Department of Environmental Conservation

Division of Environmental Remediation

G.E. WEST LOT
UTICA (C), ONEIDA COUNTY, NEW YORK
SITE NO. 6-33-036
March 1998

RECORD OF DECISION

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Commissioner*

DECLARATION STATEMENT
RECORD OF DECISION

GE WEST LOT SITE
City of Utica, Oneida County, New York
Site No. 6-33-036

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the GE West Lot Site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40 CFR 300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the GE West Lot Site, and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix C of the ROD.

Assessment of the Site

Actual or threatened release of volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs) from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) Reports for the GE West Lot Site and the criteria identified for evaluation of alternatives, the NYSDEC has selected the removal and disposal of contaminated soil from the burnpit area and disposal of soil from an on-site treatment cell. Contaminated groundwater will also be collected for treatment. The components of the remedy are as follows:

- Removal of PCB and VOC contaminated soils and waste, which exceed the Department's cleanup goals (TAGM 4046), from the IRM treatment cell and in the vicinity of the former burn pit. Based upon the Feasibility Study, 2,200 and 870 cubic yards of soils will be removed from the treatment cell and burn pit area, respectively. The soils will be stock piled and characterized for off-site disposal at either a permitted solid waste or hazardous waste landfill. The excavated area will be backfilled and revegetated, once confirmatory soil samples verify that cleanup goals were achieved.

- Overburden pumping wells will be installed to capture the high concentrations of VOCs in the overburden groundwater downgradient of the burn pit (Alternative # 3). At least one additional pumping well located along the axis of the plume may be needed to maximize practical containment of the plume. The number, location and spacing of wells will be determined during the remedial design. The design goals will be to restore contaminated groundwater to groundwater

quality standards within the shortest time technically feasible and to protect down gradient receptors.

- The groundwater collection and treatment system will treat contaminated water in order to discharge to adjacent surface water or to discharge to an on site infiltration system.

- As part of the monitoring program, it will be necessary to evaluate the effectiveness of the groundwater remediation system over time. Additional groundwater clean up remedies or controls may need to be evaluated based on the effectiveness of the groundwater pumping system.

- Additional monitoring wells will be installed to track and monitor the bedrock aquifer and to determine if future remedial activities are warranted to address deep or down gradient impacts. Monitoring will also be required to insure that downgradient surface water is protected.

- Monitoring and maintenance will be required for the groundwater collection and treatment system to insure proper operations, regulatory compliance and protection of human health and the environment.

- The remedial design program will verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties pertaining to the remedy identified during the RI/FS will be resolved.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent praticable, and satisfies the prefernce for remedies that reduce toxicity, mobility, or volume as a principal element.

3/30/98
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

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RECORD OF DECISION
AT THE G.E. WEST LOT SITE

Appendices

SECTION 1: SITE LOCATION AND DESCRIPTION

The General Electric facility is a 55 acre property located on French Road in Utica, Oneida County, New York. In the early 1950's GE constructed a 500,000 square-foot manufacturing facility in order to manufacture, assemble and test electrical components for the defense and aerospace industry. In 1993, Martin Marietta Corporation acquired the French Road facility when it acquired GE's aerospace business. In January 1996, Martin Marietta merged into its parent corporation, LMC, and ceased to exist. LMC continued to operate the facility. LMC transferred ownership of the French Road facility to a private developer in March 1996, but continued operations there pursuant to a lease until September 1996. From that time until approximately August 1997, the facility was unoccupied. Ownership of the facility was transferred in March 1997 to the Oneida County Industrial Development Agency (OCIDA). In September 1997, OCIDA transferred ownership of the eastern portion of the property to a private developer for construction of a retail store. The remainder of the property, including the former GE building, was leased by OCIDA to a local corporation.

The West Lot Site, located to the west of the main plant, is approximately 2 acres in size. The site is bounded by an abandoned railroad bed, the New York State Department of Transportation Maintenance Facility and the New Hartford Village Dump(a class 3 site) to the west, the plant parking lot and Chenango Road to the south, the GE Facility to the east, and open fields to the north.

The immediate vicinity is comprised of open fields, partially wooded areas, and an old railroad bed. The area of concern is triangular in shape and slopes gently to the west-southwest. The surrounding area is a mix of commercial and industrial facilities intermixed with residential homes. All of the surrounding area is serviced by both public water and sewer. The area is heavily serviced by both road and railways.

SECTION 2: SITE HISTORY

2.1: Operational/Disposal History

The disposal site is located to the west of the main manufacturing facility. The site was never used as part of the manufacturing area and was located at the edge of the employee parking lot.

Based on discussions with facility employees, the site was used by the facility's fire brigade for firefighting training exercises through the early 1970's. Waste materials, consisting primarily of wooden pallets and construction debris, were reportedly brought to the site and ignited in the burn pit. The burn pit was identified as an area approximately 20 feet in diameter located to the northwest of the parking lot.

During interviews with four former GE employees it was determined that solvents and magnesium were burned at the site. One of the former GE employees indicated that waste oils were also utilized during the 1950's and 1960's.

2.2: Remedial History

In 1990, GE initiated an investigation at the site which evaluated potential impacts to site soil and groundwater. Due to the presence of VOCs and contravention of New York State Standards, Criteria and/or Guidance(SCGs), the site was listed as a Class 2 site in the NYS Inactive Hazardous Waste Disposal Site Registry.

In 1993, Martin Marietta and NYSDEC entered in an order on consent to perform a Remedial Investigation/Feasibility Study. Also in 1993, Martin Marietta developed, and initiated, an Interim Remedial Measure (IRM) that included the excavation of soils containing VOCs from within the burn pit area,

followed by ex-situ treatment using a soil vapor extraction system within a lined cell. Other site investigations include:

1. **Soil Gas Investigation** performed by Dunn Geoscience in April 1990;
2. **Site Assessment** performed by O'Brien& Gere Engineers Inc. in May 1991;
3. **Focused Remedial Investigation** performed by O'Brien and Gere Engineers, Inc. in July 1992;
4. **Hydrolgeologic Investigation** performed by ERM-Northeast in October 1992;
5. **Additional Investigation** performed by O'Brien and Gere Engineers Inc. in April 1993.

SECTION 3: CURRENT STATUS

In response to a determination that the presence of hazardous waste at the site presents a significant threat to human health and the environment, Lockheed Martin Corporation completed a Remedial Investigation/ Feasibility Study (RI/FS).

3.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site.

The RI activities have included the following :

- A review of all existing information.
- Advancement of soil borings within and around the waste disposal pit to determine the vertical and horizontal extent of contamination.
- A soil gas investigation to determine the areas affected by volatile organic compounds.
- Groundwater modeling was conducted to estimate the laterial extent of groundwater contamination.
- Installation of soil borings and monitoring wells for analysis of soils and groundwater as well as physical properties of soil and hydrogeologic conditions.
- Hydraulic conductivity testing to identify the permeabilities of the overburden and bedrock materials.

The analytical data obtained during the RI were compared to applicable SCGs. Groundwater, drinking water, and surface water SCGs identified for the GE West Lot site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of NYS Sanitary Code. Soil SCGs are based on NYSDEC's Technical and Administrative Guidance Memorandum (TAGM) 4046 soil cleanup objectives for the protection of groundwater.

3.1.1 Hydrogeologic Features

The geology at the G.E. West Lot Site consists predominantly of four main overburden units. An approximate 10 foot thick layer of fill consisting of loose, brown, fine sand with trace gravel was encountered in the former burn pit area that was excavated and backfilled during the IRM activities. The thickest layer of fill was encountered at boring B-2, which was located near the center of the former burn pit. Beneath the fill layer, a layer of light brown to brown silt and silty sand was encountered which is defined as the glacio-lacustrine unit and ranged in depth between 0 to 6 feet. The glacial-kame unit, which is comprised of approximately 25-36 feet of stratified deposits consisting of brown to gray-brown sands and

occasional gravelly or silty lenses, is found beneath the glacial-lacustrine unit. The final layer found above bedrock is the glacial till unit. This approximate 10 to 12 foot unit consists of relatively dense, gray-brown, sandy silt with minor components of gray shaley gravel. Bedrock is encountered at approximately 43-47 feet below grade. The bedrock is a weathered grey shale and is described as an Ordovician Utica Formation. The majority of groundwater flow is limited to the glacial-kame deposit. The hydraulic gradient at the site is approximately 0.003 feet per foot toward the south-southwest. Based upon results of slug tests and specific capacity tests, the hydraulic conductivity of the glacial-kame deposit has been estimated to be approximately 2×10^{-2} to 3×10^{-2} centimeters per second (cm/sec). The groundwater flow velocity within the overburden is estimated at 0.5 to 1.5 feet per day.

3.1.2 Surface Water

The nearest surface water to the site is the Sauquoit Creek, which is approximately 1/4 mile west of the site. Sampling done during previous investigations performed at the New Hartford Village Dump Site No. 633026 (located west of the site) has identified trace levels of VOCs and elevated levels of metals. However, these compounds are believed to be associated with disposal practices at the New Hartford Village Dump.

3.1.3 Contaminants

The following is a description of impacts from the disposal of hazardous waste at the GE West Lot Site. Based upon the results of the remedial investigation in comparison to SCGs and potential public health and environmental exposure rates, certain areas and media of the site require remediation.

3.1.3 (a) Soils

In early 1990, Dunn Geoscience performed a soil gas survey which identified that the former burn pit area contained VOCs within the vadose zone at levels up to 250 parts per million. In March 1990 O'Brien and Gere Engineers, installed one boring within the burn pit. The results of this sample confirmed the presence of VOCs in the soil. Subsequently 9 additional borings were installed to further delineate the area.

The VOCs detected in soil at or near the burn pit include: 1,2-Dichloroethene (0.14 ppm to 140 ppm), tetrachloroethane (49 ppm), trichloroethene (0.21 ppm to 900 ppm), ethylbenzene (0.31 ppm to 77 ppm), toluene (0.24 ppm to 940 ppm) and xylene (1.1 ppm to 370 ppm).
In 1993 and 1994 approximately 2200 cubic yards of VOC contaminated soils were removed for treatment as part of an IRM.

