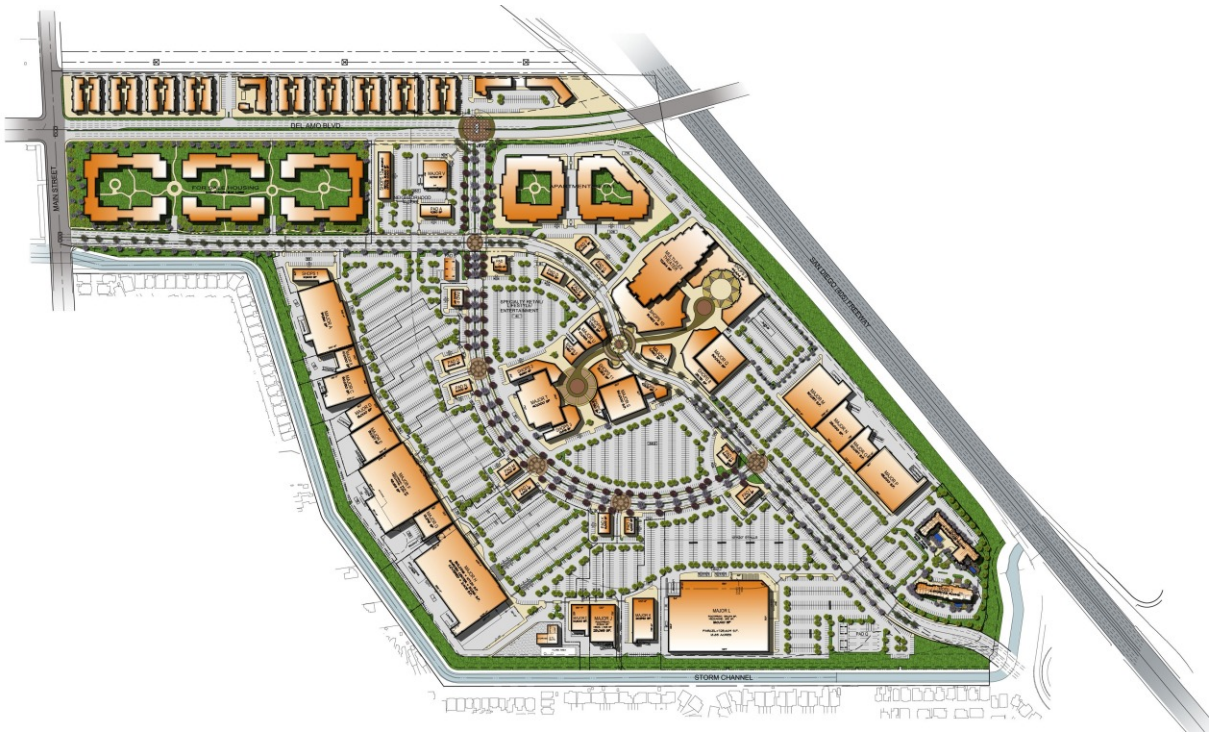
AVALON AT SOUTH BAY PROJECT

Noise Management Plan



For

Avalon at South Bay
(Formerly Carson Marketplace)
Carson, California

February 29, 2008

Prepared by:

TETRA TECH
348 W. Hospitality Lane, Suite 100
San Bernardino, California 92408

Prepared for:

Carson Marketplace, LLC
4350 Von Karman Avenue, Suite 200
Newport Beach, California 92657

NOISE MANAGEMENT PLAN

FOR

AVALON AT SOUTH BAY
(FORMERLY CARSON MARKETPLACE)
20300 MAIN STREET
CARSON, CA

Prepared for:

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SECTION 1.0 BACKGROUND

1.1 Introduction

Carson Marketplace, LLC (Developer) has proposed to develop the Avalon at South Bay development project (Project), which was previously named Carson Marketplace. This proposed brownsfield restoration project involves the development of the former Cal Compact landfill into multiple land uses, including commercial, recreation, entertainment, big-box retail stores, restaurants, hotels, and residential. The proposed Project site comprises approximately 168 acres of land located at 20300 Main Street in Carson, California. The property is bounded on the east/northeast by the San Diego Freeway (I-405), on the north by Del Amo Boulevard, on the west by Main Street and single family residences and mobile home development, and on the south by single family residences and mobile home development (Figure 1). A strip of vacant land to the north across Del Amo Boulevard, which comprises 11 acres, is also within the overall scope of the Project. This portion of the property was not part of the former landfill and therefore, no environmental remediation activities are needed prior to the commencement of the development activities planned for it.

