**FOR CONTRACT NO.**: 07-266104

# INFORMATION HANDOUT

# MATERIALS INFORMATION

1. Aerial Deposited Lead Site Investigation Report, Route 134 – Route 170 North Hollywood, California LA 134 KP 0.0/2.1 Contract 43A0012 Task Order No. 07-061741-3J (Report No. 7K01)

**ROUTE:** 07-LA-134-0.0/ 13.3

Lead

LA 134
TO # 07-061741-3J
KP 0.00 – ~~2.10~~ 3.38

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7K01

# AERIAL DEPOSITED LEAD SITE INVESTIGATION REPORT

## ROUTE 134 – ROUTE 170
## NORTH HOLLYWOOD, CALIFORNIA

## LA-134 KP 0.0/2.1

CONTRACT 43A0012
TASK ORDER NO. 07-061741-3J

GEOCON

GEOTECHNICAL
&
ENVIRONMENTAL
CONSULTANTS

PREPARED FOR

CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 7
LOS ANGELES, CALIFORNIA

GEOCON PROJECT NO. A8066-06-04

FEBRUARY 2001

## 5.0 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

### 5.1 Site Geology and Hydrogeology

Soil encountered during the field activities generally consisted of silty sand with gravel to the maximum depth of exploration, approximately 1.5 meter (5 feet) bgs. Groundwater was not encountered during the advancement of the soil borings.

### 5.2 Soil Analytical Results

A summary of the analytical laboratory test results for total lead, soluble lead, and pH is presented as Table 1.

The 4 soil samples analyzed for pH-exhibited values ranging from 7.07 to 8.12. Lead results are summarized below:

- Total lead concentrations ranged from less that the laboratory reporting limit of 5.0 mg/kg to 5,310 mg/kg.
- Twenty-nine soil samples exhibited total lead concentrations greater than the lead TTLC of 1,000 mg/kg.
- Fifty-eight soil samples exhibited total lead concentrations greater than ten times the lead STLC of 5.0 mg/l and less than the lead TTLC of 1,000 mg/kg.
- Twenty-three of the 26 soil samples analyzed for soluble lead via the WET exhibited soluble lead concentrations greater than the lead STLC of 5.0 mg/l.
- Six of the 23 soil samples analyzed for soluble lead via the WET-DI exhibited soluble lead concentrations greater than the DTSC draft variance Category 1 threshold limit of 0.5 mg/l.
- Six of the 15 soil samples analyzed for soluble lead via the TCLP exhibited soluble lead concentrations greater than the Federal (RCRA) threshold of 5.0 mg/l.

### 5.3 Statistical Evaluation for Lead Detected in Soil Samples

Statistical methods were applied to the total lead data to evaluate: 1) the upper one-sided confidence limits (UCLs) of the true means of the total lead concentrations for each sampling depth; and 2) if an acceptable correlation between total and soluble lead concentrations exists that would allow the prediction of soluble lead concentrations based on calculated UCLs. The statistical methods used are provided in Chapter 9 of SW-846 and *Statistics and Data Analysis in Geology*, by John Davis.

### 5.3.1 Distribution of Total Lead Concentrations

The presence of nondetects and/or low concentrations in total lead data can strongly skew sample data towards low values. Classical statistical methods do not work properly in these cases since they assume that the data exhibits an underlying normal distribution. Consequently, it is necessary to evaluate the distribution of the total lead data to apply the appropriate methods when determining the UCLs on the true total lead means. When evaluating the distribution of total lead concentrations, each sampling depth was treated as a separate data set.

The total lead variances were greater than the total lead means for each data set. According to SW-846, if the variance is greater than the mean, the total lead data may be characterized by a negative binomial distribution, as is the case for the data obtained from the subject site. In this circumstance, according to SW-846, normality can often be achieved using an arcsine transformation. Consequently, the total lead data for each data set was converted into decimal form by dividing each total lead concentration by the maximum observed total lead concentration in that data set. This resulted in fractionalized total lead concentrations in each data set that ranged between 0 and 1. The fractionalized data was than transformed by taking the arcsine of each fractionalized total lead concentration. UCLs were calculated in the next section using the transformed data.