In 1996, additional soil sampling was conducted in the vicinity of the burn pit to delineate residual levels and quantities of PCB and VOC contaminated soils which remained above soil cleanup objectives. Approximately 870 cubic yards of contaminated soils were found to remain in the burnpit area which exceed soil cleanup objectives for Tetrachloroethene (non detect - 16 ppm), Ethylbenzene (non detect - 150 ppm) and Xylene (non detect - 710 ppm). PCBs were found in the range of non detect to 9.1 ppm. Semi-volatile organic compounds, pesticides and metals have not been identified as being significant within the soil medium.

3.1.3 (b) Sediments

The nearest surface body of water (Sauquoit Creek) is approximately 1/4 mile away from the site. No surface water nor sediments exist on, or directly adjacent to, the site, therefore, no sediment samples were taken.

3.1.3 (c) Groundwater

Generally, groundwater found at the site is contaminated with chlorinated and non- chlorinated volatile organic compounds. Levels of total VOCs, found on-site, range from 66,000 ppb at the former burnpit to 1,000 ppb at the property boundary. Levels of VOCs found off-site range from 1,000 ppb at the property line to 11 ppb, 250 feet downgradient, on the NYSDOT facility. 1,2 Dichloroethene is the most prevalent VOC found at and off the site.

Twenty-eight groundwater samples were collected between March 1990 and April 1991. Additional monitoring wells, hydropunch®(s) and piezometers were installed during 1996 and 1997 to further evaluate groundwater quality and flow at the site. The following VOCs have been identified in the groundwater above 6 NYCRR Part 703 groundwater quality standards: vinyl chloride (1 ppb to 3,400 ppb), 1,1-Dichloroethane (5 ppb to 7 ppb), 1,2-Dichloroethene (DCE)(total)(7 ppb to 86,000 ppb), 1,1,1-Trichloroethane(TCE) (3 ppb to 42 ppb), Tetrachloroethene(2 ppb to 5 ppb), toluene(4 ppb to 21,000 ppb), benzene (13 ppb to 14 ppb), ethylbenzene, and xylene (total)(8 ppb to 6,600 ppb). Also Bis(2-ethylhexyle phthalate, Di-n-butlyl phthalate, Dichlorobenzene, Diethyl phthalate, 2-Methyl napthalene, Napthalene and PCBs (Aroclor 1254) were found at low levels above standards. Contaminated groundwater is flowing in a south, southwest direction and appears to be confined largely to the upper glacial lacustrine unit. Levels of VOCs located off-site are in the range of non-detect to 1,000 ppb.

Six deep overburden soil borings were installed at the site. Groundwater samples were collected from three of the six deep locations. Groundwater northeast of the burn pit (Deep-1) did not show any detectable levels of VOCs. Monitoring well, Deep-4, which was located within the former burn pit showed 1,2-DCE (total) concentration of 5.5 (ppb), trichloroethene (TCE) concentration of 33 (ppb), and toluene concentration of 130 (ppb). Deep monitoring well, Deep-5 showed 1,2-DCE(total) concentrations of 10 (ppb).

3.1.3 (d) Air

Soil sampling and screening for the primary organic compounds of concern have not indicated the presence of the target compounds at measurable levels near the surface of the former burn pit and, therefore, airborne contamination is not likely.

3.2 Interim Remedial Measures:

Interim Remedial Measures (IRMs) were conducted based upon the initial site investigation performed in 1990. An IRM is implemented when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

An IRM was conducted at the site in late 1993 through 1994. The IRM consisted of the excavation of approximately 2,200 cubic yards of soil from the former burn pit located at the West Lot site. The excavated soils were placed in an aboveground engineered treatment cell for remediation of VOCs using soil vapor extraction (SVE). Treatment of these soils concluded in 1996. The soils currently are staged within the cell, awaiting disposal. These soils are still contaminated with PCBs at levels up to 200 ppm.

3.3 Summary of Human Exposure Pathway

This section describes the types of human exposure that may present added health risks to persons at, or around, the site. A more detailed discussion can be found in the Remedial Investigation.

An exposure pathway is how an individual may come into contact with a contaminant. The five elements of an exposure pathways are: 1) source of contamination; 2) environmental media and transport mechanisms;

3) point of exposure; 4) route of exposure; and 5) receptor population. All of these elements must be present to form a completed pathway.

Based upon this criteria and data present in the RI there are currently no completed pathways at this site. However, possible future pathways include:

- Use of on-site groundwater for drinking water.
- Inhalation of dust from excavation of soil at the burn pit.
- Skin contact with contaminated soil during excavation of the burn pit.
- Contact with contaminated groundwater in basement sumps or exposure to contaminated groundwater seeping into below ground structures during high groundwater conditions.
- Accumulation of vapors containing VOCs in buildings built over or near the contaminated groundwater plume.

The site is not within a secure or active facility and control over current and future use is not restricted at this time. The site is not fenced and trespassers may come in contact with contaminated soils which remain in the vicinity of the burn pit.

There are no known private water supply wells within the vicinity of the site. Exposure to contaminated groundwater at the downgradient New York State Department of Transportation building is minimal due to the presence of soil, asphalt and concrete caps. However, intrusive work may result in exposure to contaminated groundwater and organic vapors. Accumulation of vapors in and around building foundations may also be a potential given the high levels of VOCs migrating on to the NYSDOT facility.

3.4 Summary of Environmental Exposure Pathways:

Exposure pathways for environmental receptors are possible through contact with, and ingestion of, contaminated soils and groundwater. The most significant contaminates of concern are VOCs and PCBs. There is not a significant aquatic or wildlife population which could come into contact with the impacted materials. Site related contaminants have impacted the overburden aquifer downgradient of the burn pit. Left un-remediated, the contaminated groundwater which originates from the GE West Lot site could eventually reach the Sauquoit Creek.

SECTION 4: ENFORCEMENT STATUS

The NYSDEC and Martin Marietta Corporation entered into a Consent Order (#A6-0311-93-11) on December 15, 1993. The Order obligated the responsible party to implement a Remedial Investigation/Feasibility Study and Interim Remedial Measure Program. Upon issuance of the Record of Decision the NYSDEC will negotiate an additional Order on Consent to implement the selected remedy.

SECTION 5: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to restore the site to pre-disposal conditions, to the extent feasible and authorized by law.

At a minimum, the remedy selected should eliminate or mitigate all significant threats to public health and to the environment presented by the hazardous wastes disposed of at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- Reduce, control, or eliminate, to the extent practicable, the contamination present within the soils on site and prevent further migration of contaminant to groundwater.
- Eliminate the threat to surface waters by eliminating or mitigating any future contaminated groundwater discharging to downgradient streams.
- Eliminate the potential for direct human or animal contact with the contaminated soils on site.
- Prevent, to the extent possible, migration of contaminants in the burn pit to groundwater.
- Mitigate off-site impacts and restore all groundwater quality to meet SCGs in a timely manner.

SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

Potential remedial alternatives for the GE West Lot site were identified, screened and evaluated in a two phase Feasibility Study. This evaluation was initially presented in the report entitled Feasibility Study Report, dated July 14, 1997 and prepared by SECOR International, Inc.. As a supplement to the FS, Blasland, Bouck & Lee submitted a report entitled Feasibility Study Report Supplement, dated January 1998. Alternative #6 was provided in this report and is presented in the following section.

A summary of the detailed analysis follows.

6.1: Description of Alternatives

The description below addresses the alternatives which have been identified to remediate the contamination associated with the GE West Lot site. The potential remedies are intended to address the contaminated soils and groundwater found at the site.

Alternative 1- Limited Action

The limited action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would include a combination of site controls to prevent human and biota exposure to the compounds of concern at the site, and a groundwater monitoring program.

A security fence would be erected to enclose the impacted area and signs would be placed to describe the area and to deter trespassing.

Additional monitoring wells, bedrock and overburden, would be installed in order to evaluate contaminated groundwater migration and downgradient receptors.

Routine monitoring would be performed to ensure that security was maintained and to define groundwater migration.

This alternative would not meet the threshold criteria for protection of human health and the environment and therefore is not acceptable.

Present Worth:	$ 181,541
Capital Costs:	$ 0
Annual O&M:	$ 15,000

Alternatives 2 through 6

The following list of five alternatives addresses the contaminated groundwater portion of the site. A component of each of the alternatives is the removal VOC and PCB contaminated soils located in the treatment cell and surrounding the burn pit area. There are approximately 2,200 cubic yards of soil in the treatment cell and approximately 870 cubic yards of soil remaining in the vicinity of the burn pit which exceed TAGM 4046 soil clean up goals. All soils exceeding clean up goals are proposed to be excavated, treated (if necessary) and taken off site for disposal. All soils are proposed to be transported to a permitted hazardous waste landfill or permitted solid waste landfill. Verification sampling would be conducted to ensure cleanup goals are achieved. Once the soils are removed, the treatment cell would be dismantled and the treatment cell and the burnpit area would be backfilled, graded and a vegetative cover established.

Alternative 2 - Collection/Treatment and Discharge to POTW

This alternative combines groundwater extraction, on-site physical treatment, and discharge to the publicly owned treatment works (POTW). Monitoring of groundwater downgradient of the site, as described under the limited action alternative, would also be included.

This alternative would include the installation of a series of recovery wells installed along the southern side of the former burn pit in order to capture contaminated overburden groundwater. Approximately 4 wells would be installed 75 feet on center from approximately the old railroad bed extending east to the edge of the West Lot parking lot. Each well would be installed to a depth of the glacial till layer or about 35 feet deep. Collected waters would be treated on-site utilizing a low profile air stripping system and polished by carbon in order to meet pretreatment standards as designated by the Oneida County POTW.

