

APPENDIX 8.5B

# Construction and Demolition Noise Analysis

---

# Noise Appendix 8.5b

## Construction and Demolition Noise Analyses

## **Introduction**

Noise impacts from demolition and construction activities on any given industrial project site are a function of the noise generated by individual construction equipment items, the equipment location, and the timing and duration of the noise-generating activities. For this project, there will be several phases of demolition and construction activities to remove foundations from the SBRP site, then to construct the SBRP facility, followed by demolishing the existing SBPP and its related infrastructure (once the SBRP is fully functional). These various phases of demolition and construction are discussed in Section 2.0 of the main AFC document.

In general, the number, type, distribution, and usage of construction and/or demolition equipment will differ from phase to phase. That is, not all the equipment associated with a particular project is used in each phase of construction. Further, the equipment used is not generally operated continuously, nor is the equipment necessarily operated simultaneously. All these level-weighting and time-weighting factors must be accounted for to calculate an aggregate noise emission level for each phase. This different mix of equipment and operations results in different aggregate noise levels for each phase, as discussed in more detail in the following sections.

## **Methodology**

The noise levels from demolition and construction activities will vary during the different activity periods, depending upon the activity location(s) and the number and types of equipment being used. Given the complexity, both spatially and in timing, of the future construction and demolition noise emissions for the Project, the currently-planned, preliminary demolition and construction equipment lists, plus the envisioned schedules<sup>1</sup> were used to establish the number and type of each equipment item and their respective locations on the industrial site.

Both the U.S. EPA Office of Noise Abatement and Control and the Empire State Electric Energy Research Company have extensively studied noise from individual pieces of construction equipment as well as from construction sites of power plants and other types of facilities (U.S. EPA, 1971; Barnes et al., 1976). Although these studies were done several years ago, they remain the industry standards for the estimated base noise emissions from construction/demolition equipment and the associated noise impact analysis. Further, use of this data is considered to be conservative since the evolution of construction equipment has been toward quieter designs to protect both operators from exposure to high noise levels and the community from undue noise intrusion. Table 8.5b-1 presents noise levels from common construction equipment at various distances per these industry references<sup>2</sup>. Note that these typical noise levels at distances away from the equipment item (beyond 50 feet) are conservative since the only attenuating mechanism considered was divergence of the sound waves in open air. Attenuation from air absorption, ground effects, and shielding from intervening topography or structures are not included in these tabled calculations.

*the remainder of this page is intentionally blank*

---

<sup>1</sup> Information provided by CH2M-Hill and Black & Veatch.

<sup>2</sup> At typical operations loading and in terms of energy-average sound levels at standardized distance of 50 feet from the source.

TABLE 8.5b-1  
Noise Levels from Common Construction Equipment at Various Distances

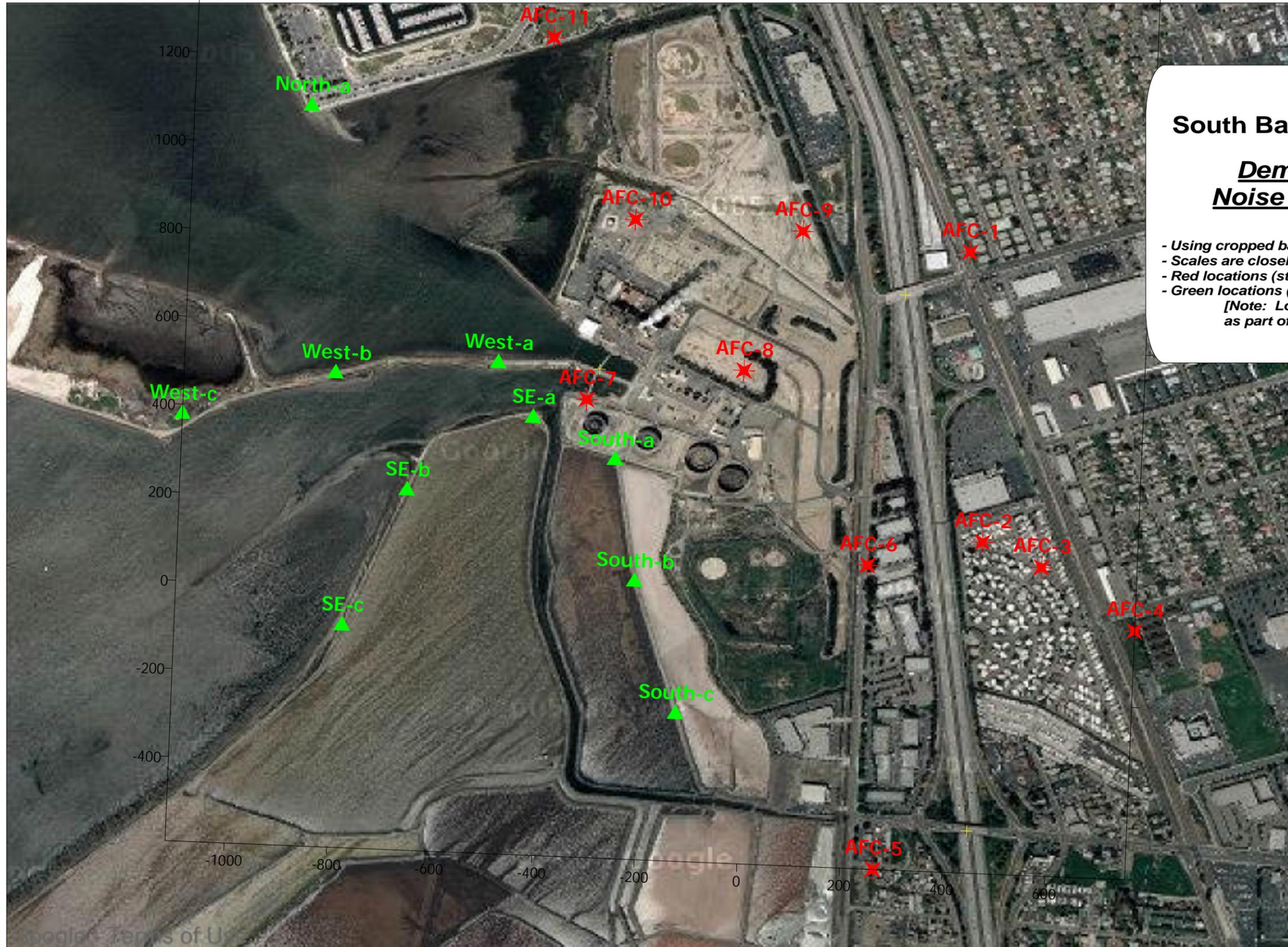
Construction Equipment	Typical Sound Pressure Level at 50 feet (dBA)	Typical Sound Pressure Level at 500 feet (dBA)	Typical Sound Pressure Level at 1,500 feet (dBA)
Dozer (250-700 hp)	88	68	58
Front End Loader (6-15 cu. yards.)	88	68	58
Trucks (200-400 hp)	86	66	56
Grader (13 to 16 ft. blade)	85	65	55
Shovels (2-5 cu. yards.)	84	64	54
Portable Generators (50-200 kW)	84	64	54
Derrick Crane (11-20 tons)	83	63	53
Mobile Crane (11-20 tons)	83	63	53
Concrete Pumps (30-150 cu. yards.)	81	61	51
Tractor (3/4 to 2 cu. yards.)	80	60	50
Un-quieted Paving Breaker	80	60	50
Quieted Paving Breaker	73	53	43

Source: USEPA, 1971; Barnes et al., 1976.

After finding the appropriate listing of equipment items for each activity zone/timeframe, the methodology outlined by the Construction Engineering Research Laboratory (CERL) and reported in Construction-Site Noise Control Cost-Benefit Estimating Procedures (published in 1978), was used to aggregate the total average noise level, by phase or operation. The CERL aggregation methodology considers the type and number of construction/demolition equipment items used, individual equipment noise emissions, and per-item time-usage factors to estimate the noise levels during each phase of construction/demolition.

Using these calculated worst-case aggregate noise emission factor, the propagation of construction/demolition noise sources from each activity zone to each receptor of concern was analyzed. The first aspect in the propagation analysis was incorporating a 6 dB per doubling-of-distance attenuation rate for spherical spreading loss. For example, a noise source of 90 dBA at 50 feet from the source would generate a noise level of 84 dBA at 100 feet from the source, 78 dBA at 200 feet from the source, and so forth. Then, a nominal reduction term for barrier attenuation and/or ground effects attenuation was applied. For example, intervening structures and the slight elevation change of the I-5 freeway will afford some sound barrier benefit to on-site construction/demolition noise propagating toward receptors AFC-1, -2, and -3. These spreading loss and barrier/ground effect attenuation terms were applied to each phase's aggregate noise level contribution, with respect to the individual receptors.

For the demolition and construction noise impact analyses (discussed separately below), the worst-case periods of activity were investigated to calculate their respective noise emissions into the surrounding community. The analyses used the same receptor locations as were used for the ambient survey, as well as additional locations, mostly to the west of the 115-acre industrial site, to evaluate potential impacts to biological habitat areas (primarily at the Chula Vista Wildlife Reserve on a spit of land in San Diego Bay). These receptor locations for the construction and demolition analysis are shown on Figure 8.5b-1.



**LSP South Bay, LLC  
South Bay Replacement Project (SBRP)**

**Demolition and Construction  
Noise Impact Analysis Locations**

- Using cropped basemap from Google Maps (aerial2.jpg)
- Scales are closely matched per B&V modeling grid system (metric)
- Red locations (stars) are same as used in 12/2005 Ambient Noise Survey
- Green locations (triangles) are for potential wildlife habitat concerns

[Note: Locations AFC-7, -8, -9, -10, and South-a will be demolished as part of the Project demolition/construction activities]

## **SBPP Demolition Noise**

The demolition will not involve blasting, but will utilize standard demolition techniques and pavement/foundation breaking equipment. Since some of the demolition activities will last upwards of 25 months, several actions will be conducted concurrently with activities being dispersed in several locations about the 115-acre industrial site. Therefore, several combinations of activities were evaluated to ensure assessment of the worst-case conditions at the pertinent receptor locations. That is, the worst-case situation may be at two or three of the receptor sites for one aspect of the demolition program, while another aspect may produce the highest noise levels at a completely different subset of the receptors.

For the demolition process, three distinct phases have been identified; Phase I is primarily aimed at preparing the part of the 115 acre industrial site that will be used for the new SBEF facility, Phase II (implemented after SBEF is fully functional) is focused on removing the bulk of the existing SBPP, and Phase III will be removing other industrial site features and conducting the final grading on the industrial site that is not part of the SBEF area. These functions, currently planned to be conducted over a single, daytime shift only, are summarized below:

### Phase I Demolition

- remove LNG Tank foundations (on SBEF site) [line item 2]
- remove South Tank Farm Eastern Berm area [line item 3]

### Phase II Demolition

- remove SBPP structure [line item 5]
- remove remaining support structures [line item 6]
- remove support tanks/equip. (former Waste Water Treatment Plant) [line item 7]
- remove South Tank Farm Tanks & Berms [line item 8]
- remove Intake and Discharge Structures [line item 9]
- remove the East/West Utility Loop [line item 10]
- remove the Jet Fuel Site [line item 11]

### Phase III Demolition

- remove existing Waste Water Treatment Plant [line item 13]
- remove North Tank Farm Berms [line item 14]
- conduct final grading [line item 15]

These various permutations of activities which will overlap in time and in several areas on the two industrial sites, a detailed investigation was conducted. Thus, to adequately investigate all these different scenarios, the second phase was broken into three sub-phases; Phase IIa was the overlapping combination of line items 6 and 7, Phase IIb involved the overlap of line items 5 and 8, and Phase IIc involved concurrent activities under line items 8, 9, and 10. For Phases I and III, the activities delineated above were taken to be running concurrently for the noise impact analyses (i.e. line items 2 and 3 for Phase I and line items 13, 14, and 15 for Phase III). The specific mix of equipment that is expected to be used during each activity (line item) was provided by CH2M-Hill. These equipment sets, including material haul-off and associated trucking movements, were located at the centroid of each respective line item location at the industrial site, their aggregate noise levels were calculated, and attenuation factors for spreading loss and for barrier effects were used to compute the expected, worst-case noise levels at each receptor location. The results of this analysis are given in Table 8.5b-2.

