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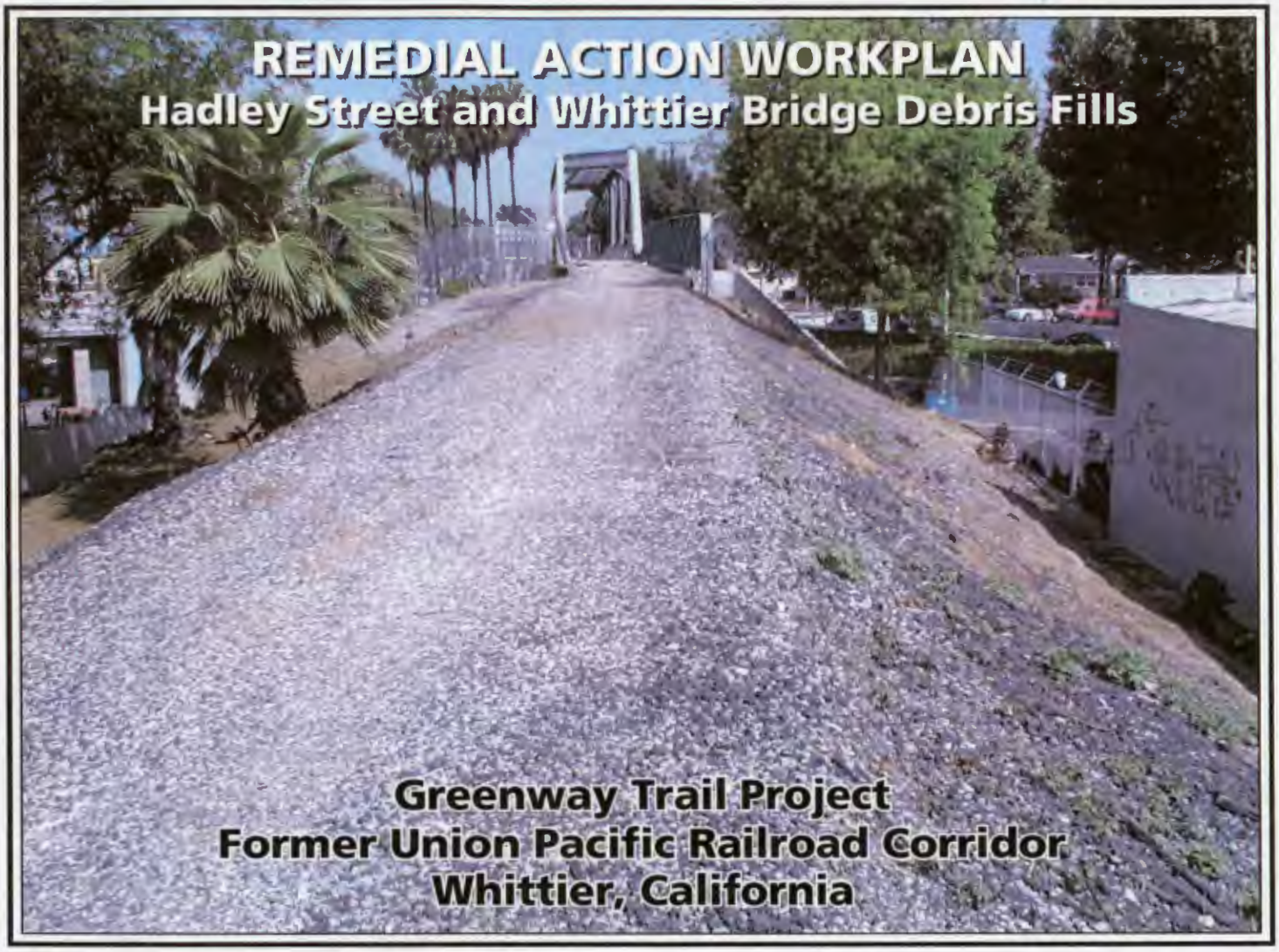

REMEDIAL ACTION WORKPLAN
Hadley Street and Whittier Bridge Debris Fills

Greenway Trail Project
Former Union Pacific Railroad Corridor
Whittier, California

PREPARED FOR:

KIMLEY-HORN AND ASSOCIATES, INC.
517 FOURTH AVENUE, SUITE 301
SAN DIEGO, CALIFORNIA 92101

PREPARED BY:

GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DRIVE, SUITE 800
RANCHO CORDOVA, CALIFORNIA 95742

GEOCON

GEOCON PROJECT NO. S8766-06-01

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LIST OF ACRONYMS

AST	aboveground storage tank
bgs	below ground surface
CAP	Corrective Action Plan
CCR	California Code of Regulations
CEG	Certified Engineering Geologist
COC	Contaminant of Concern
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
HSP	Health and Safety Plan
LACoFD	Los Angeles County Fire Department
mg/kg	milligrams per kilogram
mg/l	milligrams per liter
MP	Mile Post
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated Biphenyls
PE	Professional Engineer
PRG	Preliminary Remediation Goal
RAW	Remedial Action Workplan
RCRA	Resource Conservation and Recovery Act
RECs	Recognized Environmental Conditions
RG	Registered Geologist
ROW	right-of-way
SP	Southern Pacific
TCLP	Toxicity Characteristic Leaching Procedure
TTLC	Total Threshold Limit Concentration
TPHg	Total Petroleum Hydrocarbons as gasoline
TPHd	Total Petroleum Hydrocarbons as diesel
TPHmo	Total Petroleum Hydrocarbons as motor oil
UP	Union Pacific
USA	Underground Service Alert
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds
yd^3	cubic yards

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A. County of Los Angeles County Fire Department Correspondence

REMEDIAL ACTION WORKPLAN - GREENWAY TRAIL PROJECT

1.0 INTRODUCTION

1.1 Site Location and Existing Improvements

Geocon Consultants, Inc. has prepared this Remedial Action Workplan (RAW) for the Greenway Trail Project (the *Site*) under contract with Kimley-Horn and Associates, Inc., the prime design civil engineer representing the City of Whittier (City). The *Site* consists of an approximate 5.2-mile long former Union Pacific (UP) railroad corridor located in the City of Whittier, California.

The former UP right-of-way (ROW) is generally 40 to 100 feet in width and extends from the mainline railroad connections near the San Gabriel River (Mile Post [MP] 0.0) to the former Southern Pacific (SP) railroad mainline connection south of Mills Avenue (MP 5.2). An approximate 4.5-mile segment of the *Site* located between Pioneer Boulevard and Mills Road is currently being planned for redevelopment by the City as a pedestrian trail and community park system. The approximate location of the *Site* is depicted on the Project Location Map, Figure 1.

This RAW presents a summary of the environmental site assessment activities performed at the *Site* and provides remedial measures to complete the removal and offsite disposal of debris fill materials encountered near Hadley Street and at the Whittier Boulevard Overcrossing.