Present Worth:	$ 1,355,754
Capital Costs for Groundwater System:	$ 200,000
Capital Costs for Soil Removal:	$ 710,200
Annual O&M Costs for the first 10 years:	$ 60,000
Annual O&M Costs for 5 years of post remediation monitoring:	$ 15,000

Alternative 3 - Collection/Treatment and On-Site Discharge

Alternative #3 combines groundwater extraction, on-site treatment and on site discharge via subsurface injection wells or an infiltration gallery. The Description of Alternative #3 is the same as Alternative #2 except that the collected water would be discharged on site rather than to the POTW. A higher level of treatment may be required if waters would be injected outside the area of capture. The time to run this system is slightly less than Alternative #2, due to the injection of clean groundwater back into the groundwater

system, which would slightly enhance biological conditions and provide flushing of contamination toward recovery points..

Present Worth:	$ 1,296,115
Capital Costs for Groundwater System:	$ 220,000
Capital Costs for Soil Removal:	$ 710,200
Annual O&M Costs for the first 8 years:	$ 60,000
Annual O&M Costs for 5 years of post remediation monitoring:	$ 15,000

Alternative 4 - In Situ Treatment using Air Sparging

Alternative #4 is based on the physical removal of dissolved VOCs via mass transfer in situ. A series of small diameter wells would be constructed to inject air into the contaminated overburden aquifer. VOCs would be transferred from the dissolved phase in the groundwater to the gaseous phase in the vadose zone. Gas would dissipate at the surface of the ground. It is anticipated that 12 air sparging wells spaced 50 feet on center would influence the zone of highest dissolved VOCs. Monitoring of groundwater downgradient of the site as described under the limited action alternative would also be included.

Present Worth:	$ 1,015,579
Capital Costs for Groundwater System:	$ 150,000
Capital Costs for Soil Removal:	$ 710,200
Annual O&M Costs for the first 5 years:	$ 30,000
Annual O&M Costs for 5 years of post remediation monitoring:	$ 15,000

Alternative 5 - In Situ Treatment Using Chemical Oxidation

Alternative #5 consists of injecting oxidant, (usually hydrogen peroxide) into the aquifer to chemically oxidize VOCs in the groundwater. The pre-diluted technical grade hydrogen peroxide would be stored on site in a storage tank. The hydrogen peroxide would be piped to existing monitoring wells where it would be injected. It is estimated that a period of two years would be required for injections in order to dissipate the area effected by the highest levels of VOCs.

Present Worth:	$ 888,000
Capital Costs for Groundwater System:	$ 110,000
Capital Costs for Soil Removal:	$ 710,200
Annual O&M Costs for the first 2 years:	$ 20,000
Annual O&M Costs for 3 years of post remediation monitoring:	$ 15,000

Alternative #6 - Supplemental Groundwater Alternative

This alternative includes the installation of a groundwater recovery system to capture and remove VOC impacted groundwater found on and off site. The proposed collection system calls for the installation of one well to be placed on site. The groundwater recovery system would transmit contaminated groundwater to a treatment system for either full treatment to meet discharge limits or to meet pretreatment standards as set by the Publicly Owned Treatment Works (POTW).

Contaminated groundwater found off-site would be allowed to naturally attenuate.

Downgradient groundwater would be monitored to ensure that contamination was not increasing or migrating toward downgradient receptors.

As part of this alternative, during the pump and treat operations, alternative treatment technologies may be evaluated to replace the pump and treat system. Potential technologies include enhanced bioremediation, reaction wall/gate, phyto-remediation, etc.

Present Worth:	$ 1,148,105
Capital Costs for Groundwater System:	$ 191,500
Capital Costs for Soil Removal:	$ 710,200
Annual O&M Costs for the first 4 years:	$ 59,800
Annual O&M Costs for years 5 through 30:	$ 15,000

6.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6NYCRR Part 375). For each of the criteria, a brief description is provided, followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is contained in the Feasibility Study. The first two evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection. The last five evaluations are termed "primary balancing criteria" and are used to compare the positive and negative aspects of each alternative.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance (Appendix A, Table 1).

Alternative #1 would not meet SCGs for groundwater in a timely manner. Under this alternative no removal or treatment of contaminated groundwater would occur, and therefore, contaminants would continue to migrate from the site.

All remaining alternatives may eventually meet SCGs for groundwater, assuming that the remedies would be effective in removing contamination.

All alternatives except for #1 would meet SCGs for contaminated soils, based upon the excavation of all waste and soils above soil cleanup goals. Soils would be disposed of in either a secure solid waste or hazardous waste landfill.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective.

Alternative #1 would not be considered to be protective of human health and the environment since site related contaminants above clean-up goals would remain in place and continue to migrate off-site and onto adjacent property which is present in active use.

Alternatives #2, #3, # 4, # 5, and #6 would be considered to be protective, assuming that each alternative is effective in minimizing exposure to contaminants.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternative #1 would not cause any short term impacts due to the lack of disturbance of the site.

The remaining alternatives could create potential short term impacts from the installation and construction of groundwater collection and treatment systems due to worker and public exposure to soils, dust and noise. However, these impacts would be mitigated by implementing readily available safety procedures, including air monitoring, the wearing of protective equipment, and decontamination of equipment prior to leaving the site, and engineering controls including covering excavated soils and installing sediment migration barriers to keep contaminants from migrating beyond the work site boundaries.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternative #1 would not provide long-term effectiveness or permanence due to the continued migration of contaminated groundwater.

Alternatives #4 and #5 would have a greater degree of long-term effectiveness or permanence in comparison compared to Alternatives # 2, # 3, and # 6 because Alternatives # 4 and # 5 include on-site insitu treatment versus containment. However, some additional environmental controls would be required for Alternatives # 4 and # 5 in order to prevent the further spread of contaminated groundwater off site during the in-situ treatment period.

There remains uncertainties regarding the effectiveness of all groundwater cleanup remedies proposed in the engineering reports. Additional field testing would be needed to verify the engineer's assumption on the effectiveness of each alternative.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Alternative #1 would provide no reduction in toxicity, mobility or volume as it pertains to the contaminated soils. The remaining alternatives all include the removal of contaminated wastes and soils from the site, therefore, they are all considered to provide the same degree of reduction.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to

monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc..

Alternatives involving soil and waste removal would be considered implementable. Standard excavation techniques would be implemented and no special equipment or tools are required.

Alternative # 1 considered to be the most implementable due to the limited construction required.

Alternatives # 2, #3, and #6 have the highest degree of implementability, since the equipment and contractors are readily available, the technology is reliable and the no delays are anticipated technically or administratively.

Alternatives # 4 and # 5 are considered to be less implementable due to the uncertainties in meeting specified process efficiencies and performance goals and the availability of equipment and experienced contractors. In addition, further controls may be required to prevent further off site migration during the in situ treatment period.

The PRAP called for discharge of collected groundwater to the POTW for further treatment. Because the Oneida County POTW does not have the capacity to accommodate the collected groundwater, all water will be treated on site to meet discharge standards and then discharged to Nail Creek or to an on-site infiltration gallery.

This is considered to be an implementability issue. The ability of the Lockheed Martin to obtain permission to discharge to the Oneida County POTW is not available and therefore alternative # 2 is considered to be less implementable than Alternative # 3. This does not change the overall intent of the Department's selected remedy. However on-site treatment and discharge will be the option which is available and subsequently implimentable.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 3.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan are evaluated. A "Responsiveness Summary" included in Appendix C presents the public comments received and the Department's responses to the concerns. In general the public comments received were supportive of the selected remedy. Comments received from the Oneida County Sewer District did require the proposal to be modified. The PRAP called for discharge of collected groundwater to the POTW for further treatment. Because the Oneida County POTW does not have the capacity to accommodate the collected groundwater, all water will be treated on site to meet discharge standards and then discharged to Nail Creek or to an on-site infiltration gallery. This does not change the overall intent of the Department's selected remedy. Alternative # 2 and Alternative # 3 are essentially the same, except # 2 requires off site disposal and # 3 requires on-site treatment of contaminated groundwater. Lockheed Martin submitted a substantial quantity of comments, however they concluded that the Department's approach, pertaining to the development of a system during the preliminary design phase, was acceptable. Other comments were responded to, incorporated or were editorial in nature.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 6, the NYSDEC is selecting Alternative #3 as the remedy for this site. Alternative # 3 has been modified, not to include the exact number, size and location of pumping wells. The exact size of the system will be determined during a preliminary design program. This will reflect more accurately current field conditions and physical constraints.

The elements of the selected remedy are as follows:

- Removal of PCB and VOC contaminated soils and waste, which exceed the Department's cleanup goals (TAGM 4046), from the IRM treatment cell and in the vicinity of the former burn pit. Based upon the Feasibility Study, approximately 2,200 and 870 cubic yards of soils will be removed from the treatment cell and burn pit area, respectively. The soils will be stock piled and characterized for off-site disposal at either a permitted solid waste or hazardous waste landfill. The excavated area will be backfilled and revegetated, once confirmatory soil samples verify that cleanup goals were achieved.

- Overburden pumping wells will be installed to capture the high concentrations of VOCs in the overburden groundwater downgradient of the burn pit (Alternative #3). At least one additional pumping well located along the axis of the plume may be needed to maximize practical containment of the plume. The number, location and spacing of wells will be determined during the remedial design. The design goals will be to restore contaminated groundwater to groundwater quality standards within the shortest time technically feasible and to protect down gradient receptors.

- The groundwater collection and treatment system will treat contaminated water in order to meet discharge standards to adjacent surface water or to discharge to an on site infiltration system.

- As part of the monitoring program, it will be necessary to evaluate the effectiveness of the groundwater remediation system over time. Additional groundwater clean up remedies or controls may need to be evaluated based on the effectiveness of the groundwater pumping system.

- Additional monitoring wells will be installed to track and monitor the bedrock aquifer and to determine if future remedial activities are warranted to address deep or down gradient impacts. Monitoring will also be required to ensure that downgradient surface water is protected.

- Monitoring and maintenance will be required for the groundwater collection and treatment system to ensure proper operations, regulatory compliance and protection of human health and the environment.