TABLE 8.5b-2  
 Predicted Noise Levels from South Bay Demolition Activities at Selected Receptors;  
 with the highest predicted levels for each location, regardless of phasing, shown in bold text

Receptor Label	Receptor Description <sup>a</sup>	A-WTD Sound Level, dBA					Range, dB
		Phase I Total	Phase IIa Total	Phase IIb Total	Phase IIc Total	Phase III Total	
<u>Community Receptor Locations (inhabited)</u>							
AFC-1	Colorado Apts	37	<b>43</b>	40	39	<b>43</b>	5.8
AFC-2	Brentwood, I-5	41	<b>42</b>	39	38	41	4.0
AFC-3	Brentwood, Ind. Blvd	34	<b>36</b>	32	32	34	3.7
AFC-4	Harborside Elem.	36	<b>38</b>	35	35	37	3.4
AFC-5	Stella Street	36	<b>37</b>	35	34	36	2.6
AFC-6	1021 Bay Blvd	<b>61</b>	59	55	55	57	5.3
AFC-11	Marina View Park	44	51	49	47	<b>64</b>	20.1
<u>Potential Biological Habitats</u>							
North-a	SE corner of Marina land	43	50	47	46	<b>56</b>	13.5
West-a	Spit access, 1000'	55	<b>69</b>	65	66	67	13.2
West-b	Spit access, 2000'	53	<b>62</b>	59	60	62	9.5
West-c	Spit habitat, 3000'	51	<b>59</b>	55	56	<b>59</b>	8.1
South-b	Inner Evap pond trail, 2000'	<b>67</b>	42	48	63	63	25.1
South-c	Inner Evap pond trail, 3000'	<b>62</b>	41	42	58	59	21.4
SE-a	Outer Evap pond trail, 1000'	62	49	65	<b>70</b>	67	20.3
SE-b	Outer Evap pond trail, 2000'	59	59	59	<b>62</b>	<b>62</b>	3.3
SE-c	Outer Evap pond trail, 3000'	57	54	55	58	<b>59</b>	4.0

Source: Alliance Acoustical Consultants, Inc., 2006

Notes: <sup>a</sup> Some receptor locations (AFC-7, -8, -9, -10, and South-a) are areas to be demolished, so this analysis is not applicable at these locations.

The results of this detailed demolition evaluation indicate that there could be variations in noise levels at any given receptor, depending on the timeframe of the overall demolition program. For example, at Location AFC-11, the Marina View Park, demolition noise levels are predicted to range from 44 to 64 dBA, depending on the particular phase of the demolition. During Phase I (most work at the SBRP site to the south, the large distances involved – 3,300 to 4,100 feet – would yield demolition noise level that would be well below the existing ambient. Conversely, for Phase III activities (some centered at the North Tank Farm area which is the closest zone of demolition activity), noise levels could be upwards of 64 dBA at the Park during the daytime since earth moving equipment could be approximately 920 feet away. The largest difference in potential noise levels to an off-site receptor location from demolition is at South-b, which is a narrow walkway separating salt evaporation ponds, which may provide areas for bird habitat, and which is due west of the center of the SBRP site preparation zone.

The above multi-phase noise level predictions for the demolition activities are collapsed into the following summary table that give the worst-case predicted demolition noise levels at each receptor location (regardless of which phase or activity was responsible for that highest noise level).

*the remainder of this page is intentionally blank*

TABLE 8.5b-3  
Comparison of Predicted Noise Levels from South Bay Demolition Activities to Existing Ambient Sound Levels

Receptor Label	Receptor Description <sup>a</sup>	Highest Predicted Demolition A-wtd Sound Level, dBA	Measured Existing Ambient Daytime Leq Noise Level <sup>b</sup> , dBA	Difference between Demolition Noise and Ambient Environment, dB
<u>Community Receptor Locations (inhabited)</u>				
AFC-1	Colorado Apts	43	68	-25
AFC-2	Brentwood, I-5	42	64	-22
AFC-3	Brentwood, Ind. Blvd	36	59	-23
AFC-4	Harborside Elem.	38	58 - 64	-19 to -25
AFC-5	Stella Street	37	63	-26
AFC-6	1021 Bay Blvd	61	67	-6
AFC-11	Marina View Park	64	57	+7
North-a	SE corner of Marina land	56	55	+1
<u>Potential Biological Habitats</u>				
West-a	Spit access, 1000'	69	58	+11
West-b	Spit access, 2000'	62	55 <sup>c</sup>	+7
West-c	Spit habitat, 3000'	59	51	+8
South-b	Inner Evap pond trail, 2000'	67	58	+9
South-c	Inner Evap pond trail, 3000'	62	55 <sup>c</sup>	+7
SE-a	Outer Evap pond trail, 1000'	70	60 <sup>c</sup>	+10
SE-b	Outer Evap pond trail, 2000'	62	60 <sup>c</sup>	+2
SE-c	Outer Evap pond trail, 3000'	59	55 <sup>c</sup>	+4

Source: Alliance Acoustical Consultants, Inc., 2006

Notes: <sup>a</sup>. Some receptor locations (AFC-7, -8, -9, -10, and South-a) are areas to be demolished, so this analysis is not applicable at these locations.

<sup>b</sup>. nominal, average Leq value across the daytime hours.

<sup>c</sup>. estimated value from similar locations and conditions.

As shown in this table, the majority of inhabited receptor locations are expected to have demolition-related noise levels that are well below the existing ambient conditions. As such, demolition activities would be generally inaudible at these community locations (AFC-1, -2, -3, -4, -5, and -6) with the possible exception of brief times of possible discernibility during the busiest periods of activity that happen to coincide with lulls in local and freeway traffic. These brief periods of perceptibility are not considered significant, based on the intermittent nature and short-term duration (75 days) of the worst-case activities. Receptor locations to the north of the industrial site, AFC-11 and the SE corner of the Marina (North-a)<sup>3</sup> are predicted to have potentially noteworthy increases in noise levels due to the proximity of Phase III demolition activities (for removing the North Tank Farm Berms). While these worst-case demolition noise levels may be clearly audible, as compared to the current ambient conditions, the short-term nature of these activities (approximately 100 days) and their limitation to daytime hours (per City of Chula Vista Code, Sections 17.24.050 and 19.68.060) indicates that these demolition noise levels would not be considered significant. For additional technical details on the demolition noise analyses, please see the distance and propagation analysis tables contained in Attachment 1 to this Appendix 8.5b.

<sup>3</sup> Note that per the Chula Vista Planning Division, Marina activities are governed by the Port of San Diego, including the allowance of living aboard-ship while tied up in the Chula Vista Marina (Provencher, 2006). Although these 'live-aboards' may be considered as a pseudo-residential usage, the same assessment of and conclusions for demolition noise impacts applies.

## **SBRP Construction Noise**

As opposed to the demolition activities that will be spread out over a large portion of the 115-acre industrial site, the SBRP construction process will be centered around the power block of the new plant, a relatively small area as compared to the demolition scope, and will be conducted over approximately 28 months (and which may change, depending on the possible use of two shifts for construction activities). Since the construction zone is relatively small, a single centroid was used to define the aggregate equipment noise for the construction noise evaluations. The specific mix of equipment that is expected to be used during the construction program was provided by Black and Veatch. Rather than divide the construction activities for the SBRP into phases (as with the demolition program above), this aspect of the SBRP Project was simply laid out in terms of expected construction equipment to be used at any given time during the month-to-month execution of the SBRP building program (see Section 2 of the Main Text for more details).

The aggregate noise levels from these monthly equipment sets were calculated as shown in Table 8.5b-4, which shows that the highest level of construction noise is expected to occur during the months 12 through 15, when the aggregate noise level is calculated to be 94 dBA at 50 feet from the center of construction activity. It is important to bear in mind that these noise estimates are adjusted for time-use factors, varying power settings, and would not be continuous noise emissions. Construction noise would vary throughout the build-out of the project according to specific activities, location, orientation of the activities, and changing equipment operations.

TABLE 8.5b-4  
Summation of Month-by-Month Noise Levels for SBRP Construction Activities

Month	Aggregate SPL(A) at 50'	Major Noise Sources and Notes
5	93	mostly fill material haul-in
8	92	mostly worker vehicles
9	93	worker vehicles and compression/compaction equipment
10	93	worker vehicles and compression/compaction equipment
11	93	worker vehicles and compression/compaction equipment
12	<b>94</b>	worker vehicles + fuel trucks + compression/compaction equipment
13	<b>94</b>	worker vehicles + fuel trucks + compression/compaction equipment
14	<b>94</b>	worker vehicles + fuel trucks + compression/compaction equipment
15	<b>94</b>	worker vehicles + fuel trucks + compression/compaction equipment

Source: Alliance Acoustical Consultants, Inc. 2006

Notes: using construction plans as discussed in Project Description Section 2 of the main text.

These monthly equipment sets were located at the centroid of the SBRP power block and attenuation factors for spreading loss and for barrier effects were used to compute the expected, worst-case noise levels at each receptor location. The results of this worst-case analysis are given in Table 8.5b-5, which compares the predicted construction noise levels at each receptor location to the existing ambient noise environment.

*the remainder of this page is intentionally blank*

TABLE 8.5b-5

Comparison of Predicted Noise Levels from SBRP Construction Activities to Existing Ambient Sound Levels

Receptor Label	Receptor Description <sup>a</sup>	Highest Predicted Construction A-wtd Sound Level, dBA	Measured Existing Ambient Daytime Leq Noise Level <sup>b</sup> , dBA	Difference between Construction Noise and Ambient, dB
<u>Community Receptor Locations (inhabited)</u>				
AFC-1	Colorado Apts	39	68	-28
AFC-2	Brentwood, I-5	44	64	-20
AFC-3	Brentwood, Ind. Blvd	37	59	-22
AFC-4	Harborside Elem.	40	58 - 64	-18 to -24
AFC-5	Stella Street	40	63	-23
AFC-6	1021 Bay Blvd	65	67	-2
AFC-11	Marina View Park	46	57	-11
North-a	SE corner of Marina land	45	55	-10
<u>Potential Biological Habitats</u>				
West-a	Spit access, 1000'	61	58	+3
West-b	Spit access, 2000'	58	55 <sup>c</sup>	+3
West-c	Spit habitat, 3000'	56	51	+5
South-b	Inner Evap pond trail, 2000'	71	58	+13
South-c	Inner Evap pond trail, 3000'	66	55 <sup>c</sup>	+11
SE-a	Outer Evap pond trail, 1000'	63	60 <sup>c</sup>	+3
SE-b	Outer Evap pond trail, 2000'	61	60 <sup>c</sup>	+1
SE-c	Outer Evap pond trail, 3000'	60	55 <sup>c</sup>	+5

Source: Alliance Acoustical Consultants, Inc., 2006

Notes: <sup>a</sup> Some receptor locations (AFC-7, -8, -9, -10, and South-a) are areas to be demolished, so this analysis is not applicable at these locations.

<sup>b</sup> nominal, average Leq value across the daytime hours.

<sup>c</sup> estimated value from similar locations and conditions.

