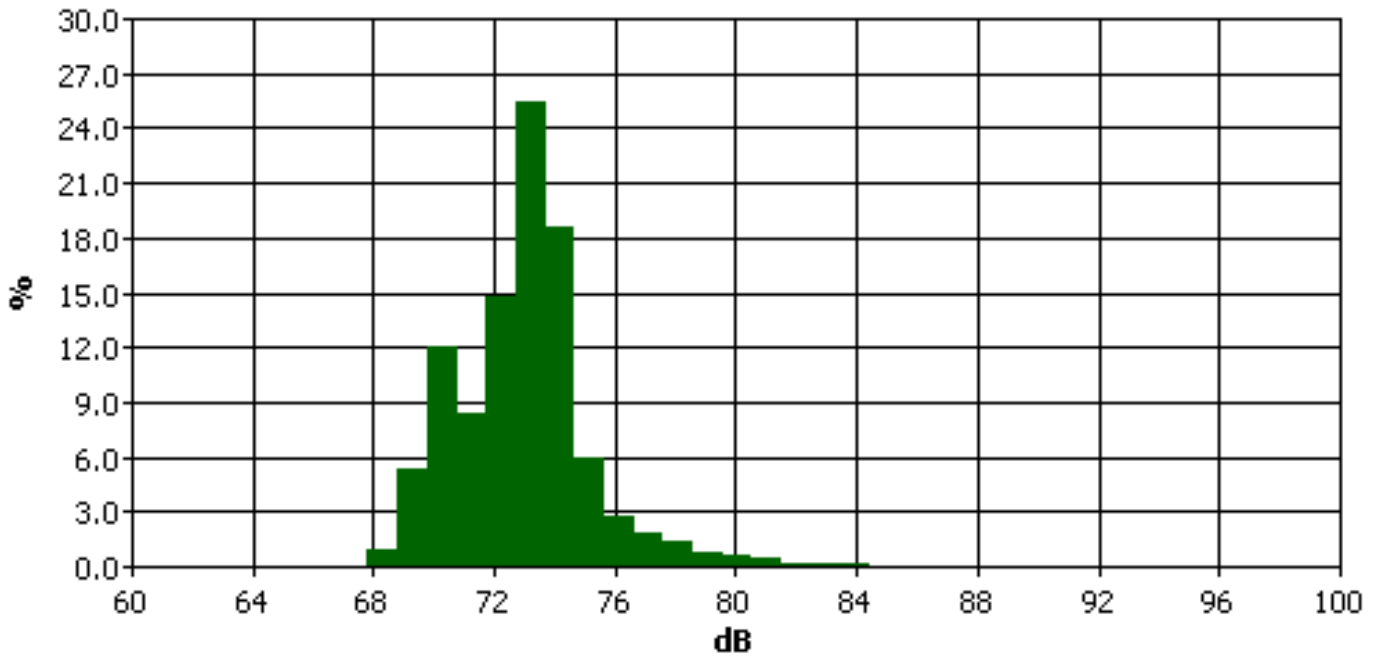
Information Panel

Name Plant Area PA1 100' direct LOS 05102017_195950
Start Time Thursday, October 05, 2017 11:52:55
Stop Time Thursday, October 05, 2017 12:22:55
Device Model Type SoundPro DL
Comments

General Data Panel

Description	Meter	Value	Description	Meter	Value
Leq	1	74.5 dB	Exchange Rate	1	3 dB
Weighting	1	A	Response	1	SLOW
Bandwidth	1	1/3	Exchange Rate	2	3 dB
Weighting	2	C	Response	2	FAST

