Prepared for

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

SUBSURFACE INVESTIGATION WORK PLAN
SONOMA MARIN AREA RAIL TRANSIT PROPERTY
2 FOURTH STREET AND 34 SIXTH STREET

SANTA ROSA, CALIFORNIA

SEPTEMBER 2008

EBA Project No. *08-1528*

Prepared by

for 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. 1847
Exp. 8/31/09
STATE OF CALIFORNIA

EBA ENGINEERING

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

EBA ENGINEERING
CIVIL & ENVIRONMENTAL ENGINEERS

September 3, 2008

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

SUBJECT: SUBSURFACE INVESTIGATION WORK PLAN
SONOMA MARIN AREA RAIL TRANSIT PROPERTY, 2 FOURTH STREET AND 34 SIXTH STREET, SANTA ROSA, CALIFORNIA
EBA Project No. 08-1528 (6)

Dear Ms Fleck:

EBA Engineering (EBA) is submitting this Subsurface Investigation Work Plan (Work Plan) on behalf of New Railroad Square LLC. The purpose of this Work Plan relates to the redevelopment initiative of the Sonoma Marin Area Rail Transit (SMART) property located in Santa Rosa, California. This Work Plan has been prepared to address recommendations outlined in EBA's March 2008 *Phase I Environmental Site Assessment (ESA)* in regards to further evaluating the site for potential environmental impairments which in turn could influence redevelopment costs and long-term liability. With this aim EBA proposes a site investigation that includes the advancement of multiple soil borings and select soil and groundwater sampling.

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

Sincerely,
EBA ENGINEERING

for Timothy Nielsen
Staff Geologist

cc: John Stewart, 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

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1.0 INTRODUCTION

EBA Engineering (EBA) has contracted with New Railroad Square LLC to prepare this Subsurface Investigation Work Plan (Work Plan) in relation to the proposed redevelopment of the Sonoma Marin Area Rail Transit (SMART) property located in Santa Rosa, California. The scope of work includes the advancement of up to 70 soil borings and the select sampling of soil and groundwater for chemical analysis. The proposed work addresses recommendations outlined in EBA's March 2008 *Phase I Environmental Site Assessment* (ESA) (EBA, 2008), which evaluated the site for potential environmental impairments that could influence redevelopment costs and long-term liability.

2.0 BACKGROUND

2.1 Project Site Description and History

The project site consists of two contiguous parcels of land that have a combined acreage of approximately seven acres. The parcels are 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. Santa Rosa Creek is located approximately 160 feet west of the western project site boundary, on the far side of the adjacent commercial 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 southeastern 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 excavations. A substantial amount of this work is summarized in the March 2008 Phase I ESA (EBA, 2008). A brief list of previous remediation efforts which more directly affect the extent of this work plan, and where that work occurred, is provided as follows:

- 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 during the 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 up-gradient, single-screen monitoring well 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 and excavation proceeded to depths of approximately 18 feet below ground surface (BGS). Significant amounts of free phase petroleum hydrocarbons were encountered on the groundwater surface during the excavation activities that were 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 stopped due to concerns of stability of the structure. Confirmation soil samples indicated that impacted materials containing significant concentrations of diesel and motor oil remained in place in 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 of first encountered groundwater at approximately 19 feet BGS. Impacted groundwater was encountered with free phase petroleum hydrocarbons present. The impacted groundwater was removed using pumps, treated, and disposed of to the sanitary sewer. Excavation activities were performed below groundwater to a final depth of approximately 22 feet BGS.

- 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.

- 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.

- 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 monitoring well SRMW-13 located in the northwest corner of the property. The fuel oxygenate methyl tert-butyl ether (MtBE) was detected in monitoring well 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 GEOLOGY AND HYDROGEOLOGY

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 from approximately zero to 20 feet BGS, which is underlain by a laterally continuous coarser grained unit extending to approximately 30 feet BGS.

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

4.0 PROPOSED SCOPE OF WORK

In accordance with the Phase I ESA recommendations (EBA, 2008), the objective of the proposed scope of work is to identify any remaining environmental impairments on the property that have either not been discovered or were not completely characterized as part of previous investigative work performed by others. The scope of work does not encompass those areas previously assessed and/or remediated as part of past investigations. Instead, overlap is minimized, as reflected in the sampling protocol and soil boring placements. The following bullet items provide a general synopsis of the work to be performed:

- A complete geophysical evaluation of the site will be performed to investigate for possible buried objects and debris, utilities, and other anomalies. In addition to canvassing the entire site, specific features of interest will also be targeted. These features will include 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 will be further evaluated using an excavator. An excavator will also be used to evaluate the nature of two existing concrete slabs located in the west-central portion of the project site that were not evaluated as part of past investigations.

