PRELIMINARY ENDANGERMENT ASSESSMENT WORKPLAN
MODESTO JUNIOR COLLEGE WEST CAMPUS
FORMERLY USED DEFENSE SITE
HAMMOND GENERAL HOSPITAL
2201 BLUE GUM AVENUE
MODESTO, CALIFORNIA

Project No. 014-06256
July 14, 2008

Prepared for:
Mr. Matthew Kennedy
Yosemite Community College District
c/o Kitchell CEM
2201 Blue Gum Avenue, Room 1301
Modesto, California 95358

Prepared by:
Krazan & Associates, Inc.
2205 Coy Avenue
Bakersfield, California 93307
(661) 837-9200

TABLE OF CONTENTS
Project No. 014-06256

Page

TABLE OF CONTENTS (cont.)
Project No. 014-06256

July 14, 2008 Project No. 014-06256

PRELIMINARY ENDANGERMENT ASSESSMENT WORKPLAN
MODESTO JUNIOR COLLEGE WEST CAMPUS
FORMERLY USED DEFENSE SITE
HAMMOND GENERAL HOSPITAL
2201 BLUE GUM AVENUE
MODESTO, CALIFORNIA

1.0 INTRODUCTION

At the request of Kitchell CEM (Kitchell), Krazan & Associates, Inc. (Krazan) has prepared this Workplan for the Preliminary Endangerment Assessment (PEA) for proposed redevelopment areas at the Modesto Junior College West Campus (MJCWC) that is located on the Formerly Used Defense Site (FUDS)- Hammond General Hospital (HGH) (See Vicinity Map, Figure 1). The scope of work outlined in this Workplan is based on the findings of Krazan's Preliminary Conceptual Site Model (PCSM) prepared for the Yosemite Community College District (YCCD) dated February 11, 2008; a site visit by Krazan and the California Environmental Protection Agency (Cal EPA) Department of Toxic Substances Control (DTSC) representatives on March 17, 2008; and the DTSC's comments on the PCSM in its letter dated March 26, 2008, prepared by Mr. Lance McMahan with the DTSC's Office of Military Facilities and Mr. Michael Finch with the Geologic Services Unit (GSU) of the DTSC.

The objective of the PCSM was to provide a conceptual understanding of the potential for exposure to constituents of concern (CoCs) as they relate to six Operable Units (OUs) that are planned for redevelopment at MJCWC. The purpose of he PCSM was to identify and describe the sources of the contamination, areas of concern (AOCs), constituents of concern (CoCs), release/transport mechanisms, possible migration routes, and the potential receptors, as well as historical uses of the site, cleanup concerns, current site conditions, and future land use plans. The six OUs are identified for the purposes of the PCSM and this Workplan as:

- Agricultural Modular Living Units project area (OU1-Ag Housing);
- Allied Health & Life Science Building project area (OU2-Allied Health);
- Agricultural Multi-Purpose Pavilion Facility project area (OU3-Ag Pavilion);
- Softball Complex project area (OU4-Softball Complex);
- Agricultural Beef Unit (OU5-Beef); and
- Alternate Softball Complex (OU6-Alternate Softball Complex)

1.1 Workplan Purpose and Objective

The purpose and objective of the workplan is to present a step-wise approach for the investigation of potential environmental impacts related to potential historical release mechanisms identified in the PCSM and identified by the DTSC in its review of the PCSM within the six OUs. Additionally presented are the Quality Assurance Project Plan (QAPP) (See Appendix A) and the Health and Safety (H&S) Plan (See Appendix B).

2.0 SITE DESCRIPTION

MJCWC is located within the northern half of Section 24, Township 3 South, Range 8 East, Mount Diablo Baseline and Meridian (MDBM). A small southeastern portion of the MJCWC is located within the southwestern quarter of the northwestern quarter of Section 19, Township 3 South, Range 9 East, MDBM (See Figure 1). The MJCWC comprises approximately 168 acres and is at an elevation between 72 and 82 feet above mean sea level (MSL). MJCWC is located in an area that is predominantly rural residential/agricultural setting with some light commercial uses. MJCWC is bounded to the north by Shoemake Avenue (rural residential and agricultural use); to the east by Brink Avenue (Union Pacific Railroad, beyond which is State Route 99, beyond which is commercial); to the south by Blue Gum Avenue (commercial/residential/vacant land); and to the west by 2nd Street (Alternative High School/Juvenile Detention Center/ rural residential) (See Figure 2).

2.1 Geology and Hydrogeology

MJCWC is located within the San Joaquin Valley, a broad structural trough bound by the Sierra Nevada and Coast Ranges of California. The San Joaquin Valley, which comprises the southern portion of the Great Valley of California, has been filled with up to ten thousand feet or more of sedimentary deposits. Sediments in the eastern valley, derived from the erosion of the Sierra Nevada, have been deposited by major to minor west-flowing drainages and their tributaries. Near-surface sediments are dominated by unconsolidated gravels, sands and silts and clays. The sedimentary deposits in the region form large coalescing alluvial fans with gentle slopes. The soil type within MJCWC is Modesto loam, (0-1 percent slopes) which is part of the Hanford (Pipperdan)-Tujunga soil association. Modesto loam is a grayish-brown loam, very hard, and slightly acid to neutral. The soil has moderately good drainage with very slow runoff and slow permeability. Other soil textures include clay, sandy clay, sandy clay loam, sandy loam, and silty clay. Clay content ranges from 15 to 30 percent within the loam portions and 40 to 60 percent in the clay portions (Soil Conservation Service, 1964). The Workplan will collect site specific lithologic information.

According to the State of California Department of Water Resources (DWR), MJCWC is located in the Modesto Subbasin of the San Joaquin Valley Groundwater Basin. The primary groundwater-bearing formation in the Modesto Subbasin is the Mehrten Formation. Groundwater in the area is reported to be first encountered at a depth of approximately 25 feet below ground surface. According to the DWR Groundwater Contour Map, Lines of Equal Depth to Water in Wells, Spring 2005, groundwater flow in the area of MJCWC is to the southeast and is found at a depth between 20 and 30 feet bgs. Groundwater recharge areas at MJCWC, include a storm water retention basin on the west side of the MJCWC, a lined irrigation canal located along the northern boundary of the MJCWC, various grazing land irrigation areas, and potentially storm drain and sewer line exfiltration. These recharge areas are denoted on Figure 2 as Stormwater Basin, Modesto Irrigation District Lateral No 3 Canal, and Grazing Land. Additionally, storm drain and sewer lines are depicted on the Existing Utilities Maps which is included in Appendix D. Groundwater extraction points include four wells installed by the US Army during World War II. Extraction points are shown on Figure 2 as Pump House (Active Agricultural Water Wells). Groundwater flow directions and gradients, both vertical and horizontal, are unknown at this time; therefore, there is no "presumed downgradient" location. The Workplan includes installation of wells and piezometers to collect this information.

2.2 History

In March and June of 1942, the USACE acquired 220.82 acres of agricultural land located in Modesto, Stanislaus County, California, and immediately began building the U.S. Army Hammond General Hospital (HGH). HGH is identified as a USACE formerly used defense sites (FUDS) facility. The former HGH was a 2,556-bed military hospital which included medical wards and clinics, dental clinics, x-ray facilities, barracks, offices, warehouses, mess halls, and living quarters. HGH also maintained six detention wards for the mentally ill and prisoner patients. In addition to the medical facilities, the former HGH was designed to be a self-sustained facility which included: pump houses for water production from on-site water wells; a boiler house with associated heating fuel USTs; wastewater treatment and disposal facilities including sewer and storm drains, ponds and sludge drying beds; an incinerator; a crematorium; vehicle repair shop and fueling station; utility shops; equipment maintenance facilities; paint shops and spray booths; a cold-storage facility; a laundry facility; and a 40-acre military camp that included a shooting range and a gas chamber for chemical warfare training. The hospital barracks, employee quarters, and medical facilities were generally located within the southern portion of HGH. Facility operations such as the maintenance facilities, the boiler house, the laundry, and the sewage treatment plant were generally located within the northern portion of HGH. Reportedly, the former hospital was likely to have operated a landfill and burn pit for solid waste disposal. In December of 1945, the U.S. Army closed the HGH and in 1946 transferred it to the War Assets Administration. HGH was

subsequently transferred to the State of California Department of Mental Hygiene which operated the Modesto State Mental Hospital (MSMH) from approximately 1947 until 1966. The former MSMH maintained the hospital barracks, employee quarters, medical facilities and maintenance facilities that were utilized during operation of the HGH. MSMH ceased operations in approximately 1966 and property was transferred to the Yosemite Community College District (YCCD) and converted to the existing MJCWC which has occupied approximately 168 acres of the former HGH and MSMH property from 1970 to the present.

According to the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) records, the former on-site HGH is listed as a military site which needs further evaluation in order to determine the potential for impacts to the subsurface. Potential contaminants associated with the former HGH include mercury, solvents, formalin, fuels, waste oils, x-ray wastes (silver, lead shields), paints (various metals, solvents), pesticides, dioxins, furans, polychlorinated biphenyls (PCBs), chemical warfare materials, and asbestos. Potential releases may have occurred from USTs, leaking transformers, direct disposal to the ground, incineration, leakage from wastewater collection systems, the wastewater treatment plant disposal ponds, and sludge drying beds. Mr. Lance McMahan with the DTSC is the project manager for the former HGH.

2.3 Previous Investigations

The following is a list of investigations and assessments conducted at the MJCWC. These investigations and assessments were reviewed, summarized and presented in Krazan's PCSM dated February 11, 2008.

- *Hammond General Hospital Limited Scope Site Inspection Final Report* conducted by the Environmental Design Section, USACE, September 1999.
- *Proposed Mitigated Negative Declaration/Initial Study, Modesto Junior College West Campus Firing Range Removal Project,* URS Corporation March 2005.
- *Hammond General Hospital, No Defense Department Actions Indicated (NDAI) Proposal, USACE,* November 22, 2005.
- *Focused Phase I Environmental Site Assessment*, Krazan, May 1, 2007.
- *Phase II Limited Subsurface Assessment*, Krazan, May 24, 2007.
- *Limited Methane Assessment*, Krazan, June 12, 2007.

The following summarizes the previous investigations and assessments as they relate to the proposed OUs.

Hammond General Hospital Limited Scope Site Inspection Final Report **conducted by the Environmental Design Section, USACE, September 1999**

According to the USACE Limited Scope Site Inspection (LSSI) report, the purpose of the inspection was to determine if contamination was present from materials disposed in the landfill resulting from previous hospital practices and to evaluate the relative risk of contaminants, migration pathways, and receptors, and to prioritize subsequent environmental restoration work. The objective was to determine if refuse deposited in the landfill had impacted groundwater. According to the LSSI, the former landfill is located in the northeastern portion of the former HGH site, adjacent to the water canal. During June 1999, the USACE advanced three borings to groundwater adjacent to the suspected location of the landfill. The borings were advanced adjacent to the south, west and north of the reported location of the landfill. Groundwater samples were subsequently collected and analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260; and Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270. According to the analytical results, no VOCs or SVOCs were detected in groundwater from the three groundwater sample locations. *The LSSI report concluded that no further action is recommended for the landfill at HGH.*

Proposed Mitigated Negative Declaration/Initial Study, Modesto Junior College West Campus Firing Range Removal Project**, URS Corporation, March 2005**

The proposed OU6-Alternate Softball Complex project area is located within the former firing range area. According to a March 2005 URS Corporation *Proposed Mitigated Negative Declaration/Initial Study, Modesto Junior College West Campus Firing Range Removal Project,* in October 2001, the Board of Trustees of the YCCD authorized the closing of the MJCWC firing range and a cleanup of the lead at the range and the surrounding area.

In April 2001, YCCD undertook hazardous materials investigations at the firing range. These revealed high levels of lead contamination from range ammunition on the range structures and building surfaces, storm water drainage and ventilation systems, and in and on the soil surrounding the facility. Lead was also discovered in drains and in sediments in the campus storm water retention basin, where water from the range was being discharged. In addition, asbestos was found to be present in sound-insulating materials. Lead and asbestos abatement was also carried out at the range between November 19 and December 2, 2001, over a period of about two weeks. Abatement activates included the following:

Manual and Mechanical Removal of Surface Soils
Testing prior to the abatement work indicated that lead contamination and shrapnel was present in surface soils in some areas at distances of at least 20 feet outside the range fence. The soil surfaces on and surrounding the berms were raked manually to collect as much of this material as possible. The collected material was disposed as RCRA waste. In addition, the upper six inches of soil (with a total volume of 40,000 cubic feet) was excavated from the inner and outer surfaces of the berms, from the adjacent areas inside the fence, and for a distance of 20 feet in each direction outside the fence.

Cleaning of De-watering System
To access the interior storm drainage system, the concrete floor of the range was cut and a small area of concrete was removed to expose piping and the cistern. The inside of the interior pipes was then cleaned with a roto-rooter. The cistern walls and floor and the grating wells were also cleaned of all soil and debris (Hazardous Management Services, Incorporated [HMS] 2002).

Post Cleanup Testing
Post cleanup testing of the soils in the berms was conducted to establish and document the effectiveness of the cleanup (HMS, 2002).

Off-haul of wastes
Hazardous and non-hazardous wastes generated by the abatement activities were off-hauled on December 27 and 28, 2001. Off-haul involved three truckloads of RCRA wastes, 31 truckloads of California-regulated wastes, and eight truckloads of non-hazardous wastes (HMS 2002). The range would continue to be depressed below grade, and the fence would be maintained for safety reasons. The slopes of the depression would be graded and seeded with native grass species to stabilize the slopes and to control air-borne dust. The range would remain vacant in the immediate future.

***Hammond General Hospital, No Defense Department Actions Indicated (NDAI) Proposal, USACE*, November 22, 2005**

The USA CE November 22, 2005 letter proposing No Defense Department Actions Indicated (NDAI) for HGH included a September 7, 2005 Trip Report prepared by the USA CE contractor, Tetra Tech. The Trip Report states, in part, that Tetra Tech "...revisited the site where former USTs (associated with former Central Heating Plant), and possibly a railcar, were suspected to be buried. The area was swept using a magnetometer. As the terrain was swept, a strong positive signal indicative of the presence of ferromagnetic material was observed at several locations." The USA CE also determined there was no evidence of a landfill at HGH.

By letter dated March 29, 2006, DTSC rejected the November 22, 2005 USA CE NDAI conclusions and recommendations, and requested the USACE prepare a site investigation work plan.

***Focused Phase I ESA*, conducted by Krazan, May 1, 2007**

From December 2006 through April 2007, Krazan conducted a Focused Phase I Environmental Site Assessment for portions of the MJCWC. Four project areas (OU-1, -2, -3, and -4) were the focus of the Phase I.

Proposed Agricultural Modular Living Units Project Area (OU-1 Ag Housing)
The proposed OU1-Ag Housing project area is proposed to be constructed directly over a portion of the former sewage treatment plant which serviced the HGH facility. Additionally, the proposed location is west of an undocumented landfill and burn pit that are rumored to have been operated by the HGH. The Focused Phase I ESA concluded: *Consequently, further investigation appears to be warranted regarding the presence or absence of subsurface impacts from constituents of concern related to the former sewage treatment facility at this location and the reported former landfill and burn pit that were reportedly located within the area of the project.*

Proposed Allied Health & Life Science Building Project Area (OU2-Allied Health)
The proposed OU2-Allied Health project area is located between 3rd and 4th Streets, south of "E" Street and north of "B" Street. Former fuel oil USTs were located to the northwest of the proposed location. It is possible that groundwater underlying the proposed OU2-Allied Health project area may have been impacted as the result of migration. There is currently no material evidence of such an impact as no data has been revealed indicating a potential release at MJCWC. The Focused Phase I ESA concluded: *Consequently, the condition of the subsurface underlying the proposed OU2-Allied Health project area is unknown and further investigation appears to be warranted*

Proposed Agricultural Multi-Purpose Pavilion Facility Project Area (OU3-Ag Pavilion)
The proposed OU3-Ag Pavilion project area is located within the northeastern portion of MJCWC and is bordered by Student Center Drive along the south and west sides and Brink Avenue along the east.

Krazan's research indicates that two leaking UST sites are located on the north side of Sisk Road near the intersection of Briggsmore Avenue and State Route 99, to the north-northeast and hydraulically upgradient of MJCWC. Based upon review of available data, it is unknown whether groundwater has been impacted underlying the MJCWC in the proposed OU3-Ag Pavilion project area. The Focused Phase I ESA concluded: *Consequently, the condition of the subsurface underlying the proposed OU3-Ag Pavilion project area is unknown related to gasoline constituents and further investigation appears to be warranted.*

Proposed Softball Complex Project Area (OU4-Softball Complex)
The proposed OU4-Softball Complex (SC) project area is located south of Student Center Drive and west of Collegiate Lane. During Krazan's December 20, 2006 and January 16, 2007 site reconnaissances, a dual-chamber sump and a drain were observed to the north of the Portland cement concrete (PCC) foundations, in proximity to the reported proposed Softball Complex project area. Krazan's assessor was unable to assess the structural integrity of the sump. Additionally, no information regarding the sump and its historical use/purpose or information regarding the use of the former warehouses and potential hazardous materials historically utilized within the warehouses was obtained during the course of that assessment. Based on Krazan's experience with comparable sumps, the potential for a significant impact to the subsurface of MJCWC resulting from the operation of the sump appears to be low. However, due to presence of the sump and the unknown circumstance related to the historical use of the warehouses and sump, the potential exists for subsurface impacts to MJCWC by potential past releases of hazardous materials from the sump. The Focused Phase I ESA concluded: *Consequently, the condition of MJCWC subsurface associated with the sump is unknown*

***Phase II Limited Subsurface Assessment*, Krazan, May 24, 2007.**

Krazan conducted a Phase II Limited Subsurface Assessment (Phase II) at the MJCWC during April 2007. The Phase II was conducted in order to ascertain the potential for significant impacts to the environment related to proposed new-construction and facilities-improvement projects. The areas investigated included the Agricultural Modular Living Units project area (OU1-Ag Housing); Allied Health & Life Science Building project area (OU2-Allied Health); Agricultural Multi-Purpose Pavilion Facility project area (OU3-Ag Pavilion); Softball Complex project area (OU4-Softball Complex).