As shown in this table, the majority of inhabited (community) receptor locations are expected to have construction-related noise levels that would be generally inaudible at these community locations (AFC-1, -2, -3, -4, -5, -11, and North-a) with the possible exception of brief times of possible discernibility during the busiest periods of activity that happen to coincide with lulls in local and freeway traffic. These brief periods of perceptibility are not considered significant, based on the intermittent nature and short-term duration of the worst-case activities. Location AFC-6, being closest to the SBRP Project site, may experience construction noise that roughly comparable to the ambient noise levels during the busiest periods of activity. These levels may be intermittently audible to the commercial/light industrial tenants, but are not considered significant, based on the sporadic nature and short-term duration of the worst-case activities. The highest noise level increases from SBRP construction activities (+1 to +11 dB) would be at uninhabited areas to the west (i.e. the salt ponds and demarcation berms).

In summary, the worst-case construction noise levels would be just below or well below the existing ambient at the majority of inhabited receptor locations. At some locations that are proximate to the SBRP site (to the west, primarily), construction noise is expected to be clearly audible, as compared to the current ambient conditions. However, due to the lack of inhabitants, the short-term nature of these activities, and their limitation to daytime hours (per City of Chula Vista Code, Sections 17.24.050 and 19.68.060), these construction noise levels would not be considered significant.

For additional technical details on the construction noise analyses, please see the distance and propagation analysis tables contained in Attachment 2 to this Appendix 8.5b.

# Noise Appendix 8.5b - Attachment 1

## Demolition Noise Analyses Technical Details Tables

The equipment assumptions, locations, and usage factors, along with propagation and receptor details, is provided in the following *demolition* noise detail tables.

## Demolition Receiver and Centroid Locations

Use	AAC ID	AAC description	metric X	metric Y	NOTES
AFC ambient	AFC-1	Colorado Apts	406	817	
AFC ambient	AFC-2	Brentwood, I-5	453	161	
AFC ambient	AFC-3	Brentwood, Ind. Blvd	570	109	
AFC ambient	AFC-4	Harborside Elem.	756	-27	
AFC ambient	AFC-5	Stella Street	265	-591	
AFC ambient	AFC-6	1021 Bay Blvd	231	98	
AFC ambient	AFC-7	SBPP site, S of Plant	-329	448	
AFC ambient	AFC-8	SBPP site, E of Plant	-25	528	
AFC ambient	AFC-9	SBPP site, NE of Plant	79	849	
AFC ambient	AFC-10	SBPP site, N of Plant	-248	860	
AFC ambient	AFC-11	Marina View Park	-421	1265	
bio-related	North-a	SE corner of Marina land	-887	1093	
bio-related	West-a	Spit access, 1000'	-504	527	
bio-related	West-b	Spit access, 2000'	-820	489	
bio-related	West-c	Spit habitat, 3000'	-1115	383	
bio-related	South-a	Inner Evap pond trail, 1000'	-269	318	
bio-related	South-b	Inner Evap pond trail, 2000'	-222	44	
bio-related	South-c	Inner Evap pond trail, 3000'	-132	-252	
bio-related	SE-a	Outer Evap pond trail, 1000'	-432	406	
bio-related	SE-b	Outer Evap pond trail, 2000'	-672	230	
bio-related	SE-c	Outer Evap pond trail, 3000'	-788	-82	
Ph I demo	Area I-A	Demo Line 2 (LNG)	-8	89	Noise Line 1
Ph I demo	Area I-B	Demo Line 3 (S.Tank Farm-E)	-74	305	Noise Line 2
Ph IIA demo	Area II-B (east)	Demo Line 6 (Remaing Support Struct's)	-5	401	Noise Line 4
Ph IIA demo	Area II-B (rail)	Demo Line 6 (Remaing Support Struct's)	84	570	Noise Line 11
Ph IIA demo	Area II-B (west)	Demo Line 6 (Remaing Support Struct's)	-304	736	Noise Line 10
Ph IIA demo	Area II-C	Demo Line 7 (Support Tanks)	-319	615	Noise Line 5
Ph IIB demo	Area II-A	Demo Line 5 (Power Plant Structures)	-233	654	Noise Line 3
Ph IIB demo	Area II-D	Demo Line 8 (S. Tank Farm Tanks & Berms)	-262	384	Noise Line 6
Ph IIC demo	Area II-D	Demo Line 8 (S. Tank Farm Tanks & Berms)	-262	384	Noise Line 6
Ph IIC demo	Area II-E	Demo Line 9 (Intake/Discharge Structures)	-274	502	Noise Line 7
Ph IIC demo	Area II-F	Demo Line 10 (East/West Utility Loop)	-63	571	Noise Line 8
Ph III demo	Area III-A	Demo Line 13 (Existing Water Treatment)	-142	494	Noise Line 12
Ph III demo	Area III-C	Demo Line 14 (N Tank Farm berms)	-181	1119	Noise Line 13
Ph III demo	Area III-C=II-A	Demo Line 15 (Final Grading...SBPP)	-233	654	Noise Line 14+15
new plant	Pwr Blk Centroid	Const-SBEF	-3	90	
new plant	Swtyrd Centroid	Const-Switchyard	37	-134	

Source: Alliance Acoustical Consultants, Inc., 2006

**DEMOLITION NOISE PROPAGATION ANALYSIS**

**South Bay Replacement Project (SBRP)**

June 2006

**PHASE I**

Receptor Label	Receptor Description	metric Receptor X-coord	metric Receptor Y-coord	<u>LNG Foundations</u>			<u>S. Tank Farm &amp; Eastern Berm Area</u>		
				metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)	metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)
AFC-1	Colorado Apts	406	817	-8	89	838	-74	305	702
AFC-2	Brentwood, I-5	453	161	-8	89	467	-74	305	547
AFC-3	Brentwood, Ind. Blvd	570	109	-8	89	578	-74	305	673
AFC-4	Harborside Elem.	756	-27	-8	89	773	-74	305	894
AFC-5	Stella Street	265	-591	-8	89	733	-74	305	959
AFC-6	1021 Bay Blvd	231	98	-8	89	239	-74	305	369
AFC-7	SBPP site, S of Plant	-329	448	-8	89	481	-74	305	292
AFC-8	SBPP site, E of Plant	-25	528	-8	89	439	-74	305	228
AFC-9	SBPP site, NE of Plant	79	849	-8	89	765	-74	305	565
AFC-10	SBPP site, N of Plant	-248	860	-8	89	808	-74	305	581
AFC-11	Marina View Park	-421	1265	-8	89	1246	-74	305	1020
North-a	SE corner of Marina land	-887	1093	-8	89	1334	-74	305	1132
West-a	Spit access, 1000'	-504	527	-8	89	662	-74	305	484
West-b	Spit access, 2000'	-820	489	-8	89	905	-74	305	768
West-c	Spit habitat, 3000'	-1115	383	-8	89	1145	-74	305	1043
South-a	Inner Evap pond trail, 1000'	-269	318	-8	89	347	-74	305	195
South-b	Inner Evap pond trail, 2000'	-222	44	-8	89	219	-74	305	300
South-c	Inner Evap pond trail, 3000'	-132	-252	-8	89	363	-74	305	561
SE-a	Outer Evap pond trail, 1000'	-432	406	-8	89	529	-74	305	372
SE-b	Outer Evap pond trail, 2000'	-672	230	-8	89	679	-74	305	603
SE-c	Outer Evap pond trail, 3000'	-788	-82	-8	89	799	-74	305	813

**DEMOLITION NOISE PROPAGATION ANALYSIS**

**South Bay Replacement Project (SBRP)**

June 2006

**PHASE IIA**

Receptor Label	Receptor Description	metric Receptor X-coord	metric Receptor Y-coord	<i>Remaining Support Struct's (east)</i>			<i>Remaining Support Struct's (rail)</i>			<i>Remaining Support Struct's (west)</i>			<i>Support Tanks</i>		
				metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)	metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)	metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)	metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)
AFC-1	Colorado Apts	406	817	-5	401	585	84	570	407	-304	736	715	-319	615	753
AFC-2	Brentwood, I-5	453	161	-5	401	517	84	570	551	-304	736	951	-319	615	895
AFC-3	Brentwood, Ind. Blvd	570	109	-5	401	645	84	570	670	-304	736	1075	-319	615	1023
AFC-4	Harborside Elem.	756	-27	-5	401	873	84	570	899	-304	736	1306	-319	615	1252
AFC-5	Stella Street	265	-591	-5	401	1029	84	570	1175	-304	736	1444	-319	615	1340
AFC-6	1021 Bay Blvd	231	98	-5	401	384	84	570	494	-304	736	832	-319	615	754
AFC-7	SBPP site, S of Plant	-329	448	-5	401	327	84	570	430	-304	736	288	-319	615	167
AFC-8	SBPP site, E of Plant	-25	528	-5	401	128	84	570	117	-304	736	348	-319	615	306
AFC-9	SBPP site, NE of Plant	79	849	-5	401	455	84	570	279	-304	736	400	-319	615	462
AFC-10	SBPP site, N of Plant	-248	860	-5	401	520	84	570	441	-304	736	136	-319	615	255
AFC-11	Marina View Park	-421	1265	-5	401	959	84	570	859	-304	736	542	-319	615	658
North-a	SE corner of Marina land	-887	1093	-5	401	1121	84	570	1103	-304	736	684	-319	615	743
West-a	Spit access, 1000'	-504	527	-5	401	516	84	570	589	-304	736	289	-319	615	205
West-b	Spit access, 2000'	-820	489	-5	401	820	84	570	907	-304	736	572	-319	615	516
West-c	Spit habitat, 3000'	-1115	383	-5	401	1110	84	570	1212	-304	736	884	-319	615	829
South-a	Inner Evap pond trail, 1000'	-269	318	-5	401	277	84	570	433	-304	736	419	-319	615	301
South-b	Inner Evap pond trail, 2000'	-222	44	-5	401	418	84	570	608	-304	736	697	-319	615	579
South-c	Inner Evap pond trail, 3000'	-132	-252	-5	401	666	84	570	850	-304	736	1003	-319	615	887
SE-a	Outer Evap pond trail, 1000'	-432	406	-5	401	428	84	570	541	-304	736	354	-319	615	238
SE-b	Outer Evap pond trail, 2000'	-672	230	-5	401	690	84	570	829	-304	736	626	-319	615	522
SE-c	Outer Evap pond trail, 3000'	-788	-82	-5	401	921	84	570	1088	-304	736	950	-319	615	840

**DEMOLITION NOISE PROPAGATION ANALYSIS**

**South Bay Replacement Project (SBRP)**

June 2006

**PHASE IIB**

Receptor Label	Receptor Description	metric Receptor X-coord	metric Receptor Y-coord	<u>Power Plant Structure</u>			<u>S. Tank Farm &amp; Berms</u>		
				metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)	metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)
AFC-1	Colorado Apts	406	817	-233	654	660	-262	384	797
AFC-2	Brentwood, I-5	453	161	-233	654	845	-262	384	750
AFC-3	Brentwood, Ind. Blvd	570	109	-233	654	970	-262	384	877
AFC-4	Harborside Elem.	756	-27	-233	654	1201	-262	384	1098
AFC-5	Stella Street	265	-591	-233	654	1341	-262	384	1109
AFC-6	1021 Bay Blvd	231	98	-233	654	724	-262	384	570
AFC-7	SBPP site, S of Plant	-329	448	-233	654	227	-262	384	92
AFC-8	SBPP site, E of Plant	-25	528	-233	654	243	-262	384	277
AFC-9	SBPP site, NE of Plant	79	849	-233	654	368	-262	384	577
AFC-10	SBPP site, N of Plant	-248	860	-233	654	206	-262	384	476
AFC-11	Marina View Park	-421	1265	-233	654	639	-262	384	895
North-a	SE corner of Marina land	-887	1093	-233	654	788	-262	384	945
West-a	Spit access, 1000'	-504	527	-233	654	300	-262	384	281
West-b	Spit access, 2000'	-820	489	-233	654	610	-262	384	567
West-c	Spit habitat, 3000'	-1115	383	-233	654	922	-262	384	852
South-a	Inner Evap pond trail, 1000'	-269	318	-233	654	338	-262	384	66
South-b	Inner Evap pond trail, 2000'	-222	44	-233	654	610	-262	384	343
South-c	Inner Evap pond trail, 3000'	-132	-252	-233	654	912	-262	384	650
SE-a	Outer Evap pond trail, 1000'	-432	406	-233	654	319	-262	384	171
SE-b	Outer Evap pond trail, 2000'	-672	230	-233	654	611	-262	384	438
SE-c	Outer Evap pond trail, 3000'	-788	-82	-233	654	922	-262	384	703