- A remedial design program to verify the components of the conceptual design and to provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS will be resolved.

The estimated present worth cost to implement the proposed remedy is $1,296,115. The cost to construct the remedy is estimated to be $910,200 and the estimated annual operation and maintenance cost is estimated to be $60,000 for the first 8 years and $15,000 for year 9 through 13. Additional costs may be encountered based on the preliminary design work which will verify the consultants assumption concerning number, location and spacing of extraction wells. Time and cost estimates are based on current understanding of site conditions, conceptual models and best estimates. Field condition encountered during construction, preliminary design analysis and future conditions may result in deviations from projected estimates.

The following is the basis for the Department's section:

- Compared to the remaining alternatives, the Department's proposal would obtain remedial goals during the shortest time, while utilizing proven and cost effective technologies. Compared to the other alternatives, the Department's proposal, which includes additional downgradient extraction wells, would provide the highest level of protection, both short term and long term, for human health and the environment.

- The excavation of all soils and waste containing VOCs and PCBs above NYSDEC soil clean up goals would permanently remove contaminated media from the environment and reduce loading of VOCs and PCBs to the groundwater.

- Off-site disposal of these wastes and soils at a secure solid waste or hazardous waste landfill would properly contain these materials in an approved long-term secure facility.

- The removal of soils and waste would meet SCGs and Remedial Action Objectives, permanently reduce the toxicity, mobility or volume of the waste, and would be protective of human health and the environment.

- The installation of pumping wells would remove and control contaminants in groundwater presently presenting a significant threat to public health and the environment.

- The installation of pumping wells would prevent contaminated overburden groundwater from migrating into the bedrock aquifer.

- The installation of downgradient deep and shallow monitoring wells would detect if contamination is spreading in the overburden or bedrock aquifer. Additional remedial actions may be required if needed to protect human health and the environment.

- The development of an Operation, Monitoring and Maintenance Program (OMMP) would ensure that the selected remedy is functioning as required by the Record of Decision.

SECTION 8: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the GE West Lot Site remediation process, a number of Citizen Participation (CP) activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- A repository for documents pertaining to the site was established.

- A site mailing list was established which included nearby property owners, local political officials, local media, and other interest parties.

- A public meeting was held to discuss the characteristics of the site and the proposed remedy, and to answer any questions raised.

- A "Responsiveness Summary" was prepared and made available to the public to address the comments received during the public comment period for the PRAP.

APPENDIX A

Appendix A - Table 1
New York State Standards, Criteria and Guidance Applications

U.S. Environmental Protection Agency (EPA)
- Toxic Substance Control Act (TSCA)
- USEPA Health Based Soil Criteria for Systemic Toxicant and Carcinogens

New York State Department of Environmental Conservation (NYSDEC)
NYSDEC - Division of Environmental Remediation
- 6NYCRR Part 375-Inactive Hazardous Waste Disposal Site Remedial Program

Hazardous Waste Technical and Administrative Guidance Memoranda (TAGMs)
- TAGM 4030 - Selection of Remedial Actions at Inactive Hazardous Waste Sites
- TAGM 4046 - Determination of Soil Cleanup Objectives and Cleanup Levels
- TAGM 4031 - Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites

NYSDEC - Division of Hazardous Substance Regulations
- 6NYCRR Part 370 - Hazardous Waste Management System - General
- 6NYCRR Part 371 - Identification and Listing of Hazardous Wastes
- 6NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporter, and Facilities
- 6NYCRR Part 376 - Land Disposal Restrictions

NYSDEC - Division of Solid Waste
- 6NYCRR Part 360 - Solid Waste Management Facilities
- 6NYCRR Part 364 - Waste Transporters Permits

NYSDEC - Division of Water
- 6NYCRR Part 700-705 - Water Quality Regulations for Surface Water and Groundwater
- 6NYCRR Part 750-757 - Implementation of NYPDES in New York State
- Technical and Operation Guidelines (TOGS) 1.1.1-Ambient Water Quality Standards and Guidance Values

NYSDEC - Division of Fish and Wildlife
- Technical Guidance for Screening Contaminated Sediments (Nov 1993)

Occupational Safety and Health Administration
- 29 CFR 1900-1999

Appendix A - Table 2
Representative Contamination Summary

Media	Class	Contaminant of Concern	Concentration Range	Frequency of Exceedances	SCG *
Groundwater Shallow	Volatile Organic Compounds	Tetrachloroethylene	Non Detect - 100 ppb	5 out of 26	5 ppb
		Trichloroethene	Non Detect - 14,000 ppb	8 out of 26	5 ppb
		1,1,1-Trichloroethane	Non Detect - 830 ppb	5 out of 26	5 ppb
		1,2-Dichloroethene	Non Detect - 420,000	13 out of 26	5 ppb
		Vinyl Chloride	Non-Detect - 3,500 ppb	9 out of 26	5 ppb
		Toluene	Non Detect -6,100 ppb	5 out of 26	5 ppb
		Ethylbenzene	Non Detect -340 ppb	7 out of 26	5 ppb
		Xylene	Non Detect - 1,400 ppb	7 out of 26	5 ppb
		Benzene	Non Detect - 14 ppb	1 out of 26	0.7 ppb
	PCBs	Total PCBs	Non Detect - 0.7 ppb	1 out of 26	0.1 ppb
Groundwater Deep	Volatile Organic Compounds	1,2-Dichloroethene	Non Detect -10 ppb	2 out of 3	5 ppb
		Trichloroethene	Non Detect - 33 ppb	1 out of 3	5 ppb
		Toluene	Non Detect - 130 ppb	1 out of 3	5 ppb
Soils	Polychlorinated Biphenyls	PCB	Non Detect - 340, 000 ppb	1 out of 20	10,000 ppb
	Volatile Organic Compounds	Tetrachloroethylene	Non Detect 16,000 ppb	1 out of 20	1,400 ppb
		Ethylbenzene	Non Detect - 150,000 ppb	1 out of 20	5,500 ppb
		Xylene	Non Detect -710,000	1 out of 20	1,200 ppb

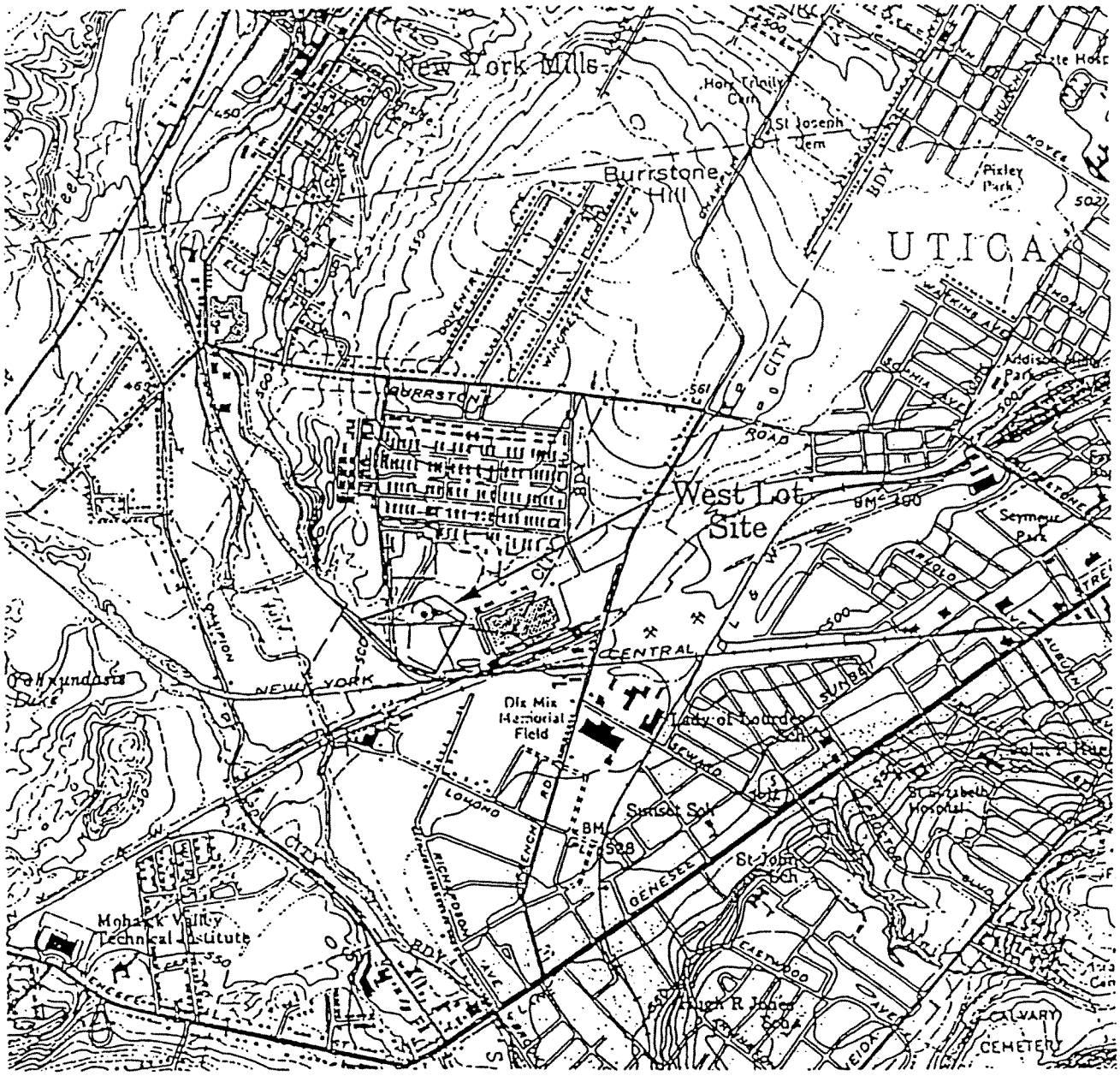
* SCG's for groundwater is standard 6 NYCRR Part 703
SCG's for soil is objectives in NYSDEC TAGM 4046