The scope of work for the Phase II Limited Subsurface Investigation included sampling and analysis of the groundwater and soils at the aforementioned proposed project areas on the MJCWC. On April 18, 2007, Krazan advanced 10 soil borings utilizing a truck-mounted/direct push technology. Four borings were advanced to groundwater in order to collect grab-groundwater samples utilizing hydro-punch methodology. The additional six borings were advanced for the collection of discrete soil samples. Soil samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260B; Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270C; Nitrates by EPA Method 353.3; Total Kjeldahl Nitrogen (TKN) by EPA Method 351.1; General Minerals (GMs) by various Methods; CAM 17 Metals (Metals) by EPA Method Series 6000-7000; PCBs by EPA Method 8082; Organochlorine Pesticides (OCP) by EPA Method 8081A; and Chlorinated Herbicides (CH) by EPA Method 8151A, total petroleum hydrocarbons as gasoline (TPH-G), Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX), Methyl Tert Butyl Ether (MTBE) by EPA Method 8015B and 8021B, total petroleum hydrocarbons as diesel TPH-D by EPA Method 8015B and total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418.1. The following background information is summarized according to locations of the proposed new-construction projects:

OU-1 Ag Housing
Three soil borings (B-1, B-7, and B-8) were advanced within the proposed Agricultural Modular Living Units project area (See Figure 2). Soil samples were collected at one, five, 10, and 15 feet bgs. One boring was advanced to groundwater at approximately 29 feet bgs and a grab-groundwater sample was

collected. The soil samples collected at one, five, and 10 feet bgs were submitted for analyses of VOCs, SVOCs, Nitrates, TKN, and GMs. The analytical results of the soil and groundwater samples are summarized below and included in Table I and Table II following the text of this workplan.

Soil samples collected at one and five feet bgs were analyzed for Metals, PCBs, OCPs, and CHs. The analytical results indicate that the soil samples were reported as none detected (ND) for VOCs and SVOCs. Nitrates, TKN, and GMs were reported at concentrations that do not appear to indicate an environmental concern. Soil samples collected for analysis of PCBs, OCPs, and CHs were reported as ND except for a trace concentration of DDE at 0.0044 mg/kg. Metals were reported at non-hazardous concentrations.

The grab-groundwater sample collected was submitted for analyses of VOCs, SVOCs, Metals, Nitrates, TKN, TPH-G, BTEX, MTBE, and TPH-D. The analytical results indicate the grab-groundwater sample was reported as ND for VOCs except for trace concentrations of Toluene and m,p-Xylene at 9.1 micrograms per liter (µg/l) and 1.9 µg/l, respectively. SVOCs were reported as ND except for a trace concentration of Dimethylphthalate at 6.6 µg/l. TPH-G, MTBE, and TPH-D were reported at ND. BTEX were reported with trace concentrations of 0.52 µg/l, 7.3 µg/l, 0.81 µg/l, and 3.4 µg/l, respectively. Nitrates and TKN were reported at concentrations that do not appear to indicate an environmental concern and metals were reported at non-hazardous concentrations.

OU-2 Allied Health
Four soil borings (B-2, B-4, B-5, and B-6) were advanced to two feet bgs within the Allied Health and Life Science Building project area (See Figure 2). Soil samples were collected at two feet bgs from each of the four borings in this area and were submitted for analyses of VOCs, SVOCs, and Metals. The analytical results of the soil samples are summarized below and included in Table III.

The analytical results indicate that the soil samples collected at two feet bgs were reported as ND for VOCs and SVOCs and reported at non-hazardous concentrations for Metals.

Two soil borings were subsequently advanced to groundwater at approximately 29 feet bgs and a grab-groundwater sample was collected from each of the borings. The groundwater samples were submitted for analyses of VOCs, SVOCs, TPH-G, TPH-D, BTEX, and MTBE. The analytical results of the grab groundwater samples are summarized below and included in Table IV.

The analytical results indicate that the grab-groundwater samples were reported as ND for TPH-D, MTBE, SVOC and VOCs except for trace concentrations of Toluene at 4.4 µg/l, m,p-Xylene at 2.0 µg/l and p-Xylene at 1.1 µg/l. TPH-G was reported at a concentration of 54 µg/l in one of the samples and BTEX were reported with trace concentrations of 0.50 µg/l, 0.33 µg/l, 0.65 µg/l, and 3.0 µg/l, respectively.

OU-3 Ag Pavilion and Proposed OU-4 Softball Complex
Two soil borings (B-3 and B-9) were advanced within the general area of the proposed OU3-Ag Pavilion project area. Additionally, one soil boring (B-10) was advanced with the area of the proposed OU4-Softball Complex (See Figure 2).

Soil boring B-3 was advanced to two feet bgs within the proposed OU3-Ag Pavilion project area and a soil sample was collected. The soil sample collected at two feet bgs was submitted for analysis of TKN, GMs, Metals, OCPs, and CHs and was reported as ND for OCPs and CHs. The analytical results of the soil samples are summarized below and included in Table V.

Metals, TKN, and GMs were reported at non-hazardous levels or concentrations that do not appear to indicate an environmental concern. After collection of the soil sample, soil boring B-3 was advanced to groundwater, approximately 29 feet bgs, within OU3-Ag Pavilion project area and a grab-groundwater

sample was collected. The sample was submitted for analyses of Nitrates, TKN, TPH-G, TPH-D, BTEX, and MTBE. The analytical results of the grab groundwater sample is summarized below and included in Table VI. The analytical results indicate the grab-groundwater sample was reported as ND for TPH-G, TPH-D, and MTBE. BTEX were reported with trace concentrations of 0.58 µg/l, 3.8, µg/l, 0.63 µg/l, and 3.0 µg/l, respectively. Nitrates and TKN were reported at concentrations that do not appear to indicate an environmental concern.

Soil boring B-9 was advanced to two feet bgs within the southern area of the proposed OU3-Ag Pavilion and a soil sample was collected. The soil sample collected at two feet bgs was submitted for analysis of TKN, GMs, Metals, OCPs, and CH. The analytical results indicate the soil sample was reported as ND for OCPs and CHs. Metals, TKN, and GMs were reported at non-hazardous levels or concentrations that do not appear to indicate an environmental concern.

Soil boring B-10 was advanced to ten feet bgs within the area to the south of the proposed OU3-Ag Pavilion and within the OU4-Softball Complex project area at the location of an oil/water separator sump. A soil sample was collected at five feet bgs and submitted for analysis of TRPH. The analytical results indicate that the soil sample contained a trace concentration of 12 mg/kg for TRPH.

In a letter dated March 26, 2008, the DTSC noted that during the above referenced investigation, soil samples were collected and submitted to the laboratory in brass sleeves for analysis of VOCs. The DTSC noted that studies have shown that this method can lose more than 50% of VOCs prior to analysis. The DTSC recommended that soil samples collected for analysis of VOCs should follow EPA Method 8260 which includes utilizing Encore, methanol or bisulfate preservation methods.

***Limited Methane Assessment Report*, Krazan, June 12, 2007**

During May 2007, Krazan conducted a limited assessment for the presence of methane in soil within the north-central portion of the MJCWC, proximate to the locations of proposed OU1-Ag Housing building construction sites in the vicinity of a reported landfill (See Figure 2). The purpose of the work was to conduct a preliminary screening of soil in the vicinity of the proposed OU1-Ag Housing facilities to be constructed west of the reported landfill location and in the vicinity of existing structures to the east of the reported landfill location associated with the campus dairy/beef facilities which are proposed for redevelopment. The area around the reported landfill location is used for grazing sheep and cattle. As noted in Krazan's May 1, 2007 Focused Phase I ESA report, the presence, location and contents of the reported landfill are unknown. However, in the event a landfill is present, decomposition of buried organic materials can generate organic gases and a common organic gas is methane. Therefore, Krazan sampled the soil gas for methane as an indicator compound for landfill gases. This limited methane assessment was not intended to locate or fully assess the reported landfill.

On May 14, 2007, six soil borings were advanced using a Geoprobe direct-push method. Soil-gas was sampled in each boring at depths of five, 10, and 15 feet bgs. Extracted soil gas was measured for percent of lower explosive limit (LEL) of methane using RKI Instrument Eagle Portable Multi-Gas Detector. Percentage of carbon dioxide and oxygen were also measured. The results and findings of the Limited Methane Gas Investigation indicated that extracted soil gas from the six borings did not have any discernable odors. The results of the assessment indicated that one soil gas sample from the three southwestern soil borings (V-1, V-2, and V-3) contained measurable methane at 0.0035 percent. Five soil gas samples from the southeastern soil borings (V-4, V-5, and V-6) contained measurable methane ranging from 0.0060 to 0.0095 percent. Each of the six soil gas samples which contained measurable methane contained measurable carbon dioxide from 0.20 to 0.80 percent. Most of the soil-gas samples contained oxygen at 20.9 percent; two samples had 20.5 and 20.4 percent, respectively. According to the California Code of Regulations, Title 27, Section 20921: (1) The concentrations of methane gas must not exceed 1.25 percent by volume in air within on-site structures. (2) The concentrations of methane gas

migrating from the landfill must not exceed 5 percent by volume in air at the facility property boundary or an alternative boundary approved in accordance with Section 20925.

In a letter dated March 26, 2008, the DTSC noted that the Active Soil Gas samples taken on May 14, 2008 contained high levels of oxygen (all over 20%). The DTSC further noted that that a tracer gas compound was not used as per DTSC guidelines for Active Soil Gas Assessments and suspects that ambient air breakthrough occurred. DTSC requested the District re-do the soil gas sampling, because no conclusions can be drawn from the May 14, 2007 soil gas samples.

2.4 Records Review – Off-Site Properties

As part of the Focused Phase I ESA conducted for MJCWC in May 2007, Krazan reviewed records on file with the SCHMD, RWQCB and the DTSC for properties in the vicinity of MJCWC that may have an environmental impact on MJCWC. The following is a summary of the status of off-site properties that were deemed to have a potential to pose an adverse impact to MJCWC, based on their location generally hydraulically upgradient of MJCWC. Additionally, a review of records for an adjacent property UST removal is presented.

Chevron #96397 - 1600 Sisk Road, Modesto, California

According to the RWQCB records, in October 1998, three 10,000-gallon gasoline USTs, one 10,000-gallon diesel UST, one 1,000-gallon waste oil UST, three hydraulic hoists, two fuel dispenser islands, and the associated product piping were removed from this facility. This facility is located approximately 800 feet to the northeast of the eastern boundary of MJCWC (See Figure 2). One 25,000-gallon gasoline UST and one 15,000-gallon gasoline UST are currently located at this facility. Analytical results of soil samples collected revealed the presence of PHCs in the subsurface associated with the USTs. Grab-groundwater samples collected from beneath the USTs revealed elevated concentrations of PHCs including MTBE. Due to the presence of PHCs in groundwater, a groundwater monitoring program was initiated at this facility. Seven on-site monitoring wells and four off-site monitoring wells have been installed and sampled as part of the groundwater monitoring program since November 1998. Analytical results of the groundwater samples have revealed elevated concentrations of PHCs in groundwater beneath the Chevron facility. Monitoring well 4 (MW-4), an off-site monitoring well, was installed on the MJCWC at the southwestern corner of Collegiate Lane and Student Center Drive in 1998. Analytical results of groundwater samples collected from MW-4 on a quarterly basis from 1998 to 2002 were reported as ND for PHCs. The monitoring event in March 2003 reported the groundwater sample from MW-4 with 1 part per billion (ppb) for Toluene and all other PHCs as ND. Since November 2003, MW-4 was sampled on an annual basis. In February 2004, MW-4 was reported with a Benzene concentration of 2 ppb, all other PHCs were reported as ND. MW-4 has been reported as ND for PHCs since 2004. Since February 2007, groundwater sampling at MW-4 has been discontinued. Analytical results from a monitoring well located approximately 600 feet to the north of MJCWC revealed detectable concentrations of TPH-D at 169 ppb in 1998 and have been reported as ND for PHCs since. As of May 2007, the depth to groundwater beneath this facility is approximately 25 feet bgs and the groundwater flow direction is reported to be southeasterly.

Shell Service Station -1606 Sisk Road

According to the RWQCB records, three 10,000-gallon USTs and four associated fuel dispensers are located at this facility. This facility is located approximately 700 feet to the northeast of the eastern boundary of MJCWC (See Figure 2). In August 2002, as part of a fuel dispenser and product piping upgrade at this facility, soil samples were collected beneath the former dispensers and product piping. Analytical results of two soil samples revealed detectable concentrations of PHCs. Approximately 50

cubic yards of soil was over-excavated. Analytical results of confirmation soil samples collected from the excavation did not reveal detectable concentrations of PHCs. In September 2002, three groundwater monitoring wells were installed at this site. A quarterly groundwater monitoring program was initiated at this site in December 2002 and has been continuously active since that time. Analytical results of groundwater samples collected as part of the quarterly groundwater monitoring program have revealed ND to relatively minor concentrations of PHCs. However, MTBE has been detected in groundwater beneath this site at a maximum concentration of 100 ppb. Quarterly groundwater monitoring is currently ongoing at this site. Groundwater data collected as part of the groundwater monitoring program indicates that the depth to groundwater beneath this site is approximately 25 feet bgs and the groundwater flow direction has varied from west to south to east.

Stanislaus County Juvenile Hall (SCJH)

According to the SCHMD records, a fuel storage UST was maintained at the SCJH facility which is located adjacent to the southwest of the MJCWC (See Figure 2). In 1989, the SCJH contracted SEMCO to remove one steel 2,000-gallon UST that was installed in 1975 and located south of the utility building on Blue Gum Avenue. A permit to remove the UST was granted by the SCHMD on December 20, 1989. The UST and its contents were removed on April 11, 1990. Soil samples analyzed for BTEX, diesel and motor oil were reported as ND.

3.0 SUMMARY OF FINDINGS - PRELIMINARY CONCEPTUAL SITE MODEL

The PCSM concluded that there are eight potential release mechanisms relative to the six OUs that are planned for redevelopment at MJCWC that appear to have not been adequately investigated.

3.1 Potential Release Mechanisms, AoCs and Respective CoCs

The potential release mechanisms, Areas of Concern (AoCs) and Constituents of Concern (CoCs) are as follows (See Figure 2 and Former Hammond General Hospital, 1957 Aerial Photograph Figure 3):

1.) Landfill that is reportedly located within the OU-1 Ag Housing project area and within 1,000 feet of the OU-3 Ag Pavilion Project Areas: CoCs in soil at the landfill and immediate vicinity of the landfill include VOCs, SVOCs, Poly Nuclear Aromatics (PNAs) and PCBs, metals including organic lead, organochlorine pesticides (OCPs), asbestos, dioxins and furans; CoCs in groundwater include BTEX, TPH, metals and VOCs; CoCs in soil gas include VOCs, SVOCs, BTEX and methane.

2.) Former incinerator T-155 located within the OU-1 Ag Housing Project Area: CoCs in soil at the former incinerator include VOCs, SVOCs PNAs and PCBs, metals including organic lead, OCPs, asbestos, dioxins and furans; CoCs in groundwater include BTEX, TPH, metals and VOCs; CoCs in soil gas include VOCs, SVOCs, BTEX and methane.

3.) Former Sewage Treatment Plant T-154 located within the OU-1 Ag Housing Project Area: CoCs in soil include VOCs, SVOCs PNAs, metals including organic lead, OCPs, and asbestos; CoCs in groundwater include BTEX, TPH, metals and VOCs; CoCs in soil gas include VOCs, SVOCs, BTEX and methane.

4.) Gas Chamber Building T-149 located within the OU-3 Ag Pavilion Project Area: CoCs in soil include Chemical Warfare Agents (CWAs), asbestos, VOCs and SVOCs; CoCs in groundwater include Metals, SVOCs, VOCs and CWAs; CoCs in soil gas include VOCs, SVOCs, and CWAs.

5.) Possible buried railroad car UST(s) used for fuel storage at the former HGH boiler house building T-117) located northwest of OU-2 Allied Health Project Areas and adjacent to the north of the OU-6-Alternate Softball Complex: CoCs in soil include BTEX, TPH, metals, and VOCs; CoCs in groundwater include BTEX, TPH, metals, and VOCs; CoCs in soil gas include BTEX, TPH, and VOCs.

6.) A portion of the former sewage treatment effluent ponds within the OU-5 Ag Beef Unit Project Area: CoCs in soil include Metals, VOCs, SVOCs PNAs, OCPs, and asbestos; CoCs in groundwater include BTEX, TPH, metals, and VOCs; CoCs in soil gas include: VOCs, SVOCs and BTEX.