1.2 Background

Geocon completed Phase I and II Environmental Site Assessment (ESAs) and a Corrective Action Plan (CAP) for the *Site* between September 2000 and November 2001. The results of the Phase I ESA indicated that before construction of the railroad corridor in the early 1900s, commercial operations near the *Site* included agricultural, lumber, feed, fruit packing, and oil storage facilities. Former or existing railroad maintenance, refueling facilities, and underground or aboveground storage tanks (USTs/ASTs) were not identified within the site boundaries.

The Phase II ESA included the excavation of 31 shallow exploratory trenches; near-surface soil and ballast sampling; and analytical testing. Recognized environmental conditions (RECs) identified within the *Site* included asbestos and lead-based paint bridge and retaining wall components, slag ballast and track bed soil containing elevated arsenic concentrations, near-surface debris fill materials located between Magnolia Avenue and Hadley Street, and the presence of abandoned battery boxes and sporadic surface debris material. Significant petroleum hydrocarbons, volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), pesticide and herbicide impacts were not reported in the random and targeted (adjacent facility) sampling locations within the corridor.

Additional site investigation completed for the CAP identified the presence of near-surface debris fill materials along the southern abutment of the Whittier Boulevard Overcrossing. The CAP presented statistical and human health risk evaluations of the elevated arsenic levels detected in slag ballast and underlying track bed soils, and recommended remedial measures for the removal and offsite disposal of the encountered debris fill materials.

The City completed purchase of the Site from UP in December 2001. The railroad track improvements (rail, spikes, plates and ties) and signal crossing improvements (battery boxes, crossing arms and signal boxes) were subsequently removed by UP. The City further installed security fencing around the Whittier Boulevard Overcrossing debris fill location due to the presence of surficial debris fill and homeless encampments.

2.0 SITE ASSESSMENT RESULTS

The following site assessment activities were completed at the Hadley Street and Whittier Boulevard debris fill areas identified at the *Site.* The sampling locations and interpreted debris fill limits are depicted on the Site Plans, Figures 2 and 3. Site photographs are presented on Figures 4 and 5. Summaries of the debris fill depth intervals and soil sample analytical data are presented on the attached Tables 1 through 4.

2.1 Hadley Street Debris Fill

Debris fill materials were initially encountered between approximately four to seven feet below the ground surface (bgs) in trench T8 performed between Magnolia Avenue and Hadley Street in August 2001 (see Figure 4, Photo No. 1). The debris fill materials primarily consisted of bottles, broken china, oily waste, brick fragments and rusted metal parts likely associated with historical railroad operations (see Figure 4, Photo No. 2). A sample of the stockpiled debris fill materials generated from trench T8 contained a total lead concentration of 5,800 milligrams per kilogram (mg/kg) which exceeds the California Total Threshold Limit Concentration (TTLC) hazardous waste threshold of 1,000 mg/kg. Total petroleum hydrocarbons as motor oil (TPHmo) was further detected at a concentration of 820 mg/kg from a soil sample collected from trench T8 at a depth of 5.5 feet bgs. Total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd), and VOCs were not detected in each debris fill material sample analyzed from trench T8. Debris fill materials were not identified in trenches T7 and T9 performed between Magnolia Avenue and Hadley Street.

Geocon retained Spectrum Geophysics to perform a geophysical survey in the immediate vicinity of the previously identified buried debris fill materials (trench T8) on the west side of the UP tracks between Magnolia Avenue and Hadley Street. The geophysical survey was performed in October 2001 between the railroad tracks and the western retaining wall extending 400 feet southerly from Magnolia Avenue. The geophysical survey was constrained by the presence of track rails and retaining wall reinforcement although sporadic anomalies with similar signatures corresponding to buried debris in trench T8 were identified between 60 and 300 feet south of Magnolia Avenue.

Geocon performed 27 exploratory excavations (B1 through B27) within the Hadley Street debris fill area in October and November 2001, before and after submittal of the CAP, to attempt to determine the vertical and lateral extent of the buried debris fill materials. An approximate two- to four-foot thick debris fill layer was encountered between the surface and eight feet bgs in 12 of the 27 exploratory locations. The lateral limits of the identified debris fill materials appear to extend from the intersection of Magnolia Avenue and Camilla Street approximately 360 feet southeasterly toward Hadley Street. The sporadically buried debris fill materials extend across the entire width of the former rail corridor and likely extend onto the adjacent parcels.

Total lead values above California hazardous waste thresholds were detected in debris fill samples obtained from borings B4 and B25 at concentrations of 2,200 and 1,600 mg/kg, respectively. A composite sample comprised of three discrete (concentrated) debris fill samples from borings B4, B5 and B10 contained a total lead value of 630 mg/kg and a reported Toxicity Characteristic Leaching Procedure (TCLP) soluble lead concentration of 1.9 milligrams per liter (mg/l), below the federal Resource Conservation and Recovery Act (RCRA) waste threshold of 5.0 mg/l. Elevated total lead values were generally not encountered in the fill cover materials and underlying native soil.

Based on the estimated lateral extent of the debris fill materials depicted on Figure 2 and an average thickness of three feet, approximately 1,000 cubic yards (yd^3) of debris fill materials requiring disposal as a California hazardous waste will be generated during remedial excavation activities at the Hadley Street location. The actual volume of soil requiring hazardous waste disposal will vary depending on the conditions encountered.

2.2 Whittier Boulevard Overcrossing Debris Fill

Surficial debris fill materials including metal, refractory brick, and potential asbestos-containing debris and slope backing materials were observed on the surface of the southern abutment of the Whittier Boulevard Overcrossing in October 2001 after completed brush clearing operations (see Figure 5, Photo No. 3). Potential asbestos-containing slope backing materials and concrete debris were further noted on the eastern embankment slope approximately 200 feet south of the bridge. A backfilled pedestrian tunnel was also noted approximately 500 feet south of the bridge.

Surface soil samples (S11-0 through S16-0) and suspected asbestos material samples (ASB-1 and ASB-2) were obtained and analyzed for heavy metals, soil pH and asbestos content. The results of the laboratory analyses indicated the presence of lead and copper in debris fill samples S11-0 and S12-0 at concentrations in excess of California hazardous waste thresholds. Debris material sample S11-0 contained a TCLP soluble lead value in excess of the RCRA hazardous waste threshold. Debris fill samples S13-0 and S15-0 contained pH values of 8.18 and 11.08, respectively. The presence of asbestos was confirmed in each of the material samples at levels between 30 and 85%.