- A soil and groundwater sampling program will be implemented that will include the advancement of approximately 70 soil borings at the locations shown on Figure 2 (Appendix A). Please note that the proposed locations may be adjusted based on findings from the geophysical survey and exploration activities. Borehole depths will vary from approximately five to 25 feet BGS.

- Soil samples will be collected from shallow and intermediate zones and analyzed for polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), petroleum hydrocarbons, and California Assessment Manual (CAM) 17 metals. Attempts will be also be made to collect samples of pipe bedding material at selected sanitary sewer and storm drain locations to evaluate potential impacts from off-site sources. A review of previous investigative activities suggests PAHs were primarily associated with

surficial impacts that have only been detected at depths generally less than two feet BGS. Based on this circumstance, investigation of the underlying intermediate zone will concentrate on identifying impacts from VOCs, petroleum hydrocarbons, and metals only.

- Groundwater samples will be collected at 13 locations on the project site. Based on the presence of two (2) previously identified water-bearing zones beneath the project site at depths of approximately 15 and 25 feet BGS, groundwater grab samples will be collected from eleven of the 13 locations at each zone for chemical analysis. Exceptions to this are two (2) locations where either shallow or deep groundwater grab samples were previously collected as part of past investigations. The remaining two sampling locations correspond with existing on-site monitoring wells (SRMW-07 and SRMW-08), which are screened across both zones. Groundwater samples will be analyzed for VOCs and petroleum hydrocarbons. It should be noted that in the event groundwater is encountered during sampling of the pipe bedding material for the sanitary sewer and/or storm drains, groundwater grab samples would also be collected for chemical analysis.

The following table provides a summary of the proposed soil boring identifications, approximate completion depths, and drilling/sampling methodologies.

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-9, SB-10* (10)	25	CPT/Hydropunch Deep Groundwater Sample
Shallow Groundwater Characterization: SB-1A Through SB-9A, SB-11 (10)	15	Hollow-stem Auger Soil Sample: Continuous Shallow Groundwater Sample
Soil and/or Groundwater Characterization (Sanitary Sewer and Storm Drains): SB-12 Through SB-17 (6)	10	Hollow-stem Auger/Hand Auger Soil Sample
Shallow Soil Characterization: (Railroad Spur and Other Miscellaneous Locations): SB-18 Through SB-61 (Up to 44)	5	Hollow-stem Auger/Hand Auger Soil Sample Soil Sample: Continuous

BGS = Below Ground Surface
CPT = Cone Penetration Test
* = SB-10 CPT Only

Please note that in the interest of time, this Work Plan is being submitted prior to the finalization of the geophysical letter report by the geophysical consultant. As a result, the extent of any

subsequent exploration and/or drilling necessary to characterize findings from the survey cannot be specifically addressed in this Work Plan. Based on this circumstance, an addendum to the Work Plan (Work Plan Addendum) will be necessary if findings from the survey warrant additional characterization.

5.0 FIELD INVESTIGATION METHODOLOGY

5.1 Geophysical Survey

The geophysical survey will be 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 may be caused by metallic and non-metallic subsurface sources. Based on these results, ground penetrating radar (GPR) will be locally used to further define the nature of possible sources in terms of approximate dimensions and depth. Additionally, electromagnetic line locating methods (EMLL) will be used to locate utilities and for correlation with the MAG, EM, and GPR results. The locations of all suspected subsurface features will be marked on the ground surface, as well as documented on a scaled site plan. In addition, the locations of pertinent site features will be located using a global positioning system with sub-meter accuracy. A two-person crew headed by a California Professional Geophysicist will perform the field survey under the direct supervision of EBA.

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.

5.2 Evaluation of Suspect Areas

As previously noted, suspect areas and anomalies identified by the geophysical survey, as well as the two concrete structures located in the west-central portion of the project site, will be further evaluated using an excavator equipped with appropriate tooling. In the case of the geophysical survey targets, suspect areas will be excavated to expose each anomaly identified by the survey. Similarly, the concrete slabs will be broken up and stockpiled to expose the underlying subgrade or structural feature, as applicable. In both cases, the scope of work associated with this task will be limited to diagnosing the respective features. Any drilling and soil/groundwater sampling that might be required to further characterize any observed impacts will be addressed as part of a Work Plan Addendum. The subsequent performance of such characterization work would be integrated with the sampling and testing services described in the following subsections. All excavation activities will be conducted under the direct supervision of EBA.

5.3 Utility Clearance and Permitting

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

5.4 Drilling and Soil Sample Collection

The shallow soil borings (i.e., advanced to depths of approximately 15 feet BGS or less) will be drilled using a conventional rotary auger drill rig equipped with hollow-stem augers. The upper five feet BGS of the soil profile will be continuously sampled and screened in the field for VOCs using a photo-ionization detector (PID). Two (2) soil samples will be collected in the upper 5five feet BGS and retained for chemical analysis. The soil samples retained for chemical analysis will be collected in 2-inch diameter by 6-inch long stainless steel tubes, sealed, capped, and labeled pending transport under chain-of-custody procedures to a California State-certified laboratory. Soil samples selected for VOC analysis will be retained in Encore® samplers in accordance with Environmental Protection Agency (EPA) Method 5035.

