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<b>13. ABSTRACT (Maximum 200 words)</b>  THE SOUTHERN STUDY AREA (SSA) REPORT INTEGRATES THE STUDY AREA HISTORY, GEOLOGY, AND HYDROLOGY WITH THE RESULTS OF SOIL, SURFACE WATER, GROUND WATER, AIR, BIOTA, AND STRUCTURES INVESTIGATIONS TO DEFINE THE NATURE AND EXTENT OF CONTAMINATION IN THE SOUTHERN PORTION OF RMA.  THE SSA INCLUDES ALL OF SECTIONS 11 AND 12 AND PORTIONS OF SECTIONS 1, 2, 3, AND 7. HISTORIC REPORTS INDICATE THAT THE SSA WAS NOT USED FOR THE PRODUCTION OF AGENTS OR PESTICIDES, BUT WAS A DISPOSAL AREA AND BUFFER ZONE. 904 SOIL SAMPLES WERE ANALYZED AS WERE SURFACE WATER SAMPLES AND GROUND WATER SAMPLES FROM NUMEROUS WELLS. ORGANOCHLORINE PESTICIDES AND HG ARE THE MOST COMMONLY DETECTED CONTAMINANTS. THE VOLUME OF POTENTIALLY CONTAMINATED SOIL IS ESTIMATED AT 1.51 MILLION CUBIC YARDS.  THIS REPORT IS PRESENTED IN THREE SECTIONS: 1. CHARACTERIZATION OF THE STUDY AREA - GEOLOGY, HYDROLOGY, CLIMATE, HISTORY				
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ROCKY MOUNTAIN ARSENAL  
**Rocky Mountain Arsenal  
Information Center  
Commerce City, Colorado**  
FINAL  
REMEDIAL INVESTIGATION REPORT  
VOLUME VI  
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VERSION 3.3

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EBASCO SERVICES INCORPORATED  
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CH2M HILL DATACHEM, INC.  
R.L. STOLLAR AND ASSOCIATES

PREPARED FOR:

U.S. ARMY PROGRAM MANAGER'S OFFICE FOR  
ROCKY MOUNTAIN ARSENAL CONTAMINATION CLEANUP

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- SSA 3.5-5 Benzene Plume in Water Bearing Zones 1A and 1
- SSA 3.5-6 Contaminant Mass Flow Rate Across Section A-A' of Benzene Plume

## LIST OF PLATES

### **Plate**

- SSA 1.1-1 Remedial Investigation Bore Location Map
- SSA 1.2-1 Structures Currently Standing in the Southern Study Area
- SSA 1.4-1 Lake Mary and Lake Ladora Geologic Cross-Sections (SS1-SS1', SS2-SS2', SS3-SS3')
- SSA 1.4-2 Derby Lakes Geologic Cross-Sections (SS4-SS4', SS5-SS5', SS6-SS6', SS7-SS7', SS8-SS8')
- SSA 1.4-3 Southern Study Area/South Plants Boundary Interface Geologic Cross Sections (SS9-SS9', SS10-SS10', SS11-SS11')
- SSA 1.4-4 Ditch System Geologic Cross Sections (SS12-SS12', SS13-SS13', SS14-SS14')

## APPENDICES

- Appendix SSA-A Chemical Analyses Conducted in the Southern Study Area
- Appendix SSA-B Historical Data
- Appendix SSA-C Groundwater Elevations for Alluvial and Denver Wells, April 1988
- Appendix SSA-D Bibliography of Physical and Chemical Properties of Army Target Compounds
- Appendix SSA-E Comments and Responses
- Appendix SSA-F Additional Comments



## STANDARD ABBREVIATIONS USED IN SOUTHERN STUDY AREA REPORT

### 1. Analyte Groups

VHO	Volatile halogenated organic compounds
VHC	Volatile hydrocarbon compounds
VAO	Volatile aromatic organic compounds
OSCM	Organosulfur compounds - mustard-agent related
OSCH	Organosulfur compounds - herbicide related
OPHGB	Organophosphorous compounds, GB-agent related
OPHP	Organophosphorous compounds, pesticide related
DBCP	Dibromochloropropane
ONC	Organonitrogen compounds
PAH	Polynuclear aromatic hydrocarbons
SHO	Semivolatile halogenated organic compounds
OCP	Organochlorine pesticides
ICP METALS	Metals analyzed for by inductively coupled argon plasma, includes cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), and zinc (Zn)
As	Arsenic
Hg	Mercury

### 2. National Acts & Organizations

AMCCOM	Armament, Munitions, and Chemical Command
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CWS	Chemical Warfare Service
DOJ	Department of Justice
DOD	Department of Defense
FDA	Food & Drug Administration
NCP	National Contingency Plan
NIOSH	National Institute of Occupational Health and Safety
SARA	Superfund Amendments and Reauthorization Act
USACOE	United States Army Corps of Engineers
USAEWES	United States Army Engineer Waterways Experiment Station
USATHAMA	United States Army Toxic and Hazardous Materials Agency
USDA-SCS	United States Department of Agriculture - Soil Conservation Service
USEPA	U.S. Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

STANDARD ABBREVIATIONS USED IN SOUTHERN STUDY AREA REPORT  
(continued)

3. Local Terminology

BIM	Basic Information Maps
BCF	Bioconcentration Factors
BCRL	Below Certified Reporting Limit
CAR	Contamination Assessment Report
CDH	Colorado Department of Health
CDOW	Colorado Division of Wildlife
CRL	Certified Reporting Limits
EA	Endangerment Assessment
EC	Electrical Conductivity
ESA	Eastern Study Area
FS	Feasibility Study
PMCDIR	Program Manager for Chemical Demilitarization Installation Restoration
PMO or PMRMA	Program Managers Office for the RMA Contamination Cleanup
PWRS	Process Water Return System
RAA	Remedial Action Alternative
RI	Remedial Investigation
RIC	Resource Information Center
RMA	Rocky Mountain Arsenal
RMACCPMT	Rocky Mountain Arsenal Contamination Cleanup Program Managers Team
SAR	Study Area Report
SPF	Standard Project Flood
SPSA	South Plants Study Area
SSA	Southern Study Area
TPP	Technical Program Plan
TSP	Total Suspended Particulates
WSA	Western Study Area

4. Companies

EBASCO	Ebasco Services Incorporated
ESE	Hunter/Environmental Science & Engineering, Inc.
G&M	Geraghty & Miller, Inc.
MKE	Morrison-Knudsen Engineers, Inc.
WRS	Whitman, Requardt & Smith

5. Unified Soil Classification System (USCS) Textural Key

CL	inorganic clay, low plasticity
GC	clayey gravel
GP	poorly graded gravel
ML	inorganic silt, low plasticity
SC	clayey sand
SM	silty sand
SP	poorly graded sand
SW	well graded sand

STANDARD ABBREVIATIONS USED IN SOUTHERN STUDY AREA REPORT  
(continued)

6. Measurements

ac ft/mo	acre-foot per month
cm/yr	centimeters per year
f/cc	fibers per cubic centimeter
gpd/ft	gallons per day per foot
mg/kg	milligrams per kilogram, equivalent to parts per million
mg/l	milligrams per liter
msl	mean sea level
ppb	parts per billion
ppm	parts per million
ug/g	micrograms per gram, equivalent to parts per million
ug/l	micrograms per liter, nearly equivalent to parts per billion
umhos/cm	micromhos per centimeter

AA	Atomic Absorption
CVAA	Cold Vapor Atomic Absorption
Eh	Oxidation Potential
f <sub>oc</sub>	Soil-organic carbon content
GC/EC	Gas chromatography/Electron capture
GC/MS	Gas chromatography - mass spectrography
IL	Indicator Level
K <sub>d</sub>	soil-water partition coefficient
K <sub>h</sub>	Henry's Law Constant
K <sub>oc</sub>	organic carbon partition coefficient
K <sub>ow</sub>	octanol-water partition coefficient
NTU	Nephelometric Turbidity Units
TSP	Total Suspended Particulates

TARGET LIST OF CHEMICAL ANALYTE GROUPS AND ANALYTES

1) Volatile Halogenated Organics (VHOs)

Methylene Chloride

Chloroform

Carbon Tetrachloride

1,1-Dichloroethane

1,2-Dichloroethane

1,1,1-Trichloroethane

1,1,2-Trichloroethane

1,1,2,2-Tetrachloroethane\*

1,1-Dichloroethylene

T-1,2-Dichloroethylene

Trichloroethylene

Tetrachloroethylene

Chlorobenzene

Trichloropropene\*

2) Volatile Hydrocarbons (VHCs)

Dicyclopentadiene

Bicycloheptadiene

1-Methyl-1,3-cyclopentadiene\*

Methylcyclohexane\*

Methylisobutyl Ketone

4-Hydroxy-4-methyl-2-pentanone\*

2-Pentanone\*

2-Butoxyethanol\*

2,2-Oxybisethanol\*

3) Volatile Aromatic Organic Compounds (VAOs)

Benzene

Toluene

m-Xylene

o- and p-Xylene

Ethylbenzene

4) Organosulfur Compounds, Mustard-Agent Related (OSCMs)

1,4-Oxathiane

Dithiane

Thiodiglycol

Chloroacetic Acid

\*Formerly a significant nontarget compound

TARGET LIST OF CHEMICAL ANALYTE GROUPS AND ANALYTES  
(continued)

5) Organosulfur Compounds, Herbicide Related (OSCHs)

Chlorophenylmethyl sulfide  
Chlorophenylmethyl sulfone  
Chlorophenylmethyl sulfoxide  
Dimethyl disulfide  
Benzothiazole

6) Organophosphorous Compounds, GB-Agent Related (OPHGBs)

Diisopropylmethyl phosphonate  
Dimethylmethyl phosphonate  
Phosphoric acid, tributyl ester\*  
Phosphoric acid, triphenyl ester\*  
Isopropylmethylphosphonic acid  
Methylphosphonic acid

7) Organophosphorous Compounds, Herbicide Related (OPHPs)

Atrazine  
Malathion  
Parathion  
Supona  
Vapona

8) Dibromochloropropane (DBCP)

9) Organonitrogen Compounds (ONCs)

Nitrosodimethylamine  
Nitrosodi-n-propylamine  
Hydrazine  
Methylhydrazine  
Unsymmetrical dimethylhydrazine  
Caprolactam\*

10) Fluoroacetic Acid

11) Polynuclear Aromatic Hydrocarbons (PAHs)

Fluoranthene\*  
Methylnaphthalene\*  
Phenanthrene\*  
Pyrene\*

\* Formerly a significant nontarget compound

TARGET LIST OF CHEMICAL ANALYTE GROUPS AND ANALYTES  
(continued)

12) Semivolatile Halogenated Organic Compounds (SHOs)

Trichlorobenzene\*  
Hexachlorobenzene\*  
Hexachlorobutadiene\*  
Hexachlorocyclopentadiene  
Pentachlorobenzene\*  
Tetrachlorobenzene\*

13) Organochlorine Pesticides (OCPs)

Aldrin  
Dieldrin  
Endrin  
Isodrin  
Dichlorodiphenylethane  
Dichlorodiphenyltrichloroethane  
Chlordane

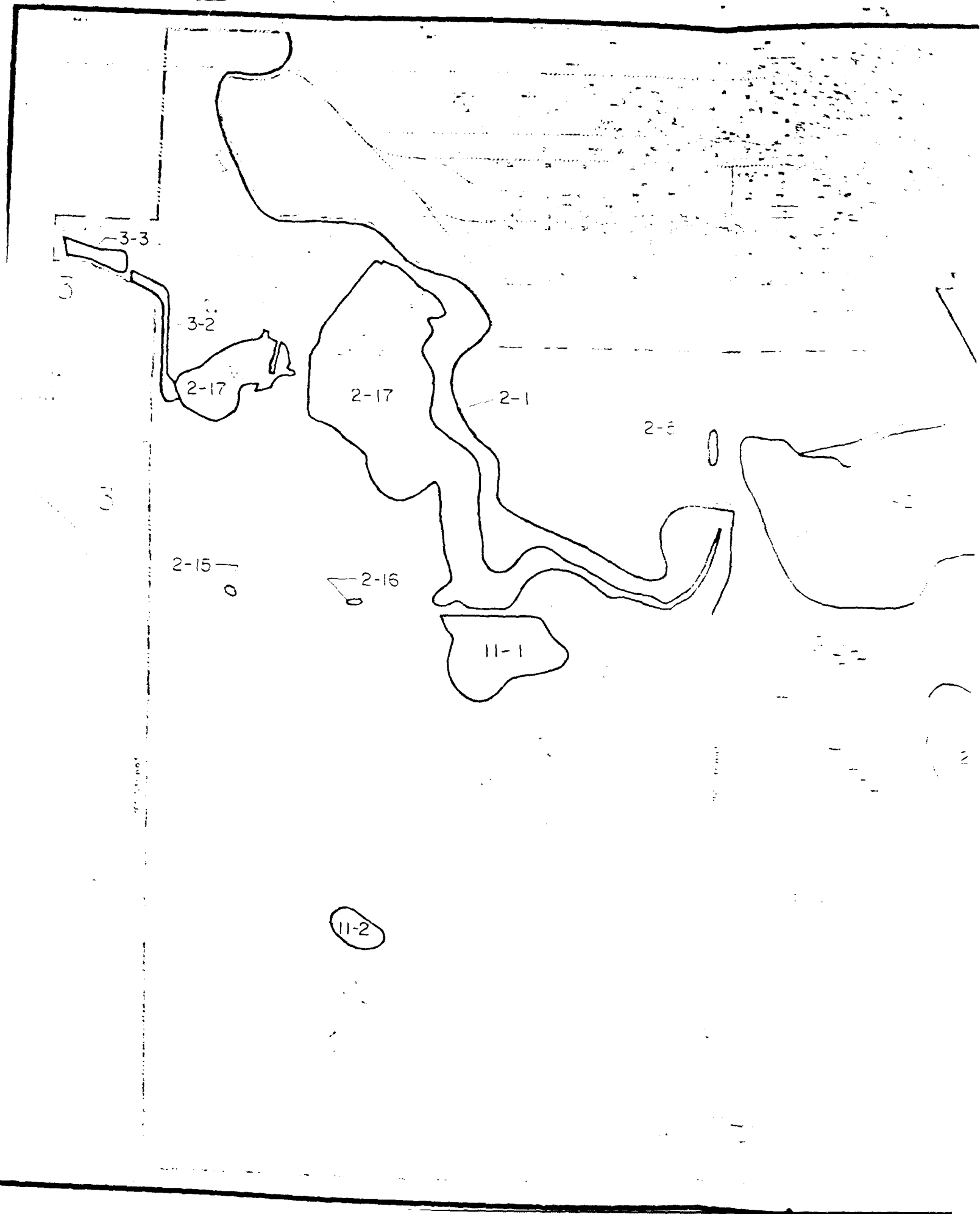
14) Arsenic

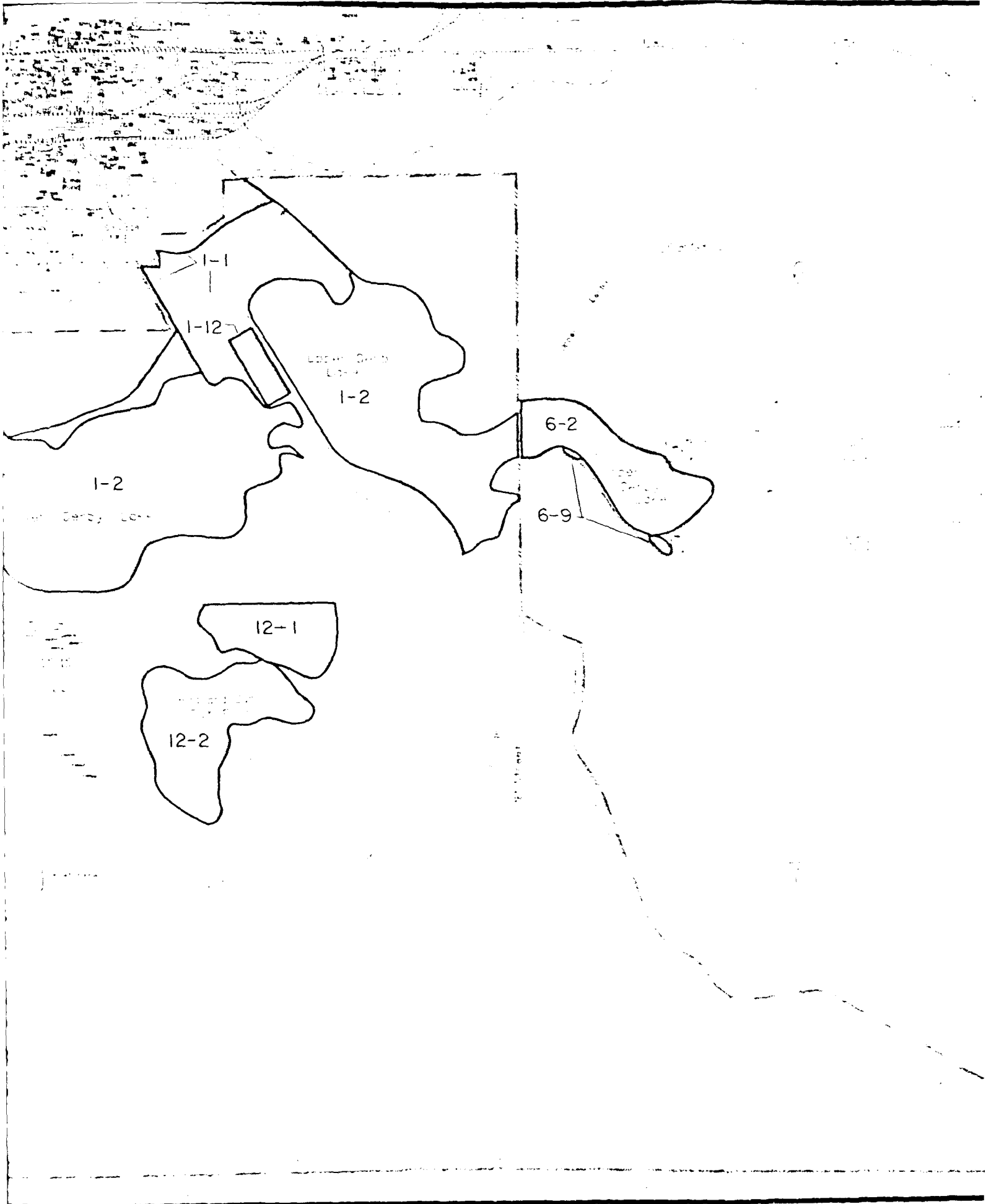
15) Mercury

16) ICP Metals (ICPs)

Cadmium  
Chromium  
Copper  
Lead  
Zinc

\*Formerly a significant nontarget compound









**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid
- Site Boundary and Number

ROCKY MOUNTAIN ARSENAL  
LOCATION



1" = 5 MILES



0 500 1000

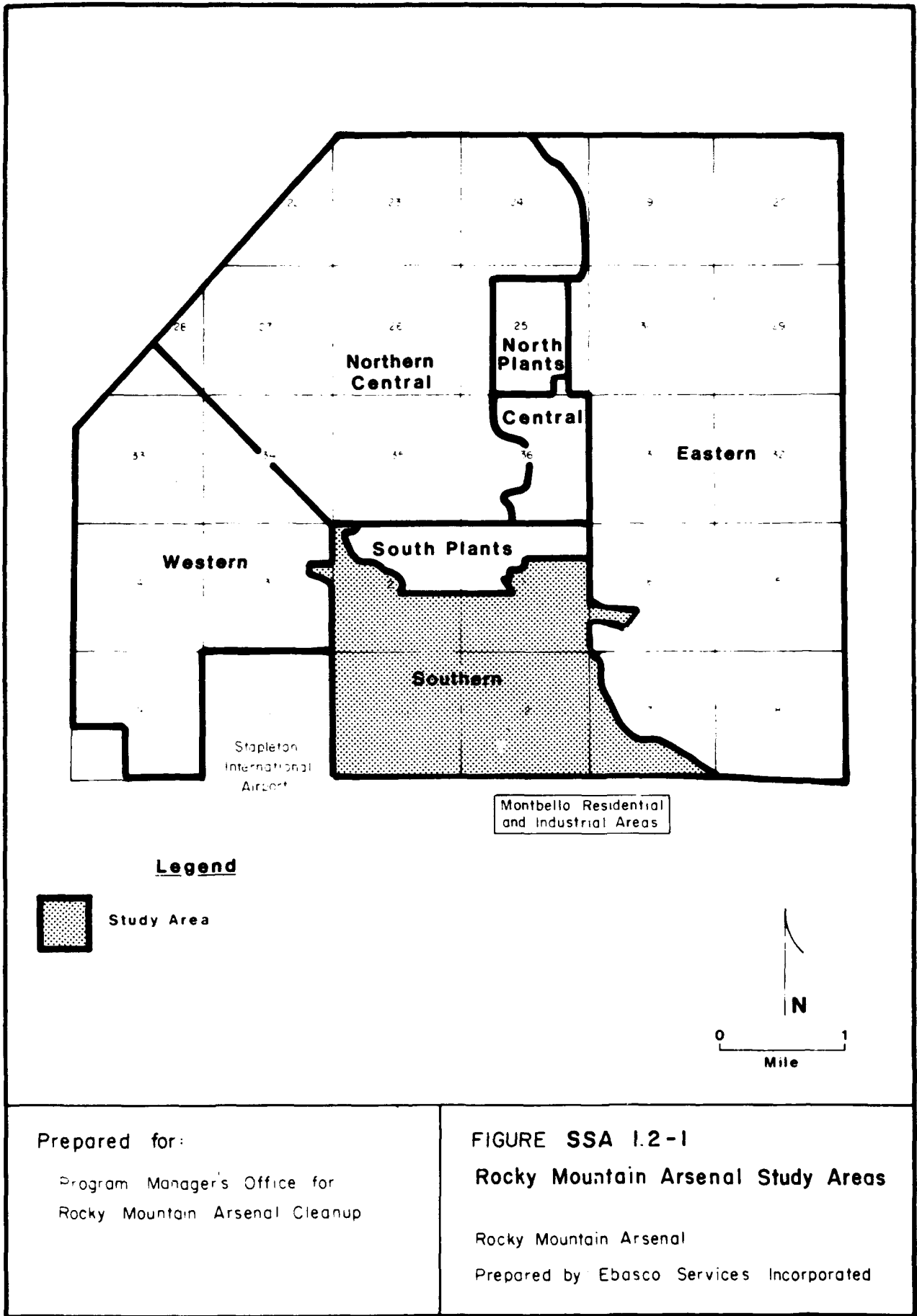
SCALE: 1" = 1000'

Source: RMACC PMT, 1984

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Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

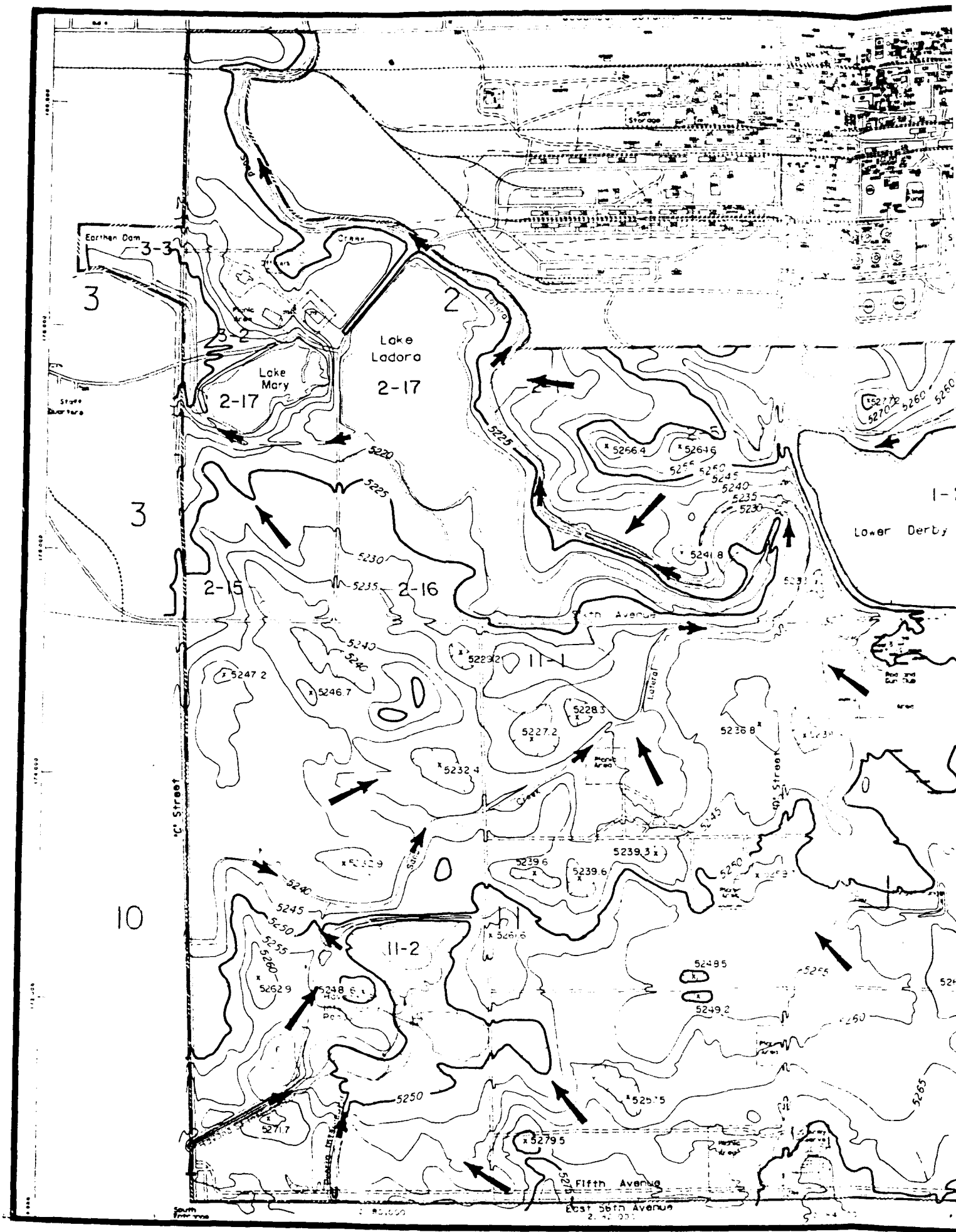
FIGURE: SSA 1.1-1  
Southern Study Area  
Vicinity Map  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated

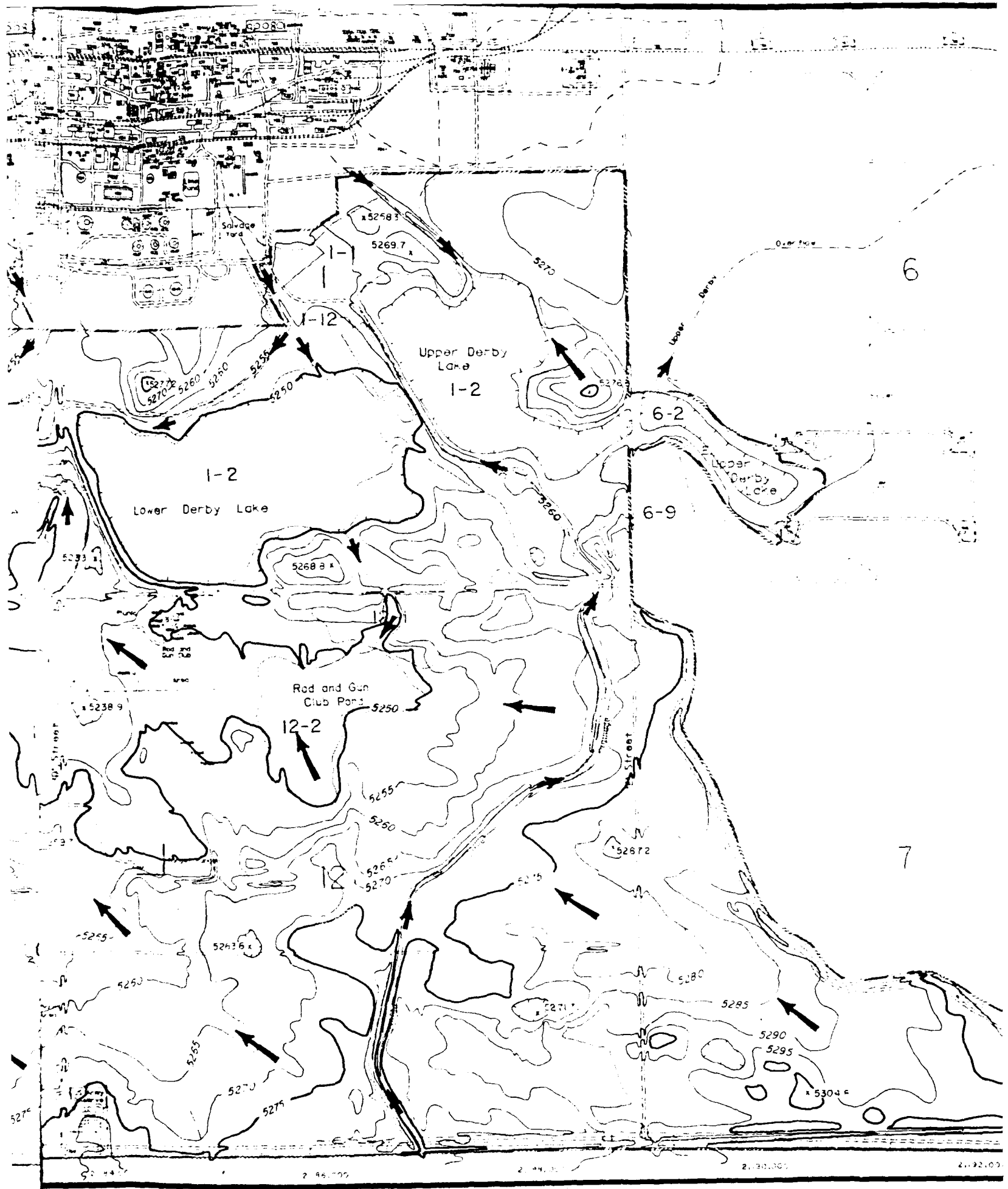


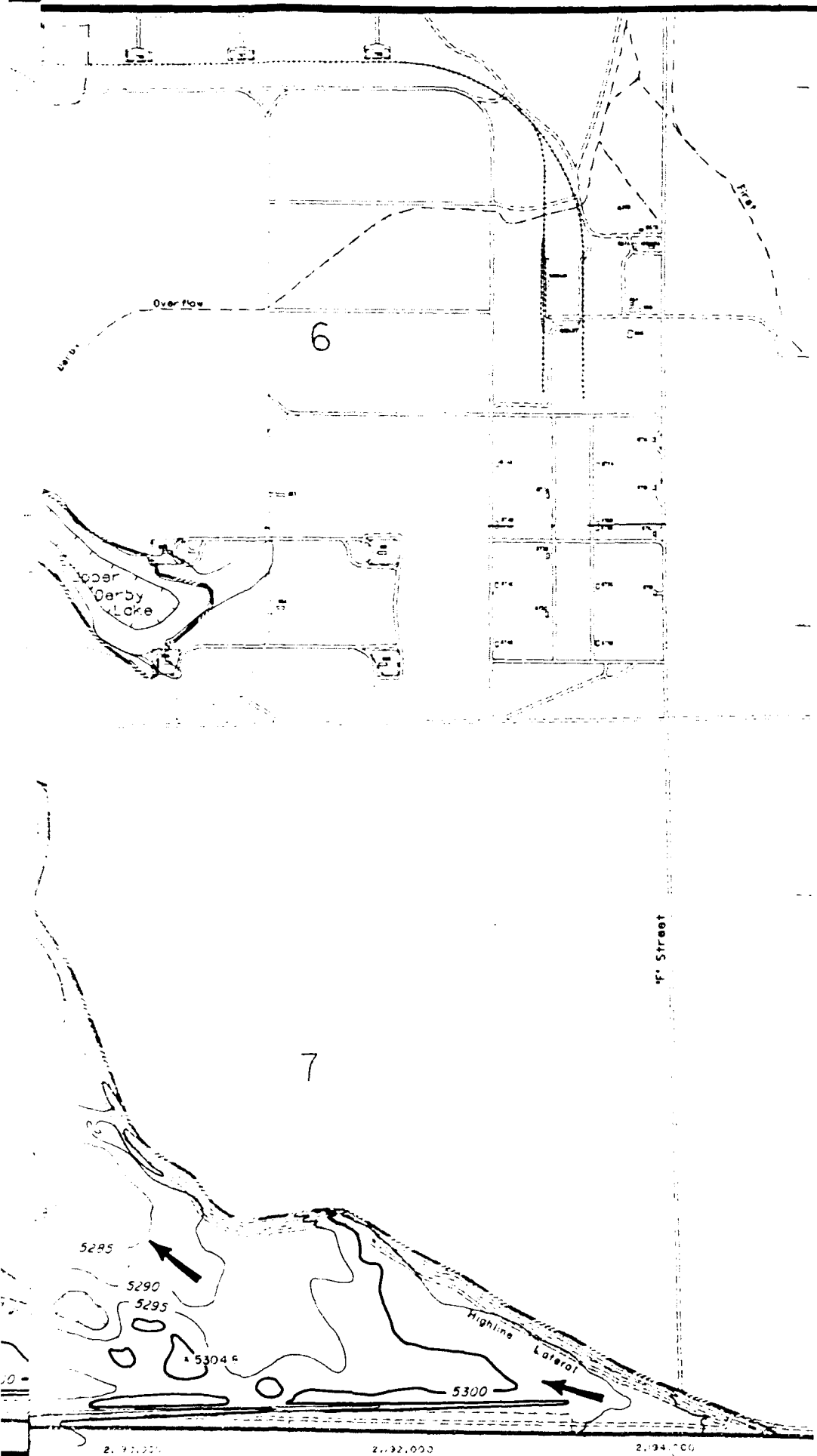
Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE SSA 1.2-1**  
**Rocky Mountain Arsenal Study Areas**

Rocky Mountain Arsenal  
 Prepared by Ebasco Services Incorporated



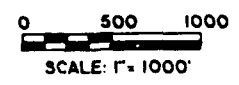
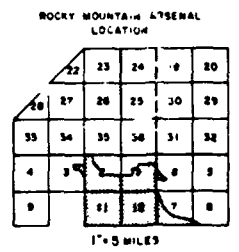




**LEGEND**

- Improved Road
  - Unimproved Road
  - Railroad Tracks
  - Existing Structure
  - Former Structure
  - Fence
  - 6** Section Number
  - Stream or Ditch
  - Study Area Boundary
  - 174,000 State Plane Grid
  - Index Contour
  - Intermediate Contour
  - Depression Contour
  - Spot Elevation
  - General Surface Flow Direction
  - Channelled Flow Direction
- All Elevations in Feet Above Mean Sea Level

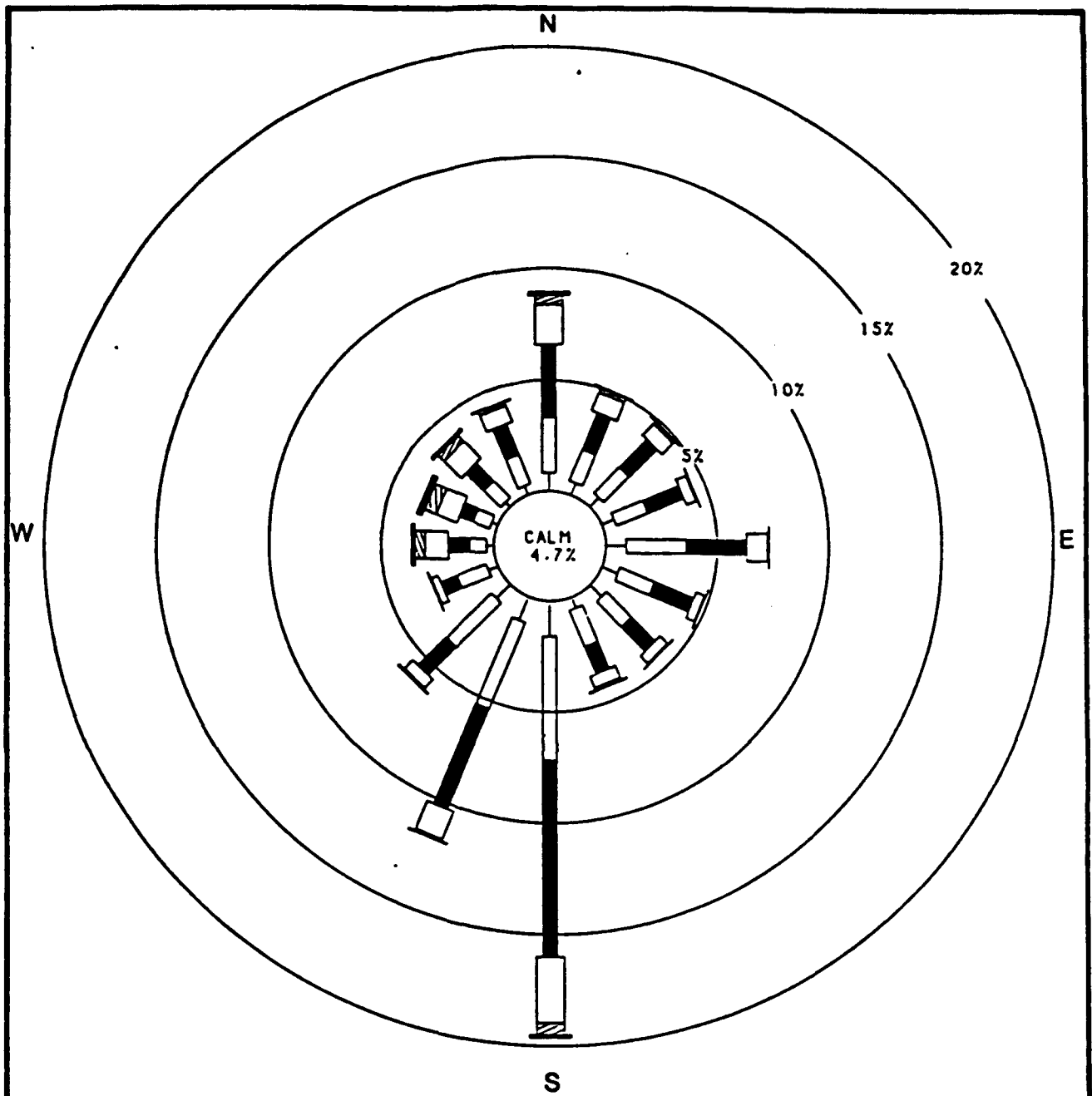
**5 FEET CONTOUR INTERVAL**



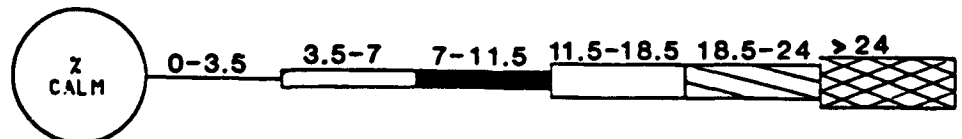
Source: Geonex Delta Aerial Survey Inc., 1989

Prepared for:  
**Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup**

**FIGURE: SSA 1.2-2**  
 Topography and Drainage Features  
 of the Southern Study Area  
 Rocky Mountain Arsenal,  
 Prepared by:  
**Ebasco Services Incorporated**



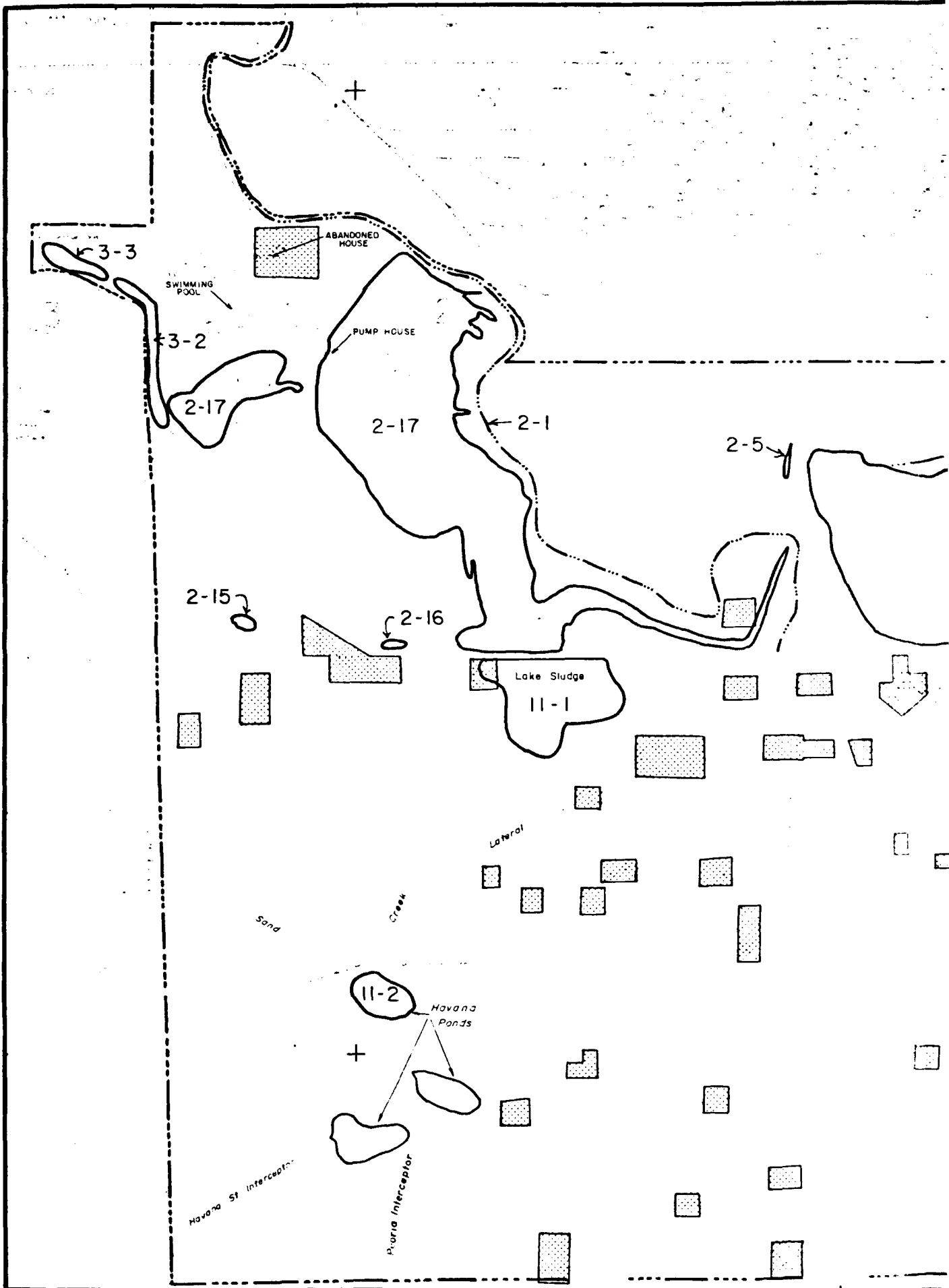
WIND SPEED CLASSES (MPH)

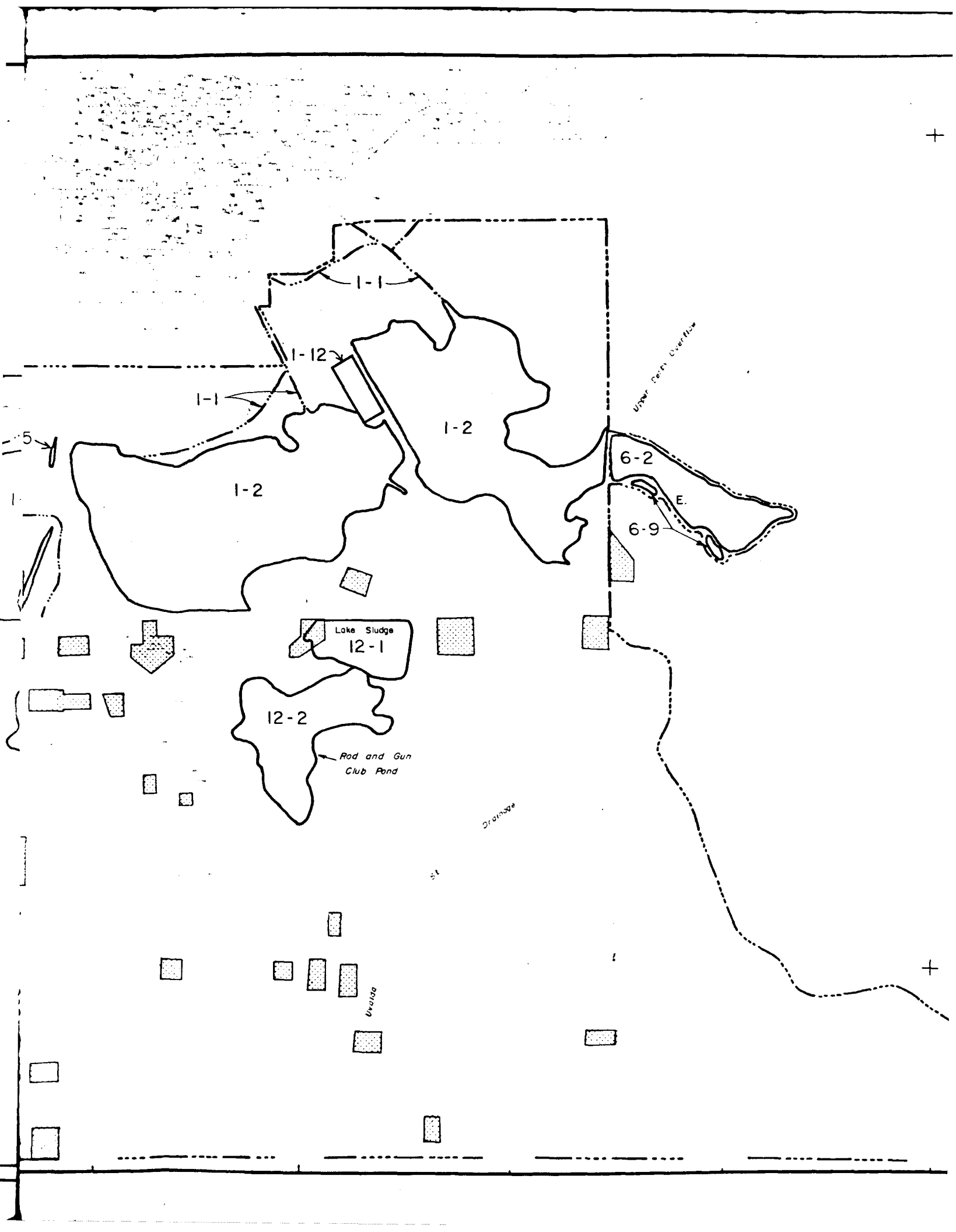


Source: Air Remedial Investigation Report. ESE, 1988.

Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE SSA 1.2-3**  
**Annual Wind Rose for RMA Vicinity**  
 (Stapleton International Airport 1975-1979)  
 Rocky Mountain Arsenal  
 Prepared by: Ebasco Services Incorporated







+



Legend

Improved Road

Unimproved Road

Railroad Tracks

543

Existing Structure

Former Structure

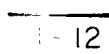
Fence

Section Number

Stream or Ditch



Study Area Boundary



Site Boundary and Number

178,000

State Plane Grid



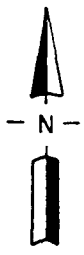
Homestead

NOTE: Adapted from MKE, 1985

ROCKY MOUNTAIN ARSENAL  
LOCATION

		22	23	24	19	20
28	27	26	25	30	29	
33	34	35	36	31	32	
4	3	2	1	6	5	
9		11	12	7	8	

1" = 4 MILES



+

Highline  
Lateral

Prepared for :

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE SSA 1.3-1

1937 Cultural Features Map

Rocky Mountain Arsenal

Prepared by : Ebasco Services Incorporated

SYSTEM	ZONE & THICKNESS		LITHOLOGIC DESCRIPTION	
QUATERNARY	Alluvium	0-120'		Gravels, silty sands, sandy silts, and clays; laterally variable
	B	0-25' (0-19')		B Sandstone and claystone
CRETACEOUS - TERTIARY DENVER FORMATION	Volcanic-clastic	0-50'		Volcaniclastic material and laterally equivalent claystone and sandstone
	A	0-75'		Sandstone, claystone, and lignite
	Lignite A	0-11'		
	IU	0-40' (0-36')		
	Lignite B	0-12'		
	1	0-60' (0-54')		
	Lignite C	0-13'		
	2	0-55' (0-41')		
	Lignite D	0-13'		
	3	0-45' (0-33')		
	4	0-50' (0-36')		
	5	0-25' (0-19')		
	6	to 30' (to 23')		
	7	to 30' (to 20')		
	8	to 40' (to 27')		
	9	to 20' (to 6')		

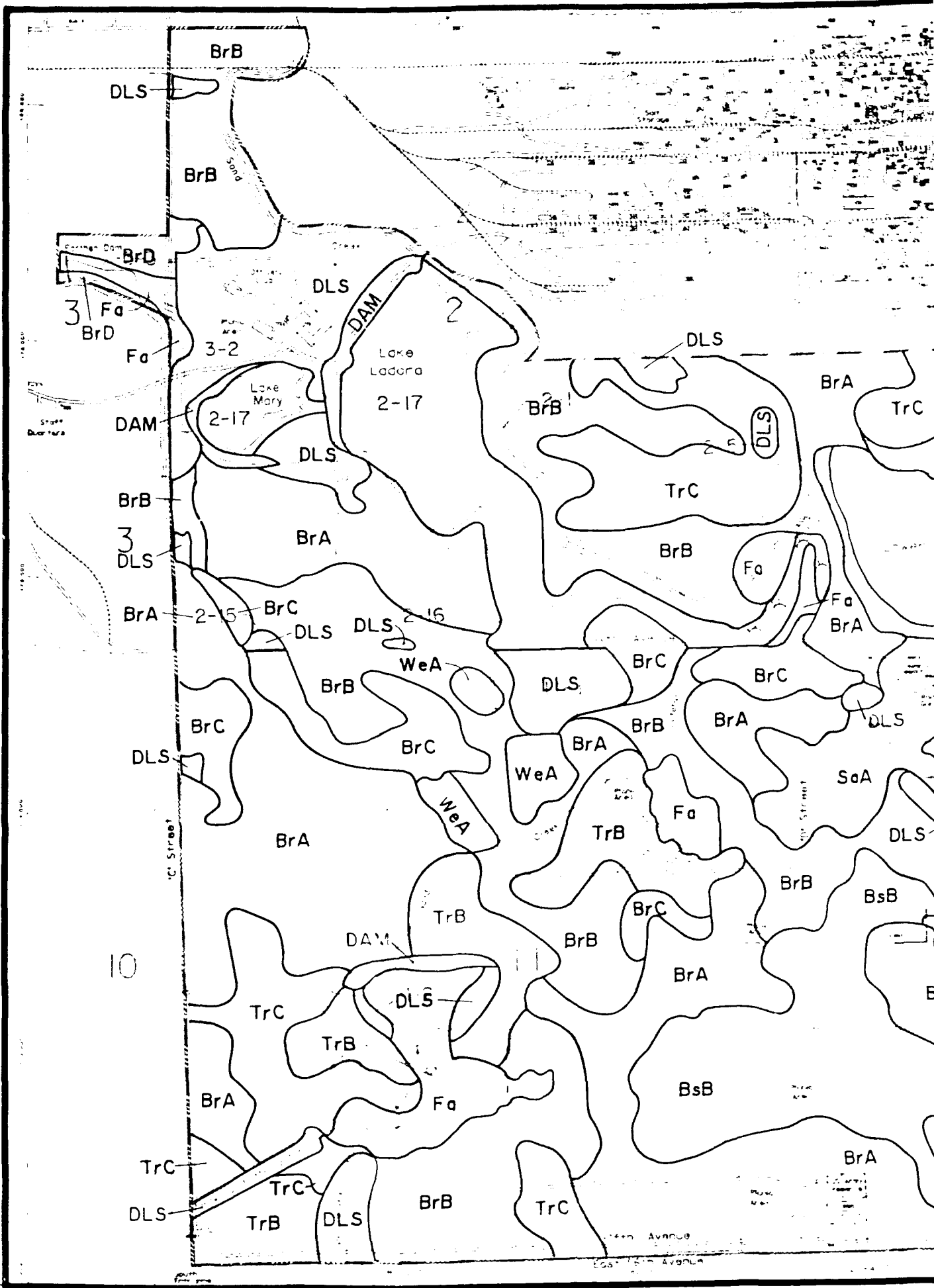
Interbedded claystone, siltstone, sandstone and lignite (see text for detailed description)

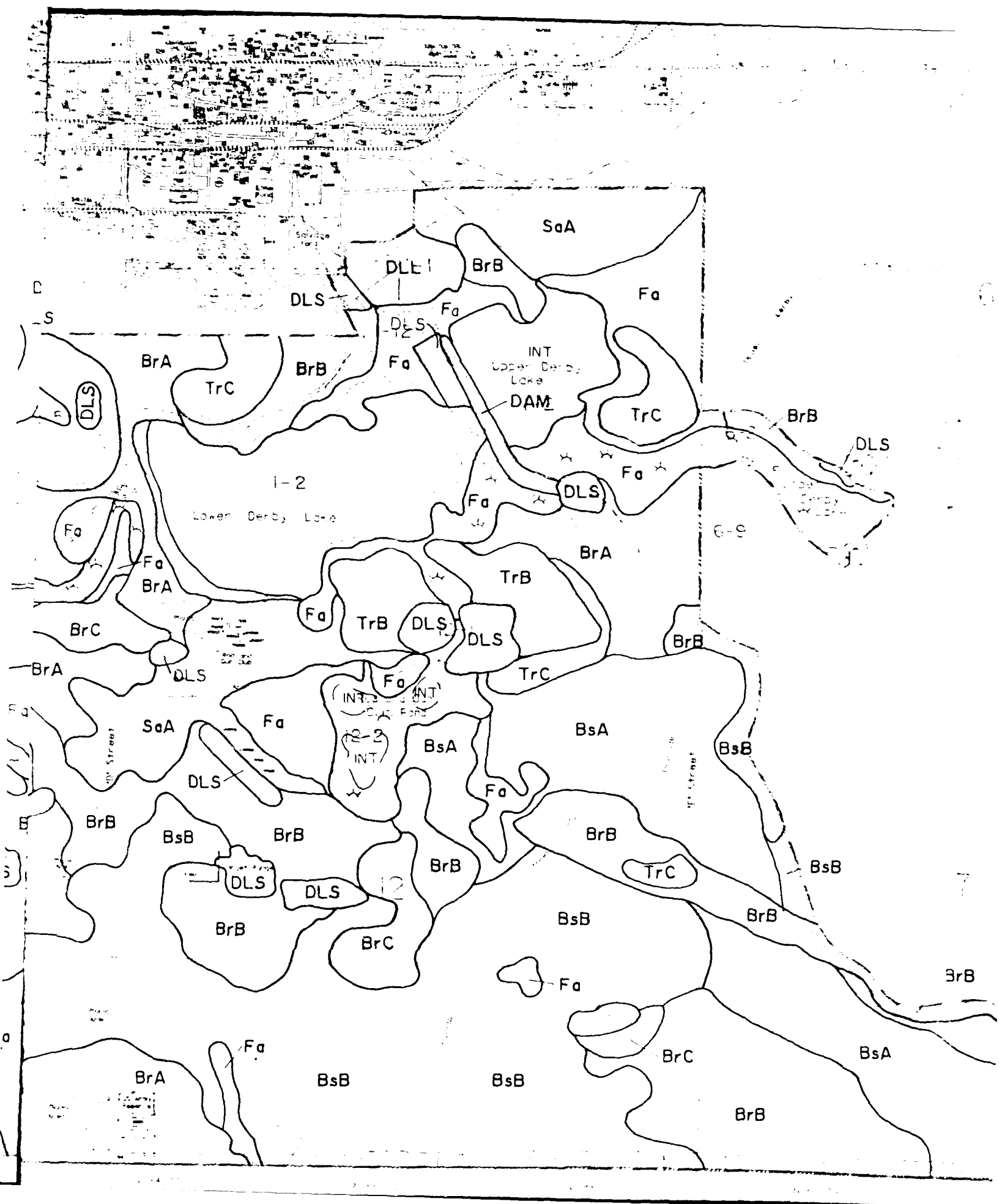
Note: Thickness not to scale, net sandstone thickness shown in parentheses.

