EBA ENGINEERING
CIVIL & ENVIRONMENTAL ENGINEERS

November 17, 2008

Ms. Joan Fleck
North Coast Regional Water Quality Control Board
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

SUBJECT: REPORT OF FINDINGS
SONOMA–MARIN AREA RAIL TRANSIT PROPERTY, 2 FOURTH STREET AND 34 SIXTH STREET, SANTA ROSA, CALIFORNIA
EBA Project No. 08-1528 (8)

Dear Ms Fleck:

EBA Engineering (EBA) is submitting this Report of Findings (Report) on behalf of New Railroad Square LLC. This Report details the findings from the subsurface investigation activities that were proposed in EBA's Subsurface Investigation Work Plan dated September 4, 2008 and subsequently approved by the North Coast Regional Water Quality Control Board in a letter dated September 17, 2008. The work detailed herein was performed to further evaluate the site for potential environmental impairments which in turn could influence redevelopment costs and long-term liability.

If you should have any questions regarding the proposed work scope presented herein, please contact our office at (707) 544-0784.

Sincerely,
EBA ENGINEERING

Timothy Nielsen
for Staff Geologist

cc: John Stewart, The John Stewart Company, 1388 Sutter Street, 11th Floor, San Francisco, CA. 94109

Jack Gardner, The John Stewart Company, 1388 Sutter Street, 11th Floor, San Francisco, CA. 94109

Richard Devine, Devine & Gong, Inc., 160 Sansome Street, 7th Floor, San Francisco, CA 94194

John Nemeth, Rail Planning Manager, Sonoma-Marin Area Rail Transit District (SMART). 750 Lindaro Street, Suite 200, San Rafael, CA 9401

Michael Dieden, Creative Housing Associates, 8758 Venice Boulevard, Suite 101 Los Angeles, California 90034

John Clawson, Equity Community Builders, P.O. box 29585, San Francisco, CA 94129-0585

Corey Vincent, Santa Rosa Fire Department, 955 Sonoma Ave., Santa Rosa, CA 95404

Mark Hale, Carlile Macy, 15 3rd Street, Santa Rosa, CA 95401

Dexter Dawes, 350 Santa Rita Avenue, Palo Alto, CA 94301

Michelle Gervais, ARCHILOGIX, 50 Old Courthouse Square, Suite 405, Santa Rosa, CA 95404

Leslye Choate, County of Sonoma Department of Health Service-Environmental Health Division, 475 Aviation Boulevard, Santa Rosa, CA 95403

Prepared for

Mr. Michael Dieden
New Railroad Square LLC
8758 Venice Boulevard, Suite 101
Los Angeles, California 90034

REPORT OF FINDINGS
SONOMA–MARIN AREA RAIL TRANSIT PROPERTY
2 FOURTH STREET AND 34 SIXTH STREET

SANTA ROSA, CALIFORNIA

NOVEMBER 2008

EBA Project No. *08-1528*

Prepared by

Timothy Nielsen
Staff Geologist

Reviewed by

Paul Nelson, P.G.
Project Geologist

Supervised by

Mike Delmanowski, P.G., C.E.G., C.Hg.
Senior Hydrogeologist

CERTIFIED ENGINEERING GEOLOGIST
MICHAEL A. DELMANOWSKI
No. 1843
Exp. 3/31/09
STATE OF CALIFORNIA

EBA ENGINEERING

825 Sonoma Avenue, Suite C, Santa Rosa, CA 95404 • Tele: (707) 544-0784 Fax: (707) 544-0866

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TABLE OF CONTENTS

SECTION **PAGE**

1.0 INTRODUCTION

EBA Engineering (EBA) has contracted with New Railroad Square LLC to prepare this Report of Findings (Report) in relation to the proposed redevelopment of the Sonoma-Marin Area Rail Transit (SMART) property located in Santa Rosa, California, hereinafter referred to as the "project site". This report includes a description of the work performed, a site map showing features relevant to the investigation, graphical boring logs, analytical results, and corresponding conclusions and recommendations. Copies of the corresponding Certified Analytical Reports (CARs) are appended, as well as the results from a geophysical survey performed by NORCAL Geophysical Consultants Inc, (NORCAL). Data from the geophysical survey are summarized in a letter report prepared by NORCAL.

Over the period of roughly one month (i.e., mid-September to mid-October), the scope of work included the performance of a geophysical survey, preliminary assessment of suspect areas, advancement of 80 soil borings, and the collection of soil and groundwater samples for chemical analysis. The work initially addressed recommendations outlined in EBA's September 2008 *Subsurface Investigation Work Plan* ([Work Plan] EBA, 2008b), and was further modified and expanded as subsurface conditions warranted. The work detailed herein was accepted by the North Coast Regional Water Quality Control Board (NCRWQCB) in a letter dated September 17, 2008. This Report assesses the site for environmental impairments that could influence redevelopment costs and long-term liability.

2.0 BACKGROUND

2.1 Project Site Description and History

The seven-acre project site consists of two contiguous parcels of land identified as Sonoma County Assessor Parcel Numbers (APN) 010-171-004 (2 Fourth Street) and 010-166-003 (34 Sixth Street). The project site currently consists of a former railroad yard located in a historic district of downtown Santa Rosa. The properties are bounded on the south by Third Street, on the west by former commercial properties identified herein as the 3 West Third Street and 60 West Sixth Street Warehouses, on the north by West Sixth Street, and on the east by the main line railroad track right-of-way and commercial properties, including Aroma Roasters and Hotel La Rose. Santa Rosa Creek is located approximately 160 feet west of the western project site boundary, on the west side of the adjacent commercial properties. Please refer to Figure 2, Appendix A for an illustration of the general features for both the project site and adjacent properties.

Research suggests the project site was used as a railroad freight depot and maintenance/fueling yard from the late 1800's up until the 1960's. Historically, site structures included the main line track system that occupied the eastern side of the property, several associated railroad spurs and siding, a turntable, warehouses and freight houses. Multiple aboveground and underground fuel and water tanks were located throughout the property. Additionally, a Sanborn Fire Insurance map dated 1885 indicates the Santa Rosa Woolen Mills, which operated until 1906, was located in the northwestern portion of the project site.