**DEMOLITION NOISE PROPAGATION ANALYSIS**

**South Bay Replacement Project (SBRP)**

June 2006

**PHASE IIC**

Receptor Label	Receptor Description	metric Receptor X-coord	metric Receptor Y-coord	<u>S. Tank Farm &amp; Berms</u>			<u>Intake/Discharge Structures</u>			<u>East/West Utility Loop</u>		
				metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)	metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)	metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)
AFC-1	Colorado Apts	406	817	-262	384	797	-274	502	750	-63	571	530
AFC-2	Brentwood, I-5	453	161	-262	384	750	-274	502	804	-63	571	659
AFC-3	Brentwood, Ind. Blvd	570	109	-262	384	877	-274	502	931	-63	571	783
AFC-4	Harborside Elem.	756	-27	-262	384	1098	-274	502	1158	-63	571	1014
AFC-5	Stella Street	265	-591	-262	384	1109	-274	502	1219	-63	571	1207
AFC-6	1021 Bay Blvd	231	98	-262	384	570	-274	502	647	-63	571	556
AFC-7	SBPP site, S of Plant	-329	448	-262	384	92	-274	502	76	-63	571	293
AFC-8	SBPP site, E of Plant	-25	528	-262	384	277	-274	502	250	-63	571	57
AFC-9	SBPP site, NE of Plant	79	849	-262	384	577	-274	502	495	-63	571	312
AFC-10	SBPP site, N of Plant	-248	860	-262	384	476	-274	502	359	-63	571	344
AFC-11	Marina View Park	-421	1265	-262	384	895	-274	502	777	-63	571	781
North-a	SE corner of Marina land	-887	1093	-262	384	945	-274	502	851	-63	571	976
West-a	Spit access, 1000'	-504	527	-262	384	281	-274	502	231	-63	571	444
West-b	Spit access, 2000'	-820	489	-262	384	567	-274	502	545	-63	571	762
West-c	Spit habitat, 3000'	-1115	383	-262	384	852	-274	502	848	-63	571	1069
South-a	Inner Evap pond trail, 1000'	-269	318	-262	384	66	-274	502	184	-63	571	326
South-b	Inner Evap pond trail, 2000'	-222	44	-262	384	343	-274	502	461	-63	571	551
South-c	Inner Evap pond trail, 3000'	-132	-252	-262	384	650	-274	502	768	-63	571	826
SE-a	Outer Evap pond trail, 1000'	-432	406	-262	384	171	-274	502	185	-63	571	405
SE-b	Outer Evap pond trail, 2000'	-672	230	-262	384	438	-274	502	482	-63	571	699
SE-c	Outer Evap pond trail, 3000'	-788	-82	-262	384	703	-274	502	778	-63	571	976

**DEMOLITION NOISE PROPAGATION ANALYSIS**

**South Bay Replacement Project (SBRP)**

June 2006

**PHASE III**

Receptor Label	Receptor Description	metric Receptor X-coord	metric Receptor Y-coord	<i>Existing Water Treatment Plant</i>			<i>North Tank Farm Berms</i>			<i>Final Grading (mostly at SBPP)</i>		
				metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)	metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)	metric Demolition Activity X-coord	metric Demolition Activity Y-coord	Distance to Demolition Activity Centroid (meters)
AFC-1	Colorado Apts	406	817	-142	494	636	-181	1119	660	-233	654	660
AFC-2	Brentwood, I-5	453	161	-142	494	682	-181	1119	1149	-233	654	845
AFC-3	Brentwood, Ind. Blvd	570	109	-142	494	809	-181	1119	1258	-233	654	970
AFC-4	Harborside Elem.	756	-27	-142	494	1038	-181	1119	1480	-233	654	1201
AFC-5	Stella Street	265	-591	-142	494	1159	-181	1119	1767	-233	654	1341
AFC-6	1021 Bay Blvd	231	98	-142	494	544	-181	1119	1101	-233	654	724
AFC-7	SBPP site, S of Plant	-329	448	-142	494	193	-181	1119	687	-233	654	227
AFC-8	SBPP site, E of Plant	-25	528	-142	494	121	-181	1119	611	-233	654	243
AFC-9	SBPP site, NE of Plant	79	849	-142	494	418	-181	1119	375	-233	654	368
AFC-10	SBPP site, N of Plant	-248	860	-142	494	381	-181	1119	268	-233	654	206
AFC-11	Marina View Park	-421	1265	-142	494	820	-181	1119	281	-233	654	639
North-a	SE corner of Marina land	-887	1093	-142	494	956	-181	1119	707	-233	654	788
West-a	Spit access, 1000'	-504	527	-142	494	364	-181	1119	674	-233	654	300
West-b	Spit access, 2000'	-820	489	-142	494	678	-181	1119	898	-233	654	610
West-c	Spit habitat, 3000'	-1115	383	-142	494	979	-181	1119	1189	-233	654	922
South-a	Inner Evap pond trail, 1000'	-269	318	-142	494	217	-181	1119	805	-233	654	338
South-b	Inner Evap pond trail, 2000'	-222	44	-142	494	457	-181	1119	1076	-233	654	610
South-c	Inner Evap pond trail, 3000'	-132	-252	-142	494	747	-181	1119	1372	-233	654	912
SE-a	Outer Evap pond trail, 1000'	-432	406	-142	494	304	-181	1119	757	-233	654	319
SE-b	Outer Evap pond trail, 2000'	-672	230	-142	494	593	-181	1119	1016	-233	654	611
SE-c	Outer Evap pond trail, 3000'	-788	-82	-142	494	866	-181	1119	1346	-233	654	922

# PHASE I Demolition

analyses based on project information of 5/17 and 5/23/06

<b>LNG Foundations</b>		<b>Area I-A</b>	<b>Range of</b>	<b>Average</b>	<b>Construction</b>
<b>Equipment <sup>1</sup></b>	<b>Quantity</b>	<b>Lmax @</b>	<b>Noise Level</b>	<b>Useage Factors</b>	
			<b>50 ', dBA</b>	<b>@ 50 ', dBA</b>	
<b>Noise Line 1</b>					
Crane	2	80 - 85	83	1.00	
Excavator/Shovel	2	81 - 93	82	0.20	
Loader	1	81 - 86	79	0.16	
Backhoe	1	72 - 93	85	0.16	
Dump Truck	2	83 - 94	91	0.16	
Dozer	0	77 - 81	80	0.16	
Water/Fuel Truck	3	81 - 95	87	0.16	
Compactor	0	91	91	0.10	
Forklift	1	81	81	0.40	
Debris Haul-off Truck	2	81 - 95	87	0.16	
Worker Vehicles	25	81 - 87	70	0.04	
<b>Average Noise Level @ 50' from center of activity, dBA:</b>					<b>88</b>

<b>S. Tank Farm &amp; Eastern Berm Area</b>		<b>Area I-B</b>	<b>Range of</b>	<b>Average</b>	<b>Construction</b>
<b>Equipment <sup>1</sup></b>	<b>Quantity</b>	<b>Lmax @</b>	<b>Noise Level</b>	<b>Useage Factors</b>	
			<b>50 ', dBA</b>	<b>@ 50 ', dBA</b>	
<b>Noise Line 2</b>					
Crane	1	80 - 85	83	1.00	
Excavator/Shovel	2	81 - 93	82	0.20	
Loader	2	81 - 86	79	0.16	
Backhoe	1	72 - 93	85	0.16	
Dump Truck	2	83 - 94	91	0.16	
Dozer	1	77 - 81	80	0.16	
Water/Fuel Truck	3	81 - 95	87	0.16	
Compactor	0	91	91	0.10	
Forklift	1	81	81	0.40	
Debris Haul-off Truck	2	81 - 95	87	0.16	
Worker Vehicles	34	81 - 87	70	0.04	
<b>Average Noise Level @ 50' from center of activity, dBA:</b>					<b>88</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

Alliance Acoustical Consultants, Inc., 2006

Demo-noise-sources\_AFC1.xls

# PHASE IIA Demolition

analyses based on project information of 5/17 and 5/23/06

<b>Remaining Support Structures</b>	<b>Area II-B (east)</b>	<b>Range of Lmax @ 50 ', dBA</b>	<b>Average Noise Level @ 50 ', dBA</b>	<b>Construction Useage Factors</b>
<b>Equipment <sup>1</sup></b>	<b>Quantity</b>			
<b>Noise Line 4</b>				
Crane	2	80 - 85	83	1.00
Excavator/Shovel	5	81 - 93	82	0.20
Loader	4	81 - 86	79	0.16
Backhoe	2	72 - 93	85	0.16
Dump Truck	5	83 - 94	91	0.16
Dozer	0	77 - 81	80	0.16
Water/Fuel Truck	6	81 - 95	87	0.16
Compactor	0	91	91	0.10
Forklift	2	81	81	0.40
Debris Haul-off Truck	2	81 - 95	87	0.16
Worker Vehicles	61	81 - 87	70	0.04
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>91</b>

<b>Remaining Support Structures</b>	<b>Area II-B (rail line)</b>	<b>Range of Lmax @ 50 ', dBA</b>	<b>Average Noise Level @ 50 ', dBA</b>	<b>Construction Useage Factors</b>
<b>Equipment <sup>1</sup></b>	<b>Quantity</b>			
<b>Noise Line 11</b>				
Crane	0	80 - 85	83	1.00
Excavator/Shovel	1	81 - 93	82	0.20
Loader	1	81 - 86	79	0.16
Backhoe	1	72 - 93	85	0.16
Dump Truck	1	83 - 94	91	0.16
Dozer	0	77 - 81	80	0.16
Water/Fuel Truck	2	81 - 95	87	0.16
Compactor	0	91	91	0.10
Forklift	1	81	81	0.40
Debris Haul-off Truck	2	81 - 95	87	0.16
Worker Vehicles	15	81 - 87	70	0.04
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>85</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

PCR, 1998

constrct-noise-sources.xls

<b>Remaining Support Structures</b>	<b>Area II-B (west)</b>	<b>Range of Lmax @ 50', dBA</b>	<b>Average Noise Level @ 50', dBA</b>	<b>Construction Useage Factors</b>
<b>Equipment <sup>1</sup></b>	<b>Quantity</b>			
<b>Noise Line 10</b>				
Crane	1	80 - 85	83	1.00
Excavator/Shovel	2	81 - 93	82	0.20
Loader	1	81 - 86	79	0.16
Backhoe	1	72 - 93	85	0.16
Dump Truck	2	83 - 94	91	0.16
Dozer	0	77 - 81	80	0.16
Water/Fuel Truck	3	81 - 95	87	0.16
Compactor	0	91	91	0.10
Forklift	1	81	81	0.40
Debris Haul-off Truck	2	81 - 95	87	0.16
Worker Vehicles	25	81 - 87	70	0.04
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>88</b>

<b>Support Tanks</b>	<b>Area II-C</b>	<b>Range of Lmax @ 50', dBA</b>	<b>Average Noise Level @ 50', dBA</b>	<b>Construction Useage Factors</b>
<b>Equipment <sup>1</sup></b>	<b>Quantity</b>			
<b>Noise Line 5</b>				
Crane	2	80 - 85	83	1.00
Excavator/Shovel	3	81 - 93	82	0.20
Loader	2	81 - 86	79	0.16
Backhoe	1	72 - 93	85	0.16
Dump Truck	3	83 - 94	91	0.16
Dozer	0	77 - 81	80	0.16
Water/Fuel Truck	3	81 - 95	87	0.16
Compactor	0	91	91	0.10
Forklift	1	81	81	0.40
Debris Haul-off Truck	2	81 - 95	87	0.16
Worker Vehicles	36	81 - 87	70	0.04
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>89</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