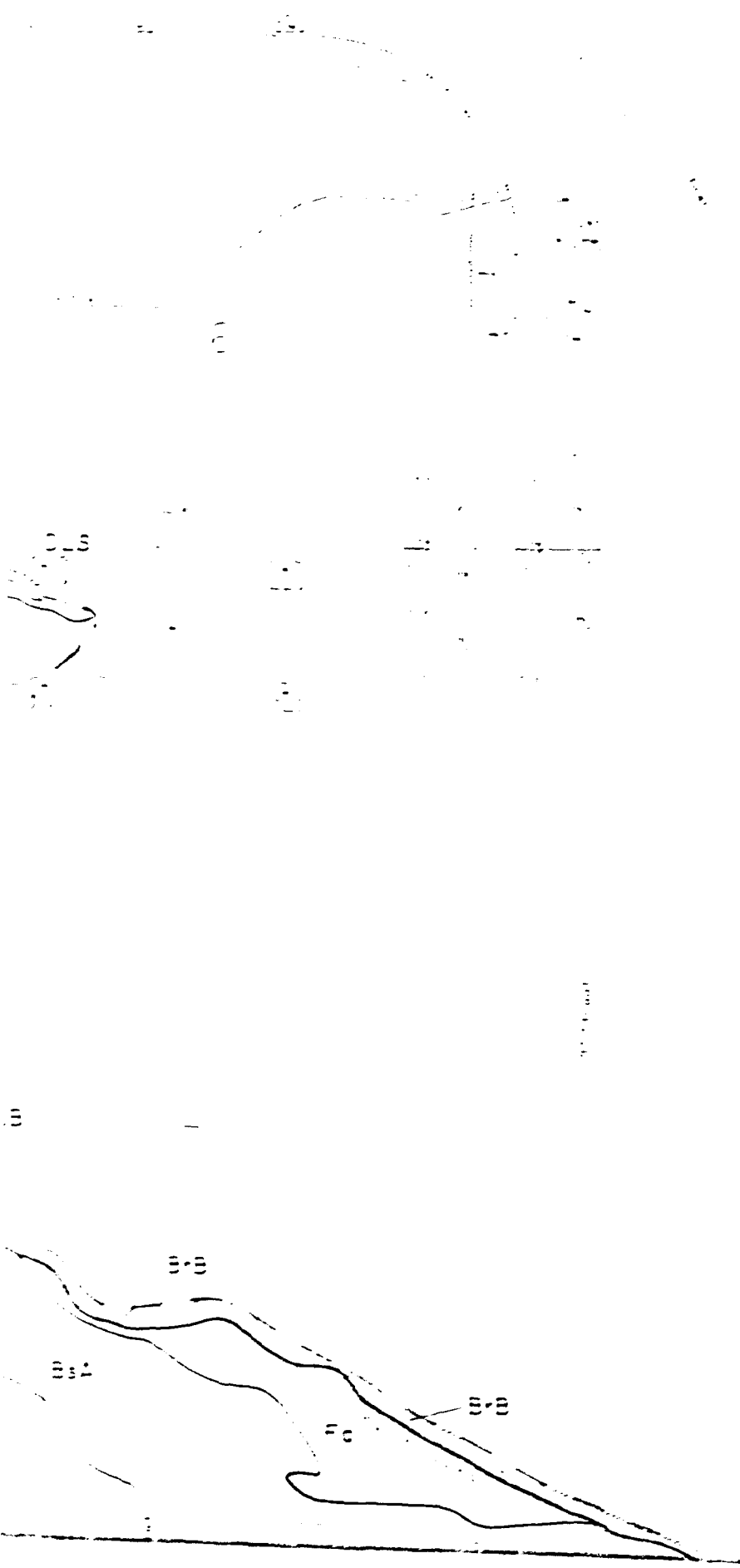
Sources: HLA, ESE

Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE SSA 1.4-1  
Stratigraphic Column of  
Rocky Mountain Arsenal  
Rocky Mountain Arsenal  
Prepared by: Ebasco Services Incorporated







**LEGEND**

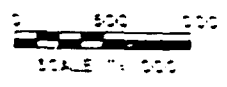
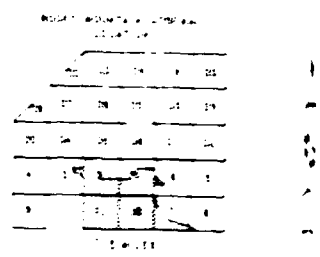
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- State Park Grid

B-B Section

C-C Section

F-F Section

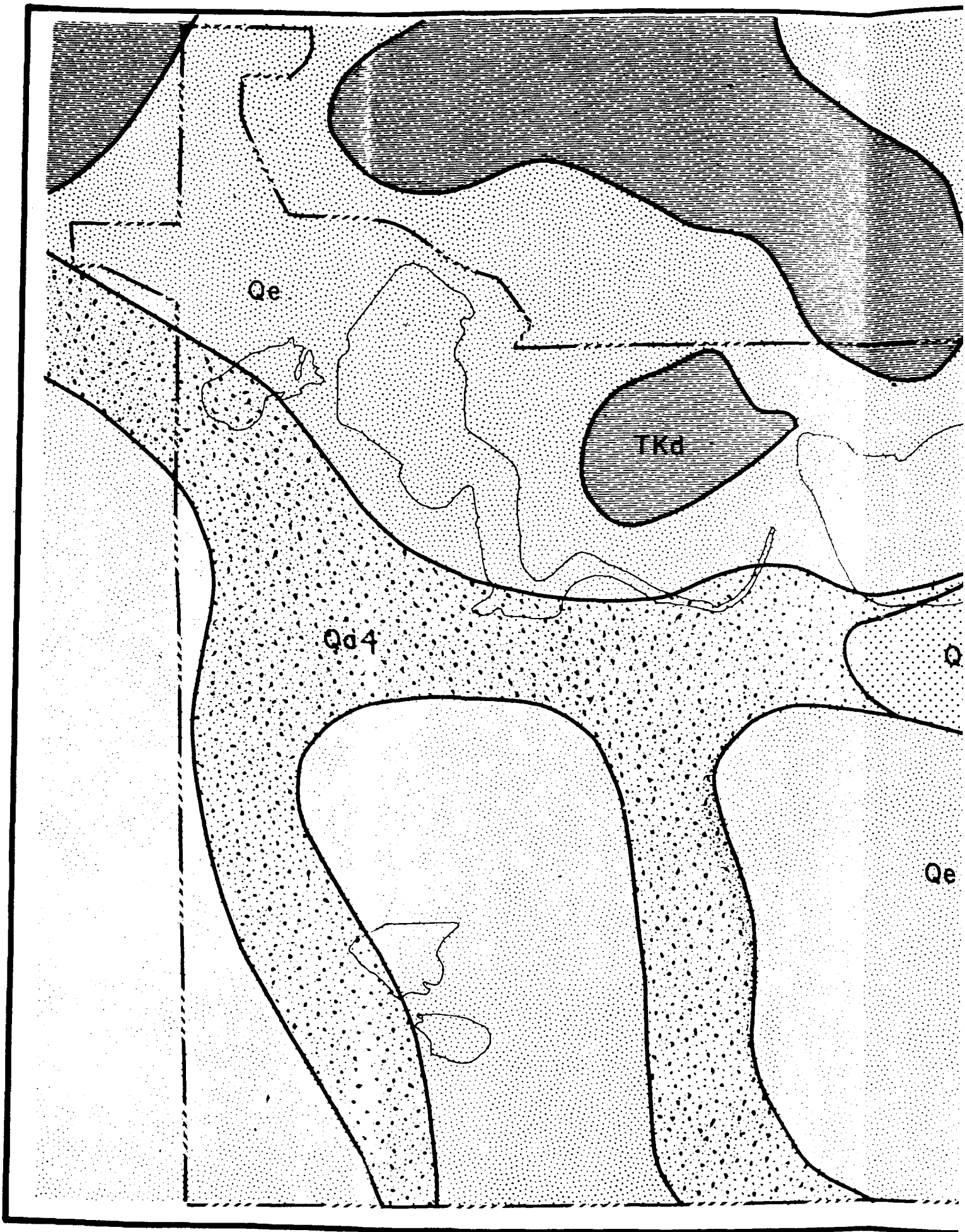
- B-1 Brecker sandy loam 1 1/2% slopes
- B-2 Brecker sandy loam 1 1/2% slopes
- B-3 Brecker sandy loam 3 1/2% slopes
- B-4 Brecker sandy loam 5 1/2% slopes
- B-5 Brecker sandy loam 7 1/2% slopes
- B-6 Brecker sandy loam 9 1/2% slopes
- B-7 Brecker sandy loam 11 1/2% slopes
- B-8 Brecker sandy loam 13 1/2% slopes
- B-9 Brecker sandy loam 15 1/2% slopes
- B-10 Brecker sandy loam 17 1/2% slopes
- B-11 Brecker sandy loam 19 1/2% slopes
- B-12 Brecker sandy loam 21 1/2% slopes
- B-13 Brecker sandy loam 23 1/2% slopes
- B-14 Brecker sandy loam 25 1/2% slopes
- B-15 Brecker sandy loam 27 1/2% slopes
- B-16 Brecker sandy loam 29 1/2% slopes
- B-17 Brecker sandy loam 31 1/2% slopes
- B-18 Brecker sandy loam 33 1/2% slopes
- B-19 Brecker sandy loam 35 1/2% slopes
- B-20 Brecker sandy loam 37 1/2% slopes
- B-21 Brecker sandy loam 39 1/2% slopes
- B-22 Brecker sandy loam 41 1/2% slopes
- B-23 Brecker sandy loam 43 1/2% slopes
- B-24 Brecker sandy loam 45 1/2% slopes
- B-25 Brecker sandy loam 47 1/2% slopes
- B-26 Brecker sandy loam 49 1/2% slopes
- B-27 Brecker sandy loam 51 1/2% slopes
- B-28 Brecker sandy loam 53 1/2% slopes
- B-29 Brecker sandy loam 55 1/2% slopes
- B-30 Brecker sandy loam 57 1/2% slopes
- B-31 Brecker sandy loam 59 1/2% slopes
- B-32 Brecker sandy loam 61 1/2% slopes
- B-33 Brecker sandy loam 63 1/2% slopes
- B-34 Brecker sandy loam 65 1/2% slopes
- B-35 Brecker sandy loam 67 1/2% slopes
- B-36 Brecker sandy loam 69 1/2% slopes
- B-37 Brecker sandy loam 71 1/2% slopes
- B-38 Brecker sandy loam 73 1/2% slopes
- B-39 Brecker sandy loam 75 1/2% slopes
- B-40 Brecker sandy loam 77 1/2% slopes
- B-41 Brecker sandy loam 79 1/2% slopes
- B-42 Brecker sandy loam 81 1/2% slopes
- B-43 Brecker sandy loam 83 1/2% slopes
- B-44 Brecker sandy loam 85 1/2% slopes
- B-45 Brecker sandy loam 87 1/2% slopes
- B-46 Brecker sandy loam 89 1/2% slopes
- B-47 Brecker sandy loam 91 1/2% slopes
- B-48 Brecker sandy loam 93 1/2% slopes
- B-49 Brecker sandy loam 95 1/2% slopes
- B-50 Brecker sandy loam 97 1/2% slopes
- B-51 Brecker sandy loam 99 1/2% slopes
- B-52 Brecker sandy loam 101 1/2% slopes
- B-53 Brecker sandy loam 103 1/2% slopes
- B-54 Brecker sandy loam 105 1/2% slopes
- B-55 Brecker sandy loam 107 1/2% slopes
- B-56 Brecker sandy loam 109 1/2% slopes
- B-57 Brecker sandy loam 111 1/2% slopes
- B-58 Brecker sandy loam 113 1/2% slopes
- B-59 Brecker sandy loam 115 1/2% slopes
- B-60 Brecker sandy loam 117 1/2% slopes
- B-61 Brecker sandy loam 119 1/2% slopes
- B-62 Brecker sandy loam 121 1/2% slopes
- B-63 Brecker sandy loam 123 1/2% slopes
- B-64 Brecker sandy loam 125 1/2% slopes
- B-65 Brecker sandy loam 127 1/2% slopes
- B-66 Brecker sandy loam 129 1/2% slopes
- B-67 Brecker sandy loam 131 1/2% slopes
- B-68 Brecker sandy loam 133 1/2% slopes
- B-69 Brecker sandy loam 135 1/2% slopes
- B-70 Brecker sandy loam 137 1/2% slopes
- B-71 Brecker sandy loam 139 1/2% slopes
- B-72 Brecker sandy loam 141 1/2% slopes
- B-73 Brecker sandy loam 143 1/2% slopes
- B-74 Brecker sandy loam 145 1/2% slopes
- B-75 Brecker sandy loam 147 1/2% slopes
- B-76 Brecker sandy loam 149 1/2% slopes
- B-77 Brecker sandy loam 151 1/2% slopes
- B-78 Brecker sandy loam 153 1/2% slopes
- B-79 Brecker sandy loam 155 1/2% slopes
- B-80 Brecker sandy loam 157 1/2% slopes
- B-81 Brecker sandy loam 159 1/2% slopes
- B-82 Brecker sandy loam 161 1/2% slopes
- B-83 Brecker sandy loam 163 1/2% slopes
- B-84 Brecker sandy loam 165 1/2% slopes
- B-85 Brecker sandy loam 167 1/2% slopes
- B-86 Brecker sandy loam 169 1/2% slopes
- B-87 Brecker sandy loam 171 1/2% slopes
- B-88 Brecker sandy loam 173 1/2% slopes
- B-89 Brecker sandy loam 175 1/2% slopes
- B-90 Brecker sandy loam 177 1/2% slopes
- B-91 Brecker sandy loam 179 1/2% slopes
- B-92 Brecker sandy loam 181 1/2% slopes
- B-93 Brecker sandy loam 183 1/2% slopes
- B-94 Brecker sandy loam 185 1/2% slopes
- B-95 Brecker sandy loam 187 1/2% slopes
- B-96 Brecker sandy loam 189 1/2% slopes
- B-97 Brecker sandy loam 191 1/2% slopes
- B-98 Brecker sandy loam 193 1/2% slopes
- B-99 Brecker sandy loam 195 1/2% slopes
- B-100 Brecker sandy loam 197 1/2% slopes

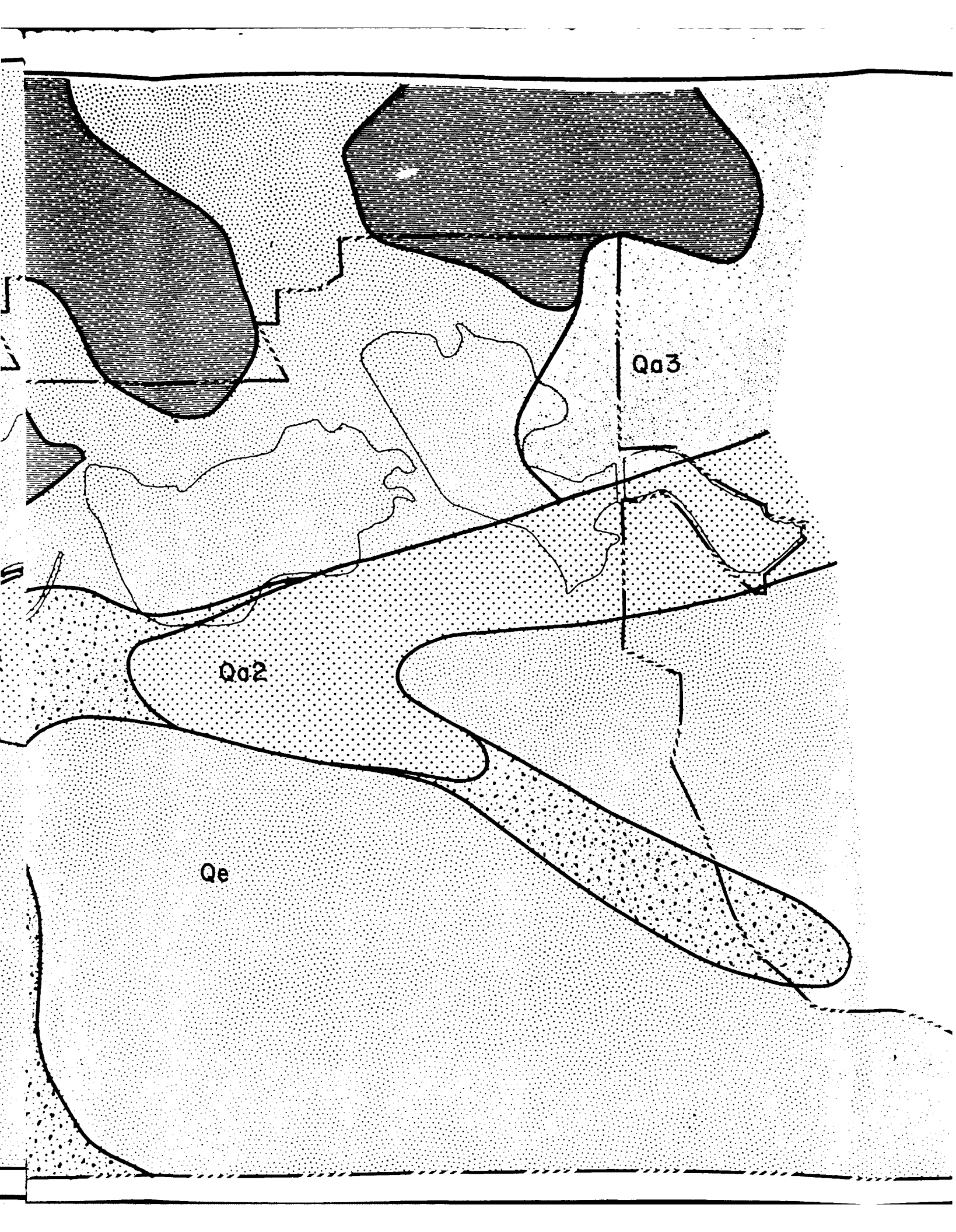


Scale: 1" = 500'

Prepared for  
 Program Manager's Office for  
 Rocky Mountain Arsenal District

EGS&E, INC. 1982  
 3015 West 10th  
 Golden, Colorado  
 Rocky Mountain Arsenal  
 Prepared by  
 EGS&E Services Incorporated

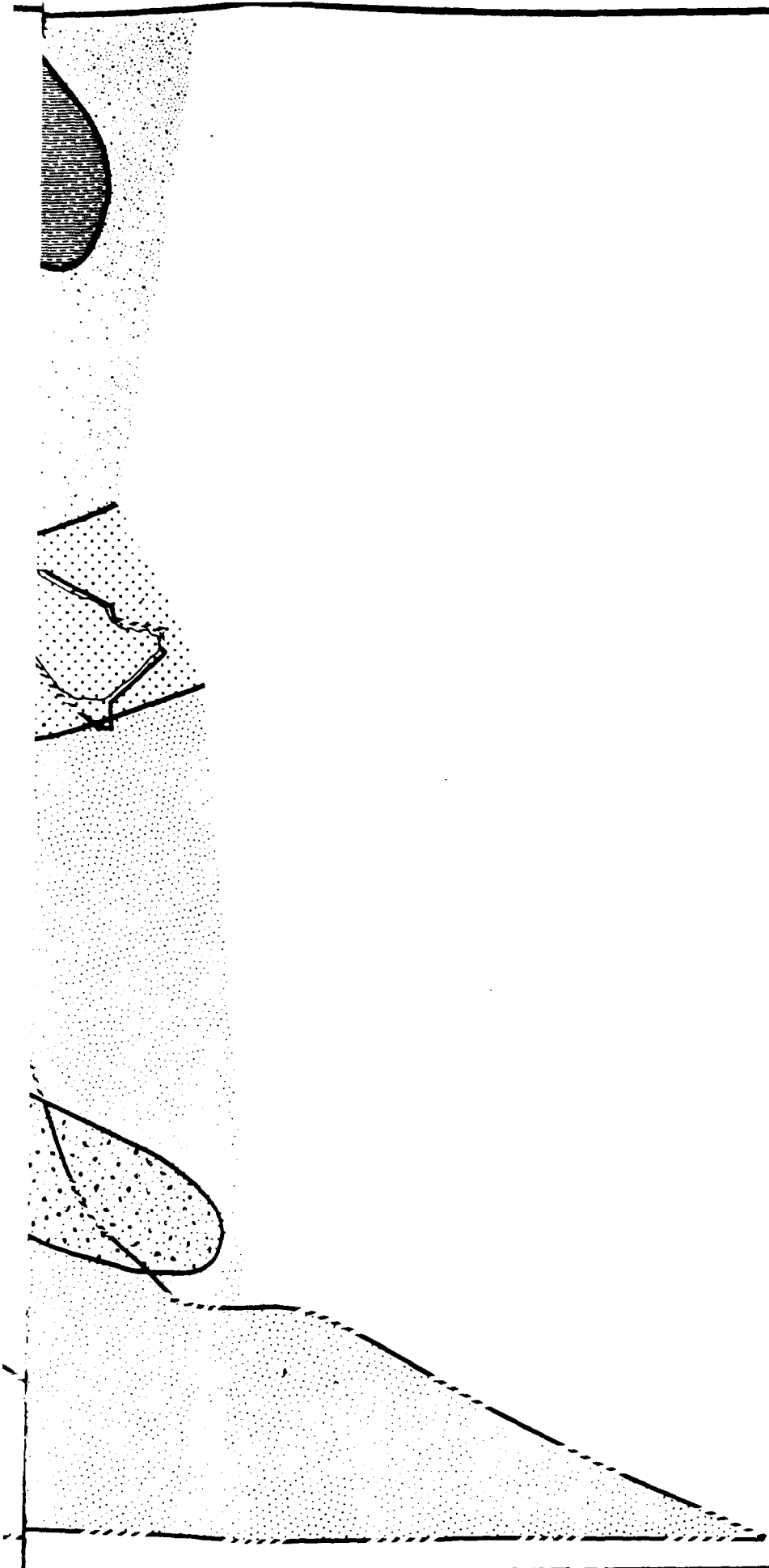










Qa2

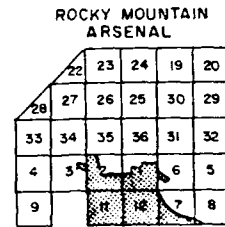
Qe

Qa3



**Legend**

-  Study Area Boundary
-  **Qa2** Paleochannels in Eolian (W/Gravel)
-  **Qa3** Silty Terrace Gravel and Coarse Sand
-  **Qa4** Paleochannels in Eolian (W/O Gravel)
-  **Qe** Eolian Deposits
-  **TKd** Denver Fm/Dry Alluvium



1" = 5 MILES

0 500 1000

SCALE: 1" = 1000'

Source: Water Remedial Investigation Report, 1989.

Prepared for:

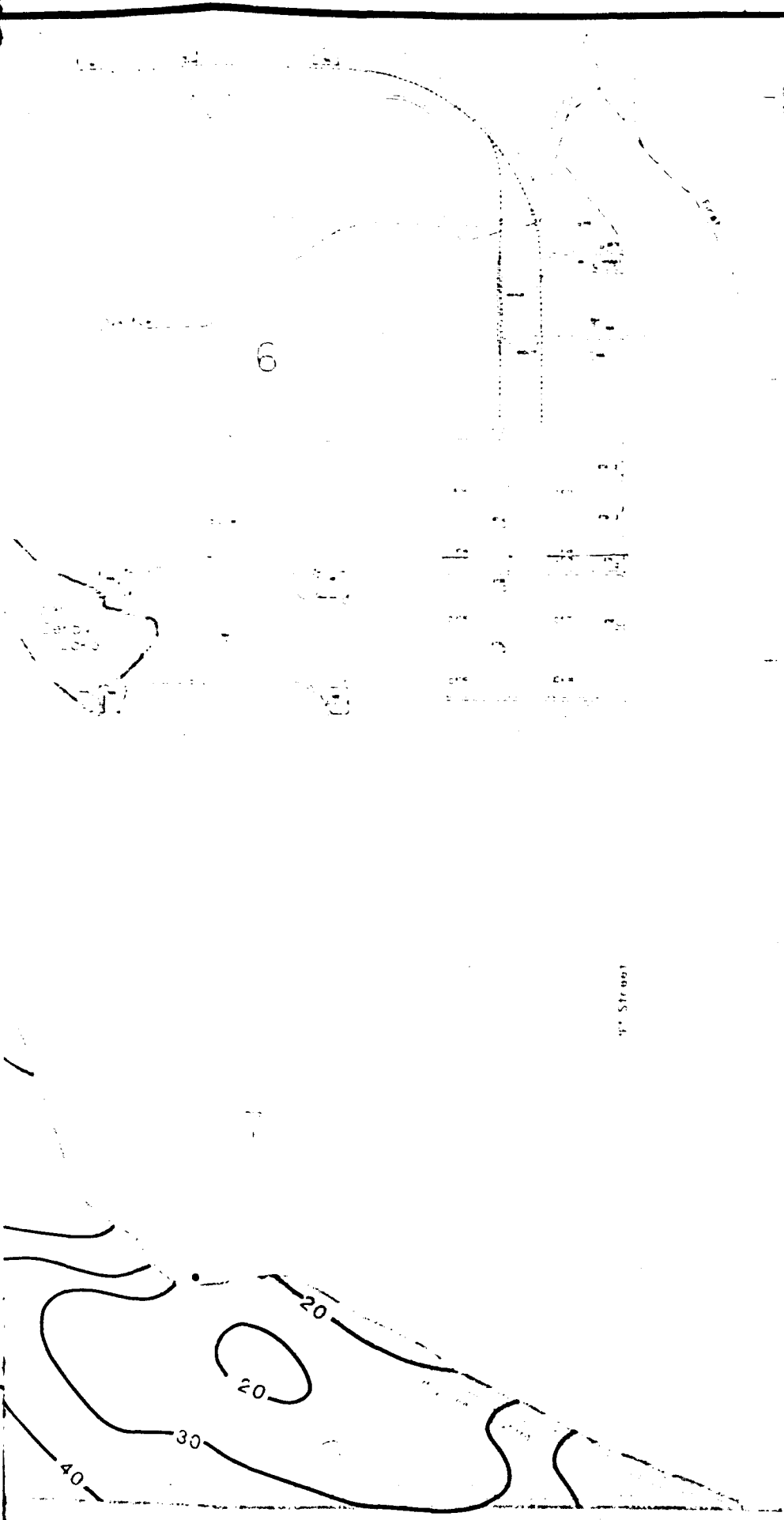
Program Manager's Office for Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 1.4-3**  
 Alluvial Units - Southern Study Area  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

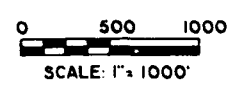
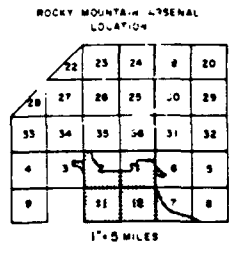






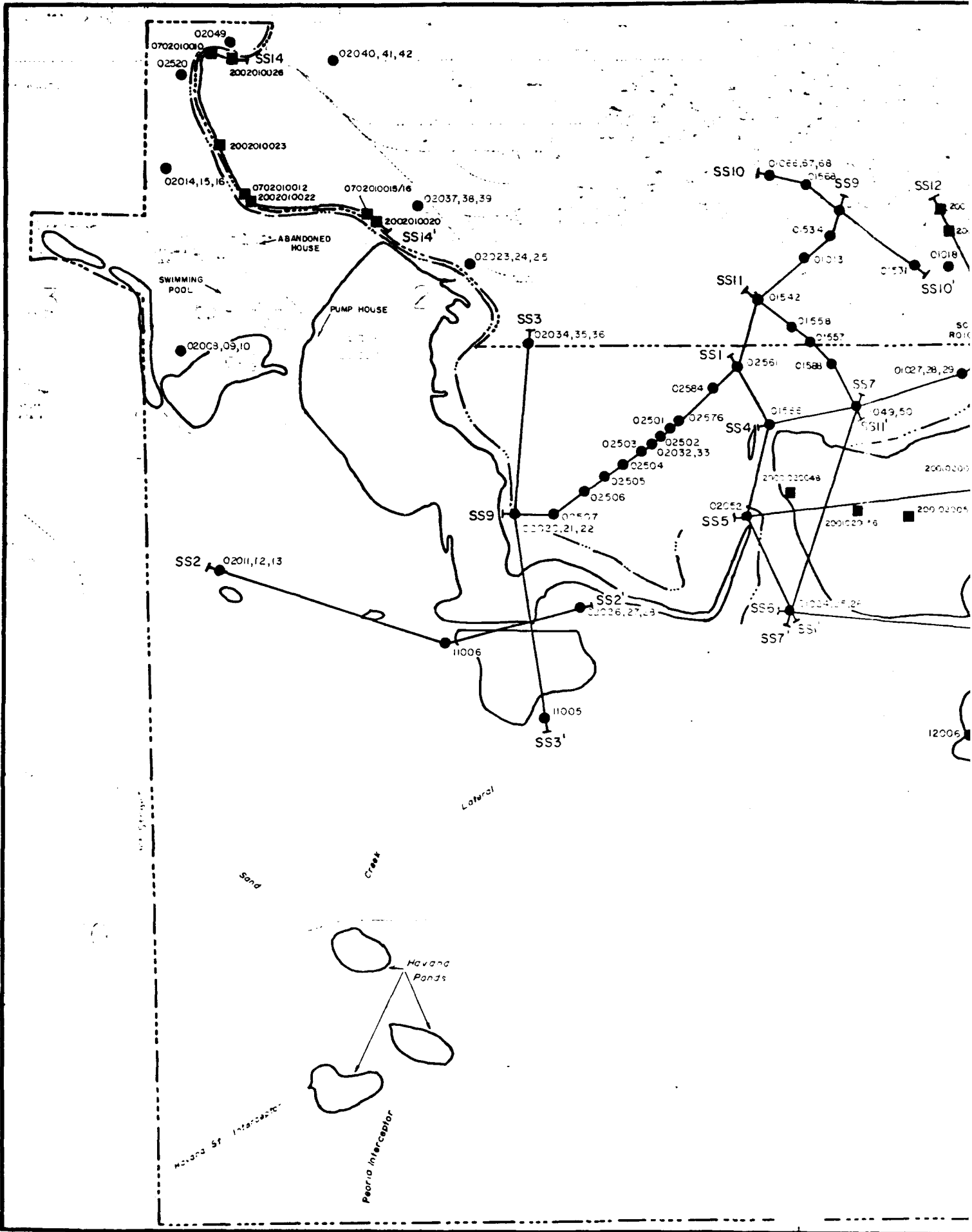


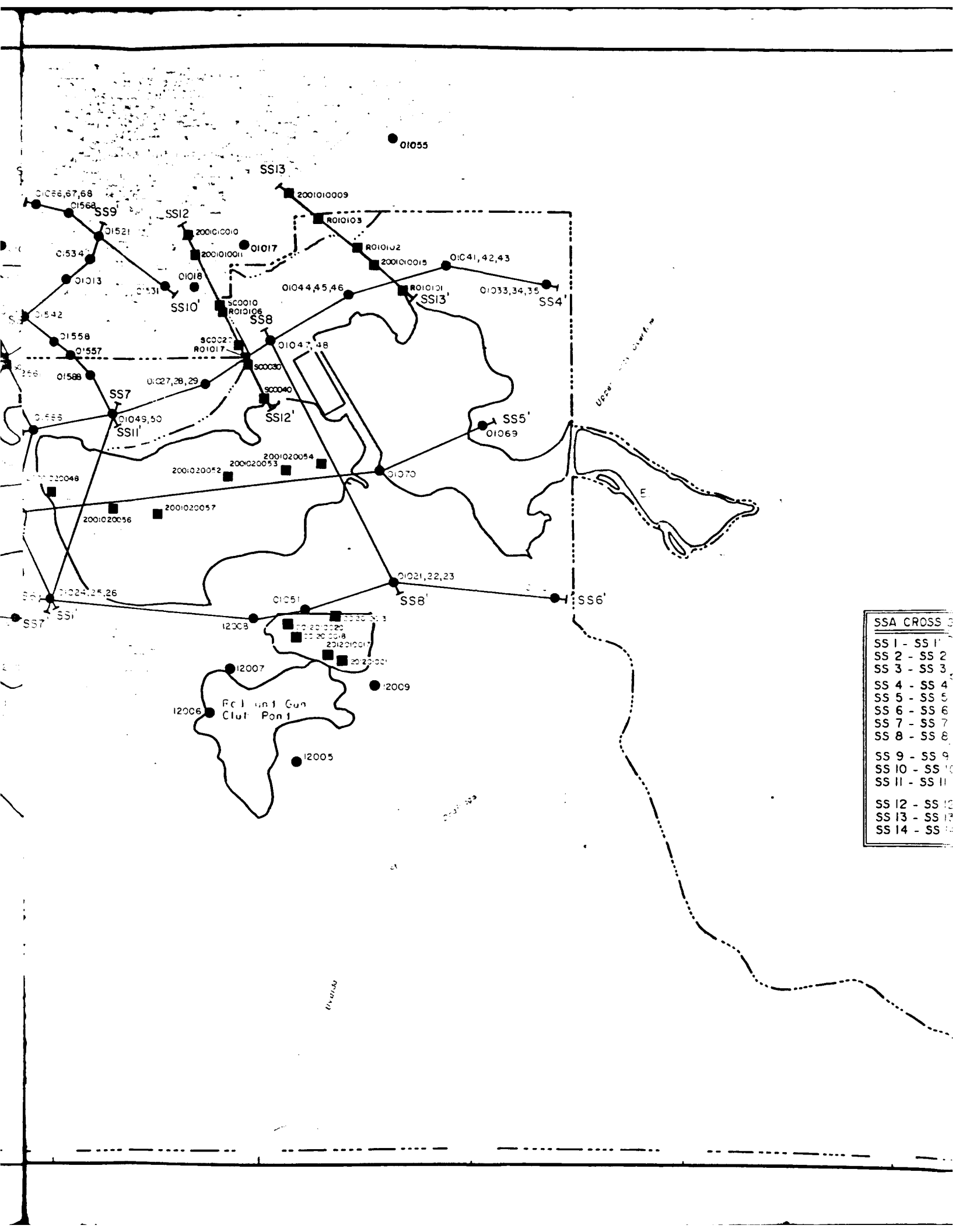
- LEGEND**
- Improved Road
  - Unimproved Road
  - Railroad Tracks
  - Existing Structure
  - Former Structure
  - Fence
  - 6** Section Number
  - Stream or Ditch
  - Study Area Boundary
  - 174,000 State Plane Grid
  - 10 ft. Contour Interval  
Alluvial Contour  
Dashed where Inferred
  - Control Point



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 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 1.4-4  
 Alluvial Isopach Map  
 Southern Study Area  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated





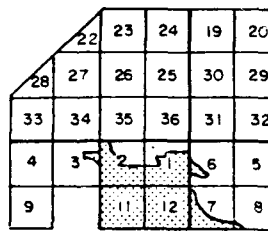
SSA CROSS	
SS 1 - SS 1'	
SS 2 - SS 2'	
SS 3 - SS 3'	
SS 4 - SS 4'	
SS 5 - SS 5'	
SS 6 - SS 6'	
SS 7 - SS 7'	
SS 8 - SS 8'	
SS 9 - SS 9'	
SS 10 - SS 10'	
SS 11 - SS 11'	
SS 12 - SS 12'	
SS 13 - SS 13'	
SS 14 - SS 14'	

Legend

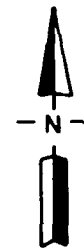
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- Section Number
- Stream or Ditch
- Study Area Boundary
- Well Cluster
- Single Well Location
- Boring Location
- Cross Section Reference
- 178,000 State Plane Grid

Note: See individual cross section for complete numerical description.

ROCKY MOUNTAIN ARSENAL  
LOCATION



1" = 4 MILES



SSA CROSS SECTIONS	PLATE
SS 1 - SS 1'	SSA I.4-1
SS 2 - SS 2'	
SS 3 - SS 3'	
SS 4 - SS 4'	SSA I.4-2
SS 5 - SS 5'	
SS 6 - SS 6'	
SS 7 - SS 7'	
SS 8 - SS 8'	SSA I.4-3
SS 9 - SS 9'	
SS 10 - SS 10'	
SS 11 - SS 11'	
SS 12 - SS 12'	SSA I.4-4
SS 13 - SS 13'	
SS 14 - SS 14'	

Prepared for :

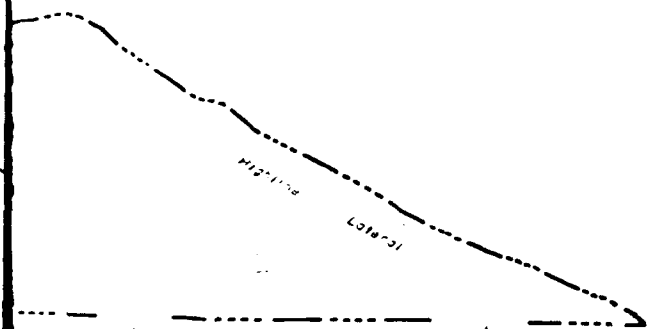
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

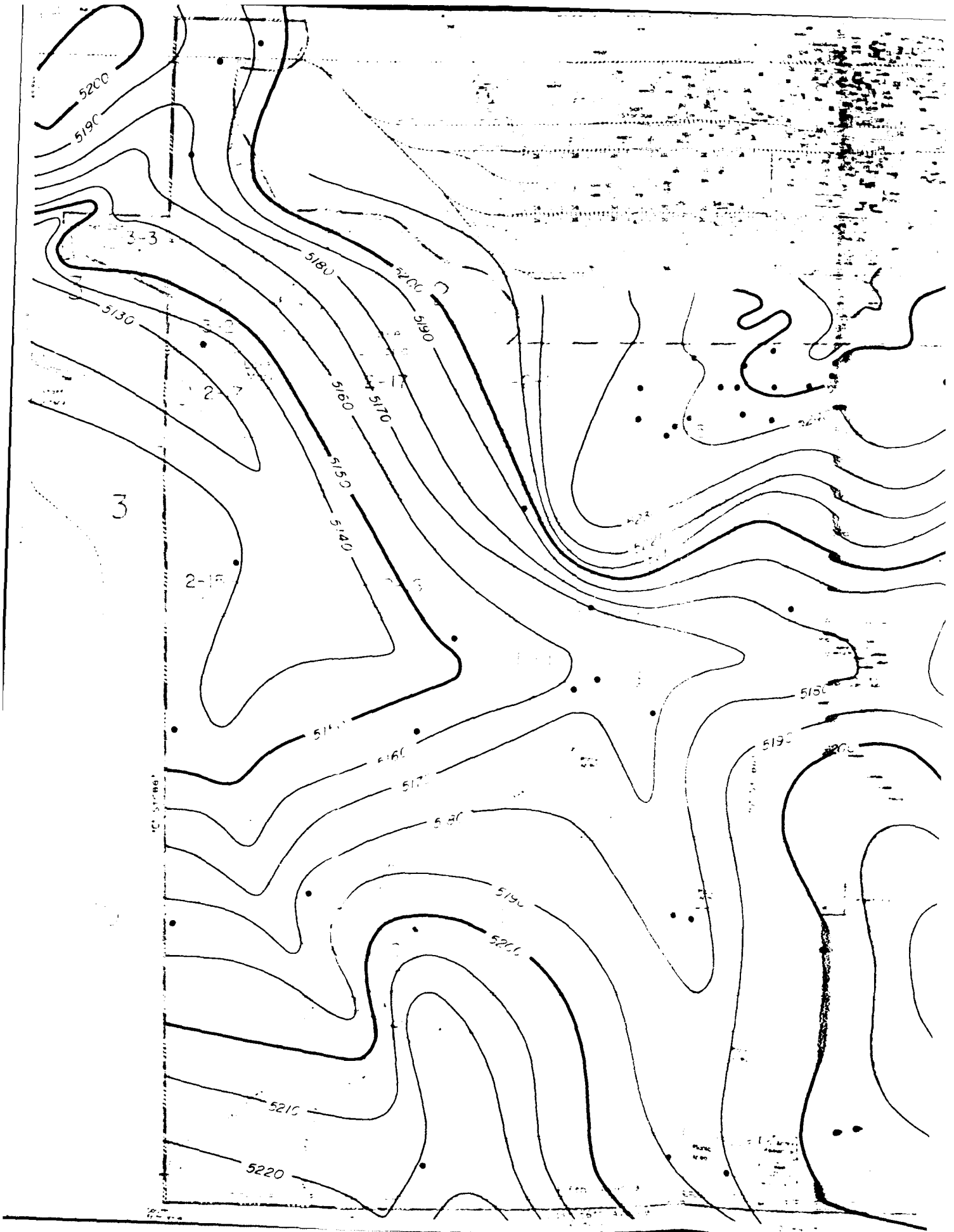
FIGURE SSA I.4-5

Master Cross Section Map

Rocky Mountain Arsenal

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5200

5190

3-3

5130

5180

5200

5190

5160

5170

5150

5140

3

2-15

5140

5160

5170

5180

5150

5190

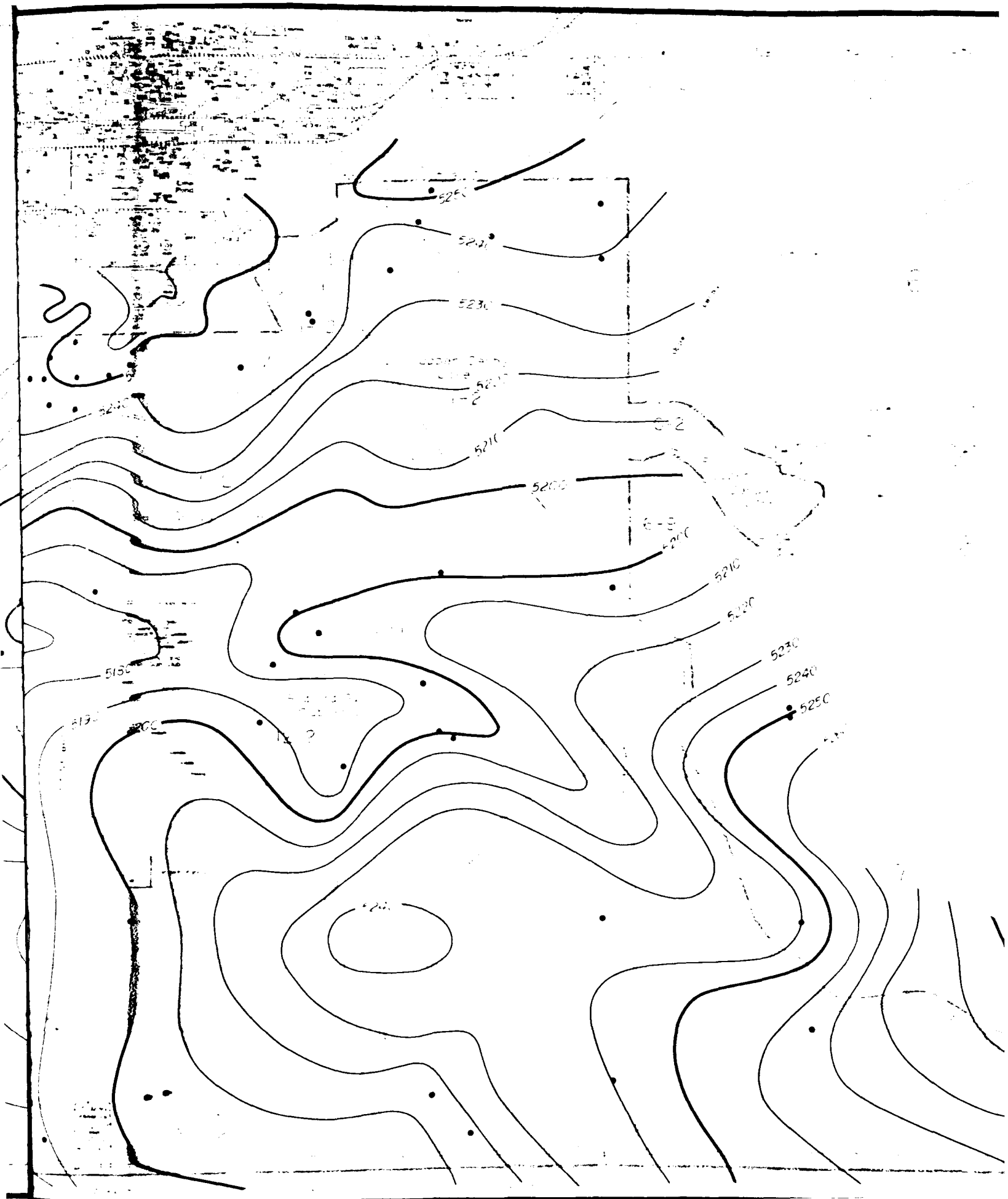
5200

5190

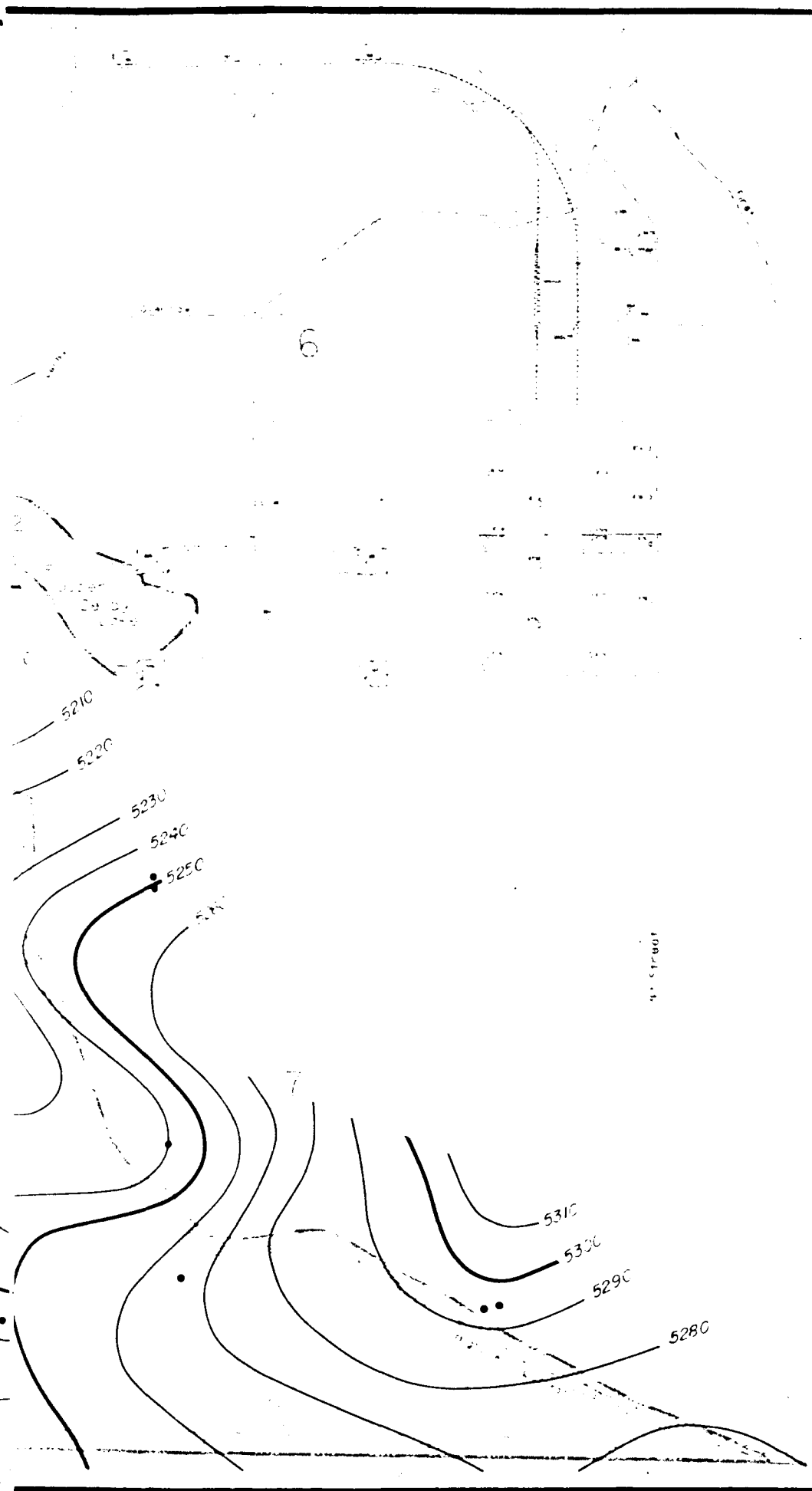
5200

5210

5220







**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

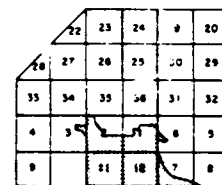
174,000 State Plane Grid

5210 Contour & Elevation in feet above M.S.

• Data Control Point

Contour Interval is 10 feet

ROCKY MOUNTAIN ARSENAL  
LOCATION



1" = 5 MILES



0 500 1000

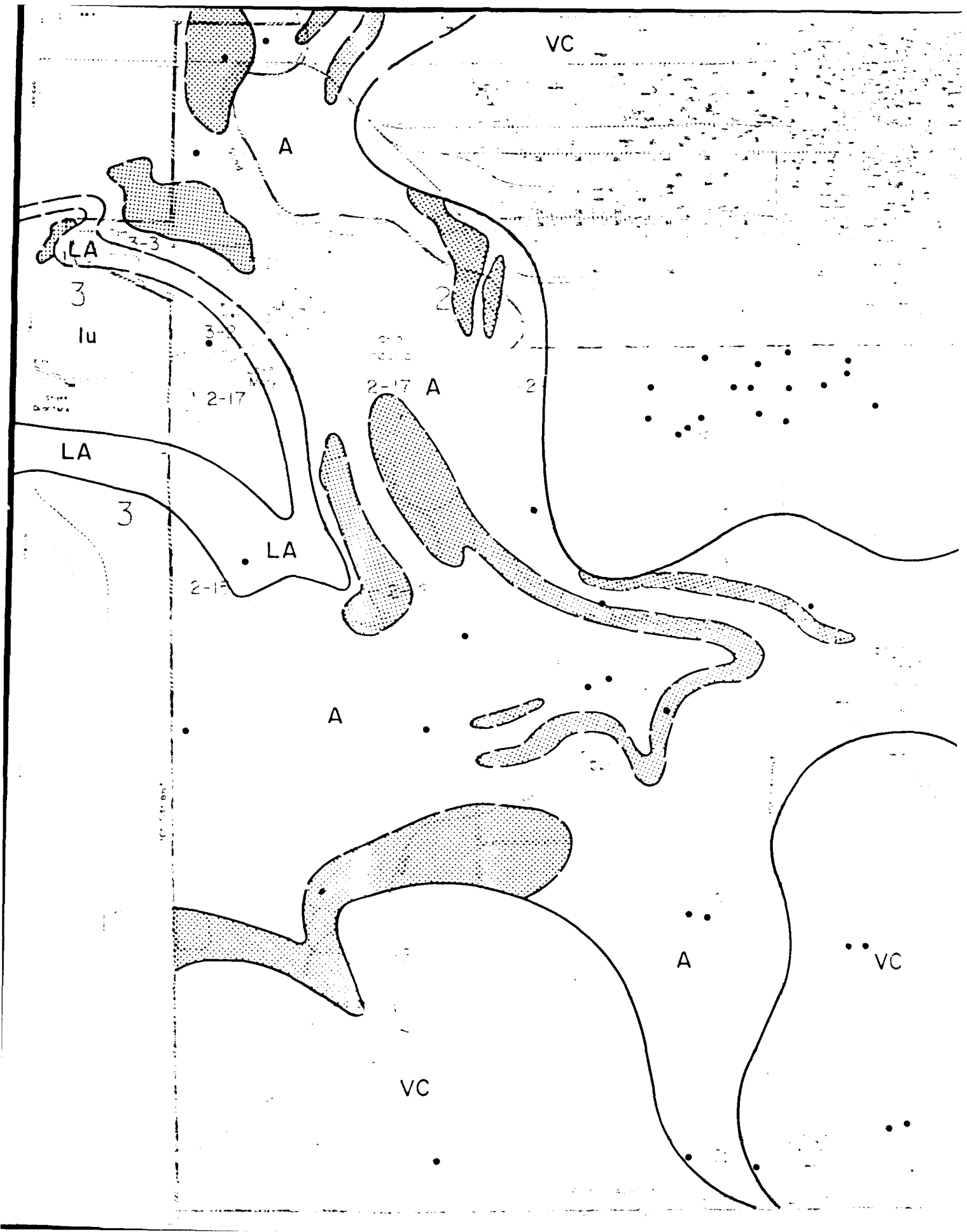
SCALE: 1" = 1000'

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Rocky Mountain Arsenal Cleanup

FIGURE: SSA 1.4-6  
Bedrock Elevation in the  
Southern Study Area  
Rocky Mountain Arsenal

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**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

● Control Point

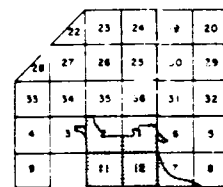
**STRATIGRAPHIC COLUMN**

- VC- Volcaniclastic material
- VCE- Clay-rich stratigraphic equivalent to VC
- A- Zone A
- LA- Lignite A
- Iu- Zone Iu
- B- Zone B

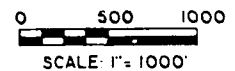
- Sandstone Subcrop dashed where inferred
- Denver Contact with Alluvium dashed where Inferred

Source: Water Remedial Investigation Report

ROCKY MOUNTAIN ARSENAL LOCATION

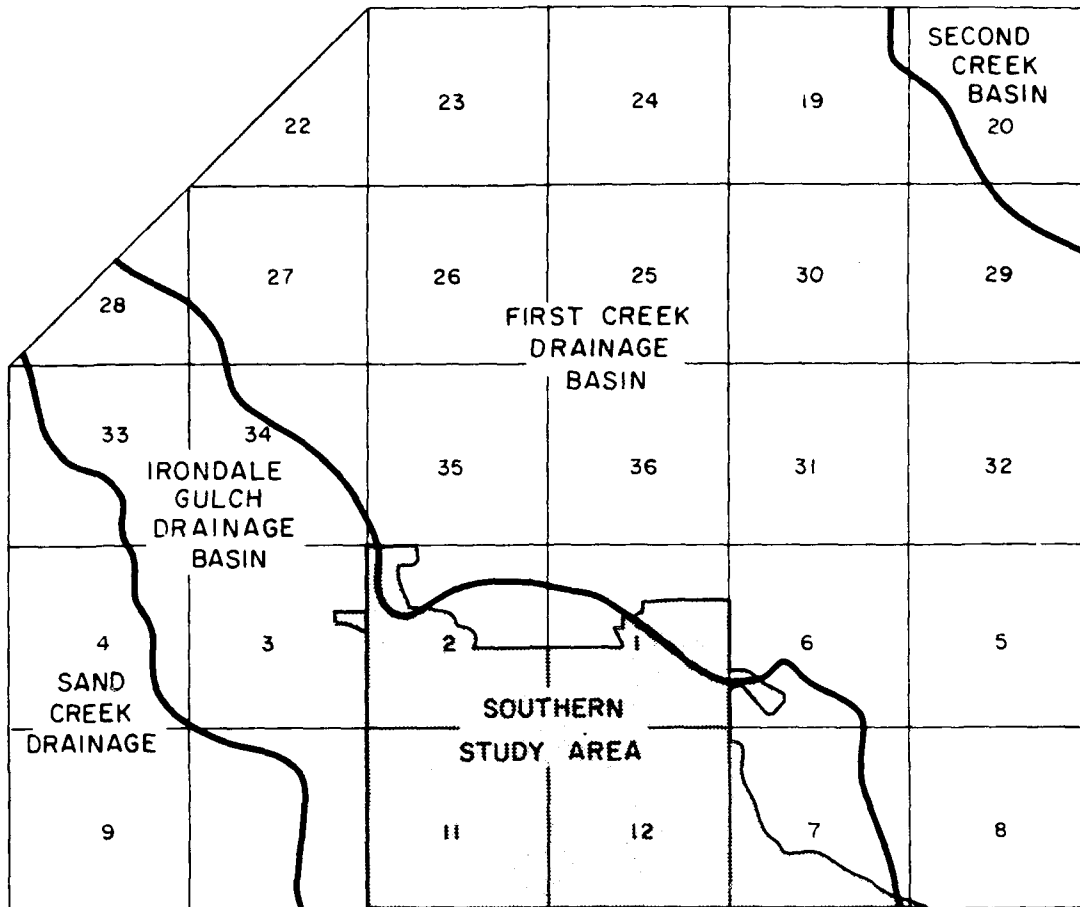


1" = 5 MILES



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FIGURE: SSA 1.4-7  
 Denver Formation Subcrop Map  
 Southern Study Area  
 Rocky Mountain Arsenal  
 Prepared by:  
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Source: Water Remedial Investigation Report, 1989

**Prepared for:**

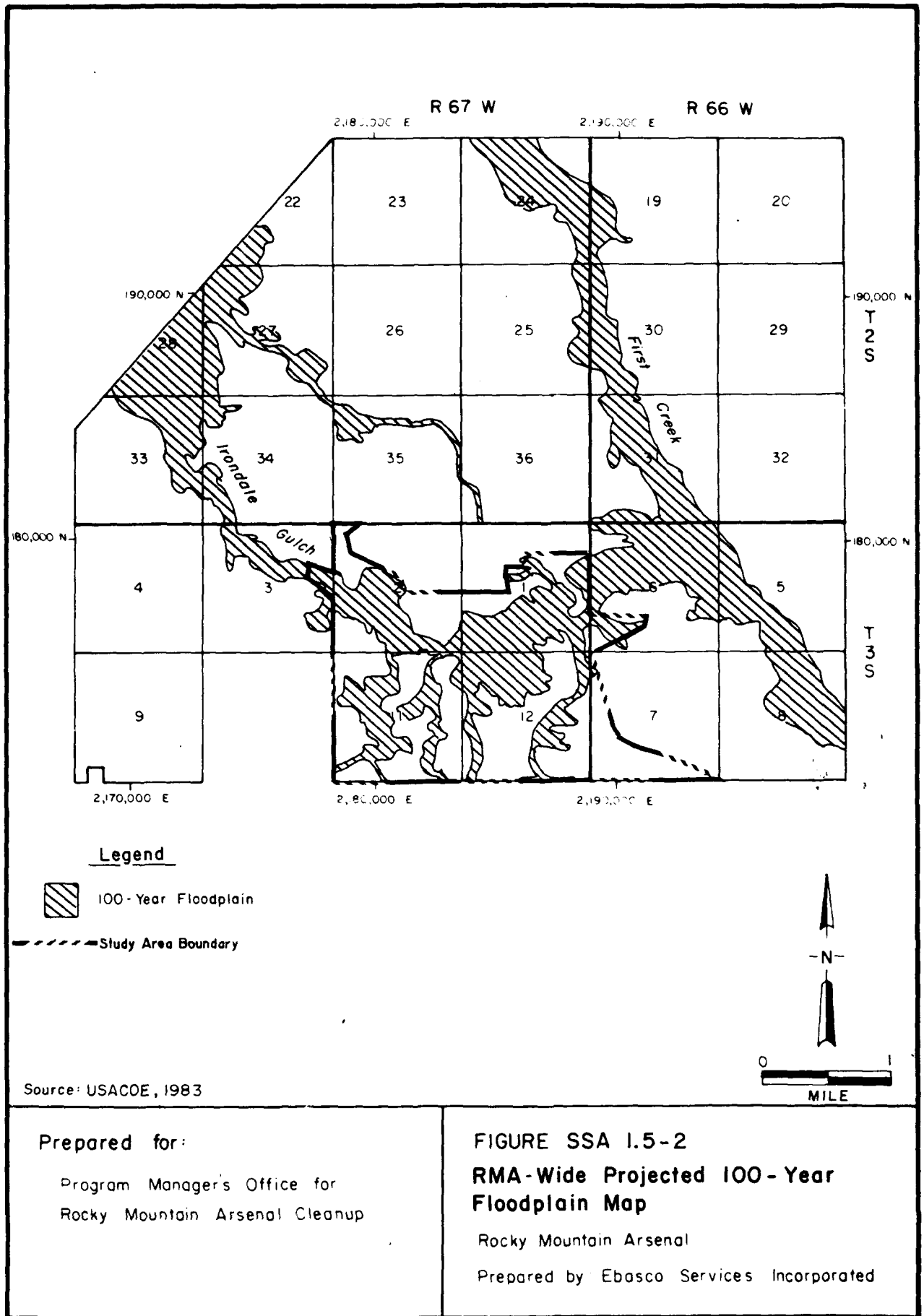
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE SSA 1.5-1**