Presently, the northern portion of the project site contains rough access ways, fencing, and waste lumber. The San Francisco and North Pacific Railroad line right-of-way and associated tracks trend along the eastern boundary of the project site. A freight house lies along the railroad tracks in the south-central portion of the property. The southern portion of the project site has several north-south trending railroad tracks, which disperse throughout the property as spur and main line tracks. Existing utilities include a sanitary sewer line, which trends axially northward from Third Street to Sixth Street and is fed by tie-ins from both Fourth and Fifth Streets. Both Fourth and Fifth Streets also have storm drains, which extend across the project site and terminate at Santa Rosa Creek to the west.

2.2 Project Site Investigation and Remediation Activities

Environmental investigation and remediation efforts have been conducted at the project site from the late 1980's up until the present. Previous efforts have included the removal of underground storage tanks (USTs), soil and groundwater sampling, and remedial excavations. A substantial amount of this work is summarized in the March 2008 *Phase I Environmental Site Assessment* (EBA, 2008a). A brief list of previous remediation efforts is provided below. Please refer to Figure 2, Appendix A for the locations of the miscellaneous features and areas of work identified in the respective bullet items:

- Extensive investigative activities were performed in the northwest area of the project site at the historic location of the Santa Rosa Woolen Mills facility, which operated in this area from the late 1800's until it was destroyed by fire in the 1906 earthquake. After this time, the area was utilized by the railroad for various uses including fuel storage and fueling operations. Soil samples collected in 2002 as part of an investigation of structures within this area indicated significant concentrations of petroleum hydrocarbons present in soil and groundwater in the area of the fueling structures, the area of the former aboveground fuel storage tank, and the location of a former UST. Impacts to soil were identified as being primarily heavy range petroleum hydrocarbons.

- In September 2001, five on-site and off-site groundwater monitoring wells were installed to characterize impacts to groundwater at the project site. A majority of the monitoring wells were installed in the area of the aforementioned Santa Rosa Woolen Mills facility in the northwest portion of the project site. An upgradient, single-screen monitoring well (SRMW-08) was installed on the eastern portion of the property in the vicinity of the main line railroad tracks.

- From June 2002 to November 2002, an additional characterization was performed in the northwestern area and a fenced enclosure at the property. Soil samples collected from these areas indicated significant concentrations of diesel and motor oil in soil. Proposed remedial options included excavation and removal of accessible impacted soil.

- In October and November 2003, approximately 6,500 cubic yards of impacted soil were removed from several areas of the project site. The most significant remediation efforts targeted the northwestern portion of the project site where several areas were excavated

to remove impacted soil. Source removal activities began in the area of a former wooden UST that is indicated on historic Sanborn maps for the Santa Rosa Woolen Mills facility. During the excavation activities, remnants of the former UST were found and removed, whereupon the excavation was advanced to a total depth of approximately 18 feet below ground surface (BGS). A significant amount of free-phase petroleum hydrocarbon product was encountered on the groundwater surface during the excavation activities. The product and water was subsequently pumped, treated and disposed of to the sanitary sewer. The excavation in this area, which resulted in the removal of approximately 700 cubic yards of impacted materials, proceeded to within 20 feet of the existing Sixth Street Warehouse and was subsequently terminated due to concerns of structure stability. Confirmation soil samples indicated that impacted materials containing significant concentrations of diesel and motor oil remained in place in the excavation sidewalls and groundwater in this area.

- Excavation activities in the northwestern portion of the property also included the removal of a fuel pipeline. The associated trench was enlarged as it encountered impacted materials in an area designated as the main pit excavation area. A total of 3,500 cubic yards of impacted materials were removed from this area. The excavation pit extended to depths below first encountered groundwater, which was encountered at approximately 19 feet BGS. The maximum depth attained by the excavation was approximately 22 feet BGS. Impacted groundwater encountered within the excavation pit, which included free-phase petroleum hydrocarbon product, was subsequently removed using pumps, treated, and disposed of to the sanitary sewer.

- Additional excavation was also performed on the south side of the aforementioned product line trench in the northwestern area. Approximately 325 cubic yards of impacted soil was removed from this area.

- Approximately 270 cubic yards of impacted soil was excavated and removed in the southwestern side of the project site identified as the "southern warehouse area".

- Quarterly groundwater monitoring performed in the northwestern portion of the project site property and west into the neighboring property parcel indicated low levels of petroleum hydrocarbons in a monitoring well identified as SRMW-13 located in the northwest corner of the property. In addition, the fuel oxygenate methyl tert-butyl ether (MtBE) was detected in SRMW-8 located on the northeast side of the property. The remaining monitoring wells appear to have been relatively free of impacts during the time monitored.

3.0 PROJECT SITE CONDITIONS

3.1 Regional Geology

The project site is centrally located within the Santa Rosa Plain, which is part of the Coast Range Geomorphic Province of northern California. The Coast Range Geomorphic Province is generally characterized as a series of northwest trending elongated ridges and valleys that are a result of folding and faulting. The Santa Rosa Plain, in turn, consists of alluvial fan deposits of Pleistocene and Holocene age. The alluvial fan deposits form a nearly continuous blanket over the Santa Rosa Plain and consist of poorly sorted coarse sand and gravel, moderately sorted fine sand and silt, and silty clay. The region of the project site has been mapped as having basement materials that underlie the alluvial fan deposits. The basement materials consist of marine sedimentary rocks of the Miocene Age Wilson Grove Formation. Portions of the Wilson Grove Formation are overlain in places by younger continental sedimentary rocks of the Pliocene-Pleistocene Age Glen Ellen Formation (Cardwell, 1958).

3.2 Project Site Geology and Hydrogeology

Previous subsurface investigations have documented that the project site is underlain by sandy silt and clay units from approximately zero to 20 feet BGS. These units, in turn, are underlain by a laterally continuous coarser grained unit composed of sand and gravels extending to approximately 30 feet BGS.

Groundwater has been encountered at depths ranging from seven to 16 feet BGS in on-site soil borings and monitoring wells. Groundwater monitoring has also indicated the groundwater flow direction to be approximately west-southwest towards Santa Rosa Creek.