Based on the surface soil data, 27 exploratory excavations (T32 through T58) were performed within the southern Whittier Boulevard Overcrossing embankment in October 2001 to determine the nature and extent of the identified debris fill materials. The debris fill materials were noted to range from 1.0 to 2.5 feet in thickness extending approximately 250 feet in length along the eastern embankment slope and approximately 400 feet in length along the western embankment slope. A sharp color contrast was noted between the dark brown debris fill materials and the underlying tan to light orange brown embankment fill (see Figure 5, Photo No. 4).

Total lead was detected in five debris fill samples at concentrations ranging from 82 to 1,500 mg/kg. Lead was detected in 14 of the 27 underlying embankment fill material samples at relatively low concentrations ranging from 5.0 to 68 mg/kg. A composite sample comprised of four discrete (concentrated) debris fill samples contained a reported TCLP soluble lead concentration of 1.5 mg/l, below the federal RCRA hazardous waste threshold of 5.0 mg/l. Lead was further detected in the pedestrian tunnel backfill material sample at 260 mg/kg. The slope backing material sample contained 3% asbestos.

Based on the estimated lateral extent of the debris fill materials depicted on Figure 3 and an average thickness of two feet, approximately 1,300 yd^3 of debris fill materials requiring disposal as a California hazardous waste will be generated during remedial excavation activities at the Whittier Boulevard Overcrossing location. The actual volume of soil requiring hazardous waste disposal will vary depending on the conditions encountered.

Per Section 25157.8 of the California Health and Safety Code excavated soil materials that contain total lead in excess of 350 mg/kg cannot be disposed of to land other than to a Class I hazardous waste disposal facility.

3.0 REMOVAL ACTION

The following sections describe the recommended remedial site activities and provide procedures and protocols for the removal of debris fill materials identified between Magnolia Avenue and Hadley Street, and south of the Whittier Boulevard Overcrossing.

3.1 Debris Fill Material Remediation

Based on the proposed recreational trail land-use of the rail corridor and the results of the soil sampling and analysis, direct excavation and offsite land disposal is the most appropriate corrective action for the identified debris fill materials at the *Site*. The primary contaminant of concern (COC) is lead. Other potential COCs include petroleum hydrocarbons, other heavy metals (notably arsenic and copper), VOCs and asbestos.

Debris fill materials identified between Magnolia Avenue and Hadley Street were encountered across the entire width of the corridor at some locations. Subsurface exploration on adjacent properties would be required to confirm whether the debris fill materials extend beneath the adjacent parcels. The remedial approach presented herein does not address potential offsite debris fill impacts.

The following sections present the recommended technical and logistical aspects of implementing remedial excavation and offsite disposal of the identified Hadley Street and Whittier Boulevard Overcrossing debris fill materials.

3.1.1 Pre-Field Activities

- Retain the services of an excavation contractor (Contractor) who possesses a California Class A Contractor License and Hazardous Substances Removal and Remedial Actions Certification. All onsite personnel involved with the remedial debris fill material removal operations shall have completed Occupational Safety and Health Administration (OSHA) 40-Hour Hazardous Waste Operations Training per Title 8 of the California Code of Regulations (CCR), Section 5192 and applicable annual update training.
- The Contractor should prepare a site-specific Health and Safety Plan (HSP) under the direction of a Certified Industrial Hygienist. The HSP should describe project staff training requirements, provide guidelines on the use of personal protective equipment, and outline dust monitoring protocols. In addition, the HSP should summarize the health and safety procedures to be implemented during the field activities. **The HSP will require submittal to and approval by the Los Angeles County Fire Department (LACoFD) prior to commencing the work. A copy of the LACoFD HSP requirements are presented in Appendix A.**
- The Contractor should further prepare and submit a Stormwater Pollution Prevention Plan, Soil Disposal Transportation and Traffic Plan, and Site Security Plan.
- The Contractor should obtain a tree removal permit from the City of Whittier for the removal of designated trees within the Whittier Boulevard Overcrossing debris fill area to allow for excavation equipment access.

- The Contractor shall provide a minimum of 48 hours notice prior to the start of the remedial soil excavation activities to subscribing local public utilities via Underground Service Alert (USA). Field meetings with public utility USA subscribers, retention of a private pipe and cable locating service, and utility potholing may be necessary to adequately delineate subsurface public utilities and conduits in proximity to the proposed remedial excavation locations.
- The Contractor shall provide minimum five working day notification to the City of Whittier (project owner) and the LACoFD (regulatory oversight agency) prior to initiating the remedial soil excavation activities.
- The Contractor shall retain the services of a California Department of Health Services certified analytical laboratory to perform chemical analyses of soil samples obtained from the remedial excavations and stockpiled material. All sampling operations shall be performed under the responsible charge of a California Registered Geologist (RG) or Professional Engineer (PE).

3.1.2 Field Activities

- Temporary construction fencing should be erected around the perimeter of each of the planned remedial excavation areas. Entry into the fenced working areas will be restricted to appropriately OSHA-trained personnel.
- Due to the limited working areas and to facilitate direct load-out and transportation of the excavated debris fill materials, the Contractor will obtain pre-approval from an appropriately licensed Class I landfill facility for acceptance of the excavated hazardous waste materials. Additional soil analytical data may be required from the designated landfill facility prior to approval for direct hauling or prior to final acceptance of the material as a non-RCRA hazardous waste.
- The designated landfill facility should be pre-approved by the City of Whittier. A representative of the City of Whittier will sign the waste profile forms and Uniform Hazardous Waste Manifests as the waste generator.
- Removal of trees and brush, and concrete and asphalt rubble will be required to access portions of the planned Whittier Boulevard Overcrossing debris fill area. Removal and temporary stockpiling of ballast materials at both sites, and clean overburden soil at the Hadley Street site should be performed prior to the removal of debris fill materials. The overburden soil materials at the Hadley Street site may be suitable for reuse as backfill following composite sampling and analytical testing.
- Removal of debris fill materials adjacent to the westerly retaining wall at the Hadley Street site or other identified improvement (power poles, utilities, etc) should be performed in sections to avoid structural damage.
- The excavated debris fill materials should be loaded directly into haul trucks. The haul trucks should be covered with tarps and appropriately manifested prior to transport to the designated landfill facility. Temporary stockpiling of the waste materials should only be performed within the fenced remedial excavation areas or within fenced staging areas identified within the corridor.
- The Contractor should implement effective dust control measures including watering the active work area to prevent visible dust. Work should be suspended if weather conditions, including wind speeds or gusts exceeding 25 miles per hour, prevent effective dust control. Excavation equipment should be inspected and cleaned (if necessary) prior to leaving the fenced excavation areas.
- Following the completed excavation activities based on visual observations, confirmation soil samples shall be obtained from the bottom of the excavations to confirm effective removal of the debris fill materials to below the California-modified Preliminary Remediation Goal (PRG) for lead in residential soil of 150 mg/kg. The soil samples shall be collected in pre-cleaned six-inch long

stainless steel tubes driven into the soil at the rate of one per 100 square feet of completed excavation bottom and sidewalls. The sample tubes should be sealed with teflon, capped, labeled, chilled, and transported to the laboratory utilizing standard chain-of-custody procedures.