7.) Former firing range within the OU-6 Alternate Softball Complex Project Area: CoCs in soil and groundwater include metals, perclorate and explosives.

8.) Soil beneath sewer and storm drain lines on and adjacent to operable units proposed for redevelopment: CoCs in soil include OCPs, asbestos, VOCs, SVOCs PNAs, and Metals; CoCs in groundwater include BTEX, TPH, metals, and VOCs; CoCs in soil gas include BTEX, TPH, and VOCs.

3.2 DTSC Comments on PCSM

Based on the DTSC's review of the PCSM documented in its letter dated March 26, 2008, and a site visit conducted by Krazan and DTSC representatives on March 17, 2008, the DTSC noted the following:

- The presence of gasoline-powered generators for the production water wells No. 2, 3 and 4;
- The presence of electrical transformers in the storage yard north of the Transportation Maintenance Facility (Area 29), and pole-mounted transformers in OU-1;
- The absence of a connection between groundwater contamination (if any) at the MJCWC and other groundwater extraction points has not been established; and
- DTSC also requested copies of utility maps, the electrical transformer management plan, and any other hazardous materials management plans and documentation maintained by the District to be included as appendices to the PEA Workplan. Krazan requested these specific items from the District and was provided the following: MJCWC's Hazardous Materials Business Plan (HMBP) (See Appendix C); Site Plan, Existing Electrical Plan and Site Plan, Preliminary Site Layout Existing Utilities Maps (See Appendix D); and, various notices of completion for asbestos abatement and certification of destruction for transformers (See Appendix E).

Additionally, the DTSC's Geologic Services Unit (GSU) review of the PCSM recommended the following:

- Conduct geophysical survey (magnetometer, metal detector, ground penetrating radar, etc.) where below-ground features are suspected;
- Conduct passive soil gas investigation (Goresorber) when VOCs are suspected in soil, vadose zone, or shallow groundwater;
- Conduct active soil gas sampling following DTSC "*Interim Guidance for Active Soil Gas Investigation*" (ASGI) when VOCs are identified by passive soil gas investigation;
- Conduct active soil gas sampling following DTSC guidance including use of a tracer gas within the areas previously investigated for methane. The DTSC noted that the ASG samples taken on May 14, 2007 contained high levels of oxygen (all over 20%). The GSU suspects that ambient

air breakthrough occurred and noted that a tracer gas compound was not used (See Section 2.1 Limited Methane Gas Assessment);

- Conduct soil investigation for VOCs by EPA Method 5035 utilizing Encore, methanol or bisulfate preservation), and analyze by EPA Method 8260 when VOCs are identified by passive soil gas investigation; include analysis of Metals, SVOCs and non-volatile compounds;
- Resample soil in areas previously sampled (See Section 2.1- Limited Soil and Groundwater Assessment) utilizing Methods 5035 and 8260. The DTSC noted that soil samples analyzed for VOCs did not utilize Method 5035 utilizing Encore, methanol or bisulfate preservation and indicated that studies have shown that soil samples submitted to the laboratory in brass sleeves can lose more than 50% of VOCs;
- Future sampling locations should include current and former sewer, storm water and electric utilities;
- Determine background levels for metals, PNAs, etc, for soil and groundwater;
- Excavate area of magnetic anomaly near former boiler house;
- Test soils around current and former World War II vintage buildings for asbestos and lead-based paint;
- Test soil gas for benzene at former groundwater sample points B-2-W, B-3-W, and B-4-W;
- Decommission inactive groundwater production wells;
- Conduct geophysical investigation for possible USTs at five production wells and conduct passive gas sampling at these locations; and
- Utilize utility maps for selection of samples along utility corridors.

Additionally, on April 21, 29 and May 8, 2008, Krazan conducted conference calls with Mr. McMahan and Mr. Finch with the DTSC to discuss the workplan scope of work. It was recommended by Mr. Finch that a camera survey of portions of the sewer system be conducted. Additionally, Mr. McMahan noted that the Main Base Transformer (T-450) was formerly located within the southeastern portions of OU-3. Accordingly, this former feature is recommended for investigation. It was additionally recommended that x-ray fluorescence spectrometry (XRF) be conducted with a field portable XRF instrument by EPA Method 6200 for indications of the presence or absences of lead within the OU-6 (former firing range) area and in areas which may have contamination associated with lead-based paint. It was also agreed Chemical Warfare Agents are potential contaminants of concern for the landfill Revise the investigation scope for potential lead-based paint areas and the landfill accordingly.

4.0 PEA WORKPLAN

In accordance with a request from the YCCD, Krazan has prepared this PEA workplan for portions of the FUDS HGH site located within OU-1 to OU-6 areas at the MJCWC, in Modesto, Stanislaus County, California. The PEA is proposed in order to determine if soil and/or groundwater beneath MJCWC has

been impacted from the former operations of the FUDS HGH. The following summarizes the Workplan methodology:

4.1 Workplan Methodology

1. The appropriate permit applications will be submitted to the City of Modesto and the Stanislaus County Environmental Resources Department (SCERD) for approval prior to the commencement of field activities;
2. Where below-ground features of concern are suspected, a geophysical survey will be conducted utilizing state-of-the-art magnetometer, metal detector, ground penetrating radar, electro-magnetic terrain conductivity equipment or other equipment deemed appropriate at the time of the survey;
3. Based on the findings of the geophysical surveys, excavation of below-ground features of concern may be proposed. Additional permitting with the City of Modesto and SCERD and a UST(s) removal investigation workplan may be required if UST(s) are identified during excavation;
4. In areas suspected for volatile organic compounds in soil and/or groundwater, passive soil gas sampling will be conducted following DTSC guidance for passive soil gas surveys. Gore™ Modules will be deployed and installed approximately 24 to 36 inches bgs in a one-inch drilled hole. The passive soil gas detectors will be left in place for approximately two weeks prior to submission for analysis at a state certified laboratory;

Passive soil gas CoCs
Analytical methods and detection limits

Constituents of Concern	Analytical Method	Detection Limits
VOCs	EPA Method 8260B	Varies
SVOCs	EPA Method 8270C	Varies
Chemical Warfare Agents (Degradates)	EPA Method 8270 Modified	Varies

5. Active soil gas sampling will be conducted following the DTSC's *Advisory for Active Soil Gas Investigations* dated January 28, 2003 which supplements the *LARWQCB's Interim Guidance for Active Soil Gas Investigations* (ASGI) including the use of a tracer gas compound. Additionally, active soil gas sampling will be conducted in areas identified as "hot spots" by the passive soil gas survey;

Active soil gas CoCs
Analytical methods and detection limits

Constituents of Concern	Analytical Method	Detection Limits
Explosive Gases including Methane	ASTM 1945 by GC	Varies

6. A direct-push geoprobe rig will be used to continuously log borings at MJCWC to aid in selection of locations for exploration borings, piezometers, and/or monitoring wells. The continuously logged borings will be advanced to an approximate depth of 40 feet bgs, or 10 feet below the first occurrence of groundwater. Borings for each OU will be advanced as follows: OU-1, three borings; OU-2, three borings; OU-3, three borings; OU-4, 2 borings; OU-5, 2 borings; and OU-6, 2 borings;
7. In addition to the above-referenced continuously logged borings, soil borings will be advanced for collection of soil samples or installation of piezometers and/or monitoring wells. These borings will be advanced by either a direct-push rig or a truck-mounted hollow-stem auger drill rig. During advancement of these borings, soil samples will be collected at least every five feet;

8. At each hollow-stem auger sampling interval, three soil samples will be collected in 1.5-inch-diameter brass or stainless steel sleeves six inches in length. The lowermost recovered sample will be selected for laboratory analysis. At each direct-push soil sampling interval, a one-inch diameter acetate sleeve will be utilized to collect a 1.5 ft long sample. Upon sample retrieval, the ends of the sleeves will be covered with Teflon™ film, plastic end-caps, and adhesiveless tape. Samples will be labeled with the name and number of the project, sampler's initials, boring number with sample depth, and the date and time at which the sample was obtained. The samples will be transported under chain-of-custody with the above reference sample information entered on the chain-of-custody triplicate form. The selected samples will be retained on ice in a thermal chest for overnight delivery to a State-certified analytical laboratory;

9. During the advancement of soil borings, the drill cuttings (soil) will be subjectively analyzed for odor and discoloration. Based on the subjective analysis of soil, additional soil samples may be selected for analysis beyond those proposed within this workplan. Additionally, the soil will be field-screened with a portable photoionization detector (PID). The PID reading would be recorded on field notes. The PID is a direct-reading real-time analyzer that can detect most of the volatile hydrocarbon constituents present in the vapor phase of petroleum-affected soils.

10. All investigative derived soils or other investigative derived waste (IDW) will be temporarily stored on-site in DOT-approved steel 55-gallon drums until chemical analysis is performed in order to determine disposal options based on regulatory requirements. In the case of monitoring wells, purge water will be temporarily stored on-site in DOT-approved steel 55-gallon drums. YCCD is the generator of IDW at MJCWC and is responsible for IDW disposal within 90 days of its generation. However, Krazan can arrange for the disposal of IDW for YCCD;

11. Soil samples collected for analysis of Volatile Organic Compounds will be collected utilizing EPA Method 5035 (Closed-System Purge-and-Trap and Extraction) and analyzed by EPA Method 8260B. Soil samples will be preserved and transported under the chain-of-custody document within thermal chests containing ice to limit volatilization of organic constituents to a state-certified laboratory for analysis;

12. Characterization of soils for lead within the OU-6 (former firing range) and areas which may have contamination associated with lead-based paint will include utilizing a field portable X-ray fluorescence spectrometer by EPA Method 6200. Initially, in-situ soil will be field screened by XRF for lead. Based on the results, ex-situ samples will be prepared following EPA Method 6200 and analyzed for lead. Based on the ex-situ sample results, at least 5% of the samples will be submitted to the laboratory for analysis of total lead by EPA Method 6010, 6020, or 7000 (atomic absorption);

Soil CoCs
Analytical methods and detection limits

Constituents of Concern	Analytical Method	Detection Limits
VOCs including BTEX	EPA Method 5035 - 8260B	Varies
SVOCs	EPA Method 8270C	Varies
Poly Nuclear Aromatics (PNAs)	EPA Method 8310	Varies
Organochlorine Pesticides (OCP)	EPA Method 8081A	Varies
CAM-17 Metals	EPA Method 6000/7000 Series	Varies
Dioxins/furans	EPA Method 8280	Varies
PCBs	EPA Method 8082	20 µg/kg
Total Organic Lead	HMU-900	0.5 mg/kg
Lead (in-situ and ex-situ XRF)	EPA Method 6200	50 mg/kg
Total Lead	EPA Method 6010, 6020, or 7000 (atomic absorption).	0.5 mg/kg

Soil CoCs (cont.)
Analytical methods and detection limits

Constituents of Concern	Analytical Method	Detection Limits
Chemical Warfare Agents (Degradates)	EPA Method 8270C Modified	Varies
Perclorate	EPA Method 314.0	4.0 ppb
Explosives (Nitroaromatics & Nitramines)	EPA 8380	Varies
Nitrate and Total Nitrogen	EPA Methods 353.3 and 351.1, respectively	Varies
Asbestos	PLM with point count to 1000 points	0.1%
TPH Carbon Range (C4-C40)	EPA Method 8015B	Varies

13. Borings not completed as piezometers or monitoring wells will be filled with six-sack and cement grout to the ground surface;

14. Groundwater piezometers and/or monitoring wells will be constructed based on the existing depth to groundwater, and on the anticipated vertical seasonal fluctuations of the water table. It is anticipated that monitoring wells will be approximately 40 feet in depth and constructed in a six-inch-diameter borehole of two-inch-diameter Schedule 40 PVC water well casing and screen. The well screen slot size and filter pack size will be based on field observations; however, it is anticipated that a 20-foot-long screen interval that extends 10 feet below and ten feet above the water table with a 0.020-inch-diameter slot size and a filter pack consisting of rounded 20 by Lonestar No. 3 bagged sand will be utilized. The filter pack will be placed into the annular space to a depth of approximately two feet above the screen interval. A three-foot-thick seal, consisting of hydrated bentonite pellets, will be placed above the filter pack. The remaining annular space will be filled with a six-sack sand-cement grout. The grout will be introduced into the annular space by a tremmie pipe or equivalent system. A flush-mounted, traffic-rated well vault will be emplaced to provide access to the wellhead. The well vault will be set slightly above existing site grade to promote positive drainage away from the wellhead;

15. Groundwater samples will be collected from the wells in approximately 48 hours following development. Prior to collecting groundwater samples, a minimum of three well volumes will be purged from the wells. Once pH, electrical conductivity (EC), and temperature have stabilized, the well will be sampled. Purging and sampling will be conducted using a sampling pump and/or disposable polypropylene bailers. Krazan will utilize a low-flow purge methodology, with water quality parameter stabilization as the basis for sample collection. Purge water will be temporarily stored on-site in DOT-approved steel 55-gallon drums;

16. Prior to groundwater sample collection, the potential presence of free floating product will be assessed using a clean polypropylene or Teflon bailer. The groundwater samples will be contained in laboratory-grade vials. The samples will be labeled with the project number, sampler's initials, boring number, and the time at which the sample was obtained. Following sample labeling, each sample will be placed into an ice chest with synthetic ice to limit the volatilization of any PHCs present. The samples will be preserved and transported within thermal cooler chests maintained at a temperature of approximately 4° Celsius;

Groundwater CoCs
Analytical methods and detection limits

Constituents of Concern	Analytical Method	Detection Limits
VOCs including BTEX	EPA Method 8260B	Varies
SVOCs	EPA Method 8270C	Varies
Poly Nuclear Aromatics (PNAs)	EPA Method 8270 or 8310	Varies
Organochlorine Pesticides	EPA Method 8081A	Varies

Groundwater CoCs (cont.)
Analytical methods and detection limits

Constituents of Concern	Analytical Method	Detection Limits
CAM-17 Metals	EPA Method 6010B and 7470	Varies
Dioxins/furans	EPA Method 8280	Varies
PCBs	EPA Method 8082	20.0 µg/kg
Total Organic Lead	HMU-900	Varies
Chemical Warfare Agents (Degradates)	EPA Method 8270 Modified	Varies
Pathogens (Total Coloform) Nitrates and Total N	EPA Methods SM-9221A-D, 353.3 and 351.1, respectively	Varies
TPH Carbon Range (C4-C40)	EPA Method 8015B	Varies

17. Equipment used for the advancing of soil borings and/or installation, development and sampling of monitoring wells will be decontaminated (steam-cleaned, TSP, lab-grade detergents, etc.) before arriving on site, between each boring and/or sampling, and before leaving the site each day, or as necessary to reduce the chances of cross contamination. The decontamination fluids (rinsate) and any other IDW will be temporarily contained in a DOT-approved steel 55-gallon sealable drum. YCCD is the generator of IDW at MJCWC and is responsible for IDW disposal within 90 days of its generation. However, Krazan can arrange for the disposal of IDW for YCCD;
18. Field work will be conducted by individuals meeting the Occupational Safety and Health Administration (OSHA) requirements for hazardous waste work including 40-hour health and safety training and medical monitoring. The work will be completed under standards set forth by the industry and deemed acceptable by various regulatory agencies. Hard hats, protective eyewear and clothing, steel-toe boots, and respiratory devices will be worn by Krazan personnel when deemed appropriate by Krazan. As an added precaution, an Industrial Hygienist will supervise collection of soil gas and soil samples within areas suspected for chemical warfare agents; and
19. A report summarizing the results and findings of the PEA will be prepared. Sample data shall be evaluated using DTSC-approved human health and ecological screening methods to include ecological criteria.

5.0 FIELD INVESTIGATION AND SAMPLE PLAN

The Field Investigation and Field Sampling Plan for the proposed assessment are summarized below.

5.1 OU-l: Proposed Agricultural Housing Project Area

Direct-Push Continuous-Core Borings

- A direct-push geoprobe rig will be used to continuously core three borings within OU-1. The purpose of the continuous-core borings (CCBs) is to develop a geologic log of subsurface soil that will aid in selection of locations for exploration borings, piezometers, and/or monitoring wells. The CCBs will be advanced to an approximate depth of 40 feet bgs, or approximately 10 feet below the first occurrence of groundwater (See Figure 2 for proposed locations of the CCBs).

Landfill Area

- A geophysical survey (GS) is proposed for the area identified as the location of the landfill. The GS is proposed in order to identify the specific area of the former landfill. The GS of the landfill area is identified for the purpose of this workplan as GS-1. GS-1 is proposed for the area south of the northern boundary fence line adjacent to the Modesto Irrigation District Lateral Canal No. 3 (extending approximately 200 feet south), east of the farm storage building, and west of the beef facility and Water Well No. 4 (See proposed GS-1 area denoted on an enlarged portion of the 1957 Aerial Photograph, Figure No. 3A).
- Subsequent to GS-1, active soil gas (ASG) sampling is proposed for the landfill area within OU-1. ASG-1 through ASG-6 will be collected in order to assess the presence of total explosive gases including methane within the landfill area (See Proposed Active Soil Gas Survey of the Landfill Area within OU-1 Project Area, Figure 4).
- Subsequent to the GS and based upon its findings, Krazan proposes conducting a passive soil gas (PSG) survey in order to determine the presence or absence of VOCs, SVOCs and CWAs within the area of the landfill.
- Based on the findings of GS-1, PSG and ASG surveys, Krazan proposes conducting a limited excavation by trenching across the suspected landfill area in order to define the depth and lateral limits of the landfill in order to determine the feasibility of excavation and removal of buried materials that may be present.
- Based on the proposed investigation listed above, if "hot spots" are identified for the landfill area, additional soil borings, PSG and ASG sampling and installation of monitoring well(s) may be proposed.