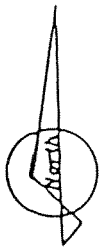
Appendix A - Table 3
G. E. West Lot Site
Remedial Alternatives Costs

Remedial Alternative	Capital Costs	Annual O&M	Total Present Worth
Alternative # 1 Limited Action	$ 0.00	$ 15,000 - 0 to 30 years	$ 181,541
Alternative # 2 Collect Treat/Discharge to POTW	$ 200,000 - Groundwater $ 710,200 - Soil	$ 60,000 - 0 to 10 years $ 15,000 - 11 to 15 years	$ 1,355,754
Alternative # 3 Collect Treat/Discharge on Site	$ 220,000 - Groundwater $ 710,200 - Soil	$ 60,000 - 0 to 8 years $ 15,000 - 9 to 13 years	$ 1,296,115
Alternative # 4 In-Situ Treatment - Air Sparging	$ 150,000 - Groundwater $ 710,200 - Soil	$ 60,000 - 0 to 5 years $ 15,000 - 6 to 10 years	$ 1,015,579
Alternative # 5 In-Situ Treatment - Chemical Oxidation	$ 110,000 - Groundwater $ 710,200- Soil	$ 60,000 - 0 to 2 years $ 15,000 - 3 to 6 years	$ 888,000
Alternative # 6 Supplemental Groundwater Alternative	$ 191,500 - Groundwater $ 710,200 - Soil	$ 59,800 - 0 to 4 years $ 15,000 - 5 to 10 years	$ 1,148,105

Notes: *Present Worth Value is based upon a 7 % Present Worth Factor using continuous compounding.*
Source removal of soils within the burn pit vicinity is part of every alternative, except the limited action alternative.

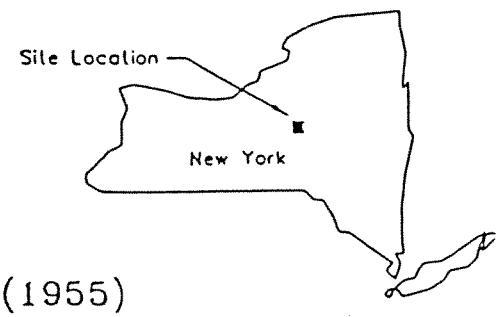
APPENDIX B





Scale: 1:24,000

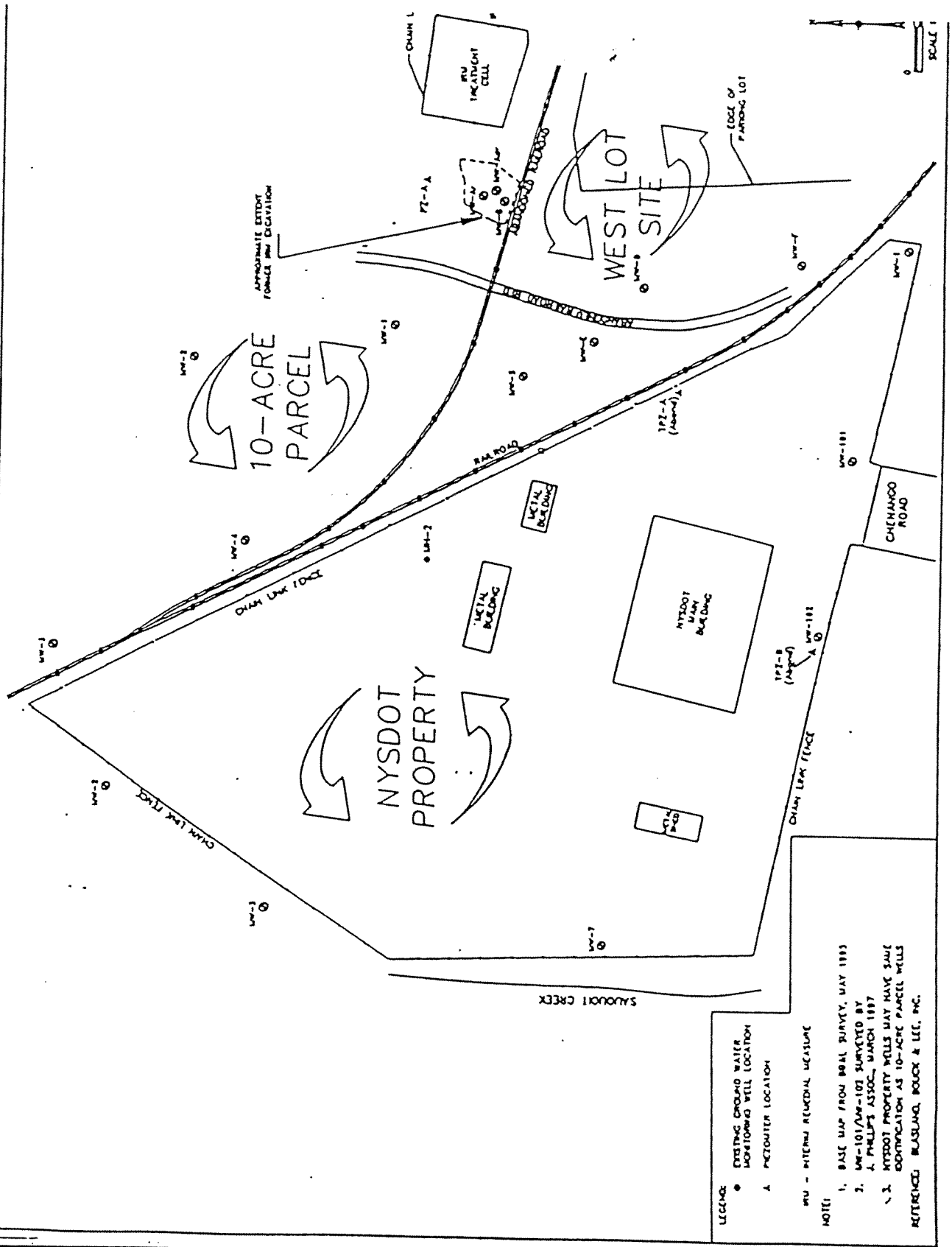
Miles			Feet	
1/2	1/4	0	1000	2000



Source:
United States Geological Survey
7.5-Minute Series (Topographic)
Quadrangle Map

Utica – West, NY (1955)

SECOR International, Inc.	Figure 1 – Site Location Map West Lot Project Area		LOCATION: Former Lockheed Martin Corp. Facility 525 French Road Utica, Oneida County, New York, 13502	
4914 West Genesee Street Camillus, New York 13031 (315) 484-7874	CLIENT: Burbank Program Office 2550 N. Hollywood Way Burbank, CA 91505	PROJECT NO.: 4G002-001-01	ASKTCH FILE: LMC-UTLOC.jps	DATE: 16 May 1997



SECOR

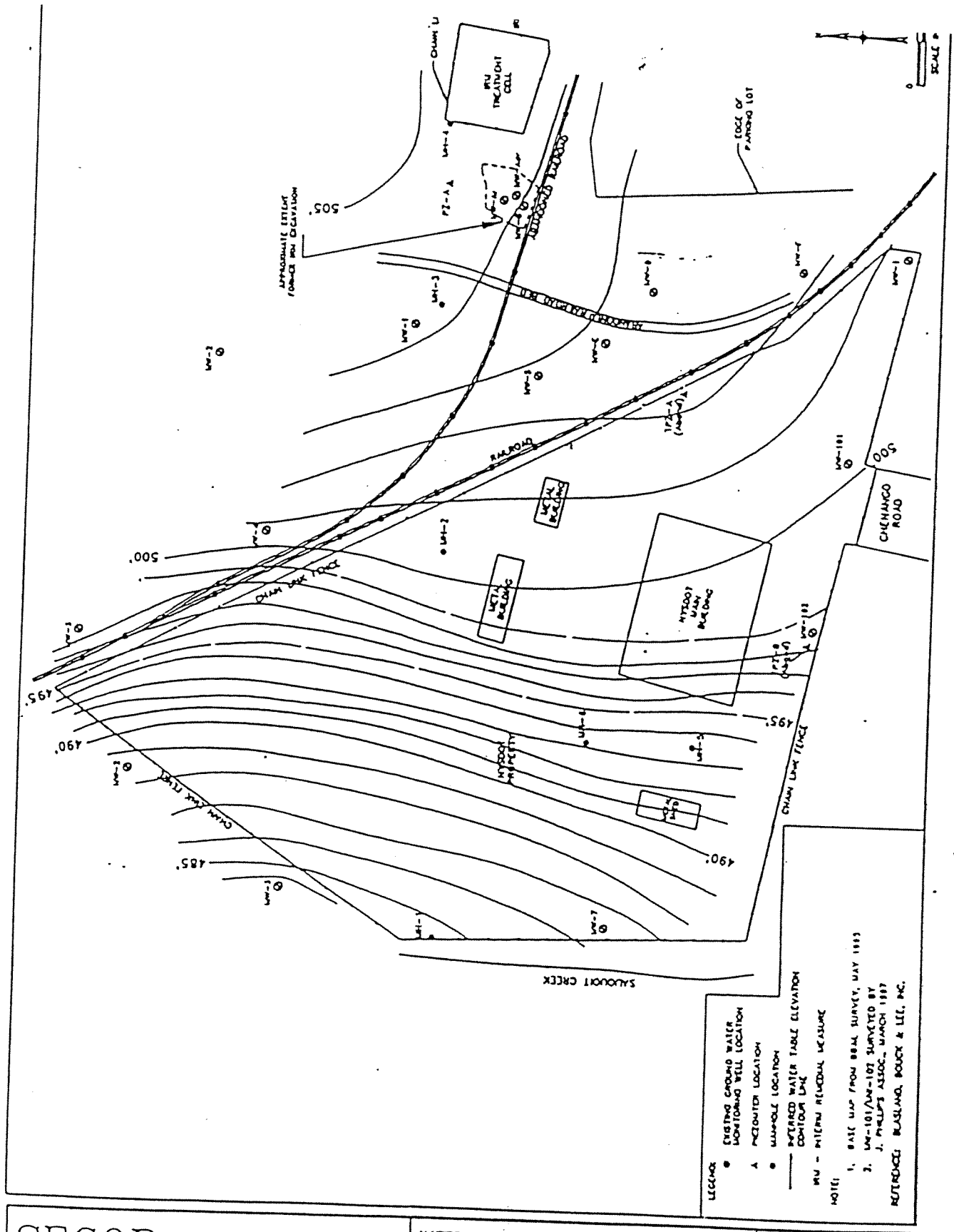
4914 WEST GENESEE ST.
CAMILLUS, NEW YORK 13031
(315) 484-7874
(315) 484-0298 Fax