PCR, 1998

constrct-noise-sources.xls

# PHASE IIB Demolition

analyses based on project information of 5/17 and 5/23/06

<b>Power Plant Structure</b>	<b>Area II-A</b>	<b>Range of Lmax @ 50 ', dBA</b>	<b>Average Noise Level @ 50 ', dBA</b>	<b>Construction Usage Factors</b>
<b>Equipment <sup>1</sup></b>	<b>Quantity</b>			
<b>Noise Line 3</b>				
Crane	3	80 - 85	83	1.00
Excavator/Shovel	5	81 - 93	82	0.20
Loader	2	81 - 86	79	0.16
Backhoe	2	72 - 93	85	0.16
Dump Truck	4	83 - 94	91	0.16
Dozer	1	77 - 81	80	0.16
Water/Fuel Truck	6	81 - 95	87	0.16
Compactor	0	91	91	0.10
Forklift	2	81	81	0.40
Debris Haul-off Truck	2	81 - 95	87	0.16
Worker Vehicles	70	81 - 87	70	0.04
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>91</b>

<b>S. Tank Farm Tanks &amp; Berms</b>	<b>Area II-D</b>	<b>Range of Lmax @ 50 ', dBA</b>	<b>Average Noise Level @ 50 ', dBA</b>	<b>Construction Usage Factors</b>
<b>Equipment <sup>1</sup></b>	<b>Quantity</b>			
<b>Noise Line 6</b>				
Crane	2	80 - 85	83	1.00
Excavator/Shovel	3	81 - 93	82	0.20
Loader	2	81 - 86	79	0.16
Backhoe	1	72 - 93	85	0.16
Dump Truck	3	83 - 94	91	0.16
Dozer	1	77 - 81	80	0.16
Water/Fuel Truck	3	81 - 95	87	0.16
Compactor	0	91	91	0.10
Forklift	1	81	81	0.40
Debris Haul-off Truck	2	81 - 95	87	0.16
Worker Vehicles	36	81 - 87	70	0.04
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>89</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

PCR, 1998

constrct-noise-sources.xls

# PHASE IIC Demolition

analyses based on project information of 5/17 and 5/23/06

<b>S. Tank Farm Tanks &amp; Berms</b>		<b>Area II-D</b>	<b>Range of Lmax @ 50 ', dBA</b>	<b>Average Noise Level @ 50 ', dBA</b>	<b>Construction Useage Factors</b>
<b>Equipment <sup>1</sup></b>	<b>Quantity</b>				
<b>Noise Line 6</b>					
Crane	2	80 - 85	83	1.00	
Excavator/Shovel	3	81 - 93	82	0.20	
Loader	2	81 - 86	79	0.16	
Backhoe	1	72 - 93	85	0.16	
Dump Truck	3	83 - 94	91	0.16	
Dozer	1	77 - 81	80	0.16	
Water/Fuel Truck	3	81 - 95	87	0.16	
Compactor	0	91	91	0.10	
Forklift	1	81	81	0.40	
Debris Haul-off Truck	2	81 - 95	87	0.16	
Worker Vehicles	36	81 - 87	70	0.04	
<b>Average Noise Level @ 50' from center of activity, dBA:</b>					<b>89</b>

<b>Intake/Discharge Structures</b>		<b>Area II-E</b>	<b>Range of Lmax @ 50 ', dBA</b>	<b>Average Noise Level @ 50 ', dBA</b>	<b>Construction Useage Factors</b>
<b>Equipment <sup>1</sup></b>	<b>Quantity</b>				
<b>Noise Line 7</b>					
Crane	1	80 - 85	83	1.00	
Excavator/Shovel	1	81 - 93	82	0.20	
Loader	1	81 - 86	79	0.16	
Backhoe	1	72 - 93	85	0.16	
Dump Truck	1	83 - 94	91	0.16	
Dozer	0	77 - 81	80	0.16	
Water/Fuel Truck	2	81 - 95	87	0.16	
Compactor	0	91	91	0.10	
Forklift	1	81	81	0.40	
Debris Haul-off Truck	2	81 - 95	87	0.16	
Worker Vehicles	16	81 - 87	70	0.04	
<b>Average Noise Level @ 50' from center of activity, dBA:</b>					<b>86</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

PCR, 1998

constrct-noise-sources.xls

<b>East/West Utility Loop</b>	<b>Area II-F</b>	<b>Range of Lmax @ 50 ', dBA</b>	<b>Average Noise Level @ 50 ', dBA</b>	<b>Construction Useage Factors</b>
<b>Equipment <sup>1</sup></b>	<b>Quantity</b>			
<b>Noise Line 8</b>				
Crane	1	80 - 85	83	1.00
Excavator/Shovel	1	81 - 93	82	0.20
Loader	1	81 - 86	79	0.16
Backhoe	1	72 - 93	85	0.16
Dump Truck	1	83 - 94	91	0.16
Dozer	0	77 - 81	80	0.16
Water/Fuel Truck	2	81 - 95	87	0.16
Compactor	0	91	91	0.10
Forklift	1	81	81	0.40
Debris Haul-off Truck	2	81 - 95	87	0.16
Worker Vehicles	16	81 - 87	70	0.04
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>86</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

PCR, 1998

constrct-noise-sources.xls

# PHASE III Demolition

analyses based on project information of 5/17 and 5/23/06

<b>Existing Water Treatment Plant</b>		<b>Area III-A</b>	<b>Range of Lmax @ 50', dBA</b>	<b>Average Noise Level @ 50', dBA</b>	<b>Construction Usage Factors</b>
<b>Equipment<sup>1</sup></b>	<b>Quantity</b>				
<b>Noise Line 12</b>					
Crane	2	80 - 85	83	1.00	
Excavator/Shovel	3	81 - 93	82	0.20	
Loader	2	81 - 86	79	0.16	
Backhoe	1	72 - 93	85	0.16	
Dump Truck	3	83 - 94	91	0.16	
Dozer	1	77 - 81	80	0.16	
Water/Fuel Truck	3	81 - 95	87	0.16	
Compactor	0	91	91	0.10	
Forklift	1	81	81	0.40	
Debris Haul-off Truck	2	81 - 95	87	0.16	
Soil Import Haul-on Truck	9	81 - 95	87	0.16	
Worker Vehicles	40	81 - 87	70	0.04	
<b>Average Noise Level @ 50' from center of activity, dBA:</b>					<b>91</b>

<b>North Tank Farm Berms</b>		<b>Area III-C</b>	<b>Range of Lmax @ 50', dBA</b>	<b>Average Noise Level @ 50', dBA</b>	<b>Construction Usage Factors</b>
<b>Equipment<sup>1</sup></b>	<b>Quantity</b>				
<b>Noise Line 13</b>					
Crane	0	80 - 85	83	1.00	
Excavator/Shovel	1	81 - 93	82	0.20	
Loader	2	81 - 86	79	0.16	
Backhoe	1	72 - 93	85	0.16	
Dump Truck	2	83 - 94	91	0.16	
Dozer	3	77 - 81	80	0.16	
Water/Fuel Truck	5	81 - 95	87	0.16	
Compactor	2	91	91	0.10	
Forklift	1	81	81	0.40	
Debris Haul-off Truck	2	81 - 95	87	0.16	
Soil Import Haul-on Truck	9	81 - 95	87	0.16	
Worker Vehicles	32	81 - 87	70	0.04	
<b>Average Noise Level @ 50' from center of activity, dBA:</b>					<b>90</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

PCR, 1998

constrct-noise-sources.xls

<b>Final Grading (mostly at SBPP area)</b>		<b>Area III-C (=Area II-A)</b>	<b>Range of Lmax @ 50', dBA</b>	<b>Average Noise Level @ 50', dBA</b>	<b>Construction Useage Factors</b>
<b>Equipment <sup>1</sup></b>	<b>Quantity</b>				
<b>Noise Line 14 + 15</b>					
Crane	0	80 - 85	83	1.00	
Excavator/Shovel	3	81 - 93	82	0.20	
Loader	2	81 - 86	79	0.16	
Backhoe	2	72 - 93	85	0.16	
Dump Truck	2	83 - 94	91	0.16	
Dozer	0	77 - 81	80	0.16	
Water/Fuel Truck	4	81 - 95	87	0.16	
Compactor	0	91	91	0.10	
Forklift	2	81	81	0.40	
Debris Haul-off Truck	2	81 - 95	87	0.16	
Soil Import Haul-on Truck	9	81 - 95	87	0.16	
Worker Vehicles	34	81 - 87	70	0.04	
<b>Average Noise Level @ 50' from center of activity, dBA:</b>					<b>90</b>

*Note:*

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

PCR, 1998

constrct-noise-sources.xls

# DEMOLITION NOISE PROPAGATION ANALYSIS

## South Bay Replacement Project (SBRP)

June 2006

	Source Summation	Area Label	dBA
<u>PHASE I</u>			
	LNG Foundations	I-A	88
	S. Tank Farm & Eastern Berm Area	I-B	88
<u>PHASE IIA</u>			
	Remaining Support Struct's (east)	II-B	91
	Remaining Support Struct's (rail)	II-B	85
	Remaining Support Struct's (west)	II-B	88
	Support Tanks	II-C	89
<u>PHASE IIB</u>			
	Power Plant Structure	II-A	91
	S. Tank Farm & Berms	II-D	89
<u>PHASE IIC</u>			
	S. Tank Farm & Berms	II-D	89
	Intake/Discharge Structures	II-E	86
	East/West Utility Loop	II-F	86
<u>PHASE III</u>			
	Existing Water Treatment Plant	III-A	91
	North Tank Farm Berms	III-C	90
	Final Grading (mostly at SBPP)	III-C	90
	<b>Source Distance:</b>	<b>50</b>	<b>feet</b>
	<b>Source Distance:</b>	<b>15.2</b>	<b>meters</b>

Source: Alliance Acoustical Consultants, Inc., 2006

# Phase I Demolition Activities

## LNG Foundations (line 2)

## S. Tank Farm & Eastern Berm Area (line 3)

TOTAL  
Phase I  
A-WTD  
SOUND  
LEVEL,  
dBA

Receptor Label	Receptor Description	Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	TOTAL Phase I A-WTD SOUND LEVEL, dBA
AFC-1	Colorado Apts	838	-35	-20	33	702	-33	-20	35	37
AFC-2	Brentwood, I-5	467	-30	-20	38	547	-31	-20	37	41
AFC-3	Brentwood, Ind. Blvd	578	-32	-25	31	673	-33	-25	30	34
AFC-4	Harborside Elem.	773	-34	-20	34	894	-35	-20	33	36
AFC-5	Stella Street	733	-34	-20	34	959	-36	-20	32	36
AFC-6	1021 Bay Blvd	239	-24	-5	59	369	-28	-5	55	61
AFC-7	SBPP site, S of Plant	481	-30	-15	43	292	-26	-15	47	49
AFC-8	SBPP site, E of Plant	439	-29	-3	56	228	-24	-3	61	63
AFC-9	SBPP site, NE of Plant	765	-34	-3	51	565	-31	-3	54	55
AFC-10	SBPP site, N of Plant	808	-35	-5	48	581	-32	-5	51	53
AFC-11	Marina View Park	1246	-38	-10	40	1020	-37	-10	41	44
North-a	SE corner of Marina land	1334	-39	-10	39	1132	-37	-10	41	43
West-a	Spit access, 1000'	662	-33	0	55	484	-30	-15	43	55
West-b	Spit access, 2000'	905	-35	0	53	768	-34	-15	39	53
West-c	Spit habitat, 3000'	1145	-38	0	50	1043	-37	-15	36	51
South-a	Inner Evap pond trail, 1000'	347	-27	0	61	195	-22	0	66	67
South-b	Inner Evap pond trail, 2000'	219	-23	0	65	300	-26	0	62	67
South-c	Inner Evap pond trail, 3000'	363	-28	0	60	561	-31	0	57	62
SE-a	Outer Evap pond trail, 1000'	529	-31	0	57	372	-28	0	60	62
SE-b	Outer Evap pond trail, 2000'	679	-33	0	55	603	-32	0	56	59
SE-c	Outer Evap pond trail, 3000'	799	-34	0	54	813	-35	0	53	57