Please note that the above sampling scheme does not pertain to the soil borings (SB-12 through SB-17) targeting the sanitary sewer and storm drain locations. In the case of these soil borings, soil samples retained for chemical analysis will be limited to the actual pipe bedding backfill material or soil in proximity of the pipe invert depth.

Each of the soil borings will be logged in accordance with the Unified Soil Classification System (USCS) and recorded on a geologic boring log. Cuttings generated during drilling activities will be 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

Upon reaching the desired sampling depth, the borehole tooling will be retracted several feet, whereupon temporary polyvinyl chloride (PVC) slotted well casing will be placed in the borehole. Following placement of the PVC casing, a groundwater grab sample will be collected using a disposable bailer. The depth to groundwater within the temporary slotted casing will be measured to the nearest 0.1 foot BGS and recorded on the geologic boring logs.

Upon sample collection, the groundwater grab samples will be 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 will be labeled and placed under refrigerated conditions pending transport under chain-of-custody procedures to a California State-certified analytical laboratory for chemical analysis.

5.6 Deep Groundwater Grab Sample Collection

Deep groundwater grab samples will be collected using cone penetration test (CPT) drilling and 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 on-board water supply, steam cleaner, and a decontamination station. The maximum depths of the proposed CPT soil borings are anticipated to be approximately 25 feet BGS. Data generated by the CPT drilling will allow EBA to evaluate the thickness and lithological characteristics of the stratigraphy at each of the respective CPT soil boring locations. This information will be 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, will be advanced using the CPT rig and groundwater samples will be collected using a Hydropunch® discrete groundwater sampling device at the target depth interval as identified in the initial CPT soil boring. This protocol will be repeated at each of the CPT soil boring locations.

5.7 Monitoring Well Sampling

The existing on-site monitoring wells SRMW-07 and SRMW-08 will be sampled in accordance with the EBA's Standard Operating Procedures for Groundwater Monitoring (SOPs) enclosed in Appendix B. Please note that all purge water generated during well sampling activities will be retained and stored on-site in properly labeled DOT 17H 55-gallon drums pending characterization and subsequent disposal.

5.8 Equipment Decontamination and Borehole Abandonment

The drilling and sampling equipment will be cleaned before drilling each soil boring to minimize the possibility of cross contamination. In addition, the sampling equipment will be cleaned prior to collecting each soil sample with a tri-sodium phosphate solution and a potable water rinse. Equipment and tooling will be cleaned on-site within a plastic-lined containment area. Decontamination water generated by the cleaning operations will be 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 soil boring will be backfilled with cement grout to grade.

5.9 Analytical Testing

Each soil sample retained for chemical analysis will be analyzed for Total Petroleum Hydrocarbons as diesel (TPH-d) and as motor oil (TPH-mo) using EPA Method 8015. In addition, soil samples from every fifth soil boring will be analyzed for the full list of VOCs and fuel oxygenates using EPA Method 8260, 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 will be analyzed initially, followed by analysis of the deeper soil sample if elevated concentrations are detected in the shallow sample.

The groundwater samples collected for chemical analysis will be analyzed for TPH-d, TPH-mo, and TPH-gasoline (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 REPORT OF FINDINGS

A Report of Findings will be prepared upon completion of the fieldwork. The information collected, analytical results, and corresponding conclusions and recommendations will be summarized. The report will include a description of the work performed, a site map showing features relevant to the investigation, and graphical boring logs. Summary tables of analytical results will be presented and copies of the corresponding Certified Analytical Reports (CARs) will be appended to the report, as well as the results from the geophysical survey. Data from the geophysical survey will be processed and summarized in a letter report prepared by the geophysical consultant, including descriptions of the methods used, field procedures, results, and interpretations regarding the locations of possible subsurface features. The letter report will include appropriate maps in AutoCAD format.

7.0 SITE HEALTH AND SAFETY PLAN

A site-specific Health and Safety Plan for the proposed scope of work is presented in Appendix C.

8.0 SCHEDULE

Work will commence following North Coast Regional Water Quality Control Board (NCRWQCB) review and approval of this Work Plan and at the direction of the Client.

