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January 21, 2014 (Revised)

PDS2013-MUP-87-021W2, PDS2013-RC-87-001W2
Log No: 87-2-13

Mr. Gary Nolan
Granite Construction Inc.
38740 Sky Canyon Road, Suite C
Murrieta, CA 92563

Memorandum: Rosemary Mountain Quarry MUP Amendment Air Quality Information

Dear Mr. Nolan:

This memorandum serves to clarify outstanding items regarding the subject Project based on discussion with County staff. The content of this memorandum is based on information available in the public record as well as discussion with the Project Applicant.

The expansion area requires the removal of approximately 555,000 cubic yards of rock and decomposed granite. A separate air quality assessment for this operation is not required because these activities were previously analyzed in the Air Quality Assessment update conducted in October 2000. The update concluded that *"the emissions of PM10 (from processing activities, haul roads, and fugitive sources) and construction total less than the thresholds of significance for air quality impacts of 100 pounds per day or 15 tons per year for operations and 4.5 tons per quarter for construction, and the impacts of these emissions are not considered significant."* The construction portion of the update analyzed 3 separate activities; haul road construction, quarry construction, and facility construction. Haul road construction analyzed the use of a bulldozer and motor grader (Appendix C tables C-1 and C-2). Quarry construction analyzed the emissions from a bulldozer, loader/excavator, 50 ton rock trucks on a 3,000 ft. unpaved haul road, a truck dump with a bulldozer, a motor grader, and wind erosion on 15 acres of exposed ground. Quarry construction also assumes a production rate of 10,800 tons (6,350 cy) per day or 432,000 tons (254,120 cy) per quarter and that the 3 activities occur simultaneously. It should be noted that exhaust emissions were not reported in the October 2000 Air Quality Study however these emissions have been included in this assessment, exhaust emissions are based on the California Air Resource Board's (CARB's) OFFROAD 2010 emissions factor inventory. Table 1[1] summarizes the PM10 (dust) and exhaust emissions that would occur based on the October 2000 Air Quality Study.

Table 1: Construction of Expansion Area
October 2000 Update 10,800 tons per day

Emission Source	No. of Vehicle	Hours	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Dozing/Ripping	1	4.0	0.67	7.04	4.73	0.00	33.38	7.27
Loader/Excavator	1	8.0	0.36	4.36	2.22	0.01	15.52	3.39
Water Truck	1	2.0	0.29	3.58	1.51	0.00	0.14	0.13
Truck Haul Road	1	8.0	1.17	14.33	6.02	0.01	53.72	11.67
Truck Dump	1	8.0	1.17	14.33	6.02	0.01	8.22	2.11
Dumped Material Dozing	1	8.0	1.34	14.08	9.46	0.01	27.14	6.21
Haul Road Grading	1	1.0	0.09	1.09	0.40	0.00	0.43	0.12
Wind Erosion			0.00	0.00	0.00	0.00	12.75	2.68
Total Emissions			**5.08**	**58.81**	**30.35**	**0.05**	**151.29**	**33.58**

[1] Fugitive dust emissions for each category above were obtained from Appendix C Construction Emissions Inventory (page C-2) from the October 2000 Update Air Quality Study, see Attachment "A" to this letter for an excerpt.

The planned expansion area operations have lower emissions than those calculated in the October 2000 Update Air Quality Study due to lower production rates and less equipment. All of the material in the expansion area will be exported off the site within current MUP limitations. The current MUP limits the total daily truck trips to 514 or approximately 6,400 tons per day, 4,400 tons per day less than the volumes used in the update. The export operation requires a bulldozer to push material to a loader/excavator. The loader/excavator then loads the material into a dump truck that hauls the material from the site. The bulldozer is only used for 6 hours per day or less because that operator also operates a water truck for the remaining 2 hours. The roads travelled by the dump trucks are also paved. Using the emissions from tables 2.4 and 2.5 of the October 2000 Air Study, the daily emission rate for exporting this material is less than100 lbs/day and significantly less than the emissions calculated in approved Air Quality Assessment update. Emissions from construction of the proposed expansion area are summarized on Table 2[2].