### 5.3.2 Calculating the UCLs for the True Mean

The one-sided 90%, and 95% upper confidence limits (UCLs) of the true mean are defined as the values that, when calculated repeatedly for randomly drawn subsets of site data, are equal to or exceed the true mean 90%, and 95% of the time, respectively. Statistical confidence limits are the classical tool for addressing uncertainties of a distribution mean. The UCLs of the true mean concentration are used as the mean concentrations because it is not possible to know the true mean due to the essentially infinite number of soil samples that could be collected from the site. The UCLs therefore account for uncertainties due to limited sampling data. As data become less limited at a site, uncertainties decrease and the UCLs move closer to the true mean.

The procedures used to calculate the UCLs on the true mean are summarized in Chapter 9 of SW-846. The Student's "t" values used when calculating the UCL were determined using the "TINV" function in MS Excel using a probability of 0.2 for the 90% confidence interval and a probability of 0.1 for the 95% confidence interval. The UCLs were calculated for each data set separately and are presented as Table 2. The UCLs have also been combined to evaluate different soil mixing scenarios and are presented as Graph 1.

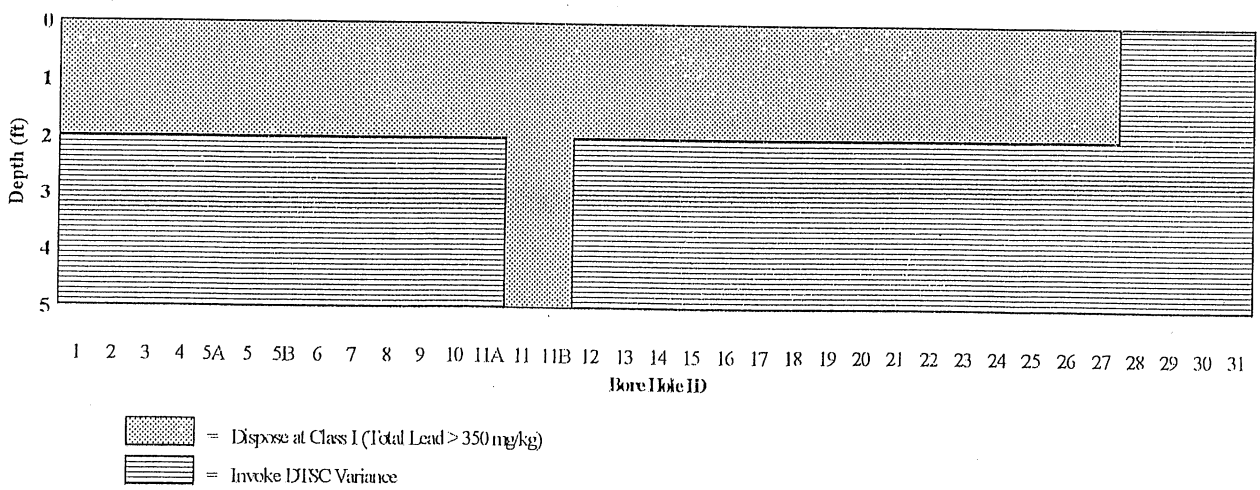