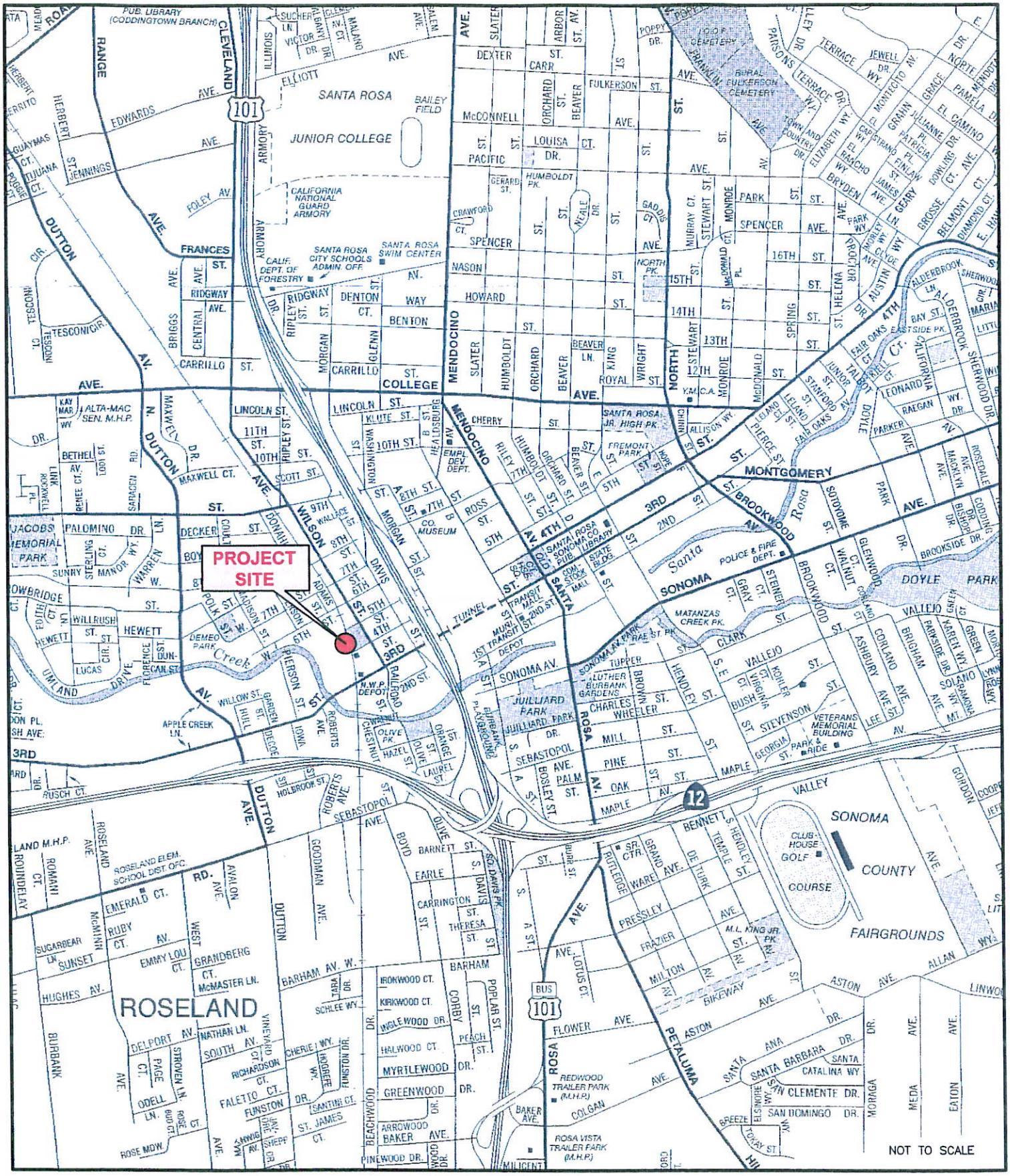
9.0 REFERENCES

Cardwell, G.T., 1958, *Geology and Ground Water in the Santa Rosa and Petaluma Valley Areas Sonoma County California,* Geological Survey Water-Supply Paper 1427.

EBA Engineering, March 2008, *Phase I Environmental Site Assessment, SMART Railroad Property, Santa Rosa, California.* EBA Engineering, Santa Rosa, California.

APPENDIX A

FIGURES



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VICINITY MAP

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

FIGURE
1

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80 0 80
SCALE : 1" = 80'

LEGEND

- SOIL BORINGS SB-1 THROUGH SB-9
  SOIL BORINGS SB-1A THROUGH SB-9A
  (SHALLOW AND DEEP GROUNDWATER CHARACTERIZATION)
- SB-10
  (DEEP GROUNDWATER CHARACTERIZATION ONLY)
- SB-11
  (SHALLOW GROUNDWATER CHARACTERIZATION ONLY)
- SOIL BORINGS SB-12 THROUGH SB-17
  (SOIL AND/OR GROUNDWATER CHARACTERIZATION FOR SANITARY SEWER AND STORM DRAINS)
- SOIL BORINGS SB-18 THROUGH SB-61
  (SHALLOW SOIL CHARACTERIZATION FOR RAILROAD SPUR AND OTHER MISCELLANEOUS LOCATIONS)
- SRMW-07 EXISTING MONITORING WELL
- SRMW-10 DESTROYED MONITORING WELL
- SS EXISTING SANITARY SEWER
- SD EXISTING STORM DRAIN