The former Cal Compact landfill consists of five separate landfill cells numbered A1 through A5 separated by the site boundaries on the outer perimeter and by two interior roadways on the interior perimeter (Lenardo Drive and Stamps Drive). A Los Angeles County Flood Control channel (Torrance Lateral) is located adjacent to the south and west sides of the Project site and serves to separate the Project site from the adjacent residential neighborhood (Figure 2).

This Project involves the development of the former Cal Compact landfill into the following land uses: neighborhood commercial, regional commercial, commercial recreation/entertainment, big-box retail stores, restaurants, hotels, and residential (Figure 3). The construction phases of this Project will begin with mass grading of the former landfill area and removal of some of the clean soil covering the landfill cells. This will be done to establish a uniform grade and minimize the thickness of clean soil cover overlying the refuse material so that compaction of the landfill cells may commence. Clean soil removed in the grading process will be temporarily stockpiled onsite until it is reused. Compaction of refuse will be done using deep dynamic compaction (DDC) to consolidate the refuse and soil below future parking and open areas to minimize future settling. The refuse under future building locations will not be compacted. Once all compaction is complete, a landfill gas collection system with horizontal collection wells throughout the site and vertical gas collection wells below future building locations will be installed. This gas collection system will be connected to a gas flare treatment system with a landfill operations center which will have controls and integral monitoring to detect any leakage or system failure. The landfill cells and gas collection system will then have a multi-component landfill cap installed. The first layer of this cap will be the installation of a continuous layer of linear low density polyethylene (LLDPE) geomembrane which will serve as the primary impermeable layer of the cap system. This LLDPE geomembrane will then have drainage strips installed on top of it that will direct

AVALON AT SOUTH BAY

Vicinity Map

Jan. 2008 | TETRA TECH | Figure 1

AVALON AT SOUTH BAY

Site Map

Jan. 2008 | TETRA TECH | Figure 2

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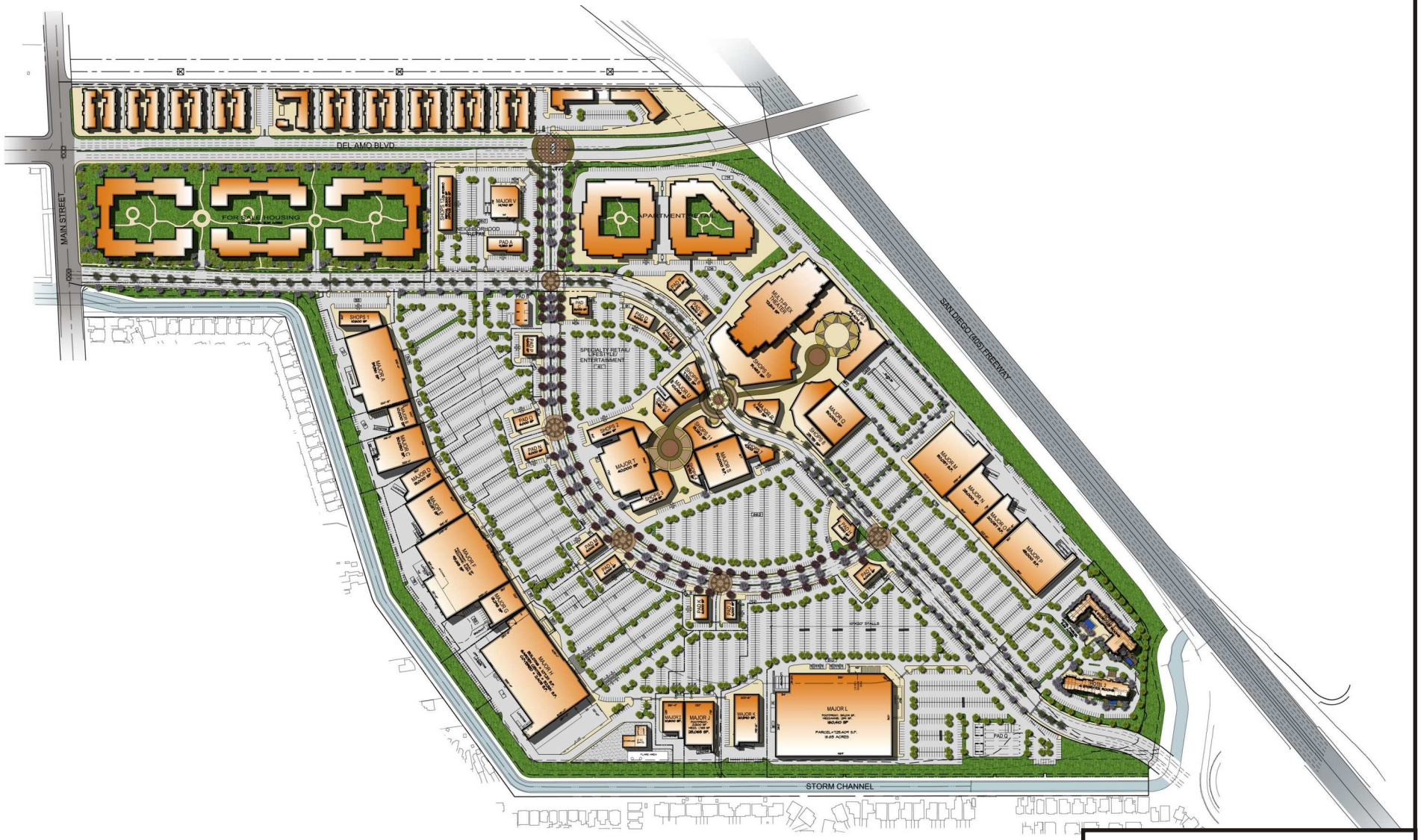