Table 2: Construction of Expansion Area
January 2014 Update 6,400 tons per day

Emission Source	No. of Vehicle	Hours	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Dozing/Ripping	1	6.0	1.00	10.56	7.09	0.01	50.07	10.90
Loader/Excavator	1	8.0	0.36	4.36	2.22	0.01	15.52	3.39
Water Truck	1	2.0	0.29	3.58	1.51	0.00	0.14	0.13
Truck Haul Road	1	8.0	1.17	14.33	6.02	0.01	15.57	3.66
Truck Dump	1	0.0	0.00	0.00	0.00	0.00	0.00	0.00
Dumped Material Dozing	1	0.0	0.00	0.00	0.00	0.00	0.00	0.00
Haul Road Grading	1	0.0	0.00	0.00	0.00	0.00	0.00	0.00
Wind Erosion			0.00	0.00	0.00	0.00	12.75	2.68
Total Emissions			**2.82**	**32.83**	**16.83**	**0.03**	**94.04**	**20.75**
San Diego County Threshold			**75**	**250**	**550**	**250**	**100**	**55**
Exceed Threshold?			**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

[2] Fugitive dust emissions for each category above were obtained from Appendix C Construction Emissions Inventory (page C-2) from the October 2000 Update Air Quality Study, see Attachment "A" to this letter for an excerpt. For Construction of the Expansion Area, there are no truck dump and dumped material dozing emissions as these activities will not occur. Additionally there are no haul road grading emissions since the road is already paved. For truck haul road emissions the aggregate product haul road emissions were doubled as they are most representative of the proposed activity.

Approximately ½ of the new processing site lies within the existing quarry boundary. The site requires approximately 178,000 cy of temporary fill to bring the western portion of the site to a common elevation. The material used as temporary fill comes from the existing quarry. The area will be filled with shot rock that will be processed later during the phase 3 mining phase. This operation requires a loader to load the rock into a truck that will transport to the dump site. A dozer for ripping and dozing is not required. There are no haul roads or haul road maintenance. The distance travelled is less than 400 feet or 2,600 feet less than the road analyzed in the update. Using the emissions from tables 2.5, the daily emission rate for the temporary fill is less than100 lbs/day and significantly less than the emissions calculated in the approved Air Quality Assessment update. Reclamation of the expanded area begins at the completion of phase 2 mining. Reclamation will use the same equipment set as analyzed for the temporary fill. The emissions will therefore be the same. Emissions from the temporary fill/reclamation activities are summarized on Table 3[3].

Table 3: Temporary Fill/Reclamation
January 2014 Update 6,400 tons per day

Emission Source	**No. of Vehicle**	**Hours**	**VOC**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Dozing/Ripping	1	0.0	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Excavator	1	8.0	0.36	4.36	2.22	0.01	15.52	3.39
Water Truck	1	2.0	0.29	3.58	1.51	0.00	0.14	0.13
Truck Haul Road	1	8.0	1.17	14.33	6.02	0.01	7.64	1.99
Truck Dump	1	8.0	1.17	14.33	6.02	0.01	8.22	2.11
Dumped Material Dozing	1	8.0	1.34	14.08	9.46	0.01	27.14	6.21
Haul Road Grading	1	0.0	0.00	0.00	0.00	0.00	0.00	0.00
Wind Erosion			0.00	0.00	0.00	**0.00**	12.75	2.68
Total Emissions			**4.32**	**50.68**	**25.22**	**0.04**	**58.65**	**13.84**
San Diego County Threshold			**75**	**250**	**550**	**250**	**100**	**55**
Exceed Threshold?			**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

In summary, it should be noted that the construction of the expansion area, temporary fill, and reclamation are activities that are mutually exclusive operations. They do not happen simultaneously due to the limited amount of equipment approved for the site. The equipment can be used for either exporting material, creating temporary fill, reclamation, or for processing aggregates. No two operations can be conducted at the same time. Detailed calculations for fugitive dust (PM10) and VOC, NOx, CO, SOx, PM10, and PM2.5 exhaust emissions from equipment are available in Attachment “A”.