- Four-point composite soil samples shall be obtained from the temporary stockpiled overburden material at the Hadley Street site to determine suitability for reuse as backfill materials. Four discrete soil samples shall be obtained from each approximate 100 yd^3 stockpile and composited by the laboratory.
- Each confirmation soil sample shall be analyzed for total lead, arsenic, barium and copper by Environmental Protection Agency (EPA) Test Method 6010B. A minimum of four confirmation soil samples collected from each site (Hadley and Whittier locations) should be analyzed for heavy metals following EPA Test Method 6010B, petroleum hydrocarbons following EPA Test Method 8015B modified, and VOCs following EPA Test Method 8260B.
- Site restoration activities shall include the placement and 90% relative compaction of temporary stockpile materials first and then clean imported fill materials at the Hadley Street debris fill area. In-place density testing shall be performed during the backfilling operations to verify compaction to 90% of the maximum dry density at or slightly above optimum moisture content. Backfilling will not be required at the Whittier Bridge site.

3.1.3 Report Preparation

The Contractor should prepare a remediation summary report upon completion of the field, laboratory and soil disposal activities. The report should be signed and stamped by a California RG or PE and include the following:

- A summary of the remedial soil excavation activities including excavation limits and volumes, confirmation soil sample data evaluation, health and safety monitoring, backfilling and site restoration.
- Copies of the laboratory reports, chain-of-custody documentation, compaction testing data, site photographs and waste disposal manifests.

The summary report shall be submitted to LACoFD for review and a request for regulatory closure status.

3.2 Schedule

Remedial debris fill removal activities are anticipated to occur prior to or in conjunction with the construction of the proposed City of Whittier Greenway Trail improvements. Specific details regarding the actual sequencing for the planned remedial activities will be presented at a later date.

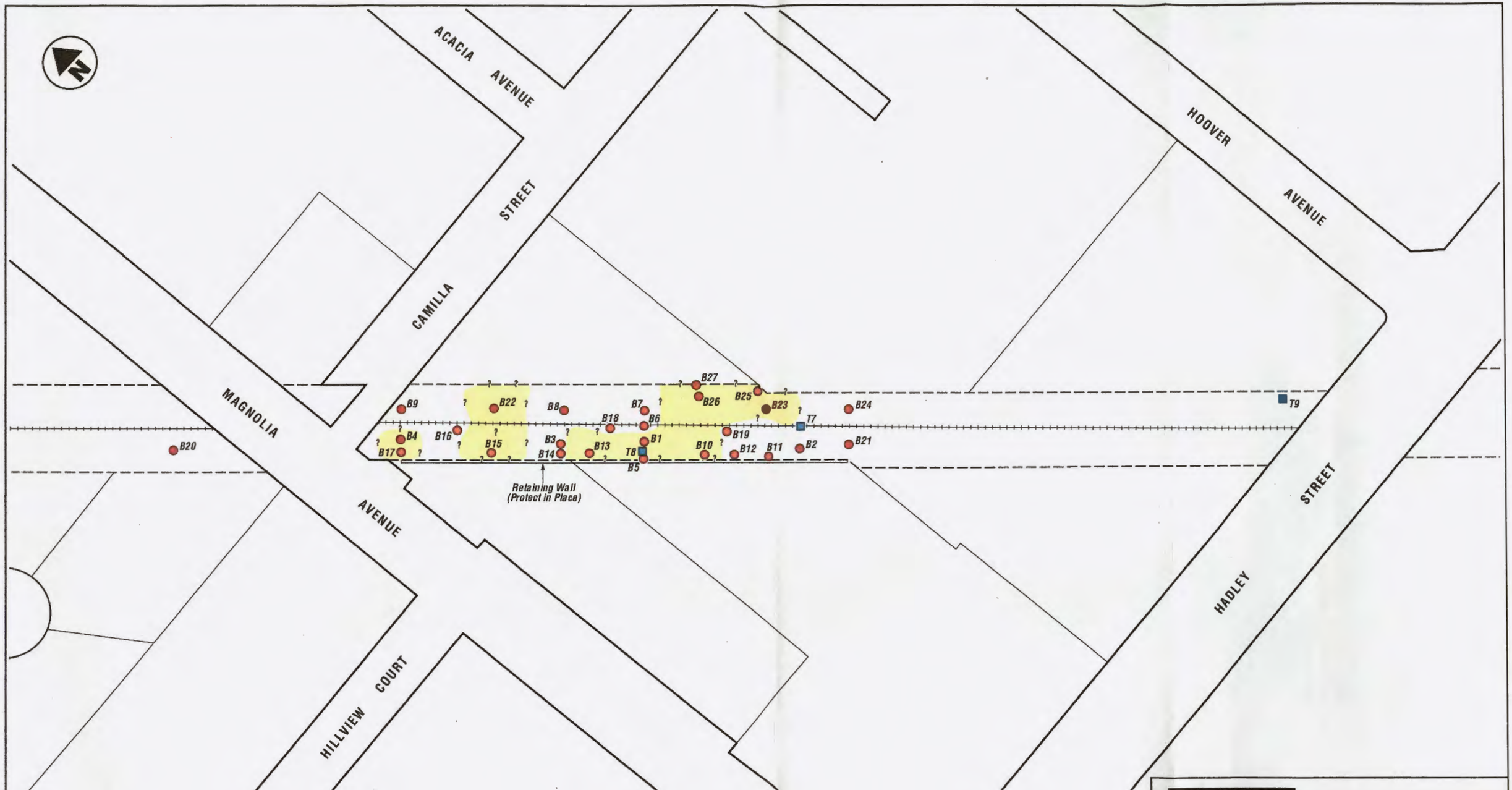
GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR. – SUITE 800 - RANCHO CORDOVA, CA. 95742
PHONE 916 852-9118 – FAX 916 852-9132

Greenway Trail Project

City of Whittier, California

PROJECT LOCATION MAP

S8766-06-01	November 2004	Figure 1



LEGEND:

T7 ■ Approximate Exploratory Trench Location

B1 ● Approximate Exploration Location

Debris Fill Material (Queried Where Limits Undefined)

GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR. – SUITE 800 -RANCHO CORDOVA, CA. 95742
PHONE 916 852-9118 – FAX 916 852-9132