4.0 SCOPE OF WORK

In accordance with both the Phase I Environmental Site Assessment recommendations (EBA, 2008a) and the objectives outlined in the Work Plan (EBA, 2008b), EBA assessed environmental conditions on the property that were either unknown or not completely characterized as part of previous investigative work performed by others. The following bullet items provide a general chronological synopsis of the work performed:

- A complete geophysical evaluation of the project site was performed to investigate for possible buried objects and debris, utilities, and other anomalies. In addition to canvassing the entire site, specific features of interest were also targeted. These features included an eastward trending buried steel pipeline that was observed in previous work near the western project site boundary (60 West Sixth Street Warehouse), as well as a buried corrugated metal pipe (CMP) structure within the fenced enclosure located in the east-central portion of the project site.

- Suspect areas and anomalies identified by the geophysical survey were further evaluated using an excavator. Findings from the excavation activities included the discovery of a previously undocumented 550-gallon UST. The contents of this UST were subsequently evacuated. The nature of two existing concrete slabs located in the west-central portion of the project site was also evaluated.

- EBA implemented a soil and groundwater sampling program that included the advancement of 75 soil borings at the locations shown on Figure 2 (Appendix A). Borehole depths varied from approximately five to 25 feet BGS and utilized hollow-stem auger (HSA), cone penetration testing (CPT), and Hydropunch® drilling methods, with hand-clearance of boreholes to appropriate depths.

- Select soil samples collected from shallow and intermediate zones were analyzed for Total Petroleum Hydrocarbons as gasoline, diesel, and motor oil (TPH-g TPH-d, and TPH-mo), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and California Assessment Manual (CAM) 17 metals. Samples of native soil immediately adjacent to pipe bedding material at selected sanitary sewer and storm drain locations were also collected to evaluate potential impacts from off-site sources.

- Groundwater grab samples, which were collected at 25 locations on the project site from either shallow (15 feet BGS) or deep (25 feet BGS) water-bearing zones, were analyzed for TPH-g, TPH-d, TPH-mo, and VOCs. Groundwater samples were also collected from existing on-site monitoring wells SRMW-07 and SRMW-08, which are screened across both water-bearing zones.

- Additional soil and groundwater grab samples were collected in response to the initial findings from the aforementioned activities. The additional work scope included the advancement of seven soil borings at select locations on the property. These soil borings were advanced in order to better characterize heavy range petroleum hydrocarbon and VOC impacts to soil and groundwater.

The following table provides a summary of soil boring identifications, approximate completion depths, and drilling/sampling methodologies employed as part of the various scopes of work and as described in greater detail in Section 5.0 (*Investigative Procedures*) of this Report.

TABLE A

SOIL BORING ID (Number of Soil Borings)	APPROXIMATE DEPTH (Feet BGS)	SOIL BORING METHOD & TARGET SAMPLES
Deep Groundwater Characterization: SB-1 Through SB-10 (10)	25	CPT/Hydropunch® Deep Groundwater Sample (only)
Shallow Groundwater Characterization: SB-1A Through SB-9A, SB-1B/C/D/E/F, SB-11, SB-13-W, SB-55-W, SB-61-W, SB-28-W, SB-42-W (20)	15	Hollow-stem Auger Shallow Groundwater Sample* Soil samples collected at ~2 and 5 feet BGS, as well as ~10 feet BGS at selected locations.
Soil Characterization (Sanitary Sewer and Storm Drains): SB-12 Through SB-14 (3)	10	Hollow-stem Auger/Hand Auger Soil Sample (only) Soil samples collected at 10 feet BGS.
Shallow Soil Characterization (Railroad Spur and Other Miscellaneous Locations): SB-18 Through SB-61, SB-30A/B, SB-45B (47)	5	Hollow-stem Auger/Hand Auger Soil Sample (only) Soil samples collected at ~2 and 5 feet BGS
Suspect Areas/Anomalies: S-N-Gate@2' and 3', S-FE@1' (3)	3	Excavator Soil Samples (only) Soil samples collected at 1, 2, or 3 feet BGS

* = No groundwater samples were collected from SB-5A, SB-9A, SB-61-W and SB-42-W due to dry conditions. In addition, no groundwater samples were collected from SB-1C/E/F due to the close proximity of prior groundwater sampling.

CPT = Cone Penetration Test.

~ = Approximately.

BGS = Below Ground Surface.

5.0 INVESTIGATIVE PROCEDURES

The following subsections provide a detailed description of the investigative procedures employed to implement the scope of work outlined in Section 4.0 (*Scope of Work*) of this Report.

5.1 Geophysical Survey

On August 29 and 30 and September 2, 2008, NORCAL performed a geophysical survey at the project site. The geophysical survey was accomplished by traversing the project site on a 5-foot by 10-foot grid using a magnetometer (MAG) and electromagnetic terrain conductivity meter (EM) to define localized magnetic and conductivity variations (anomalies) that might be caused by metallic and non-metallic subsurface sources. Based on these results, ground penetrating radar (GPR) was locally used to further define the nature of possible sources in terms of approximate dimensions and depth. Additionally, electromagnetic line locating methods (EMLL) were used to locate utilities and for correlation with the MAG, EM, and GPR results. The locations of all suspected subsurface features were documented on a scaled site plan. The two-person crew headed by a California Professional Geophysicist performed the field survey under the supervision of EBA.

5.2 Evaluation of Suspect Areas

Suspect areas and anomalies identified by the geophysical survey, as well as concrete structures located in the west-central portion of the project site and in the fenced enclosure, were evaluated using an excavator. On September 29 and October 1, 2008, EBA supervised John's Excavating (John's) of Santa Rosa, California in the exploration activities. In each case, the scope of work associated with this task was limited to diagnosing the respective features by excavating the area in question, then integrating subsequent sampling and testing services if deemed warranted. Following each exploration, the excavation was backfilled to ground surface using the excavation spoils. In regards to the concrete slab locations, the concrete slabs were broken up and stockpiled on-site adjacent to the corresponding excavation. Metal pipes and debris were also stockpiled on-site adjacent to the corresponding excavations in a similar manner. It should be noted that the eastward trending pipe observed in previous work near the western project site boundary (60 West Sixth Street Warehouse) was not found during the excavation activities. However, a previously unknown steel pipe was uncovered near the northeast corner of the 3 West Third Street Warehouse (Figure 2, Appendix A).