Further, the MUP modification is requesting changes to the required equipment enclosing structures in order to utilize a High Density Polyethylene (HDPE) fabric building, or equivalent for enclosures that will limit the exchange of ambient wind conditions with the crushing/screening locations, which is an improvement over existing conditions since crushing/screening equipment is currently located outdoors.

[3] Fugitive dust emissions for each category above were obtained from Appendix C Construction Emissions Inventory (page C-2) from the October 2000 Update Air Quality Study, see Attachment “A” to this letter for an excerpt. There are no dozing/ripping emissions and haul road grading emissions since the road is already paved. For truck haul road emissions the aggregate product haul road emissions were multiplied by 13% for the proposed activity since the traveled distance is only 400 feet compared to the 3,000 feet previously calculated.

No increase in aggregate production is being requested under this MUP modification. No additional air quality impacts are expected as a result of the MUP modification.

Notwithstanding it should be noted that no reduction credit was taken in the original EIR/addendum air quality assessment for the use of steel building enclosures, rather the emissions controls are related to use of baghouses, watering, and limits on production rates – all of which will remain unchanged and in effect with the proposed MUP modification.

In conclusion, it does not appear as though a new air quality assessment is required since the proposed operations have already been analyzed in the certified EIR and the estimated actual emissions that will occur with the MUP modification would be less than those previously calculated.

If you have any questions, please contact me directly at (949) 660-1994 ext. 217.

Respectfully submitted,

URBAN CROSSROADS, INC.

Haseeb Qureshi, MES
Senior Environmental Scientist

HQ

Attachment "A"

Background Information and Supplemental Emissions Calculations

APPENDIX C
Construction Emission Inventory

Description	Control Technology		Maximum Uncontrolled Emission Rates			Maximum Controlled Emission Rates		
	Type	Control	(lbs/hr)	(lbs/day)	(tons/qtr)	(lbs/hr)	(lbs/day)	(tons/qtr)
Haul Road Construction Emissions								
Haul Road Dozing/Ripping	Watering (Moisture Increase)	50.00%	16.5103	132.0828	0.6604	8.2552	66.0414	0.3302
Haul Road Construction Grading	Watering (Moisture Increase)	50.00%	0.7650	6.1200	0.0306	0.3825	3.0600	0.0153
		System Total:	17.2753	138.2028	0.6910	8.6377	69.1014	0.3455
Quarry Construction Emissions								
Quarry Area Dozing/Ripping	Watering (Moisture Increase)	50.00%	16.5103	66.0414	1.3208	8.2552	33.0207	0.6604
Loader/Excavator Transfer to Haul Truck (Material Handling)	Uncontrolled	0.00%	1.9164	15.3312	0.3066	1.9164	15.3312	0.3066
Truck Haul (Round Trip)	Water (2 Hours)	95.00%	132.9352	1063.4816	21.2696	6.6468	53.1741	1.0635
Truck Dump	Watering (Moisture Increase)	50.00%	1.9164	15.3312	0.3066	0.9582	7.6656	0.1533
Dumped Material Dozing	Watering (Moisture Increase)	80.00%	16.5103	132.0828	2.6417	3.3021	26.4166	0.5283
Haul Road Maintenance Grading	Watering (Moisture Increase)	50.00%	0.7650	0.7650	0.0153	0.3825	0.3825	0.0077
Wind Erosion	Watering (Moisture Increase)	50.00%	1.0625	25.5000	0.5100	0.5313	12.7500	0.2550
		System Total:	171.6162	1318.5332	26.3707	21.9924	148.7407	2.9748
Facility Construction Unpaved Road Emissions								
On-Site Light Vehicle Trips	Water (2 Hours)	95.00%	0.0694	0.5553	0.0042	0.0035	0.0278	0.0002
Delivery Traffic	Water (2 Hours)	95.00%	0.0174	0.1388	0.0010	0.0009	0.0069	0.0001
		System Total:	0.0868	0.6941	0.0052	0.0043	0.0347	0.0003
TOTAL PROJECT EMISSIONS:			188.9783	1457.4300	27.0669	30.6344	217.8768	3.3206