# Phase IIa Demolition Activities

Receptor Label	Receptor Description	Remaining Support Struct's (east) (line 6)				Remaining Support Struct's (rail) (line 6)				Remaining Support Struct's (west) (line 6)				Support Tanks (line 7)			TOTAL Phase I A-WTD SOUND LEVEL, dBA	
		Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)		A-WTD SOUND LEVEL, dBA
AFC-1	Colorado Apts	585	-32	-20	<b>39</b>	407	-29	-20	<b>36</b>	715	-33	-20	<b>35</b>	753	-34	-20	<b>35</b>	<b>43</b>
AFC-2	Brentwood, I-5	517	-31	-20	<b>40</b>	551	-31	-20	<b>34</b>	951	-36	-20	<b>32</b>	895	-35	-20	<b>34</b>	<b>42</b>
AFC-3	Brentwood, Ind. Blvd	645	-33	-25	<b>33</b>	670	-33	-25	<b>27</b>	1075	-37	-25	<b>26</b>	1023	-37	-25	<b>27</b>	<b>36</b>
AFC-4	Harborside Elem.	873	-35	-20	<b>36</b>	899	-35	-20	<b>30</b>	1306	-39	-20	<b>29</b>	1252	-38	-20	<b>31</b>	<b>38</b>
AFC-5	Stella Street	1029	-37	-20	<b>34</b>	1175	-38	-20	<b>27</b>	1444	-40	-20	<b>28</b>	1340	-39	-20	<b>30</b>	<b>37</b>
AFC-6	1021 Bay Blvd	384	-28	-5	<b>58</b>	494	-30	-5	<b>50</b>	832	-35	-5	<b>48</b>	754	-34	-5	<b>50</b>	<b>59</b>
AFC-7	SBPP site, S of Plant	327	-27	-3	<b>61</b>	430	-29	-3	<b>53</b>	288	-26	-15	<b>47</b>	167	-21	0	<b>68</b>	<b>69</b>
AFC-8	SBPP site, E of Plant	128	-19	0	<b>72</b>	117	-18	0	<b>67</b>	348	-27	-25	<b>36</b>	306	-26	0	<b>63</b>	<b>74</b>
AFC-9	SBPP site, NE of Plant	455	-30	-3	<b>58</b>	279	-25	-3	<b>57</b>	400	-28	-5	<b>55</b>	462	-30	-25	<b>34</b>	<b>62</b>
AFC-10	SBPP site, N of Plant	520	-31	-3	<b>57</b>	441	-29	-3	<b>53</b>	136	-19	-3	<b>66</b>	255	-25	-25	<b>39</b>	<b>67</b>
AFC-11	Marina View Park	959	-36	-10	<b>45</b>	859	-35	-10	<b>40</b>	542	-31	-10	<b>47</b>	658	-33	-10	<b>46</b>	<b>51</b>
North-a	SE corner of Marina land	1121	-37	-10	<b>44</b>	1103	-37	-10	<b>38</b>	684	-33	-10	<b>45</b>	743	-34	-10	<b>45</b>	<b>50</b>
West-a	Spit access, 1000'	516	-31	0	<b>60</b>	589	-32	0	<b>53</b>	289	-26	0	<b>62</b>	205	-23	0	<b>66</b>	<b>69</b>
West-b	Spit access, 2000'	820	-35	0	<b>56</b>	907	-36	0	<b>49</b>	572	-32	0	<b>56</b>	516	-31	0	<b>58</b>	<b>62</b>
West-c	Spit habitat, 3000'	1110	-37	0	<b>54</b>	1212	-38	0	<b>47</b>	884	-35	0	<b>53</b>	829	-35	0	<b>54</b>	<b>59</b>
South-a	Inner Evap pond trail, 1000'	277	-25	-25	<b>41</b>	433	-29	-25	<b>31</b>	419	-29	-20	<b>39</b>	301	-26	0	<b>63</b>	<b>63</b>
South-b	Inner Evap pond trail, 2000'	418	-29	-25	<b>37</b>	608	-32	-25	<b>28</b>	697	-33	-20	<b>35</b>	579	-32	-20	<b>37</b>	<b>42</b>
South-c	Inner Evap pond trail, 3000'	666	-33	-20	<b>38</b>	850	-35	-20	<b>30</b>	1003	-36	-20	<b>32</b>	887	-35	-20	<b>34</b>	<b>41</b>
SE-a	Outer Evap pond trail, 1000'	428	-29	-20	<b>42</b>	541	-31	-20	<b>34</b>	354	-27	-15	<b>46</b>	238	-24	-20	<b>45</b>	<b>49</b>
SE-b	Outer Evap pond trail, 2000'	690	-33	-20	<b>38</b>	829	-35	-20	<b>30</b>	626	-32	-5	<b>51</b>	522	-31	0	<b>58</b>	<b>59</b>
SE-c	Outer Evap pond trail, 3000'	921	-36	-20	<b>35</b>	1088	-37	-20	<b>28</b>	950	-36	-10	<b>42</b>	840	-35	0	<b>54</b>	<b>54</b>

# Phase IIb Demolition Activities

Receptor Label	Receptor Description	Power Plant Structure (line 5)				S. Tank Farm & Berms (line 8)				TOTAL Phase I A-WTD SOUND LEVEL, dBA
		Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	
AFC-1	Colorado Apts	660	-33	-20	38	797	-34	-20	35	40
AFC-2	Brentwood, I-5	845	-35	-20	36	750	-34	-20	35	39
AFC-3	Brentwood, Ind. Blvd	970	-36	-25	30	877	-35	-25	29	32
AFC-4	Harborside Elem.	1201	-38	-20	33	1098	-37	-20	32	35
AFC-5	Stella Street	1341	-39	-20	32	1109	-37	-20	32	35
AFC-6	1021 Bay Blvd	724	-34	-5	52	570	-31	-5	53	55
AFC-7	SBPP site, S of Plant	227	-23	0	68	92	-16	0	73	74
AFC-8	SBPP site, E of Plant	243	-24	0	67	277	-25	-3	61	68
AFC-9	SBPP site, NE of Plant	368	-28	-3	60	577	-32	-5	52	61
AFC-10	SBPP site, N of Plant	206	-23	-3	65	476	-30	-15	44	65
AFC-11	Marina View Park	639	-32	-10	49	895	-35	-20	34	49
North-a	SE corner of Marina land	788	-34	-10	47	945	-36	-20	33	47
West-a	Spit access, 1000'	300	-26	0	65	281	-25	-15	49	65
West-b	Spit access, 2000'	610	-32	0	59	567	-31	-15	43	59
West-c	Spit habitat, 3000'	922	-36	0	55	852	-35	-15	39	55
South-a	Inner Evap pond trail, 1000'	338	-27	-20	44	66	-13	-15	61	61
South-b	Inner Evap pond trail, 2000'	610	-32	-20	39	343	-27	-15	47	48
South-c	Inner Evap pond trail, 3000'	912	-36	-20	35	650	-33	-15	41	42
SE-a	Outer Evap pond trail, 1000'	319	-26	0	65	171	-21	-15	53	65
SE-b	Outer Evap pond trail, 2000'	611	-32	0	59	438	-29	-15	45	59
SE-c	Outer Evap pond trail, 3000'	922	-36	0	55	703	-33	-15	41	55

assumes that west and south sides of tank farm berms are kept intact as long as possible while tanks and foundations are demolished....maybe need to make this a mitigation measure

# Phase IIc Demolition Activities

Receptor Label	Receptor Description	S. Tank Farm & Berms (line 8)				Intake/Discharge Structures (line 9)				East/West Utility Loop (line 10)				TOTAL Phase I A-WTD SOUND LEVEL, dBA
		Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	
AFC-1	Colorado Apts	797	-34	-20	35	750	-34	-20	32	530	-31	-20	35	39
AFC-2	Brentwood, I-5	750	-34	-20	35	804	-34	-20	32	659	-33	-20	33	38
AFC-3	Brentwood, Ind. Blvd	877	-35	-25	29	931	-36	-25	25	783	-34	-25	27	32
AFC-4	Harborside Elem.	1098	-37	-20	32	1158	-38	-20	28	1014	-36	-20	30	35
AFC-5	Stella Street	1109	-37	-20	32	1219	-38	-20	28	1207	-38	-20	28	34
AFC-6	1021 Bay Blvd	570	-31	-5	53	647	-33	-5	48	556	-31	-5	50	55
AFC-7	SBPP site, S of Plant	92	-16	0	73	76	-14	0	72	293	-26	-2	58	76
AFC-8	SBPP site, E of Plant	277	-25	-2	62	250	-24	0	62	57	-11	-2	73	73
AFC-9	SBPP site, NE of Plant	577	-32	-3	54	495	-30	-3	53	312	-26	-3	57	60
AFC-10	SBPP site, N of Plant	476	-30	-3	56	359	-27	-3	56	344	-27	-3	56	61
AFC-11	Marina View Park	895	-35	-10	44	777	-34	-10	42	781	-34	-10	42	47
North-a	SE corner of Marina land	945	-36	-10	43	851	-35	-10	41	976	-36	-10	40	46
West-a	Spit access, 1000'	281	-25	0	64	231	-24	0	62	444	-29	-2	55	66
West-b	Spit access, 2000'	567	-31	0	58	545	-31	0	55	762	-34	-2	50	60
West-c	Spit habitat, 3000'	852	-35	0	54	848	-35	0	51	1069	-37	-2	47	56
South-a	Inner Evap pond trail, 1000'	66	-13	0	76	184	-22	0	64	326	-27	-2	57	77
South-b	Inner Evap pond trail, 2000'	343	-27	0	62	461	-30	0	56	551	-31	-2	53	63
South-c	Inner Evap pond trail, 3000'	650	-33	0	56	768	-34	0	52	826	-35	-2	49	58
SE-a	Outer Evap pond trail, 1000'	171	-21	0	68	185	-22	0	64	405	-29	-2	55	70
SE-b	Outer Evap pond trail, 2000'	438	-29	0	60	482	-30	0	56	699	-33	-2	51	62
SE-c	Outer Evap pond trail, 3000'	703	-33	0	56	778	-34	0	52	976	-36	-2	48	58