Production Water Well No. 4

- The previously referenced GS-1 (landfill area) is proposed to incorporate the area of the active production water well (WW) No. 4 that is depicted in the southeast corner of GS-1 in Figure 3A. The GS is proposed in order to determine if subsurface features consistent with a UST may have been present or are present in association with backup generators. If an anomalous feature consistent with a UST is identified, Krazan will propose excavation of the buried feature and confirmation soil sampling for BTEX, TPH, VOCs, and Metals including organic lead.
- Subsequent to GS-1, Krazan proposes conducting PSG sampling for VOCs that may be present as a result of releases of gasoline fuel from suspected former ASTs or USTs associated with WW No. 4. Three PSG samples (PSG-1, -2, and -3) are proposed in order to assess the presence or absence of VOCs adjacent to WW No. 4. Sample locations are depicted adjacent to WW No. 4 within the northwestern portion of Figure 5.
- Based on the age of the building and suspected asbestos shingles that cover the WW No. 4 well house, and possible former transformers and lead-based paint, Krazan proposes collection of two shallow soil samples SS-1 and SS-2 from 0 to 0.5 feet bgs. The samples are proposed for analysis of asbestos, lead-based paint and PCBs. Sample locations are depicted adjacent to WW No. 4 within the northwestern portion of Figure 5. Initially, in-situ soil will be field screened by XRF for lead. Based on the results, ex-situ samples will be prepared and analyzed for lead. Based on the ex-situ sample results, at least 5% of the samples will be submitted to the laboratory for analysis of total lead.

Former Sewage Treatment Plant

- A GS (GS-2) is proposed for the area of the former sewage treatment plant (See area denoted on the 1957 Aerial Photograph, Figure No. 3A). An enlarged section of the HGH 1944 map depicts the features associated with the former sewage plant (See Figure 6). GS-2 is proposed to identify

subsurface features associated with the former sewage treatment plant. GS-2 will also include the area of the former incinerator that was located to the east of the current farm storage building also depicted on Figure 6.

- Subsequent to GS-2, PSG sampling is proposed near the locations of the soil sample borings B-1, B-7, and B-8 advanced during the Limited Phase II Investigation during April 2007 (See Figure 2). PSG-4, -5 and -6 will be collected in order to assess the presence or absence of VOCs in the vicinity of the proposed Ag Housing Project Area (See Figure 7 for PSG sample locations).
- Subsequent to GS-2, ASG sampling is proposed within the former sewage treatment plant area. ASG-7, -8, and -9 will be collected in order to assess the presence or absence of total explosive gases including methane in the vicinity of the proposed Ag Housing Project Area (See Figure No. 7 for ASG sample locations).
- Subsequent to the GS, PSG, and ASG, one soil boring (SB-1) is proposed within the area of the proposed Ag Housing buildings (See Figure 7). The boring will be advanced approximately 10 feet bgs with soil samples collected and analyzed from six inches, five feet, and 10 feet bgs. The soil samples will be analyzed to assess the presence or absence of pesticides, metals, SVOCs PNAs, dioxins/furans, PCBs, VOCs and organic lead.
- Two shallow soil samples (SS-3 and SS-4) from 0 to six inches bgs will be collected from two boring locations within the area of the former sewage plant (See Figure 7). SS-3 and SS-4 are proposed for analysis of asbestos and lead-based paint that may be residual from the former buildings located at the former sewage treatment plant. Initially, in-situ soil will be field screened by XRF for lead. Based on the results, ex-situ samples will be prepared and analyzed for lead. Based on the ex-situ sample results, at least 5% of the samples will be submitted to the laboratory for analysis of total lead.
- A camera survey (CS-1) for sewer and storm lines within and adjacent to OU-1 is proposed to identify sewer and storm water line breaks or leaks. A review of the existing utilities map (Figure 7A) for MJCWC indicates that sewer lines and storm lines are located within the OU-1 project area. Krazan proposes conducting the CS-1 within the sewer and storm lines depicted on Figure 7).
- Based on the proposed investigations listed above, if “hot spots” are identified for the former sewage treatment plant area, additional soil borings, PSG and ASG samples and installation of monitoring well(s) may be proposed.

Former Incinerator

- In addition to GS-2 referenced above, two soil borings (SB-2 and SB-3) are proposed to be advanced within the area of the former incinerator. The borings will be advanced approximately 10 feet bgs with soil samples collected and analyzed from six inches, five feet, and 10 feet bgs. The soil samples will be analyzed to assess the presence or absence of pesticides, asbestos, metals, SVOCs PNAs, dioxins/furans, PCBs, VOCs and TEL (See Figure 7).

Transformers (Current and Former)

- Shallow soil samples from 0 to six inches bgs will be collected beneath and adjacent to transformers (current and former) that are identified in OU-1. Soil samples will be collected and analyzed for PCBs. Sample locations will be identified in the field at the time of the investigation.

Proposed Monitoring Wells

- Based on the available data from the proposed investigations within the OU-l Agricultural Housing Project Area, one or more monitoring well locations will be selected based on

identification of "hot spots". The purpose of the monitoring well(s) will be to determine groundwater flow directions and to assess groundwater for impacts from the landfill area and former sewage treatment plant area.

5.2 0U-2: Proposed Allied Health Project Area

Direct-Push Continuous-Core Borings

- A direct-push geoprobe rig will be used to continuously core three borings within OU-2. The purpose of CCBs is to develop a geologic log of subsurface soil that will aid in selection of locations for exploration borings, piezometers, and/or monitoring wells. The CCBs will be advanced to an approximate depth of 40 feet bgs, or approximately 10 feet below the first occurrence of groundwater (See Figure 2 for proposed locations of the CCBs).

Proposed Allied Health Building Locations

- PSG sampling is proposed near the locations of the soil sample borings B-2, B-4, B-5, and B-6 advanced during the Limited Phase II Investigation during April 2007 (See previous boring locations on Figure 2). PSG-7, -8, -9 and -10 will be collected in order to assess the presence or absence of VOCs and SVOCs in the vicinity of the proposed Allied Health buildings (See Figure 8 for proposed PSG locations).
- Three shallow soil samples (SS-5, -6, and -7) from 0 to six inches bgs are proposed to be collected from three borings (See Figure 8). SS-5 -6 and -7 are proposed for analysis of asbestos and lead-based paint that may be residual from the former buildings (See Figure 8). The former barracks within OU-2 are depicted on an enlarged portion of the 1957 aerial photograph (See Figure 12). Initially, in-situ soil will be field screened by XRF for lead. Based on the results, ex-situ samples will be prepared and analyzed for lead. Based on the ex-situ sample results, at least 5% of the samples will be submitted to the laboratory for analysis of total lead.
- One soil boring (SB-4) is proposed within the area of the proposed Ag Housing buildings (See Figure 8 and 9). The boring will be advanced approximately 10 feet bgs with soil samples collected and analyzed from six inches, five feet, and 10 feet bgs. The soil samples will be analyzed to assess the presence or absence of pesticides, metals including organic lead, SVOCs PNAs, dioxins/furans, PCBs, and VOCs.

Transformers (Current and Former)

- Shallow soil samples from 0 to six inches bgs will be collected beneath and adjacent to transformers (current and former) that are identified in OU-2. Soil samples will be collected and analyzed for PCBs. Sample locations will be identified in the field at the time of the investigation.

Sewer/Storm Water Lines

- A camera survey (CS-2) for sewer and storm lines within and adjacent to OU-2 is proposed to identify sewer and storm water line breaks or leaks. A review of the existing utilities map (Figure 9) for MJCWC indicates that sewer lines are located along the northern, southern and western sides of the OU-2 project area. Krazan proposes conducting the CS-2 within the sewer lines along the northern portion of OU-2 and limited surveys of the lines to the west and south depicted on Figure 9.
- Based on the findings of CS-2, a PSG survey and/or soil borings will be proposed in order to assess the presence or absence of VOCs and SVOCs at suspected broken or leaking storm or sewer lines.

Proposed Monitoring Wells

- Based on the available data from the proposed investigations within the OU-2, one or more monitoring well locations will be selected based on identification of "hot spots". The purpose of the monitoring well(s) will be to determine groundwater flow directions and to assess groundwater for impacts.

5.3 OU-3 Proposed Agricultural Multipurpose Pavilion Project Area

Direct-Push Continuous-Core Borings

- A direct-push geoprobe rig will be used to continuously core three borings within OU-3. The purpose of CCBs is to develop a geologic log of subsurface soil that will aid in selection of locations for exploration borings, piezometers, and/or monitoring wells. The CCBs will be advanced to an approximate depth of 40 feet bgs, or approximately 10 feet below the first occurrence of groundwater (See Figure 2 for proposed locations of the CCBs).

Former Gas Chamber Training Structure Building T-149

- GS-3 is proposed to identify anomalous features that may be associated with the former T-149 building or to identify possible buried materials. Additionally, GS-3 is proposed to incorporate the area of WW No. 3 in order to determine if subsurface features consistent with a UST are present (See Figure 3A). If an anomalous feature consistent with a UST is identified, Krazan will propose excavation of the buried feature and confirmation soil sampling for BTEX, TPH, VOCs, and Metals including organic lead.
- PSG sampling is proposed at the location of the former gas chamber building T-149 (See Figures 5 and 5A). PSG-11, -12, -13 and -14 will be collected in order to assess the presence or absence of VOCs and CWAs in the vicinity of the former T-149 building.
- Two soil borings SB-5 and SB-6 are proposed to be advanced within the area of the former gas chamber building (See Figures 5 and 5A). The borings will be advanced approximately 10 feet bgs with soil samples collected and analyzed from six inches, five feet, and 10 feet bgs. The soil samples will be analyzed for pesticides, asbestos, metals, chemical warfare agents, SVOCs PNAs, and VOCs.

Water Well No. 3

- Subsequent to GS-3, Krazan proposes conducting PSG sampling for VOCs that may be present as a result of releases of gasoline fuel from suspected former ASTs or USTs associated with WW No. 3. Three PSG samples (PSG-15, -16, and -17) are proposed in order to assess the presence or absence of VOCs adjacent to WW No. 3 (See Figure 5).
- Based on the age of the building and suspected asbestos shingles that cover the WW No. 3 well house, and possible former transformers and lead-based paint, Krazan proposes collection two shallow soil samples SS-8 and SS-9 from 0 to six inches bgs. The samples are proposed for analysis of asbestos, lead-based paint and PCBs (See Figure 5). Initially, in-situ soil will be field screened by XRF for lead. Based on the results, ex-situ samples will be prepared and analyzed for lead. Based on the ex-situ sample results, at least 5% of the samples will be submitted to the laboratory for analysis of total lead.

Water Well No. 2

- GS-4 is proposed for the area around WW No. 2 in order to determine if subsurface features consistent with a UST are present (See Figure 5). If an anomalous feature consistent with a UST

is identified, Krazan will propose excavation of the buried feature and confirmation soil sampling for BTEX, TPH, VOCs, Metals including organic lead.

- Subsequent to GS-4, Krazan proposes conducting PSG sampling for VOCs that may be present as a result of releases of gasoline fuel from suspected former ASTs or USTs associated with WW No. 2. Three PSG samples (PSG-18, -19, and -20) are proposed in order to assess the presence or absence of VOCs adjacent to WW No. 2 (See Figure 5).

Previous Soil Sample Locations and Grab Groundwater Sample Location

- PSG samples are proposed near the locations of the soil sample borings B-3 and B-9 advanced during the Limited Phase II Investigation during April 2007 (See Figure 2). PSG-21 and -22 will be collected in order to assess the presence or absence of VOCs in the vicinity of the proposed Multipurpose Pavilion Project Area (See Figure 10).

Transformers (Current and Former)

- Shallow soil samples from 0 to six inches bgs will be collected beneath and adjacent to transformers (current and former) that are identified in OU-3. Soil samples will be collected and analyzed for PCBs. Sample locations will be identified in the field at the time of the investigation.

Main Base Transformer (T-450)

- GS-5 is proposed to identify the former location of T-450 (See Figure 5A) and possible buried material that may be associated with the former main base transformer (See Figure 10 for proposed location of GS-5).
- Four shallow soil borings are proposed within the area of the former main base transformer T-450 (See Figure 10). Soil samples will be collected from six inches and one foot bgs from shallow soil borings SS-10, -11, -12, and -13 and analyzed for asbestos, lead-based paint and PCBs that may be associated with the former main base transformer. Initially, in-situ soil will be field screened by XRF for lead. Based on the results, ex-situ samples will be prepared and analyzed for lead. Based on the ex-situ sample results, at least 5% of the samples will be submitted to the laboratory for analysis of total lead.
- Based on GS-5 findings, one soil boring SB-7 is proposed to be advanced within the area of the former main base transformer structure T-450. Soil samples will be collected and analyzed from six inches, five feet, and 10 feet bgs. The soil samples will be analyzed for PCBs, pesticides, asbestos, metals, SVOCs PNAs, and VOCs (See boring location, Figure 10 and 1944 USAC Site Map, Figure 5A).

Former Buildings within the Southwest Corner of OU-3

- Two shallow soil samples SS-14 and -15 are proposed to be advanced within the southwest portion of OU-3 within the area of former buildings including Building S-5. See Figure 10 for proposed sample locations and enlarged portion of HGH USACE 1944 map Figure 5A. The samples are proposed for analysis of asbestos and lead-based paint that may be associated with the former building(s). Initially, in-situ soil will be field screened by XRF for lead. Based on the results, ex-situ samples will be prepared and analyzed for lead. Based on the ex-situ sample results, at least 5% of the samples will be submitted to the laboratory for analysis of total lead.

Proposed Monitoring Wells

- Based on the available data from the proposed investigations within the OU-3, one or more monitoring well locations will be selected based on identification of “hot spots.” The purpose of the monitoring well(s) will be to determine groundwater flow directions and to assess groundwater for impacts.

5.4 OU-4 Formerly Proposed Softball Complex Project Area

Direct-Push Continuous-Core Borings

- A direct-push geoprobe rig will be used to continuously core two borings within OU-4. The purpose of CCBs is to develop a geologic log of subsurface soil that will aid in selection of locations for exploration borings, piezometers, and/or monitoring wells. The CCBs will be advanced to an approximate depth of 40 feet bgs, or approximately 10 feet below the first occurrence of groundwater (See Figure 2 for proposed locations of the CCBs).

Oil/Water Separator

- One soil boring (SB-9) is proposed to be advanced within the area of the oil/water separator identified on Figure 2. The boring will be continuously logged and advanced approximately 10 feet bgs with soil samples collected and analyzed from six inches, five feet, and 10 feet bgs. Soil samples will be analyzed for pesticides, asbestos, metals including organic lead, SVOCs PNAs, PCBs, and VOCs (See 1957 Aerial Photograph, Figure 11).

- Two PSG samples are proposed within the OU-4 project area. PSG-23 and -24 will be collected in order to assess the presence or absence of VOCs in the vicinity former buildings within the northern portion of OU-4 and within the area of the oil/water separator located in OU-4 (See Figure 11).

- Two shallow soil samples (SS-16 and -17) from 0 to six inches bgs are proposed to be collected from two boring (See Figure 11). SS-16 and -17 are proposed for analysis of asbestos and lead-based paint that may be residual from the former buildings. Initially, in-situ soil will be field screened by XRF for lead. Based on the results, ex-situ samples will be prepared and analyzed for lead. Based on the ex-situ sample results, at least 5% of the samples will be submitted to the laboratory for analysis of total lead.

Transformers (Current and Former)

- Shallow soil samples from 0 to six inches bgs will be collected beneath and adjacent to transformers (current and former) that are identified in OU-4. Soil samples will be collected and analyzed for PCBs. Sample locations will be identified in the field at the time of the investigation.

Proposed Monitoring Wells

- Based on the available data from the proposed investigations within OU-4, one or more monitoring well locations will be selected based on identification of “hot spots.” The purpose of the monitoring well(s) will be to determine groundwater flow directions and to assess groundwater for impacts.

5.5 0U-5: Proposed Ag Beef Project Area

Direct-Push Continuous-Core Borings

- A direct-push geoprobe rig will be used to continuously core two borings within OU-5. The purpose of CCBs is to develop a geologic log of subsurface soil that will aid in selection of locations for exploration borings, piezometers, and/or monitoring wells. The CCBs will be advanced to an approximate depth of 40 feet bgs, or approximately 10 feet below the first occurrence of groundwater (See Figure 2 for proposed locations of the CCBs).

- One soil boring is proposed to be advanced within the proposed OU-5 Ag Beef area (See proposed OU-5 project area, Figure 2). The boring will be continuously logged with samples collected every five feet. Soil samples collected at six inches, five and ten feet bgs will be analyzed for pesticides, asbestos, nitrates, TKN, Dioxins/Furans, metals including organic lead, SVOCs PNAs, PCBs, and VOCs (See proposed boring location the enlarged portion of the 1957 aerial photograph, Figure 13).
- One PSG sample is proposed within the OU-5 project area. PSG-25 will be collected in order to assess the presence or absence of VOCs in association with the former sludge ponds (See Figure 13).

Proposed Monitoring Wells

- A monitoring well location will likely be selected within the OU-6 project area. The purpose of the monitoring well(s) will be to determine groundwater flow directions and to assess groundwater for impacts.