## 6.0 SUMMARY AND DISCUSSION

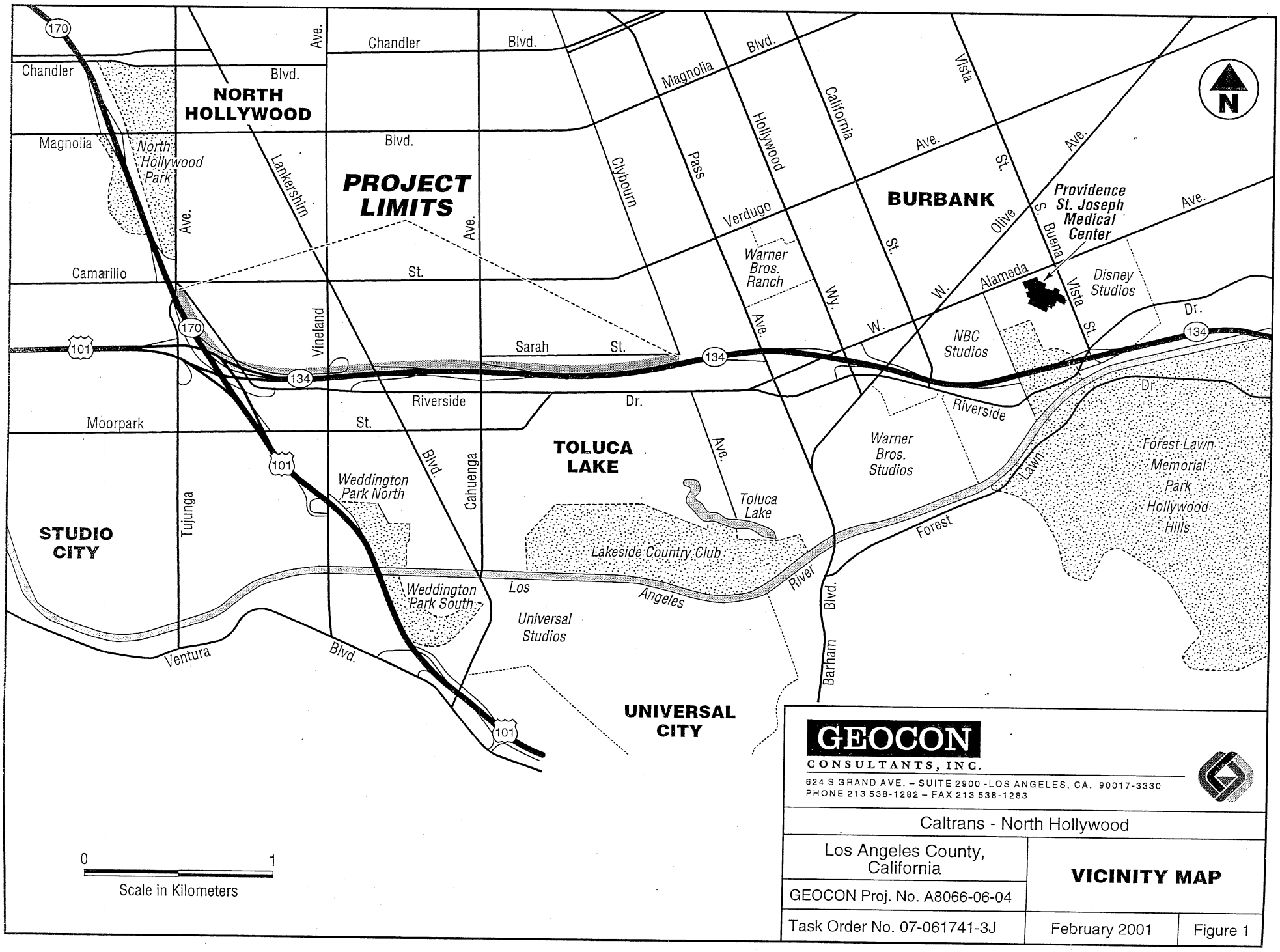
The following summary and discussion are based on a review of the analytical data, the UCLs and predicted soluble lead concentrations summarized in Table 3, and the graphical representation for excavated soil handling summarized as Graph 1.

The results of the soil sampling and analysis are summarized below:

- Total lead concentrations ranged from less that the laboratory reporting limit of 5.0 mg/kg to 5,310 mg/kg.
- Twenty-nine soil samples exhibited total lead concentrations greater than the lead TTLC of 1,000 mg/kg.
- Fifty-eight soil samples exhibited total lead concentrations greater than ten times the lead STLC of 5.0 mg/l and less than the lead TTLC of 1,000 mg/kg.
- Twenty-three of the 26 soil samples analyzed for soluble lead via the WET exhibited soluble lead concentrations greater than the lead STLC of 5.0 mg/l.
- Six of the 23 soil samples analyzed for soluble lead via the WET-DI exhibited soluble lead concentrations greater than the DTSC draft variance Category 1 threshold limit of 0.5 mg/l.
- Six of the 15 soil samples analyzed for soluble lead via the TCLP exhibited soluble lead concentrations greater than the Federal (RCRA) threshold of 5.0 mg/l.

The soil should be handled as indicated in the chart below.



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**VICINITY MAP**

February 2001

Figure 1