Table 1: Construction of Expansion Area
October 2000 Update 10,800 tons per day

Emission Source	No. of Vehicle	Hours	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Dozing/Ripping	1	4.0	0.67	7.04	4.73	0.00	33.38	7.27
Loader/Excavator	1	8.0	0.36	4.36	2.22	0.01	15.52	3.39
Water Truck	1	2.0	0.29	3.58	1.51	0.00	0.14	0.13
Truck Haul Road	1	8.0	1.17	14.33	6.02	0.01	53.72	11.67
Truck Dump	1	8.0	1.17	14.33	6.02	0.01	8.22	2.11
Dumped Material Dozing	1	8.0	1.34	14.08	9.46	0.01	27.14	6.21
Haul Road Grading	1	1.0	0.09	1.09	0.40	0.00	0.43	0.12
Wind Erosion			0.00	0.00	0.00	0.00	12.75	2.68
Total Emissions			**5.08**	**58.81**	**30.35**	**0.05**	**151.29**	**33.58**
San Diego County Threshold			**75**	**250**	**550**	**250**	**100**	**55**
Exceed Threshold?			**NO**	**NO**	**NO**	**NO**	**YES**	**NO**

Table 2: Construction of Expansion Area
January 2014 Update 6,400 tons per day

Emission Source	No. of Vehicle	Hours	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Dozing/Ripping	1	6.0	1.00	10.56	7.09	0.01	50.07	10.90
Loader/Excavator	1	8.0	0.36	4.36	2.22	0.01	15.52	3.39
Water Truck	1	2.0	0.29	3.58	1.51	0.00	0.14	0.13
Truck Haul Road	1	8.0	1.17	14.33	6.02	0.01	15.57	3.66
Truck Dump	1	0.0	0.00	0.00	0.00	0.00	0.00	0.00
Dumped Material Dozing	1	0.0	0.00	0.00	0.00	0.00	0.00	0.00
Haul Road Grading	1	0.0	0.00	0.00	0.00	0.00	0.00	0.00
Wind Erosion			0.00	0.00	0.00	0.00	12.75	2.68
Total Emissions			**2.82**	**32.83**	**16.83**	**0.03**	**94.04**	**20.75**
San Diego County Threshold			**75**	**250**	**550**	**250**	**100**	**55**
Exceed Threshold?			**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Table 3: Temporary Fill/Reclamation
January 2014 Update 6,400 tons per day

Emission Source	No. of Vehicle	Hours	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Dozing/Ripping	1	0.0	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Excavator	1	8.0	0.36	4.36	2.22	0.01	15.52	3.39
Water Truck	1	2.0	0.29	3.58	1.51	0.00	0.14	0.13
Truck Haul Road	1	8.0	1.17	14.33	6.02	0.01	7.64	1.99
Truck Dump	1	8.0	1.17	14.33	6.02	0.01	8.22	2.11
Dumped Material Dozing	1	8.0	1.34	14.08	9.46	0.01	27.14	6.21
Haul Road Grading	1	0.0	0.00	0.00	0.00	0.00	0.00	0.00
Wind Erosion			0.00	0.00	0.00	**0.00**	12.75	2.68
Total Emissions			**4.32**	**50.68**	**25.22**	**0.04**	**58.65**	**13.84**
San Diego County Threshold			**75**	**250**	**550**	**250**	**100**	**55**
Exceed Threshold?			**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Construction of Expansion Area