FIFTH STREET
FOURTH STREET
WEST THIRD STREET
WEST SIXTH STREET
ADAMSON STREET
JEFFERSON STREET
PROJECT SITE
SIDEWALK NOT VISIBLE
SRMW-08
SRMW-07
SRMW-10
SRMW-05
SRMW-12
SRMW-11
SRMW-06
RBMW-3
RBMW-2
GW-27
FORMER REMEDIATION AREA (GENERAL)
FORMER REMEDIATION AREA (GENERAL)
TANK
AC
(E) CONCRETE WALK
SANTA ROSA CREEK

FIGURE 2 08-1528

SOIL AND GROUNDWATER SAMPLING LOCATION MAP

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

EBA ENGINEERING

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APPENDIX B

STANDARD OPERATING PROCEDURES

STANDARD OPERATING PROCEDURES

GROUNDWATER MONITORING

The groundwater monitoring procedures presented herein were developed to provide consistent and reproducible sampling methods; proper application of analytical methods; accurate and precise analytical results; and provide guidelines so that the overall objectives of the monitoring program are achieved. The following documents were used as guidelines for the development of these procedures:

- *RCRA Groundwater Monitoring Technical Enforcement Guidance Document,* OSWER 9950.1, September 1986.

GROUNDWATER ELEVATION SURVEY

Prior to each sampling event, wells at the site will be measured for static groundwater levels during a single water-level survey. Groundwater levels will be converted to elevations (referenced to mean sea level or an assumed referenced datum) and either tabulated or graphically displayed on a potentiometric surface map. The wells will be sampled for chemical constituents after the groundwater level survey is completed.

Groundwater levels will be measured with an electric sounder. The electric sounder is a transistor based instrument that uses a reel-mounted, two-conductor, coaxial cable that connects the control panel to the sensor. The cable is marked at 0.01-foot increments. The groundwater level is measured by lowering the sensor into the well. A low-current circuit is completed when the sensor contacts the groundwater, which serves as an electrolyte. The current is amplified and fed into an indicator light and audible buzzer, signaling when groundwater has been contacted. A sensitivity control compensates for highly saline or conductive water. The electric sounder will be decontaminated by rinsing with clean water after each use. Depth to groundwater will be recorded to the nearest 0.01 foot in the field data sheets and/or logbook. The groundwater elevation at each well will then be calculated by subtracting the measured depth to groundwater from the surveyed elevation of the top of the well casing (TOC). The total depth of the well will then be measured in the wells scheduled for sampling by lowering the sensor to the bottom of the well. The total depth of the well will be recorded to the nearest 0.01 foot in the field data sheet or logbook and used to calculate purge volumes and to determine whether the well screen is partially obstructed by silt.

SAMPLE COLLECTION

Sample collection procedures include equipment cleaning, groundwater level and total well depth measurements, well purging and sampling, and surface water sampling. The well sampling sequence will start with those wells having the lowest concentration of contaminants (if applicable). Ensuing samples are collected from wells of increasing contamination.

Equipment Cleaning

Before each sampling event, all non-disposable equipment (i.e., bailers, pumps, etc.) that will be placed in the well or come in contact with groundwater will be disassembled and cleaned thoroughly with a tri-sodium phosphate (TSP) or Alconox and clean water, then rinsed with clean water. Any parts that may absorb contaminants, such as plastic pump bladders, check valves, etc., will be cleaned as described above or replaced.

During field sampling, all non-disposable equipment surfaces that are placed in the well or contact groundwater will be rinsed with clean water before purging or sampling the next well.

Groundwater-Level and Total Well-Depth Measurements

Immediately before a well is purged, the groundwater level and total well depth will be measured using an electric sounder as described in the previous section entitled "Groundwater Elevation Survey." The electric sounder is then decontaminated by rinsing with clean water after each use.

Well Development

EBA will wait a minimum of 48 hours after installation before development of a newly installed well. This time frame will allow adequate set time for the grout seal. The well will be developed using a surge block and/or pump and either a dedicated pump, pneumatic displacement pump, approved electric submersible pump, Teflon bailer, disposable polyethylene bailer, polyvinyl chloride (PVC) bailer, or stainless steel bailer. Temperature, pH and specific conductance will be measured periodically. The well will be purged of at least five well volumes of groundwater during the development process. After the well has stabilized, the well will be measured for the presence of free-phase floating product using an interface probe.