WEST LOT PROJECT AREA
SITE PLAN

FIGURE 2

LOCKHEED MARTIN CORPORATION
BURBANK PROGRAM OFFICE
"WEST LOT PROJECT AREA"
UTICA, ONEIDA COUNTY, NEW YORK

PREPARED BY: CADD-PJ | FILE NAME: LOCKHEED | DATE: 4/23/97



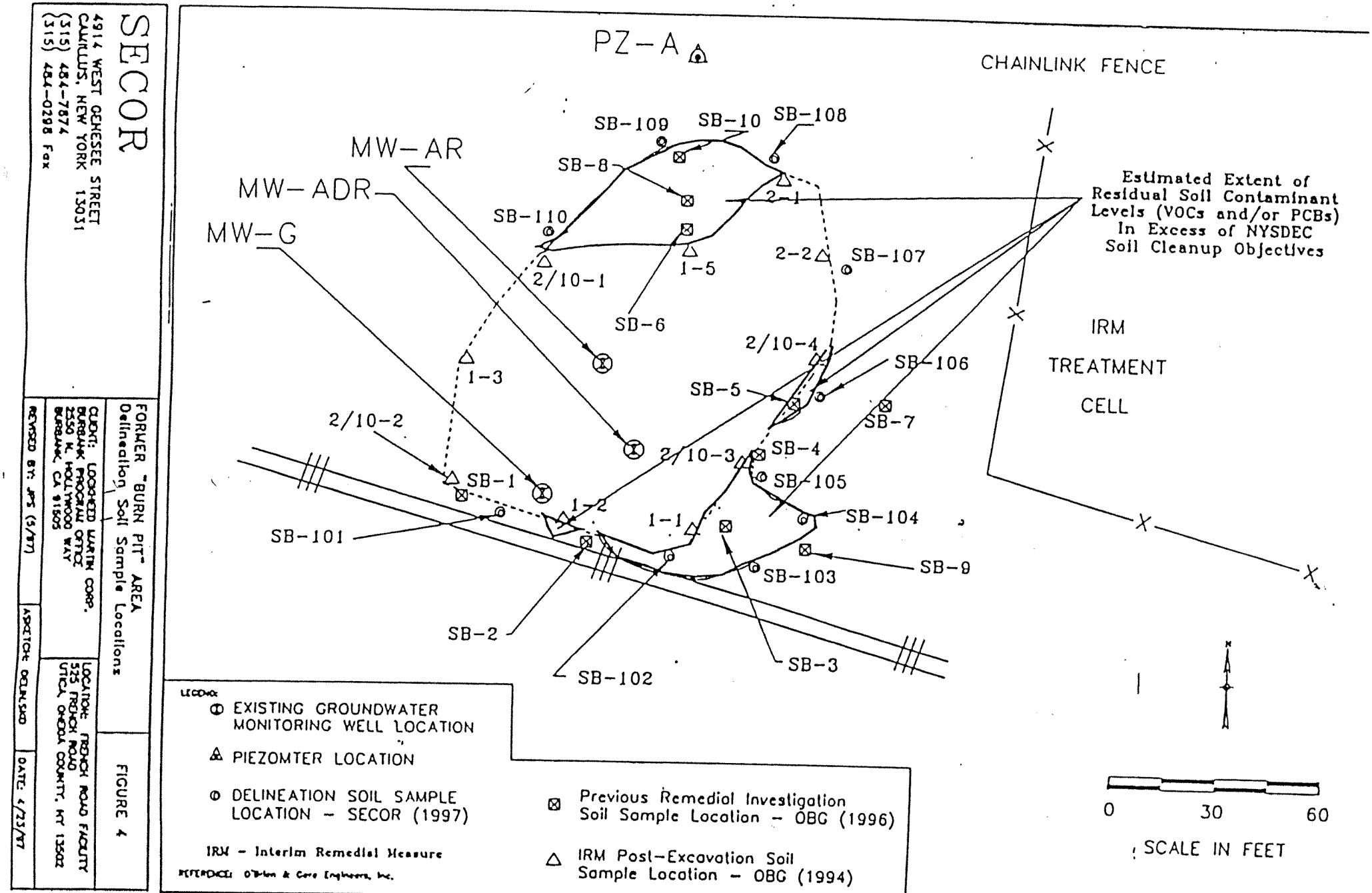
SECOR
4914 WEST GENESEE ST.
CAMILLUS, NEW YORK 13031
(315) 484-7874
(315) 484-0298 Fax