	Update PM10 Emissions			Expansion PM10 Emissions		
	hrs	lbs/day	tons/qtr	hrs	lbs/day	tons/qtr
Dozing/Ripping	4	33.02	0.66	6	49.53	1.61
Loader/Excavator	8	15.33	0.31	8	15.33	0.50
Truck Haul Road	8	53.17	1.06	*8	15.02	0.59
Truck Dump	8	7.67	0.15	0	0.00	0.00
Dumped Material Dozing	8	26.42	0.53	0	0.00	0.00
Haul Road Grading	1	0.38	0.01	0	0.00	0.00
Wind Erosion		12.75	0.26		12.75	0.26
Total		148.74	2.97		92.63	2.96
* Aggregate product haul road emissions doubled.						
Daily Poduction	10,800 tons per day			6,400 tons per day		

Temporary Fill/Reclamation

	Update PM10 Emissions			Expansion PM10 Emissions		
	hrs	lbs/day	tons/qtr	hrs	lbs/day	tons/qtr
Dozing/Ripping	4	33.02	0.66	0	0.00	0.33
Loader/Excavator	8	15.33	0.31	8	15.33	0.50
Truck Haul Road	8	53.17	1.06	*8	7.09	0.23
Truck Dump	8	7.67	0.15	8	7.67	0.25
Dumped Material Dozing	8	26.42	0.53	8	26.42	0.86
Haul Road Grading	1	0.38	0.01	0	0.00	0.00
Wind Erosion		12.75	0.26		12.75	0.03
Total		148.74	2.97		69.26	2.19
* Haul road emissions are 13% of haul road used in Table 2.5.						
Daily Poduction	10,800 tons per day			6,400 tons per day		

2014	

Fleet Average OFFROAD

lb/hr

Equipment	Hp	ROG	CO	NOX	SOX	PM
Excavators	50	0.024826	0.145764	0.149395	0.000163	0.01144
	120	0.035321	0.252213	0.353304	0.000332	0.026326
	175	0.047957	0.387856	0.572616	0.000599	0.028145
	250	0.054118	0.247505	0.804531	0.000898	0.025525
	500	0.064379	0.367237	0.927727	0.001345	0.029896
	750	0.116148	0.655659	1.722973	0.002351	0.055618
	1000	0.21936	0.977196	3.91971	0.003448	0.104371
	9999	0.266787	1.62216	4.748251	0.006381	0.122546
Excavators Total		0.044713	0.27693	0.544889	0.000651	0.023673
Graders	50	0.109164	0.319875	0.231108	0.000177	0.030599
	120	0.104064	0.403377	0.818734	0.000397	0.068216
	175	0.112895	0.526664	1.160024	0.000662	0.065104
	250	0.071769	0.269279	1.056892	0.000907	0.034126
	500	0.082965	0.473092	0.980996	0.001289	0.037693
	1000	0.508871	2.396947	6.664614	0.003489	0.231943
	9999	0.784993	3.52337	11.77025	0.00873	0.354983
Graders Total		0.091719	0.398706	1.089522	0.000831	0.048718
Off-Highway Trucks	50	0.040617	0.175643	0.142621	0.000128	0.01484
	120	0.049146	0.293417	0.414076	0.000352	0.03357
	175	0.068591	0.464613	0.698205	0.000648	0.039079
	250	0.085799	0.34318	0.966685	0.000859	0.041836
	500	0.123362	0.650685	1.469243	0.001541	0.056295
	750	0.267743	1.630781	3.080522	0.002713	0.12742
	1000	0.313132	1.344143	4.808496	0.003682	0.14145
	9999	0.621261	2.850469	8.725828	0.007279	0.272992
Off-Highway Trucks Total		0.146117	0.752629	1.791298	0.001657	0.068275
Rubber Tired Dozers	50	0.107342	0.331292	0.241105	0.000191	0.03177
	120	0.08761	0.339498	0.680748	0.000348	0.060929
	175	0.125329	0.55122	1.282812	0.000636	0.073407
	250	0.132622	0.498642	1.465813	0.0009	0.072163
	500	0.218224	1.902133	2.486368	0.001524	0.115927
	750	0.261192	1.402927	3.638106	0.002484	0.131153
Rubber Tired Dozers Total		0.167028	1.182019	1.76022	0.001062	0.090304