Well Purging

Prior to sampling, standing water in the casing and gravel pack will be purged from the well using either a dedicated pump, pneumatic displacement pump, approved electric submersible pump, Teflon bailer, PVC bailer, disposable polyethylene bailer, or stainless steel bailer. During purging, groundwater stabilization indicator parameters (pH, specific conductance, and temperature) will be monitored and recorded at intervals of one casing volume. The target values for the final two sets of stabilization parameter measurements are as follows: pH $\leq$ 0.1 pH units; specific conductance $\leq$10 percent; and temperature $\leq$ 1.0 degree F. A minimum of three casing volumes will be purged prior to commencing sample collection. When evacuating low-yield wells (those incapable of yielding three casing volumes), the wells will be purged dry. These low-yield wells will be allowed to recharge for up to 2 hours or until recovery to within 80 percent of the original static groundwater level, whichever comes first. I f recharge volume is insufficient to perform all the required analyses, sample collection and laboratory testing will be prioritized in the following order: (1) organic constituents; (2) metals; (3) minerals; and (4) general chemistry. In order to minimize aeration, a monitoring well will not be pumped dry if the recharge rate causes the formation water to vigorously cascade down the sides of the well screen.

All field measurements will be recorded on a field data sheet or logbook. The pH, specific conductance, and temperature meters will be calibrated each day before beginning field activities.

Well Sampling

A bladder pump, Teflon bailer, disposable polyethylene bailer, or stainless steel bailer are the only equipment acceptable for well sampling. When samples for volatile organic analysis are being collected with a bladder pump, the pump flow will be regulated to approximately 100 milliliters (ml) per minute to minimize pump effluent turbulence and aeration. Glass bottles of at least 40 ml volume and fitted with Teflon-lined septa will be used in sampling for volatile organics. These bottles will be filled completely to prevent air from remaining in the bottle. A positive meniscus forms when the bottle is completely full. A convex Teflon septum will be placed over the positive meniscus to eliminate air. After the bottle is capped, it will be inverted and tapped to verify that it contains no air bubbles. The sample containers for other parameters will then be filled and capped. All filtering for dissolved metals will be performed in the laboratory.

SAMPLE PRESERVATION AND HANDLING

Sample Containers and Preservation

Sample containers vary with each type of analytical parameter. Container types and materials selected are nonreactive with the particular analytical parameter tested. Specific sample volume, container types, and preservation requirements are identified by the laboratory conducting the analyses.

Sample Handling

Sample containers will be labeled immediately following collection. Samples will be kept cool with cold packs until received by the laboratory. Cold packs will be replaced each day to maintain refrigeration. All samples will then be transported under Chain-of-Custody (COC) Record protocols as discussed below.

SAMPLE DOCUMENTATION

The following procedures will be used during sampling and analysis to provide COC control during sample handling from collection through storage.

Chain-of-Custody (COC) Records

All samples will be accompanied by a COC Record. When transferring samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record will be

used to document sample custody transfer from the sampler to another team member, to a shipper, or to the laboratory.

Samples will be packaged properly for shipment and dispatched to the appropriate laboratory for analysis, with a separate COC Record accompanying each shipment. The method of shipment, courier name(s), and other pertinent information will be entered in the "Remarks" section of the COC Record. If samples are split with another party, it will be noted in the "Remarks" section of the COC Record. The note will indicate with whom the samples are being split and will be signed by both the sampler and recipient. All shipments will be accompanied by the COC Record identifying its contents. The original record will accompany the shipment.

If sent by mail, the package will be registered with return receipt requested. If sent by common carrier, a bill of lading will be used. Freight bills, Postal Service receipts, and bills of lading will be retained as part of the permanent documentation.

Field Data Sheets and/or Logbook

In the field, the sampler will record the following information for each sample collected:

- Client's name
- Location of sampling activity
- Name of sampler
- Date and time
- Well accessibility and integrity
- Physical and environmental conditions during field activity
- Name and title of field crew
- Name and title of any site visitors
- Type of samples media (for example, soil, sediment, and groundwater)
- Sample collection method
- Number and volume of sample(s) taken
- Description of sampling point(s)
- Sample identification number(s)
- References for all maps and photographs of the sampling site(s)
- Field observations
- Field measurements such as pH, specific conductance, temperature, water level, etc.

Labels

Sample labels will contain the following information:

- Sample identification (i.e., County sample location designation)
- Sampler's initials
- Date and time of collection

FIELD QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

Quality Assurance/Quality Control (QA/QC) measures will be taken to confirm the integrity of the field and laboratory data generated during the monitoring program. The procedures used to assess data quality are described in this section.

Field Quality Assurance Procedures

Quality assurance procedures for the sampling program will consist of collecting field equipment blanks (if necessary), trip blanks, and duplicate samples. In the event all sampling points are equipped with dedicated equipment (i.e., pumps or dedicated bailers), equipment blanks will not required. The trip blank will remain with the bottles used for sampling for the duration of the sampling event, and at no time will the trip blank be opened. The trip blank will provide a check on bottle cleaning procedures and sample transport conditions. The trip blank sample will be analyzed for volatile organic compounds. Finally, duplicate samples will be periodically collected to check the reproducibility of the laboratory.