5.3 Utility Clearance and Permitting

Prior to the start of drilling activities, the project site was marked for Underground Service Alert (USA) and a drilling permit was obtained from the County of Sonoma Department of Health Services–Environmental Health Division.

5.4 Drilling and Soil Sample Collection

On September 16 through 25 and October 15, 2008, EBA supervised Clear Heart Drilling of Santa Rosa, California in soil boring advancement at the project site. The shallow soil borings (i.e., 15 feet BGS or less) were drilled using a conventional rotary auger drill rig equipped with HSAs. The upper five feet BGS of the soil profile was continuously sampled and screened in the field for VOCs using a photo-ionization detector (PID). With few exceptions, two (2) soil samples were collected in the upper five feet BGS and retained for chemical analysis. The soil samples retained for chemical analysis were collected in 2-inch diameter by 6-inch long stainless

steel tubes, sealed, capped, and labeled pending transport under chain-of-custody (COC) procedures to K Prime Inc., (K Prime) a California State-certified laboratory. Soil samples selected for VOC analysis were retained in Encore® samplers in accordance with Environmental Protection Agency (EPA) Method 5035.

Please note that the above sampling scheme does not pertain to soil borings SB-12 through SB-14, which targeted the sanitary sewer and storm drain locations. In the case of these soil borings, soil samples retained for chemical analysis were limited to the actual pipe bedding backfill material or soil in proximity of the pipe invert depth. Similarly, select step-out soil borings were advanced for a specific purpose that included separate sampling protocols. These included the step-out and follow-up soil borings SB-30A/B, SB-1B/C/D/E/F, SB-13-W, SB-55-W, SB-61-W, SB-28-W, and SB-42-W.

Each of the soil borings were logged in accordance with the Unified Soil Classification System (USCS) and recorded on a geologic boring log. Cuttings generated during drilling activities were retained and stored on-site in properly labeled DOT 17H 55-gallon steel drums pending characterization and disposal.

5.5 Shallow Groundwater Grab Sample Collection

Shallow groundwater grab samples were collected by advancing the respective boreholes approximately three feet below first encountered groundwater, whereupon the borehole tooling was retracted several feet and temporary polyvinyl chloride (PVC) slotted well casing was placed in the borehole. Following placement of the PVC casing, a groundwater grab sample was collected using a disposable bailer. The depth to groundwater within the temporary slotted casing was measured to the nearest 0.1 foot BGS prior to sample collection and recorded on the geologic boring logs.

Upon sample collection, the groundwater grab samples were transferred directly into laboratory-supplied containers from the bailer using a bottom-fitting dispenser to minimize volatilization and agitation of the sample. The sample containers were then labeled and placed under refrigerated conditions pending transport under COC procedures to K Prime for chemical analysis.

5.6 Deep Groundwater Grab Sample Collection

On October 6 and 7, 2008, EBA supervised Gregg Drilling and Testing Inc. (Gregg) in the advancement of ten CPT soil borings and the collection of deep groundwater grab samples using Hydropunch® sampling techniques. CPT drilling involves the advancement of a steel rod equipped with a cone tip that is capable of measuring miscellaneous lithologic parameters including Cone Bearing Pressure (Qc), Sleeve Friction (Fs), Pore Water Pressure (U), and Dual-Axis Inclination. The CPT rig and support truck are completely self-contained with an on-board water supply, steam cleaner, and decontamination station. The maximum depths of the CPT soil borings were approximately 25 feet BGS.

Data generated by the CPT drilling allowed EBA to evaluate the thickness and lithological characteristics of the stratigraphy at each of the respective CPT soil boring locations. This information was used to determine the depth of discrete groundwater sampling locations. Upon termination of the CPT soil boring, a second soil boring, located several feet from the previous soil boring, was advanced using the CPT rig and groundwater grab samples were collected using a Hydropunch® discrete groundwater sampling device at the target depth interval as identified in the initial CPT soil boring. This protocol was repeated at each of the CPT soil boring locations. Please refer to Appendix E for Gregg's *CPT Site Investigation Report* for graphical CPT boring logs and a description of the CPT methodology.

Groundwater grab samples were collected from the Hydropunch® discrete sampling device using a small diameter polyethylene bailer. Upon sample collection, the groundwater grab samples were transferred directly into laboratory-supplied containers from the bailer using a bottom-fitting dispenser to minimize volatilization and agitation of the sample. The sample containers were then labeled and placed under refrigerated conditions pending transport under COC procedures to K Prime for chemical analysis.

5.7 Monitoring Well Sampling

The existing on-site monitoring wells SRMW-07 and SRMW-08 were sampled by EBA on October 2, 2008 in accordance with EBA's Standard Operating Procedures for Groundwater Monitoring (SOPs) enclosed in Appendix F. Please refer to these SOPs for specific details regarding the various sampling protocols. Data compiled during the sampling activities were recorded on field sampling data sheets. Copies of the field sampling data sheets are included in Appendix G. All purge water generated during well sampling activities was retained and stored on-site in properly labeled DOT 17H 55-gallon steel drums pending characterization and subsequent disposal.

5.8 Equipment Decontamination and Borehole Abandonment

The drilling and sampling equipment was cleaned before drilling each soil boring to minimize the possibility of cross contamination. In addition, the sampling equipment was cleaned prior to collecting each soil sample with a tri-sodium phosphate solution and a potable water rinse. Equipment and tooling was cleaned on-site within a plastic-lined containment area. Decontamination water generated by the cleaning operations was retained and stored on-site in properly labeled DOT 17H 55-gallon steel drums pending characterization and disposal.

Upon completion of drilling and sampling activities, each of the HSA, CPT and hand augered soil borings were backfilled with cement grout to grade.