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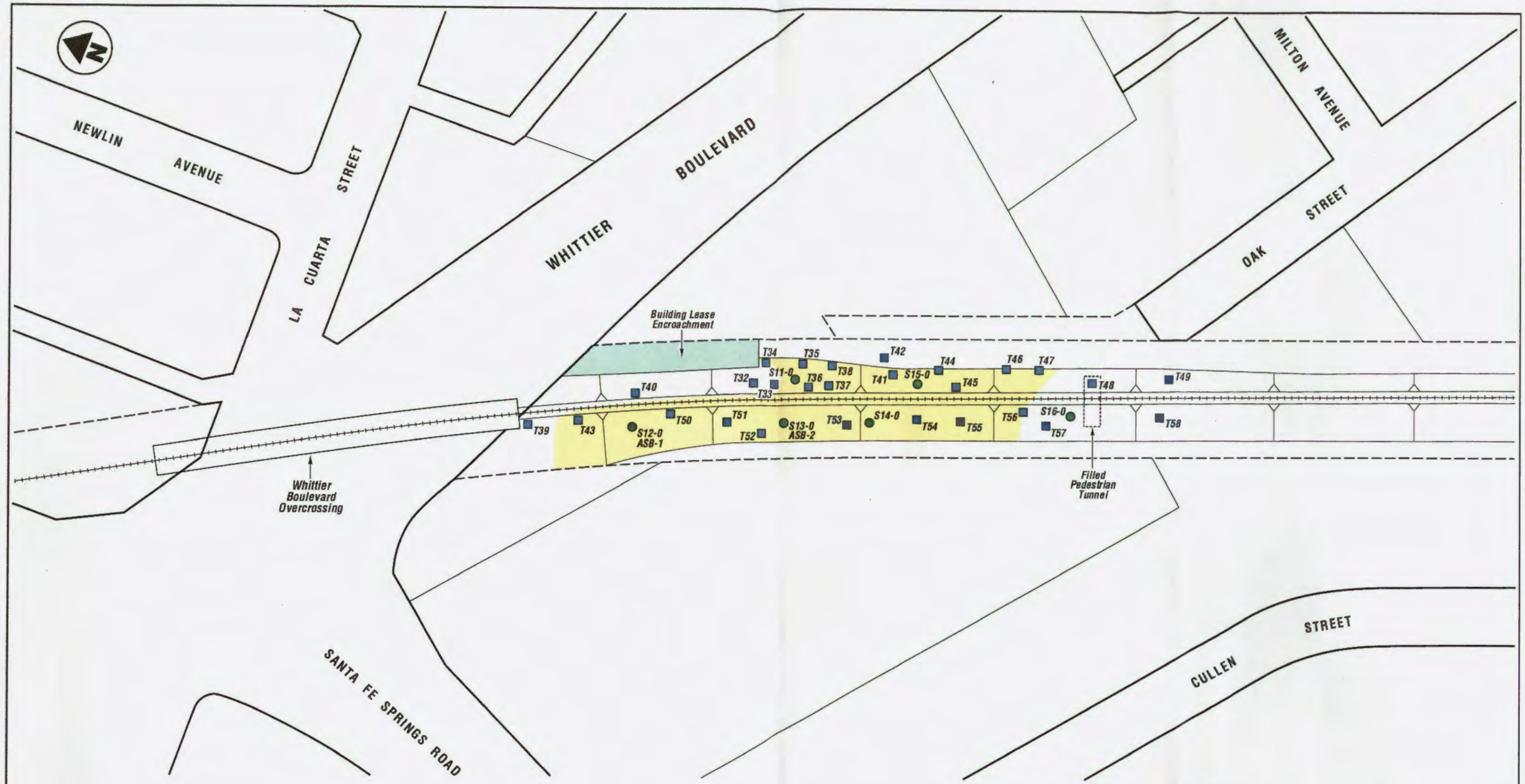
City of Whittier,
California

Hadley Street Debris Fill Site Plan

S8766-06-01	November 2004	Figure 2



GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR. – SUITE 800 -RANCHO CORDOVA, CA. 95742
PHONE 916 852-9118 – FAX 916 852-9132

Greenway Trail Project

City of Whittier, California

Whittier Boulevard Overcrossing
Debris Fill Site Plan

S8766-06-01	November 2004	Figure 3

Photo No. 1 Northwest View of Hadley Street Debris Fill Area Looking Toward Magnolia Avenue

Photo No. 2 View of Debris Fill Materials Encountered in Trench T8 Between Magnolia Avenue and Hadley Street

SITE PHOTOS NO. 1 & 2

GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR. – SUITE 800 -RANCHO CORDOVA, CA. 95742
PHONE 916 852-9118 – FAX 916 852-9132

Greenway Trail Project		
City of Whittier, California		
S8766-06-01	November 2004	Figure 4

Photo No. 3 Northerly View of Whittier Blvd. OC Debris Fill Area

Photo No. 4 View of Dark Debris Fill Materials Containing Refractory Brick Overlying Light Brown Bridge Embankment Fill at the Whittier Blvd. OC Debris Fill Area

SITE PHOTOS NO. 3 & 4

GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR. – SUITE 800 -RANCHO CORDOVA, CA. 95742
PHONE 916 852-9118 – FAX 916 852-9132

Greenway Trail Project		
City of Whittier, California		
S8766-06-01	November 2004	Figure 5

TABLE 1
SAMPLE LOG
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

EXPLORATION/ SAMPLE IDENTIFICATION – DEPTH (feet)	SAMPLE TYPE	POTENTIAL IMPACT	DEBRIS FILL DEPTH INTERVAL (feet)
HADLEY STREET DEBRIS FILL			
T7 – 0.5	Light Slag Ballast	Heavy Metals - Slag	NP
T7 – 1	Soil		
T7 – 2	Soil		
T8 – 1	Soil	Heavy Metals, TPH And VOCs Associated With Railroad Debris Fill Materials	4-7 Debris
T8 – 5.5	Debris Fill		
T8 – 7	Soil		
T8 – Stockpile	Debris Fill		
T9 – 1	Native Soil	TPH Stains Adjacent To Cool-A-Coo	NP
B1-8	Native Soil	Heavy Metals – Hadley Street Debris Fill	4-7 Debris
B1-12	Native Soil		
B2-2	Fill	Heavy Metals – Hadley Street Debris Fill	NP
B2-4	Native Soil		
B2-8	Native Soil		
B3-2	Fill	Heavy Metals – Hadley Street Debris Fill	NP
B3-4	Native Soil		
B3-8	Native Soil		
B4-3	Debris Fill	Heavy Metals – Hadley Street Debris Fill	2-4 Debris
B4-4	Debris Fill		
B4-8	Native Soil		
B5-2	Fill	Heavy Metals – Hadley Street Debris Fill	6-8 Debris
B5-4	Fill		
B5-7	Debris Fill		
B5-8	Native Soil		
B5-12	Native Soil		
B6-2	Fill	Heavy Metals – Hadley Street Debris Fill	NP
B6-4	Fill		
B6-6	Native Soil		
B6-8	Native Soil		
B6-12	Native Soil		
B7-2	Fill	Heavy Metals – Hadley Street Debris Fill	NP
B7-4	Native Soil		
B7-8	Native Soil		
B7-12	Native Soil		
B8-4	Fill	Heavy Metals – Hadley Street Debris Fill	NP
B8-8	Native Soil		
B9-2	Fill	Heavy Metals – Hadley Street Debris Fill	NP
B9-4	Fill		
B9-8	Native Soil		
B10-3	Debris Fill	Heavy Metals – Hadley Street Debris Fill	2.5-3.5 Debris
B11	Fill/Native Soil	Heavy Metals – Hadley Street Debris Fill	NP
B12	Fill/Native Soil	Heavy Metals – Hadley Street Debris Fill	NP
B13	Debris Fill	Heavy Metals – Hadley Street Debris Fill	0-2 Debris
B14	Fill/Native Soil	Heavy Metals – Hadley Street Debris Fill	NP
B15	Debris Fill	Heavy Metals – Hadley Street Debris Fill	1.5-3 Debris