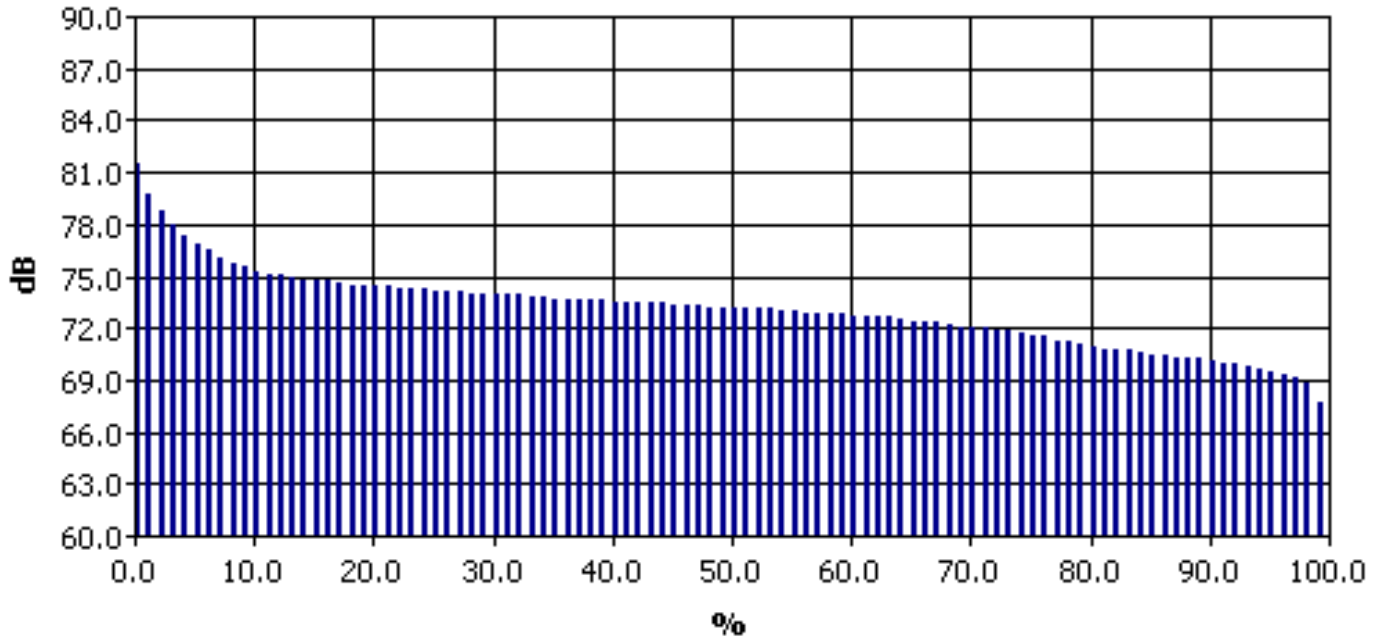
Statistics Chart



dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
60.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
61.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
62.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
63.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
64.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
66.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
68.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.8
69.0	0.3	0.4	0.7	0.3	0.6	0.6	0.3	0.6	0.7	0.9	5.3
70.0	1.3	1.2	1.2	1.3	1.4	1.2	0.9	1.0	1.2	1.1	12.0
71.0	1.1	0.8	0.9	0.7	0.7	0.6	0.8	1.0	1.0	0.9	8.4
72.0	1.3	1.5	1.6	0.8	1.0	1.6	1.5	1.8	1.9	1.9	14.8
73.0	2.2	2.5	2.6	2.7	2.8	2.9	2.5	2.5	2.5	2.4	25.5
74.0	2.5	2.6	2.2	2.0	1.9	1.8	1.7	1.4	1.3	1.2	18.6
75.0	1.0	0.9	0.8	0.6	0.4	0.6	0.4	0.4	0.4	0.4	5.9
76.0	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	2.8
77.0	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	1.8
78.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.4
79.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8
80.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6
81.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.5
82.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
83.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
84.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
85.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
86.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
87.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
88.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

dB	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	%
90.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
92.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
93.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
96.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
97.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
98.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Exceedance Chart



	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%
0%		81.5	79.8	78.7	77.9	77.3	76.8	76.5	76.1	75.8
10%	75.5	75.3	75.1	75.0	74.9	74.8	74.7	74.7	74.6	74.5
20%	74.5	74.4	74.4	74.3	74.2	74.2	74.1	74.1	74.1	74.0
30%	74.0	73.9	73.9	73.9	73.8	73.8	73.7	73.7	73.7	73.6
40%	73.6	73.5	73.5	73.5	73.4	73.4	73.3	73.3	73.3	73.2
50%	73.2	73.2	73.1	73.1	73.1	73.0	73.0	72.9	72.9	72.8
60%	72.8	72.7	72.7	72.6	72.6	72.5	72.4	72.4	72.3	72.2
70%	72.1	72.0	72.0	71.9	71.8	71.7	71.6	71.5	71.3	71.2
80%	71.1	70.9	70.8	70.8	70.7	70.6	70.5	70.4	70.3	70.2
90%	70.2	70.1	70.0	69.9	69.8	69.7	69.5	69.3	69.1	68.9
100%	67.7									