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Development Plan Date: September 17, 2007

Ref. Nadel 2005.

AVALON AT SOUTH BAY

Development Plan

Jan. 2008

TETRA TECH

Figure 3

water off of the landfill cap so that it does not accumulate. These drainage strips will be covered by a geotextile fabric layer to prevent the accumulation of silt and eventual clogging of the drainage system. This layer will then be covered with clean soil.

All future buildings will be supported on driven piles. Piles will be driven through the refuse until competent native soil is reached. Pile caps will be installed and the concrete building slabs will be poured on top. The LLDPE geomembrane will be sealed to the pile caps where they penetrate it using an expansion boot to allow expansion and movement while remaining sealed.

A building protection system will be installed below all building locations to serve as a backup in case of landfill cap or primary gas collection system failure. This system will include the installation of a membrane attached to the underside of the concrete slab. The space between this membrane and the LLDPE geomembrane will have a passive gas venting system installed and will also include methane detection sensors to provide notification of system failure. All buildings will be built aboveground.

The Project will also include the installation of a groundwater extraction and treatment system along the southern boundary of the Project site to contain and treat impacted groundwater underlying the Project. Some refuse materials in the landfill cells may need to be excavated and moved to facilitate the installation of site utilities and the landfill gas collection system. Tetra Tech, Incorporated (Tetra Tech) is the environmental engineer and general contractor responsible for the design and installation of these remedial systems. Tetra Tech is not, however, responsible for the design and installation of the driven piles, pile caps, and building slabs that make up the building foundations.

During construction of the proposed project, there are activities that have the potential to generate noise at the site and thus, are subject to the City of Carson Noise Ordinances. This noise management plan is prepared to identify noise sources, determine sensitive receptors, determine monitoring methods, and discuss the procedures and methods that will be used to mitigate noise emissions from the Project. Preparation of this plan is also required for compliance with the provisions of Mitigation Measures H-1 and H-4 of the Mitigation Monitoring and Reporting Program developed as a part of the *Final Environmental Impact Report, Carson Marketplace* **(PCR Services 2006)** process.

SECTION 2.0 POTENTIAL NOISE EMISSION SOURCES AND RECEPTORS

This section identifies the potential noise emission sources at the site. The following are general examples of noise emitting elements, however this list is not intended to be a comprehensive and inclusive of all noise producing elements which may be encountered over the course of the completion of the project.

2.1 Construction Equipment

Construction equipment in varied forms are noise producing. Power generating equipment produces noise from the internal combustion engines used to generate the power. Other portable equipment with internal combustion engines such as compressors and pumps are also noise sources. Powered hand tools such as saws and drills are also a source of noise. Activities using hand or powered tools such as hammering, drilling, boring, jack-hammering, and sawing are also significant sources of noise.