5.6 OU-6: Proposed Softball Complex Project Area

Direct-Push Continuous-Core Borings

- A direct-push geoprobe rig will be used to continuously core two borings within OU-6. The purpose of CCBs is to develop a geologic log of subsurface soil that will aid in selection of locations for exploration borings, piezometers, and/or monitoring wells. The CCBs will be advanced to an approximate depth of 40 feet bgs, or approximately 10 feet below the first occurrence of groundwater (See Figure 2 for proposed locations of the CCBs).

OU-6 Sewer and Storm Lines

- A camera survey (CS-3) for sewer and storm lines within and adjacent to OU-6 is proposed to identify sewer and storm water line breaks or leaks. A review of an enlarged portion of the utility maps for MJCWC (Figure 9) indicates that sewer lines and storm lines are located along the northern and eastern sides of the OU-6 project area. Krazan proposes conducting the CS-3 within the sewer and storm lines depicted on Figure 9.

Transformers (Current and Former)

- Shallow soil samples from 0 to six inches bgs will be collected beneath and adjacent to transformers (current and former) that are identified in OU-6. Soil samples will be collected and analyzed for PCBs. Sample locations will be identified in the field at the time of the investigation.

Former HGH Boiler House Building Area

- GS-6 is proposed to identify possible UST(s) (buried railroad cars used for fuel storage at the former HGH boiler house building T-117), located north of OU6-Proposed Softball Complex Project Area (See Figure 12). If an anomalous feature consistent with a UST is identified, Krazan will propose excavation of the buried feature and confirmation soil sampling for BTEX, TPH, VOCs, Metals, including organic lead.
- Subsequent to GS-6, Krazan proposes conducting a PSGS for VOCs that may be present as a result of releases of fuels from suspected former USTs associated with HGH boiler house building T-117. Three PSG samples (PSG-23, -24, and -25) are proposed in order to assess the presence or absence of VOCs (See Figure 8).

Former Firing Range

- Two soil borings are proposed to be advanced within the area of the former firing range (See Figure 8). The borings will be advanced approximately 10 feet bgs with soil samples collected and analyzed from six inches, five feet, and 10 feet bgs. The soil samples will be analyzed for Metals, and Perclorate and explosives.

- Characterization of soils for lead within the former firing range area is proposed utilizing a field portable X-ray fluorescence (XRF) spectrometer. Initially, in-situ soil will be field screened by XRF for lead. Based on the results, ex-situ samples will be prepared following EPA Method 6200 and analyzed for lead. Based on the ex-situ sample results, at least 5% of the samples will be submitted to the laboratory for analysis of total lead (See Figure 8).

- Two shallow soil samples (SS-18 and -19) from 0 to six inches bgs are proposed to be collected from two borings (See Figure 8). SS-18 and -19 are proposed for analysis of asbestos and lead-based paint that may be residual from the former buildings. Initially, in-situ soil will be field screened by XRF for lead. Based on the results, ex-situ samples will be prepared and analyzed for lead. Based on the ex-situ sample results, at least 5% of the samples will be submitted to the laboratory for analysis of total lead.

Proposed Monitoring Wells

- Based on the available data from the proposed investigations within the OU-6, one or more monitoring well locations will be selected based on identification of "hot spots". The purpose of the monitoring well(s) will be to determine groundwater flow directions and to assess groundwater for impacts.

5.7 Background Soil and Groundwater Samples

- Three soil borings are proposed to be advanced for collection soil samples at six inches and one foot bgs for characterization of background concentrations for metals, asbestos, pesticides and PNAs (See Figure 14 for proposed locations of background soil samples).
- Based on the available data from the proposed investigations within MJCWC, one or more monitoring well locations may be selected at presumed upgradient locations. The purpose of the monitoring well(s) will be to determine groundwater flow directions and to assess background groundwater quality.

6.0 QUALITY ASSURANCE PROJECT PLAN (QAPP)

A Quality Assurance Project Plan (QAPP) is presented in Appendix A. The QAPP presents the plan for sampling and analysis as part of this PEA Investigation and any additional assessments performed under the direction of the DTSC.

7.0 HEALTH AND SAFETY PLAN

A Health and Safety (H&S) Plan is presented in Appendix B. The H&S plan describes the health and safety procedures for the activities planned for the PEA investigation and any additional assessments performed at the MJCWC as they relate to the OUs.

8.0 PREPARATION OF THE PEA REPORT

As is applicable to the tasks completed and conditions on MJCWC, the PEA Report will adhere to the format of the DTSC.

9.0 REFERENCES

The following documents and reports were reviewed agencies and publications consulted during the preparation of this workplan:

- *Final Records Research Report for the Former Hammond General Hospital, Formerly Used Defense Site*, Tetra Tech, November 2005.
- *Focused Phase I Environmental Site Assessment for the Modesto Junior College-West Campus*, Krazan, May 1, 2007.
- *Hammond General Hospital*, *Inventory Project Report*, Radian Corporation, February 1992, revised July 1995.
- *Hammond General Hospital, Limited Scope Site Inspection, Final Report*, U.S. Army Corps of Engineers, Environmental Design Section- Sacramento District's Report.
- *Methane Assessment Reported Burn Pit and Landfill, Modesto Junior College-West Campus, 2201 Blue Gum Avenue Modesto, California,* Krazan, May 12, 2007.
- *Phase II Limited Subsurface Assessment, Modesto Junior College-West Campus, 2201 Blue Gum Avenue Modesto, California,* Krazan, May 24, 2007.
- *Former Hammond General Hospital, Site number J09CA0824* (letter), USACE, November 22, 2005. Includes: *Findings of No Department of Defense Actions Indicated Report (draft),* USACE, November 11, 2005; Trip Report, Tetra Tech, September 7, 2005; *Form F-3 Inventor, Project Report (INPR) Checklist,* USACE, November 22, 2005; and *Records Research Report, Final,* Tetra Tech, Inc., November 2005.
- *Non-concurrence with the USACE Findings of No Department of Defense Action for Hammond General Hospital, J09CA 0824, Stanislaus County* (letter), DTSC, March 29, 2006.

10.0 LIMITATIONS AND GENERAL CONDITIONS

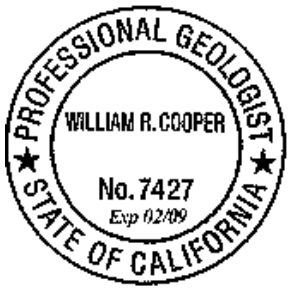
This workplan was prepared in accordance with the current generally accepted standards of environmental practice of the DTSC and the SCDEHS. Sampling and testing will be conducted solely for the purpose of evaluating environmental conditions of the soil with respect to the presence of constituents of concern and metals concentrations at the depths and locations sampled. No soil engineering or geotechnical implications are stated nor should they be implied. Evaluation of the conditions at the site for the purpose of sampling and testing will be made from a limited number of observation and sampling points. Subsurface conditions may vary beyond the data points available, and it is not possible to account for all variations despite exhaustive additional testing.

If, during the course of our services, subsurface drilling conditions such as very dense hardpan, boulders, flowing sands, caving, or other adverse drilling conditions are encountered at the drilling locations, our drilling rate could be affected. Should the amount of footage or drilling conditions change, Krazan reserves the right to renegotiate costs for drilling.

If you have any questions, please do not hesitate to contact me at (661) 837-9200.

Respectfully submitted,

KRAZAN & ASSOCIATES, INC.



William R. Cooper
Environmental Professional
P.G. 7427

WRC/wrc

TABLE I
Soil Sample Analytical Results for the Phase II Limited Site Assessment
Modesto Junior College – West Campus Proposed AG- Modular Living Units Project Area
April 18, 2007 Sampling
(Concentrations are expressed as milligrams per kilogram [mg/kg])

Sample No.	Sample Depth (ft.bgs)	VOCs	SVOCs	TKN	Nitrates	GMs	CAM 17 Metals	PCBs	DDE	All other OCPs	CHs
EPA Analytical Method		8260B	8270C	351.3	353.3	Various- See Laboratory Report		8082	8081A		8151A
Minimum detection limit		Varies- See Laboratory Report									
B-1	1	ND	ND	96	14	Non-Haz	Non-Haz	ND	ND	ND	ND
B-1	5	ND	ND	140	19	Non-Haz	Non-Haz	ND	ND	ND	ND
B-1	10	ND	ND	101	9.4	Non-Haz	--	--	--	--	--
B-7	1	ND	ND	72	8.7	Non-Haz	Non-Haz	ND	0.0044	ND	ND
B-7	5	ND	ND	76	9.6	Non-Haz	Non-Haz	ND	ND	ND	ND
B-7	10	ND	ND	89	11.2	Non-Haz	--	--	--	--	--
B-8	1	ND	ND	71	9	Non-Haz	Non-Haz	ND	ND	ND	ND

TABLE II
Groundwater Sample Analytical Results for the Phase II Limited Site Assessment
Modesto Junior College – West Campus Proposed AG- Modular Living Units Project Area
April 18, 2007 Sampling
(Concentrations are expressed as micrograms per kilogram [µg/l])

Sample No.	Sample Depth (ft.bgs)	Type of Sample	SVOCs	Nitrate	Total Kjeldahl Nitrogen	Dimethyl-phthalate	Toluene	m,p-Xylene	o-Xylene	TPH-D	TPH-G	Benzene	Toluene	Ethyl - Benzene	Total Xylenes	MTBE
EPA Analytical Method			8270C	353.3	351.3	8260B				8021B/8015B						
CCR Title 22 Drinking Water MCL			*	10,000	**	3.6E5	100	1,750		**	**	1	100	680	1,750	13
Minimum detection limit			Varies- See Laboratory Report													
B-1-W	29	Grab	ND	6.1	1.4	6.6	9.1	1.9	1.1	ND	ND	0.52	7.3	0.81	3.4	ND

* = Varies for each constituent
** = No CCR Title 22 MCL established
ND = Not Detected

TABLE III
Soil Sample Analytical Results for the Phase II Limited Site Assessment
Modesto Junior College – West Campus
Proposed Allied Health & Life Science Building Project Area
April 18, 2007 Sampling
(Concentrations are expressed as mg/kg)

Sample No.	Sample Depth (ft.bgs)	VOCs	SVOCs	CAM 17 Metals
EPA Analytical Method		8260B	8270C	Various- See Laboratory Report
Minimum detection limit		Varies- See Laboratory Report		
B-2	2	ND	ND	Non-Haz
B-4	2	ND	ND	Non-Haz
B-5	2	ND	ND	Non-Haz
B-6	2	ND	ND	Non-Haz

Non-Haz = Non-Hazardous concentrations
ND = Not Detected

TABLE IV
Groundwater Sample Analytical Results for the Phase II Limited Site Assessment
Modesto Junior College – West Campus
Proposed Allied Health & Life Science Building Project Area
April 18, 2007 Sampling
(Concentrations are expressed as micrograms per kilogram [µg/l])

Sample No.	Sample Depth (ft.bgs)	Type of Sample	SVOCs	Toluene	m,p-Xylene	o-Xylene	TPH-D	TPH-G	Benzene	Toluene	Ethyl - Benzene	Total Xylenes	MTBE
EPA Analytical Method			8260B				8021B/8015B						
CCR Title 22 Drinking Water MCL			*	100	1,750		**	**	1	100	680	1,750	13
Minimum detection limit			Varies- See Laboratory Report										
B-2-W	29	Grab	ND	4.4	2.0	ND	ND	ND	0.50	3.3	0.65	3.0	ND
B-4-W	29	Grab	ND	4.0	2.5	1.1	--	54	0.72	3.7	0.74	4.5	ND

* = Varies for each constituent
** = No CCR Title 22 MCL established
ND = Not Detected
-- = Not analyzed

TABLE V
Soil Sample Analytical Results for the Phase II Limited Site Assessment
Modesto Junior College – West Campus AG – Multi-Purpose Pavilion Facility project area
April 18, 2007 Sampling
(Concentrations are expressed as mg/kg)

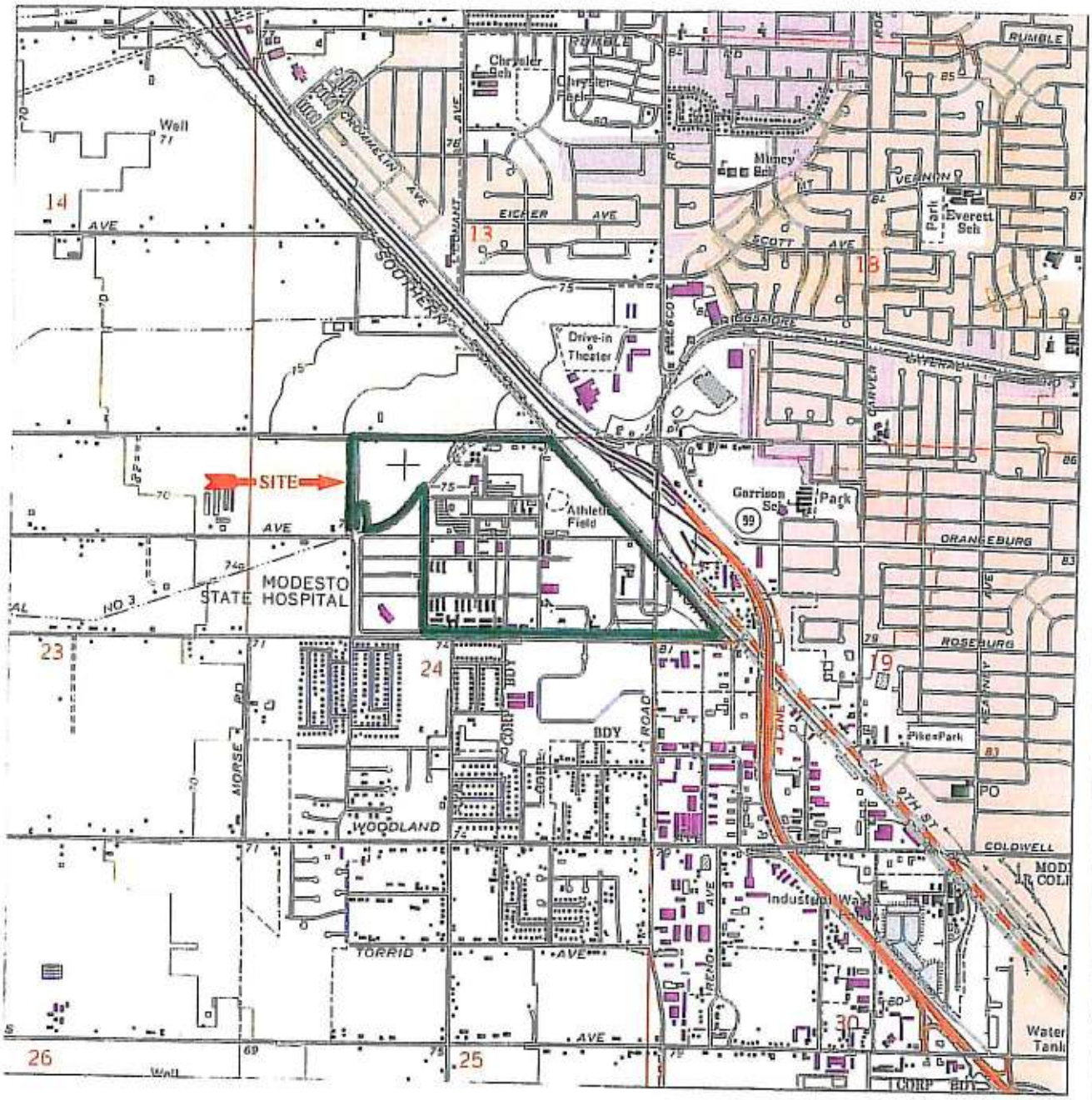
Sample No.	Sample Depth (ft.bgs)	TKN	GMs	CAM 17 Metals	OCPs	CHs	TRPH
EPA Analytical Method		351.3	Various- See Laboratory Report		8081A	8151A	418.1
Minimum detection limit		Varies- See Laboratory Report					
B-3	2	110	Non-Haz	Non-Haz	ND	ND	--
B-9	2	69	Non-Haz	Non-Haz	ND	ND	--
B-10	5	--	--	--	--	--	12

Non-Haz = Non-Hazardous concentrations
ND = Not Detected
-- = Not Analyzed

TABLE VI
Groundwater Sample Analytical Results for the Phase II Limited Site Assessment
Modesto Junior College – West Campus AG – Multi-Purpose Pavilion Facility project area
April 18, 2007 Sampling
(Concentrations are expressed as micrograms per kilogram [µg/l])

Sample No.	Sample Depth (ft.bgs)	Type of Sample	Nitrate	Total Kjeldahl Nitrogen	TPH-D	TPH-G	Benzene	Toluene	Ethyl - Benzene	Total Xylenes	MTBE
EPA Analytical Method			353.3	351.3	8021B/8015B						
CCR Title 22 Drinking Water MCL			10,000	**	**	**	1	100	680	1,750	13
Minimum detection limit			Varies- See Laboratory Report								
B-3-W	29	Grab	4.5	0.6	ND	ND	0.58	3.8	0.63	3	ND

** = No CCR Title 22 MCL established
ND = Not Detected



MAP SOURCE:

7.5 MINUTE SERIES
U.S.G.S. TOPOGRAPHIC MAP
SALIDA, CA
DATED 1969
PHOTOREVISED 1987

NORTH

0' 2000' 4000'

SCALE IN FEET (±)