ANALYTICAL METHODS AND PROCEDURES

Laboratory analysis will be performed by a State certified analytical laboratory. Samples collected as part of the monitoring program will be analyzed consistent with accepted analytical procedures.

APPENDIX C

SITE HEALTH AND SAFETY PLAN

SITE HEALTH AND SAFETY PLAN

Project No.: 08-1528

Field Activities Date: Fall 2008

Client: New Railroad Square LLC

Address: 8758 Venice Blvd., Suite 101
Los Angeles, California 90034

Contact Person: Mr. John Stewart

Telephone No.: (310) 836-1342

Job Location: SMART Property, Santa Rosa, California
(2 Fourth Street and 34 Sixth Street)

Project Description: Soil Boring Drilling

Project Manager: Paul Nelson

Site Health & Safety Manager: Tim Nielsen

Chemical Hazards:

CHEMICAL NAME	DESCRIPTION	HEALTH & SAFETY STANDARDS	POTENTIAL ROUTES OF EXPOSURE	SYMPTOMS ACUTE EXPOSURE
Benzene	Carcinogen, aromatic HC	8-hr. TLV=10 ppm PEL=1 ppm	Inhalation, dermal	Headache, dizziness
Toluene	Aromatic HC	8-hr. TLV=100 ppm	Inhalation, dermal	Headache, dizziness
Xylenes	Aromatic HC	8-hr. TLV=100 ppm	Inhalation, dermal	Headache, dizziness
Ethylbenzene	Aromatic HC	8-hr. TLV=100 ppm	Inhalation, dermal	Headache, dizziness
Bunker oil	Combustable liquid	8-hour PEL=5 mg/m^3	Inhalation, dermal	Irritant, dizziness,
Tetrachloroethene	Colorless Liquid	8-hr. TLV = 100 ppm IDLH = 150ppm	Inhalation, absorption ingestion, dermal contact	Headache, dizziness, eye/skin irritation
Trichloroethene	Colorless Liquid	8-hr. TLV=10 ppm IDLH = 100 ppm	Inhalation, absorption ingestion, dermal contact	Dermal irritant, CNS depressant, organ
Trichloroethylene	Colorless Liquid	8-hr. TLV = 100 ppm IDLH = 1000 ppm	Inhalation, absorption ingestion, dermal contact	Dermal irritant, headache, visual disturbance, nausea, tremor
1,1-Dichloroethane	Colorless Oily Liquid	8-hr. TLV = 100 ppm IDLH = 3000 ppm	Inhalation, ingestion, dermal contact	Dermal irritant, carcinogen, Organ damage
1,1-Dichloroethene	Colorless Liquid	8-hr. TLV = 1 ppm STEL = 5 ppm	Inhalation, dermal contact	Weakness, abdominal pain, Gastrointestinal Bleeding, palor
Cis-1,2-Dichloroethene	Colorless Oily Liquid	8-hr. TLV = 200 ppm IDLH = 1000 ppm	Inhalation, ingestion, dermal contact	Dermal irritant, carcinogen, Organ damage

Note: Health and safety standards refer to airborne concentrations to which nearly all workers may be repeatedly exposed daily without harmful effects. The concentrations are time-weighted averages for a normal 8-hour work period.

Physical Hazards: Fire and explosion (primarily gasoline), heat stress, heavy equipment, noise, overhead and underground utilities.

Personal Protective Equipment Required: First aid kit, hardhat, eye protection, noise protection, chemical-protective gloves, steel-toed rubber boots, respirator with organic vapor cartridge.

Air Monitoring Strategy (including action levels): Monitor breathing zone for total volatile organic compounds (VOCs) with photoionization detector (PID) meter (parts per million by volume [ppmv] scale). If greater than 5 ppmv in breathing zone for five minutes or greater than 30 ppmv instantaneous, don respirator and/or go upwind of source. Don respirator if fuel odor persists or go upwind of source. Record all measurements in field notebook.

Site Control Measures: 1) no eating, drinking, or smoking in work area; 2) bring drinking water; 3) decontaminate boots and sampling equipment prior to leaving site; 4) inform workers (including non EBA workers) on-site of elevated VOC readings and document.

Decontamination Procedures (personal and equipment): Decontaminate boots and soil sampling equipment with trisodium phosphate (TSP) and water. Wash and rinse sampling equipment with clean water. Store rinse water in 55-gallon drums (labeled) pending receipt of laboratory results or discharge rinse water into contained stockpile awaiting final disposal or treatment.

Decontaminate heavy equipment by scraping loose material, then wash with steam cleaning unit. Collect and combine loose material and rinsate in stockpile awaiting final disposal or treatment.