Surface Water Drainage Basins  
at the Rocky Mountain Arsenal

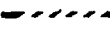
Rocky Mountain Arsenal

Prepared by Ebasco Services Incorporated



**Legend**

 100-Year Floodplain

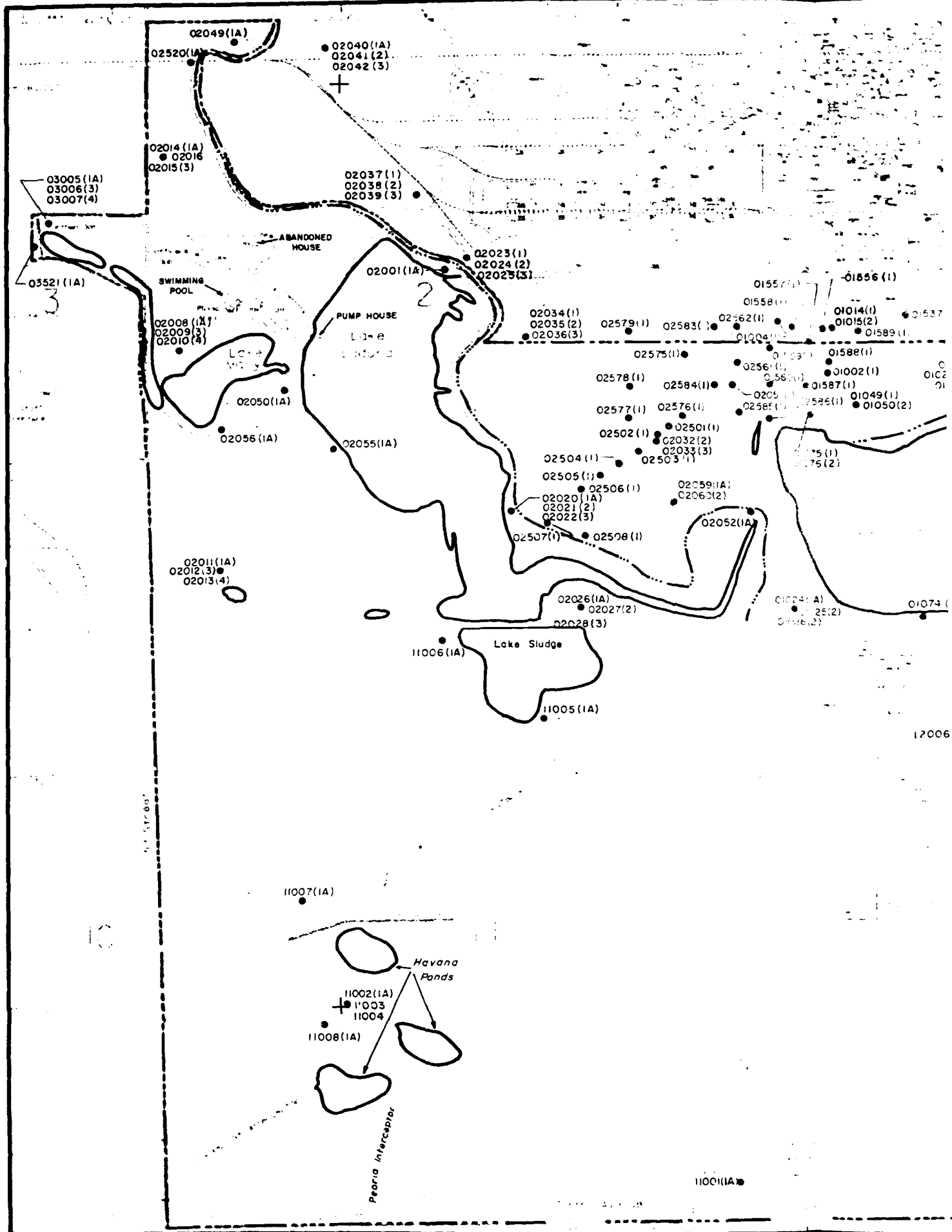
 Study Area Boundary

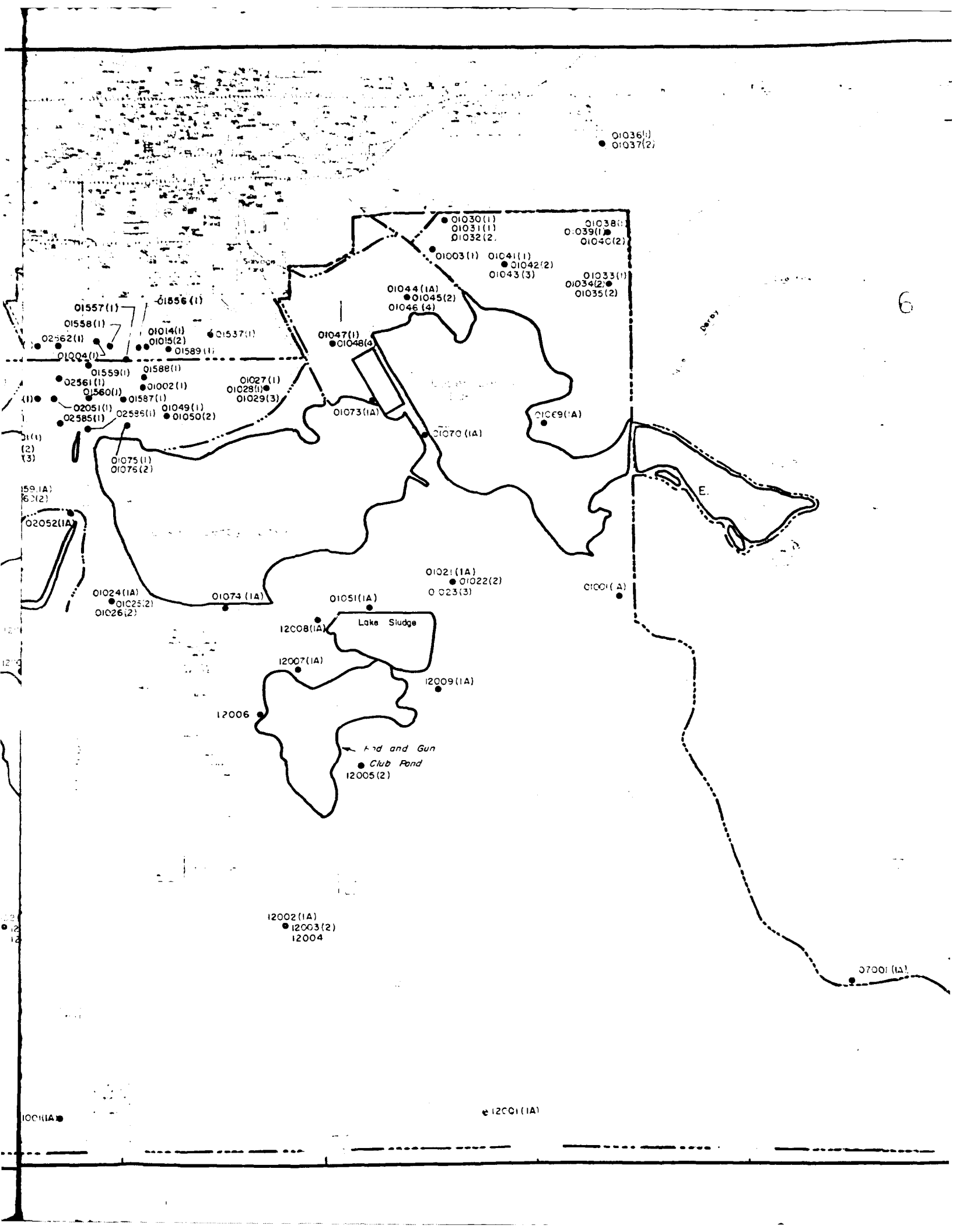
Source: USACOE, 1983

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 Rocky Mountain Arsenal Cleanup

**FIGURE SSA 1.5-2  
 RMA-Wide Projected 100-Year  
 Floodplain Map**

Rocky Mountain Arsenal  
 Prepared by Ebasco Services Incorporated





01036(1)  
01037(2)

01030(1)  
01031(1)  
01032(2)

01038(1)  
01039(1)  
01040(2)

01003(1) 01041(1)  
01042(2)  
01043(3)

01033(1)  
01034(2)  
01035(2)

01044(1A)  
01045(2)  
01046(4)

01557(1)

01558(1)  
01014(1)  
01015(2)  
01589(1)

02562(1)  
01004(1)

01559(1)  
02561(1)  
01560(1)  
02051(1)  
02585(1)

01588(1)  
01002(1)  
01587(1)

01027(1)  
01028(1)  
01029(3)

01047(1)  
01048(4)

01073(1A)

01070(1A)

01009(1A)

01075(1)  
01076(2)

0159(1A)  
0160(2)

02052(1A)

01024(1A)  
01025(2)  
01026(2)

01074(1A)

01051(1A)

01021(1A)  
01022(2)  
01023(3)

01001(A)

12008(1A) Lake Sludge

12007(1A)

12009(1A)

12006

End and Gun  
Club Pond  
12005(2)

12002(1A)  
12003(2)  
12004

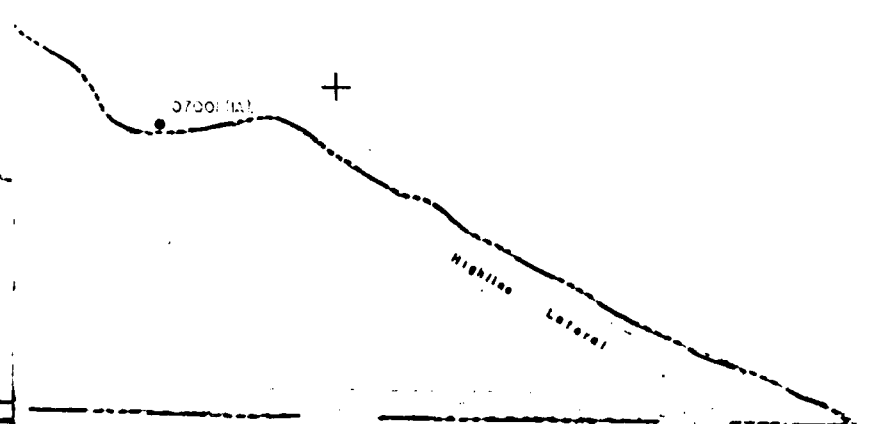
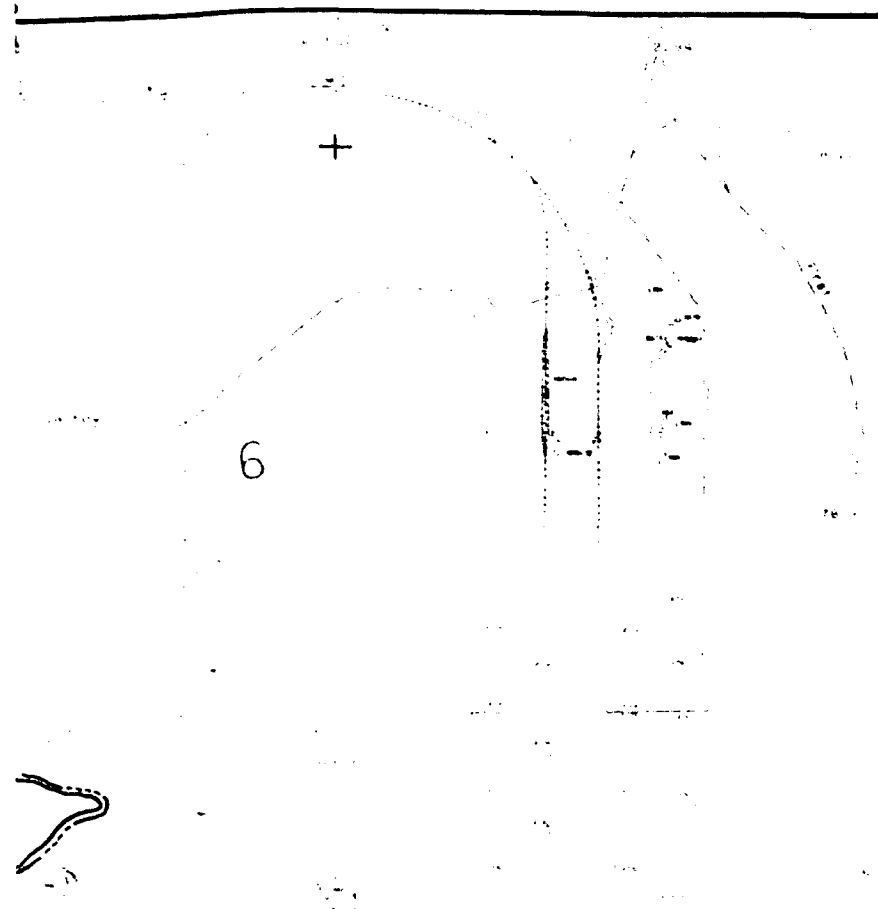
07001(1A)

6

100(1A)

12001(1A)

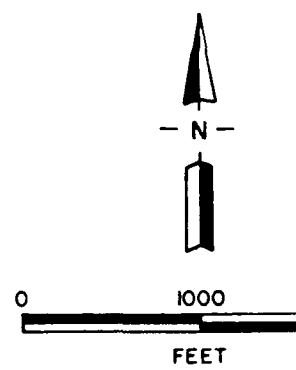
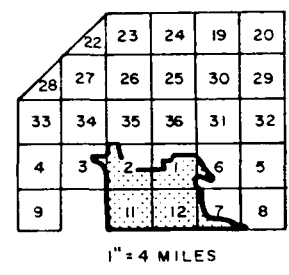




**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- Well and Well No. (Water Bearing Zone in Parenthesis)
- 178,000 State Plane Grid

**ROCKY MOUNTAIN ARSENAL LOCATION**



Prepared for :

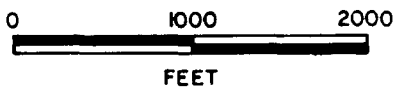
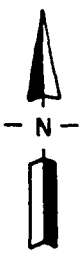
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**Figure: SSA I.5-3**  
**Well Locations -**  
**Southern Study Area**

Rocky Mountain Arsenal  
Prepared by : Ebasco Services Incorporated

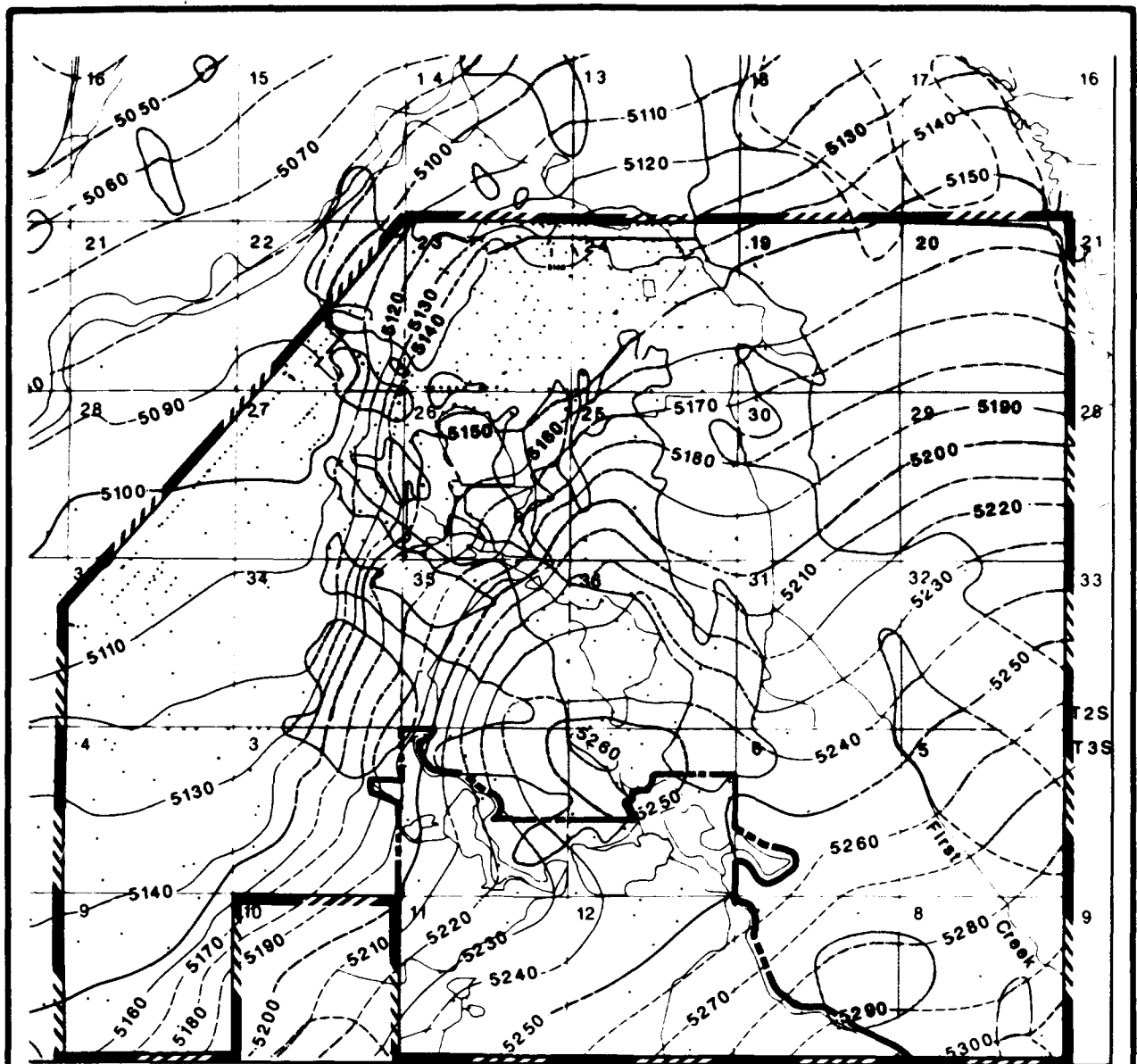
**LEGEND**

- 6 Section Number
- Stream or Ditch
- Study Area Boundary
- Well and Well Number  
Water Bearing Zone in  
Parenthesis
- State Plane Grid



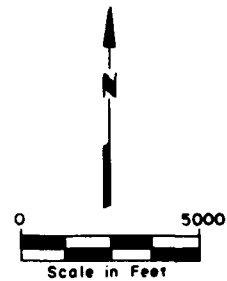
er's Office for  
Arsenal Cleanup

-3  
Study Area  
Arsenal  
asco Services Incorporated



**LEGEND**

- Contour Interval Equals 10 Feet
- Elevations in Feet
- Datum Mean Sea Level
- Unsaturated Alluvium
- Data Point Well
- Inferred Contour
- Interpreted Contour
- ▨ Arsenal Boundary
- ▬ Study Area Boundary



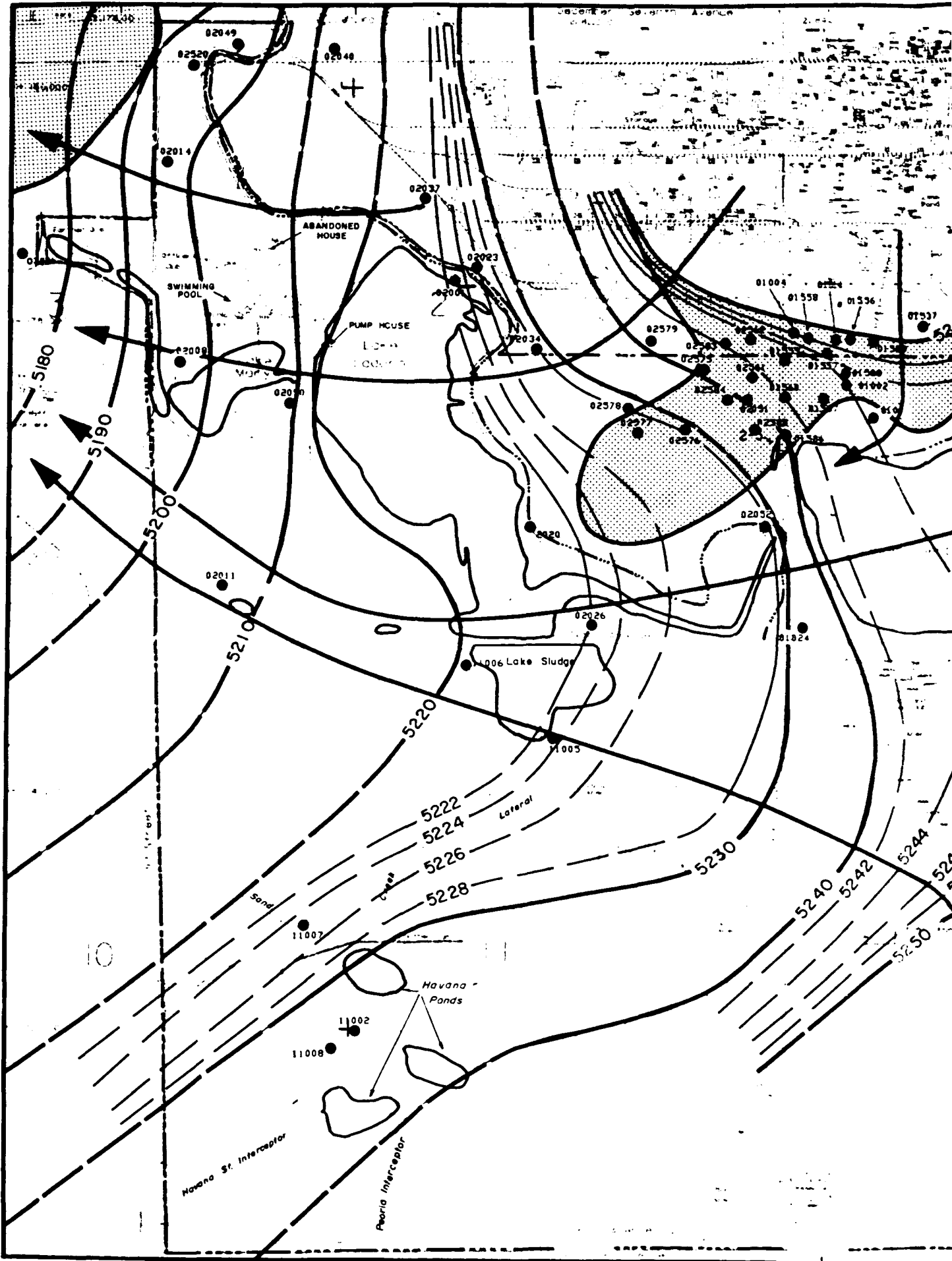
Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

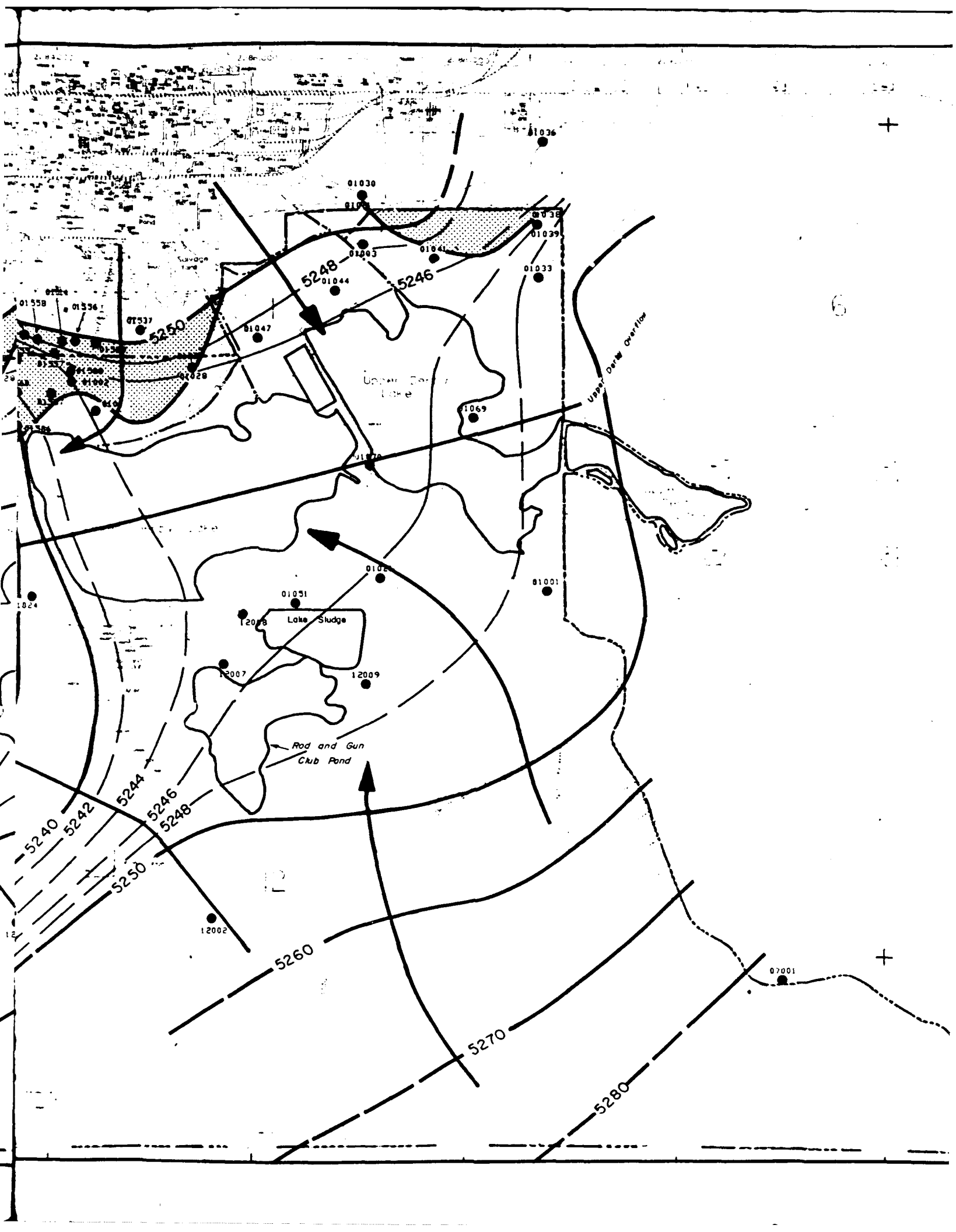
**FIGURE SSA I.5-4**  
**RMA Wide Water Table Contour Map,**  
**April-June 1987**

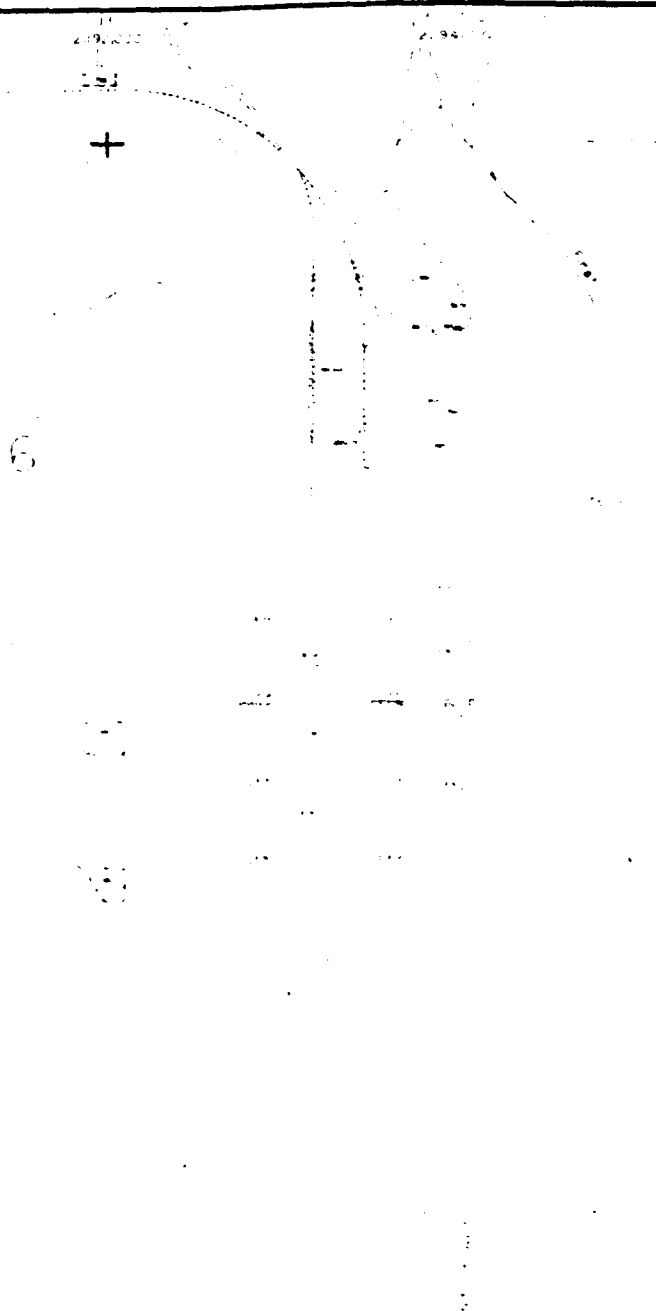
Rocky Mountain Arsenal

Prepared by: Ebasco Services Incorporated

FROM: WRIR, ESE







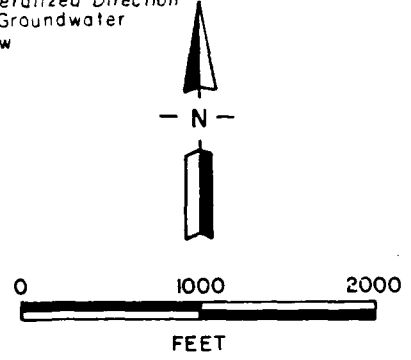
**Legend**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- Section Number
- Stream or Ditch
- Study Area Boundary
- Unsaturated Alluvium
- State Plane Grid
- Well Location and Number
- 10 ft Contour Interval. Contour & Elevation in feet above msl (Dashed Where Inferred)
- Generalized Direction of Groundwater Flow

ROCKY MOUNTAIN ARSENAL LOCATION

		22	23	24	19	20
28	27	26	25	30	29	
33	34	35	36	31	32	
4	3	2	1	6	5	
9		11	12	7	8	

1" = 4 MILES

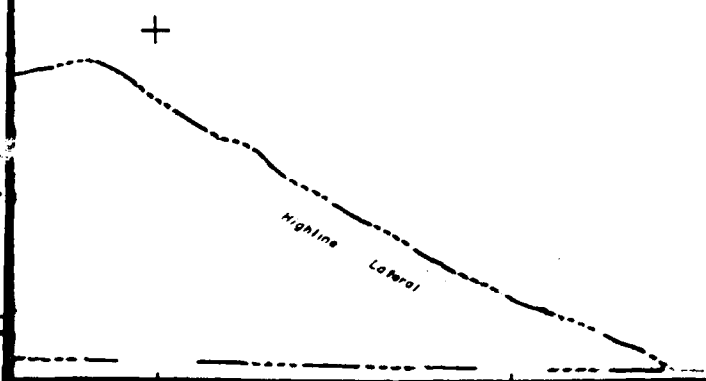


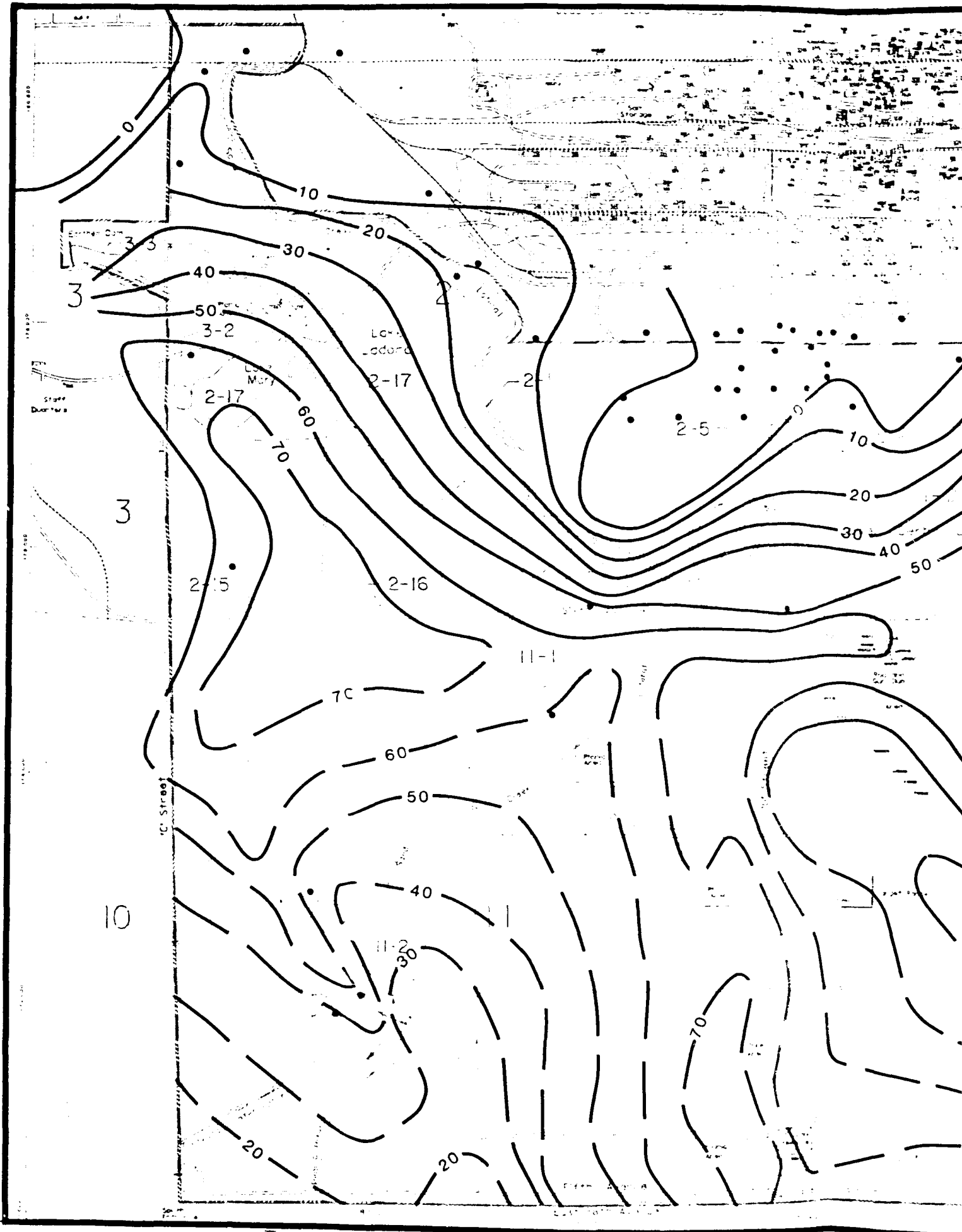
Prepared for :

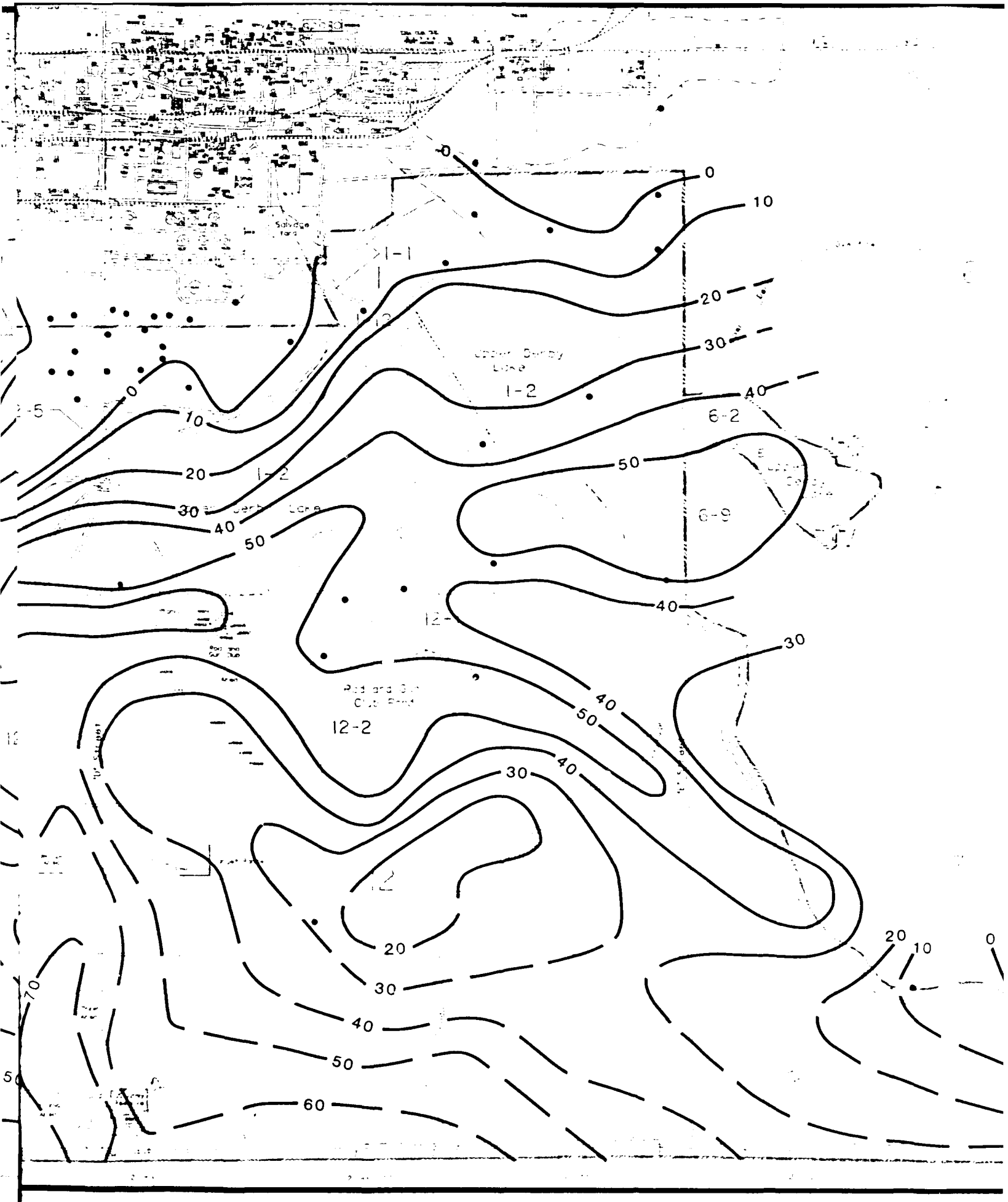
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE SSA I.5-5**  
**Water Table Elevations**  
**April, 1988**

Rocky Mountain Arsenal  
Prepared by : Ebasco Services Incorporated



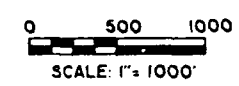
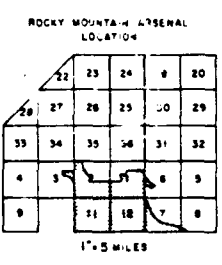






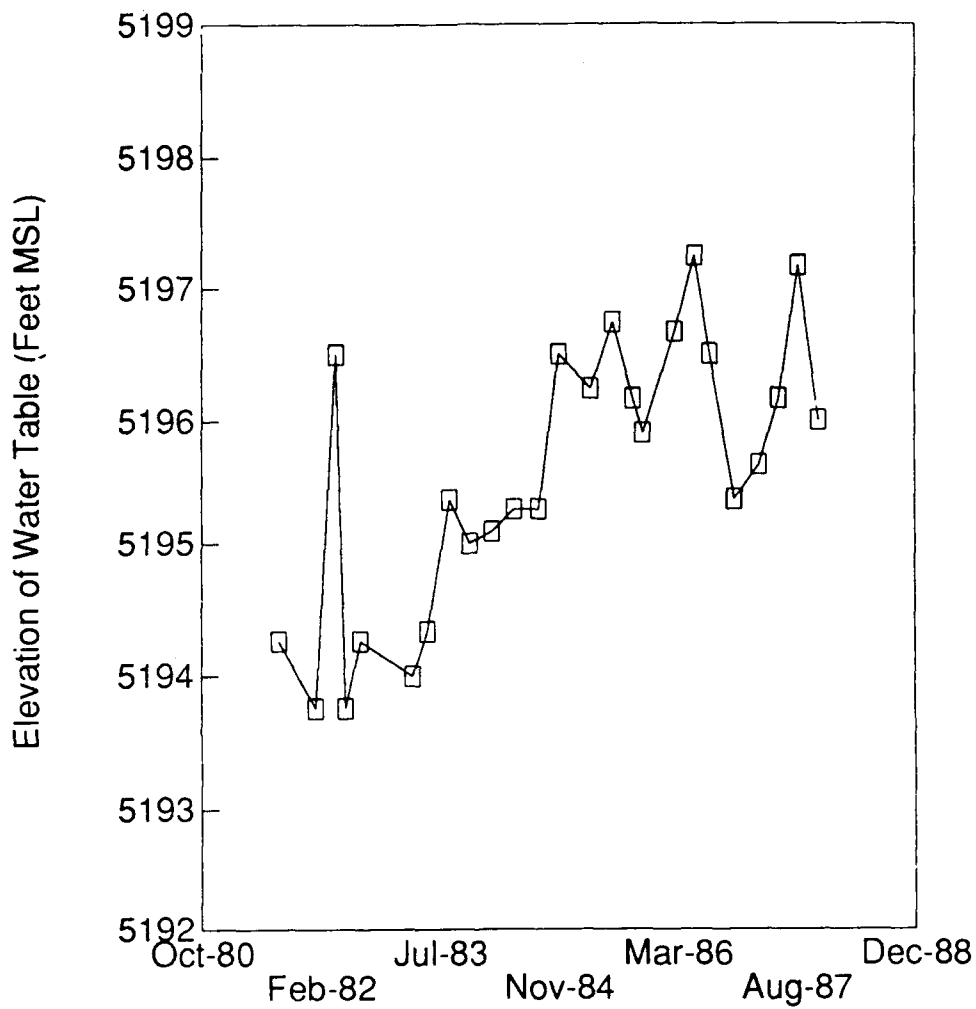


- LEGEND**
- Improved Road
  - Unimproved Road
  - Railroad Tracks
  - Existing Structure
  - Former Structure
  - Fence
  - 6** Section Number
  - Stream or Ditch
  - Study Area Boundary
  - 174,000 State Plane Grid
  - Control Point
  - Contour B Saturated Thickness in feet
  - Contour Interval is 10 Feet



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 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 1.5-6**  
 Alluvial Aquifer Saturated Thickness  
 April, 1988 Southern Study Area  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



**Prepared for:**

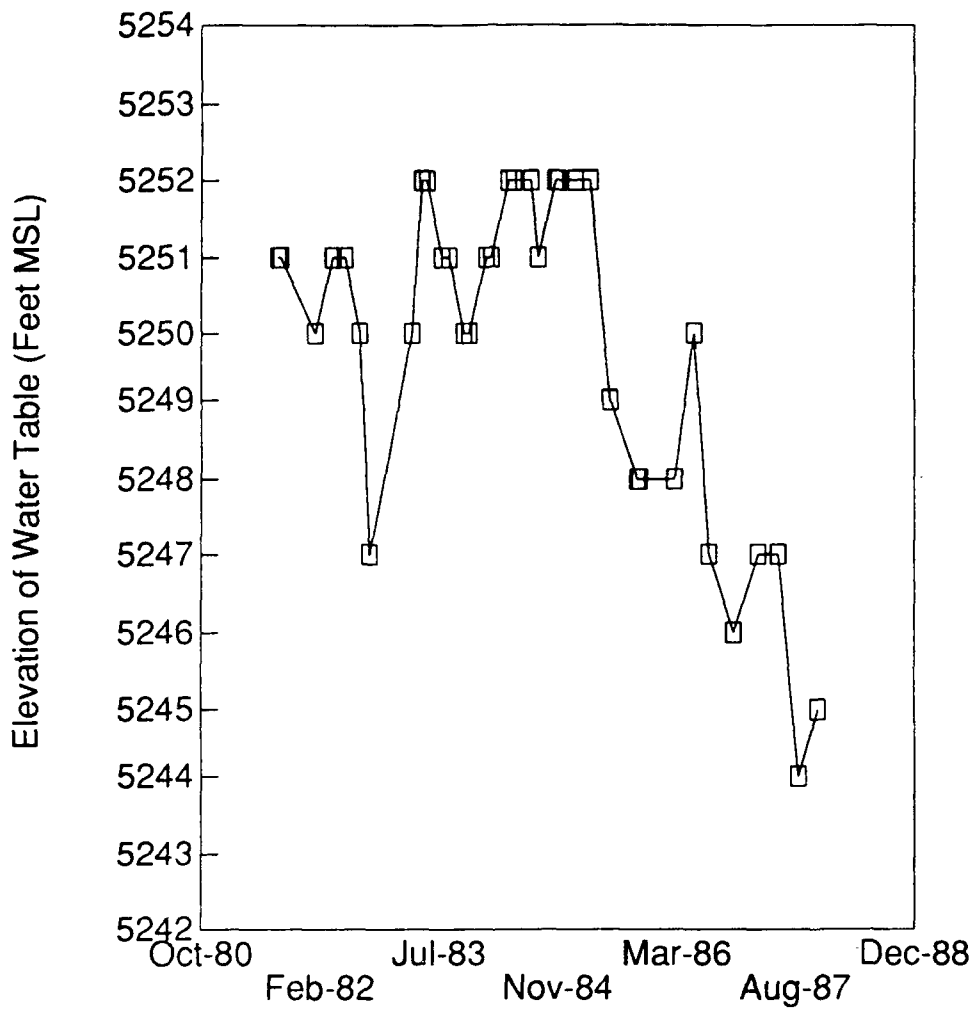
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**FIGURE SSA 1.5-7**

Hydrograph of Well 02008-  
Water Bearing Zone IA

Rocky Mountain Arsenal

Prepared by Ebasco Services Incorporated



**Prepared for:**

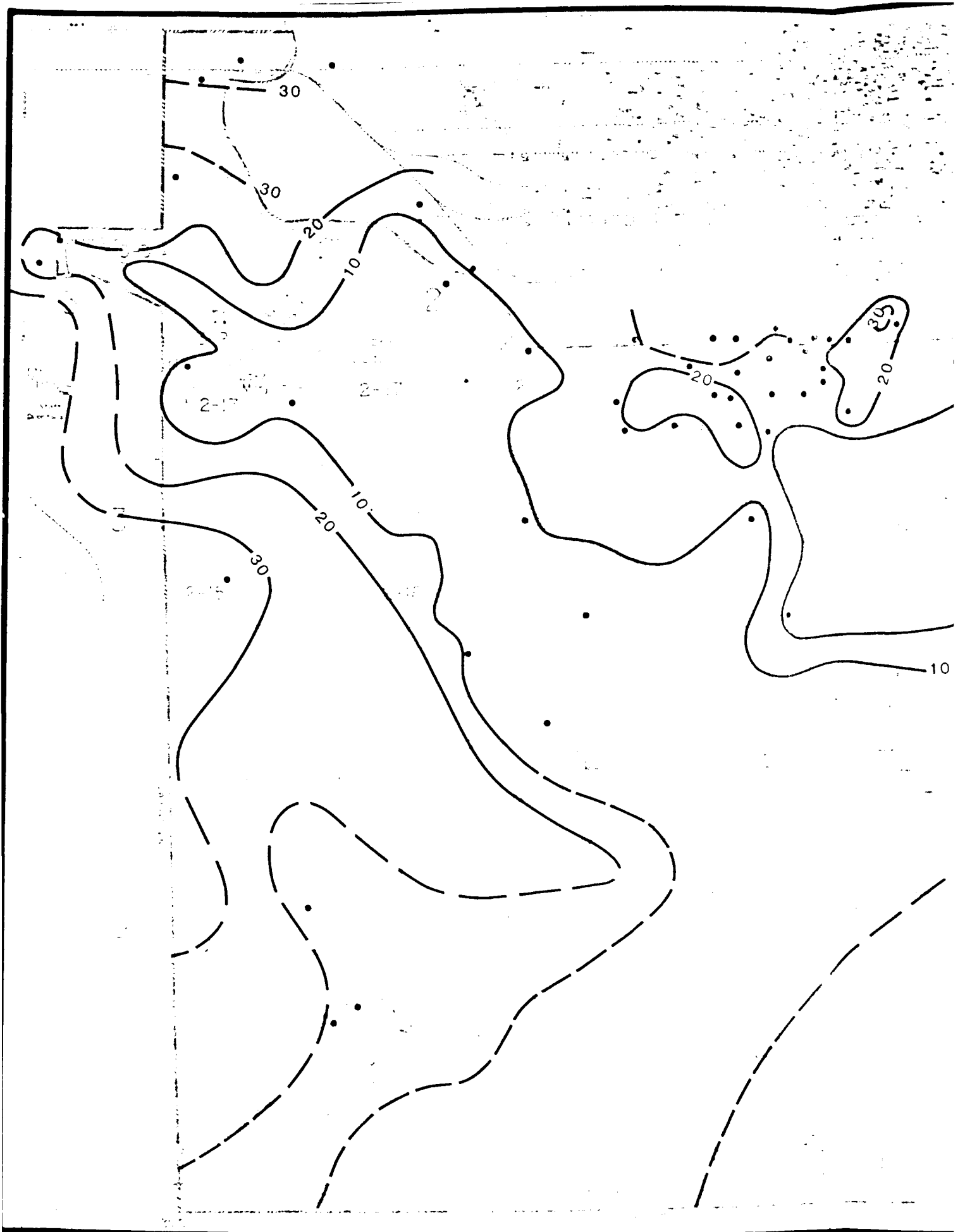
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE SSA 1.5-8**

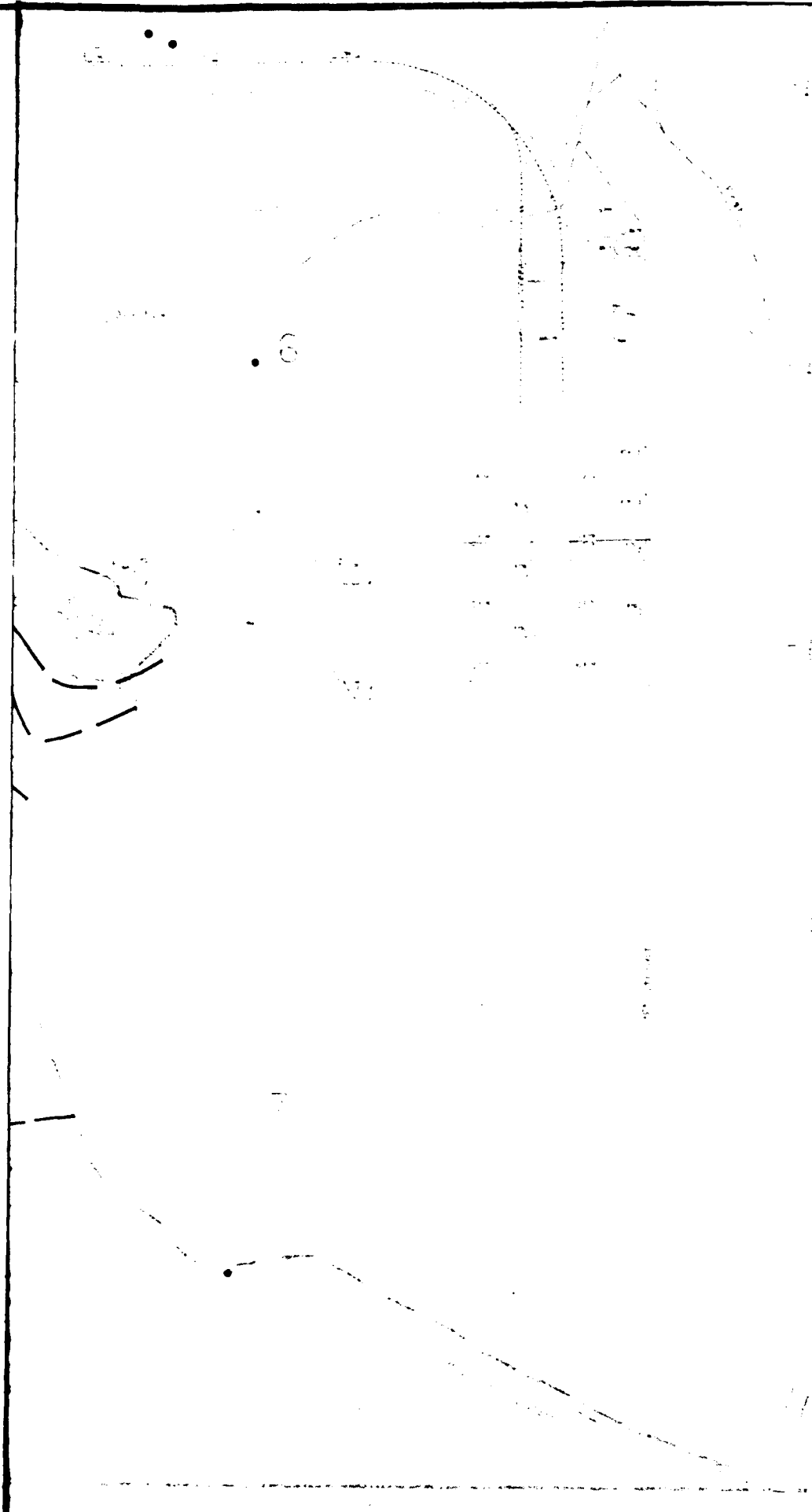
Hydrograph of Well O1027-  
Water Bearing Zone I

Rocky Mountain Arsenal

Prepared by Ebasco Services Incorporated



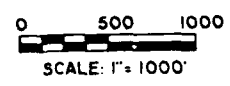
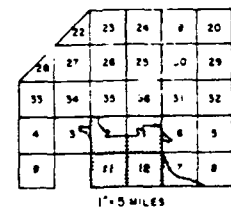




**LEGEND**

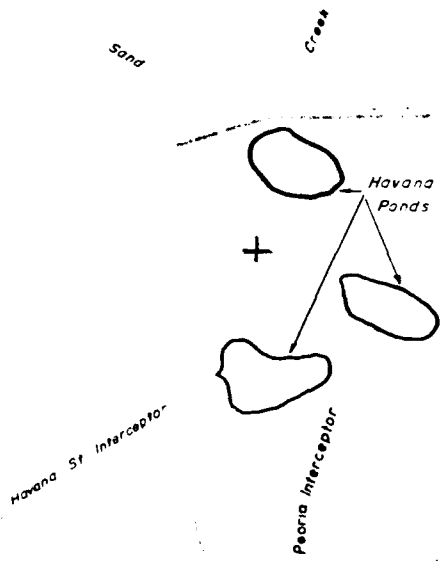
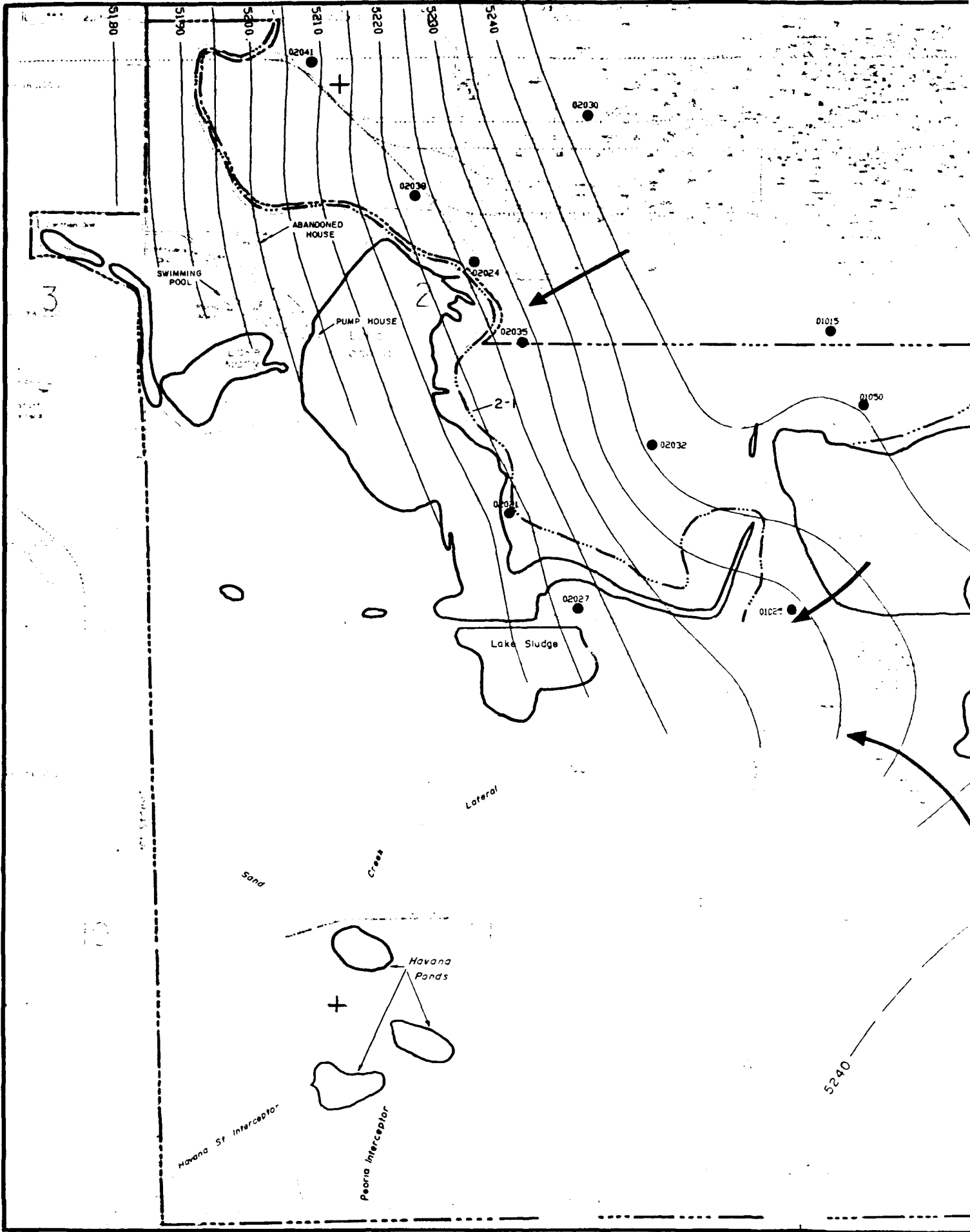
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid
- Control Point
- Contour 5: Depth to Water in feet (Dashed Where Inferred)
- 5 ft. Contour Interval