TABLE 1
SAMPLE LOG
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

EXPLORATION/ SAMPLE IDENTIFICATION – DEPTH (feet)	SAMPLE TYPE	POTENTIAL IMPACT	DEBRIS FILL DEPTH INTERVAL (feet)
B16	Fill/Native Soil	Heavy Metals – Hadley Street Debris Fill	NP
B17	Debris Fill	Heavy Metals – Hadley Street Debris Fill	2-4 Debris
B18	Fill/Native Soil	Heavy Metals – Hadley Street Debris Fill	NP
B19	Fill/Native Soil	Heavy Metals – Hadley Street Debris Fill	NP
B20	Native Soil	Heavy Metals – Hadley Street Debris Fill	NP
B21	Fill/Native Soil	Heavy Metals – Hadley Street Debris Fill	NP
B22	Debris Fill	Heavy Metals – Hadley Street Debris Fill	1.5-2 Debris
B23	Debris Fill	Heavy Metals – Hadley Street Debris Fill	2-6 Debris
B24	Fill/Native Soil	Heavy Metals – Hadley Street Debris Fill	NP
B25	Debris Fill	Heavy Metals – Hadley Street Debris Fill	0-6 Debris/Rubble
B26	Debris Fill	Heavy Metals – Hadley Street Debris Fill	4-7 Debris
B27	Debris Fill	Heavy Metals – Hadley Street Debris Fill	5-7.5 Debris
WHITTIER BOULEVARD OVERCROSSING DEBRIS FILL			
S11-0	Debris Fill	Heavy Metals Associated With Debris Fill Materials	NA
S12-0	Debris Fill	Heavy Metals Associated With Debris Fill Materials	NA
S13-0	Debris Fill	Heavy Metals Associated With Debris Fill Materials	NA
S14-0	Debris Fill	Heavy Metals Associated With Debris Fill Materials	NA
S15-0	Debris Fill	Heavy Metals Associated With Debris Fill Materials	NA
S16-0	Fill	Heavy Metals Associated With Debris Fill Materials	NA
ASB-1	Asbestos Material	Asbestos Associated With Debris Fill Materials	NA
ASB-2	Asbestos Material	Asbestos Associated With Debris Fill Materials	NA
T32-.5	Fill	Heavy Metals Associated With Debris Fill Materials	NP
T32 Backing Strip	Asbestos Material	Asbestos Associated With Debris Fill Materials	
T33-1	Fill	Heavy Metals Associated With Debris Fill Materials	NP
T34-1	Debris Fill	Heavy Metals Associated With Debris Fill Materials	0-2 Debris
T34-3	Fill		
T35-1	Debris Fill	Heavy Metals Associated With Debris Fill Materials	0-2.5 Debris
T35-3	Fill		
T36-1	Debris Fill	Heavy Metals Associated With Debris Fill Materials	0-2.5 Debris
T36-3	Fill		
T37-3	Fill	Heavy Metals Associated With Debris Fill Materials	0-2.5 Debris
T38-4.5	Fill	Heavy Metals Associated With Debris Fill Materials	0-3.5 Debris
T39-1	Fill	Heavy Metals Associated With Debris Fill Materials	NP
T40-1	Fill	Heavy Metals Associated With Debris Fill Materials	NP
T41-3	Fill	Heavy Metals Associated With Debris Fill Materials	0-2 Debris
T42-1	Fill	Heavy Metals Associated With Debris Fill Materials	NP
T43-1.5	Fill	Heavy Metals Associated With Debris Fill Materials	0-1 Debris
T44-3	Fill	Heavy Metals Associated With Debris Fill Materials	0-2.5 Debris
T45-2	Fill	Heavy Metals Associated With Debris Fill Materials	0-1.5 Debris

TABLE 1
SAMPLE LOG
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

EXPLORATION/ SAMPLE IDENTIFICATION – DEPTH (feet)	SAMPLE TYPE	POTENTIAL IMPACT	DEBRIS FILL DEPTH INTERVAL (feet)
T46-2	Fill	Heavy Metals Associated With Debris Fill Materials	0-1.5 Debris
T47-1	Debris Fill	Heavy Metals Associated With Debris Fill Materials	0-1.5 Debris
T47-2	Fill		
T48-3	Fill	Heavy Metals Associated With Pedestrian Tunnel Backfill Materials	NP
T49-1	Fill	Heavy Metals Associated With Debris Fill Materials	NP
T50-2	Fill	Heavy Metals Associated With Debris Fill Materials	0-1 Debris
T51-1	Fill	Heavy Metals Associated With Debris Fill Materials	0-1 Debris
T52-2	Fill	Heavy Metals Associated With Debris Fill Materials	0-1 Debris
T53-2	Fill	Heavy Metals Associated With Debris Fill Materials	0-1 Debris
T54-1.5	Fill	Heavy Metals Associated With Debris Fill Materials	0-1 Debris
T55-.5	Debris Fill	Heavy Metals Associated With Debris Fill Materials	0-1 Debris
T55-1.5	Fill		
T56-3	Fill	Heavy Metals Associated With Debris Fill Materials	0-2.5 Debris
T57-1	Fill	Heavy Metals Associated With Debris Fill Materials	NP
T58-1	Fill	Heavy Metals Associated With Debris Fill Materials	NP