2.2 Construction and Other Vehicles

All vehicles are a potential source of noise from the internal combustion engines that power them. The engines produce noise as they run either idling or over a range of operating speeds while working. Additionally construction vehicles can also be a source of significant noise from the specific tasks that they perform. As an example, a loader or excavator can create noise from the excavation, loading, or moving or rock or soil materials. A dump truck can cause noise when being loaded or dumping of materials such as rock.

2.3 Deep Dynamic Compaction (DDC) and Pile Driving

Deep dynamic compaction and pile driving by their action are noise producing activities. Both use the falling of a weighted object to perform their base task. When this weighted object falls and impacts either the ground or piles it creates noise. Additionally, the machinery used to lift the weighted object is a source of noise as it is usually powered by an internal combustion engine.

2.4 Noise-Sensitive Receptors

The City of Carson has identified residences, public and private school classrooms, libraries, hospitals and elderly care facilities as noise-sensitive receptors. The nearest sensitive residential receptors that may be affected by the project are the one-and two-story detached residences and mobile homes that are located across the Torrance Lateral drainage channel to the south and west of the project site (**PCR Services, 2006**). Additionally, on-site construction workers can be exposed to noise.

SECTION 3.0 IMPLEMENTATION OF NOISE CONTROL METHODS

Appropriate worker hearing protection will be required for any anticipated noise exposure above 85 dBA, based on a time-weighted average for 8-hours of exposure. Workers will be required to have appropriate hearing protection readily available anytime while in the work zone. According to the Environmental Impact Report for the project and the City of Carson Municipal Code and General Plan, a significant impact would occur at single-family residential uses if construction activities would exceed a maximum noise level of 65 dBA between the hours of 7:00 a.m. and 8:00 p.m., Monday through Saturday and 55 dBA between 8:00 p.m. and 7:00 a.m. Monday through Saturday or any time on Sunday or a national holiday (**PCR Services, 2006**). Real time noise monitoring will be conducted to determine exposure levels and to determine if noise levels are exceeding action thresholds. In the event that monitored noise levels exceed the action thresholds of 85 dBA within the work area or 65 dBA at the site perimeter the source of the noise exceedence will be investigated and measures will be taken to correct the exceedence. (It should be noted that no construction activities are scheduled to occur between 8:00 p.m. and 7:00 a.m. Monday through Saturday or at any time on Sunday or national holidays. Therefore, the 55 dBA noise threshold is not expected to be exceeded as a result of construction activity.)

Noise control measures or modification of procedures for the noise exceeding activity will immediately be implemented to correct the exceedence and ensure that it does not continue or reoccur. Noise control or mitigation measures are defined in the following sections.

3.1 General Noise Control Methods

The following are the general noise control measures to be implemented at the site, in compliance with the noise mitigation measures adopted in the Final EIR:

- Per City of Carson Municipal Code Section 4101 (i) and (j) and the final EIR and MMRP, all construction activities must be limited to the hours of 7:00am through 8:00pm, Monday through Saturday. No construction activities will occur at any time on Sundays or federal holidays;
- Noise generating equipment operated at the project site shall be equipped with effective noise control devices (i.e. mufflers, intake silencer, lagging, and/or engine enclosures;
- All equipment shall be properly maintained to assure that no additional noise, due to worn or improperly maintained parts, would be generated;
- Pile drivers used within 1,500 feet of sensitive receptors shall be equipped with noise control techniques (e.g. use of noise attenuation shields or shrouds) having a minimum quieting factor of 10 dBA;
- Effective temporary sound barriers shall be used and relocated, as needed, whenever construction activities occur within 150 feet of residential property, to block line-of-site between the construction equipment and the noise-sensitive receptors (i.e. residential uses located on the west and south of the project site);

- Loading and staging areas must be located on-site and away from the most noise-sensitive uses surrounding the site as determined by the Building and Safety Division of the Department of Development Services;
- An approved haul route authorization that avoids noise-sensitive land uses to the maximum extent feasible; and
- A Construction Relations Officer shall be designated to serve as a liaison with residents, and a contact telephone number shall be provided to residents.

3.2 Additional Noise Control Measures

The following are the additional noise control measures Tetra Tech will implement, if necessary:

- Unload noise producing materials such as rock or gravel slowly to limit the noise produced in their unloading;
- Phase activities to minimize the number of equipment operating;
- Use alternate equipment which may produce less noise;
- Bring in temporary power using power poles instead of using engine powered generators; and
- Do not allow vehicles to run at idle for prolonged periods.