ROCKY MOUNTAIN ARSENAL LOCATION

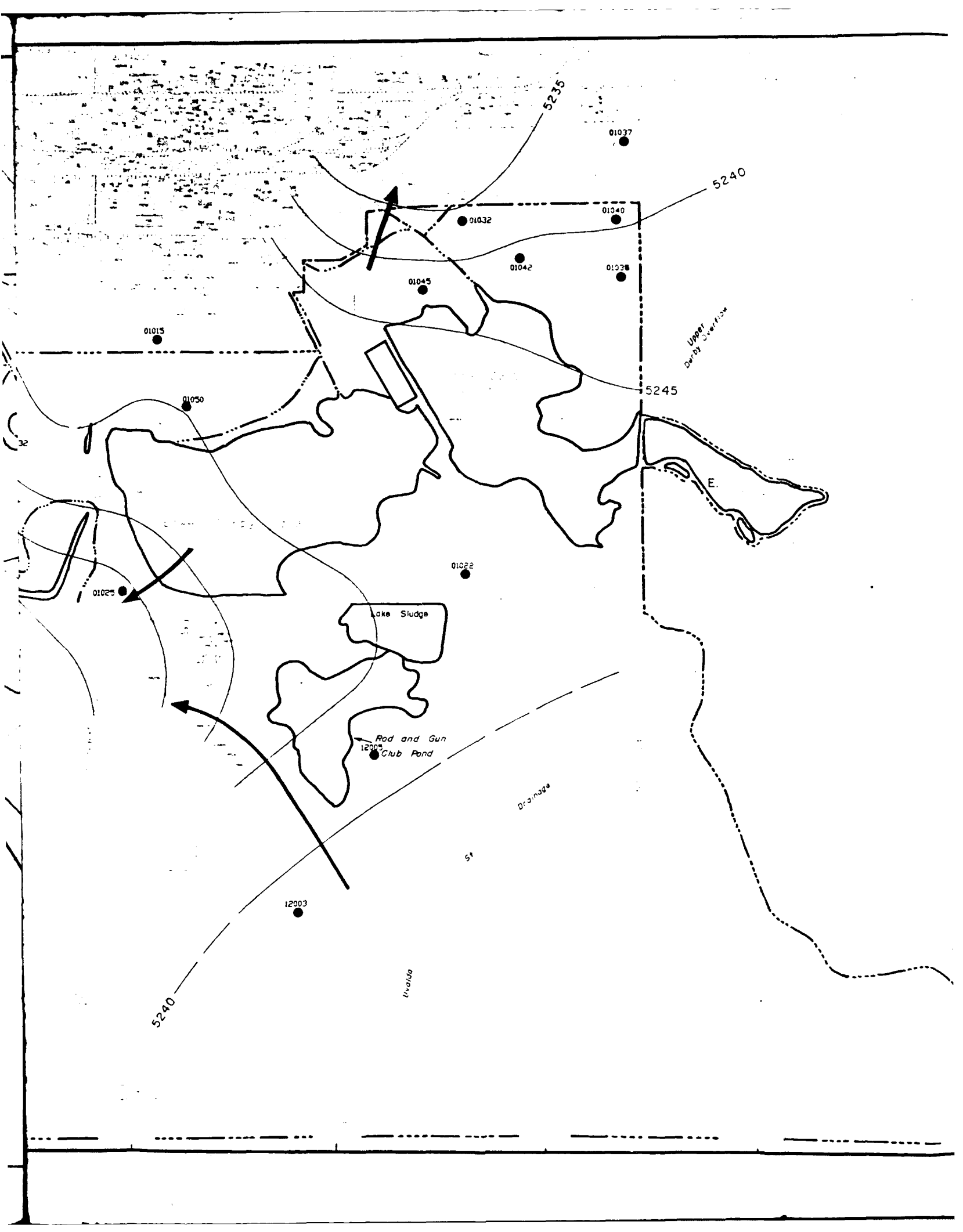


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 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 15-9  
 Depth to Water Table April, 1988  
 Southern Study Area  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

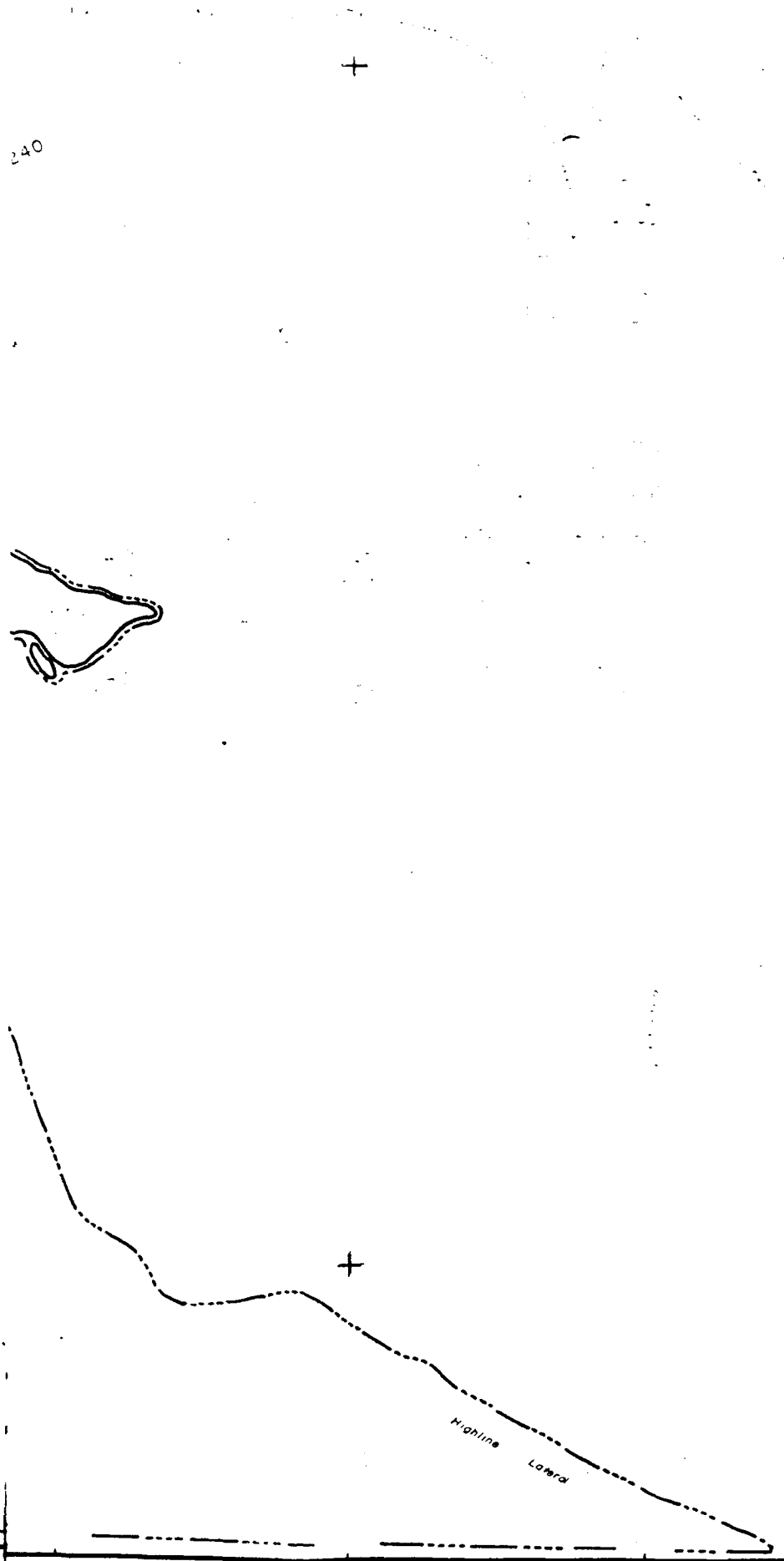


5240





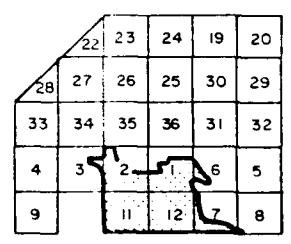
240



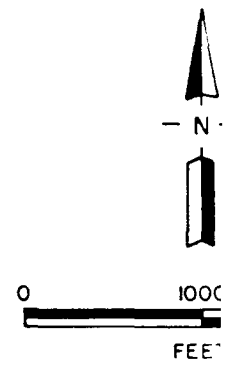
**Legend**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- Section Number
- Stream or Ditch
- Study Area Boundary
- 5240 Groundwater above M.S.L. Contour with Elevation in (Dashed where inferred) State Plane Grid
- 178,000
- 01040 Well Location and Number
- Direction of Groundwater Contour Interval 5 Feet

**ROCKY MOUNTAIN ARSENAL LOCATION**



1" = 4 MILES






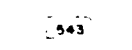





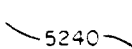



Prepared for :

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Rocky Mountain Arsenal Cleanup

**FIGURE SSA I.5-10**  
**Potentiometric Surface of Water**  
**Bearing Zone 2, April 1988**

Rocky Mountain Arsenal  
Prepared by : Ebasco Services Incorporated

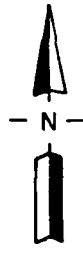
**Legend**

-  Improved Road
-  Unimproved Road
-  Railroad Tracks
-  Existing Structure
-  Former Structure
-  Fence
-  Section Number
-  Stream or Ditch
-  Study Area Boundary
-  Groundwater above MSL  
Contour with Elevation in feet  
(Dashed where inferred)
-  State Plane Grid
-  Well Location and Number
-  Direction of Groundwater Flow

Contour Interval 5 Feet

MOUNTAIN ARSEVAL  
ACTION

24	19	20
25	30	29
36	31	32
4	6	5
2	7	8



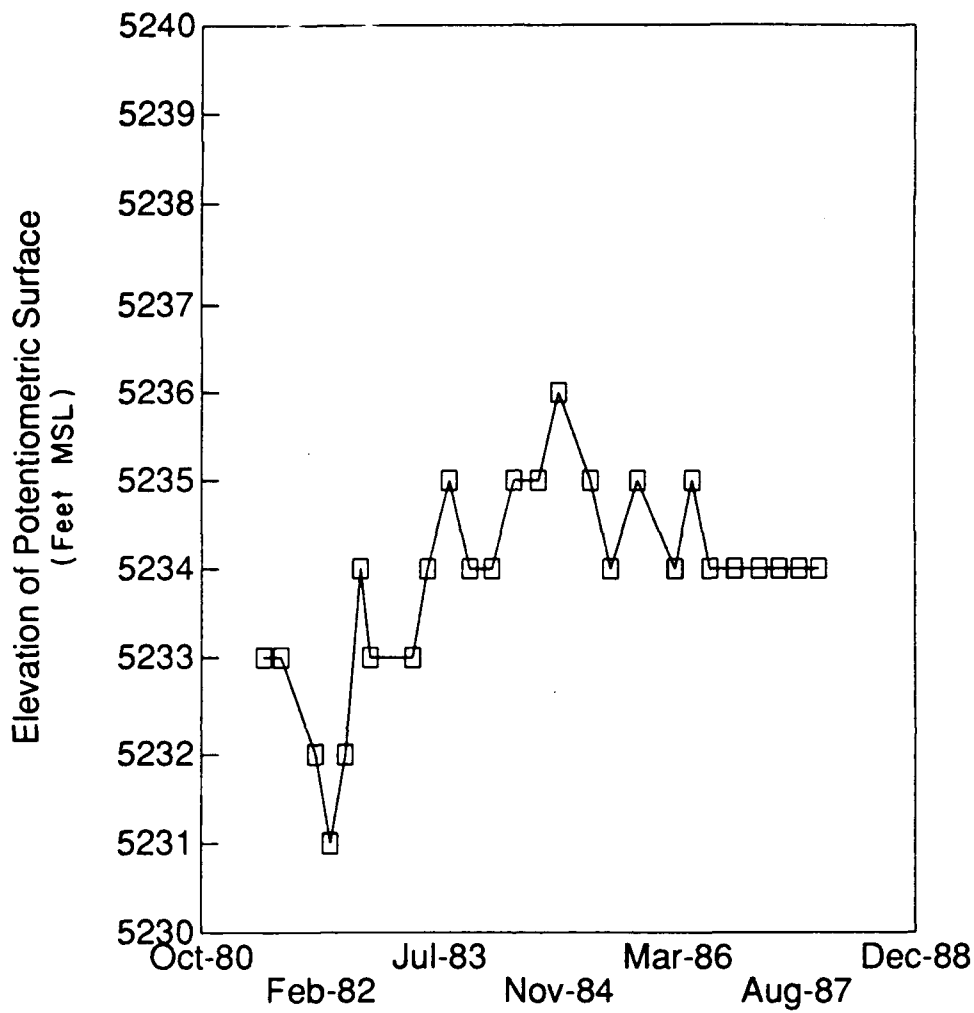
MILES

FEET

for :  
 Manager's Office for  
 Mountain Arsenal Cleanup

SSA 1.5-10  
 Topographic Surface of Water  
 Zone 2, April 1988  
 Mountain Arsenal

by : Ebasco Services Incorporated



Prepared for:

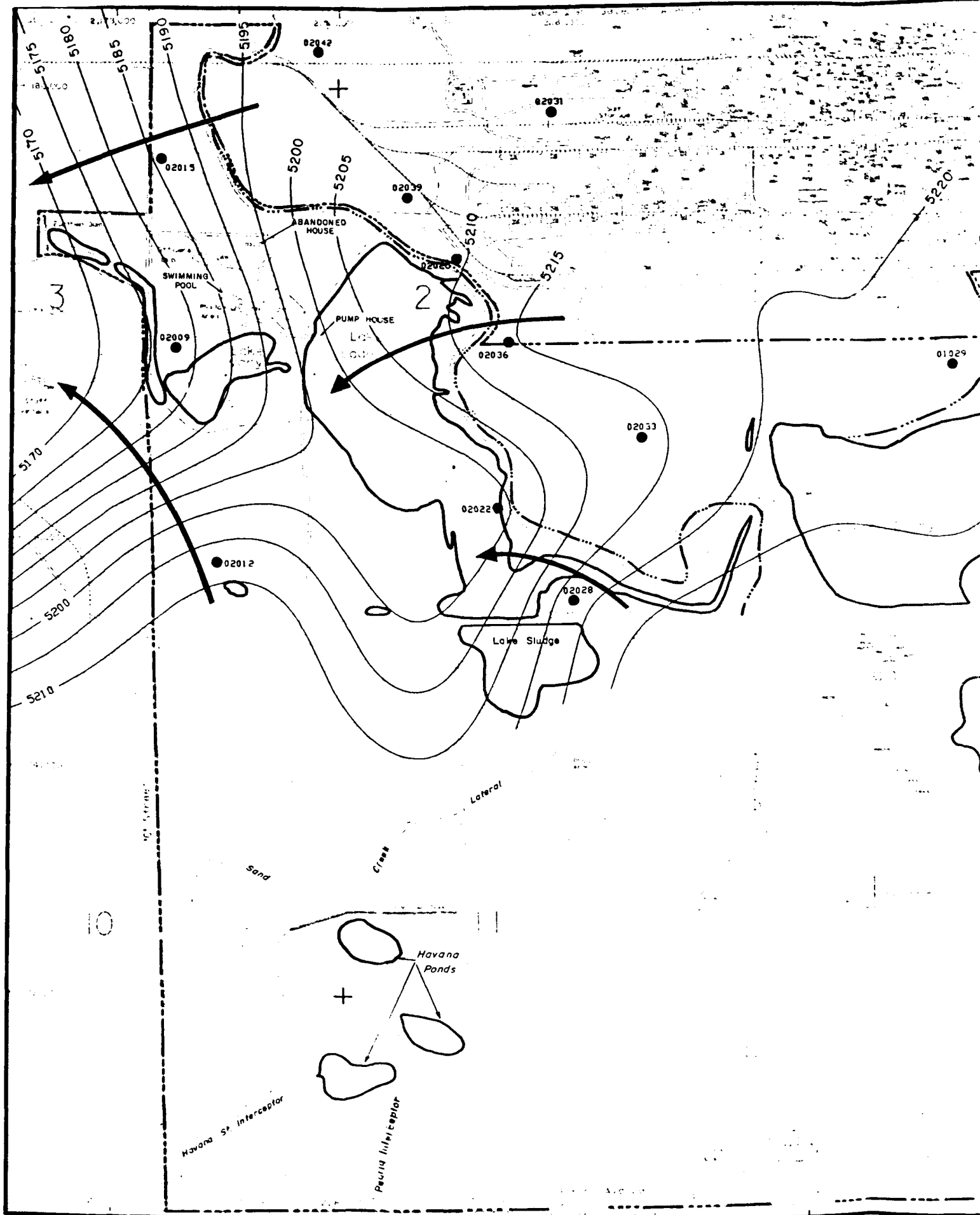
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

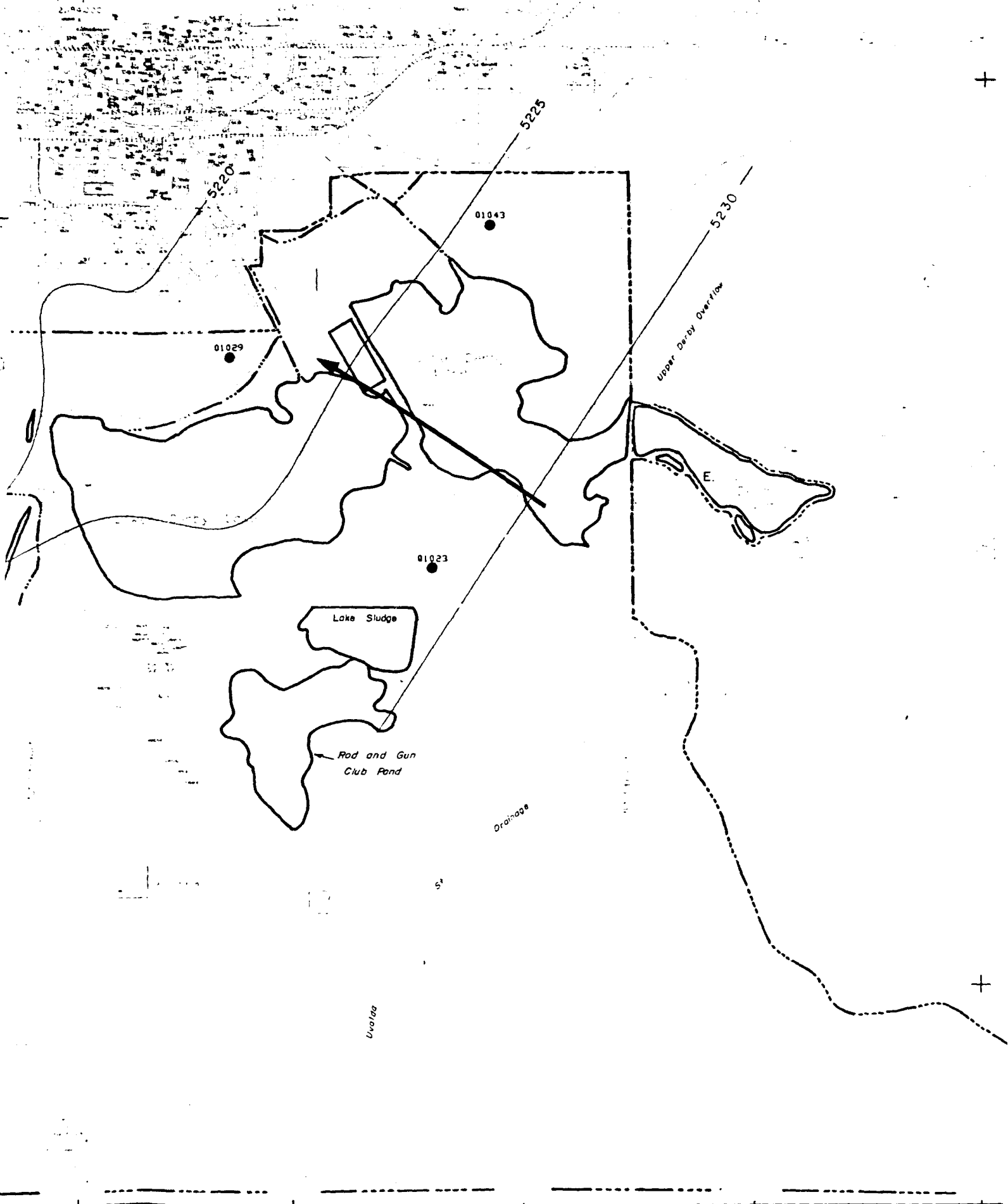
FIGURE SSA 1.5-11

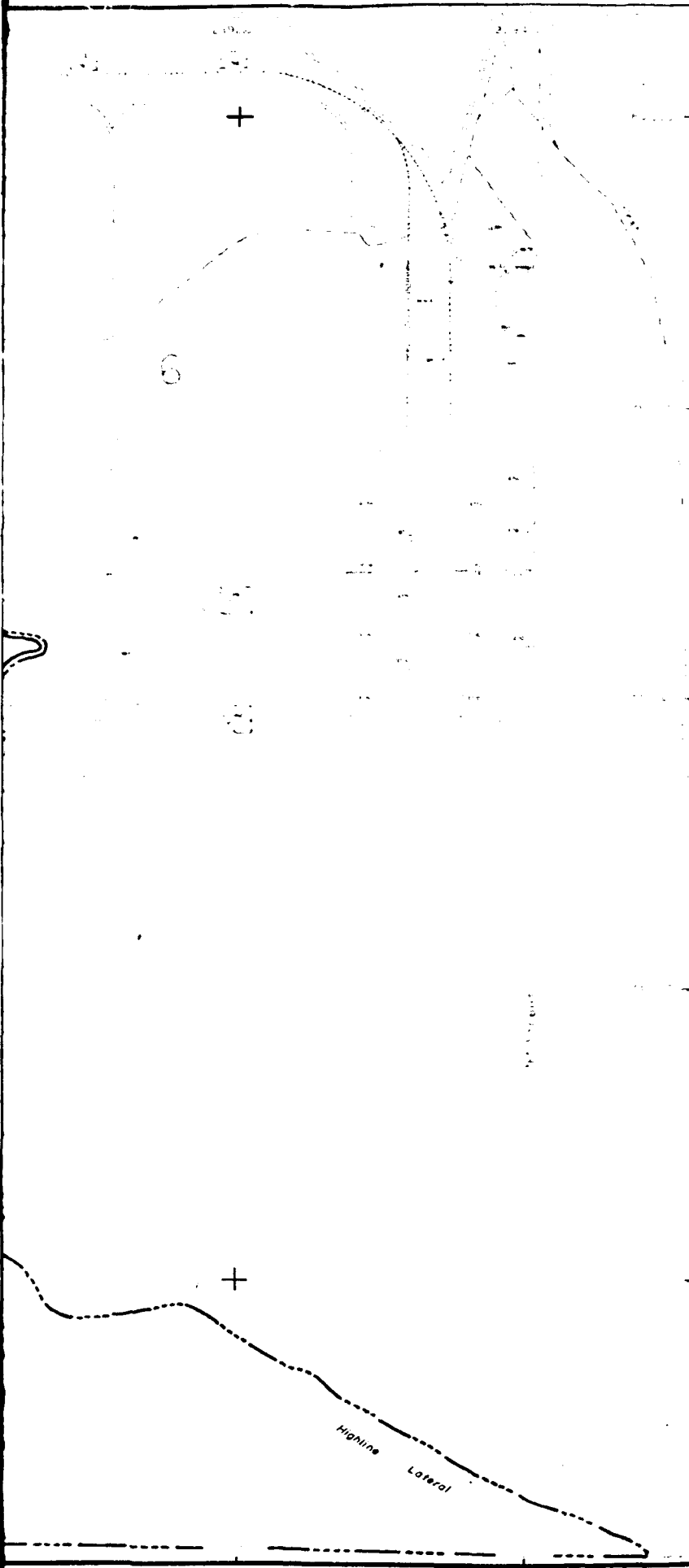
Hydrograph of Well O1025 -  
Water Bearing Zone 2

Rocky Mountain Arsenal

Prepared by: Ebasco Services Incorporated







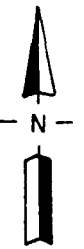
**Legend**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- Section Number
- Stream or Ditch
- Study Area Boundary
- Groundwater above MSL Contour with Elevation in feet
- State Plane Grid
- Well Location and Number
- Direction of Groundwater Flow Contour Interval 5 Feet

**ROCKY MOUNTAIN ARSENAL LOCATION**

	22	23	24	19	20
28	27	26	25	30	29
33	34	35	36	31	32
4	3	2	6	5	
9		11	12	7	8

1" = 4 MILES



Prepared for :

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE SSA I.5-12**

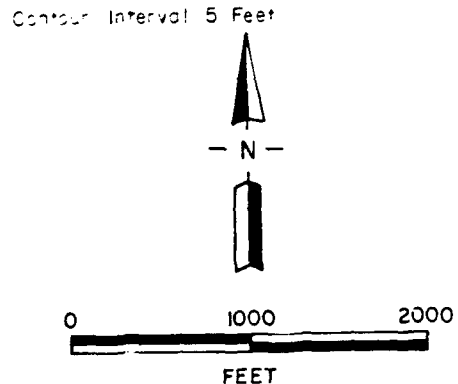
**Potentiometric Surface of Water  
Bearing Zone 3, April 1988**

Rocky Mountain Arsenal

Prepared by : Ebasco Services Incorporated

Legend

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- Section Number
- Stream or Ditch
- Study Area Boundary
- Groundwater above MSL Contour with Elevation in feet
- State Plane Grid
- Well Location and Number
- Direction of Groundwater Flow



ROCKY MOUNTAIN ARSENAL  
LOCATION

	22	23	24	19	20
	27	26	25	30	29
	34	35	36	31	32
	3	2	1	5	5
	11	12	7	8	

1" = 4 MILES

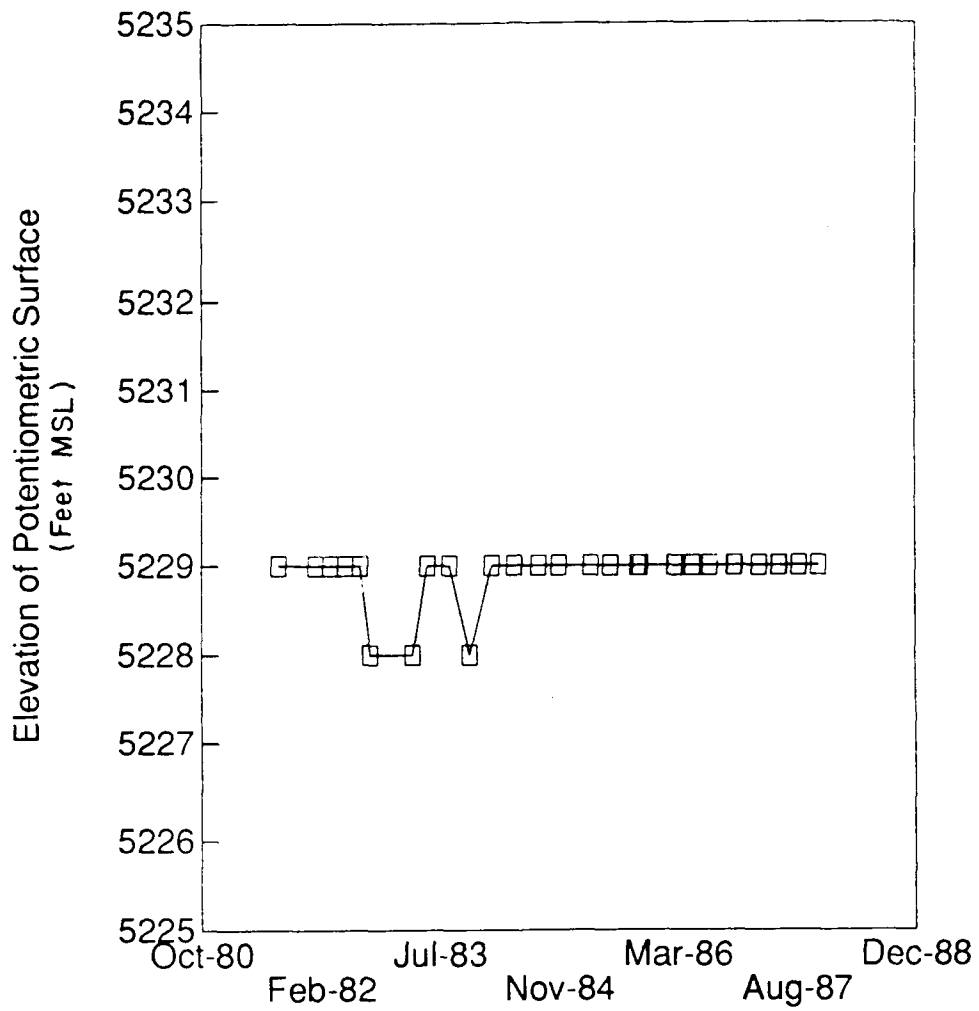
Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE SSA 1.5-12**  
**Potentiometric Surface of Water**  
**Bearing Zone 3, April 1988**

Rocky Mountain Arsenal

Prepared by: Ebasco Services Incorporated



**Prepared for:**

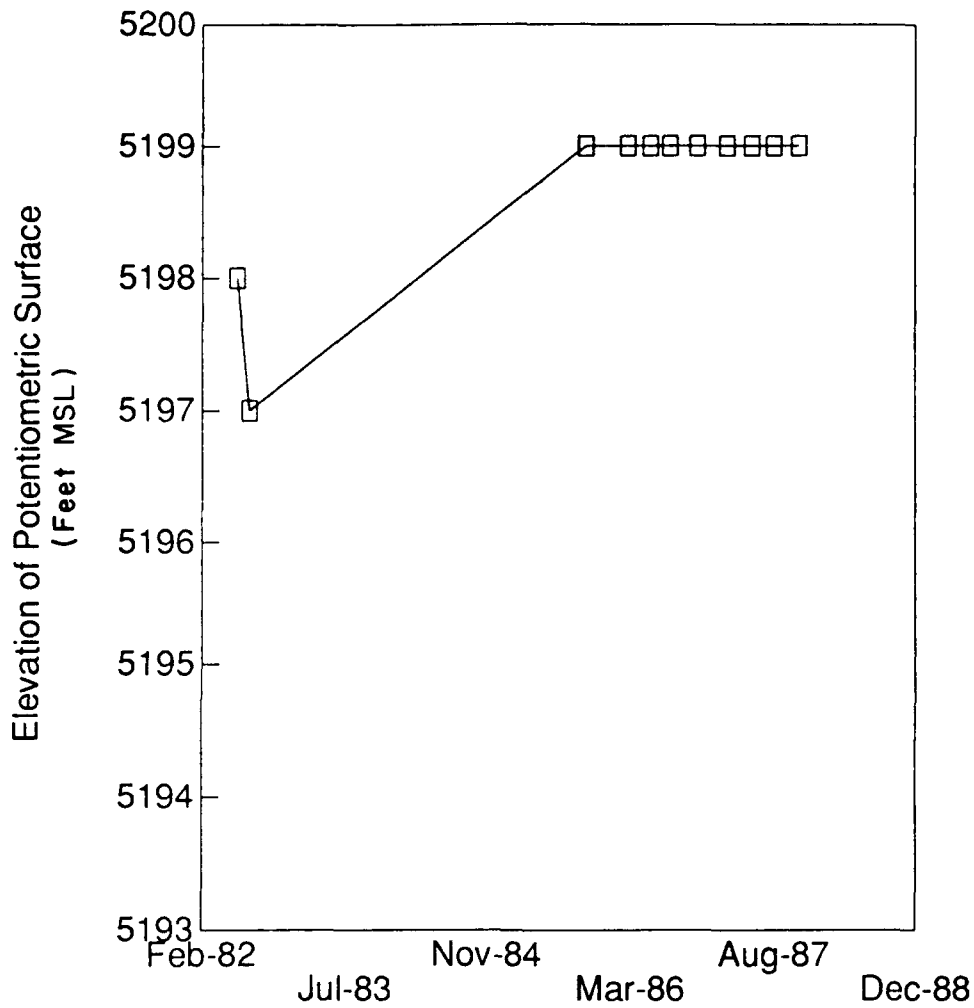
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE SSA 1.5-13**  
**Hydrograph of Well O1023-**  
**Water Bearing Zone 3**

Rocky Mountain Arsenal

Prepared by Ebasco Services Incorporated





**Prepared for:**

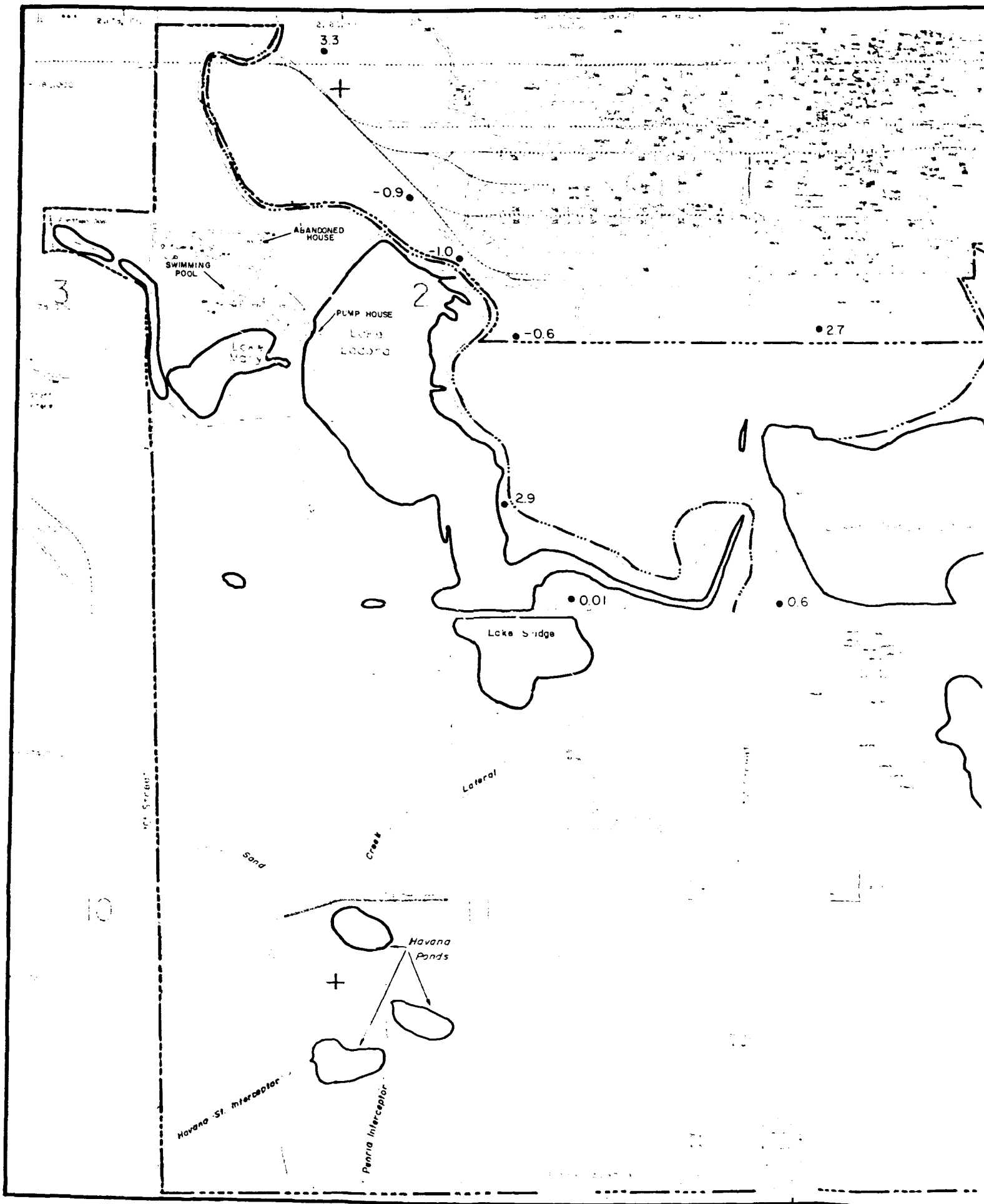
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

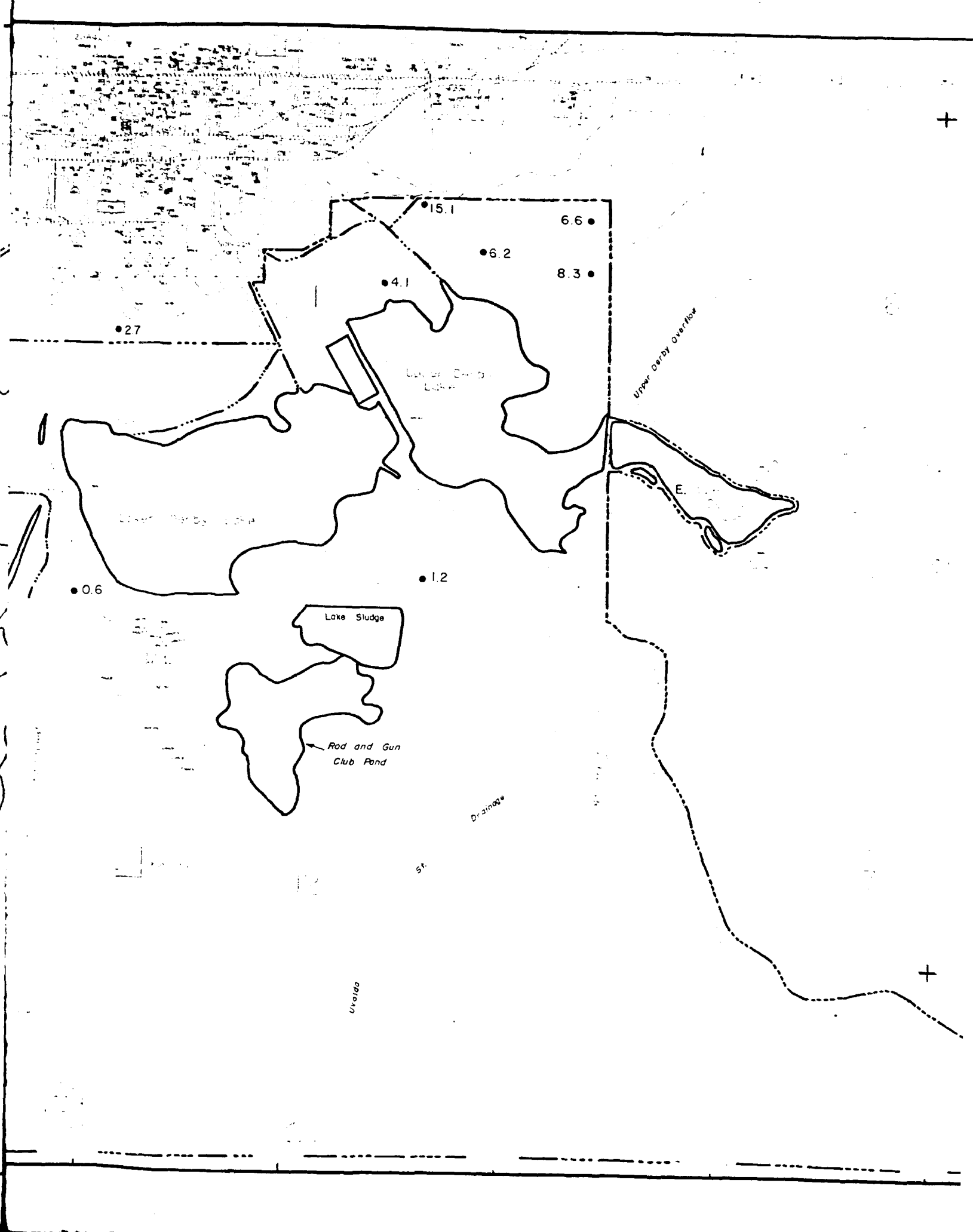
**FIGURE SSA 1.5-14**

Hydrograph of Well O1046 -  
Water Bearing Zone 4

Rocky Mountain Arsenal

Prepared by Ebasco Services Incorporated



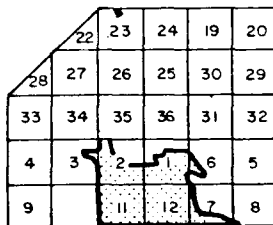




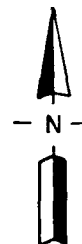
Legend

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- Section Number
- Stream or Ditch
- Study Area Boundary
- Well Cluster with Head Difference in Feet (Negative number denotes water level in Zone 2 higher than water level in Zone 1A-1)
- State Plane Grid

ROCKY MOUNTAIN ARSENAL  
LOCATION



1" = 4 MILES



Prepared for :

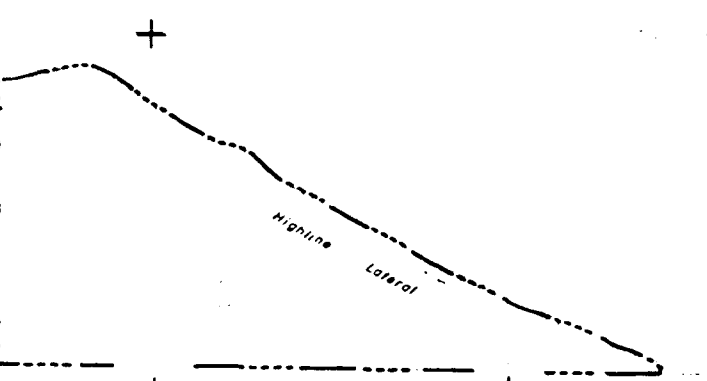
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup  
Aberdeen Proving Ground, Maryland

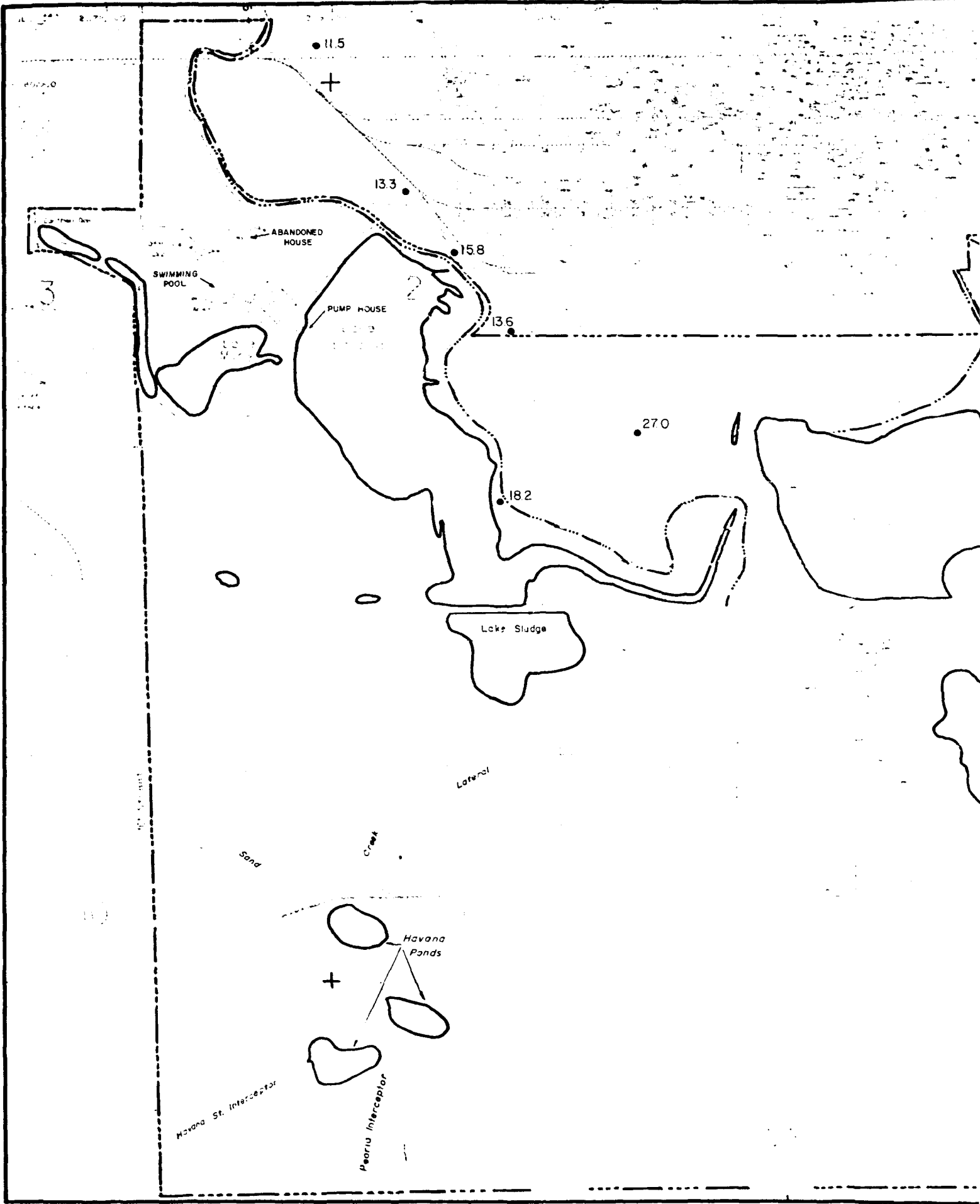
FIGURE SSA I.5-15

Head Difference Between  
Zone 1A-1 and Zone 2

Rocky Mountain Arsenal

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+

15.5

Upper Dirty Overflow

E.

169

Lake Sludge

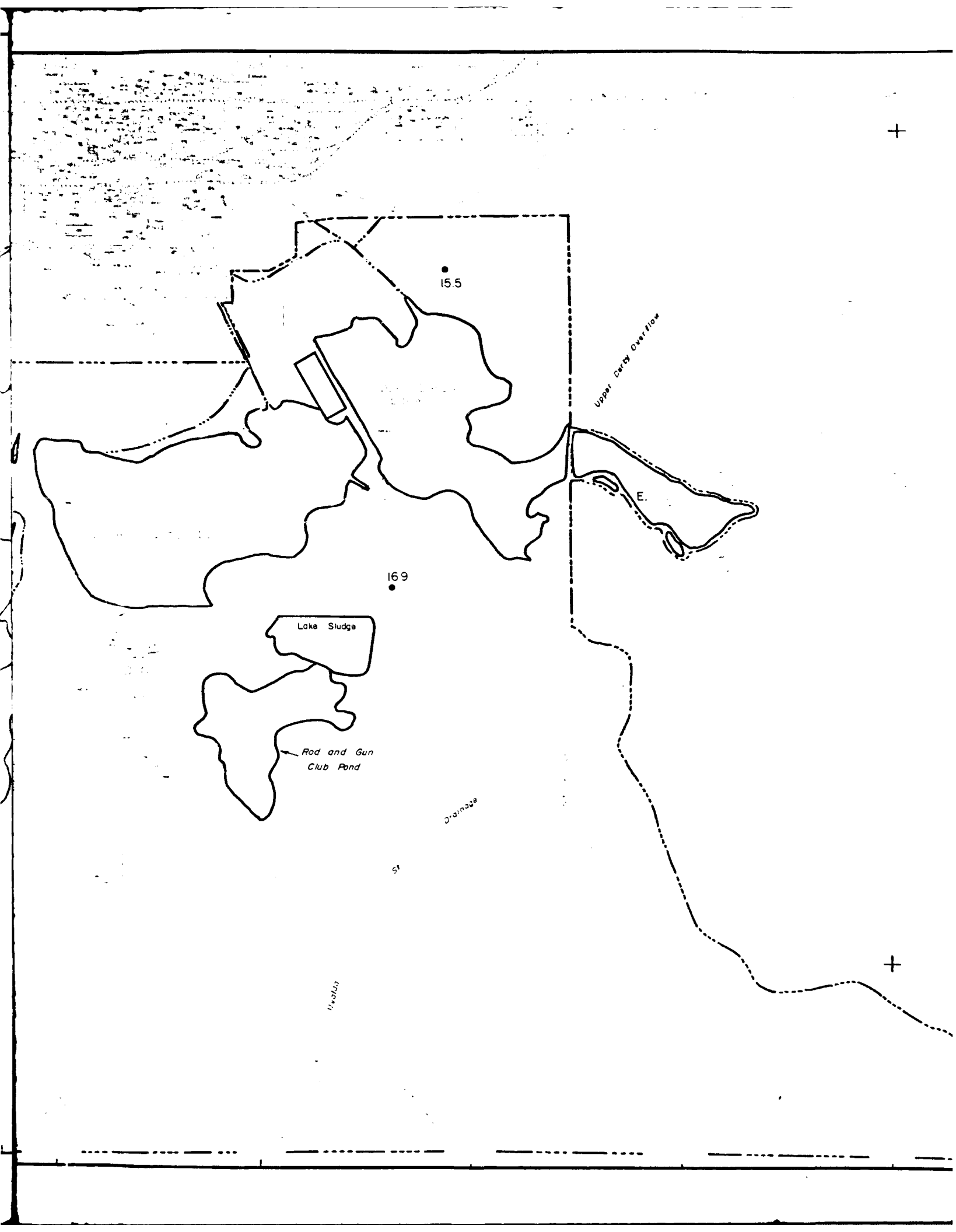
Rod and Gun Club Pond

Drainage

St

Level

+

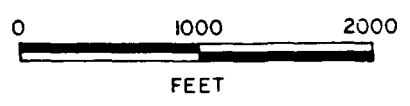
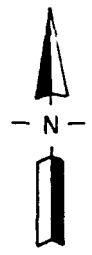
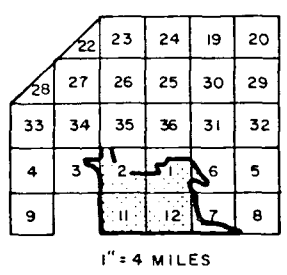




**Legend**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- Section Number
- Stream or Ditch
- Study Area Boundary
- Well Cluster with Head Difference in Feet
- State Plane Grid

ROCKY MOUNTAIN ARSENAL  
LOCATION



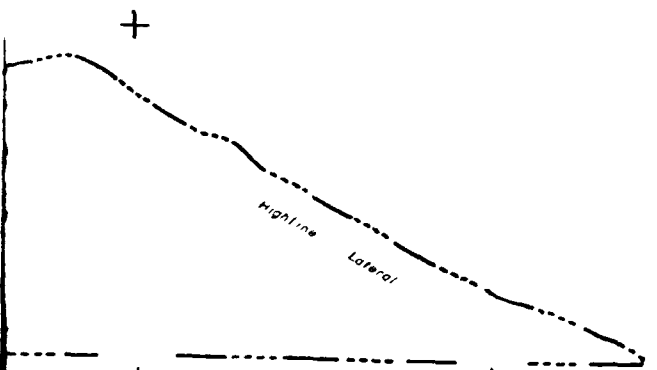
Prepared for :

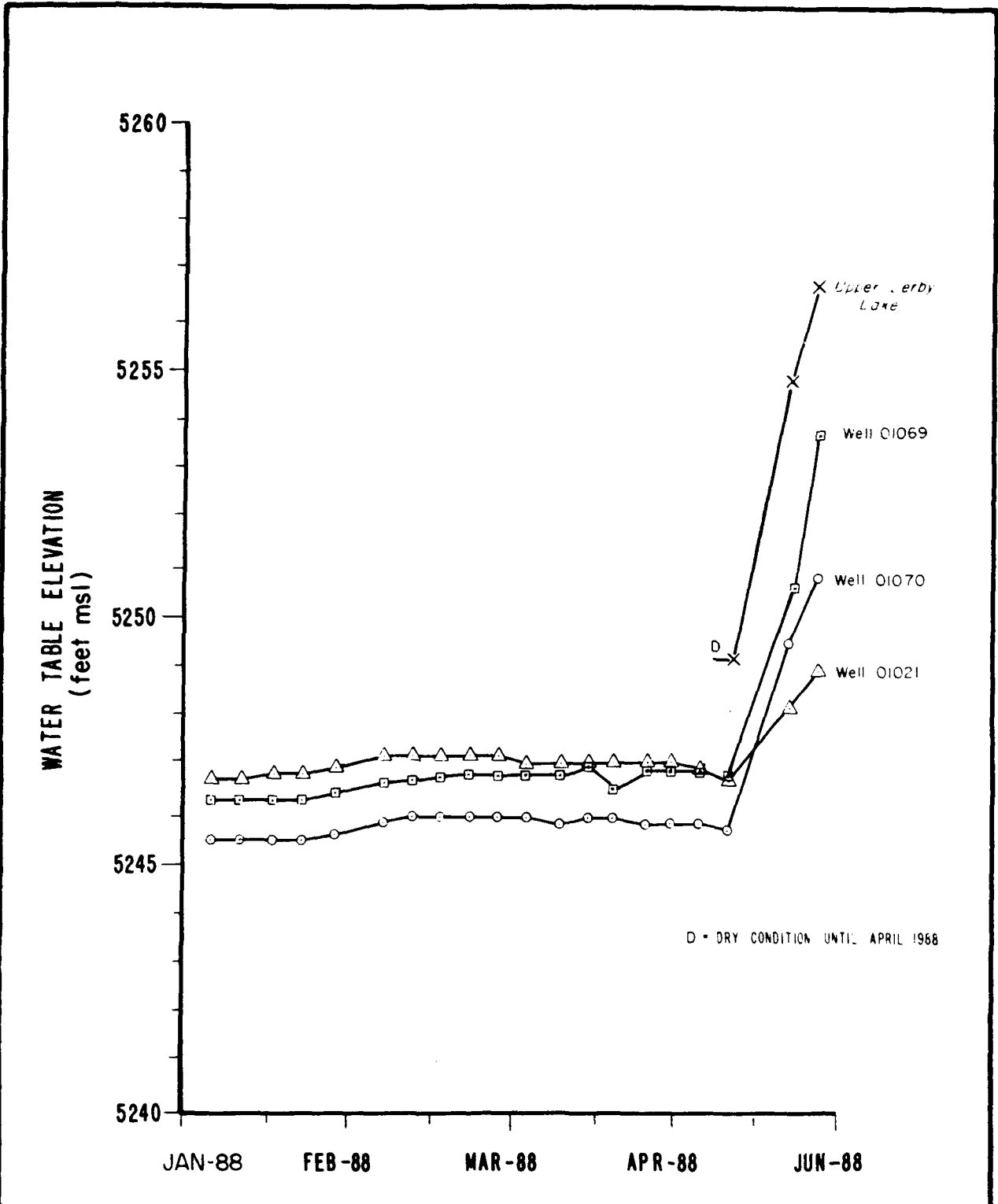
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE SSA I.5-16**  
**Head Difference Between**  
**Zone 2 and Zone 3**

Rocky Mountain Arsenal

Prepared by : Ebasco Services Incorporated





Prepared for:

Program Managers Office for  
Rocky Mountain Arsenal Cleanup

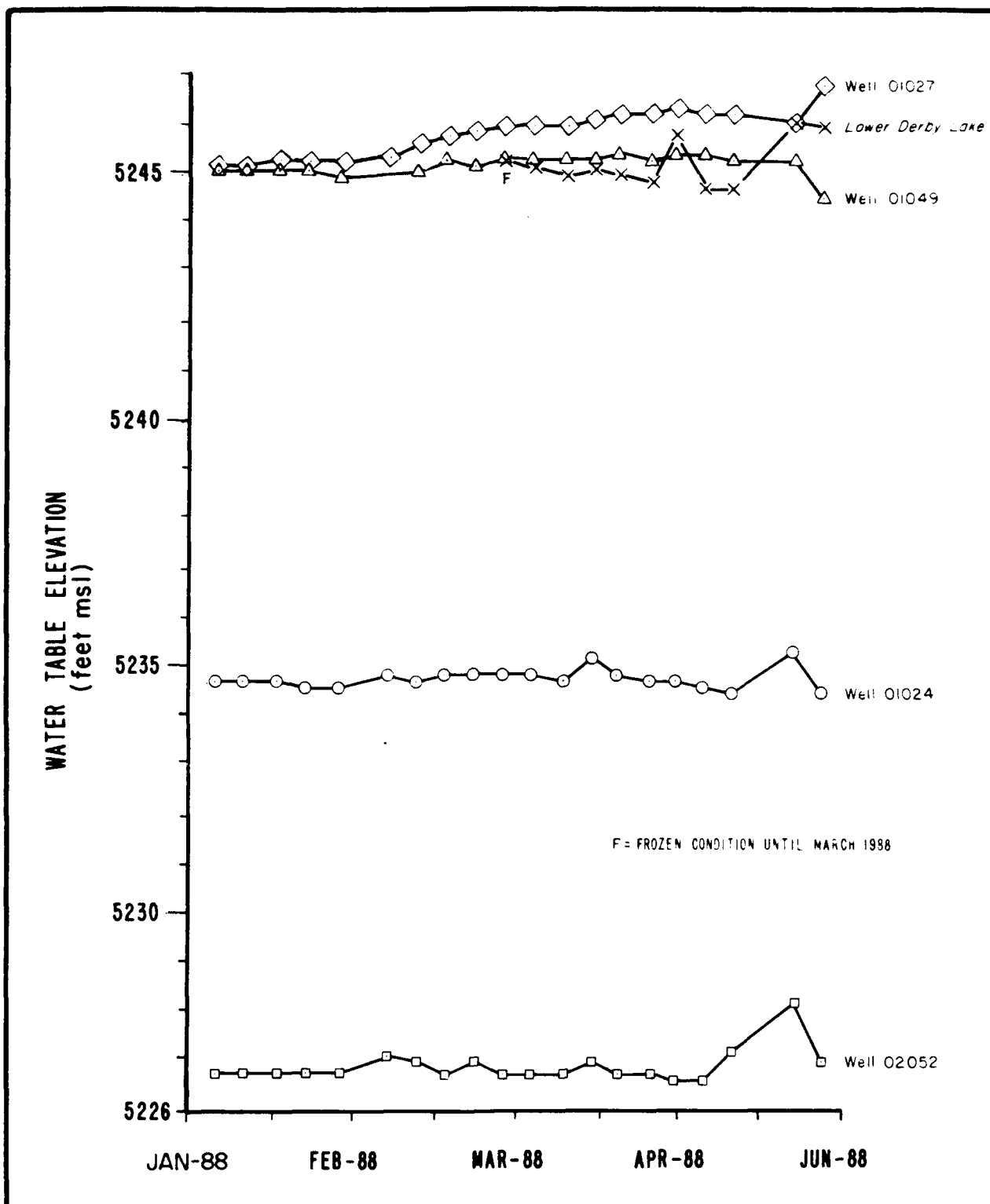
FIGURE SSA 1.5-17

Hydrographs of *Upper Derby Lake*,  
Wells O1021, O1069 and O1070

Rocky Mountain Arsenal

Prepared by Ebasco Services Incorporated





Prepared for:

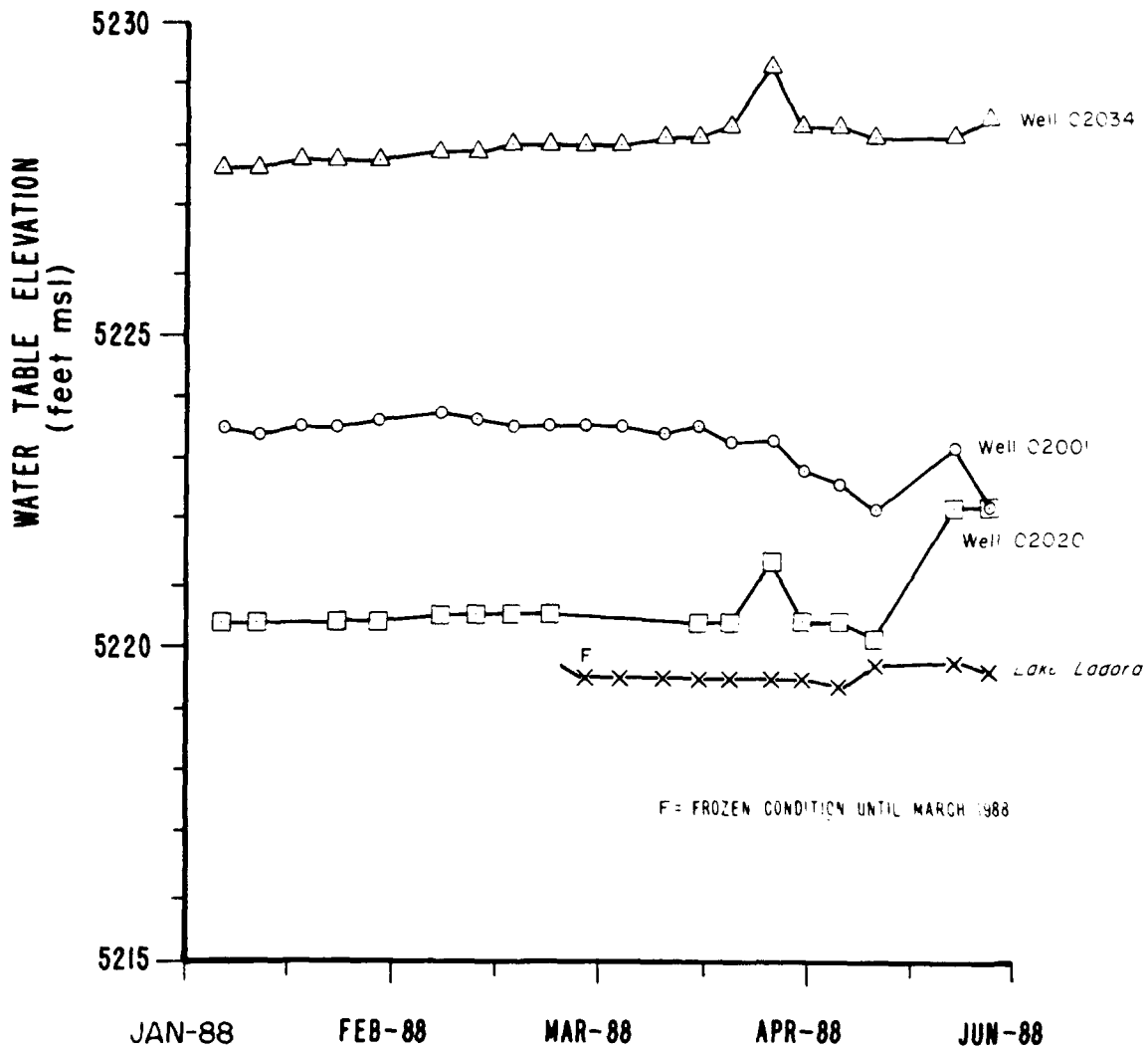
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE SSA 1.5-18

Hydrographs of *Lower Derby Lake*,  
Wells 01024, 01027, 01049 and 02052

Rocky Mountain Arsenal

Prepared by Ebasco Services Incorporated



Prepared for:

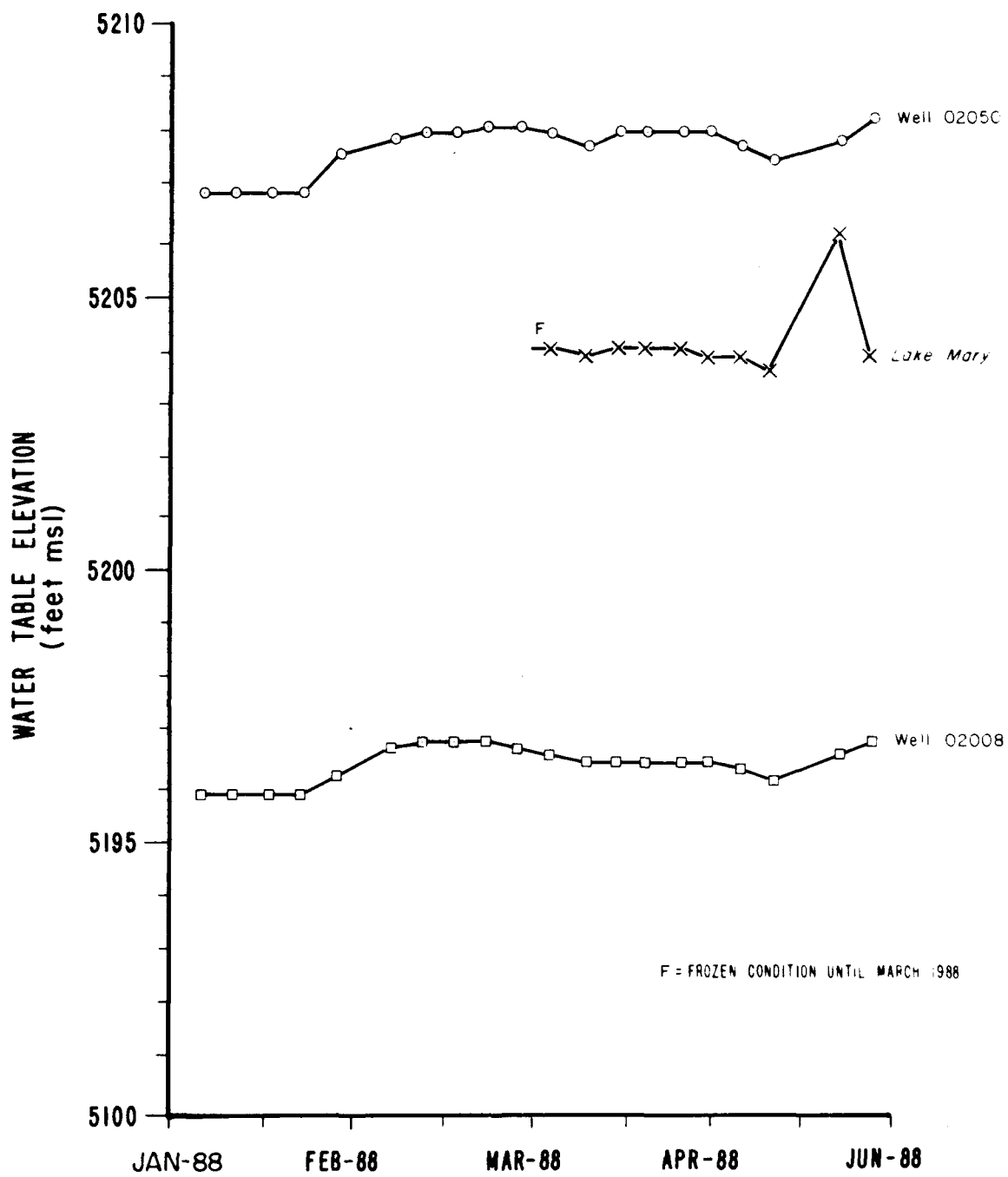
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE SSA 1.5-19

Hydrographs of *Lake Ladora*,  
Wells 02001, 02020 and 02034

Rocky Mountain Arsenal

Prepared by: Ebasco Services Incorporated



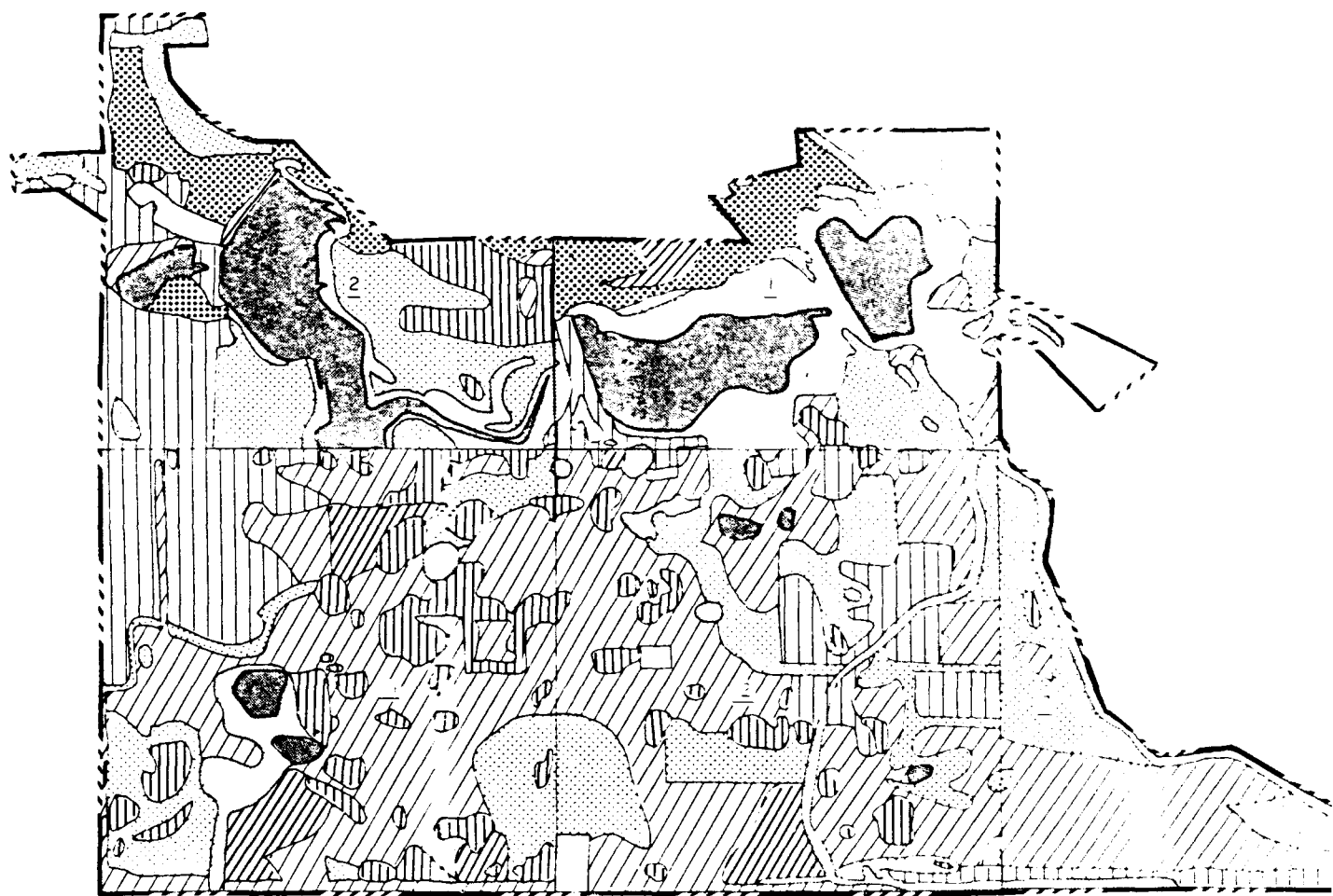
Prepared for:

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Rocky Mountain Arsenal Cleanup










FIGURE SSA 1.5-20  
Hydrographs of *Lake Mary*  
Wells 02008 and 02050

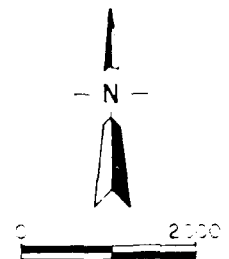
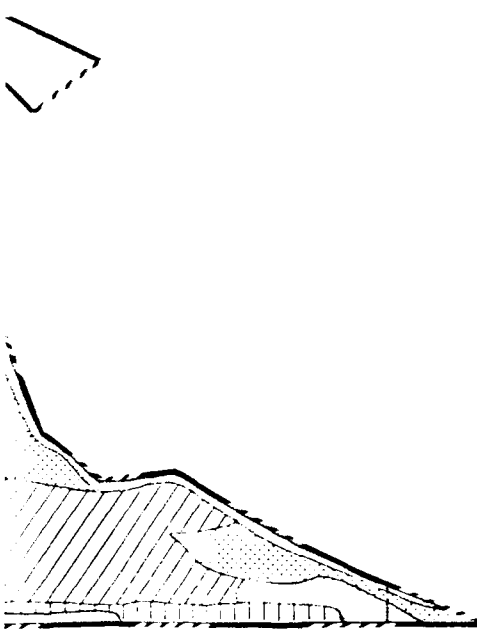
Rocky Mountain Arsenal

Prepared by Ebasco Services Incorporated



Legend

-  Weedy Forb
  -  Cheatgrass/Weedy Forb
  -  Cheatgrass/Perennial Grass
  -  Native Perennial Grass
  -  Crested Wheatgrass
  -  Minor Vegetation Types
  -  Wetland/Riparian
  -  Water
  -  Unvegetated
- 2 Section number
- Southern Study Area boundary



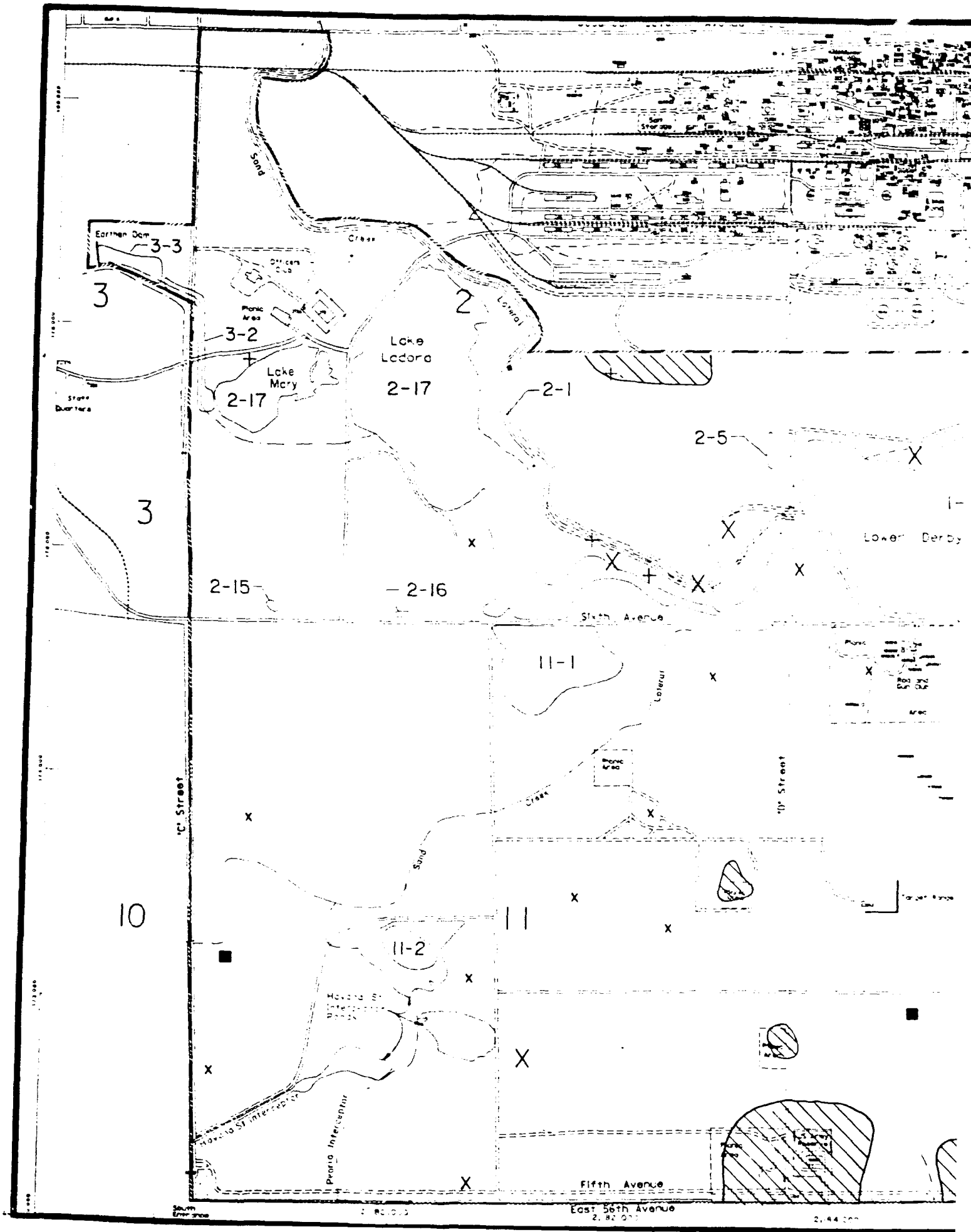
Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE SSA 1.6-1

Vegetation Map  
Southern Study Area

Rocky Mountain Arsenal  
Prepared by Ebasco Services Incorporated



Earthen Dam 3-3

3

3-2

2-17

Lake Ladora

2-17

2

2-1

2-5

3

2-15

2-16

Sixth Avenue

Lower Derby

11-1

Lottery

C Street

10th Street

10

11-2

11

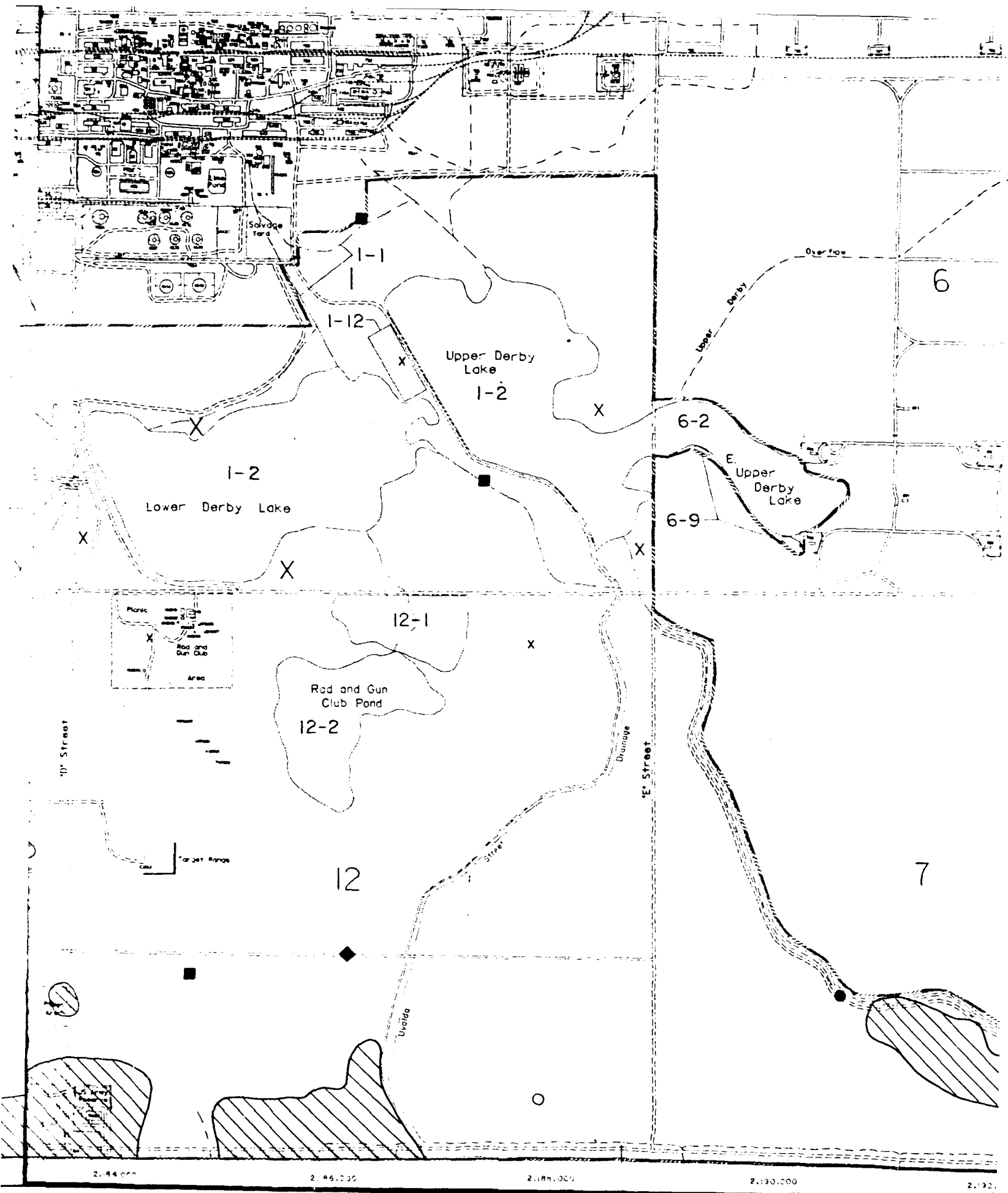
Havana St Interceptor

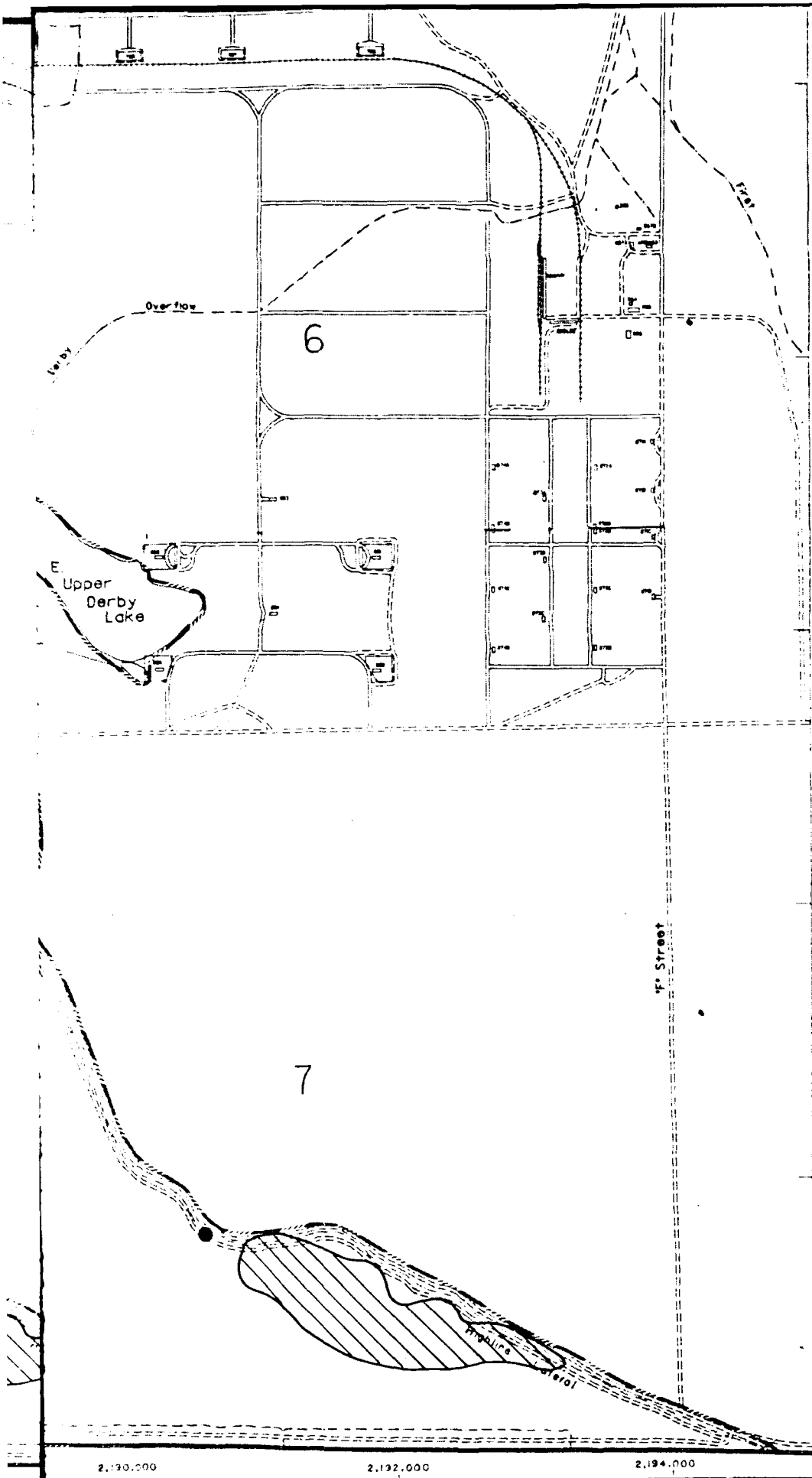
Prairie Interceptor

Fifth Avenue

East 56th Avenue  
2, 82 2-1

2, 44 2-1





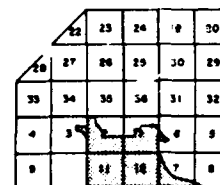
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

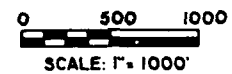
174,000 State Plane Grid

- + BALD EAGLE FEEDING LOCATION
- \* BALD EAGLE PERCH LOCATION OCCASIONALLY USED <3x
- x BALD EAGLE PERCH LOCATION MODERATELY USED 3 - 5x
- X BALD EAGLE PERCH LOCATION FREQUENTLY USED >5x
- 1986 SWAINSON'S HAWK NEST LOCATION
- 1987 SWAINSON'S HAWK NEST LOCATION
- 1987 GREAT HORNED OWL NEST LOCATION
- 1987 LONG EARED OWL NEST LOCATION
- BLACK-TAILED PRAIRIE DOG COLONIES

ROCKY MOUNTAIN ARSENAL LOCATION



1" = 5 MILES

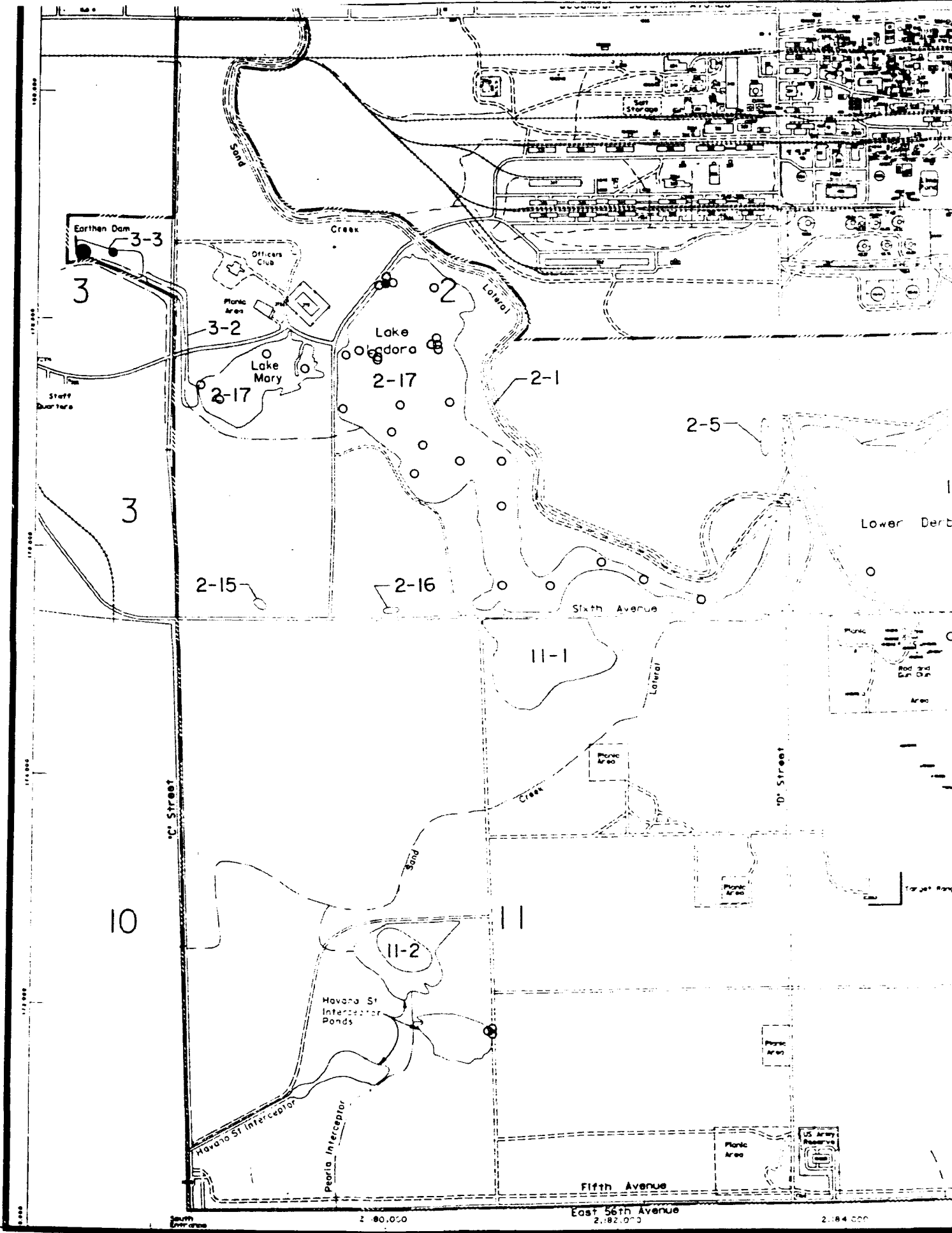


Prepared for:

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Rocky Mountain Arsenal Cleanup

FIGURE: SSA I.6-2  
Bald Eagle Perch and Feeding  
Locations; Raptor Nests  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated





117,000  
116,000  
115,000  
114,000  
113,000

C Street

D Street

Havana St Interceptor

Peoria Interceptor

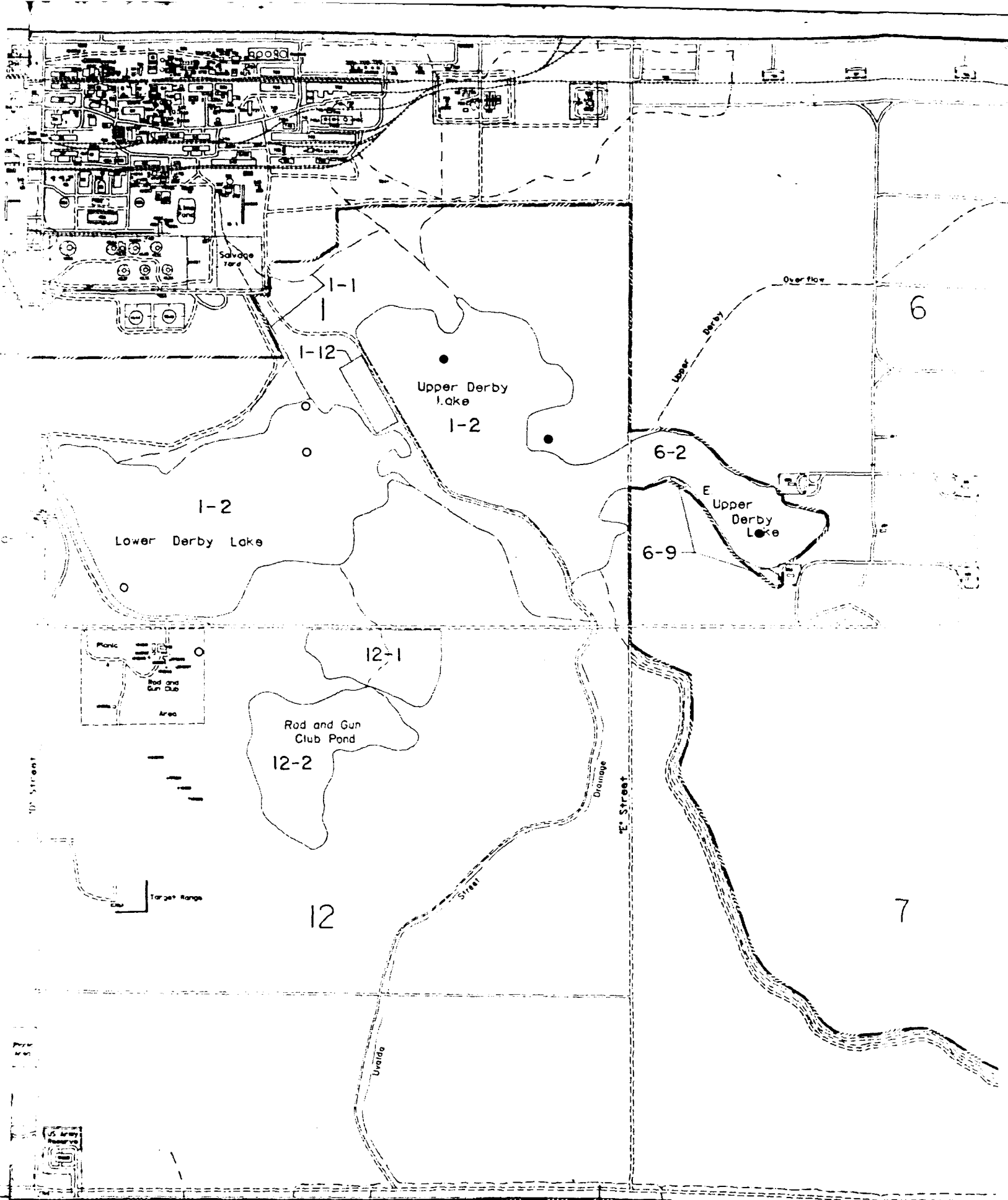
Fifth Avenue

East 56th Avenue

South

2:00.000

2:18.400



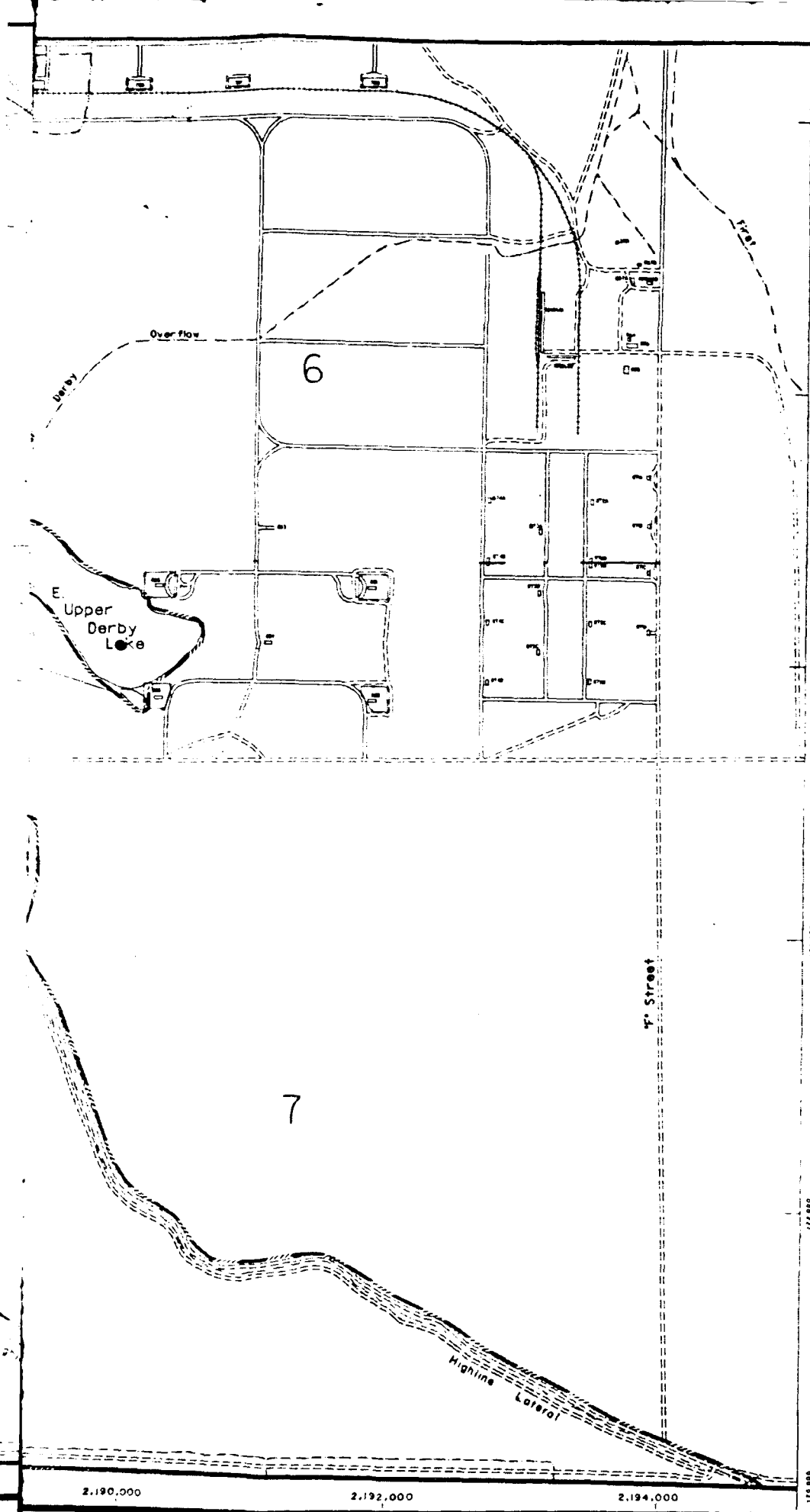
2,184,000

2,185,000

2,186,000

2,190,000

2,192,000



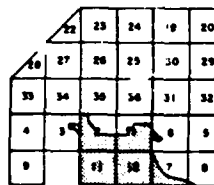
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

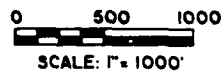
**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL)
- 0.047 - 1.0
- >1.0 - 10
- >10 - 100
- >100

**ROCKY MOUNTAIN ARSENAL LOCATION**



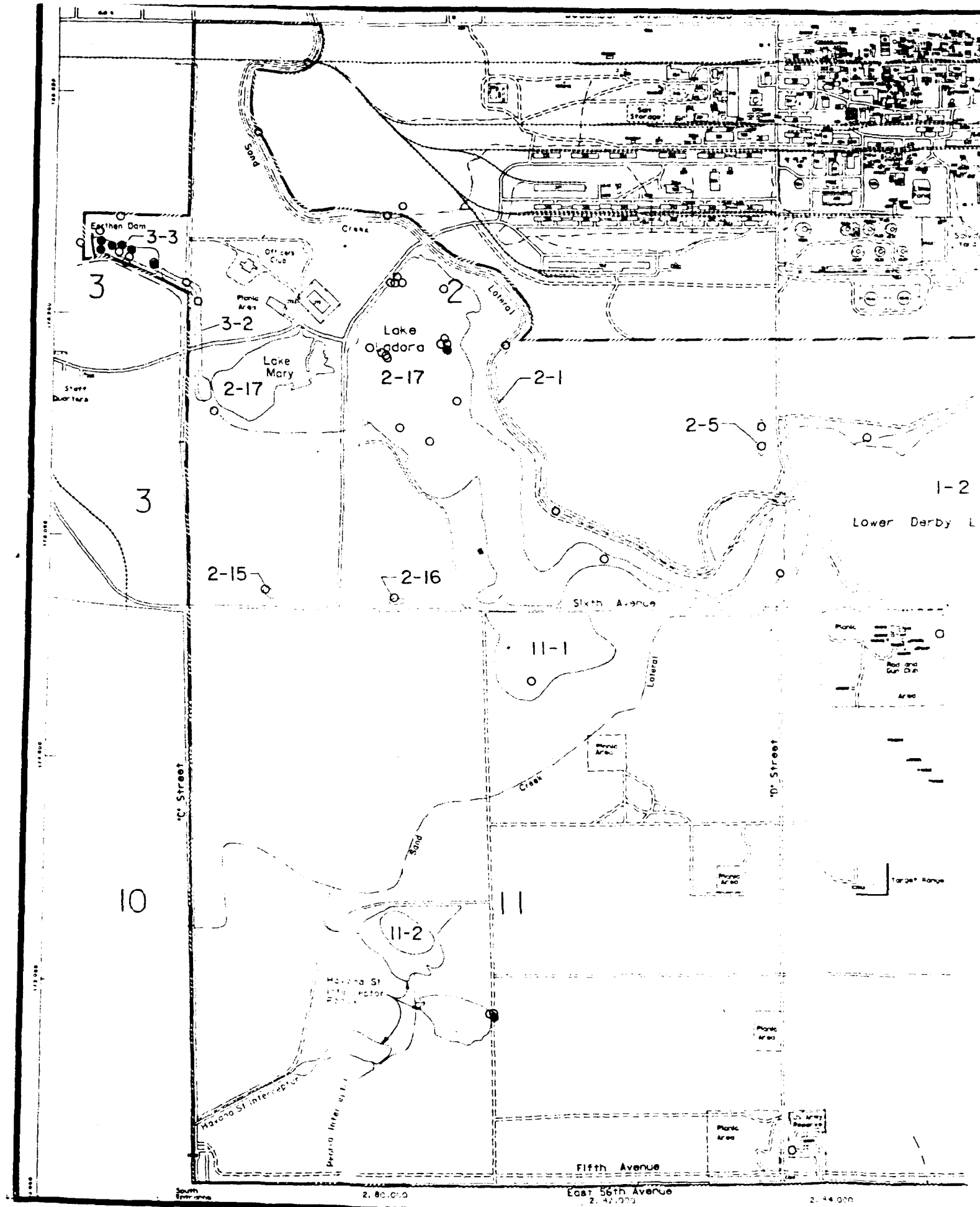
1" = 3 MILES



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Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-1**  
Volatile Halogenated Organics  
in Soils in the 0-2 ft. Depth Interval  
**Rocky Mountain Arsenal**  
Prepared by:  
Ebasco Services Incorporated



Earthen Dam  
3-3

3

3-2

2-17

Lake Odora

2-17

2-1

2-5

1-2

Lower Derby L

2-15

2-16

Sixth Avenue

11-1

10

11

11-2

Mason St  
Interceptor

Pecan St  
Interceptor

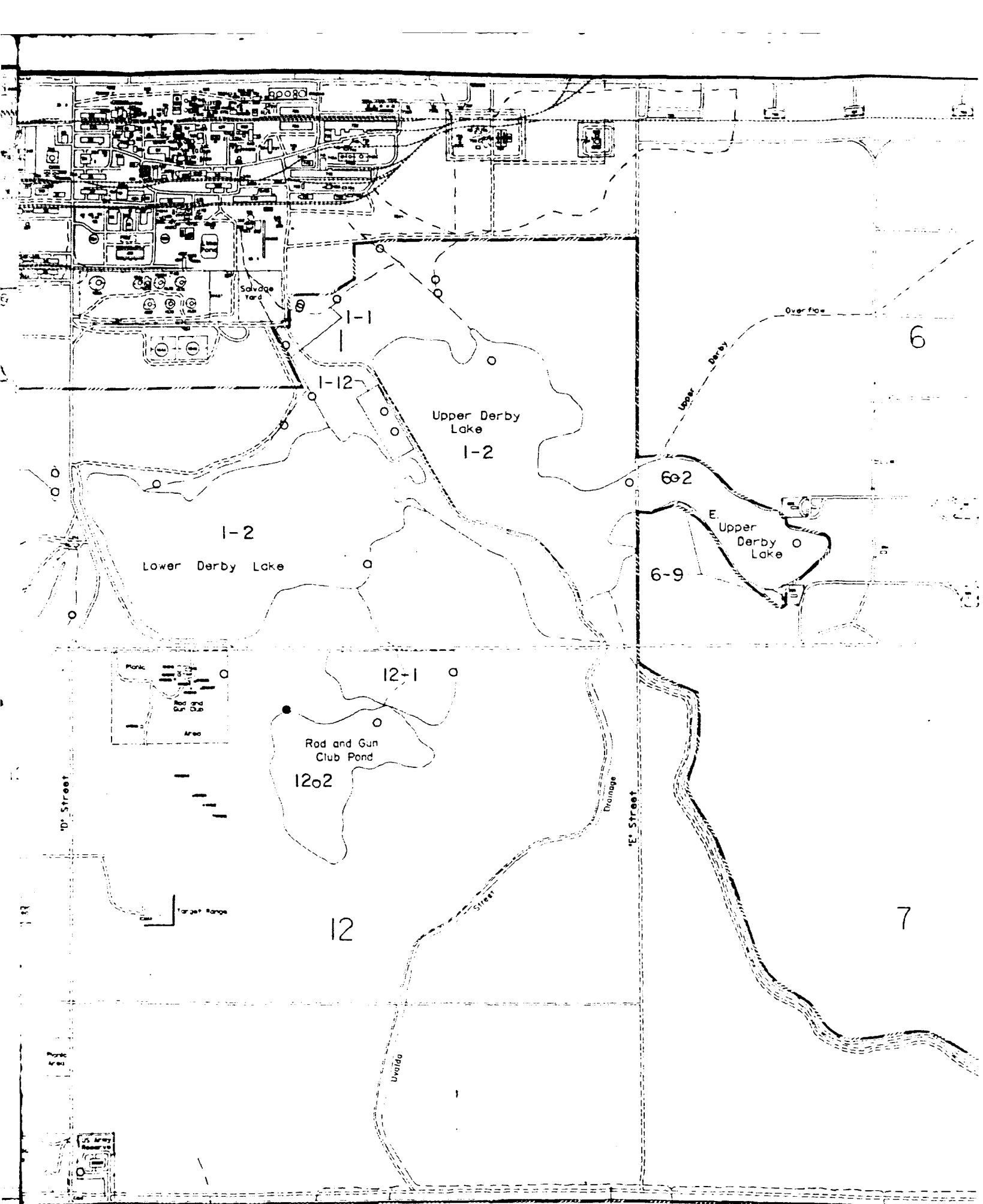
Fifth Avenue

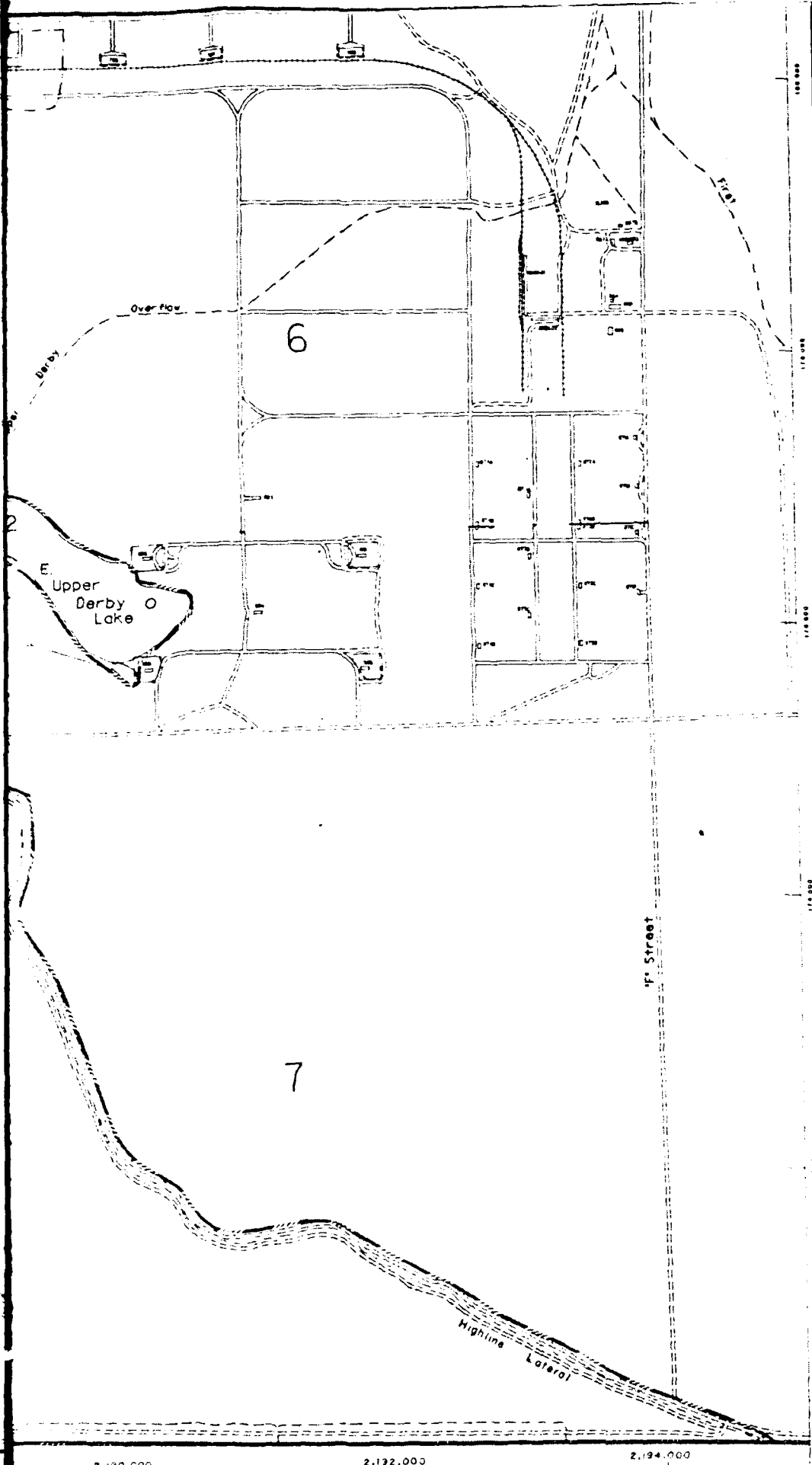
East 56th Avenue

South  
Entrance

2. 80. 000

2. 44. 000





**LEGEND**

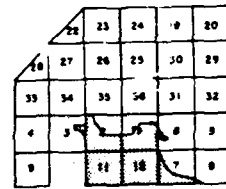
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL)
- 0.047-1.0
- > 1.0-10
- > 10-100
- > 100

**ROCKY MOUNTAIN ARSENAL LOCATION**



1" = 5 MILES



SCALE: 1" = 1000'

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Rocky Mountain Arsenal Cleanup

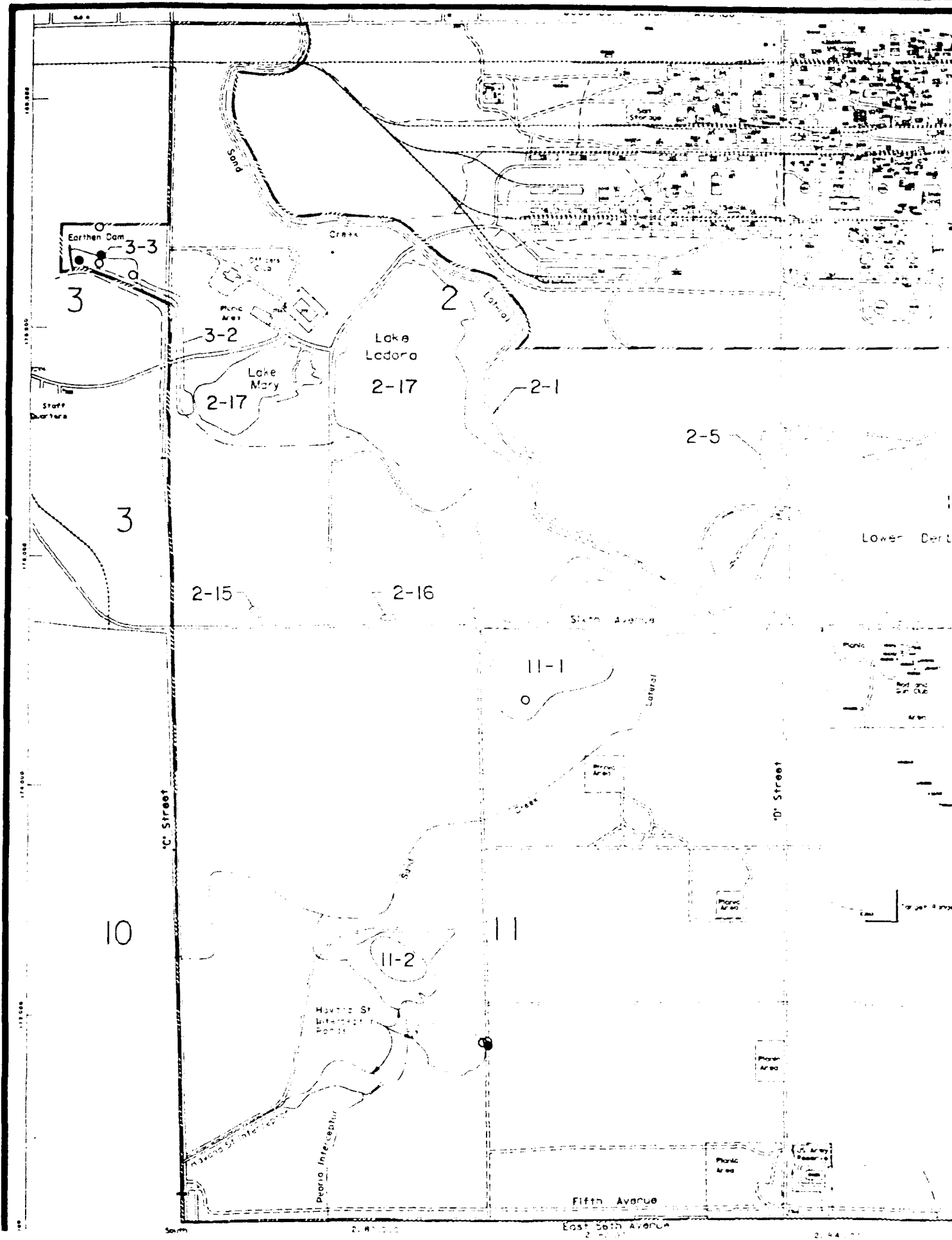
**FIGURE: SSA 2.1-2**

Volatile Halogenated Organics  
in Soils in the 2-5 ft. Depth Interval

**Rocky Mountain Arsenal**

Prepared by:

**Ebasco Services Incorporated**



108,000

112,000

116,000

118,000

120,000

Earthen Dam

3

3

Staff Quarters

3-2

2-17

Lake Mary

Lake Ladora

2-17

2

2-1

2-5

2-15

2-16

Sixth Avenue

Lower Dam

11-1

C Street

D Street

10

11

11-2

Hawthorn St  
Birmingham  
Village

Peoria Interceptor

Picnic Area

Picnic Area

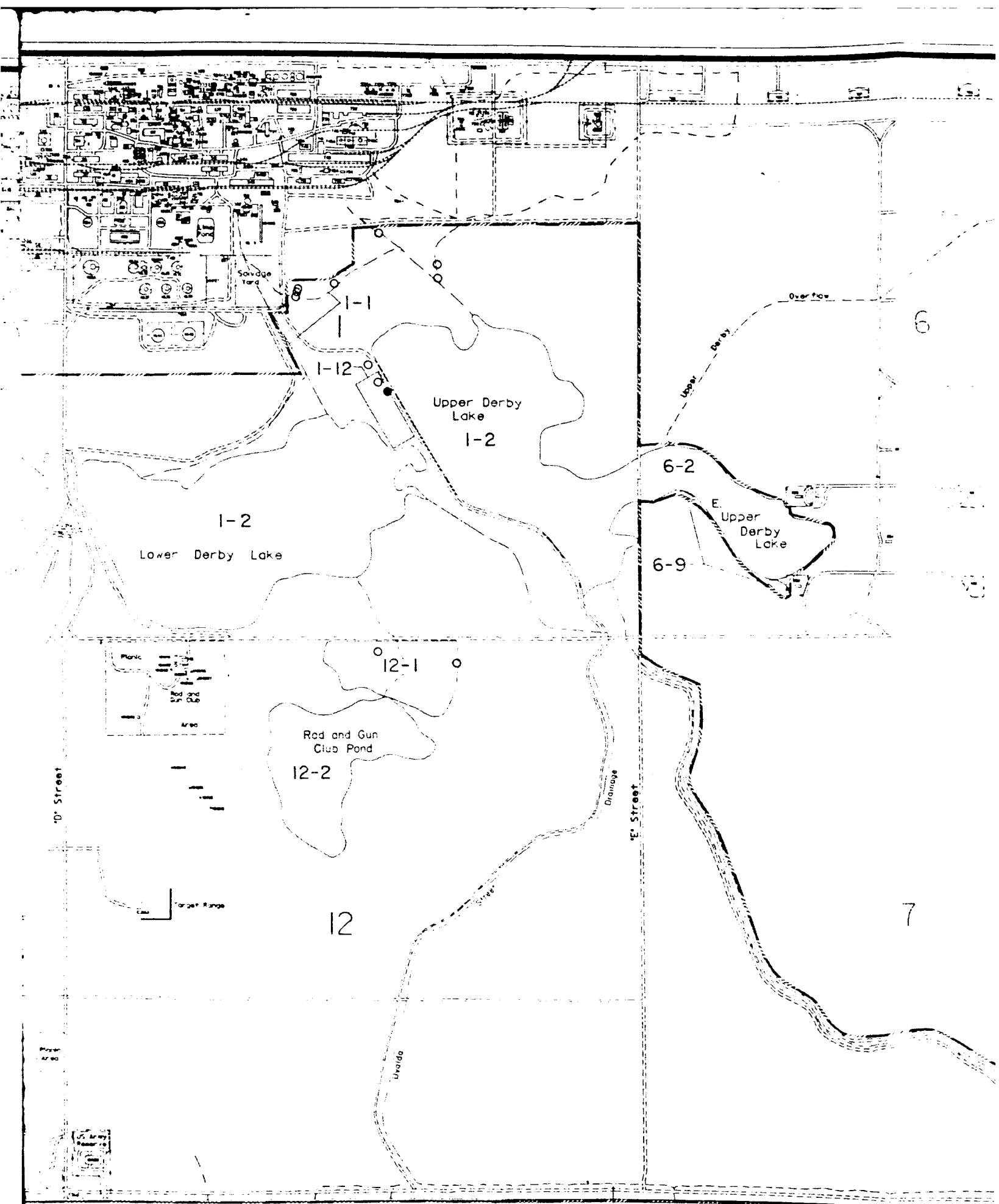
Picnic Area

Fifth Avenue

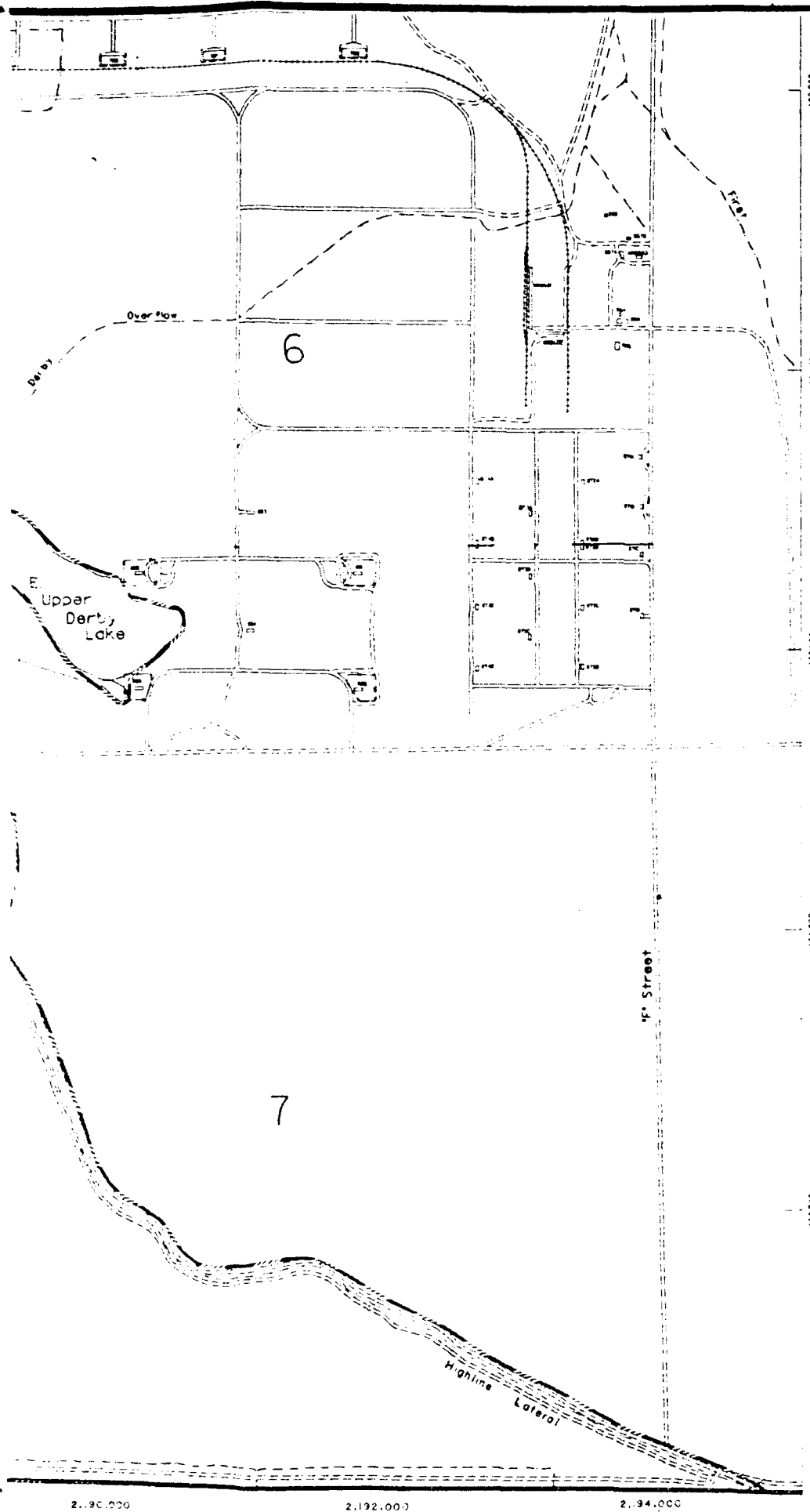
East Sixth Avenue

2, 41, 10, 10

2, 44, 11





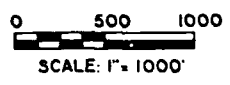
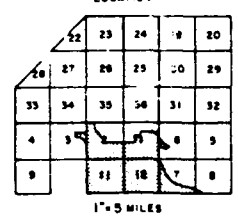