assume S. tank farm berms are now leveled flat



# Phase III Demolition Activities

Receptor Label	Receptor Description	Existing Water Treatment Plant (line 13)				North Tank Farm Berms (line 14)				Final Grading (mostly at SBPP) (line 15)				TOTAL Phase I A-WTD SOUND LEVEL, dBA
		Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA	
AFC-1	Colorado Apts	636	-32	-20	<b>39</b>	660	-33	-20	<b>37</b>	660	-33	-20	<b>37</b>	<b>43</b>
AFC-2	Brentwood, I-5	682	-33	-20	<b>38</b>	1149	-38	-20	<b>32</b>	845	-35	-20	<b>35</b>	<b>41</b>
AFC-3	Brentwood, Ind. Blvd	809	-35	-25	<b>31</b>	1258	-38	-25	<b>27</b>	970	-36	-25	<b>29</b>	<b>34</b>
AFC-4	Harborside Elem.	1038	-37	-20	<b>34</b>	1480	-40	-20	<b>30</b>	1201	-38	-20	<b>32</b>	<b>37</b>
AFC-5	Stella Street	1159	-38	-20	<b>33</b>	1767	-41	-20	<b>29</b>	1341	-39	-20	<b>31</b>	<b>36</b>
AFC-6	1021 Bay Blvd	544	-31	-5	<b>55</b>	1101	-37	-5	<b>48</b>	724	-34	-5	<b>51</b>	<b>57</b>
AFC-7	SBPP site, S of Plant	193	-22	-2	<b>67</b>	687	-33	-5	<b>52</b>	227	-23	0	<b>67</b>	<b>70</b>
AFC-8	SBPP site, E of Plant	121	-18	0	<b>73</b>	611	-32	-4	<b>54</b>	243	-24	0	<b>66</b>	<b>74</b>
AFC-9	SBPP site, NE of Plant	418	-29	-2	<b>60</b>	375	-28	-2	<b>60</b>	368	-28	-2	<b>60</b>	<b>65</b>
AFC-10	SBPP site, N of Plant	381	-28	-2	<b>61</b>	268	-25	-2	<b>63</b>	206	-23	-1	<b>66</b>	<b>69</b>
AFC-11	Marina View Park	820	-35	-10	<b>46</b>	281	-25	-1	<b>64</b>	639	-32	-10	<b>48</b>	<b>64</b>
North-a	SE corner of Marina land	956	-36	-10	<b>45</b>	707	-33	-1	<b>56</b>	788	-34	-10	<b>46</b>	<b>56</b>
West-a	Spit access, 1000'	364	-28	0	<b>63</b>	674	-33	0	<b>57</b>	300	-26	0	<b>64</b>	<b>67</b>
West-b	Spit access, 2000'	678	-33	0	<b>58</b>	898	-35	0	<b>55</b>	610	-32	0	<b>58</b>	<b>62</b>
West-c	Spit habitat, 3000'	979	-36	0	<b>55</b>	1189	-38	0	<b>52</b>	922	-36	0	<b>54</b>	<b>59</b>
South-a	Inner Evap pond trail, 1000'	217	-23	0	<b>68</b>	805	-34	-3	<b>53</b>	338	-27	0	<b>63</b>	<b>69</b>
South-b	Inner Evap pond trail, 2000'	457	-30	0	<b>61</b>	1076	-37	-3	<b>50</b>	610	-32	0	<b>58</b>	<b>63</b>
South-c	Inner Evap pond trail, 3000'	747	-34	0	<b>57</b>	1372	-39	-3	<b>48</b>	912	-36	0	<b>54</b>	<b>59</b>
SE-a	Outer Evap pond trail, 1000'	304	-26	0	<b>65</b>	757	-34	-4	<b>52</b>	319	-26	0	<b>64</b>	<b>67</b>
SE-b	Outer Evap pond trail, 2000'	593	-32	0	<b>59</b>	1016	-37	-4	<b>49</b>	611	-32	0	<b>58</b>	<b>62</b>
SE-c	Outer Evap pond trail, 3000'	866	-35	0	<b>56</b>	1346	-39	-4	<b>47</b>	922	-36	0	<b>54</b>	<b>59</b>

## Noise Appendix 8.5b – Attachment 2

### Construction Noise Analyses Technical Details Tables

The equipment assumptions, locations, and usage factors, along with propagation and receptor details, is provided in the following *construction* noise detail tables.

# CONSTRUCTION NOISE PROPAGATION ANALYSIS

## South Bay Replacement Project (SBRP)

June 2006

Receptor Label	Receptor Description	metric Receptor X-coord	metric Receptor Y-coord	SBRP Construction Activity X-coord	SBRP Construction Activity Y-coord	Distance to Construction Activity Centroid (meters)	Distance to Construction Activity Centroid (feet)
AFC-1	Colorado Apts	406	817	-3	90	834	2738
AFC-2	Brentwood, I-5	453	161	-3	90	462	1515
AFC-3	Brentwood, Ind. Blvd	570	109	-3	90	573	1881
AFC-4	Harborside Elem.	756	-27	-3	90	768	2521
AFC-5	Stella Street	265	-591	-3	90	732	2402
AFC-6	1021 Bay Blvd	231	98	-3	90	234	768
AFC-7	SBPP site, S of Plant	-329	448	-3	90	484	1589
AFC-8	SBPP site, E of Plant	-25	528	-3	90	439	1439
AFC-9	SBPP site, NE of Plant	79	849	-3	90	763	2505
AFC-10	SBPP site, N of Plant	-248	860	-3	90	808	2653
AFC-11	Marina View Park	-421	1265	-3	90	1247	4092
North-a	SE corner of Marina land	-887	1093	-3	90	1337	4387
West-a	Spit access, 1000'	-504	527	-3	90	665	2184
West-b	Spit access, 2000'	-820	489	-3	90	909	2982
West-c	Spit habitat, 3000'	-1115	383	-3	90	1149	3772
South-a	Inner Evap pond trail, 1000'	-269	318	-3	90	350	1150
South-b	Inner Evap pond trail, 2000'	-222	44	-3	90	224	734
South-c	Inner Evap pond trail, 3000'	-132	-252	-3	90	366	1200
SE-a	Outer Evap pond trail, 1000'	-432	406	-3	90	533	1749
SE-b	Outer Evap pond trail, 2000'	-672	230	-3	90	684	2244
SE-c	Outer Evap pond trail, 3000'	-788	-82	-3	90	804	2638

Source: Alliance Acoustical Consultants, Inc., 2006

# Construction Month 5

analyses based on project information of 5/8/06

Equipment <sup>1</sup>	Quantity	Range of Lmax @ 50', dBA	Average Noise Level @ 50', dBA	Construction Usage Factors
Air Compressor	0	81	81	0.40
Asphalt Paver/Roller	0	74	74	0.10
Compactor	1	91	91	0.40
Cmprsn Equip, Jump'g Jack	0	88	88	0.40
Cmprsn Equip, Plate Comp	0	88	88	0.40
Concrete Vibrator	0	76	76	0.40
Light Tower	0	78	78	0.40
Dozer	3	77 - 81	80	0.16
Excavator/Backhoe	2	82 - 84	85	0.16
Excavator/Loader (lrg)	1	82 - 84	85	0.16
Excavator/Loader (sml)	0	81 - 86	82	0.16
Excavator/Shovel/Mtr Grader	0	81 - 93	82	0.20
Crane, 225 ton	0	81 - 93	88	0.20
Crane, 150 ton	0	80 - 85	85	0.20
Crane, 40 ton	0	80 - 85	83	0.20
Crane, 20 ton	0	80 - 85	80	0.20
Welder, small	0	78	78	0.40
Welder, large	0	78	78	0.40
Truck, Water	1	81 - 95	91	0.16
Truck, Fuel	0	81 - 95	91	0.16
Truck, Articulating (D200)	1	81 - 95	91	0.16
Truck, flatbed	0	81 - 95	86	0.16
Truck, Concrete Pump	0	78 - 84	82	0.40
Soil Import Haul-on Truck	13	81 - 95	91	0.16
Worker Vehicles	10	81 - 87	80	0.10
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>93</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

Alliance Acoustical Consultants, Inc., 2006

Const-noise-sources\_1.xls

# Construction Month 8

analyses based on project information of 5/8/06

Equipment <sup>1</sup>	Quantity	Range of Lmax @ 50 ', dBA	Average Noise Level @ 50 ', dBA	Construction Usage Factors
Air Compressor	3	81	81	0.40
Asphalt Paver/Roller	0	74	74	0.10
Compactor	1	91	91	0.40
Cmprsn Equip, Jump'g Jack	1	88	88	0.40
Cmprsn Equip, Plate Comp	1	88	88	0.40
Concrete Vibrator	2	76	76	0.40
Light Tower	2	78	78	0.40
Dozer	2	77 - 81	80	0.16
Excavator/Backhoe	2	82 - 84	85	0.16
Excavator/Loader (lrg)	1	82 - 84	85	0.16
Excavator/Loader (sml)	1	81 - 86	82	0.16
Excavator/Shovel/Mtr Grader	1	81 - 93	82	0.20
Crane, 225 ton	0	81 - 93	88	0.20
Crane, 150 ton	0	80 - 85	85	0.20
Crane, 40 ton	0	80 - 85	83	0.20
Crane, 20 ton	1	80 - 85	80	0.20
Welder, small	1	78	78	0.40
Welder, large	1	78	78	0.40
Truck, Water	0	81 - 95	91	0.16
Truck, Fuel	0	81 - 95	91	0.16
Truck, Articulating (D200)	1	81 - 95	91	0.16
Truck, flatbed	1	81 - 95	86	0.16
Truck, Concrete Pump	1	78 - 84	82	0.40
Soil Import Haul-on Truck	0	81 - 95	91	0.16
Worker Vehicles	100	81 - 87	80	0.10
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>92</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

Alliance Acoustical Consultants, Inc., 2006

Const-noise-sources\_1.xls

# Construction Month 9

analyses based on project information of 5/8/06

Equipment <sup>1</sup>	Quantity	Range of Lmax @ 50 ', dBA	Average Noise Level @ 50 ', dBA	Construction Usage Factors
Air Compressor	3	81	81	0.40
Asphalt Paver/Roller	0	74	74	0.10
Compactor	1	91	91	0.40
Cmprsn Equip, Jump'g Jack	2	88	88	0.40
Cmprsn Equip, Plate Comp	1	88	88	0.40
Concrete Vibrator	2	76	76	0.40
Light Tower	2	78	78	0.40
Dozer	2	77 - 81	80	0.16
Excavator/Backhoe	2	82 - 84	85	0.16
Excavator/Loader (lrg)	1	82 - 84	85	0.16
Excavator/Loader (sml)	2	81 - 86	82	0.16
Excavator/Shovel/Mtr Grader	1	81 - 93	82	0.20
Crane, 225 ton	0	81 - 93	88	0.20
Crane, 150 ton	0	80 - 85	85	0.20
Crane, 40 ton	1	80 - 85	83	0.20
Crane, 20 ton	1	80 - 85	80	0.20
Welder, small	1	78	78	0.40
Welder, large	3	78	78	0.40
Truck, Water	0	81 - 95	91	0.16
Truck, Fuel	1	81 - 95	91	0.16
Truck, Articulating (D200)	1	81 - 95	91	0.16
Truck, flatbed	3	81 - 95	86	0.16
Truck, Concrete Pump	1	78 - 84	82	0.40
Soil Import Haul-on Truck	0	81 - 95	91	0.16
Worker Vehicles	100	81 - 87	80	0.10
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>93</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

Alliance Acoustical Consultants, Inc., 2006

Const-noise-sources\_1.xls

# Construction Month 10

analyses based on project information of 5/8/06

Equipment <sup>1</sup>	Quantity	Range of Lmax @ 50', dBA	Average Noise Level @ 50', dBA	Construction Usage Factors
Air Compressor	5	81	81	0.40
Asphalt Paver/Roller	0	74	74	0.10
Compactor	1	91	91	0.40
Cmprsn Equip, Jump'g Jack	2	88	88	0.40
Cmprsn Equip, Plate Comp	2	88	88	0.40
Concrete Vibrator	5	76	76	0.40
Light Tower	2	78	78	0.40
Dozer	2	77 - 81	80	0.16
Excavator/Backhoe	2	82 - 84	85	0.16
Excavator/Loader (lrg)	1	82 - 84	85	0.16
Excavator/Loader (sml)	2	81 - 86	82	0.16
Excavator/Shovel/Mtr Grader	1	81 - 93	82	0.20
Crane, 225 ton	0	81 - 93	88	0.20
Crane, 150 ton	0	80 - 85	85	0.20
Crane, 40 ton	1	80 - 85	83	0.20
Crane, 20 ton	3	80 - 85	80	0.20
Welder, small	1	78	78	0.40
Welder, large	4	78	78	0.40
Truck, Water	1	81 - 95	91	0.16
Truck, Fuel	1	81 - 95	91	0.16
Truck, Articulating (D200)	1	81 - 95	91	0.16
Truck, flatbed	3	81 - 95	86	0.16
Truck, Concrete Pump	2	78 - 84	82	0.40
Soil Import Haul-on Truck	0	81 - 95	91	0.16
Worker Vehicles	100	81 - 87	80	0.10
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>93</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