5.9 Analytical Testing

Each soil sample retained for chemical analysis was analyzed for TPH-d and TPH-mo using EPA Methods 8015DRO and 8015HRO, respectively. In addition, four soil samples were analyzed for TPH-g using EPA Method 8015GRO. Finally, soil samples from every fifth soil boring and other select locations were analyzed for the full list of VOCs and fuel oxygenates using EPA Method

8260B, PAHs using EPA Method 3550/8270, and CAM 17 metals (antimony, arsenic, barium, beryllium, cadmium chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium and zinc) using EPA Method 6010/7000. In the case of PAHs and CAM 17 metals, only the shallow soil sample from each soil boring was analyzed initially, followed by analysis of the deeper soil sample if elevated concentrations were detected in the shallow sample.

The groundwater samples collected for chemical analysis were analyzed for TPH-d, TPH-mo, and TPH-g using EPA Methods 8015DRO, 8015HRO, and 8015GRO respectively, as well as for the full list of VOCs and fuel oxygenates using EPA Method 8260.

6.0 FINDINGS

6.1 Geology and Hydrogeology

The geology of the project site is generally characterized by shallow (one to two feet BGS) rocky fill underlain by various lithologies including sandy silt and clayey sediments that contain varying amounts of angular to sub-rounded gravel. These finer-grained sediments extend to approximately 20 feet BGS, and are underlain by a laterally continuous coarser grained unit, defined in general as sand by the CPT, which extends to at least 25 feet BGS, the maximum depth explored.

The hydrogeology of the project site is likely controlled by aggradational packages of sediments separated by clayey layers. At an average depth of approximately 13 to 15 feet BGS, a thin, laterally extensive sandy unit overlays a similarly laterally extensive clayey bed. This more impervious underlying clay likely acts as a confining layer and inhibits the vertical migration of fluids. Based on this characteristic, the resulting perched groundwater in the more permeable sandy unit at 15 feet BGS was independently sampled from the deeper water-bearing zone that is present at approximately 20 to 25 feet BGS.

Historical groundwater monitoring has indicated the predominant groundwater flow direction to be approximately west-southwest across the project site, towards Santa Rosa Creek. As a result, the eastern portion of the project site is upgradient relative to the western portion.

6.2 Geophysical Survey

Findings from the geophysical survey identified several suspect areas. The most significant anomalies were identified in the west-central, south and north-central portions of the project site. It should be noted that the geophysical data was obscured in some areas of the project site by the presence of fencing, metal debris, buildings and railroad cars. Please refer to the NORCAL geophysical survey report included in Appendix D for a summary of the work performed, as well as maps indicating the suspect areas identified during the survey.

6.3 Evaluation of Suspect Areas

As previously mentioned, a UST was discovered on September 29, 2008 during excavation of the suspect areas. The UST was discovered while investigating a steel pipe that trended east from the northeastern corner of the 3 West Third Street warehouse approximately 50 feet, whereupon it turned towards the north. A second pipe was discovered that trended east-west across the project site. The UST was discovered while uncovering this east-west trending pipe. The UST was buried approximately one-foot BGS and was filled with what appeared to by oil. Given its relatively small size (550 gallons), the UST may have been used for heating oil storage. It should be noted that the UST is located in the west-central portion of the project site in the area identified by the geophysical survey as containing anomalies. The City of Santa Rosa Fire Department (SRFD) and NCRWQCB were notified immediately of the discovery. SRFD and NCRWCB personnel conducted site visits on September 29, 2008. The contents of the UST, which appeared to be comprised of oil, were removed by Maximum Oil Service LLC of Vallejo, California on October 1, 2008. The contents were hauled to Ramos Environmental Services of Sacramento, California, a licensed disposal facility. Disposal documentation was forwarded to the appropriate agencies on October 20, 2008. The UST was subsequently covered with plywood and soil and left in place.

In addition to the UST, several pipes, buried debris and railroad ties were uncovered during this phase of the investigation. When debris was uncovered, its location was documented and the material was generally left in place to be removed during project site development. Notably impacted soil was discovered at the northern portion of the project site and beneath the concrete slab within the fenced enclosure. The impacted material that was excavated in the northern portion of the project site was placed on, and covered with plastic sheeting pending characterization and disposal. Soil samples were obtained from both locations. The remaining suspect areas, including the former fuel island, CMP structure, and concrete structures, did not reveal any significant findings beyond buried wood and railroad ties, bricks, metal and debris. Please refer to Figure 2, Appendix A for the locations of the evaluated areas and sample locations.

6.4 Analytical Results

The tabulated analytical results from this investigation are presented in Tables 1 through 6, Appendix B. The CARs, including quality assurance/quality control (QA/QC), COC documentation, Method Reporting Limits (MRLs) and Reporting Limits (RLs) are included in Appendix I. The following subsections summarize the analytical findings from this investigation.

6.4.1 Soil

Analytical results indicate that approximately 23 percent of the soil samples analyzed contained detectable concentrations of TPH-d and TPH-mo. The TPH-d concentrations ranged from 15.9 to 4,410 milligrams per kilogram (mg/kg), with an average concentration of approximately 860 mg/kg. The TPH-mo concentrations, in turn, ranged from 21.0 to 3,570 mg/kg, with an average concentration of approximately 1,000 mg/kg. With the exception of three locations (SB-26, SB-33 and SB-56), the TPH-d and TPH-mo concentrations typically diminished with depth, and in

many cases declined to nondetectable levels in the deeper soil samples. Whereas the SB-26, SB-33 and SB-56 locations exhibited higher concentrations at depth, these conditions don't appear to be significant (i.e., related to a former UST, etc.) as the concentrations detected are relatively minor (50.2 to 52.7 mg/kg). Other pertinent findings with respect to petroleum hydrocarbons in soil are as follows:

- The SB-1A soil boring location exhibited significant petroleum hydrocarbon impacts to a depth of approximately 14 feet BGS. Step-out soil borings (SB-1B, SB-1C, SB-1D, SB-1E and SB-1F) were advanced around SB-1A in a successful effort to define the lateral and vertical extent of impacts in the area.

- Two soil samples were collected from the northern portion of the project site during the excavation activities (S-N-GATE @2' and S-N-GATE@3'). Analytical results indicated heavy range petroleum hydrocarbons in the shallow soil sample (S-N-GATE@2') with non-detect results for the deeper soil sample (S-N-GATE@3').