Notes: NP = Not present
NA = Not available

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS- TITLE 22 METALS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	T7-.5	T7-1	T7-2	T8-1	T8-STK	T8-5.5	T8-7	TTLC	10 X STLC
ANALYTE	Results in milligrams per kilogram								
Antimony	1.0	0.50	0.31	0.27	<0.25	<0.25	<0.25	500	150
Arsenic	46	46	45	6.0	32	11	14	500	50
Barium	140	100	150	100	**3,600 (11/<1.0)**	170	210	10,000	1,000
Beryllium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	75	7.5
Cadmium	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	100	10
Chromium	52	22	15	9.5	76 (0.18 HEX)	12	14	2,500	5,600
Cobalt	6.0	7.0	8.0	4.0	4.5	7.0	8.0	8,000	800
Copper	**1,000 (25/<1.0)**	160	22	14	64	30	29	2,500	250
Lead	**190 (6.1/<1.0)**	20	3.5	25	**5,800**	**140 (74/<1.0)**	**160 (<1.0/<1.0)**	1,000	50
Mercury	<0.10	<0.10	<0.10	1.0	1.7	0.19	<0.10	20	2
Molybdenum	1.5	0.50	1.0	0.50	1.5	1.5	1.0	3,500	3,500
Nickel	33	13	16	10	10	16	16	2,000	200
Selenium	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	100	10
Silver	<0.15	<0.15	<0.15	<0.15	2.5	<0.15	1.5	500	50
Thallium	1.0	1.0	0.50	0.50	3.0	0.50	1.0	700	70
Vanadium	88	83	36	19	18	29	31	2,400	240
Zinc	260	160	46	100	940	360	310	5,000	2,500

Notes: T7-.5
- Sample depth in feet below surface grade
- Sample identification

< = Less than laboratory detection limits.
TTLC = Total Threshold Limit Concentration.
STLC = Soluble Threshold Limit Concentration.
(5.2/<1.0) = Soluble concentration by Waste Extraction Test (WET) using citric acid and WET using de-ionized water extractant

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS- TITLE 22 METALS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	S11-0	S12-0	S16-0	TTLC	10 X STLC
ANALYTE	Results in milligrams per kilogram				
Antimony	16	3.0	0.47	500	150
Arsenic	30	15	7.5	500	50
Barium	250	150	90	10,000	1,000
Beryllium	<0.15	<0.15	<0.15	75	7.5
Cadmium	<0.15	4.0	<0.15	100	10
Chromium	52	34	15	2,500	5,600
Cobalt	16	10	7.5	8,000	800
Copper	**3,400** **[5.0]**	840 [0.53]	19	2,500	250
Lead	**6,200** **[14]**	**1,200** **[0.74]**	29	1,000	50
Mercury	1.4	0.72	<0.10	20	2
Molybdenum	7.5	7.0	0.50	3,500	3,500
Nickel	120	140	10	2,000	200
Selenium	<0.25	<0.25	<0.25	100	10
Silver	0.50	0.32	<0.15	500	50
Thallium	2.5	1.0	1.0	700	70
Vanadium	54	120	28	2,400	240
Zinc	430	750	64	5,000	2,500

Notes: T7-.5
└──Sample depth in feet below surface grade
└──Sample identification

< = Less than laboratory detection limits.
TTLC = Total Threshold Limit Concentration.
STLC = Soluble Threshold Limit Concentration.
(5.2/<1.0) = Soluble concentration by Waste Extraction Test (WET) using citric acid and WET using de-ionized water extractant
[5.0] = Soluble concentration by Toxicity Characteristic Leaching Procedure (TCLP)

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS – PETROLEUM HYDROCARBONS AND VOCS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	DATE	TPHg (mg/kg)	TPHd (mg/kg)	TPHmo (mg/kg)	VOCs EPA 8020 (µg/kg)	VOCs EPA 8260 (µg/kg)
HADLEY STREET DEBRIS FILL						
T8-STK	8/23/01	<1.0	<5.0	**250**	ND	**6.9**[1]
T8-5.5	8/23/01	<1.0	<10	**820**	ND	ND
T8-7	8/23/01	<1.0	<1.0	**5.2**	ND	ND
T9-1	8/23/01	---	<1.0	**96**	---	---

Notes:
TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
TPHmo = Total petroleum hydrocarbons as motor oil
VOCs = Volatile Organic Compounds
mg/kg = Milligrams per kilogram
µg/kg = Micrograms per kilogram
BOLD = Detection
< = Less than laboratory test method detection limits
--- = Not analyzed
ND = not detected above method detection limit
[1] = Naphthalene

TABLE 4
SUMMARY OF SOIL ANALYTICAL RESULTS - TOTAL AND SOLUBLE LEAD, pH AND ASBESTOS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	SAMPLE TYPE	TOTAL LEAD EPA METHOD 6010 (mg/kg)	TCLP SOLUBLE LEAD EPA METHOD 6010 (mg/l)	pH	% ASBESTOS
HADLEY STREET DEBRIS FILL					
T9-1	Native Soil	7.5	---	---	---
B1-8	Native Soil	<5	---	---	---
B1-12	Native Soil	<5	---	---	---
B2-2	Fill	38	---	---	---
B2-4	Native Soil	<5	---	---	---
B2-8	Native Soil	<5	---	---	---
B3-2	Fill	<5	---	---	---
B3-4	Native Soil	<5	---	---	---
B3-8	Native Soil	<5	---	---	---
B4-3	Debris Fill	7.2	---	---	---
B4-4	Debris Fill	**2,200**	---	---	---
B4-8	Native Soil	<5	---	---	---
B5-2	Fill	5.1	---	---	---
B5-4	Fill	<5	---	---	---
B5-7	Debris Fill	8.7	---	---	---
B5-8	Native Soil	<5	---	---	---
B5-12	Native Soil	<5	---	---	---
B6-2	Fill	<5	---	---	---
B6-4	Fill	<5	---	---	---
B6-6	Native Soil	<5	---	---	---
B6-8	Native Soil	<5	---	---	---
B6-12	Native Soil	<5	---	---	---
B7-2	Fill	**560**	---	---	---
B7-4	Native Soil	<5	---	---	---
B7-8	Native Soil	<5	---	---	---
B7-12	Native Soil	<5	---	---	---
B8-4	Fill	10	---	---	---
B9-2	Fill	24	---	---	---
B9-4	Fill	17	---	---	---
B9-8	Native Soil	<5	---	---	---
B10-3	Debris Fill	**330**	---	---	---