- LEGEND**
- Improved Road
  - Unimproved Road
  - Railroad Tracks
  - Existing Structure
  - Former Structure
  - Fence
  - 6** Section Number
  - Stream or Ditch
  - Study Area Boundary
- 174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

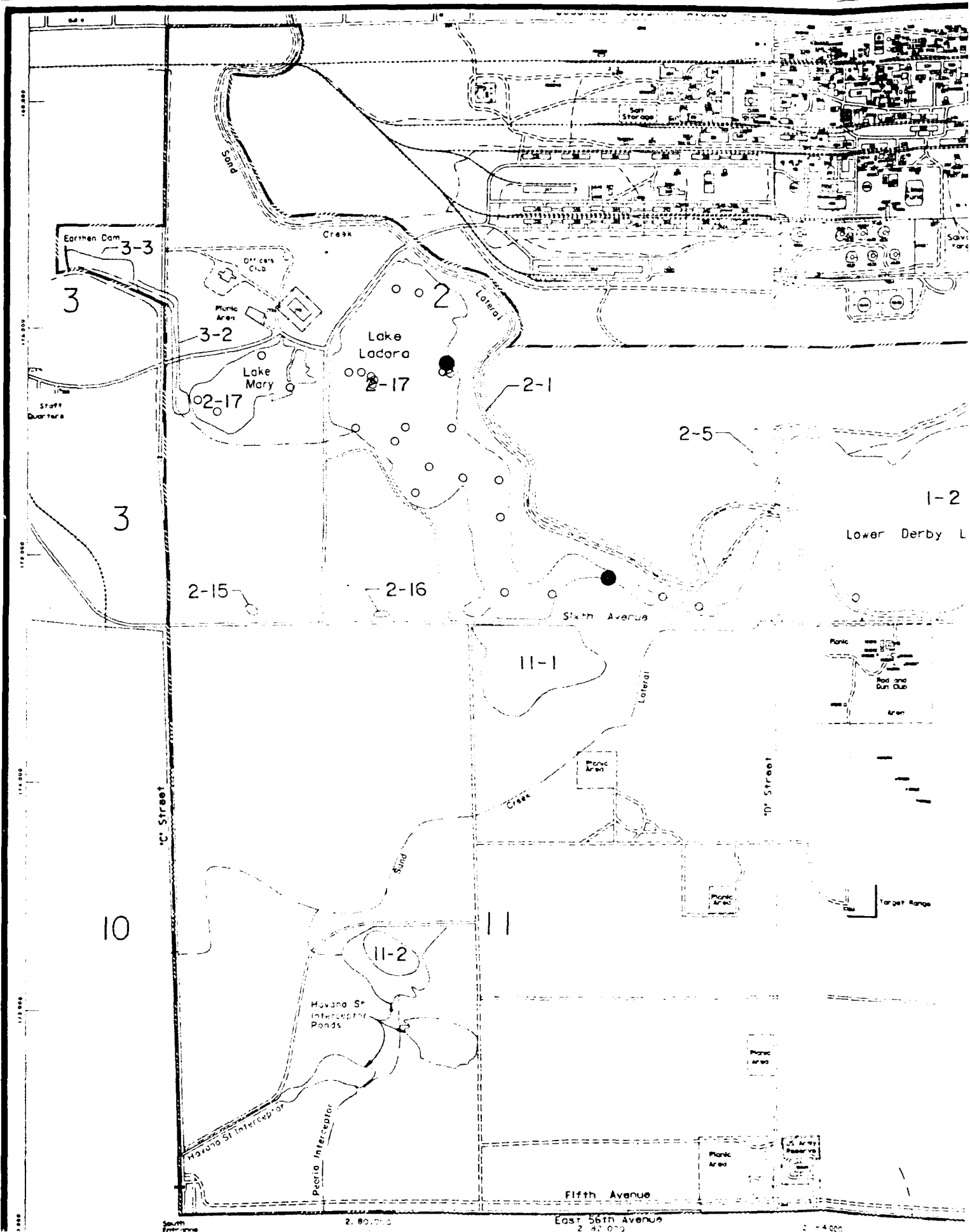
- Below Certified Reporting Limit (BCRL)
- 0.047-1.0
- >1.0-10
- >10-100
- >100

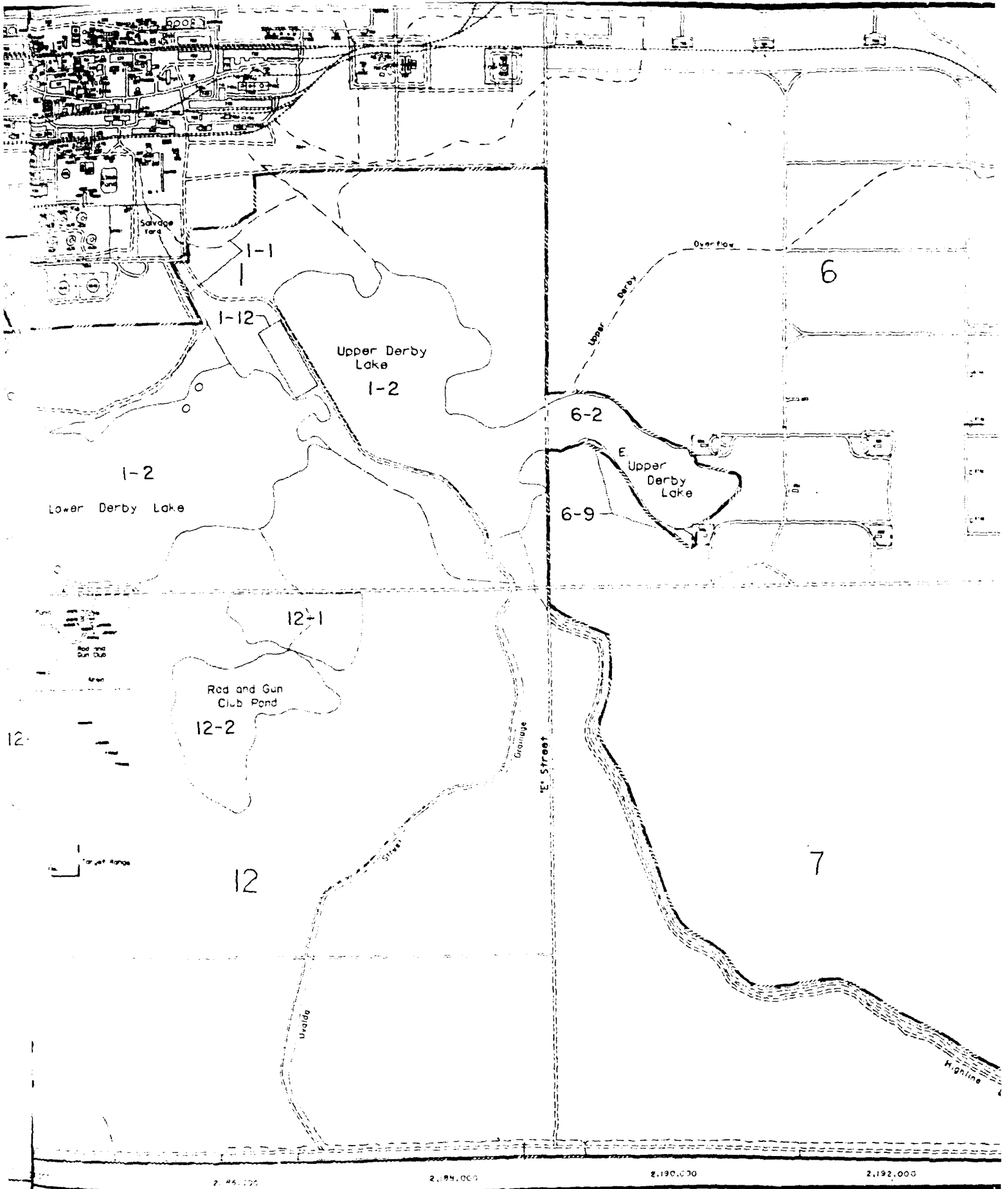
ROCKY MOUNTAIN ARSENAL LOCATION

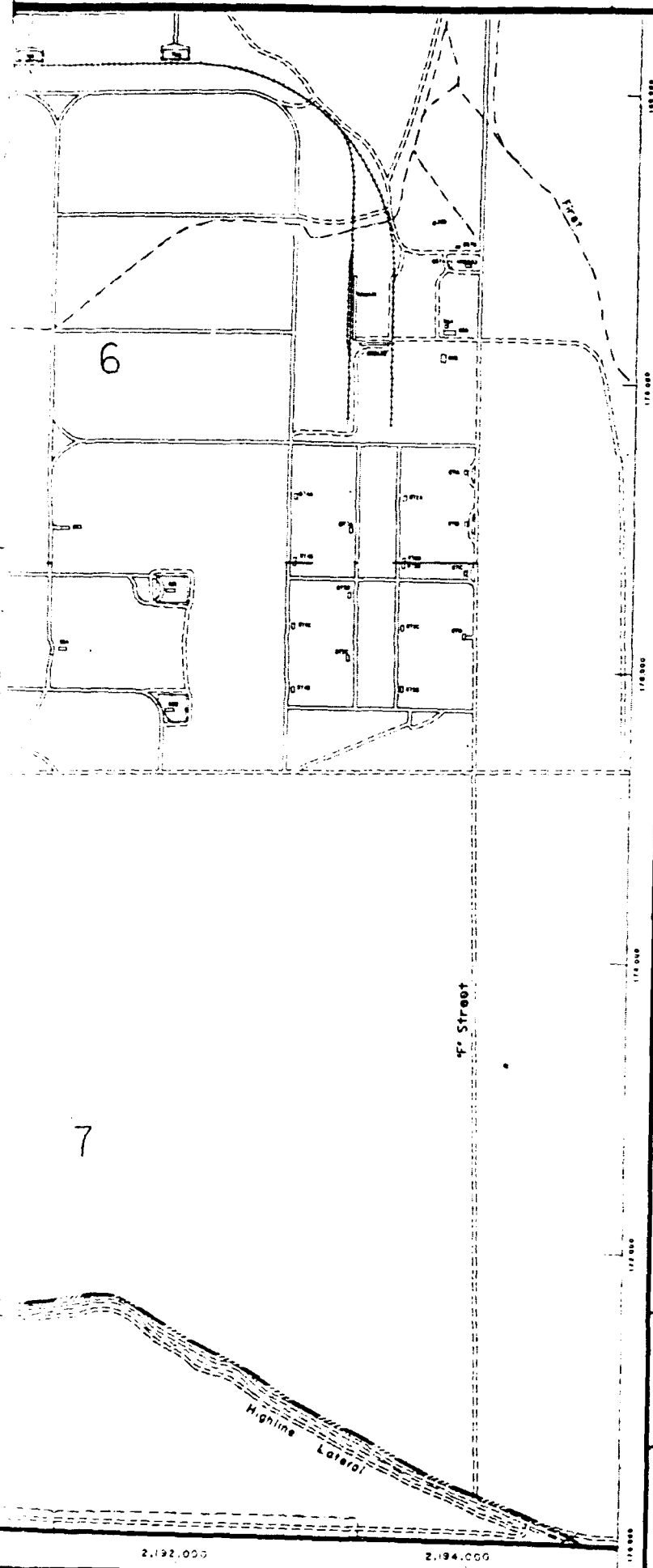


Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2J-3**  
 Volatile Halogenated Organics  
 in Soils in the 5-20 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated







**LEGEND**

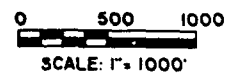
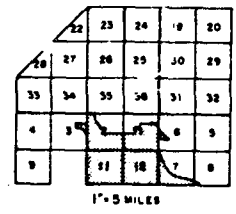
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

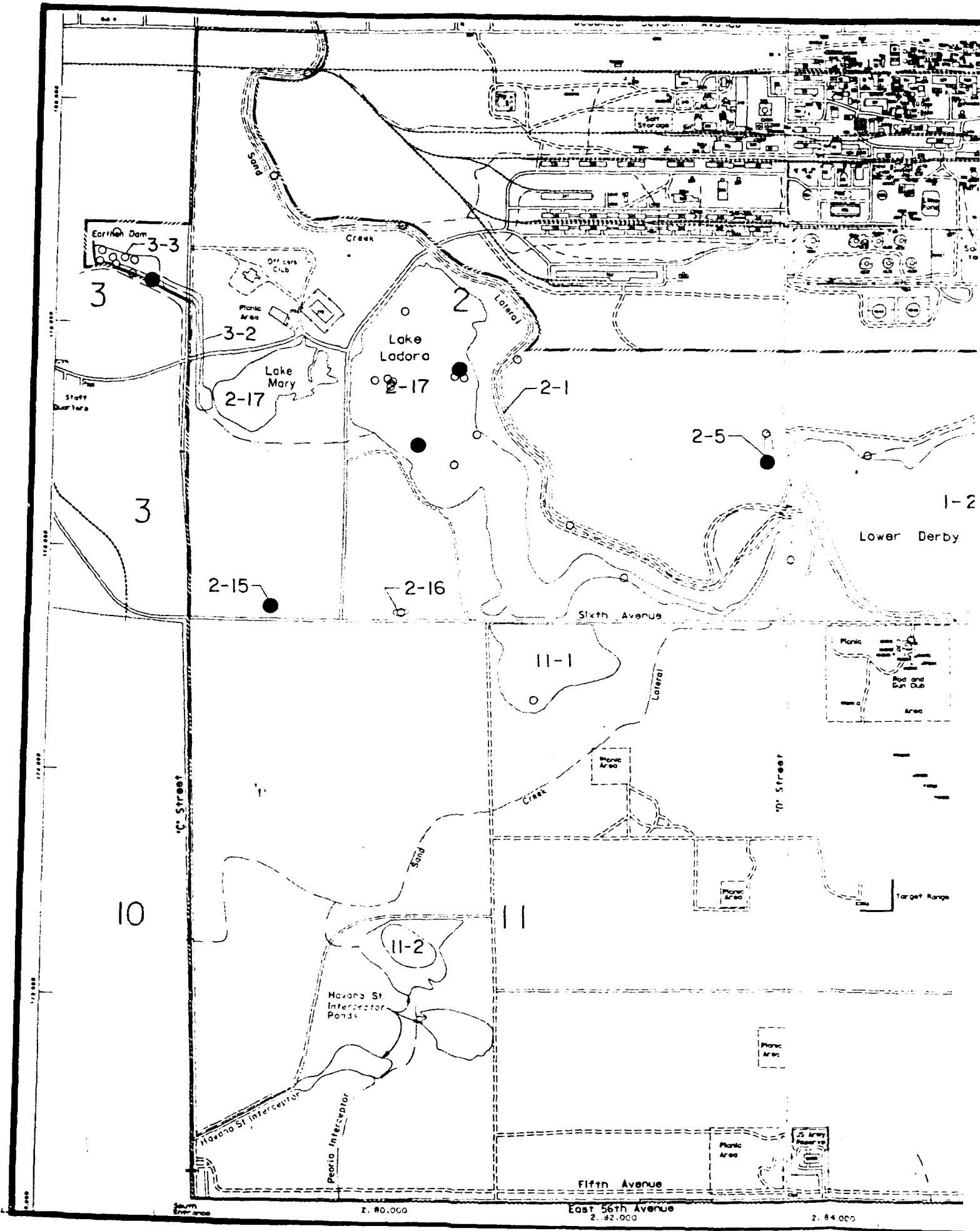
- Below Certified Reporting Limit (BCRL)
- 0.15 - 1.0
- > 1.0 - 10
- > 10 - 100
- > 100

**ROCKY MOUNTAIN ARSENAL LOCATION**



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-4**  
 Methylene Chloride in Soils in the  
 0-2 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

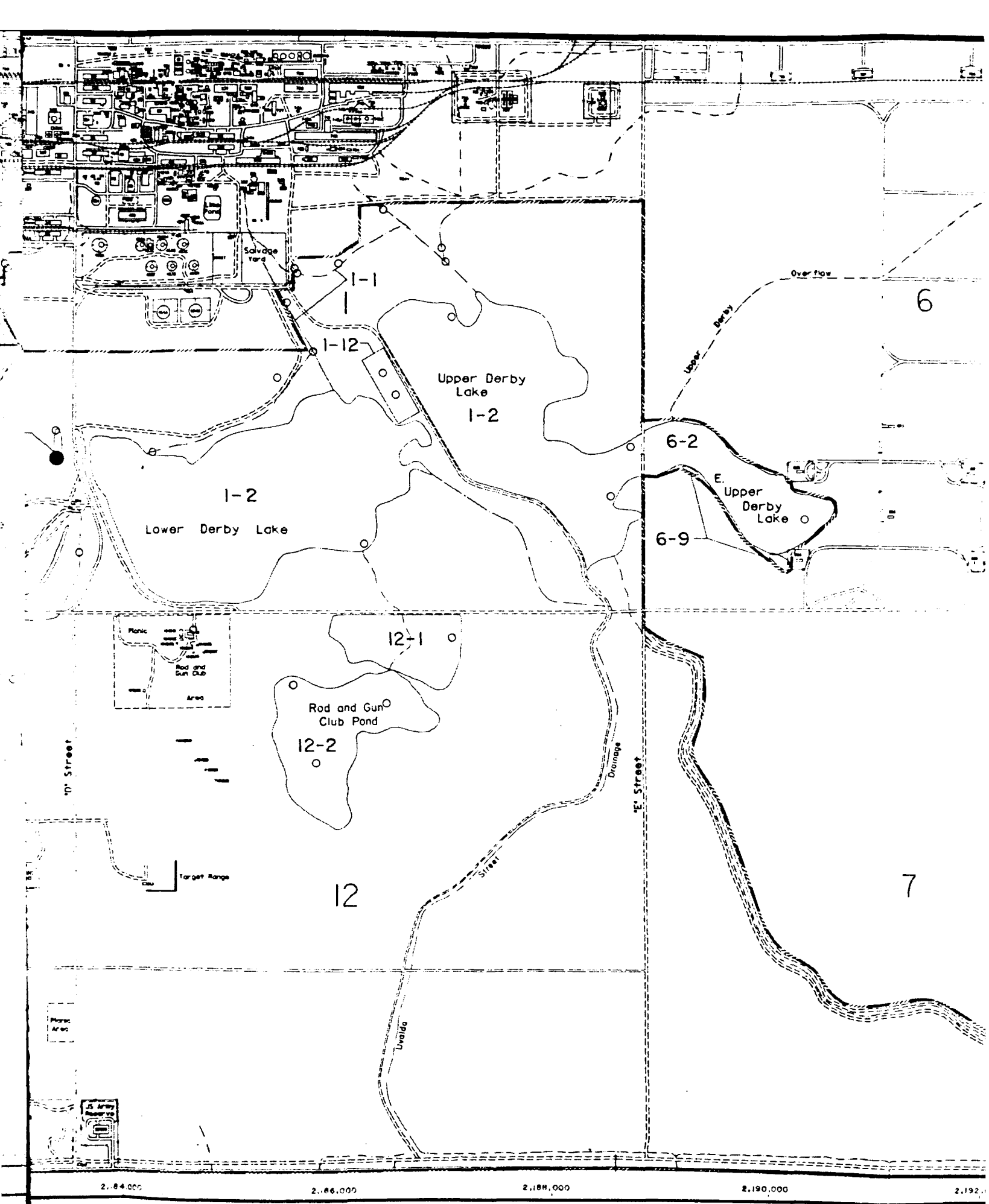


South  
Elevation

1:80,000

East 56th Avenue  
2:82,000

2:84,000



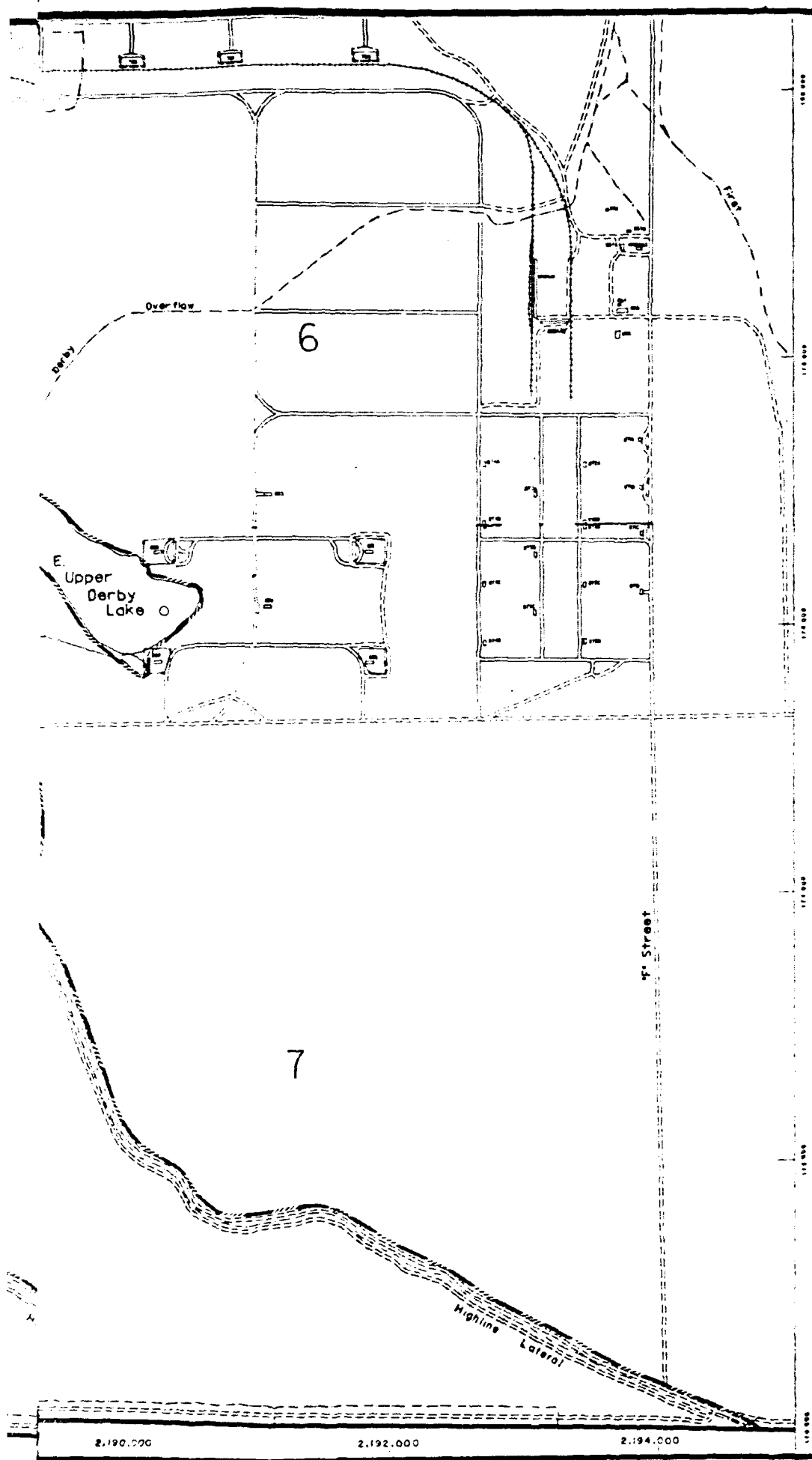
2,184,000

2,186,000

2,188,000

2,190,000

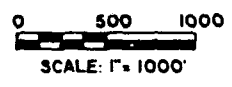
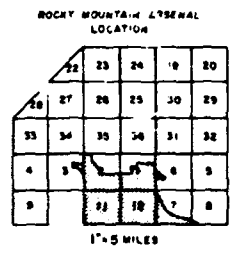
2,192,000



- LEGEND**
- Improved Road
  - Unimproved Road
  - Railroad Tracks
  - Existing Structure
  - Former Structure
  - Fence
  - 6** Section Number
  - Stream or Ditch
  - Study Area Boundary
- 174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

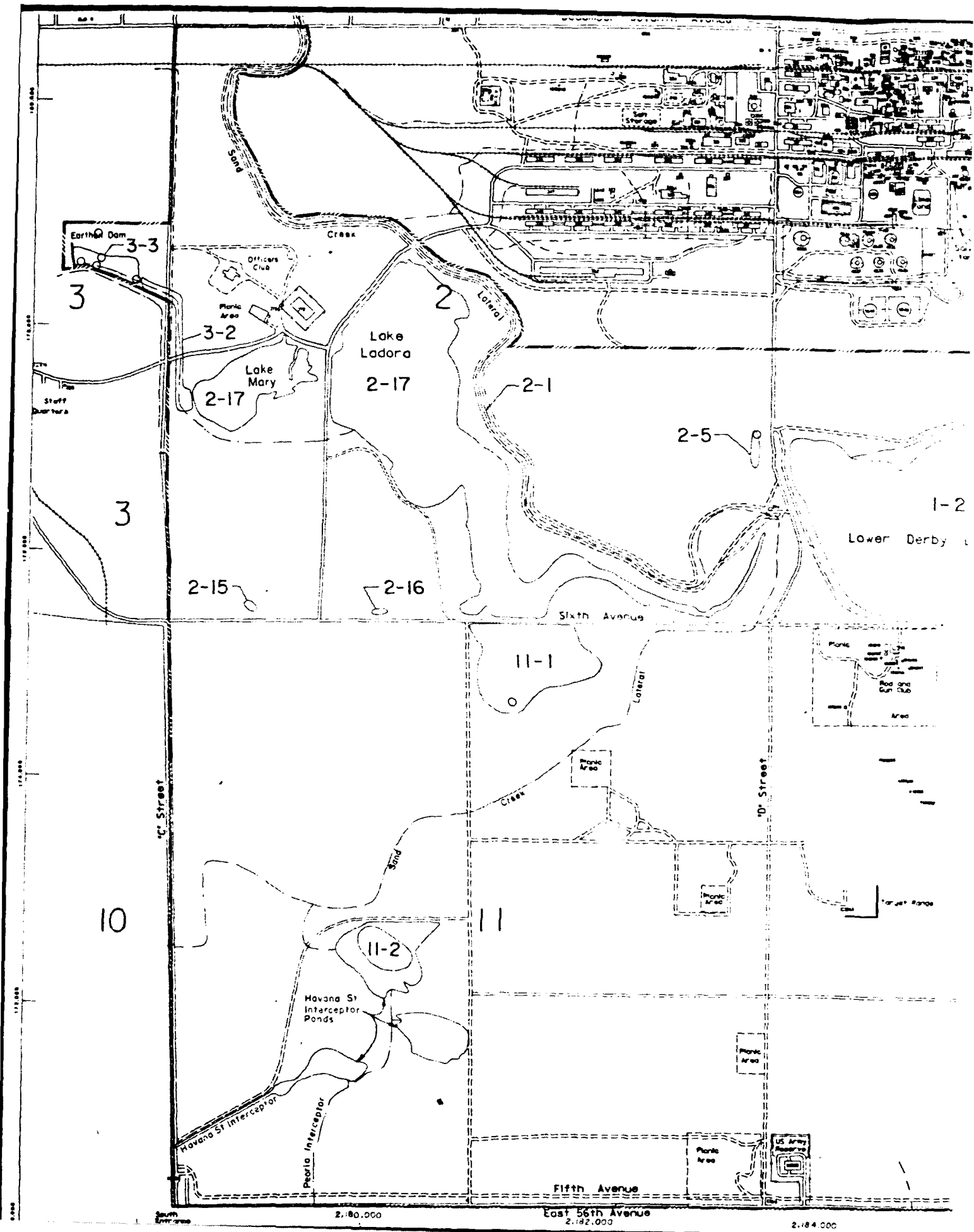
- Below Certified Reporting Limit (BCRL)
- 0.15-1.0
- >1.0-10
- >10-100
- >100



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-5**  
 Methylene Chloride in Soils in the  
 2-5 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

2,190,000                      2,192,000                      2,194,000

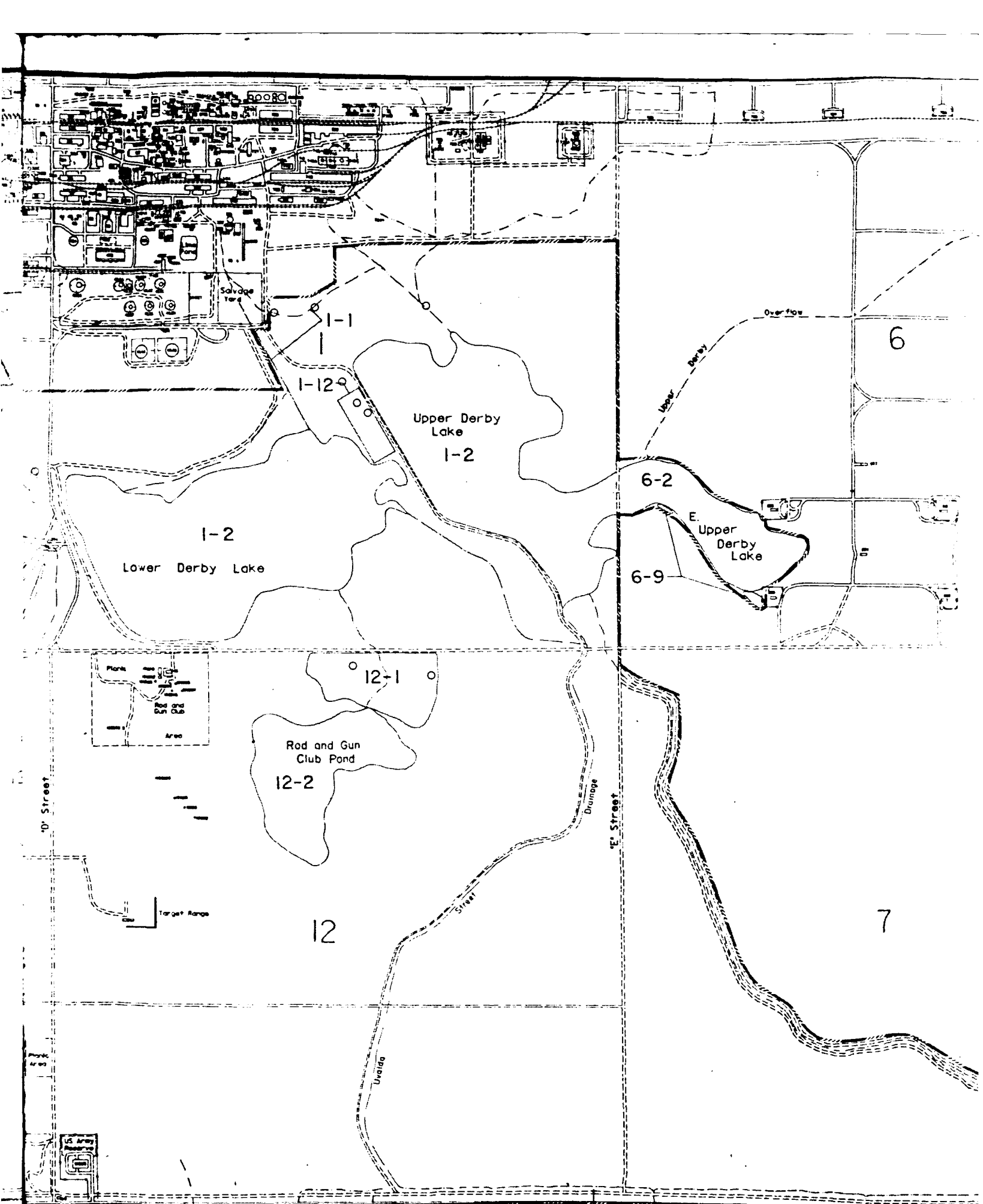


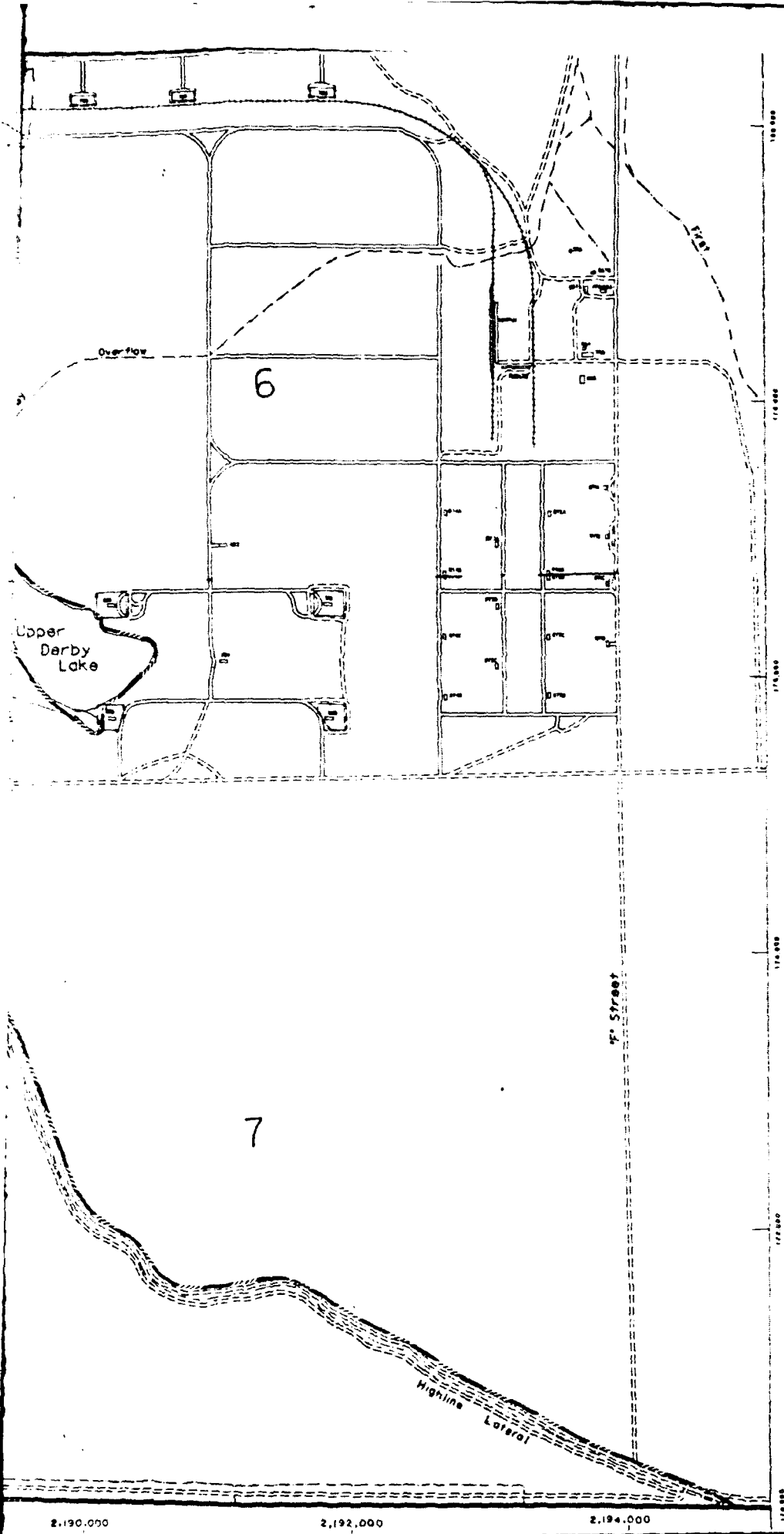
2:180,000

East 56th Avenue  
2:182,000

2:184,000







**LEGEND**

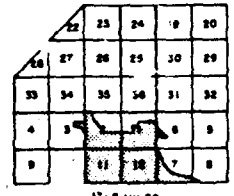
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

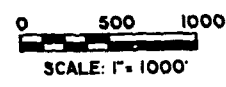
**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL)
- 0.15 - 1.0
- >1.0 - 10
- >10 - 100
- >100

**ROCKY MOUNTAIN ARSENAL LOCATION**

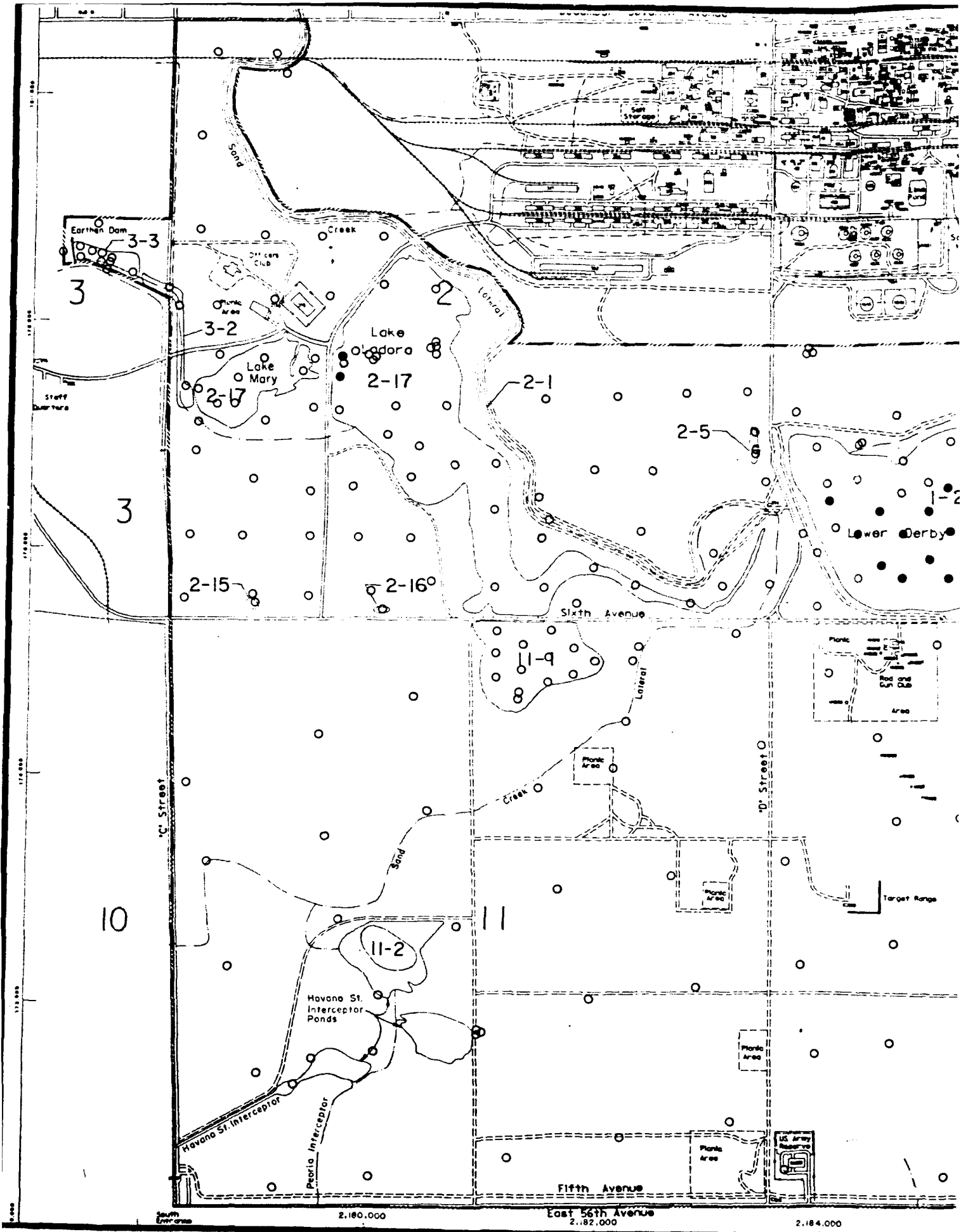


1" = 5 MILES



Prepared for:  
**Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup**

**FIGURE: SSA 2.1-6**  
 Methylene Chloride in Soils in the  
 5-20 ft. Depth Interval  
**Rocky Mountain Arsenal**  
 Prepared by:  
**Ebasco Services Incorporated**



Earth Dam  
3-3

3

3-2

2-7

2-17

2-1

2-5

2-15

2-16

1-4

1-2  
Lower Derby

10

11-2

11

Havana St. Interceptor Ponds

Havana St. Interceptor

Peoria Interceptor

Fifth Avenue

Park Area

Park Area

Park Area

Target Range

Sixth Avenue

C Street

D Street

Sand

Creek

Lateral

Lateral

Sand

Creek

Officers Club

Park Area

Staff Quarters

101,000

114,000

116,000

114,000

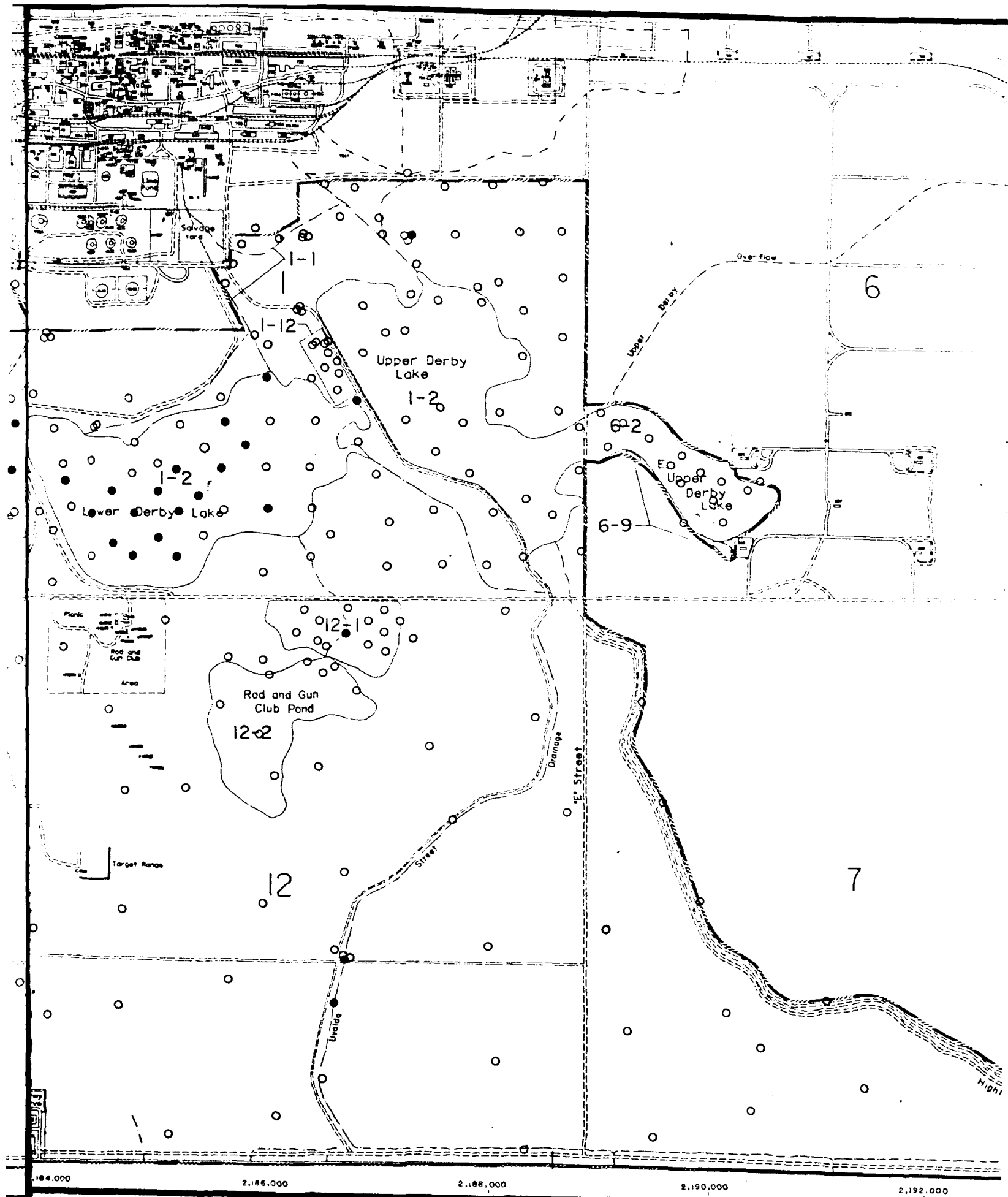
113,000

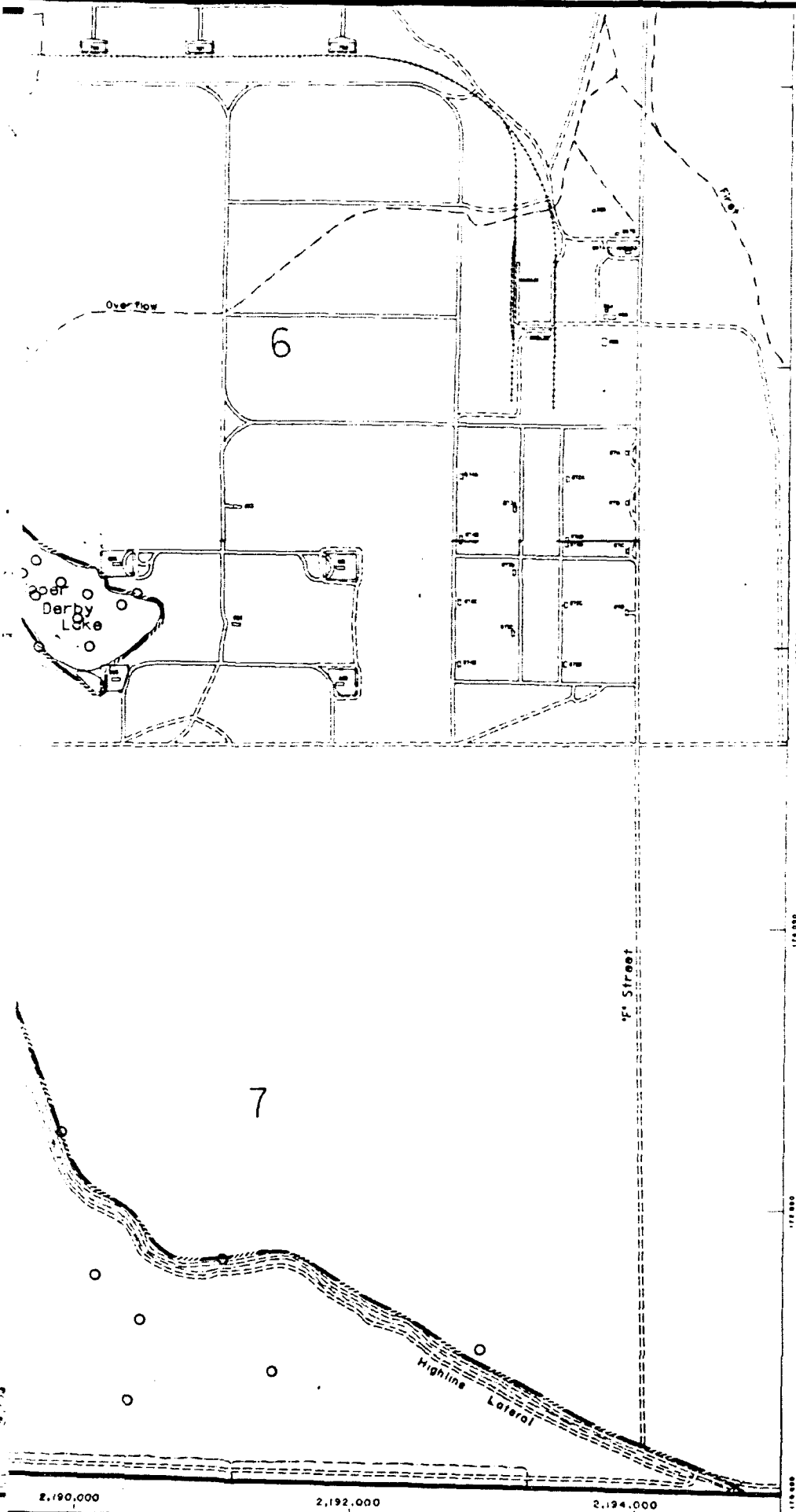
2,180,000

East 56th Avenue  
2,182,000

2,184,000

South Entrance

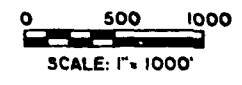
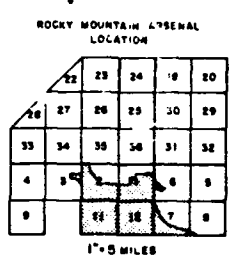




- LEGEND**
- Improved Road
  - - - - Unimproved Road
  - +—+— Railroad Tracks
  - ▭ Existing Structure
  - - - - Former Structure
  - Fence
  - 6** Section Number
  - ~ Stream or Ditch
  - ▬▬▬ Study Area Boundary
  - 174,000 State Plane Grid

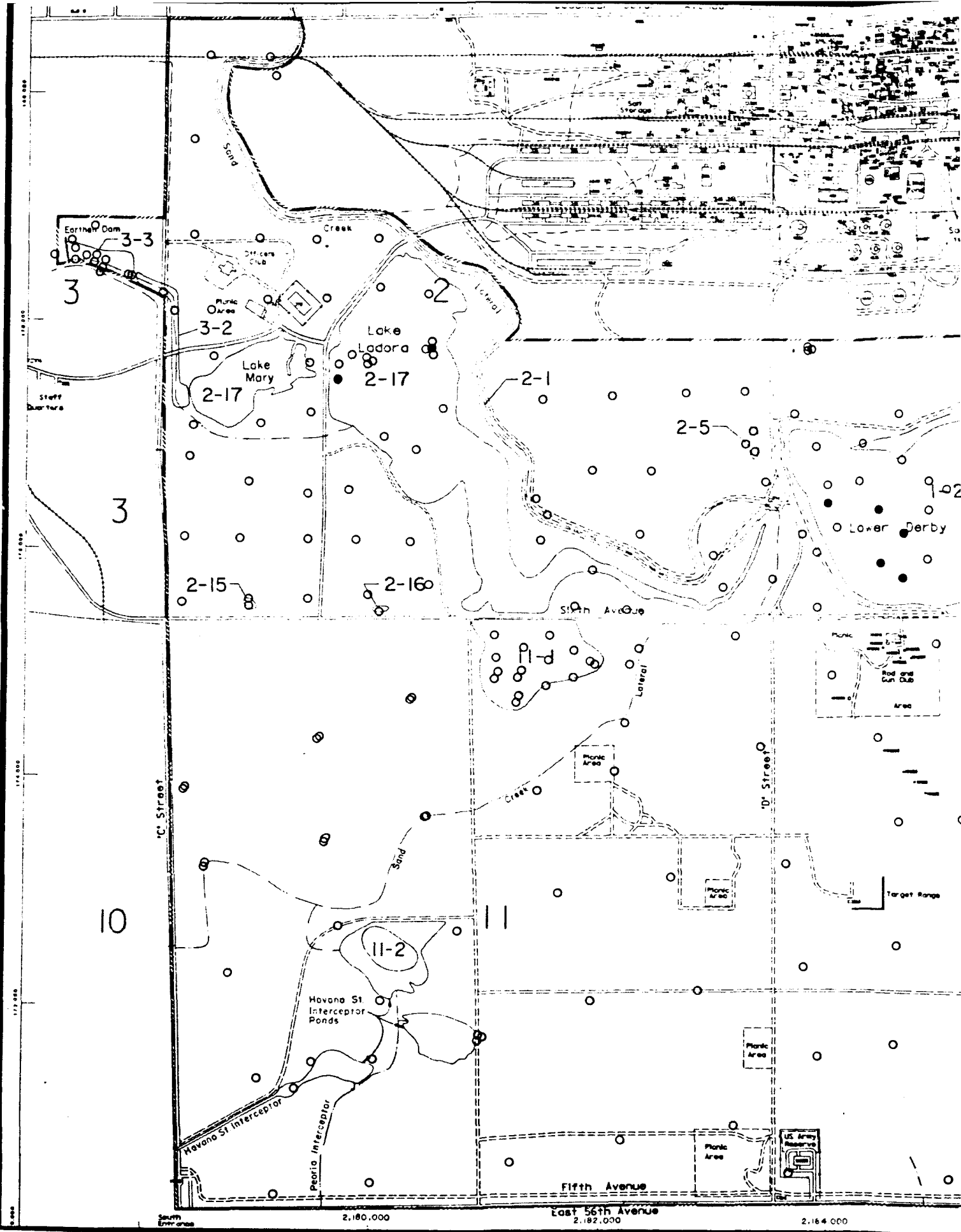
**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL)
- 0.0050-1.0
- >1.0-10
- >10-100
- >100



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-7**  
 Dibromochloropropane in Soils  
 in the 0-2 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

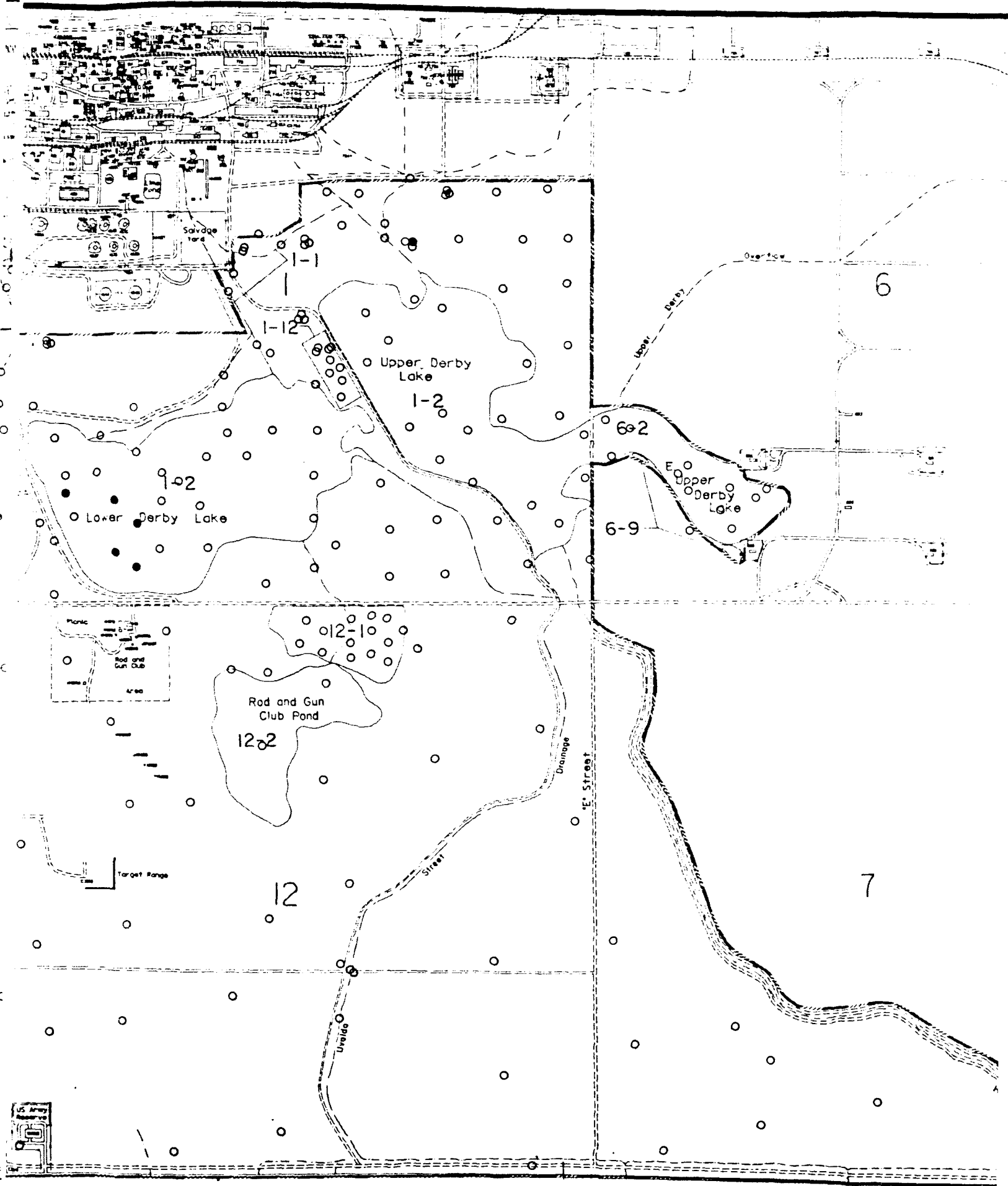


South  
Error area

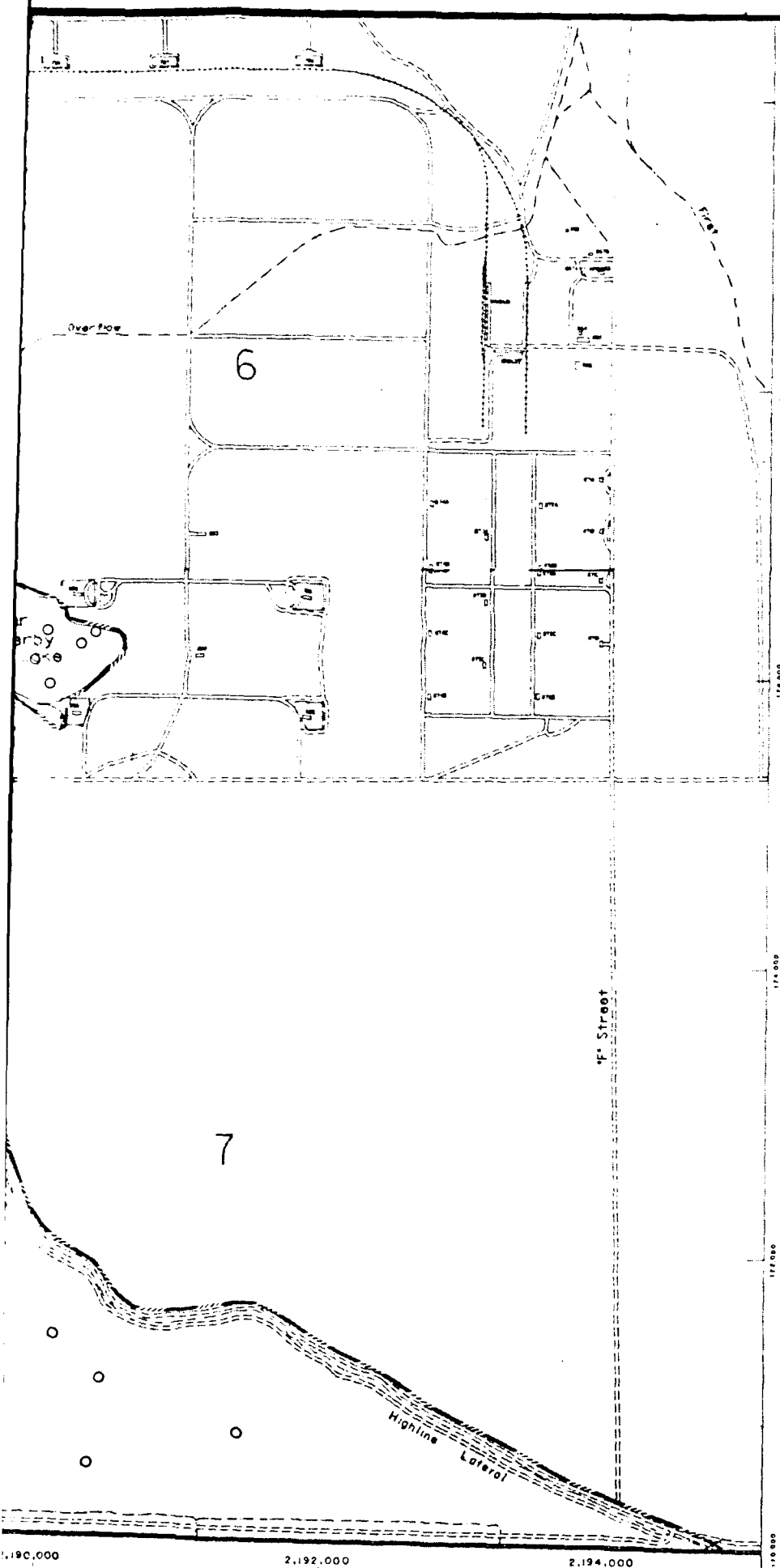
2,160,000

East 56th Avenue  
2,162,000

2,164,000



2,184,000      2,186,000      2,188,000      2,190,000      2,192,000



**LEGEND**

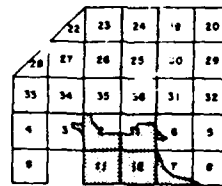
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