- TPH-g was detected in only one of the soil samples (S-FE@1') at a concentration of 402 mg/kg.

A total of 13 soil samples were analyzed for PAHs during this investigation. Analytical results indicated non-detect results with the exception of three locations (SB-1A, SB-8A and SB-60). SB-8A was the only location that warranted analysis of the deeper soil sample due to relatively higher and more consistent PAH concentrations. The resultant soil sample (SB-8A@5') collected at five feet BGS exhibited marked lower concentrations than the 2-foot deep soil sample (SB-8A@2'). Please note that the SB-1A soil sample (SB-1A@7.5') exhibited elevated PAH concentrations. However, subsequent deeper soil samples from SB-1A were not analyzed for PAHs due to the known deeper petroleum hydrocarbon impacts and the expected required future remediation of this area.

In regards to CAM 17 metals, analytical results from this investigation exhibit generally consistent concentrations that are considered indicative of background conditions. The one exception corresponds to the lead concentration detected in soil sample SB-60@2', which exhibited a concentration of 86 mg/kg. The lead concentrations detected in the remaining soil samples ranged from 5.6 to 21.1 mg/kg.

A total of 28 soil samples from 16 locations were analyzed for VOCs during this investigation. Tetrachloroethene (PCE) was the most prevalent of the observed VOCs as exhibited by detections at four of the 16 locations at concentrations ranging from 1.44 to 6.06 micrograms per kilogram (µg/kg). Included in the detectable concentrations of PCE are the soil samples that were collected from the SB-13 sanitary sewer location at a depth of nine feet BGS (SB-13@9') and at depths of ten feet BGS at the SB-28 and SB-61 locations. Please note that VOCs other than PCE were detected at only one location. This location corresponds to the shallow soil sample that was collected from beneath the concrete slab within the fenced enclosure (S-FE@1'). The VOCs detected at this location included m+p xylenes, o-xylene, n-propylbenzene, 1,3,5-trimethylbenzne, 1,2,4-trimethylbenzene, sec-butylbenzene, 4-isopropyltoluene and n-butylbenzene at concentrations ranging from 422 to 12,100 µg/kg. It should be noted, however,

that field observations during the exploratory excavation of this area indicated that the soil impacts were limited in vertical extent as the impacts appeared to diminish with depth.

Please refer to Figure 2, Appendix A for soil boring/sample locations, Appendix I for CARs and Tables 1 through 4, Appendix B for tabulated analytical results.

6.4.2 Groundwater

As previously noted, two water-bearing zones were sampled separately during this investigation. TPH-g, TPH-d, and TPH-mo were detected in only a few of the locations. The most notable of these detections correspond to TPH-d in SB-1 and SB-1A at concentrations of 29.7 and 27.0 milligrams per liter (mg/L), respectively, and TPH-d in SB-55 at a concentration of 2.64 mg/L. The SB-55 location is significant because there was no evidence of shallow soil impacts at this location and it is downgradient from an active leaking underground gasoline storage tank site located at 101 Wilson Street (Hotel La Rose). It should be noted that the SB-55 result was flagged by the laboratory as being a heavier hydrocarbon than gasoline and a lighter hydrocarbon than diesel, thereby suggesting the presence of weathered gasoline.

In regards to VOCs, PCE was detected in 19 of the 25 sampling locations from both shallow (approximately 15 feet BGS) and deep (approximately 25 feet BGS) water-bearing zones. Trichloroethene (TCE) and cis-1,2-dichloroethene (cis-1,2-DCE), both breakdown products of PCE, were also detected at various locations. It should be noted that PCE is also present in several upgradient monitoring wells located as far as approximately 400 feet east of the project site. In addition to the aforementioned chlorinated solvents, methyl tert-butyl ether (MtBE) was detected at various locations at the project site, while other miscellaneous VOCs were also detected at the SB-55-W location.

Please refer to Figure 2, Appendix A for groundwater sampling locations, Appendix I for CARs and Tables 5 and 6, Appendix B for tabulated analytical results.

7.0 DISCUSSION AND CONCLUSIONS

The following subsections summarize the findings and present conclusions from the drilling activities that were conducted during this investigation.

7.1 Soil

The presence of heavy range petroleum hydrocarbons (TPH-d and TPH-mo) in shallow soil at the project site is not surprising given its historic use as a railroad yard and light industrial area. In general, the detected concentrations were observed along the railroad spurs (former and current) and typically decreased with depth, thereby indicating the shallow nature of the impacts. Ultimately, the heavy range petroleum hydrocarbons in soil can be addressed as part of a Soil and Groundwater Management Plan (S&GMP) during site development activities. It should be noted that soil impacts observed during past investigations (i.e., "SRB-20", Geomatrix Consultants [Geomatrix], 2000 and the "Southern Warehouse" and "Fenced Enclosure" areas,

Kennedy/Jenks Consultants, [Kennedy/Jenks], 2004), which included elevated petroleum hydrocarbon concentrations in shallow soil, should also be addressed as part of the S&GMP.

One significant exception to the TPH-d and TPH-mo conditions described above corresponds to the area near SB-1A. The soil impacts in this area appear to extend to a depth of about 14 feet BGS and have been generally defined both laterally and vertically by soil borings SB-1B through SB-1F. The source of the soil impacts are unknown, however, they appear to be the result of a surface spill(s) based on the shallow initial occurrence (two feet BGS) of petroleum hydrocarbons. The elevated concentrations that were detected in this area will require future soil remediation.

In regards to the PAH detections, these compounds are often associated with heavy range petroleum hydrocarbons and their presence in shallow soil is to be expected. The levels of PAHs are generally below the San Francisco Bay Area Regional Water Quality Control Board (SFRWQCB) Environmental Screening Levels (ESLs) and the United States Environmental Protection Agency Region 9 Preliminary Remediation Goals (PRGs). One exception corresponds to the detection of benzo (A) pyrene in soil sample SB-1A@7.5'. As noted earlier in Subsection 6.4.1, this is the area that will require future soil and/or groundwater remediation given the high concentrations of petroleum hydrocarbons that were detected in soil and groundwater. In general, PAHs in soil can be addressed as part of the S&GMP during site development activities.