TABLE 4
SUMMARY OF SOIL ANALYTICAL RESULTS - TOTAL AND SOLUBLE LEAD, pH AND ASBESTOS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	SAMPLE TYPE	TOTAL LEAD EPA METHOD 6010 (mg/kg)	TCLP SOLUBLE LEAD EPA METHOD 6010 (mg/l)	pH	% ASBESTOS
B25-2	Debris Fill	**1,600**	---	---	---
B27-2	Debris Fill	9.0	---	---	---
Comp #2 (B4-4, B5-7 and B10-3)	Debris Fill	**630**	1.9	---	---
WHITTIER BOULEVARD OVERCROSSING DEBRIS FILL					
S13-0	Debris Fill	**390**	---	8.18	---
S14-0	Debris Fill	**550**	---	---	---
S15-0	Debris Fill	33	---	11.08	---
ASB1	Asbestos Material	---	---	---	85%
ASB2	Asbestos Material	---	---	---	30-60%
T32.5	Fill	5.5	---	---	---
T32 Backing Strip	Asbestos Material	---	---	---	3%
T33-1	Fill	<5	---	---	---
T34-1	Debris Fill	82	---	---	---
T34-3	Fill	6.1	---	---	---
T35-1	Debris Fill	**1,500**	---	---	---
T35-3	Fill	8.1	---	---	---
T36-1	Debris Fill	**990**	---	---	---
T36-3	Fill	5.8	---	---	---
T37-3	Fill	<5	---	---	---
T38-4.5	Fill	12	---	---	---
T39-1	Fill	<5	---	---	---
T40-1	Fill	6.9	---	---	---
T41-3	Fill	<5	---	---	---
T42-1	Fill	5.4	---	---	---
T43-1.5	Fill	<5	---	---	---
T44-3	Fill	5.0	---	---	---
T45-2	Fill	<5	---	---	---
T46-2	Fill	<5	---	---	---
T47-1	Debris Fill	**880**	---	---	---
T47-2	Fill	43	---	---	---
T48-3	Fill	**260**	---	---	---
T49-1	Fill	5.6	---	---	---

TABLE 4
SUMMARY OF SOIL ANALYTICAL RESULTS - TOTAL AND SOLUBLE LEAD, pH AND ASBESTOS
GREENWAY TRAIL PROJECT
WHITTIER, CALIFORNIA

SAMPLE I.D.	SAMPLE TYPE	TOTAL LEAD EPA METHOD 6010 (mg/kg)	TCLP SOLUBLE LEAD EPA METHOD 6010 (mg/l)	pH	% ASBESTOS
T50-2	Fill	<5	---	---	---
T51-1	Fill	**68**	---	---	---
T52-2	Fill	<5	---	---	---
T53-2	Fill	<5	---	---	---
T54-1.5	Fill	<5	---	---	---
T55-.5	Debris Fill	<5	---	---	---
T55-1.5	Fill	**290**	---	---	---
T56-3	Fill	5.7	---	---	---
T57-1	Fill	24	---	---	---
T58-1	Fill	5.1	---	---	---
Comp #1 (T34-1, T35-1, T36-1 and T47-1)	Debris Fill	**1,100**	1.5	---	---

Notes: mg/kg = Milligrams per kilogram
mg/l = Milligrams per liter
TCLP = Toxicity Characteristic Leaching Procedure
--- = Not analyzed
< = Less than laboratory reporting limits
BOLD = Greater than Total Threshold Limit Concentration of 1,000 mg/kg or
10 times Soluble Threshold Limit Concentration of 5 mg/l (50 mg/kg) for total lead concentrations

APPENDIX

COUNTY OF LOS ANGELES

FIRE DEPARTMENT

RECEIVED
OCT 12 2004
BY: GEOCON

P. MICHAEL FREEMAN
FIRE CHIEF
FORESTER & FIRE WARDEN

Refer reply to
Health Hazardous Materials Division
5825 Rickenbacker Rd.
Commerce CA 90040-3027

October 7, 2004

Robert Chavez
City of Whittier
13230 Penn St.
Whittier, CA 90602

Dear Mr. Chavez:

GREENWAY TRAIL PROJECT, MILLS AVENUE & SAN GABRIEL RIVER, WHITTIER, CA 90605 (SMU FILE #04-611/RO0000110)

This Department has completed a review of the draft "Remedial Action Plan – Hadley Street and Whittier Bridge Debris Fills", dated August 2004, submitted by your consultant, Geocon. As discussed in telephone conversations between Jon Juhrend of Geocon and Kim Clark of this Department on October 4, 2004, the "Draft Remedial Action Plan" is approved. Therefore, please submit a "final" remediation action plan for this area that also includes the following:

1. Confirmation sampling shall also include analysis for arsenic, barium and copper.

2. A complete site-specific health and safety plan which meets the requirements of CCR Title 8, Section 5192, "Hazardous Waste Operations and Emergency Response." The health and safety plan should include but not limited to: Site map, key personnel, responsibilities and qualifications, job hazard analysis, risk assessment summary, exposure monitoring plan, protective equipment, work zones and security measures, decontamination procedures, general safe work practices, standard operating procedures, nearest hospital location and map, contingency plan, training requirements and documentation of the medical surveillance program.

In addition to the above, this Department has also completed a reviewed of the "Phase I Environmental Site Assessment", dated September 2000, The "Summary Report Right of Way Slag Investigation", dated November 2000, the "Phase II Environmental Site Assessment", dated October 2001, and the "Corrective Action Plan", dated November 2001 and "Environmental Site Assessment Summary". Based on this review, this Department has identified additional areas of concern that need to be addressed. You must determine the nature, concentration, and the vertical and lateral extent of the contamination and legally dispose or remediate all contaminated materials or soils to either non-detectable or natural background concentration levels. If remediation to non-detectable or natural background levels is not possible or

feasible, appropriate federal and/or state risk assessment guidelines must be used to determine a clean-up level sufficient to protect public health and the environment.

Please submit by November 30, 2004, a workplan, which meets the standards set forth in Cal/EPA Department of Toxic Substance Control's (DTSC) "Preliminary Endangerment Assessment Guidance Manual" (PEA); Los Angeles Regional Water Quality Control Board's (RWQCB) "Interim Site Assessment & Clean-up Guide Book"; CCR Title 8, Section 5192, "Hazardous Waste Operations and Emergency Response"; and includes the following:

1. A proposal for additional borings near T20, which will fully define the lateral and vertical extent of the trichloroethene contamination. Vertical extent evaluation requires establishing a "clean zone" or interval. For volatile organic compounds (VOCs), a minimum 20-40 foot clean earth interval is generally required. The clean zone for VOCs should be established by at least four appropriate "non-detects" at 5 to 10 foot intervals and at change in lithology. If porous soils are predominant, deep soil gas monitoring may be required to verify that groundwater resources are not threatened.

2. A proposal for additional borings near S7, which will fully define the lateral and vertical extent of the dieldrin contamination.

3. A detailed plan on how the City of Whittier plans to address the slag ballast. This Department is has reviewed the risk assessment that was included in the "Corrective Action Plan" and is concerned that there are extremely high concentrations of arsenic ("hot spots") present throughout the site that may represent a public health threat. By reducing the days of exposure from 350 to 50 the risk assessment did not take into consideration the residences that may have daily exposure to the elevated concentrations, nor did it take into consideration the users who may use the recreation area on a more frequent basis. In addition, the qualifications of the risk assessment preparer were not provided.

If you have any questions, please feel free to call Kim Clark at (323) 890-4114.

Very truly yours,

Shahin Nourishad

SHAHIN NOURISHAD, SUPERVISOR
SITE MITIGATION UNIT
HEALTH HAZARDOUS MATERIALS DIVISION

SN:kc

cc: John Juhrend, Geocon