INFERRED WATER TABLE GRADIENT MAP
04 MARCH 1997

FIGURE 3

LOCKHEED MARTIN CORPORATION
BURBANK PROGRAM OFFICE
"WEST LOT PROJECT AREA"
UTICA, ONEIDA COUNTY, NEW YORK

PREPARED BY: CADD-PJ | FILE NAME: LOCKHEED | DATE: 4/23/97



SECOR

4914 WEST GENESEE STREET
CAMILLUS, NEW YORK 13031
(315) 484-7874
(315) 484-0298 Fax

FORMER "BURN PIT" AREA
Delineation Soil Sample Locations

CLIENT: LOCKHEED MARTIN CORP.
BURBANK PROGRAM OFFICE
2550 N. HOLLYWOOD WAY
BURBANK, CA 91505

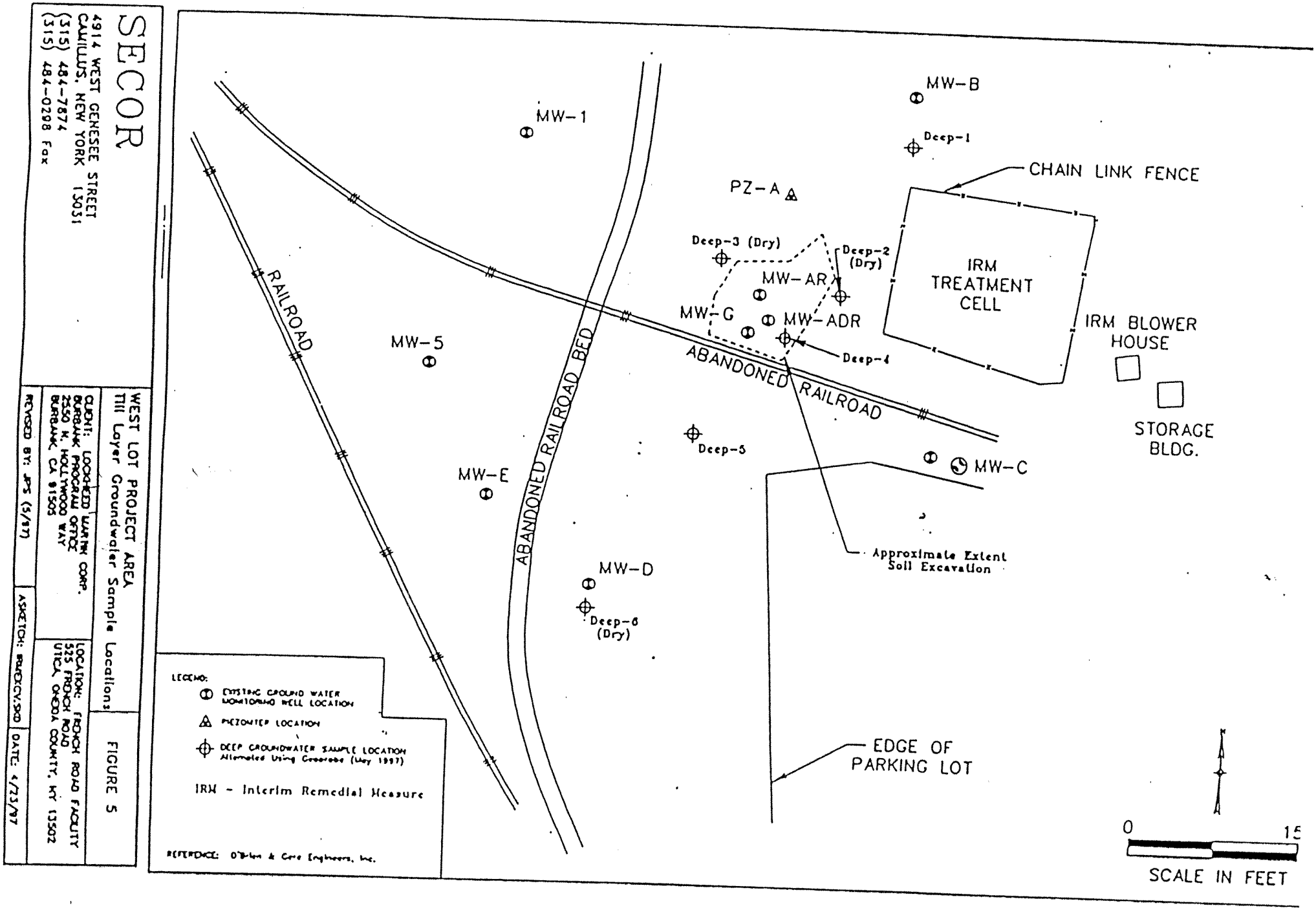
LOCATION: FRENCH ROAD FACILITY
525 FRENCH ROAD
UTICA, ONEIDA COUNTY, NY 13502

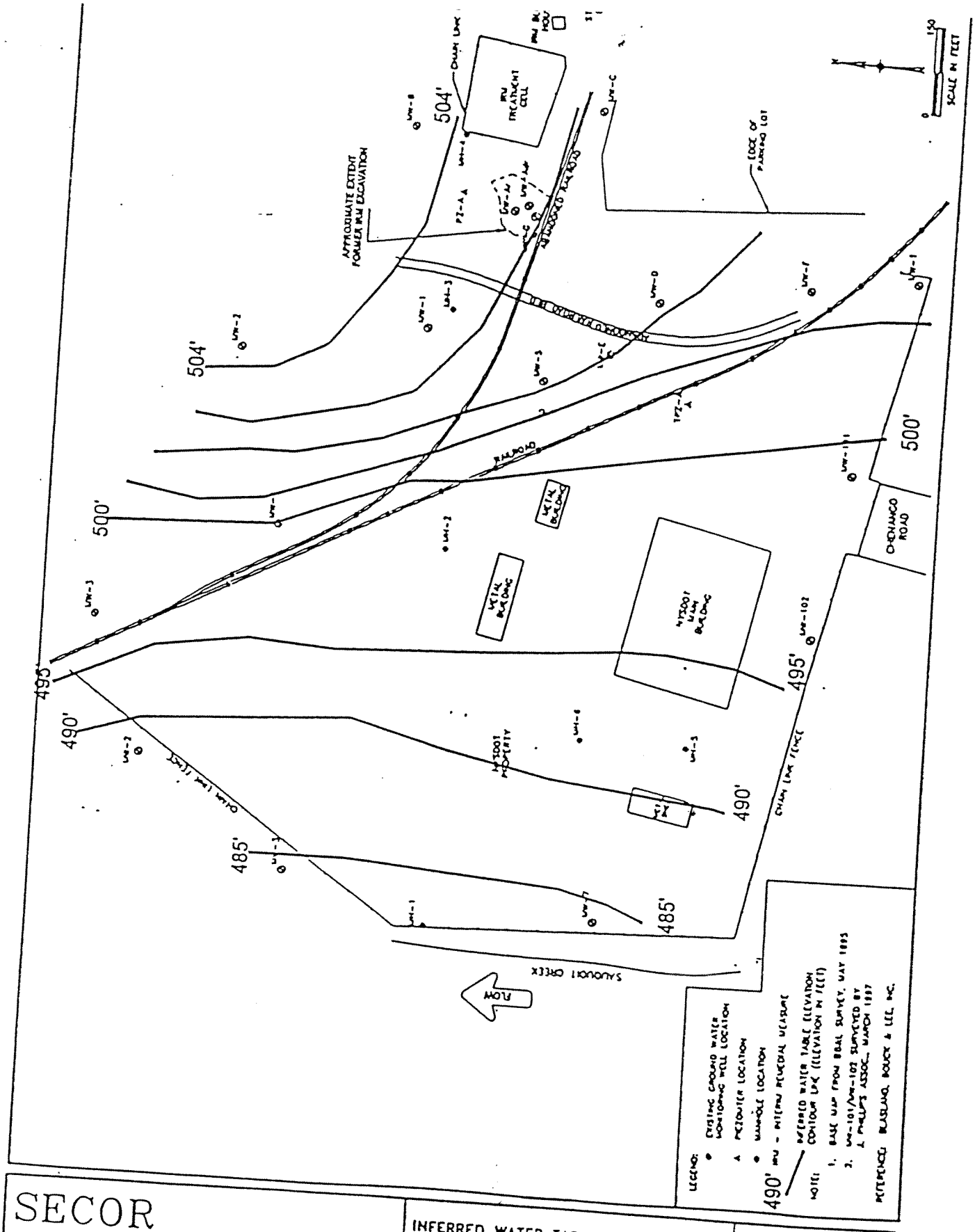
REVISED BY: JPS (5/97)

APPROVED: DCL/KSD

DATE: 4/23/97

FIGURE 4


SECOR
4914 WEST GENESEE STREET
CAMILLUS, NEW YORK 13031
(315) 484-7874
(315) 484-0298 Fax
WEST LOT PROJECT AREA
TIII Layer Groundwater Sample Locations
FIGURE 5
CLIENT: LOCKHEED MARTIN CORP.
BURBANK PROGRAM OFFICE
2550 N. HOLLYWOOD WAY
BURBANK, CA 91505
LOCATION: FRENCH ROAD FACILITY
525 FRENCH ROAD
UTICA, ONEIDA COUNTY, NY 13502
REVISED BY: JPS (5/8/7)
ASSIGN: PROJ.CIV.500
DATE: 4/23/97
MW-1
MW-B
Deep-1
PZ-A
CHAIN LINK FENCE
Deep-3 (Dry)
Deep-2 (Dry)
MW-AR
IRM TREATMENT CELL
MW-G
MW-ADR
IRM BLOWER HOUSE
Deep-4
RAILROAD
MW-5
ABANDONED RAILROAD BED
ABANDONED RAILROAD
Deep-5
STORAGE BLDG.
MW-E
MW-C
Approximate Extent Soil Excavation
MW-D
Deep-6 (Dry)
EDGE OF PARKING LOT
LEGEND:
EXISTING GROUND WATER MONITORING WELL LOCATION
PIEZOMETER LOCATION
DEEP GROUNDWATER SAMPLE LOCATION Alternates Using Geoprobe (May 1997)
IRM - Interim Remedial Measure
REFERENCE: O'Brien & Gere Engineers, Inc.
0
15
SCALE IN FEET



SECOR
4914 WEST GENESEE ST.
CAMILLUS, NEW YORK 13031
(315) 484-7874
(315) 484-0298 Fax

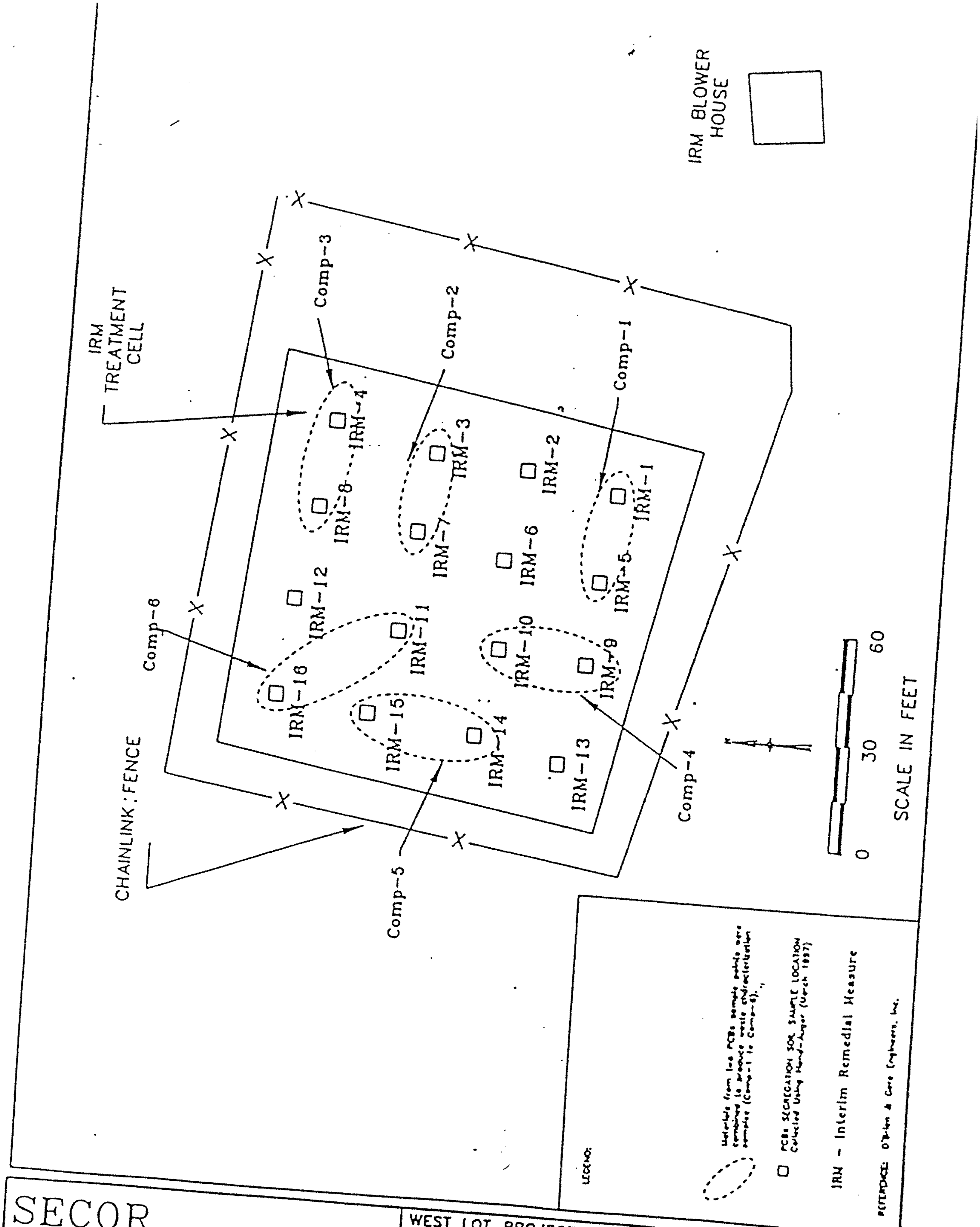
INFERRED WATER TABLE GRADIENT MAP
22 MAY 1997

FIGURE 6

CLIENT:
LOCKHEED MARTIN CORPORATION
BURBANK PROGRAM OFFICE
2550 N. HOLLYWOOD WAY
BURBANK, CA. 91505

LOCATION:
FRENCH ROAD FACILITY
525 FRENCH ROAD
UTICA, ONEIDA COUNTY, NY 13502

PREPARED BY: CADD-PJ | FILE NAME: LOCKHEED | DATE: 4/23/97



SECOR
4914 WEST GENESEE STREET
CAMILLUS, NEW YORK 13031
(315) 484-7874
(315) 484-0298 Fax

WEST LOT PROJECT AREA
Segregation/Waste Characterization
IRM Cell Soil Sample Locations