The various metals detections at the project site appear to be generally indicative of background levels. Whereas the lead concentration detected in soil sample SB-60@2' (86 mg/kg) is elevated as compared to the remaining soil sample locations, it is well below regulatory action levels. Although this level of lead in soil doesn't require special handling, it would require further testing for disposal purposes. This is also true for the background concentrations of chromium detected in the project site soil. It should be noted that the arsenic concentrations in soil are consistent with past investigations (Geomatrix, 2000), as well as background concentrations in California in general (Bradford, et. al., 1996). In this regard, metals in soil can be addressed in the S&GMP during site development activities.

The detections of PCE in shallow soil appear to be randomly distributed along the railroad spurs at the project site. The source of these impacts is unknown but may have been associated with historic railroad operations (i.e., train/parts cleaning, etc.). PCE was also detected in soil adjacent to the sanitary sewer at the eastern edge of the project site. However, this PCE may be related to the sanitary sewer and/or associated pipe bedding material which may be serving as conduits for upgradient sources. This interpretation is supported by the fact that the shallow soil sample from this location (SB-13-W@5') did not contain PCE above the RL. Overall, the PCE concentrations in soil at various locations are well below the PRGs and ESLs for this constituent and can be addressed as part of the S&GMP.

7.2 Groundwater

The shallow and deep water-bearing zones underlying the project site appear to be relatively free of petroleum hydrocarbon impacts with the exception of the heavy range petroleum hydrocarbon

concentrations detected in groundwater in the SB-1/1A and SB-55 areas (presented in Subsection 6.4.2 above). Further details regarding these areas are provided as follows:

- The SB-1A-W (shallow water-bearing zone) concentrations are most likely due to the documented impacts in soil at this location. However, the TPH-d result for SB-1 is significant because the groundwater sample was collected from beneath the previously identified clay layer at a depth of 20 to 24 feet BGS. The clay layer was sampled during the advancement of SB-1A with non-detect results (SB-1A@15'). A possible explanation for this condition may be the presence of preferential pathways to the deeper water-bearing zone that were not observed during the previous drilling and soil sampling activities. Another explanation may be that the location of this soil boring is just south of the excavation work carried out as part of previous remediation efforts (Kennedy/Jenks, 2004). This previous effort culminated in the excavation and removal of approximately 6,500 cubic yards of petroleum hydrocarbon impacted soil, with depths reaching shallow groundwater (15 feet BGS) and below (18 feet BGS). Thus, it is possible that the excavation below the upper impacted soil induced further mobilization of the contaminants by possibly compromising the confining clay layer at approximately 15 feet BGS.

- Soil boring SB-55-W is located on the northeastern (upgradient) portion of the project site. Thus, it appears that the petroleum hydrocarbons detected (weathered gasoline) in groundwater at this location are related to an off-site source, possibly the USTs formerly located and/or abandoned at the Hotel La Rose site.

The remaining groundwater impacts correspond to MtBE and the chlorinated solvents PCE, TCE and cis-1,2-DCE. The presence of these constituents appears to be ubiquitous in the shallow and deep water-bearing zones underlying the project site. However, as for the cause of these impacts, there were no apparent on-site sources identified as part of this investigation. In this regard, the following evaluations are offered:

- Whereas shallow PCE detections were encountered in on-site soils, the concentrations are low and don't appear to represent a source large enough to impact groundwater on a scale as seen in the groundwater sample results.

- PCE was detected in groundwater samples both with and without detectable levels in overlying relevant soil samples.

- Groundwater sample results from the eastern (upgradient) edge of the project site (SB-7A-W, SB-8-W, SB-8A-W, SB-13-W and SRWW-08) exhibit detectable concentrations of PCE and/or TCE, cis-1,2-DCE and MtBE.

- PCE has been detected (February 4, 2008) in five upgradient monitoring wells (MW-12, MW-14, MW-15, MW-16 and 16D) that are associated with another site. The furthest of these monitoring wells (MW-12) is located approximately 400 feet upgradient of the project site. A copy of the CAR documenting the PCE detections in these monitoring wells is enclosed in Appendix J.

Based on these various lines of evidence, it appears that the MtBE and chlorinated solvent impacts to groundwater observed at the project site can likely be attributed to off-site, upgradient sources.

8.0 RECOMMENDATIONS

The following points present recommendations for addressing the pertinent environmental concerns discussed in the previous sections:

- Prepare a UST Removal Work Plan for the discovered oil UST and submit it to the SRFD and NCRWQCB for review and approval. Permit and remove the discovered UST upon receipt of approval and submit a Report of Findings documenting the removal activities, analytical results and conclusions and recommendations.

- Prepare a Soil Remediation Work Plan to address the deep soil impacts encountered in the area of soil boring SB-1A. Implement the work plan under permit and approval from the SRFD and NCRWQCB. Prepare a Report of Findings documenting the soil remediation activities, analytical results and conclusions and recommendations.

- Prepare a S&GMP for use during project site development to address the heavy range petroleum hydrocarbons, PCE, metals, and PAHs in shallow soil. As outlined in a February 23, 2007 NCRWQCB letter to Union Pacific Railroad, the S&GMP must include: *"1) a proposal to remove the known areas of shallow soil impacts, 2) a method to characterize, manage and dispose of any soil/fill material removed from the site for development reasons, and 3) a contingency plan for a potential encounter with newly discovered areas of contaminated soil and/or groundwater, or subsurface piping or structures, during trenching, parking garage construction and property development"*. Additionally, the S&GMP "*.....must also include a method to control groundwater, impacted or otherwise, if encountered during the installation of utilities....*". Please refer to Appendix H for a copy of the February 23, 2007 letter. The areas to be addressed in the S&GMP should include, but may not be limited to: the railroad spurs that will be removed during development activities; the area in the "fenced enclosure", including the concrete slab area; the "southern warehouse" area that was documented by Kennedy/Jenks (Kennedy/Jenks, 2004); the SRB-20 area documented by Geomatrix (Geomatrix, 2000); and the north-central area of the project site identified during this investigation. It should be noted that railroad ties are considered special waste and must be disposed of at an appropriate facility. Therefore, any railroad ties that are removed during development activities must be stockpiled and disposed of properly. Finally, the debris encountered during this investigation should be disposed of properly during development activities.