Hospital: Memorial Hospital **Phone:** (707) 546-3210

Address: 1165 Montgomery Drive, Santa Rosa California

Directions from Project Site to Hospital:

1) From the site proceed east on West Third Street to Third Street.
2) Continue east on Third Street to Montgomery Drive.
3) Continue on Montgomery Drive to 1165 Montgomery Drive
4) Turn left into 1165 Montgomery Drive to Memorial Hospital

Directions from Hospital to Project Site:

1) From the Hospital proceed west on Montgomery Drive to Third Street.
2) Continue west on Third Street to West Third Street.
3) Continue on West Third Street to Project Site.
4) Turn right into the Project Site

SITE HEALTH AND SAFETY PLAN
(Continued)

Paramedic: 911 **Fire/Police Dept.:** 911

Emergency Procedures: Call 911 for fire or serious injury. Proceed to hospital (see map) if necessary for minor injuries. Call EBA (707) 544-0784.

Prepared by: Timothy Nielsen **Reviewed/Approved by:** Paul Nelson

Date: August 2008 **Date:** August 2008

Read by: **Date:**

Read by: **Date:**

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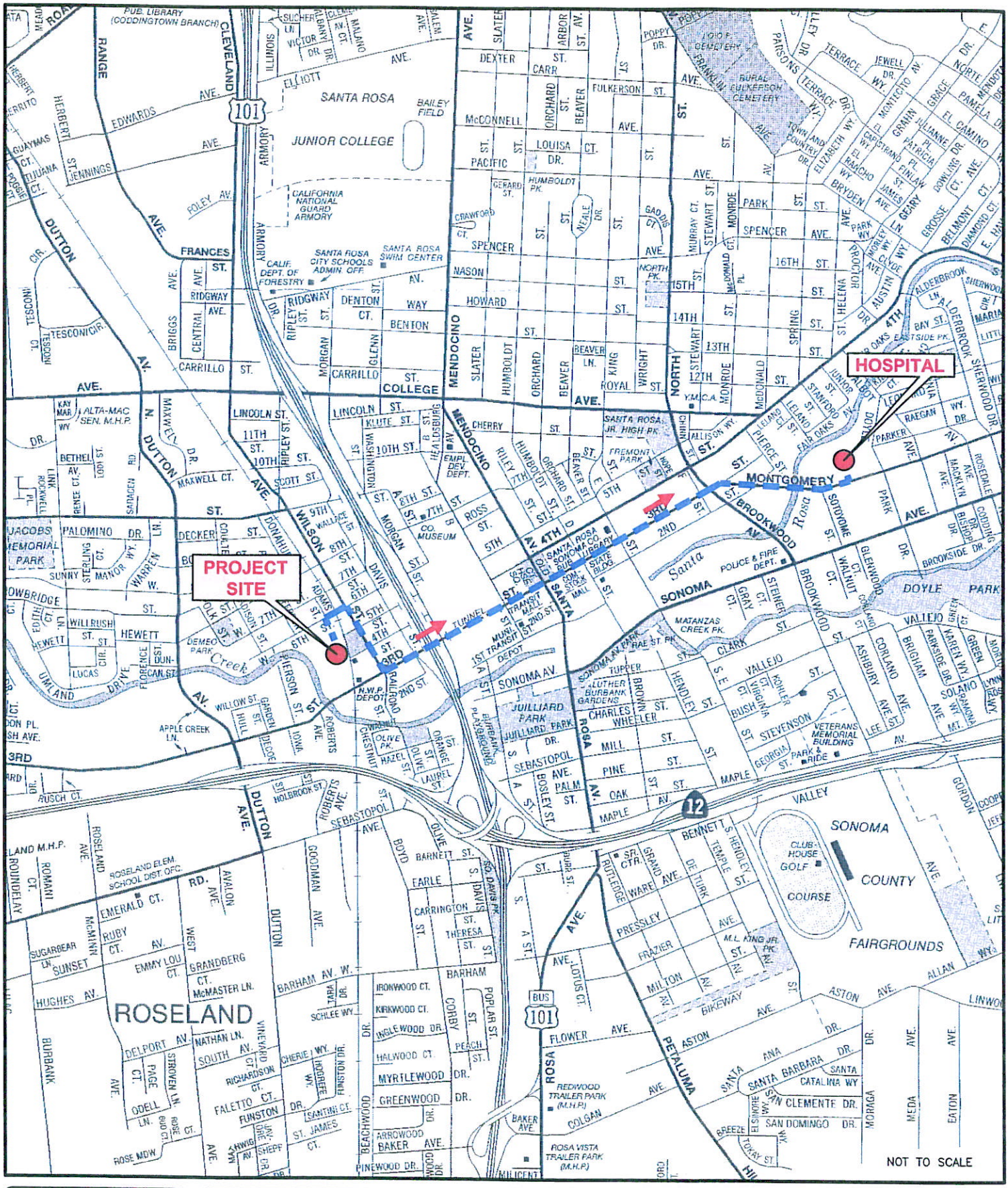

EBA ENGINEERING

HOSPITAL MAP

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

FIGURE
H
08–1528

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