Alliance Acoustical Consultants, Inc., 2006

Const-noise-sources\_1.xls

# Construction Month 11

analyses based on project information of 5/8/06

Equipment <sup>1</sup>	Quantity	Range of Lmax @ 50', dBA	Average Noise Level @ 50', dBA	Construction Useage Factors
Air Compressor	5	81	81	0.40
Asphalt Paver/Roller	0	74	74	0.10
Compactor	1	91	91	0.40
Cmprsn Equip, Jump'g Jack	2	88	88	0.40
Cmprsn Equip, Plate Comp	2	88	88	0.40
Concrete Vibrator	5	76	76	0.40
Light Tower	2	78	78	0.40
Dozer	2	77 - 81	80	0.16
Excavator/Backhoe	2	82 - 84	85	0.16
Excavator/Loader (lrg)	1	82 - 84	85	0.16
Excavator/Loader (sml)	1	81 - 86	82	0.16
Excavator/Shovel/Mtr Grader	1	81 - 93	82	0.20
Crane, 225 ton	0	81 - 93	88	0.20
Crane, 150 ton	0	80 - 85	85	0.20
Crane, 40 ton	2	80 - 85	83	0.20
Crane, 20 ton	3	80 - 85	80	0.20
Welder, small	1	78	78	0.40
Welder, large	8	78	78	0.40
Truck, Water	1	81 - 95	91	0.16
Truck, Fuel	1	81 - 95	91	0.16
Truck, Articulating (D200)	1	81 - 95	91	0.16
Truck, flatbed	3	81 - 95	86	0.16
Truck, Concrete Pump	2	78 - 84	82	0.40
Soil Import Haul-on Truck	0	81 - 95	91	0.16
Worker Vehicles	100	81 - 87	80	0.10
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>93</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

Alliance Acoustical Consultants, Inc., 2006

Const-noise-sources\_1.xls

# Construction Month 12

analyses based on project information of 5/8/06

Equipment <sup>1</sup>	Quantity	Range of Lmax @ 50 ', dBA	Average Noise Level @ 50 ', dBA	Construction Useage Factors
Air Compressor	8	81	81	0.40
Asphalt Paver/Roller	0	74	74	0.10
Compactor	1	91	91	0.40
Cmprsn Equip, Jump'g Jack	2	88	88	0.40
Cmprsn Equip, Plate Comp	2	88	88	0.40
Concrete Vibrator	6	76	76	0.40
Light Tower	2	78	78	0.40
Dozer	2	77 - 81	80	0.16
Excavator/Backhoe	2	82 - 84	85	0.16
Excavator/Loader (lrg)	1	82 - 84	85	0.16
Excavator/Loader (sml)	1	81 - 86	82	0.16
Excavator/Shovel/Mtr Grader	1	81 - 93	82	0.20
Crane, 225 ton	1	81 - 93	88	0.20
Crane, 150 ton	1	80 - 85	85	0.20
Crane, 40 ton	2	80 - 85	83	0.20
Crane, 20 ton	4	80 - 85	80	0.20
Welder, small	1	78	78	0.40
Welder, large	8	78	78	0.40
Truck, Water	1	81 - 95	91	0.16
Truck, Fuel	3	81 - 95	91	0.16
Truck, Articulating (D200)	1	81 - 95	91	0.16
Truck, flatbed	3	81 - 95	86	0.16
Truck, Concrete Pump	2	78 - 84	82	0.40
Soil Import Haul-on Truck	0	81 - 95	91	0.16
Worker Vehicles	100	81 - 87	80	0.10
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>94</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

Alliance Acoustical Consultants, Inc., 2006

Const-noise-sources\_1.xls

# Construction Month 13

analyses based on project information of 5/8/06

Equipment <sup>1</sup>	Quantity	Range of Lmax @ 50 ', dBA	Average Noise Level @ 50 ', dBA	Construction Useage Factors
Air Compressor	8	81	81	0.40
Asphalt Paver/Roller	0	74	74	0.10
Compactor	1	91	91	0.40
Cmprsn Equip, Jump'g Jack	2	88	88	0.40
Cmprsn Equip, Plate Comp	2	88	88	0.40
Concrete Vibrator	6	76	76	0.40
Light Tower	2	78	78	0.40
Dozer	2	77 - 81	80	0.16
Excavator/Backhoe	2	82 - 84	85	0.16
Excavator/Loader (lrg)	1	82 - 84	85	0.16
Excavator/Loader (sml)	0	81 - 86	82	0.16
Excavator/Shovel/Mtr Grader	0	81 - 93	82	0.20
Crane, 225 ton	1	81 - 93	88	0.20
Crane, 150 ton	1	80 - 85	85	0.20
Crane, 40 ton	2	80 - 85	83	0.20
Crane, 20 ton	4	80 - 85	80	0.20
Welder, small	1	78	78	0.40
Welder, large	9	78	78	0.40
Truck, Water	1	81 - 95	91	0.16
Truck, Fuel	3	81 - 95	91	0.16
Truck, Articulating (D200)	1	81 - 95	91	0.16
Truck, flatbed	3	81 - 95	86	0.16
Truck, Concrete Pump	2	78 - 84	82	0.40
Soil Import Haul-on Truck	0	81 - 95	91	0.16
Worker Vehicles	100	81 - 87	80	0.10
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>94</b>

**Note:**

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

Alliance Acoustical Consultants, Inc., 2006

# Construction Month 14

analyses based on project information of 5/8/06

Equipment <sup>1</sup>	Quantity	Range of Lmax @ 50', dBA	Average Noise Level @ 50', dBA	Construction Useage Factors
Air Compressor	8	81	81	0.40
Asphalt Paver/Roller	0	74	74	0.10
Compactor	1	91	91	0.40
Cmprsn Equip, Jump'g Jack	2	88	88	0.40
Cmprsn Equip, Plate Comp	2	88	88	0.40
Concrete Vibrator	6	76	76	0.40
Light Tower	1	78	78	0.40
Dozer	2	77 - 81	80	0.16
Excavator/Backhoe	2	82 - 84	85	0.16
Excavator/Loader (lrg)	1	82 - 84	85	0.16
Excavator/Loader (sml)	0	81 - 86	82	0.16
Excavator/Shovel/Mtr Grader	0	81 - 93	82	0.20
Crane, 225 ton	1	81 - 93	88	0.20
Crane, 150 ton	1	80 - 85	85	0.20
Crane, 40 ton	2	80 - 85	83	0.20
Crane, 20 ton	4	80 - 85	80	0.20
Welder, small	1	78	78	0.40
Welder, large	15	78	78	0.40
Truck, Water	1	81 - 95	91	0.16
Truck, Fuel	3	81 - 95	91	0.16
Truck, Articulating (D200)	1	81 - 95	91	0.16
Truck, flatbed	3	81 - 95	86	0.16
Truck, Concrete Pump	2	78 - 84	82	0.40
Soil Import Haul-on Truck	0	81 - 95	91	0.16
Worker Vehicles	100	81 - 87	80	0.10
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>94</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

Alliance Acoustical Consultants, Inc., 2006

Const-noise-sources\_1.xls

# Construction Month 15

analyses based on project information of 5/8/06

Equipment <sup>1</sup>	Quantity	Range of Lmax @ 50 ', dBA	Average Noise Level @ 50 ', dBA	Construction Useage Factors
Air Compressor	8	81	81	0.40
Asphalt Paver/Roller	0	74	74	0.10
Compactor	1	91	91	0.40
Cmprsn Equip, Jump'g Jack	2	88	88	0.40
Cmprsn Equip, Plate Comp	2	88	88	0.40
Concrete Vibrator	6	76	76	0.40
Light Tower	1	78	78	0.40
Dozer	1	77 - 81	80	0.16
Excavator/Backhoe	2	82 - 84	85	0.16
Excavator/Loader (lrg)	1	82 - 84	85	0.16
Excavator/Loader (sml)	0	81 - 86	82	0.16
Excavator/Shovel/Mtr Grader	0	81 - 93	82	0.20
Crane, 225 ton	1	81 - 93	88	0.20
Crane, 150 ton	1	80 - 85	85	0.20
Crane, 40 ton	2	80 - 85	83	0.20
Crane, 20 ton	4	80 - 85	80	0.20
Welder, small	1	78	78	0.40
Welder, large	15	78	78	0.40
Truck, Water	1	81 - 95	91	0.16
Truck, Fuel	3	81 - 95	91	0.16
Truck, Articulating (D200)	1	81 - 95	91	0.16
Truck, flatbed	3	81 - 95	86	0.16
Truck, Concrete Pump	2	78 - 84	82	0.40
Soil Import Haul-on Truck	0	81 - 95	91	0.16
Worker Vehicles	100	81 - 87	80	0.10
<b>Average Noise Level @ 50' from center of activity, dBA:</b>				<b>94</b>

Note:

1. Estimated Construction Equipment list from USEPA, 1971.

Source: CERL, 1978

USEPA, 1971

Alliance Acoustical Consultants, Inc., 2006

Const-noise-sources\_1.xls

# CONSTRUCTION NOISE PROPAGATION ANALYSIS

## South Bay Replacement Project (SBRP)

June 2006

	Source Summation	Area Label	dBA	@ dist. (ft)
<u>Max Total</u>	Month 12=13=14=15		<b>94</b>	50

Source Distance: **50** feet  
 Source Distance: **15.2** meters

## Worst-case Construction Activities

Receptor Label	Receptor Description	Distance to Demolition Centroid (meters)	Distance Attenuation (dB)	Barrier & Ground Attenuation (dB)	A-WTD SOUND LEVEL, dBA
AFC-1	Colorado Apts	834	-35	-20	<b>39</b>
AFC-2	Brentwood, I-5	462	-30	-20	<b>44</b>
AFC-3	Brentwood, Ind. Blvd	573	-32	-25	<b>37</b>
AFC-4	Harborside Elem.	768	-34	-20	<b>40</b>
AFC-5	Stella Street	732	-34	-20	<b>40</b>
AFC-6	1021 Bay Blvd	234	-24	-5	<b>65</b>
AFC-7	SBPP site, S of Plant	484	-30	-5	<b>59</b>
AFC-8	SBPP site, E of Plant	439	-29	-3	<b>62</b>
AFC-9	SBPP site, NE of Plant	763	-34	-3	<b>57</b>
AFC-10	SBPP site, N of Plant	808	-35	-5	<b>54</b>
AFC-11	Marina View Park	1247	-38	-10	<b>46</b>
North-a	SE corner of Marina land	1337	-39	-10	<b>45</b>
West-a	Spit access, 1000'	665	-33	0	<b>61</b>
West-b	Spit access, 2000'	909	-36	0	<b>58</b>
West-c	Spit habitat, 3000'	1149	-38	0	<b>56</b>
South-a	Inner Evap pond trail, 1000'	350	-27	0	<b>67</b>
South-b	Inner Evap pond trail, 2000'	224	-23	0	<b>71</b>
South-c	Inner Evap pond trail, 3000'	366	-28	0	<b>66</b>
SE-a	Outer Evap pond trail, 1000'	533	-31	0	<b>63</b>
SE-b	Outer Evap pond trail, 2000'	684	-33	0	<b>61</b>
SE-c	Outer Evap pond trail, 3000'	804	-34	0	<b>60</b>

Source: Alliance Acoustical Consultants, Inc., 2006