- In regards to groundwater impacts, there are three primary areas of concern at the project site: 1) the area near SB-1; 2) the area near SB-55-W; and 3) the widespread VOC detections in groundwater. EBA recommends that the impacted soil be removed in the

vicinity of SB-1 and shallow groundwater monitoring wells be installed to evaluate the effectiveness of soil remediation on groundwater quality. Furthermore, EBA recommends that deeper screened monitoring wells be installed in the vicinity of SB-1 to evaluate deeper groundwater quality. In regards to the SB-55-W area and the widespread VOC impacts, it appears that these areas are associated with upgradient, off-site sources and that any further investigation that may be required should be the responsibility of others.

9.0 LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental geological practice at the place and time this investigation was performed. This warranty is in lieu of all other warranties, either expressed or implied. This investigation was conducted solely for the purpose of evaluating environmental conditions of the soil and groundwater with respect to hydrocarbons previously detected at the site. No soil engineering or geotechnical references are implied or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary away from the data points available. Additional work, including further subsurface investigation, can reduce the inherent uncertainties associated with this type of investigation. This report has been prepared solely for the Client and any reliance on this report by third parties shall be at such party's sole risk.

When conducting geophysical surveys, it is important to recognize that there are limitations unique to each geophysical method and that it is possible that not all buried objects or substructures may be detected or characterized by any given method. These limitations may include; 1) subsurface targets that are at depths beyond the detection limits of specific instruments; 2) subsurface targets may not provide an adequate contrast in physical properties with the surrounding soils, such as non-metallic pipes, pipes with insulated joints, or pipes underwater; and 3) there may be other features above or below ground, such as metal debris, reinforcement, other nearby utilities, and/or building structures, that cause instrumental interference and do not allow detection of certain subsurface anomalies.

10.0 REFERENCES

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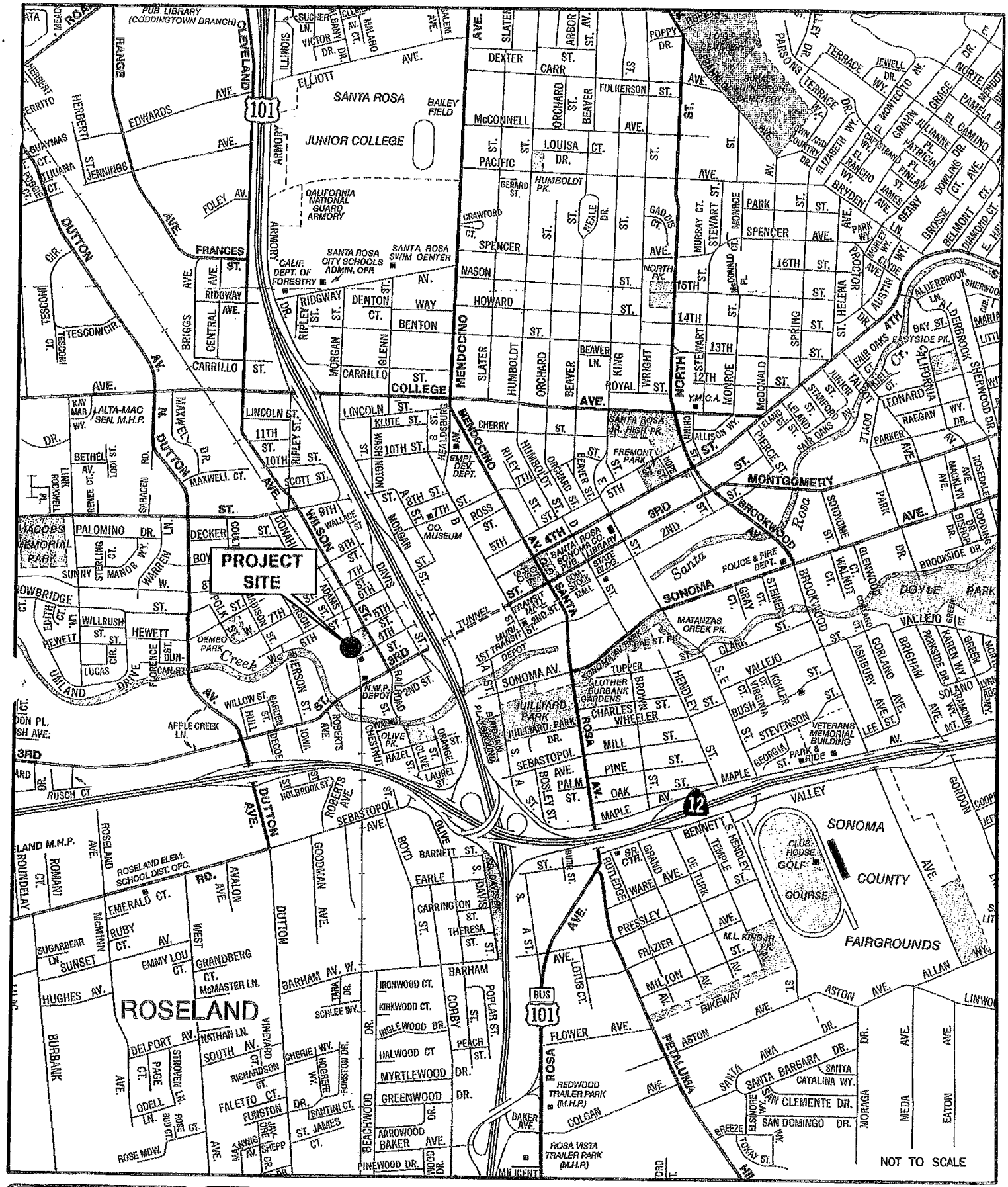
APPENDIX A

FIGURES



EBA ENGINEERING

VICINITY MAP

SMART PROPERTY
2 FOURTH AND 34 SIXTH STREETS
SANTA ROSA, CALIFORNIA

FIGURE 1

08–1528

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