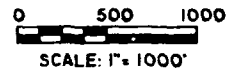
**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL)
- 0.0050-1.0
- > 1.0-10
- > 10-100
- > 100

**ROCKY MOUNTAIN LATERAL LOCATION**



1" = 5 MILES



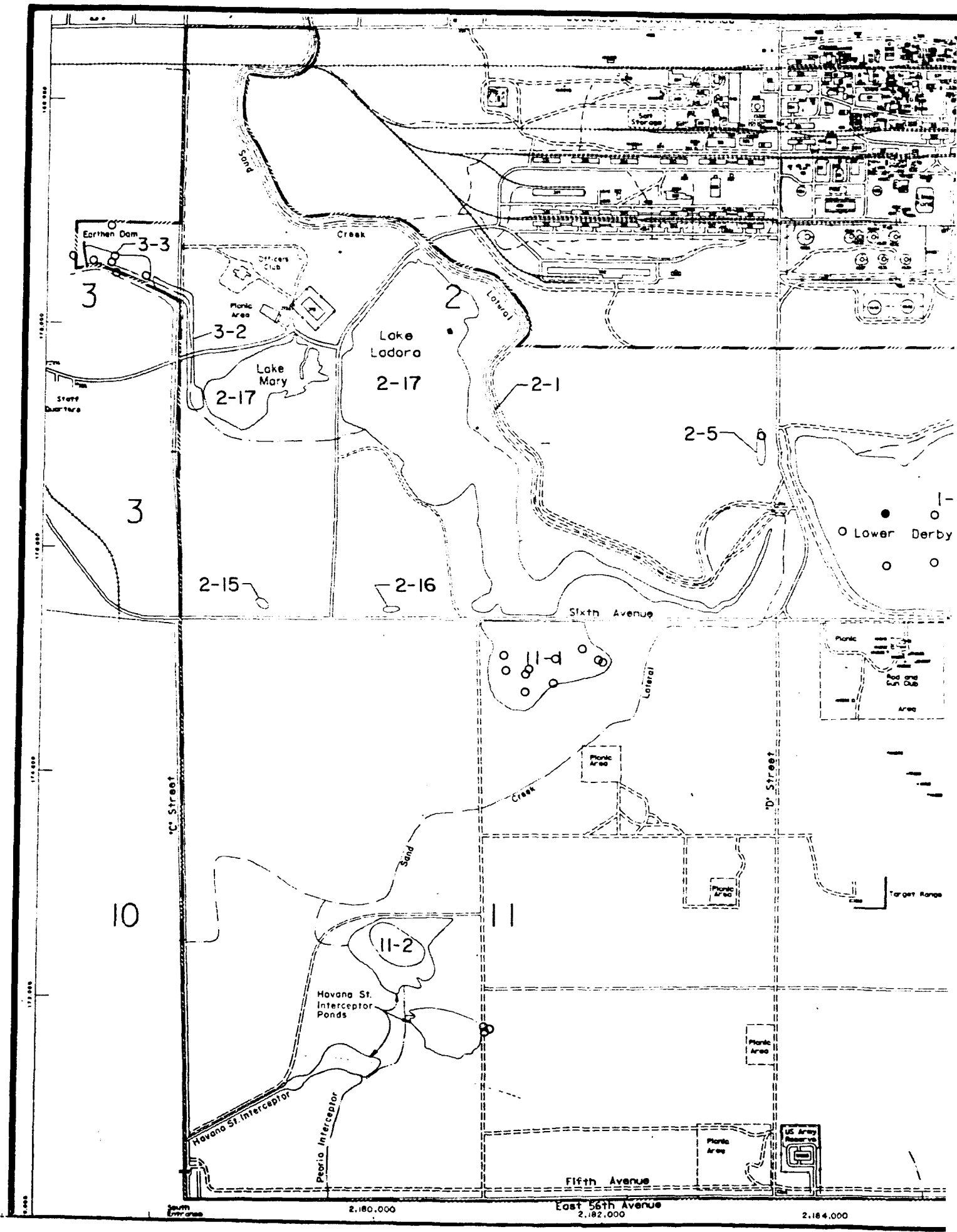
Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-8**  
Dibromochloropropane in Soils  
in the 2-5 ft. Depth Interval  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated

174,000 175,000 176,000 177,000 178,000 179,000  
2,190,000 2,192,000 2,194,000





176,000

175,000

174,000

173,000

172,000

3-3  
3

3-2  
2-17

Lake Ladora  
2-17

2  
2-1

2-5

3

2-15

2-16

Sixth Avenue

Lower Derby

C Street

10

11

11-2

Havana St. Interceptor Ponds

Havana St. Interceptor

Pedro Interceptor

Fifth Avenue

D Street

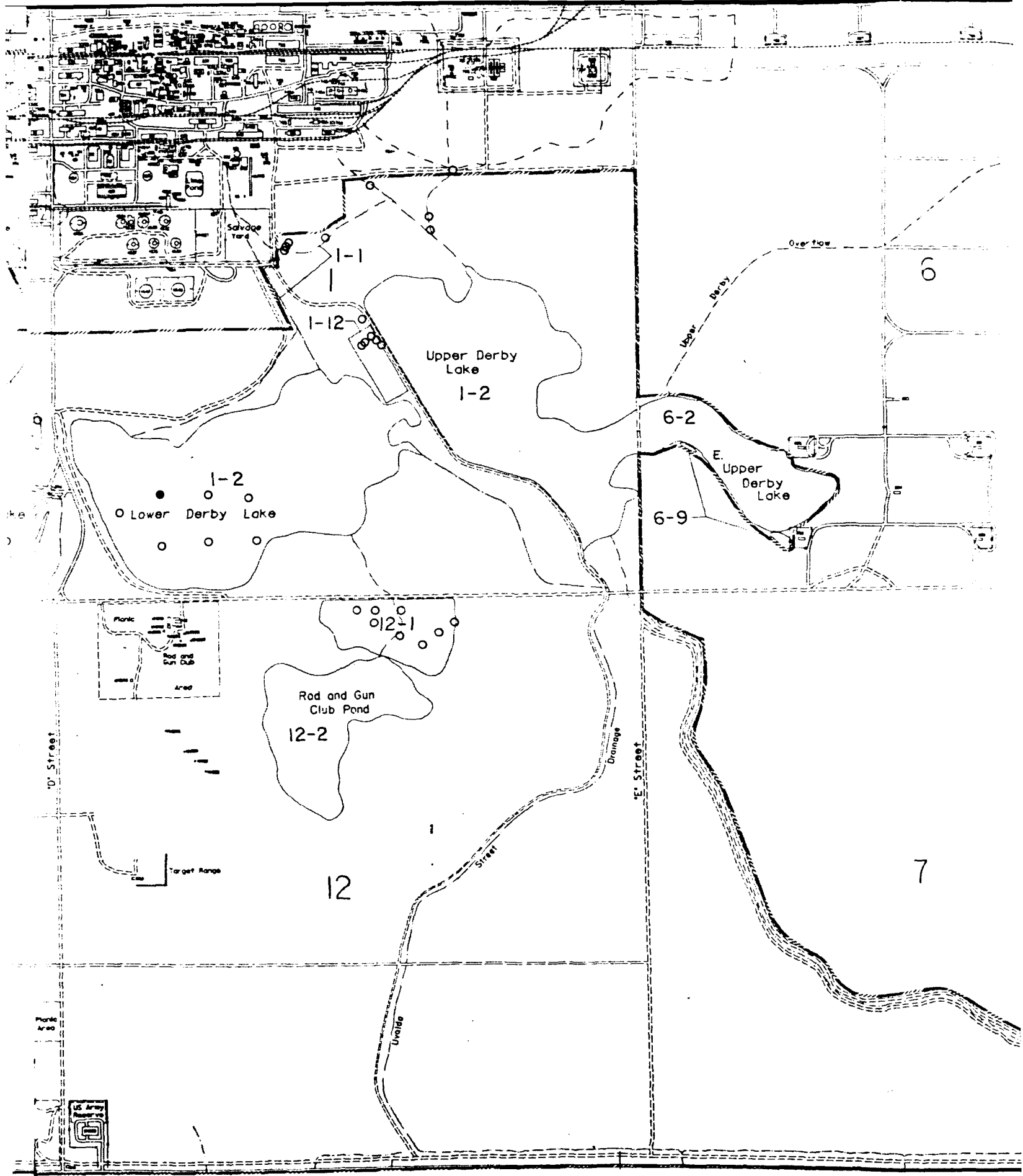
US Army Reserve

South Entrance

2,180,000

East 56th Avenue  
2,182,000

2,184,000



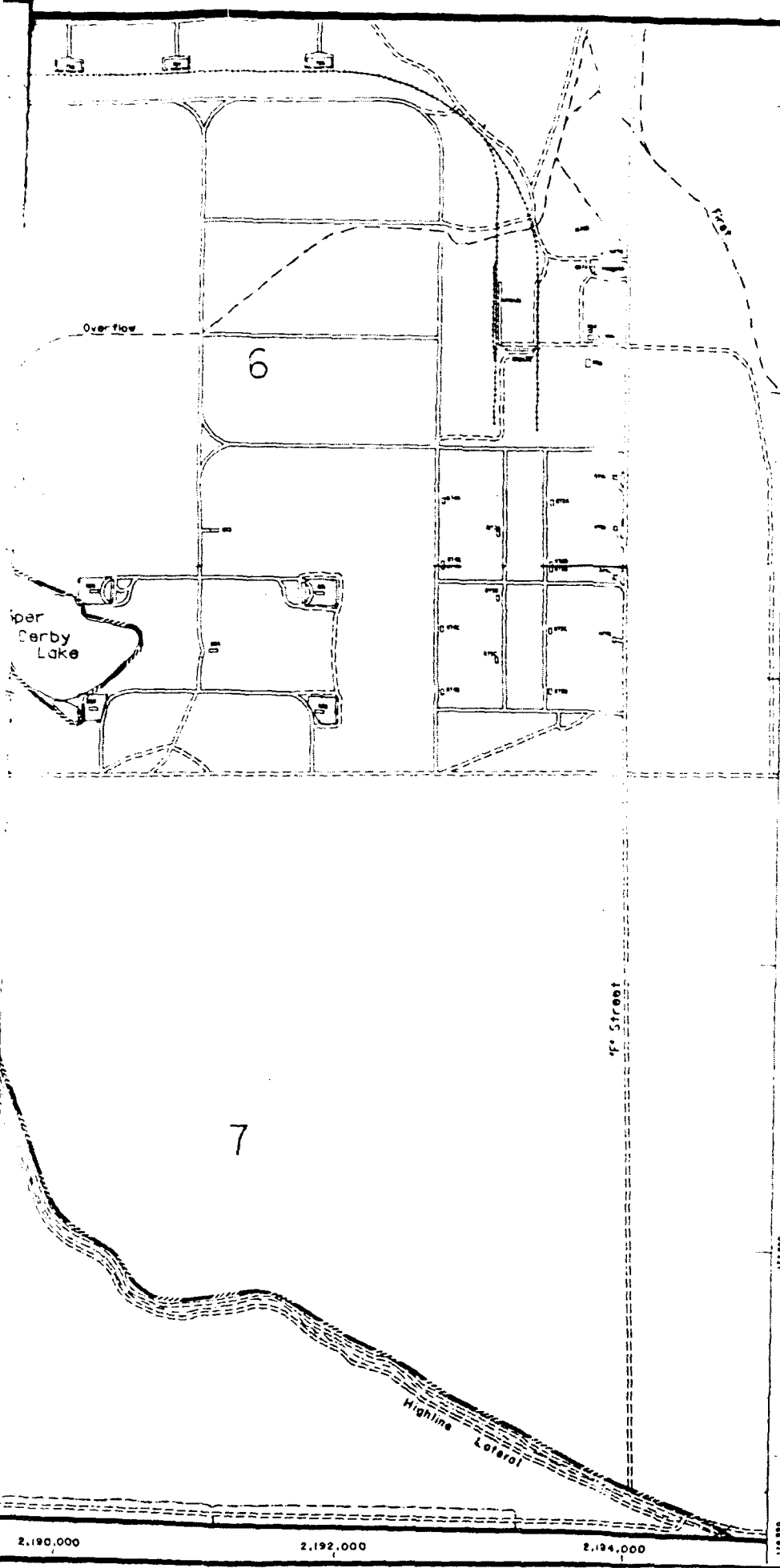
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



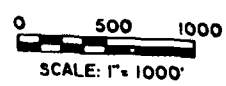
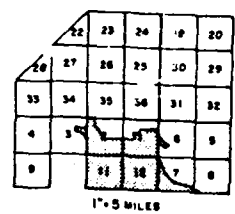
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL)
- 0.0050 - 10
- > 1.0 - 10
- > 10 - 100
- > 100

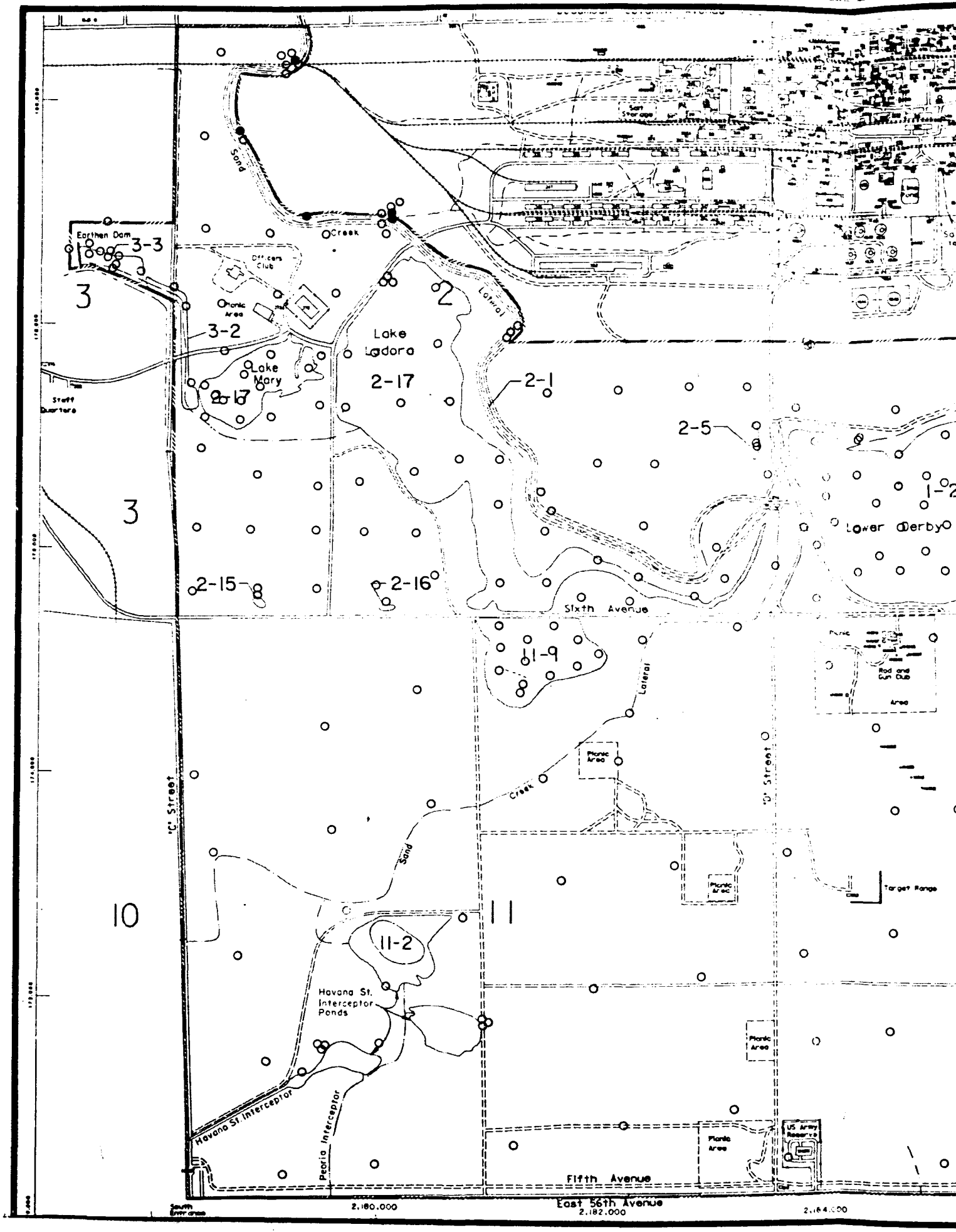
**ROCKY MOUNTAIN ARSENAL LOCATION**

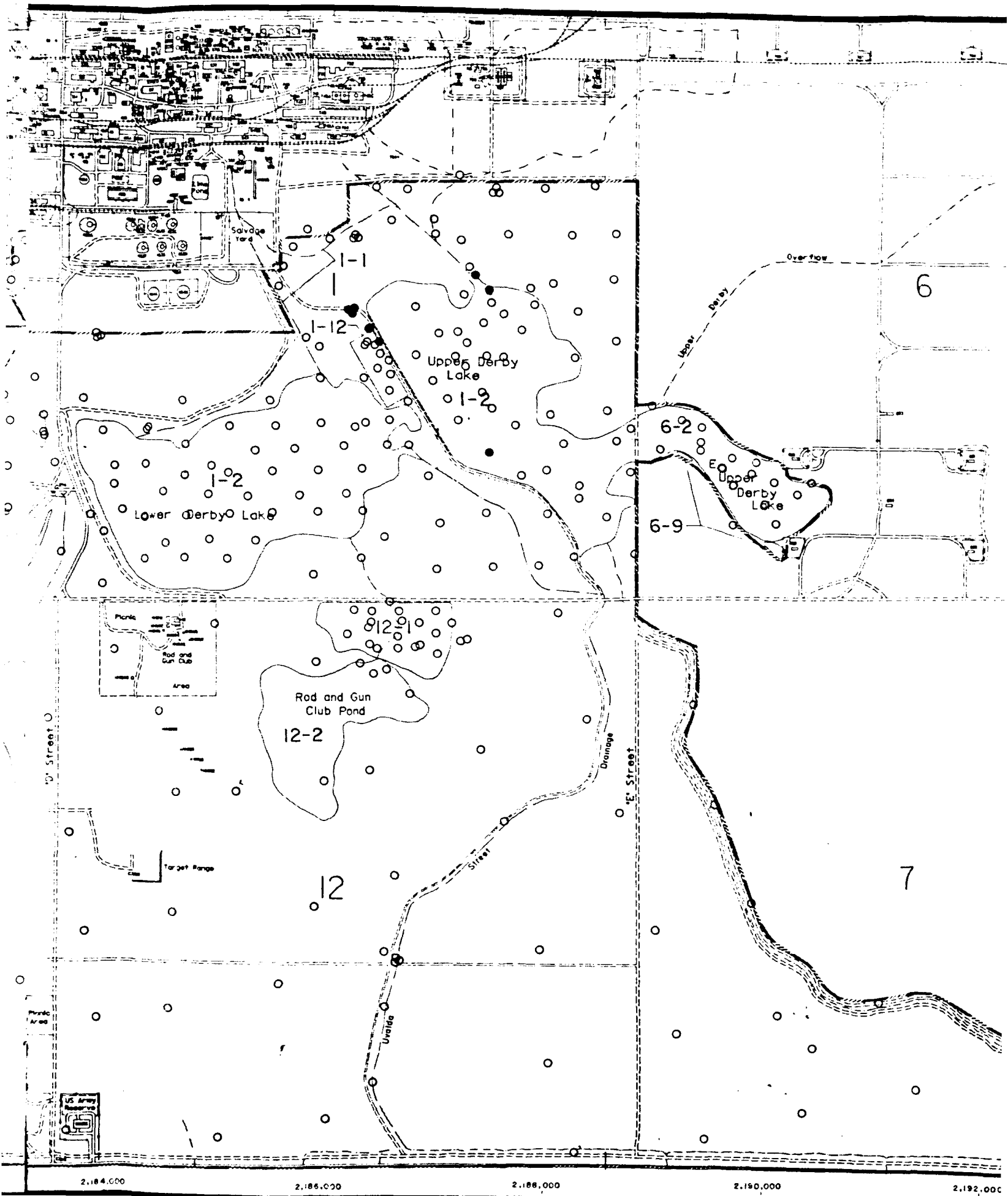


Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-9**  
 Dibromochloropropane in Soils  
 in the 5-20 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

2,190,000                      2,192,000                      2,194,000





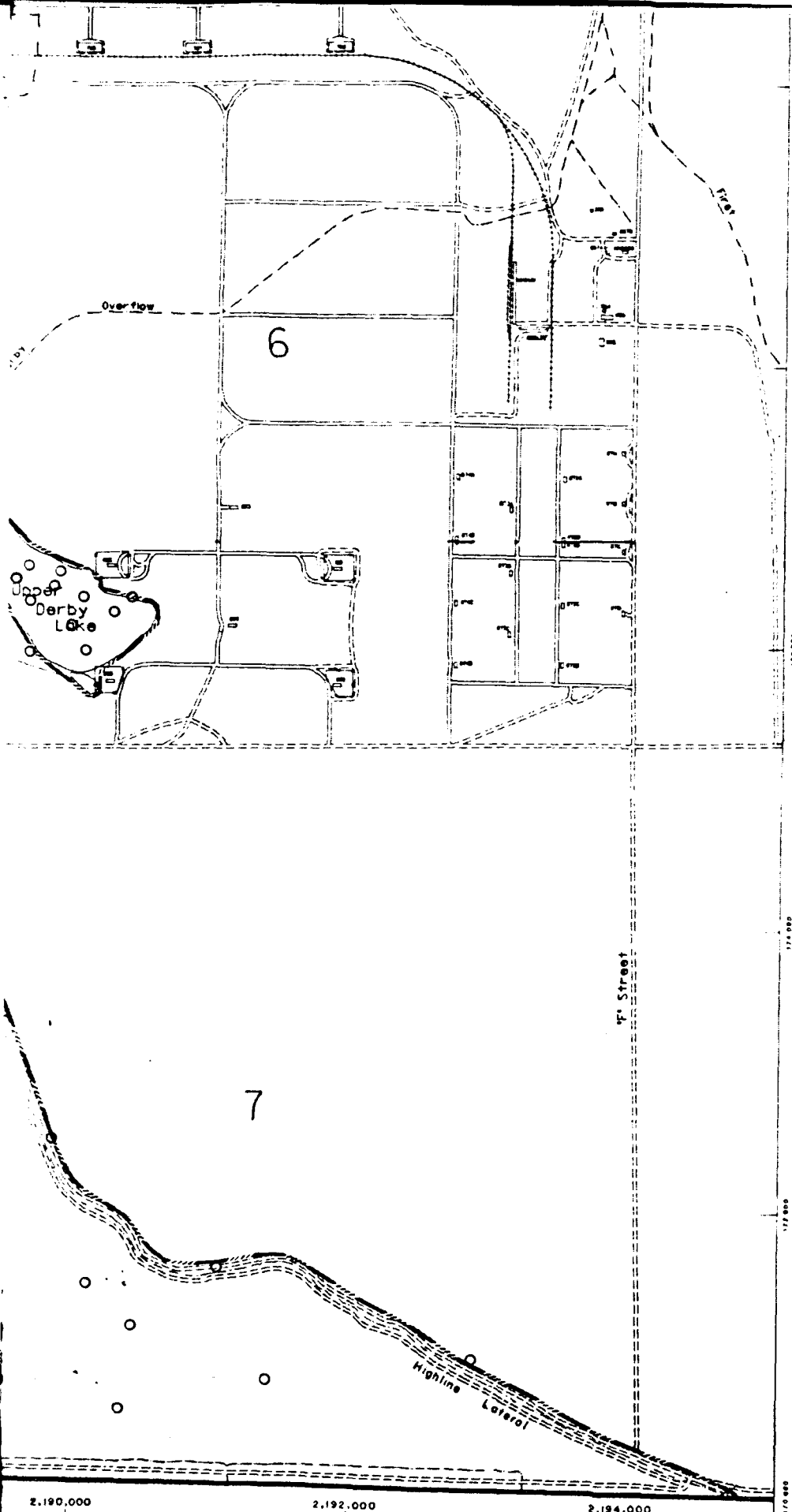
2,184,000

2,185,000

2,186,000

2,190,000

2,192,000



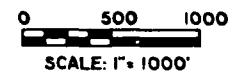
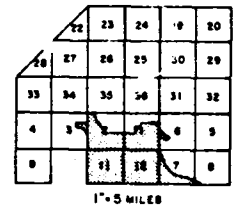
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

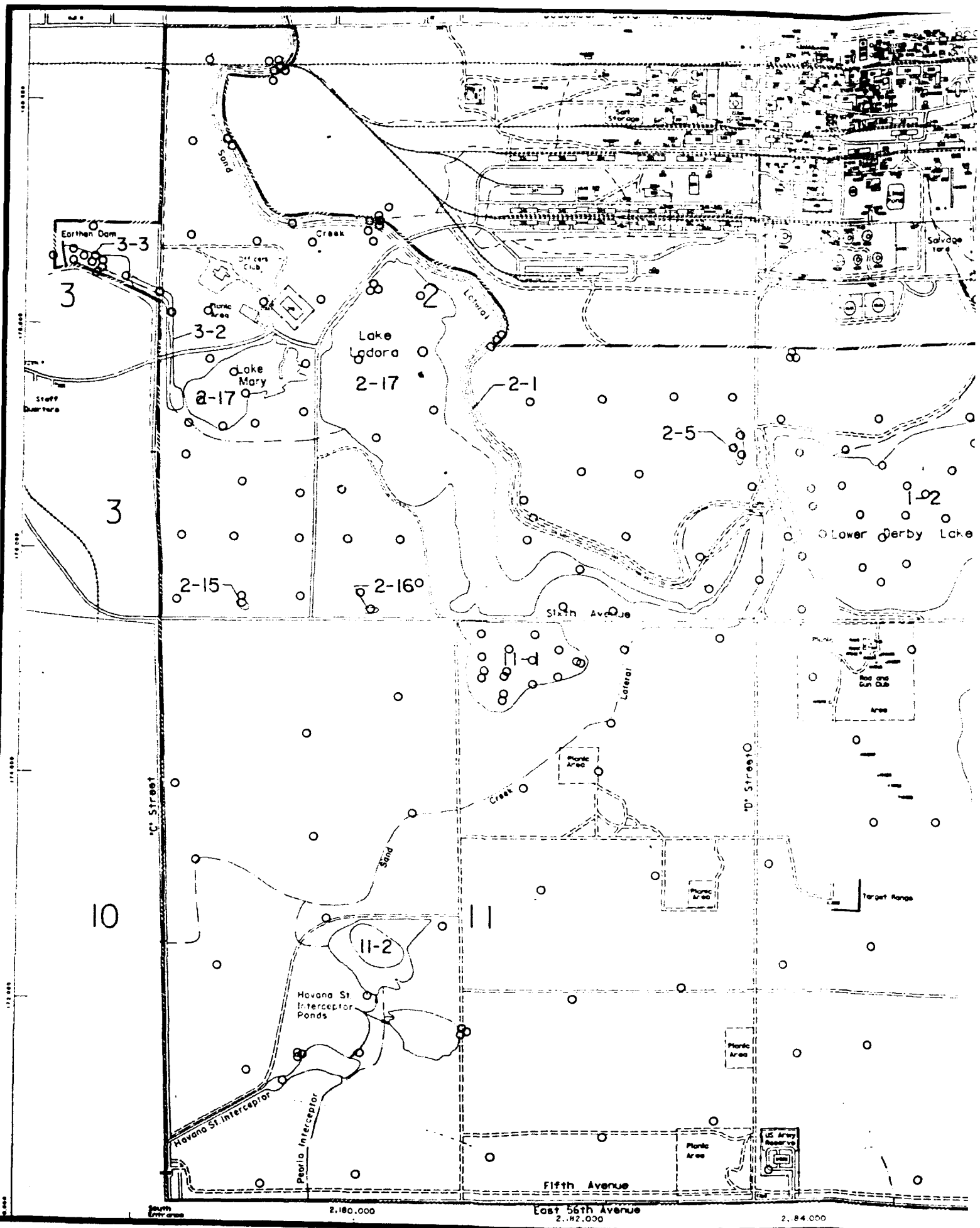
- Below Certified Reporting Limit (BCRL)
- 0.0018 - 1.0
- > 1.0 - 10
- > 10 - 100
- > 100

**ROCKY MOUNTAIN ARSENAL LOCATION**



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

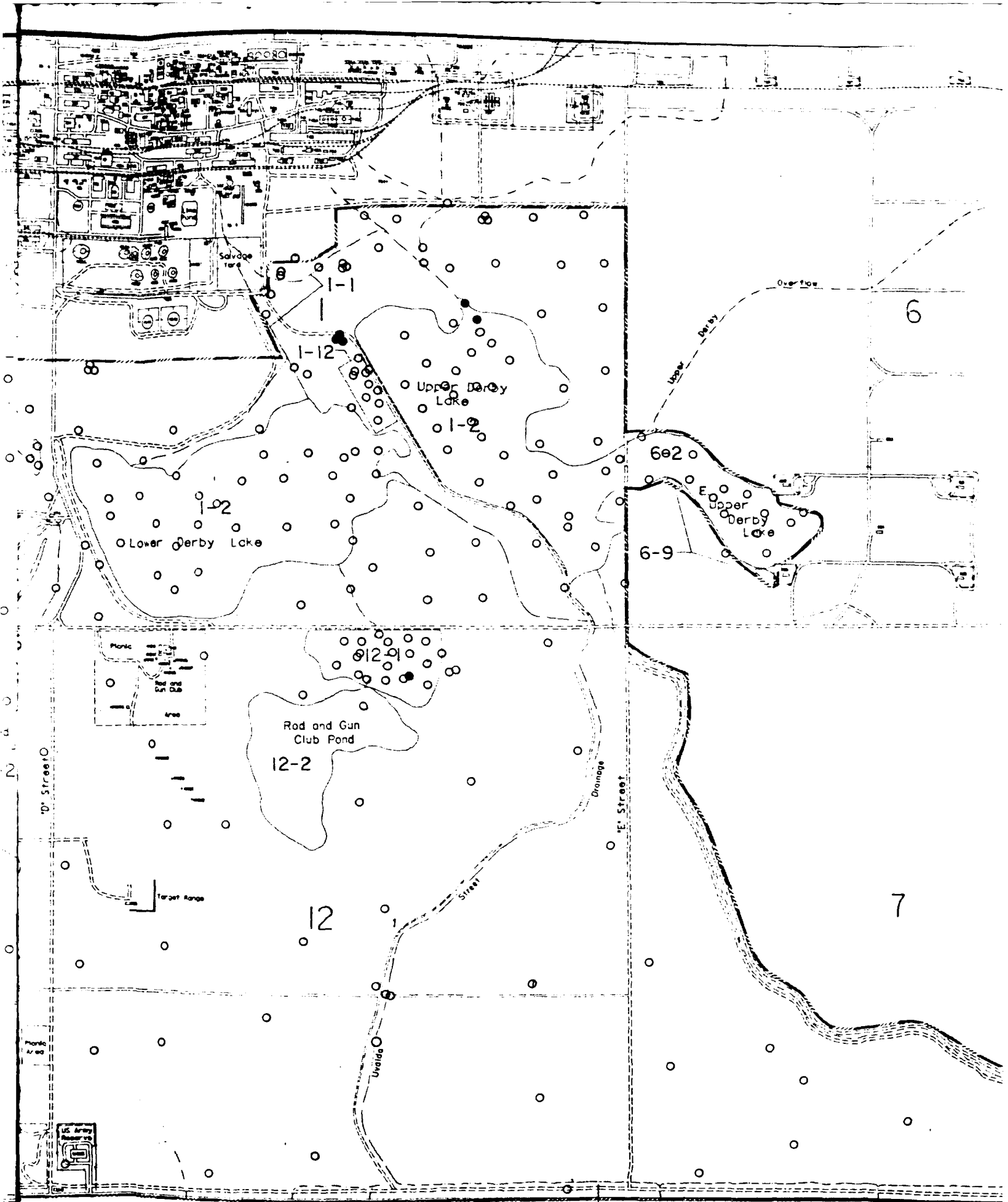
**FIGURE: SSA 2.1-10**  
 Semivolatile Halogenated Organics in Soils  
 in the 0-2 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



2,180,000

East 56th Avenue  
2,192,000

2,84,000



2,184,000

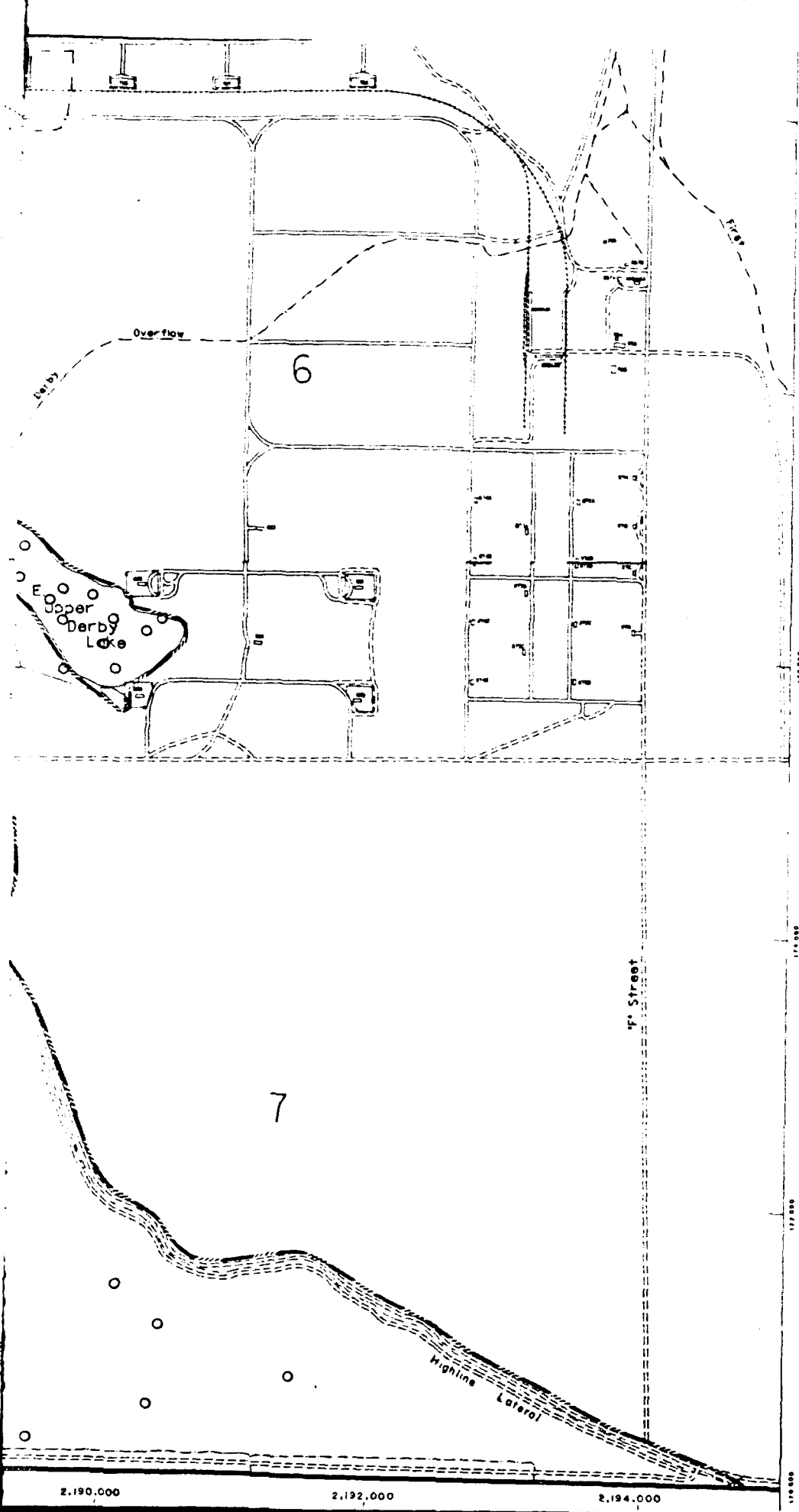
2,186,000

2,188,000

2,190,000

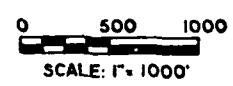
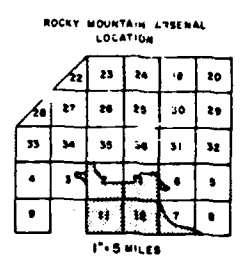
2,192,000





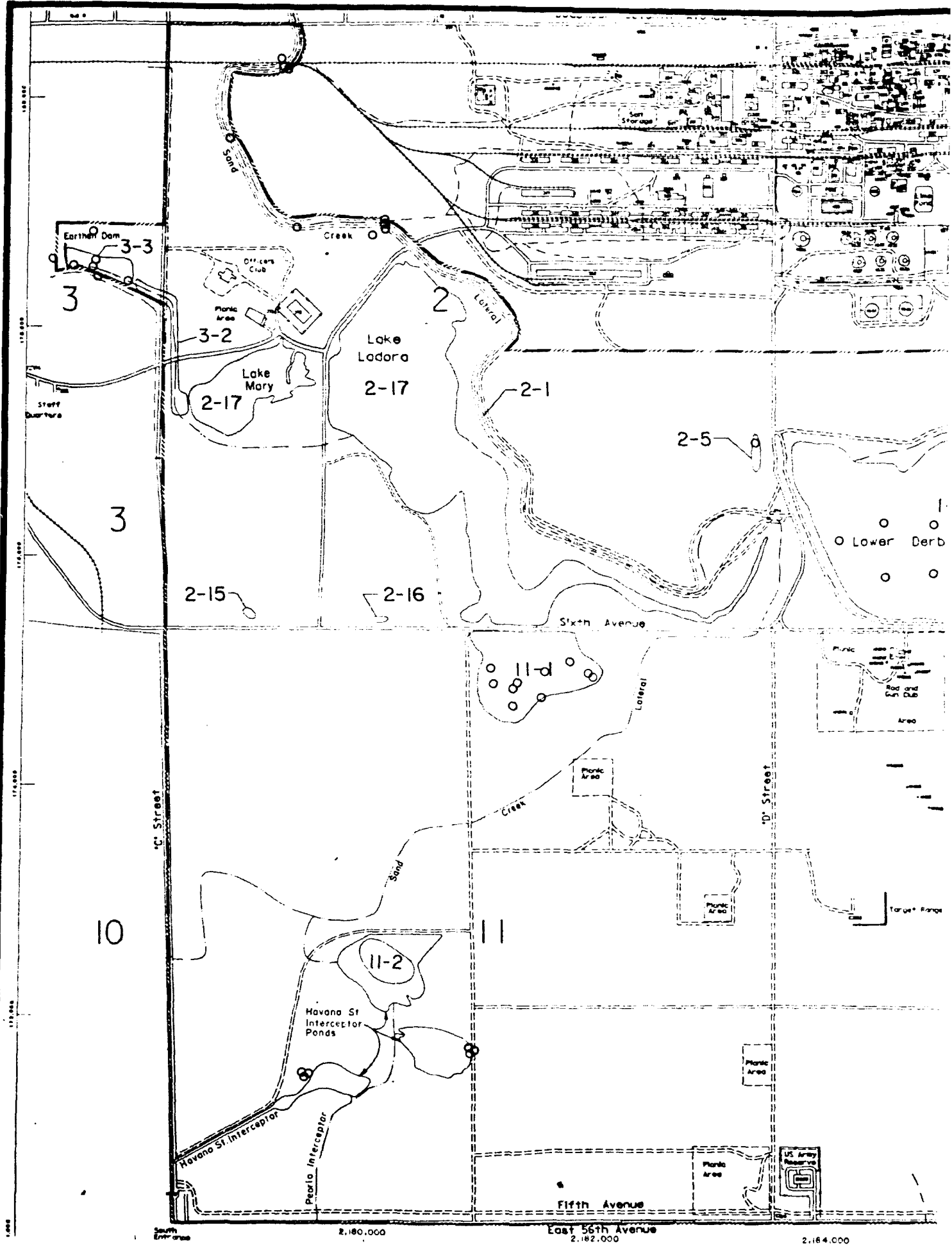
- LEGEND**
- Improved Road
  - Unimproved Road
  - Railroad Tracks
  - Existing Structure
  - Former Structure
  - Fence
  - 6** Section Number
  - Stream or Ditch
  - Study Area Boundary
- 174,000 State Plane Grid

- ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**
- Below Certified Reporting Limit (BCRL)
  - 0.0018-10
  - >1.0-10
  - >10-100
  - >100



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-11**  
 Semivolatile Halogenated Organics in  
 Soils in the 2-5 ft. Depth Interval  
**Rocky Mountain Arsenal**  
 Prepared by:  
 Ebasco Services Incorporated



118000  
116000  
114000  
112000

C Street

Sixth Avenue

Dr. Street

Fifth Avenue

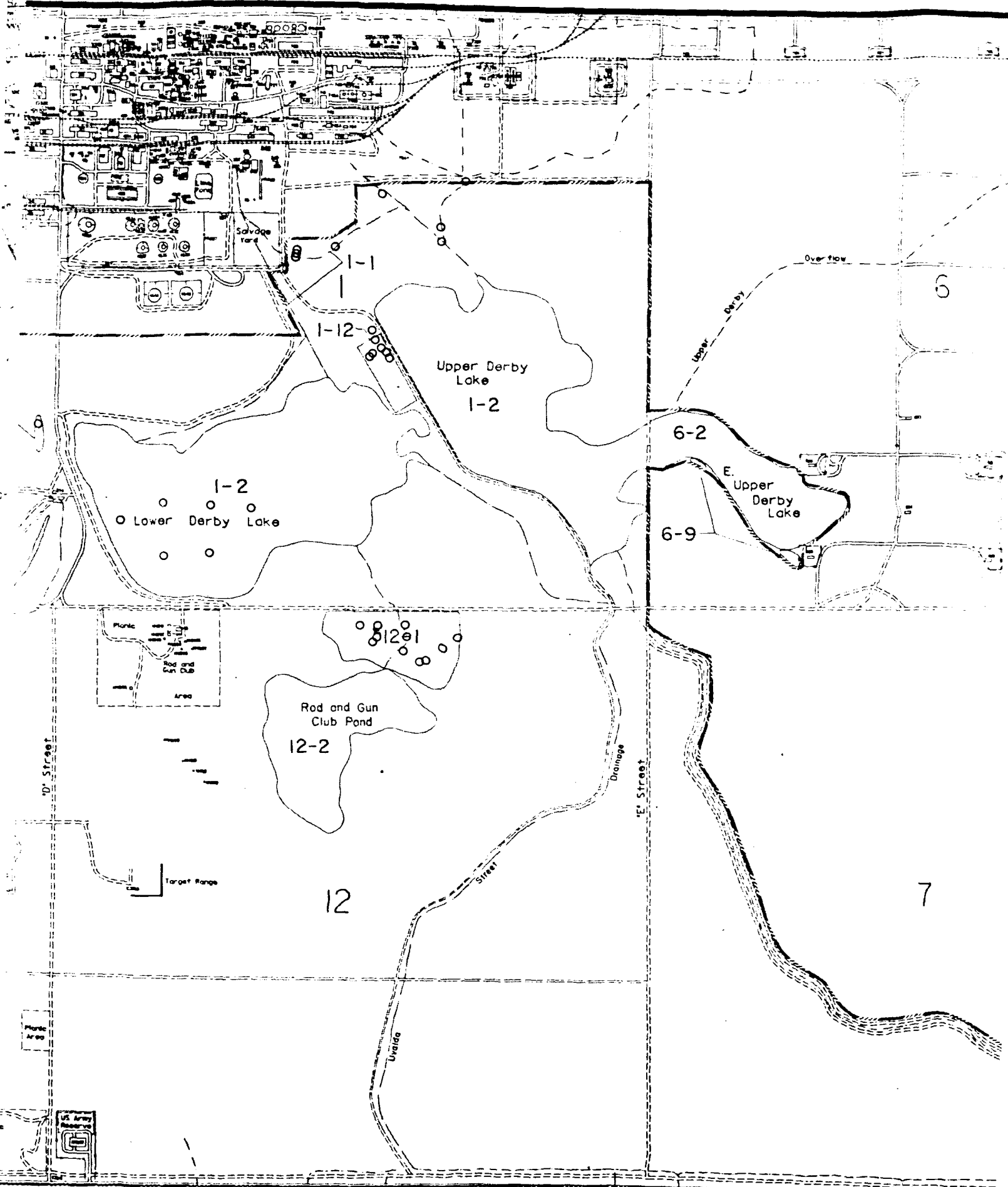
South Entrance

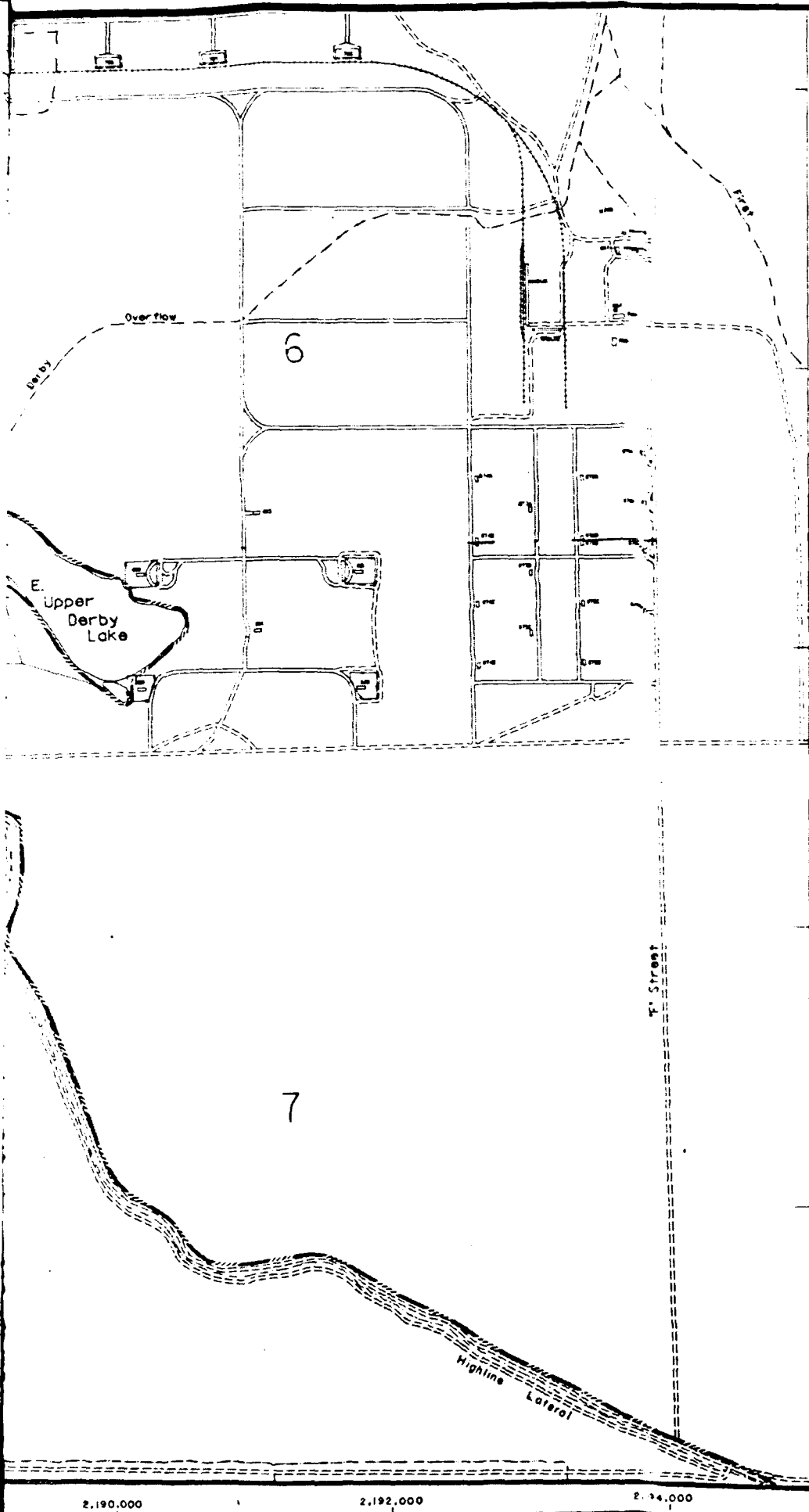
2,180,000

East 56th Avenue

2,162,000

2,164,000





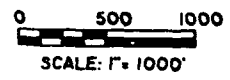
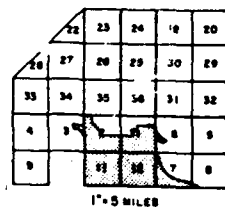
**LEGEND**

- Improved Road
  - Unimproved Road
  - Railroad Tracks
  - Existing Structure
  - Former Structure
  - Fence
  - 6** Section Number
  - Stream or Ditch
  - Study Area Boundary
- 174.000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

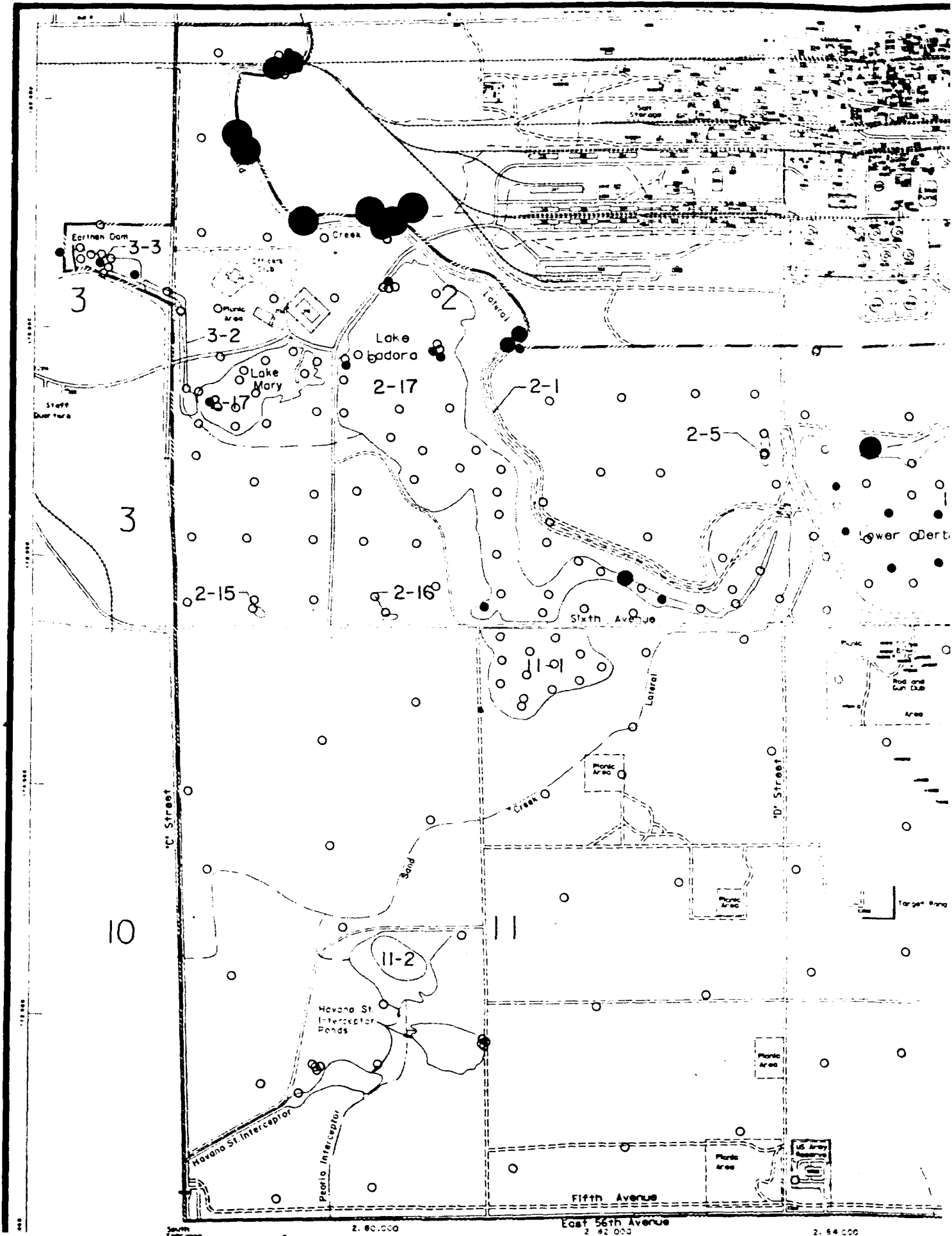
- Below Certified Reporting Limit (BCRL)
- 0.0018-1.0
- >1.0-10
- >10-100
- >100