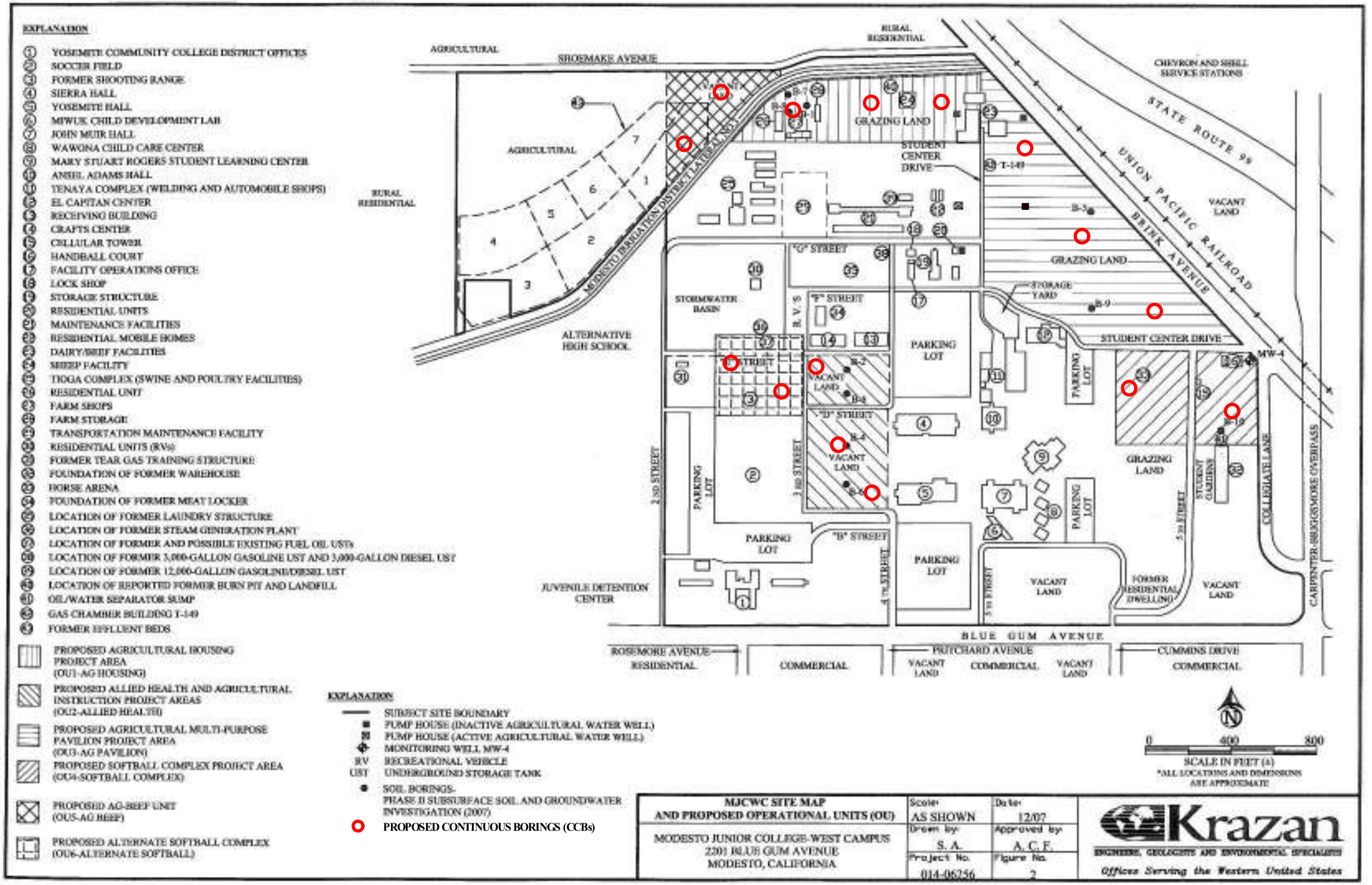
*ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE

VICINITY MAP

MODESTO JUNIOR COLLEGE-WEST CAMPUS
2201 BLUE GUM AVENUE
MODESTO, CALIFORNIA

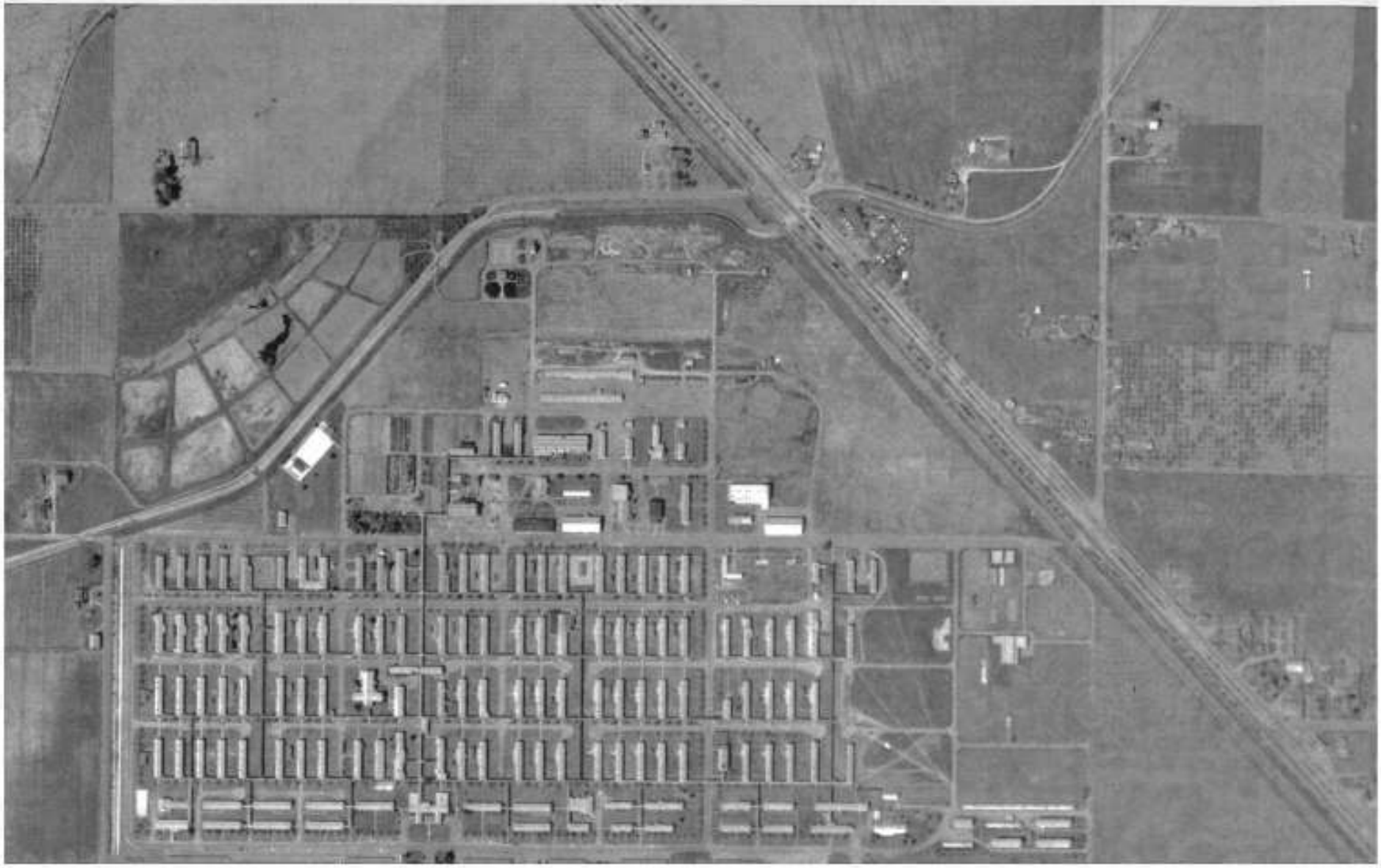
Scale:	Date:
AS SHOWN	11/07
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	1

Krazan
SITE DEVELOPMENT ENGINEERS
Offices Serving the Western United States



MJCWC SITE MAP AND PROPOSED OPERATIONAL UNITS (OU)	Scale: AS SHOWN	Date: 12/07
MODESTO JUNIOR COLLEGE-WEST CAMPUS 2201 BLUE GUM AVENUE MODESTO, CALIFORNIA	Drawn by: S. A.	Approved by: A. C. F.
	Project No. 014-06256	Figure No. 2

Krazan
ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SPECIALISTS
Offices Serving the Western United States

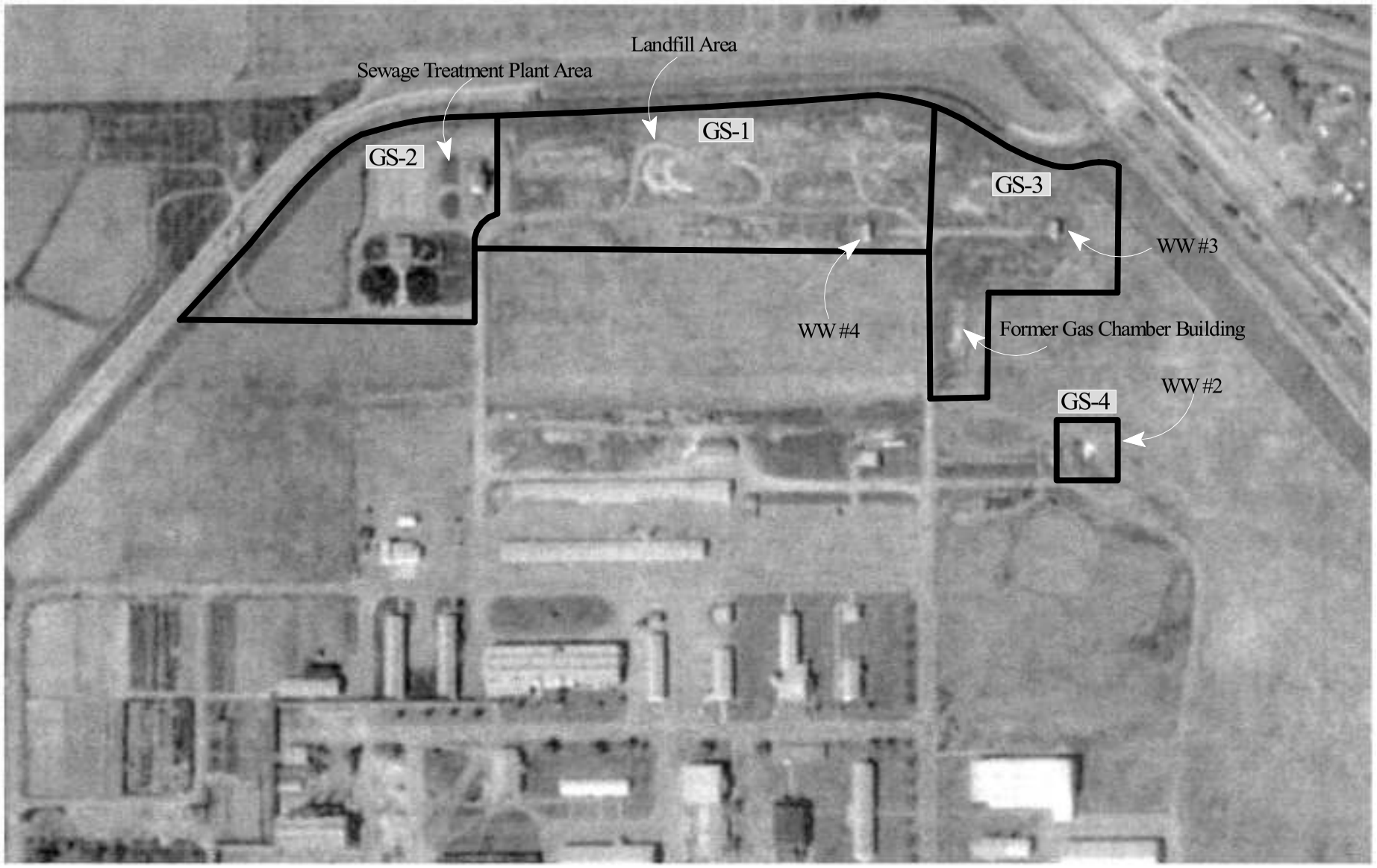


FORMER HAMMOND GENERAL HOSPITAL
1957 AERIAL PHOTOGRAPH

Modesto Junior College-West Campus
2201 Blue Gum Avenue
Modesto, California

Scale:	Date:
1" = 555'	04/08
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	3

Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide



FORMER HAMMOND GENERAL HOSPITAL
ENLARGED PORTION OF THE 1957 AERIAL PHOTOGRAPH
GEOPHYSICAL SURVEY AREAS (GS-1, GS-2, GS-3, AND GS-4)

Modesto Junior College-West Campus
2201 Blue Gum Avenue
Modesto, California

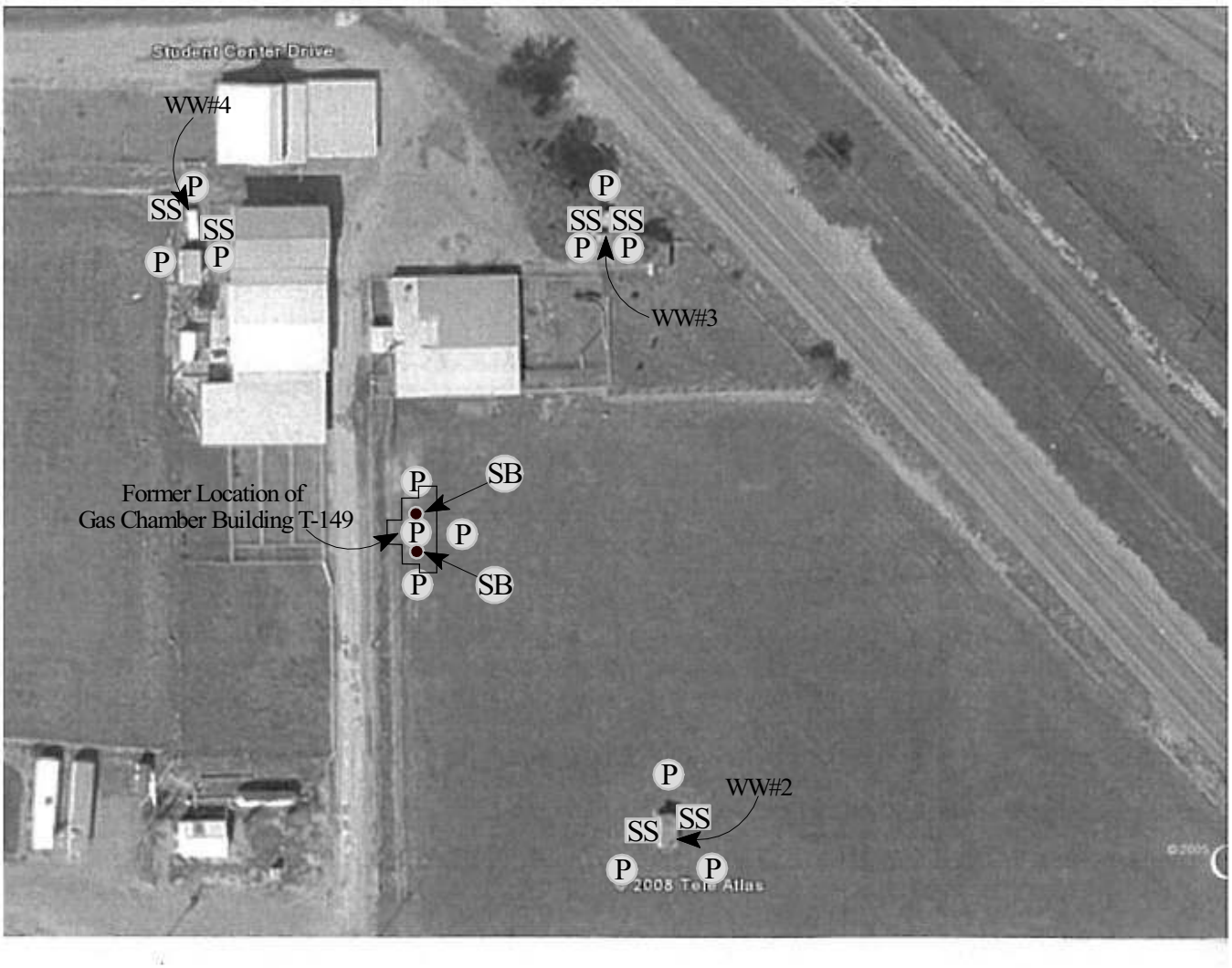
Scale:	Date:
NTS	04/08
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	3A

Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide

A Active Soil Gas (ASG) Sample Points

NORTH

PROPOSED ACTIVE SOIL GAS SURVEY OF LANDFILL AREA WITHIN OU-1 PROJECT AREA	Scale: NTS	Date: 04/08	Krazan SITE DEVELOPMENT ENGINEERS *Conducting Assessments Nationwide*
Modesto Junior College-West Campus 2201 Blue Gum Avenue Modesto, California	Drawn by: CLM	Approved by: WRC	
	Project No. 014-06256	Figure No. 4	