SECTION 4.0 NOISE MONITORING PROGRAM

Monitoring of the noise during construction activities is required to ensure that the measures adequately control noise levels and that compliance with the City of Carson noise ordinances are maintained.

Noise monitoring will be conducted using data recording sound level meters or dosimeters. Depending on each site activity, monitoring procedures may vary. The monitoring variable parameters include: locations of dosimeters, numbers of dosimeters, monitoring duration, etc.

Tetra Tech, Inc. will determine the specific monitoring protocols to be used based on specific activities being performed. The following sections describe the noise monitoring program planned for the proposed development.

The primary purpose of the noise monitoring program is to help ensure that safe conditions are being maintained for onsite workers, to guide the selection of hearing protection devices and noise mitigation measures, and to prevent nuisance noise levels above City Ordinance levels in the surrounding community during construction work. The objectives of the program are to:

- Monitor the on-site noise levels for all different site operations to know if hearing protection or other noise mitigation measures are necessary;

- Monitor the noise levels at the site perimeter during construction activities to determine if noise mitigation measures are necessary; and

- Document ambient noise levels at the site perimeter before construction activities commence so that the impact of construction activities can be determined.

Additionally, a project hotline [(866) 928-4566 or (310) 956-5942] has been established and advertised in the surrounding neighborhoods so that neighbors may have a point-of-contact to address concerns about the project, including noise concerns. Specifics about the project hotline are contained in the *Community Relations Plan, Avalon at South Bay* (**Tetra Tech, 2008**).

4.1 Overall Approach

The measurement protocol will account for the actual site operational and physical characteristics including operation of the site activities and ambient conditions. The following sections present the background that the monitoring protocol is based on.

4.2 Ambient Noise Levels

To identify the noise levels that exist at the site prior to construction activities commencing, baseline noise monitoring will be conducted. Noise levels over the normal

time frame that construction activities will occur will be conducted. Noise levels will be monitored at the projected work areas across the site and at several locations along the site perimeter. Specific locations will be determined in the field based on observed site conditions. According to the analysis of anticipated noise impacts presented in the EIR prepared for this Project, the homes adjacent to the construction site would experience the most noise, with noise levels diminishing considerably as you travel away from the site. Additionally, noise levels at sensitive receptors would be expected to be the greatest when construction activity occurs near the perimeter, and diminish when construction activity moves toward the center of the site. Noise mitigations are triggered when noise action levels are exceeded at the perimeter of the site. Therefore, noise measurements in the neighborhood are not expected to be required, since project construction noise levels in the neighborhood will always be less than at the perimeter. The data collected from these monitoring periods will be used to determine the baseline noise levels that occur at the site prior to construction activities commencing and to be able to gauge the impact that the construction activities have on the monitored noise levels. The baseline monitoring will try to take into account the potential variations in noise levels that may exist over an extended period of time. The ambient noise levels may be greater from one day to the next or even at specific times on a particular day of the week. The monitoring to establish the ambient baseline noise levels will be conducted over an extended period to try to account for these variations that may occur. There may also be seasonal variations in the ambient noise levels that exist. The monitoring conducted to establish baseline noise levels will attempt to determine these seasonal effects to the extent practicable. However, due to the short period of time before construction activity begins, it may not be possible to conduct baseline monitoring that covers all seasonal variations. The ambient weather conditions including wind speed and direction will also be recorded during monitoring as they have potential effect on the monitored noise levels.

4.3 Types and Proposed Locations of Samplers

The noise monitoring devices which will be used will consist of data logging noise dosimeter sound meters. These devices can record sound levels over a long period of time and automatically record the observed sound levels and changes in monitored levels. Using software provided by the instrument manufacturer, the monitored noise levels can be graphed to show all exposure data and determine if mitigation measures are necessary. The monitoring instruments that will be used are Quest Diagnostics, Model Q-300 sound dosimeters, or equivalent.

The proposed locations and number of instruments will be chosen in the field based on observed site conditions and the particular site operations. At least one instrument will be established at the site perimeter adjacent to a work area and one instrument will be placed within the work area. More instruments will be added if necessary depending on what different activities are being conducted. If the monitoring data shows that the measured levels exceed the noise ordinance levels (65 dBA), additional measures to control noise from the site operations will be implemented, as described in Sections 3.1 and 3.2. Additional noise monitors may be placed in response to any neighborhood noise complaints.