FIGURE 7

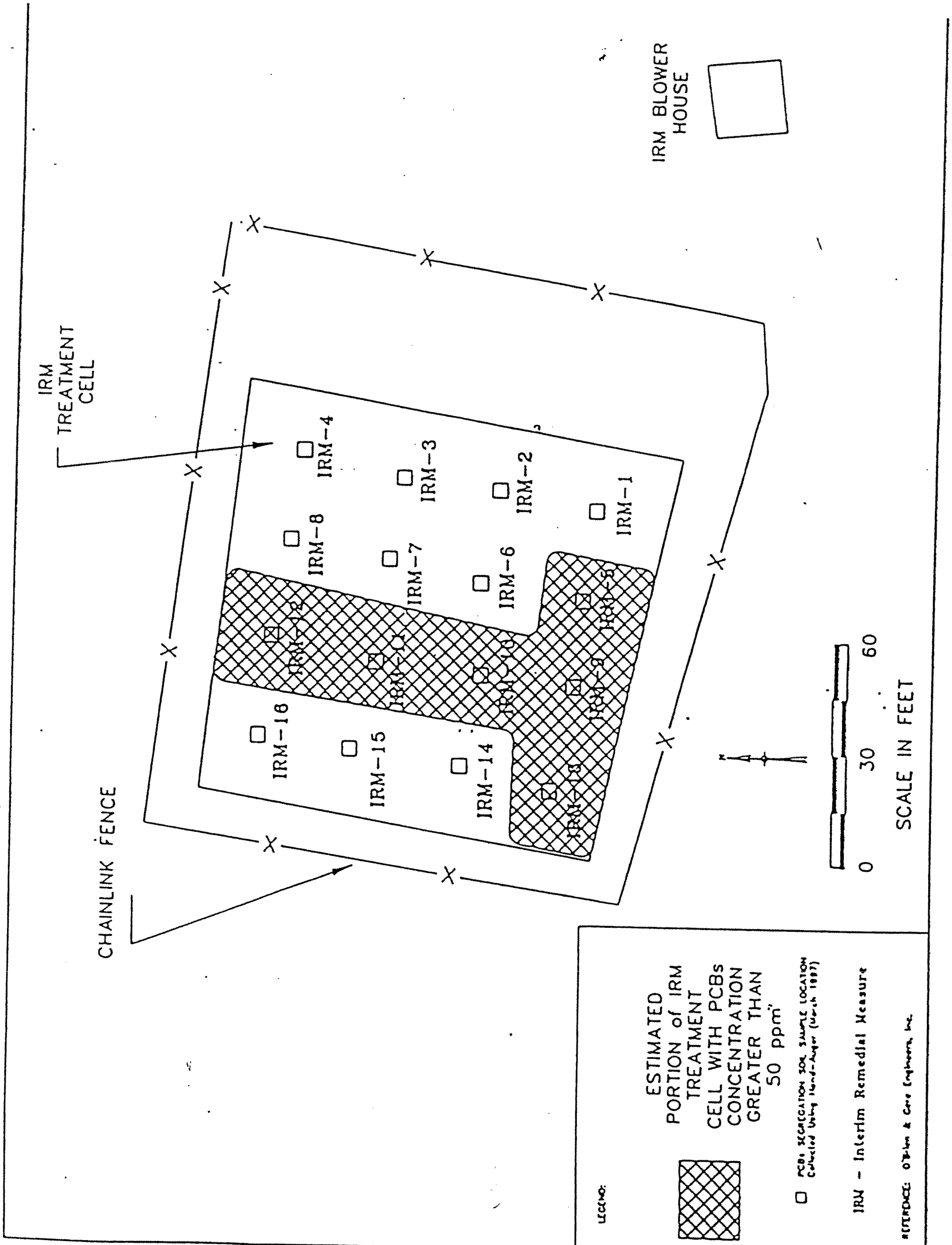
CLIENT: LOCKHEED MARTIN CORP.
BURBANK PROGRAM OFFICE
2550 N. HOLLYWOOD WAY
BURBANK, CA 91505

LOCATION: FRENCH ROAD FACILITY
525 FRENCH ROAD
UTICA, ONEIDA COUNTY, NY 13502

PREPARED BY: JPS (5/97)

ASKETCH: PCBSEG.SKD

DATE: 4/23/97



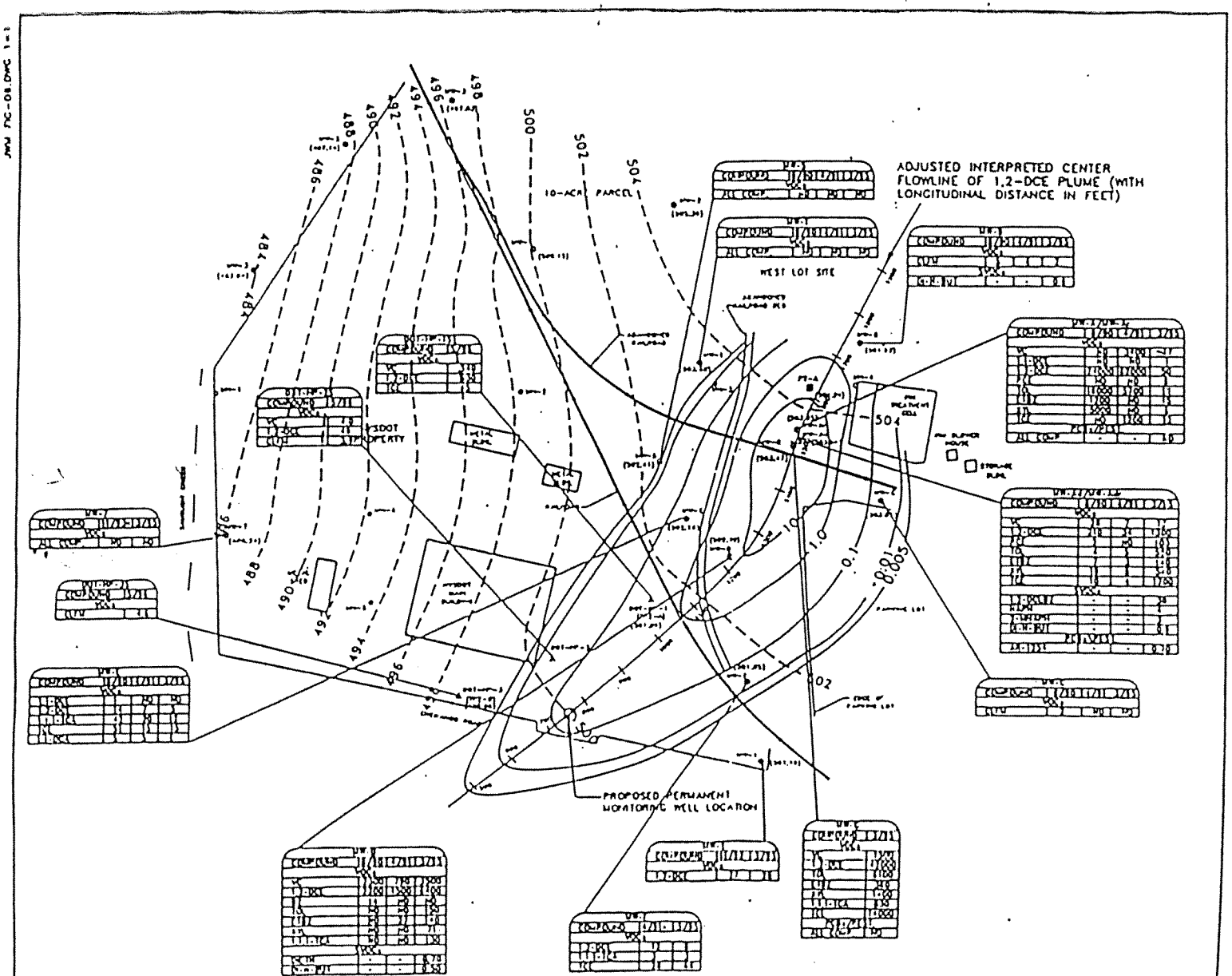
SECOR
4914 WEST GENESEE STREET
CAMILLUS, NEW YORK 13031
(315) 484-7874
(315) 484-0298 Fax

WEST LOT PROJECT AREA Estimated Portion Of IRM Cell Requiring Disposal as "Hazardous Waste"	FIGURE 8
CLIENT: LOCKHEED MARTIN CORP. BURBANK PROGRAM OFFICE 2550 N. HOLLYWOOD WAY BURBANK, CA 91505	LOCATION: FRENCH ROAD FACILITY 525 FRENCH ROAD UTICA, ONEIDA COUNTY, NY 13502

PREPARED BY: JPS (5/97)	ASKETCH: PCBSEQ.SKD	DATE: 4/23/97

APPENDIX C

FIGURE 7



LEGEND

- MANHOLE LOCATION
- EXISTING GROUND-WATER MONITORING WELL
- PIEZOMETER
- HYDROPUNCH LOCATION
- 0.01 — SIMULATED 1,2-DCE PLUME CONTOUR (mg/L)
- GROUND-WATER ELEVATION (FEET)(MAY 22, 1998)
- 502 — GROUND-WATER ELEVATION CONTOUR LINE (FEET)

NOTES:

1. FIGURE BASED ON MAP DEVELOPED BY PARSONS, BOUCK & LEE, INC. (DWG. FILE - 3403-GO1)
2. - - 4/91 AND 11/93 GROUND WATER SAMPLING RESULTS AT NYSDOT PROPERTY BASED ON SAMPLES OBTAINED BY NYSDEC.

ND - NOT DETECTED

LOCKHEED MARTIN CORP.
WEST LOT SITE-UTICA, N.Y.
REMEDIAL INVESTIGATION
REPORT ADDENDUM

ADJUSTED SOLUTE-TRANSPORT MODEL PLUME AND PROPOSED MONITORING WELL LOCATION

200 0 200
SCALE

FILE NO. 5526.050-06F