P Passive Soil Gas Sample Points

SB Soil Borings

SS Shallow Soil Samples

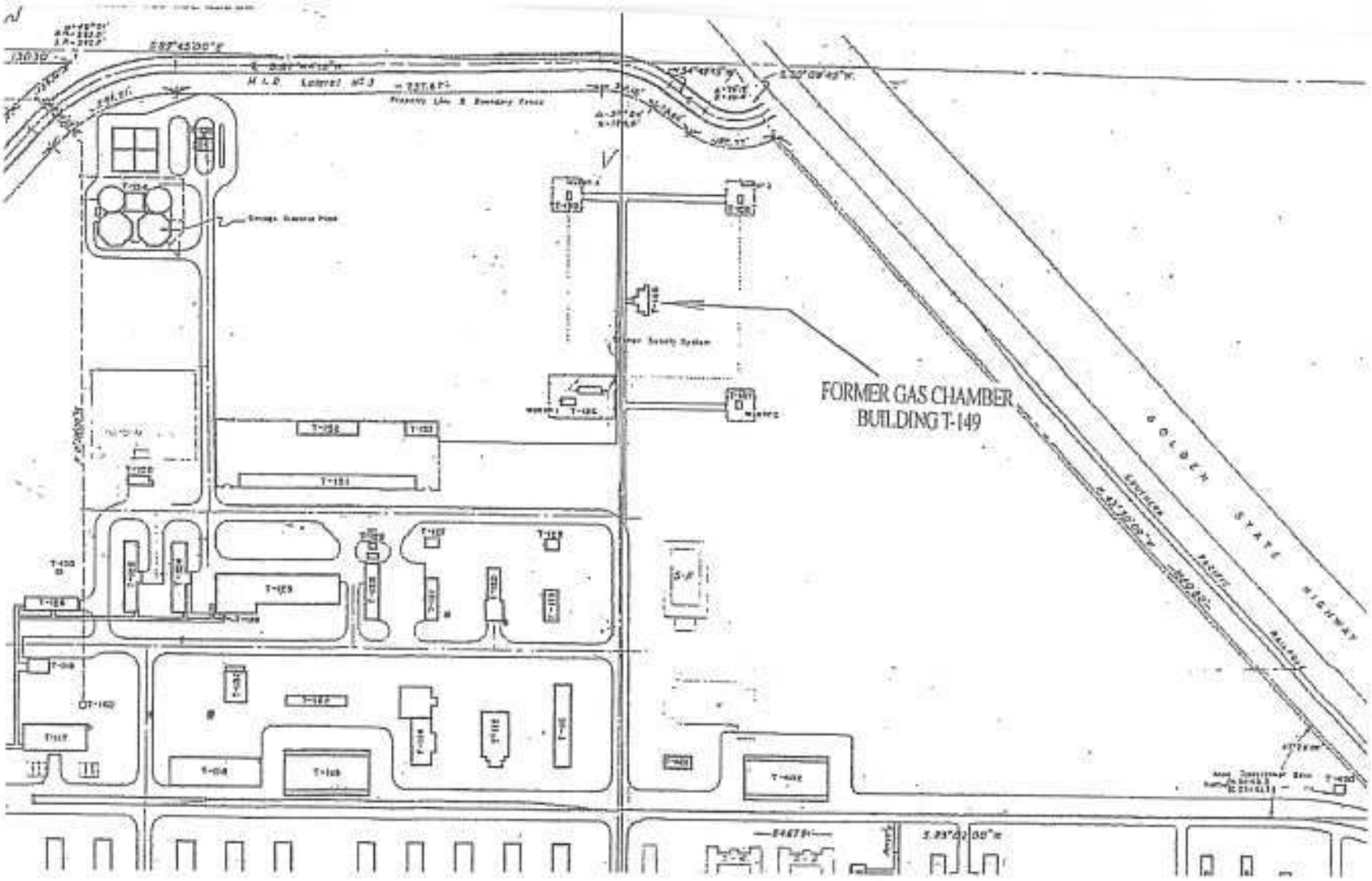
NORTH

PROPOSED PASSIVE SOIL GAS SOIL BORING MAP

Modesto Junior College-West Campus
2201 Blue Gum Avenue
Modesto, California

Scale:	Date:
NTS	04/08
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	5

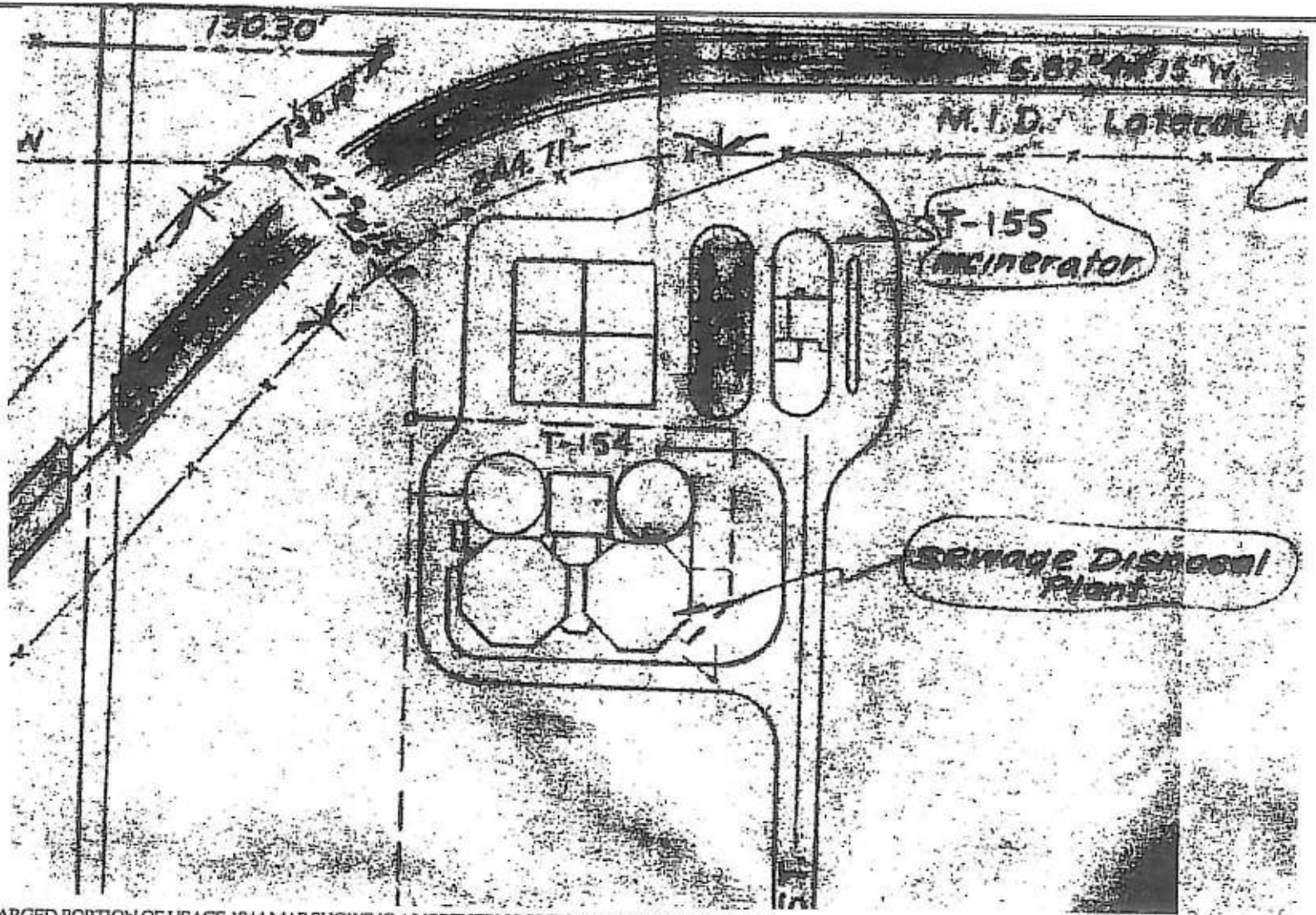
Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide



ENLARGED PORTION OF USACE 1944 MAP SHOWING A NORTHERN PORTION OF THE SUBJECT SITE

HGH USACE 1944 MAP	Scale: NTS	Date: 04/08
Modesto Junior College-West Campus **2201 Blue Gum Avenue** **Modesto, California**	Drawn by: MSH	Approved by: WRC
	Project No.: 014-06256	Figure No.: 5A

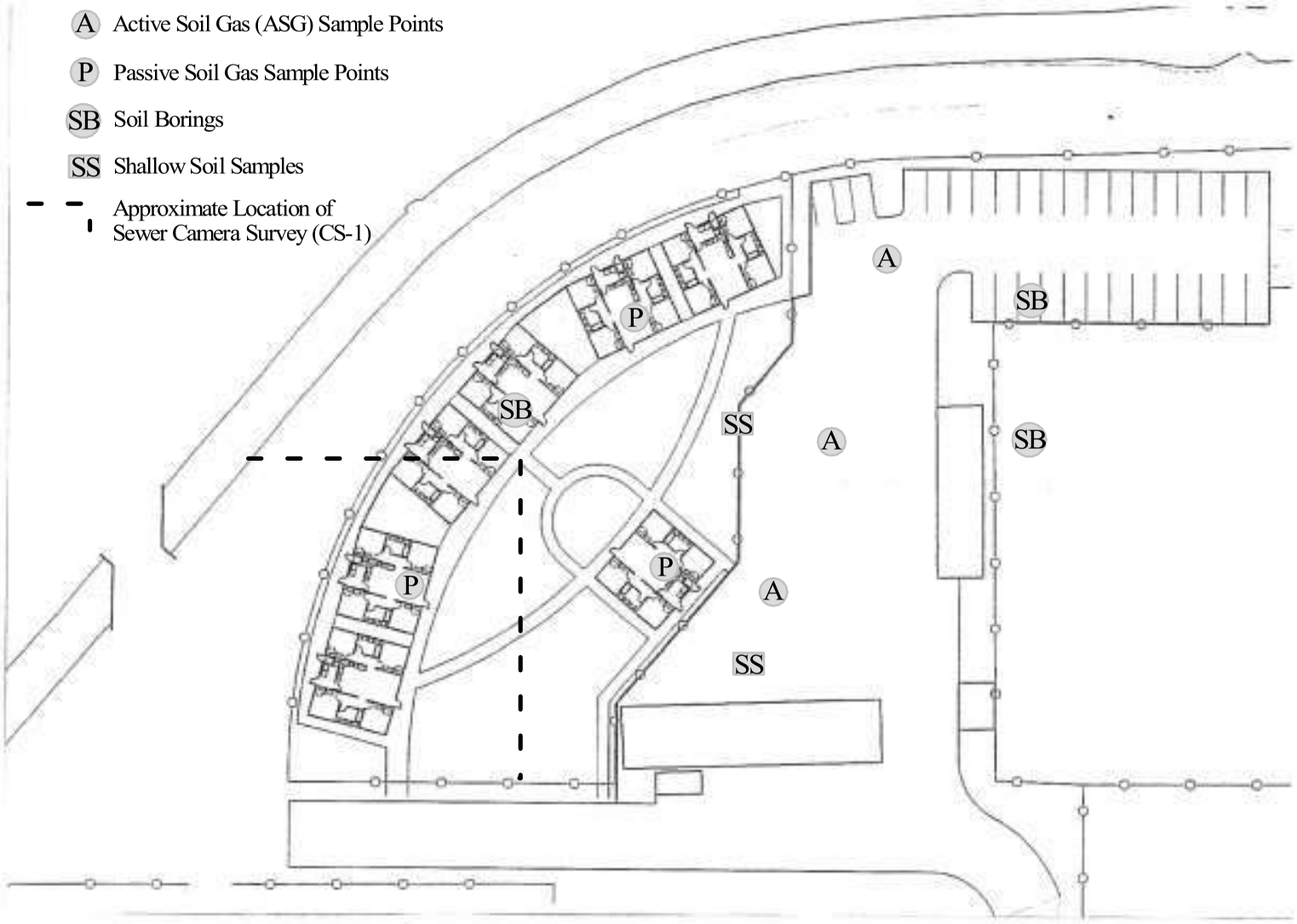
Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide



ENLARGED PORTION OF USACE 1944 MAP SHOWING A NORTHERN PORTION OF THE SUBJECT SITE

HGH USACE 1944 MAP	Scale: NTS	Date: 11/07
MODESTO JUNIOR COLLEGE-WEST CAMPUS 2201 BLUE GUM AVENUE MODESTO, CALIFORNIA	Drawn By: MSH	Approved By: WRC
	Project No.: 014-06256	Figure No.: 6

Krazan
SITE DEVELOPMENT ENGINEERS
Offices Serving the Western United States



ENLARGED PROPOSED STUDENT HOUSING MASTER PLAN WITHIN OU-1 PROJECT AREA

NORTH

0' 80' 160'

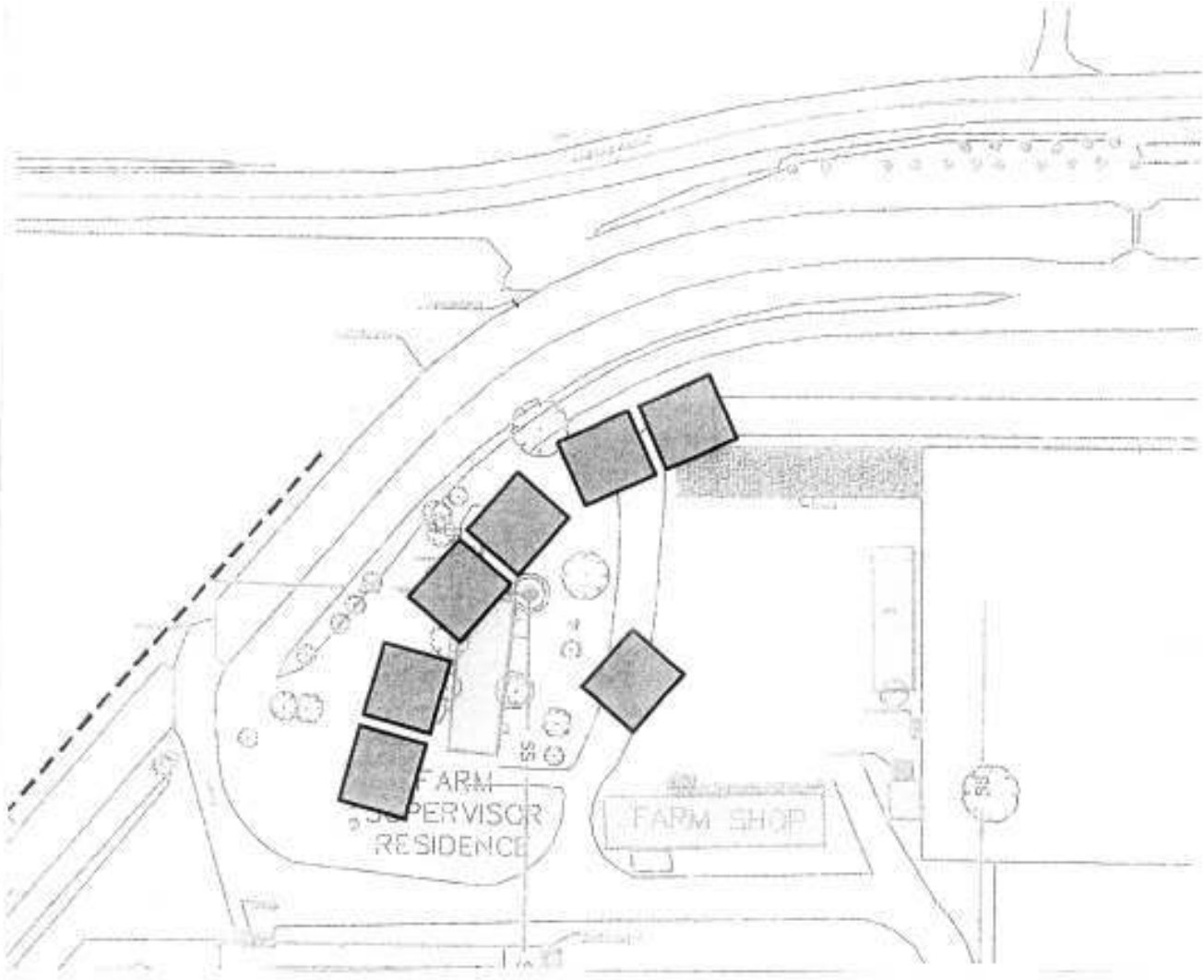
SCALE IN FEET (±)
*ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE

MJCWC MASTER SITE PLAN SITE MAP

Modesto Junior College-West Campus
2201 Blue Gum Avenue
Modesto, California

Scale:	Date:
1" = 80'	04/08
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	7

Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide

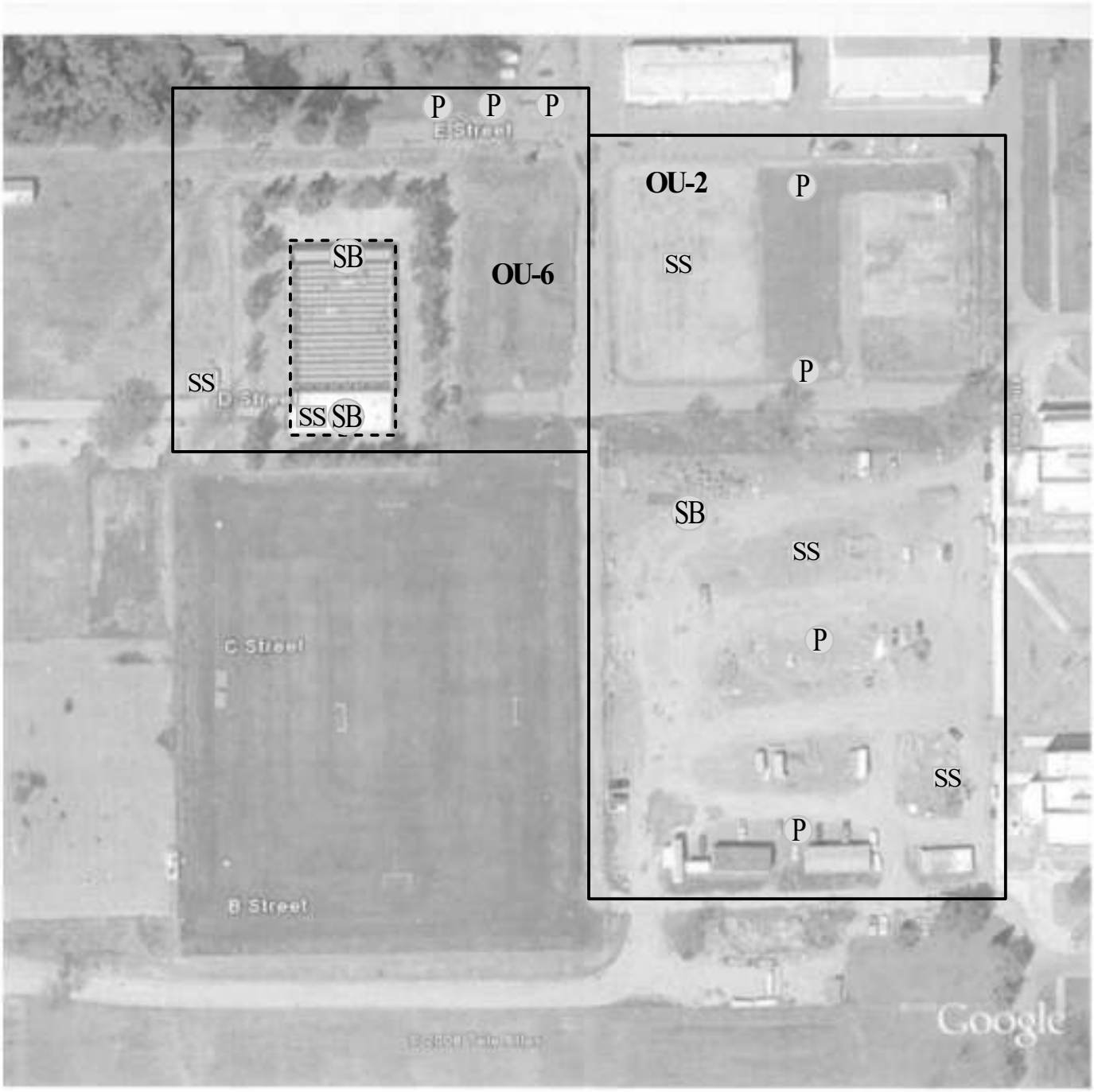


MJCWC MASTER SITE PLAN SITE MAP
ENLARGED PORTION OF OU-1

Modesto Junior College-West Campus
2201 Blue Gum Avenue
Modesto, California

Scale:	Date:
AS SHOWN	04/08
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	7A

Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide



X-ray fluorescence (XRF) spectrometer

P Passive Soil Gas Sample Points

SB Soil Borings

SS Shallow Soil Samples

NORTH

0' 130' 260'

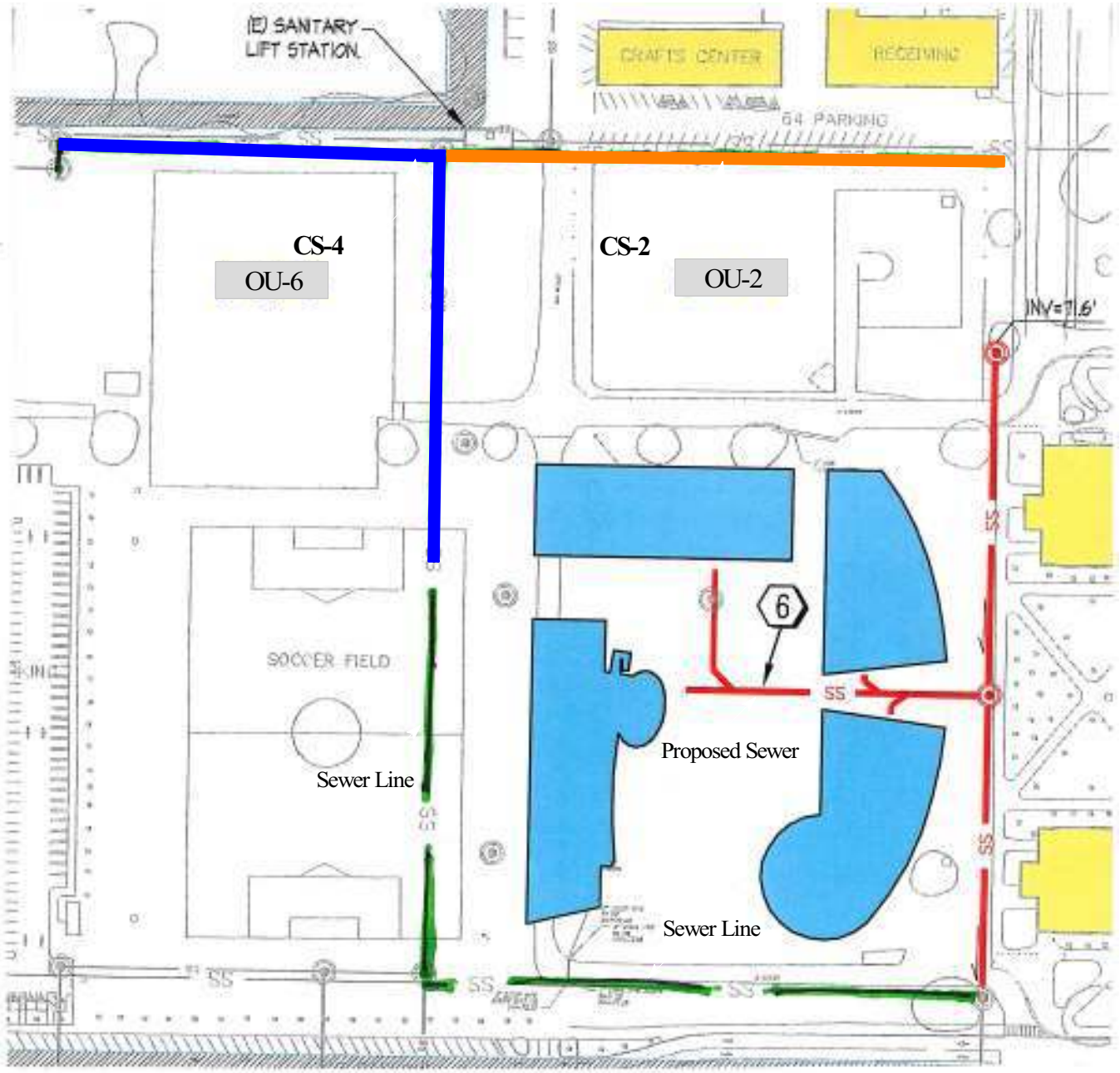
SCALE IN FEET (±)
*ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE

OU-2 AND OU-6 PROJECT AREAS

Modesto Junior College-West Campus
2201 Blue Gum Avenue
Modesto, California

Scale:	Date:
AS SHOWN	04/08
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	8

Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide



OU-2 Sewer Camera Survey (CS-2)

OU-6 Sewer Camera Survey (CS-4)

NORTH

0' 150' 300'

SCALE IN FEET (±)
*ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE

MJCWC MASTER SITE PLAN MAP
OU-2 AND OU-6 PROJECT AREAS

Modesto Junior College-West Campus
2201 Blue Gum Avenue
Modesto, California

Scale:	Date:
AS SHOWN	04/08
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	9

Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide

P Passive Soil Gas Sample Points

SS Shallow Soil Samples

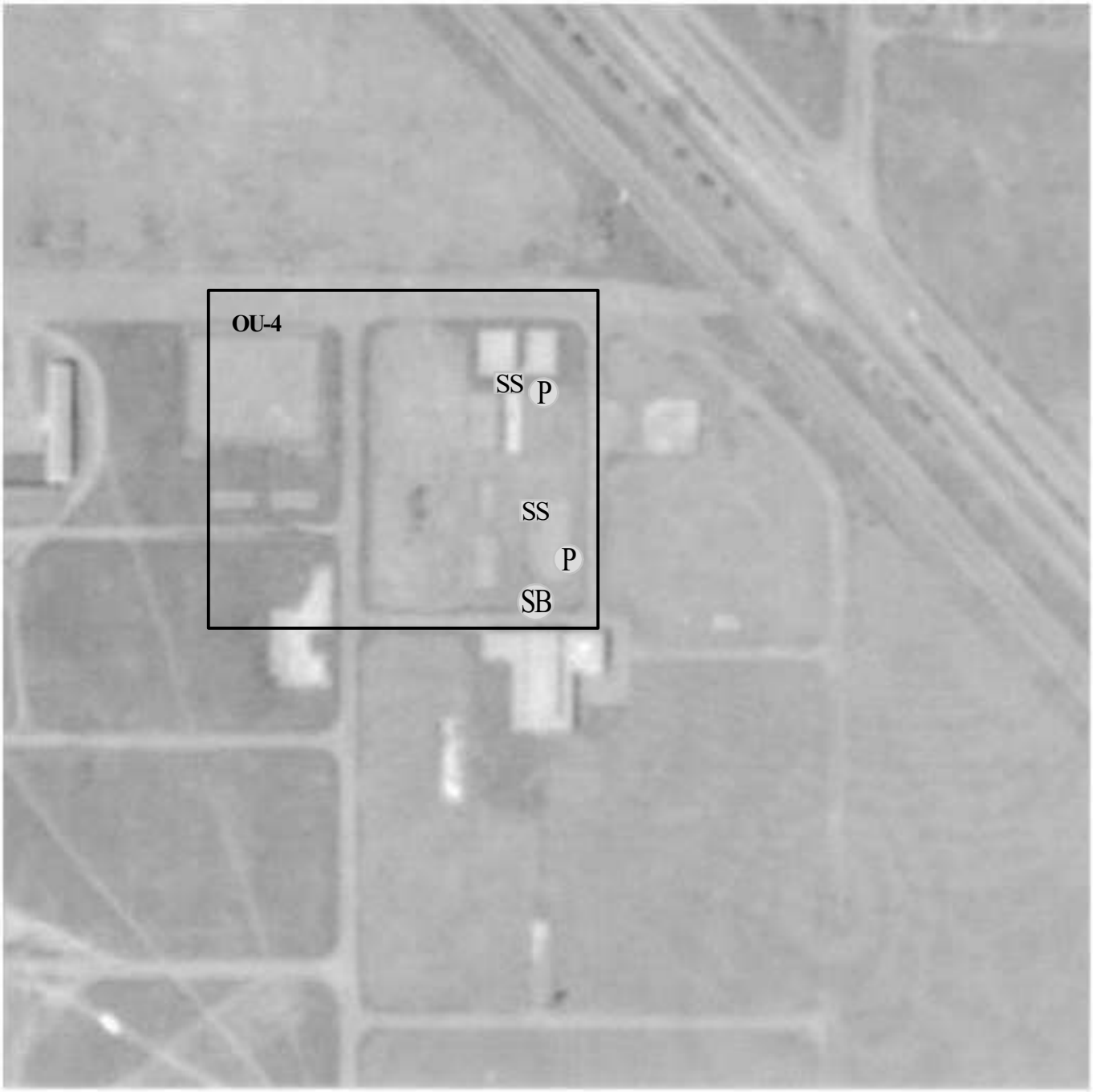
SB Soil Borings

OU-3 MULTI-PURPOSE PAVILION PROJECT AREA

Modesto Junior College-West Campus
2201 Blue Gum Avenue
Modesto, California

Scale:	Date:
NTS	04/08
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	10

Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide



OU-4 Project Area

P Passive Soil Gas Sample Points

SB Soil Borings

SS Shallow Soil Samples

NORTH

0' 250' 400'

SCALE IN FEET (±)
*ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE

FORMER HAMMOND GENERAL HOSPITAL
1957 AERIAL PHOTOGRAPH
ENLARGED OU-4 PROJECT AREA

Modesto Junior College-West Campus
2201 Blue Gum Avenue
Modesto, California

Scale:	Date:
AS SHOWN	04/08
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	11

Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide

OU-2 Project Area
OU-6 Project Area

Area of Geophysical Survey (GS-6)

NORTH

0' 150' 300'

SCALE IN FEET (±)
*ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE

FORMER HAMMOND GENERAL HOSPITAL
ENLARGED PORTION OF THE 1957 AERIAL PHOTOGRAPH
OU-2 AND OU-6 PROJECT AREAS

Modesto Junior College-West Campus
2201 Blue Gum Avenue
Modesto, California

Scale:	Date:
AS SHOWN	04/08
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	12

Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide

P Passive Soil Gas Sample Point

SB Soil Borings

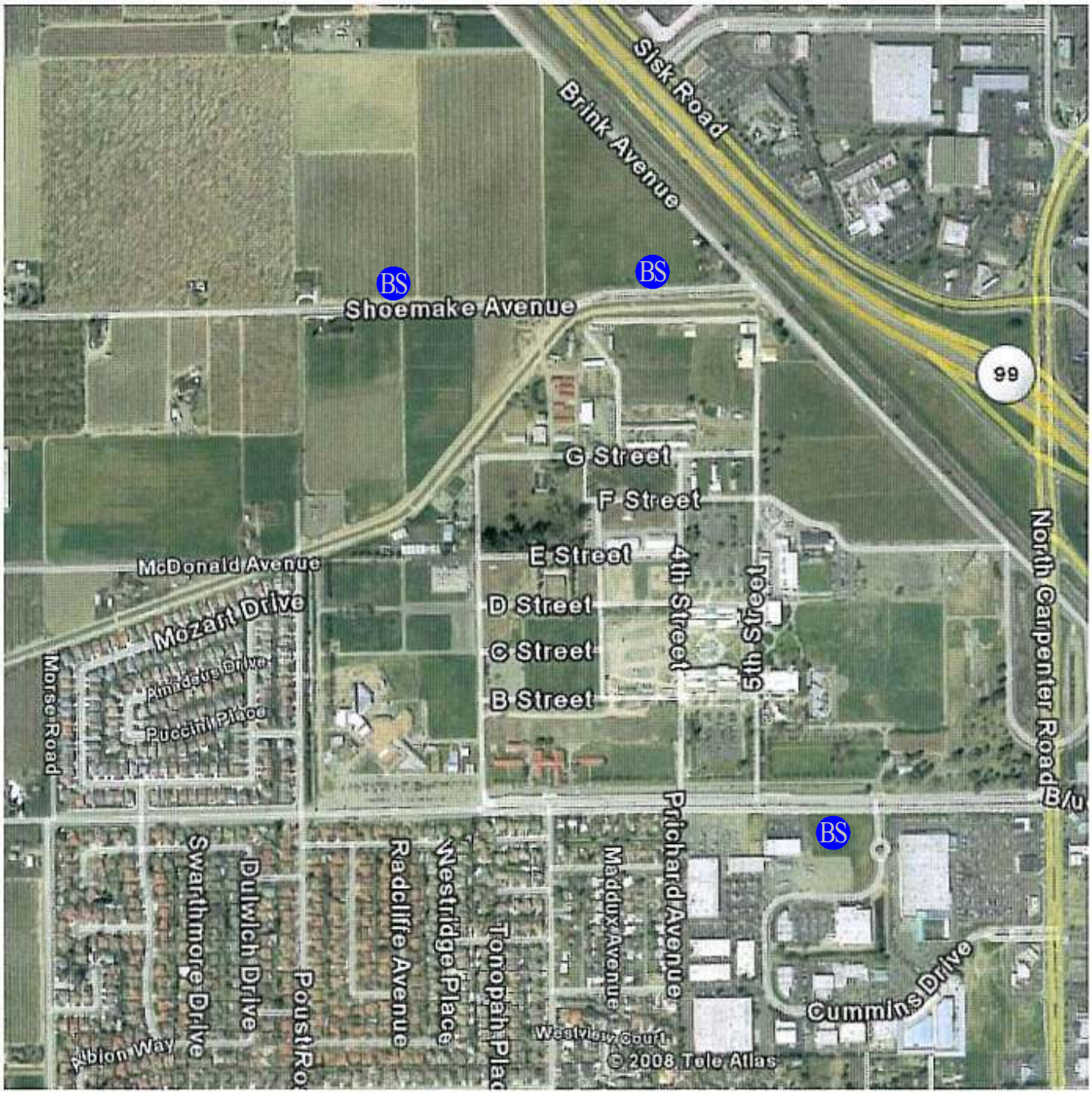
NORTH

FORMER HAMMOND GENERAL
ENLARGED PORTION OF THE 1957 AERIAL PHOTOGRAPH
OU-5 PROPOSED AG BEEF PROJECT AREA

Modesto Junior College-West Campus
2201 Blue Gum Avenue
Modesto, California

Scale:	Date:
NTS	04/08
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	13

Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide



BS Background Soil Sample

NORTH

BS - BACKGROUND SOIL SAMPLE LOCATIONS

Modesto Junior College-West Campus
2201 Blue Gum Avenue
Modesto, California

Scale:	Date:
AS SHOWN	04/08
Drawn by:	Approved by:
CLM	WRC
Project No.	Figure No.
014-06256	14

Krazan
SITE DEVELOPMENT ENGINEERS
Conducting Assessments Nationwide