4.4 Noise Monitoring Schedule

Noise monitoring at the site will be conducted at the site before the construction activities start. This monitoring may be concurrent with the site mobilization and pre-construction activities such as: equipment mobilization, surface soil sampling, site surveying, temporary utility installation, site office trailer installation, and site fencing installation. These activities are not expected to impact the collection of ambient air monitoring data. Noise monitoring will be conducted daily once construction activity commences.

4.5 Frequency of Monitoring

The noise level will be monitored at a frequency of one instrument at the site perimeter and one in the work area for each site activity or as necessary throughout the duration of the site development activities. Additional noise monitors may be added as necessary in response to neighbor complaints to the project hotline. Monitoring duration will average 8-10 hours per day.

4.6 Meter Calibration

Prior to monitoring, the noise meters will be calibrated according to manufacturer's recommendations using a manufacturer supplied calibration device. The sound level calibration of each instrument will be measured again at the conclusion of each sampling event to quantify noise level measurement drift.

4.7 Monitoring Conditions

Over the course of each monitoring day Tetra Tech staff will check the monitoring instruments regularly to ensure their proper operation with no abnormalities, such as battery failure. Manual recordings of the sound level readings will be recorded during these check periods as a backup in case logged data is lost.

4.8 Record Keeping Practices

All data from the monitoring activities will be recorded including, instrument calibration data, manually recorded sound level data, monitoring locations, monitoring time, and monitoring duration at each location. Monitoring records will be completed daily and the records will be turned in for inspection, filing, and quality assurance at the site office at the end of each day.

At the completion of the project, a report will be prepared summarizing noise monitoring conducted, any exceedence of noise thresholds, corrective actions taken, and copies of all noise monitoring records. This report will be submitted to the Construction Manager for inclusion in the Project Closeout Documentation.

4.9 Quality Assurance

The project manager will ensure that all work conducted will be carried out in accordance with this Work Plan. Records of equipment calibration and monitoring activities will be maintained. Field data sheets completed to record monitoring activities will be submitted daily to the project manager. The project manager will insure that regular field audits of the monitoring procedures and monitoring records are conducted to ensure a high level of quality assurance.

An on-site weather station will be installed on the project site prior to the commencement of construction. Meteorological data from the on-site weather station and the closest South Coast Air Quality Management District station in Long Beach will be compiled and correlated with the monitoring events.

4.10 Monitoring Data Review and Corrective Action Implementation

The results of the monitoring will be reviewed to determine if site conditions are in compliance with the noise level for the project. If the results show that noise levels exceed 65 dBA at the site perimeter, then the cause of the noise will be investigated. Measures as stated in Sections 3.1 and 3.2 will be taken to lower noise below the action levels. The procedural changes will be documented to show that corrective actions have been implemented. If 85 dBA is exceeded within the work zone, then corrective measures as described in the Site Safety and Health Plan will be implemented to protect on-site workers.

SECTION 5.0 REFERENCES

PCR Services 2006, *Final Environmental Impact Report, Carson Marketplace*; PCR Services Corporation; January 2006

Tetra Tech 2008, *Community Relations Plan, Avalon at South Bay Project*; Tetra Tech, Inc.; February 2008.

APPENDIX A

Example Daily Noise Monitoring Form

Page ___of___ Date:

Dust and Noise Monitoring Records

	Facility/Site Information
Tetra Tech, Inc 348 West Hospitality Lane, Suite 100 San Bernardino, CA 92408	
Monitoring Personnel:	
Name:	Company

Dust Monitor Information	Calibration Data	Noise Monitor Information	Calibration Data
Brand:	Method: Zero Check / Flow Check (Daily)	Brand:	Method:
Model:	Date	Model:	Cal Save Date:
Type	By	Type	By

Time	Monitoring Location						Comments
	Dust (mg/m^3)	Noise-Lavg (db)	Dust (mg/m^3)	Noise-Lavg (db)	Dust (mg/m^3)	Noise-Lavg (db)	

I certify that the information contained in the above document is true and correct. I further certify that the above listed monitors were operated in a manner consistent with the manufacturer's specifications and the conditions specified. In addition, I certify that the above readings represent the actual measurements I observed and recorded during the excavation process.

SIGNATURE:_____ DATE:_____