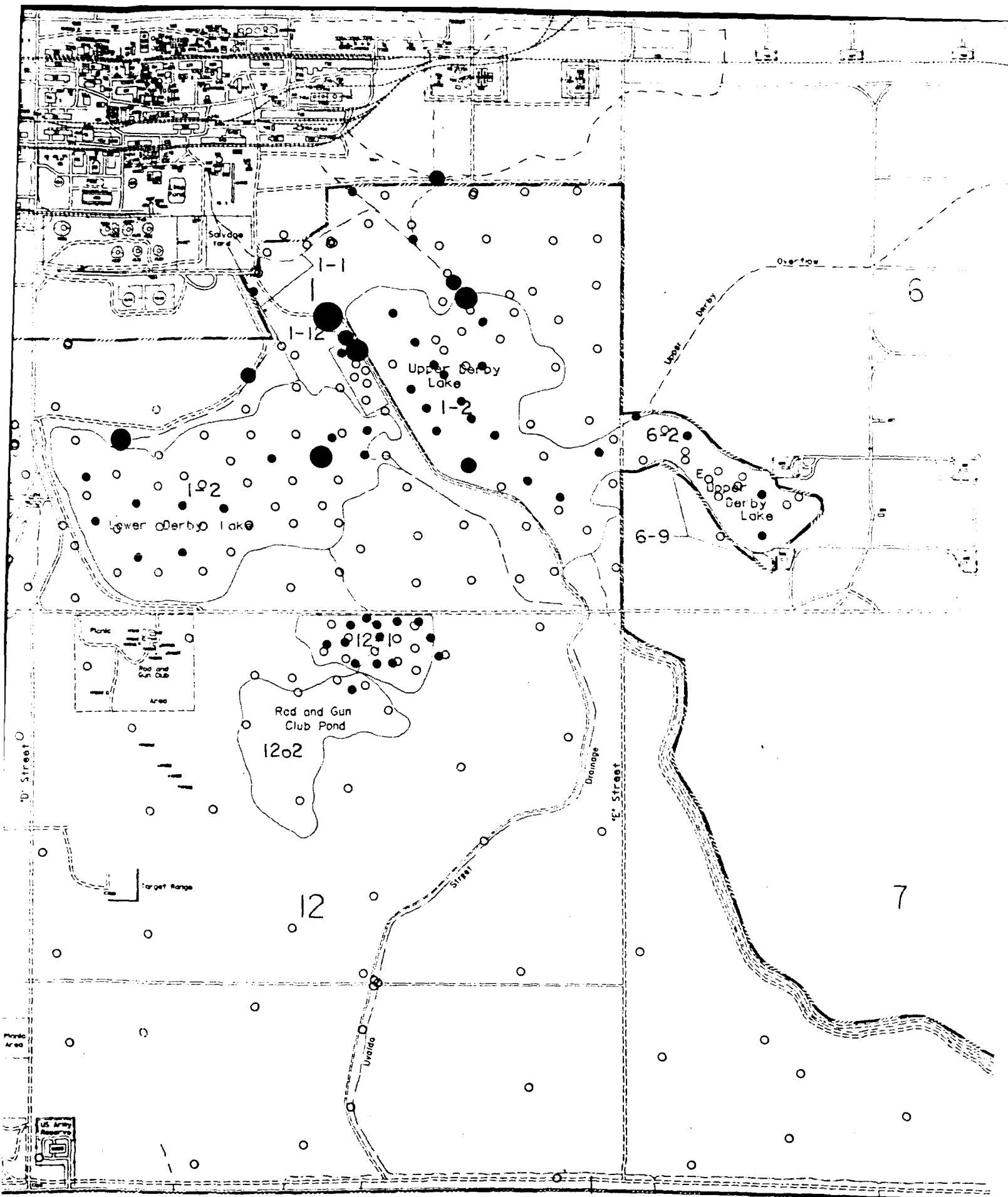
**ROCKY MOUNTAIN ARSENAL LOCATION**

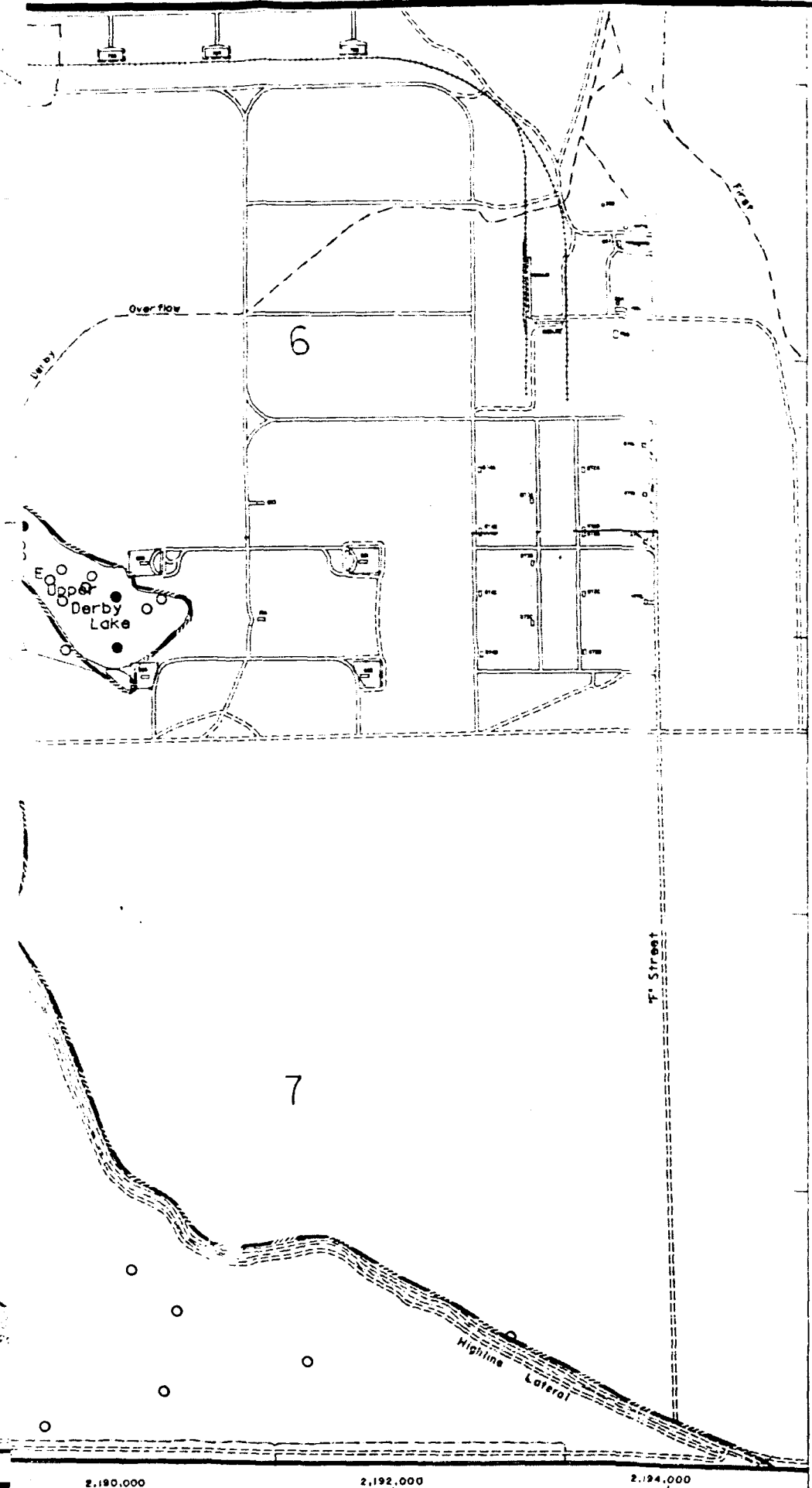


Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-12**  
 Semivolatile Halogenated Organics in  
 Soils in the 5-20 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



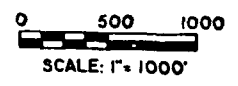
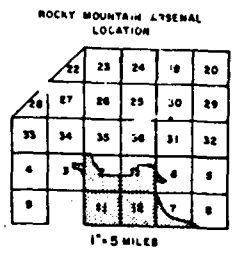




- LEGEND**
- Improved Road
  - Unimproved Road
  - Railroad Tracks
  - Existing Structure
  - Former Structure
  - Fence
  - 6** Section Number
  - Stream or Ditch
  - Study Area Boundary
- 174,000 State Plane Grid

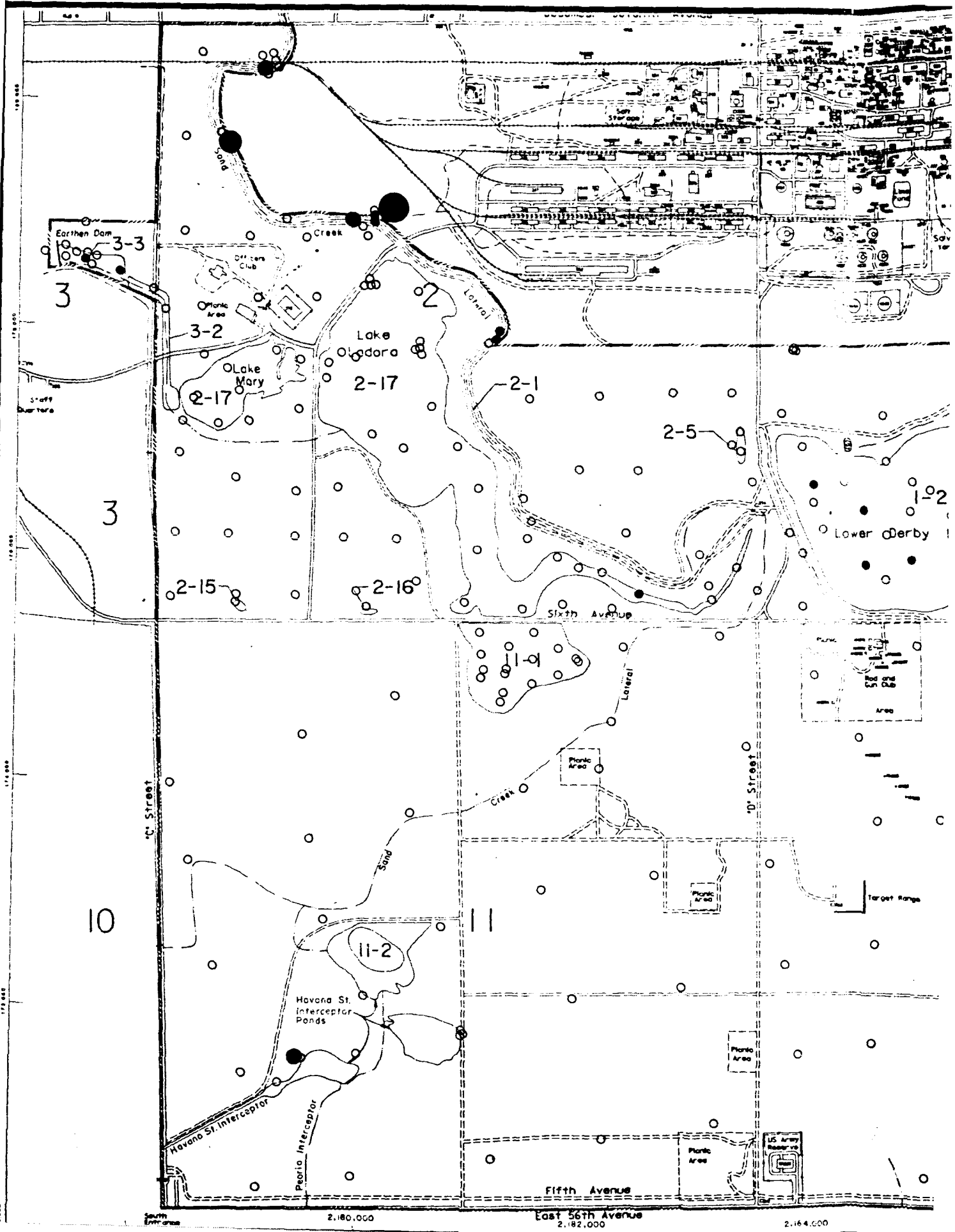
**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL)
- 0.001-10
- > 1.0-10
- > 10-100
- > 100

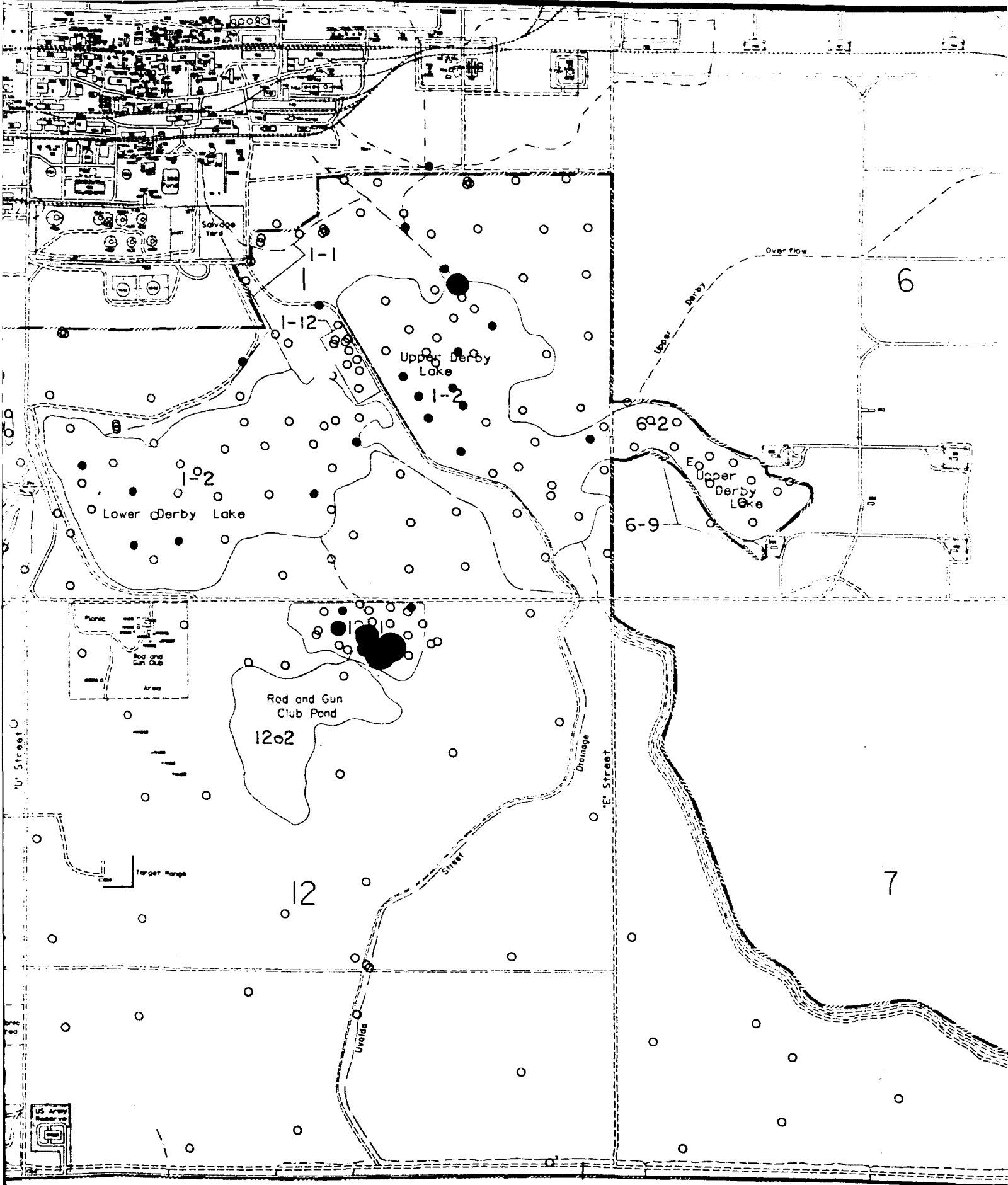


Prepared for:  
**Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup**

**FIGURE: SSA 2.1-13**  
 Organochlorine Pesticides in Soils in the 0-2 ft. Depth Interval. SUBGROUP 1 (Aldrin, Dieldrin, Endrin, Isodrin)  
**Rocky Mountain Arsenal**  
 Prepared by:  
**Ebasco Services Incorporated**







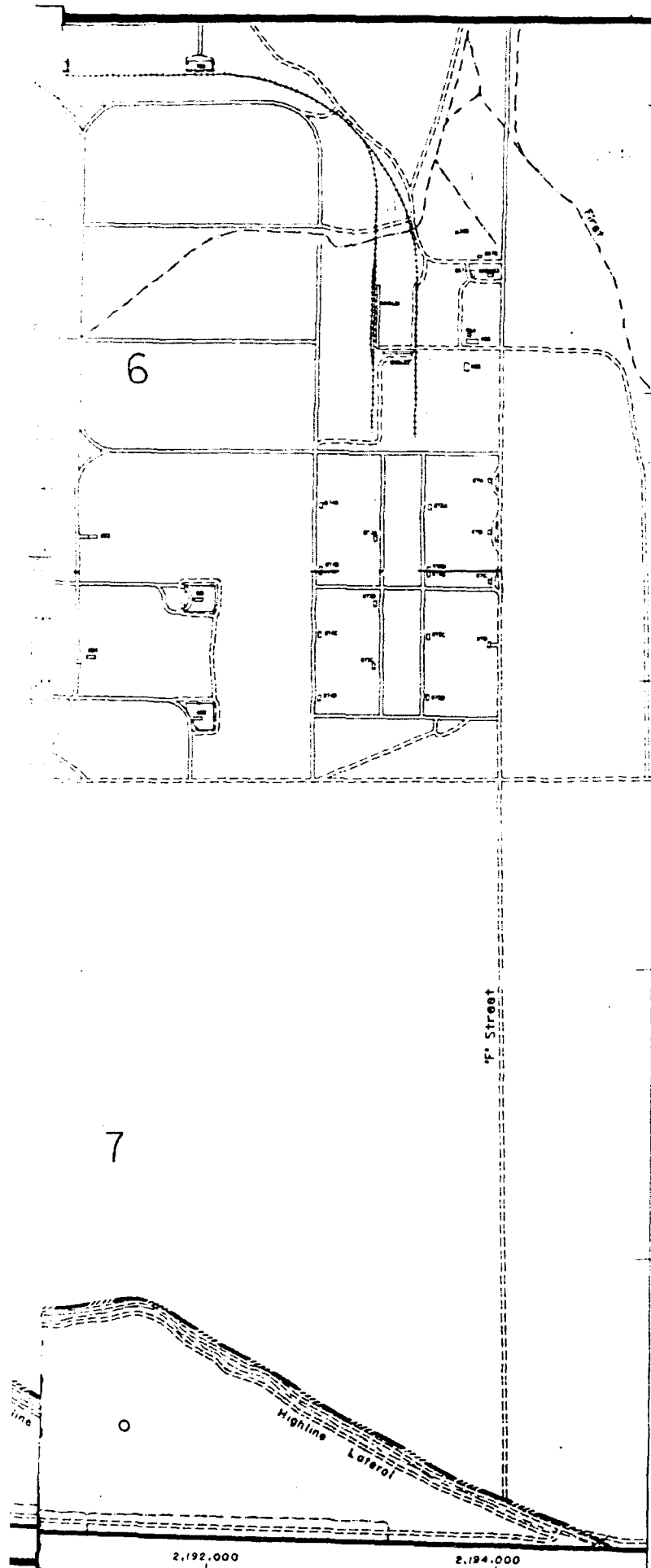
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



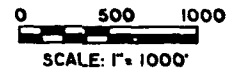
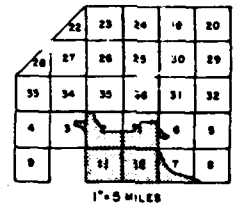
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

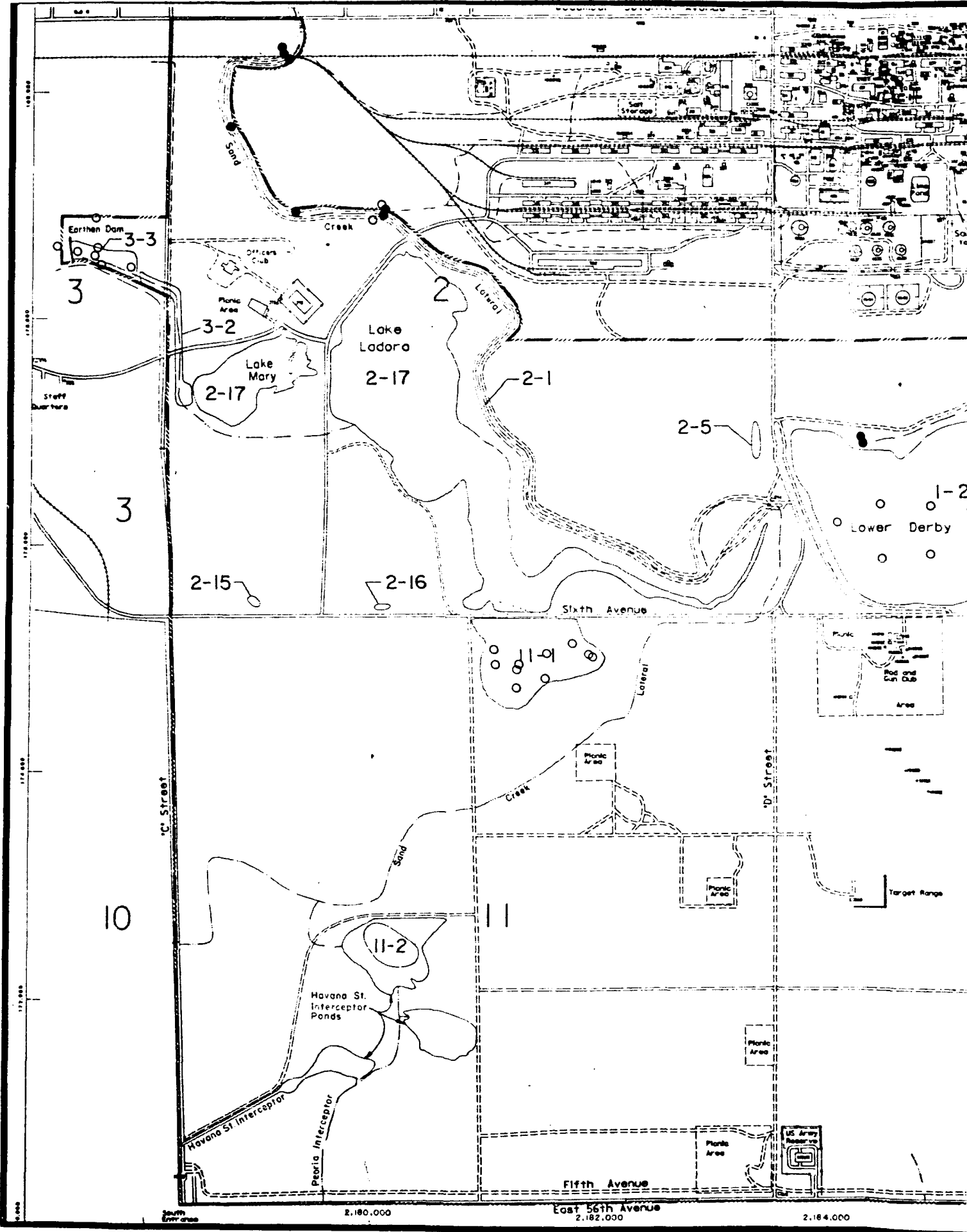
- Below Certified Reporting Limit (BCRL)
- 0.001-1.0
- > 1.0-10
- > 10-100
- > 100

**ROCKY MOUNTAIN ARSENAL LOCATION**



Prepared for:  
**Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup**

**FIGURE: SSA 2.1-14**  
 Organochlorine Pesticides in Soils in the 2-5 ft. Depth Interval. SUBGROUP 1 (Aldrin, Dieldrin, Endrin, Isodrin)  
**Rocky Mountain Arsenal**  
 Prepared by:  
**Ebasco Services Incorporated**



Earthen Dam 3-3

Officers Club

Picnic Area 3-2

Lake Mary 2-17

Lake Ladora 2-17

2-1

2-5

1-2  
Lower Derby

2-15

2-16

Sixth Avenue

Picnic Area  
Sod Sod Sod Sod

Picnic Area

Picnic Area

Target Range

10

11-2

Havana St. Interceptor Ponds

Havana St. Interceptor

Peoria Interceptor

Picnic Area

Picnic Area

US Army Reservation

Fifth Avenue

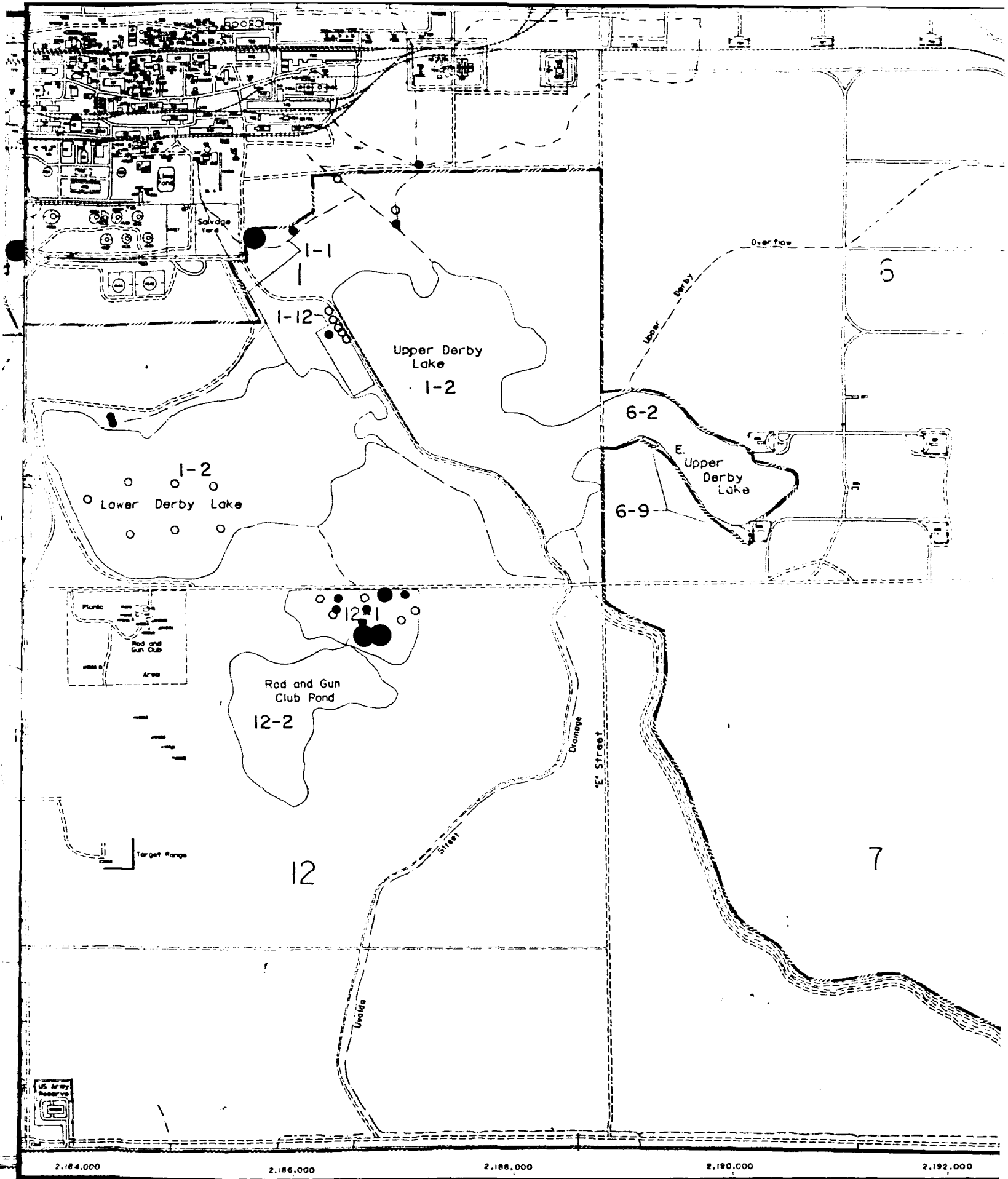
East 56th Avenue  
2,182,000

2,184,000

2,180,000

2,178,000

118,000  
116,000  
114,000  
112,000  
110,000



Salvage Yard

1-1

1-12

Upper Derby Lake  
1-2

1-2

Lower Derby Lake

6-2

E. Upper Derby Lake

6-9

5

Plastic Area

Rod and Gun Club Pond

12-2

12-1

Target Range

12

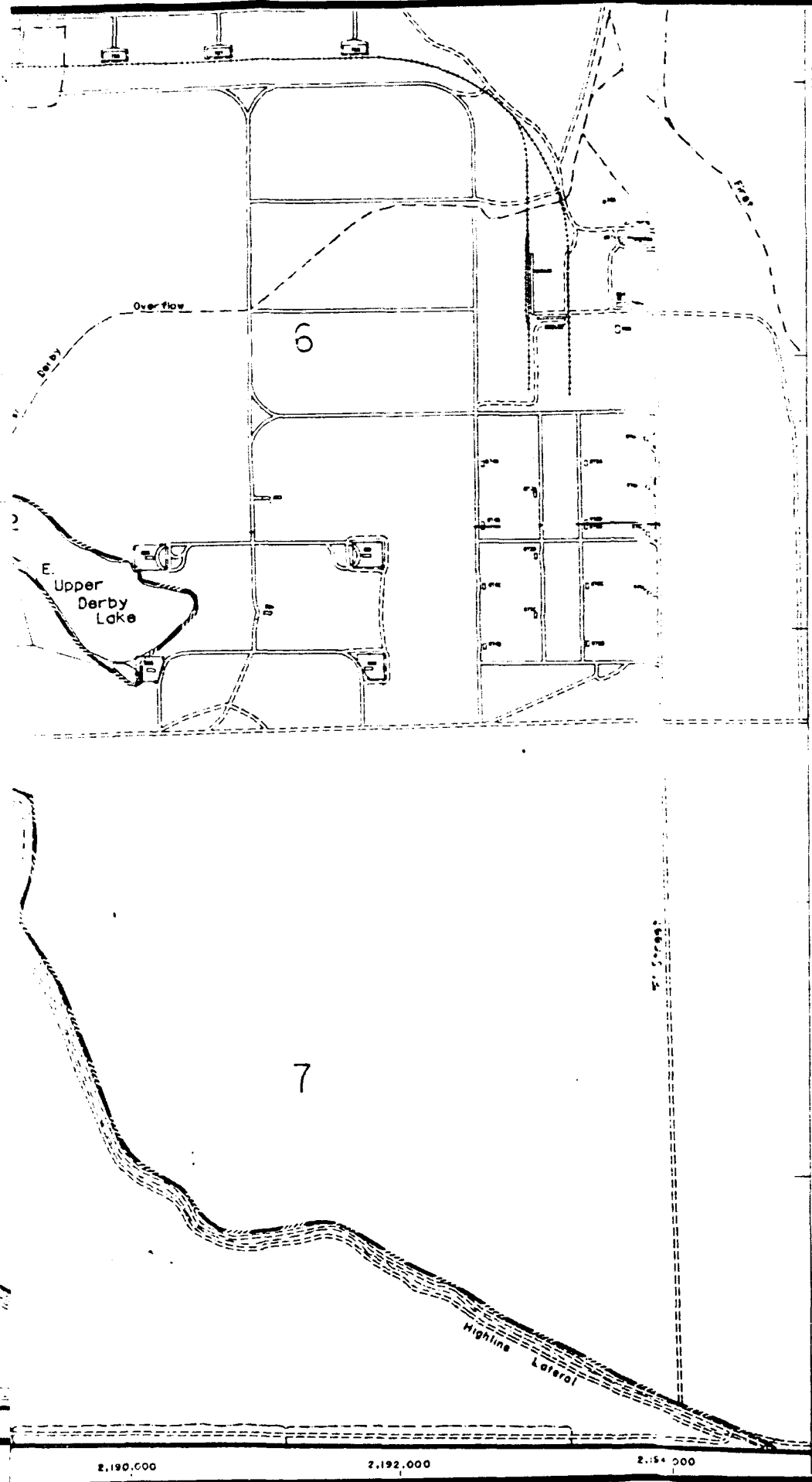
Drainage  
E Street

Street

Uvalde

7

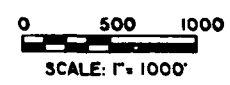
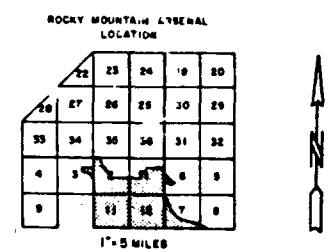




- LEGEND**
- Improved Road
  - Unimproved Road
  - Railroad Tracks
  - Existing Structure
  - Former Structure
  - Fence
  - 6** Section Number
  - Stream or Ditch
  - Study Area Boundary
- 174,000 State Plane Grid

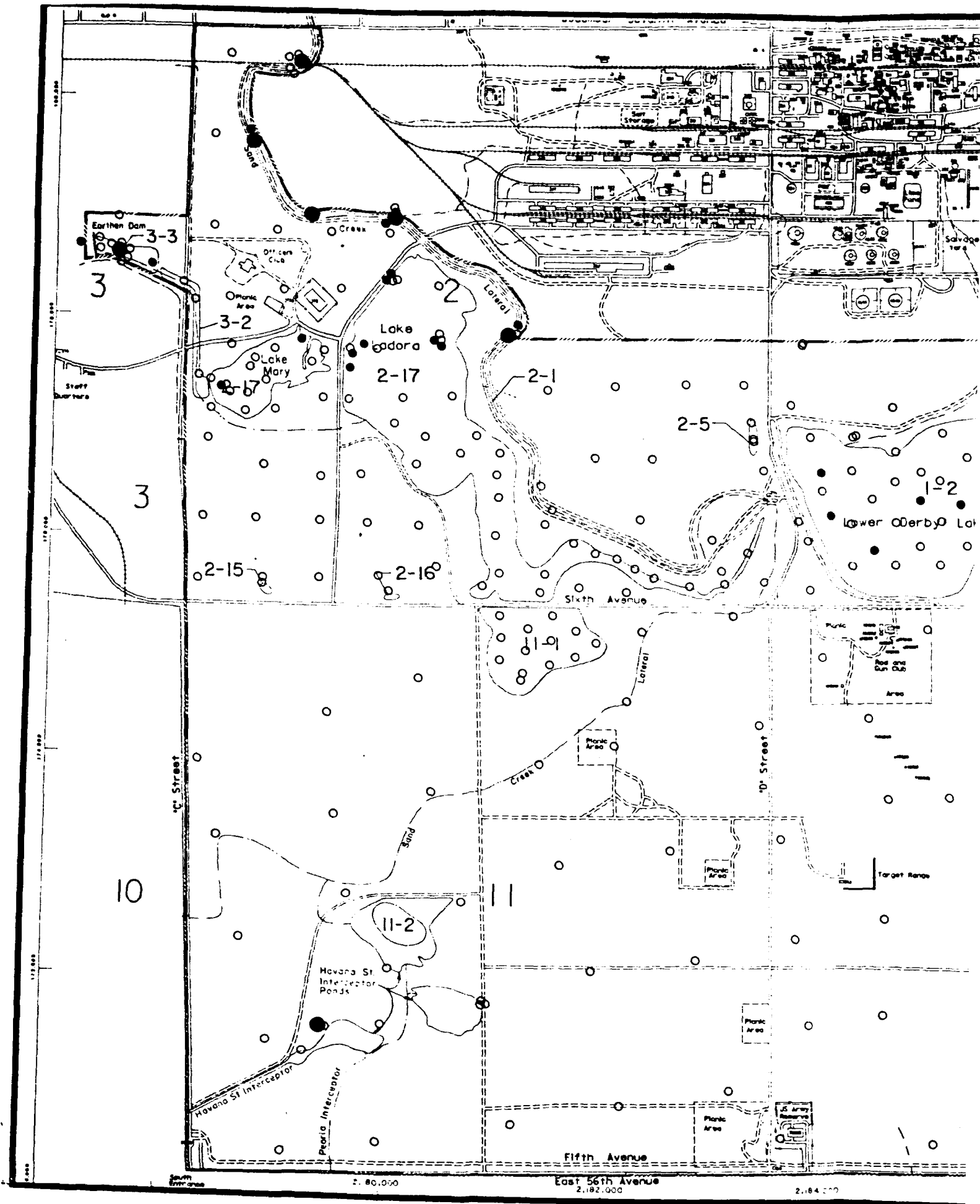
**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL)
- 0.001-1.0
- > 1.0-10
- > 10-100
- > 100



Prepared for:  
**Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup**

**FIGURE: SSA 2.1-15**  
 Organochlorine Pesticides in Soils in the 5-20 ft  
 Depth Interval. SUBGROUP I (Aldrin, Dieldrin,  
 Endrin, Isodrin)  
**Rocky Mountain Arsenal**  
 Prepared by:  
**Ebasco Services Incorporated**



Earthen Dam  
3-3  
3

3-2  
Lake Mary  
3-17

Lake godora  
2-17

2-1

2-5

1-2  
Lower Derby Lot

2-15

2-16

Sixth Avenue

10

11-2

Havana St Interceptor Ponds

Havana St Interceptor

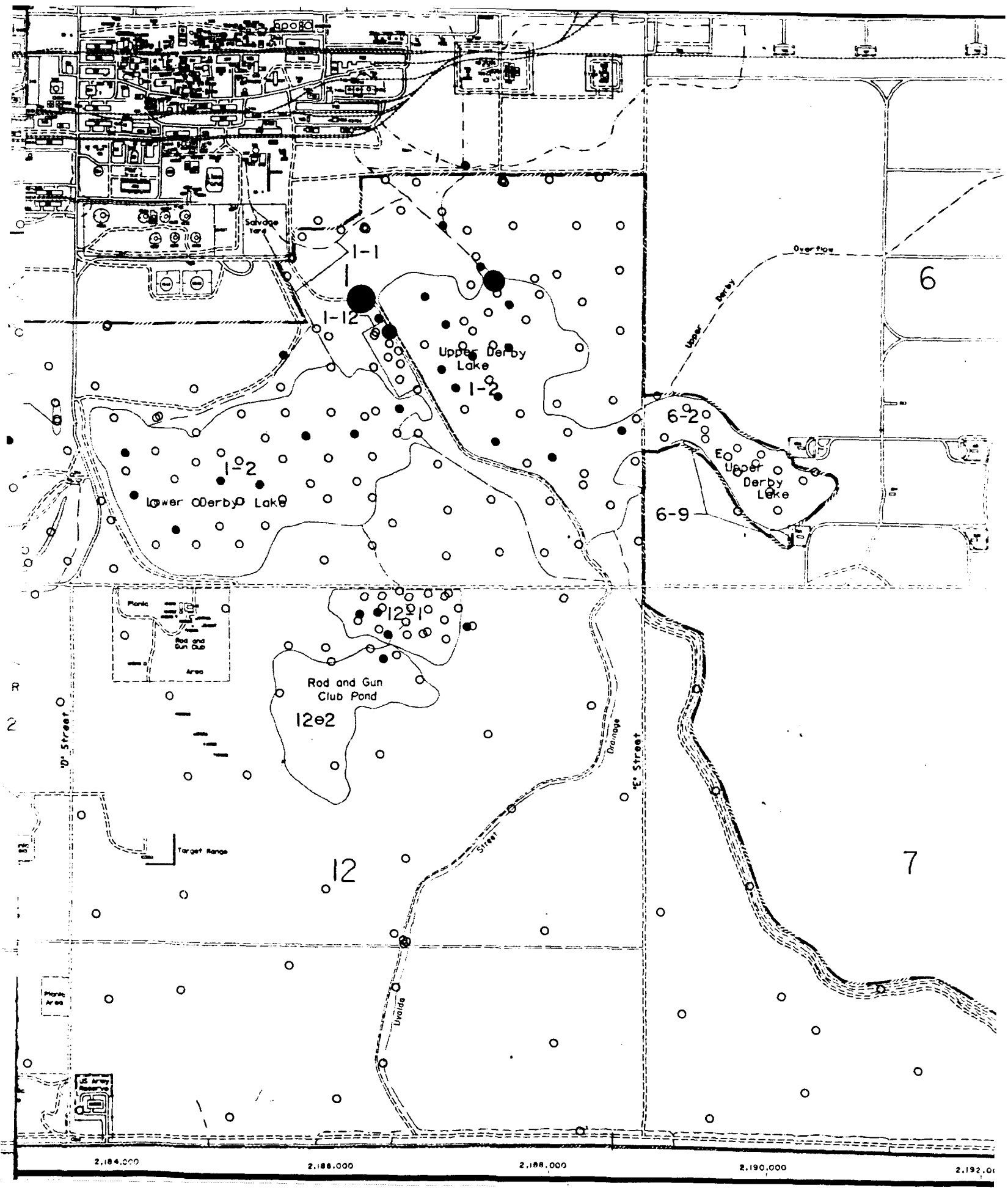
Peoria Interceptor

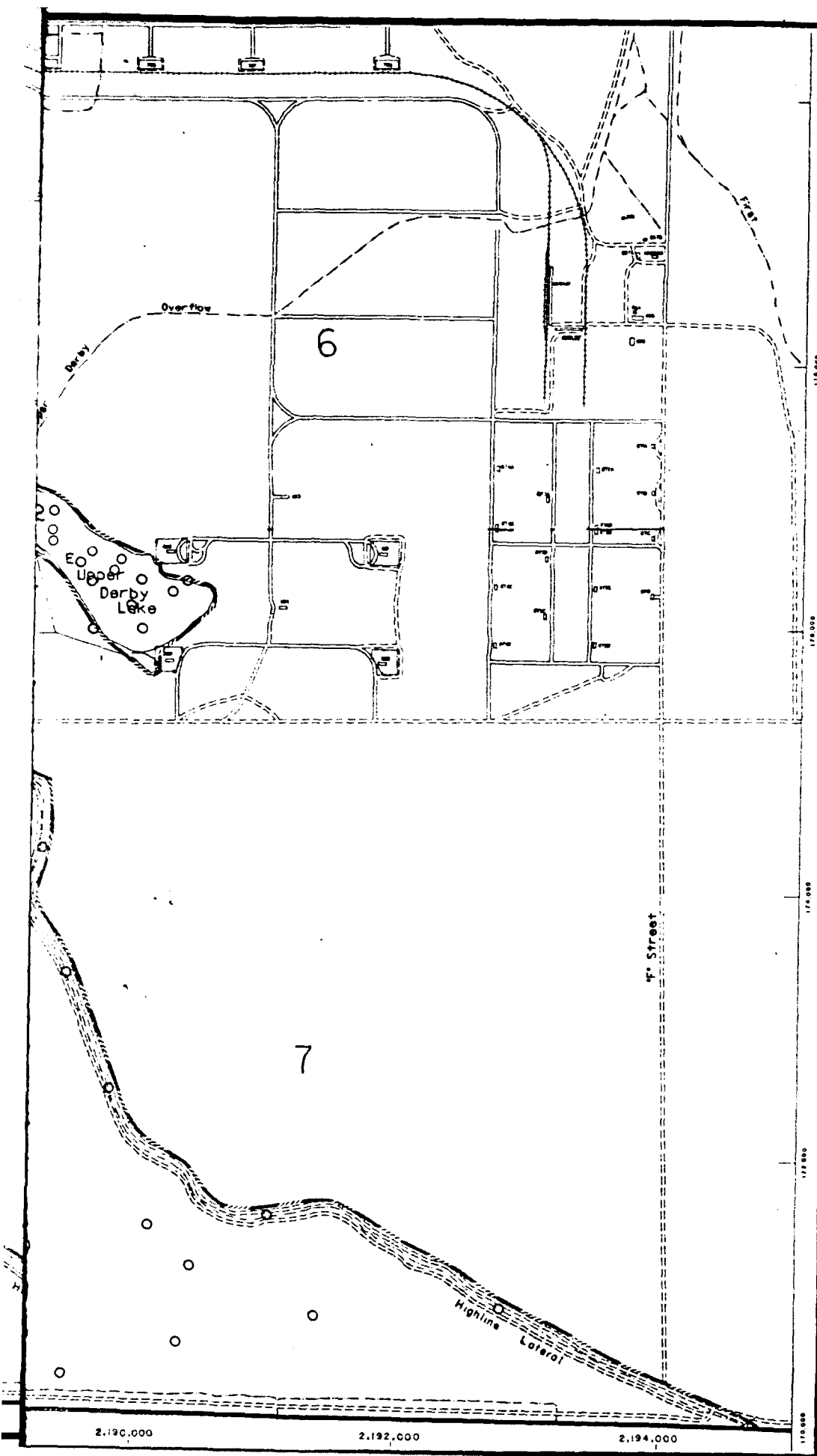
Fifth Avenue

East 56th Avenue  
2,182,000

2,80,000

2,184,000





**LEGEND**

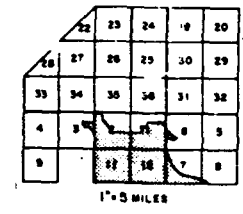
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

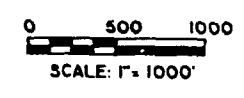
**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL)
- 0.001-1.0
- > 1.0-10
- > 10-100
- > 100

**ROCKY MOUNTAIN ARSENAL LOCATION**



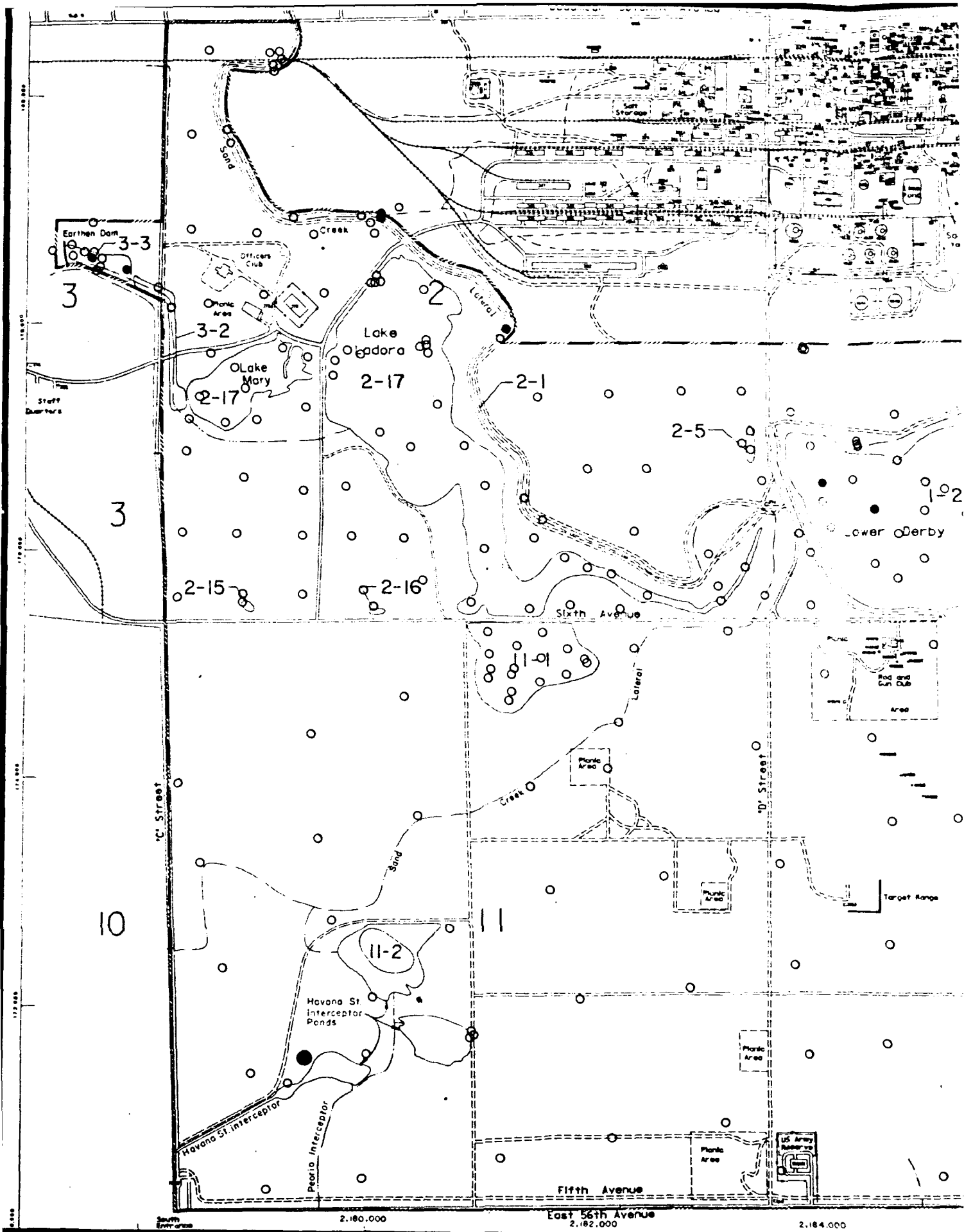
1" = 5 MILES



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-16**  
 Organochlorine Pesticides in Soils in the 0-2 ft. Depth Interval. SUBGROUP 2 (Dichlorodiphenylethane, Dichlorodiphenyltrichloroethane, Chlordane)  
**Rocky Mountain Arsenal**  
 Prepared by:  
 Ebasco Services Incorporated





Earthen Dam  
3-3  
3

Officers Club  
3-2

Lake Mary  
2-17

Lake Adora  
2-17

2-1

2-5

1-2  
Lower Derby

2-15

2-16

Sixth Avenue

10

11-2

Havana St Interceptor Ponds

Havana St. Interceptor  
Pavia Interceptor

Fifth Avenue

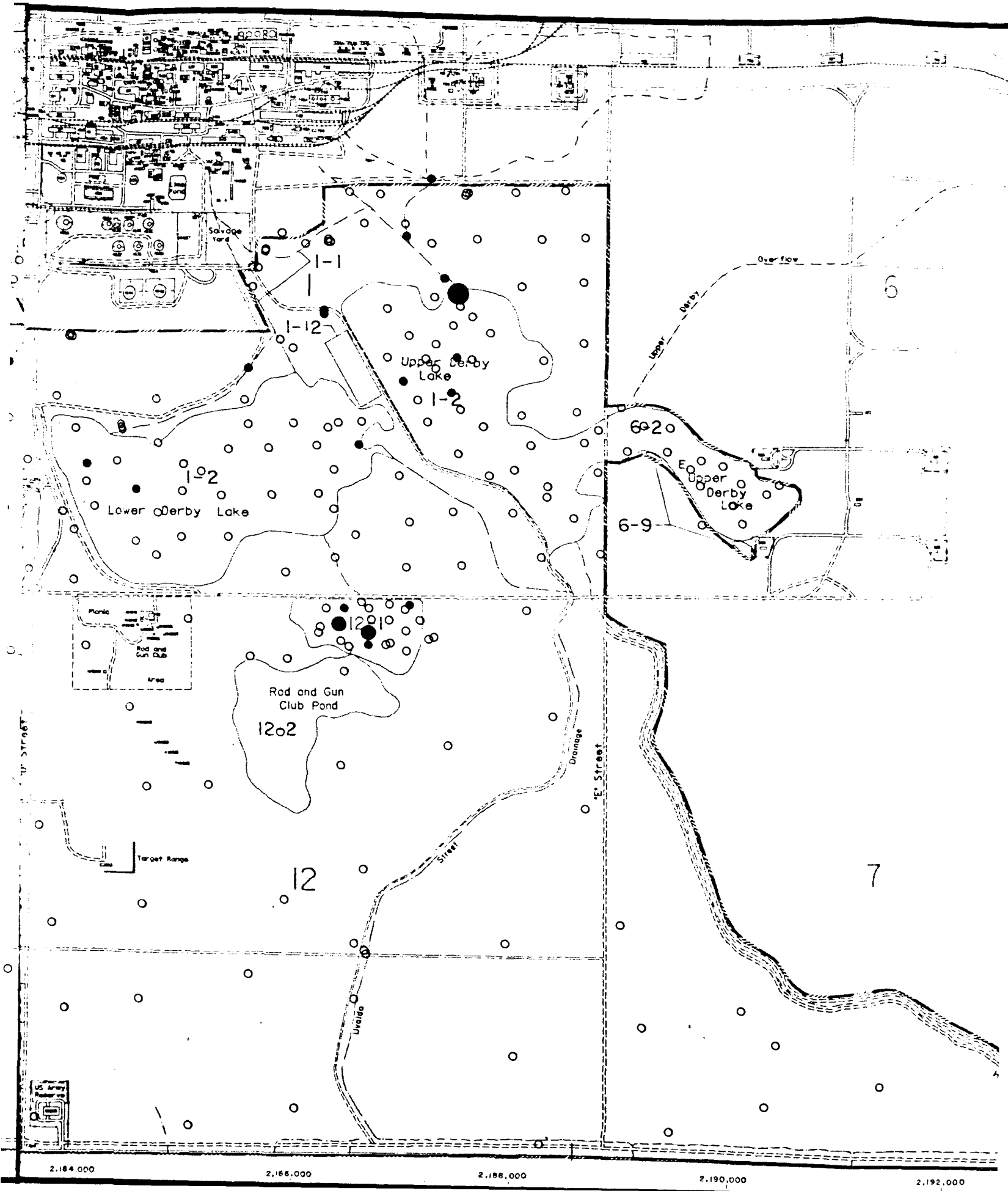
US Army Barracks

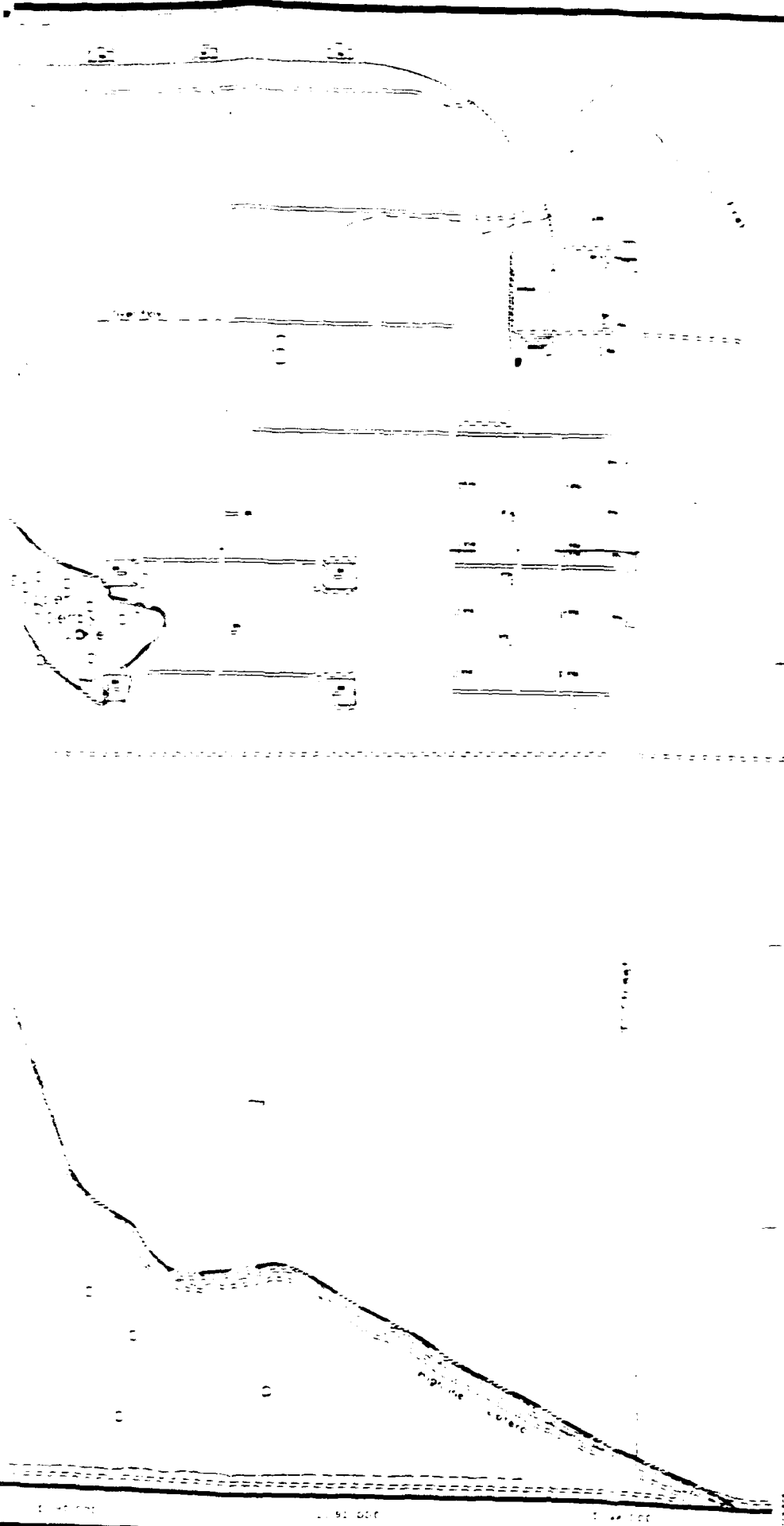
South  
Corner of

2,180,000

East 56th Avenue  
2,182,000

2,184,000





- LEGEND**
- ==== Improved Road
  - Unimproved Road
  - ==== Railroad Tracks
  - ==== Existing Structure
  - Former Structure
  - Fence
  - 6** Sector Number
  - Stream or Ditch
  - Plume Area Boundary
  - State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION LEGEND**

- Below Certified Reporting Limit (CRL)
- 0.00100
- 0.0100
- 0.1000
- 1.0000

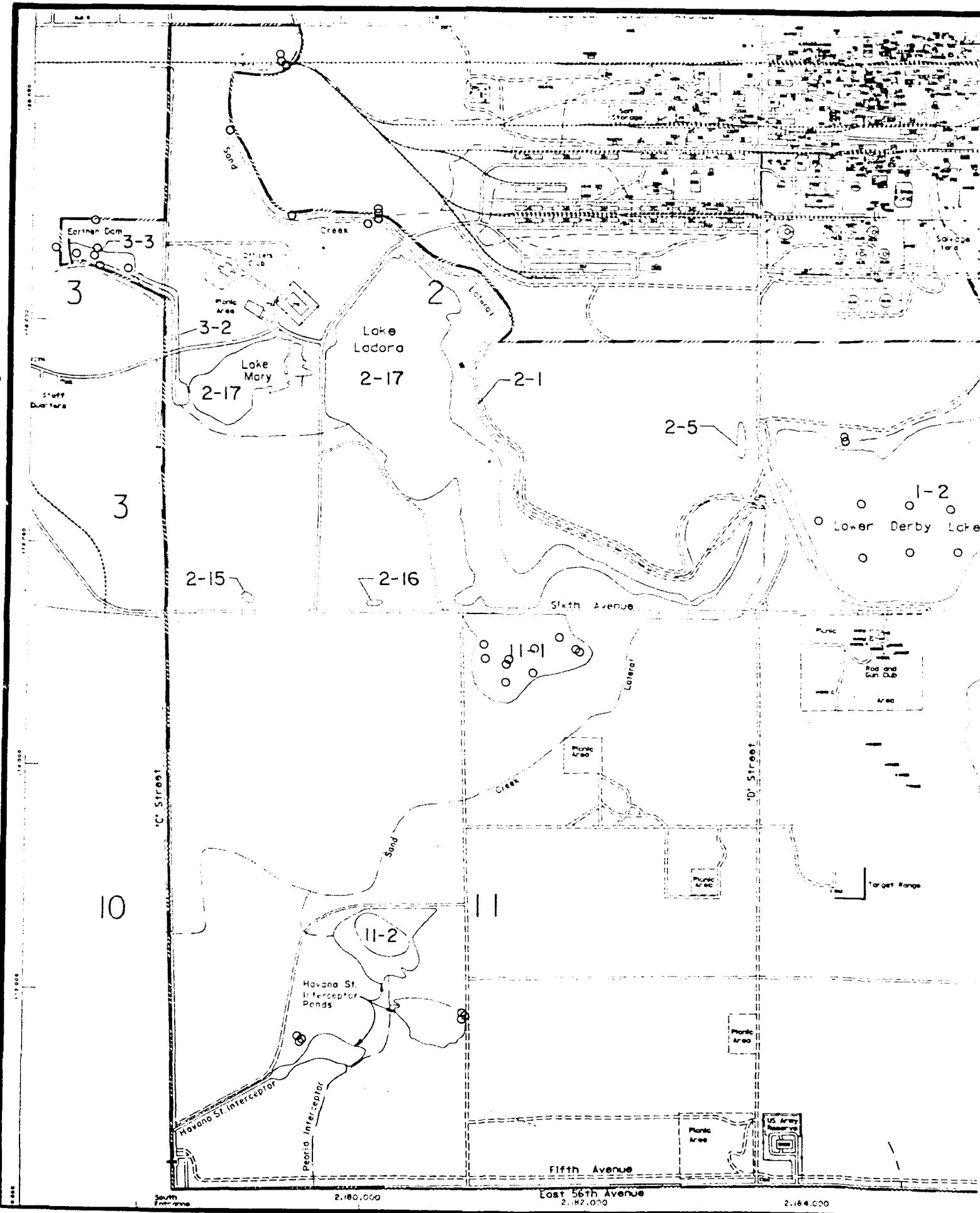
**ROCKY MOUNTAIN ARSENAL LOCATION**

10	2	3	4	5
20	21	22	23	24
30	31	32	33	34
40	41	42	43	44
50	51	52	53	54

0 500 1000  
SCALE 1:1000

Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 211-7**  
Organochlorine Pesticides in Soils in the 2-E 5-ft  
Depth Interval, SUBGROUP 2 (Organochlorine/Insecticides)  
Sampled from 1991 to 1993. Organochlorine  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated



South  
Entrance

2,180,000

East 56th Avenue  
2,182,000

2,184,000

US Army  
Reservary

Target Range

Rod Pond  
Area

Lower Derby Lake

1-2

2-5

Sixth Avenue

2-16

2-15

2-17

2-1

Lake Ladora

Lake Mary

2-17

3-2

Plenic Area

Officers Club

3

3-3

Earth Dam

Staff Quarters

10

11

Havana St. Interceptor Ponds

Havana St. Interceptor  
Peoria Interceptor

Fifth Avenue

Plenic Area

Plenic Area

Plenic Area

Lateral Creek

Sand Creek

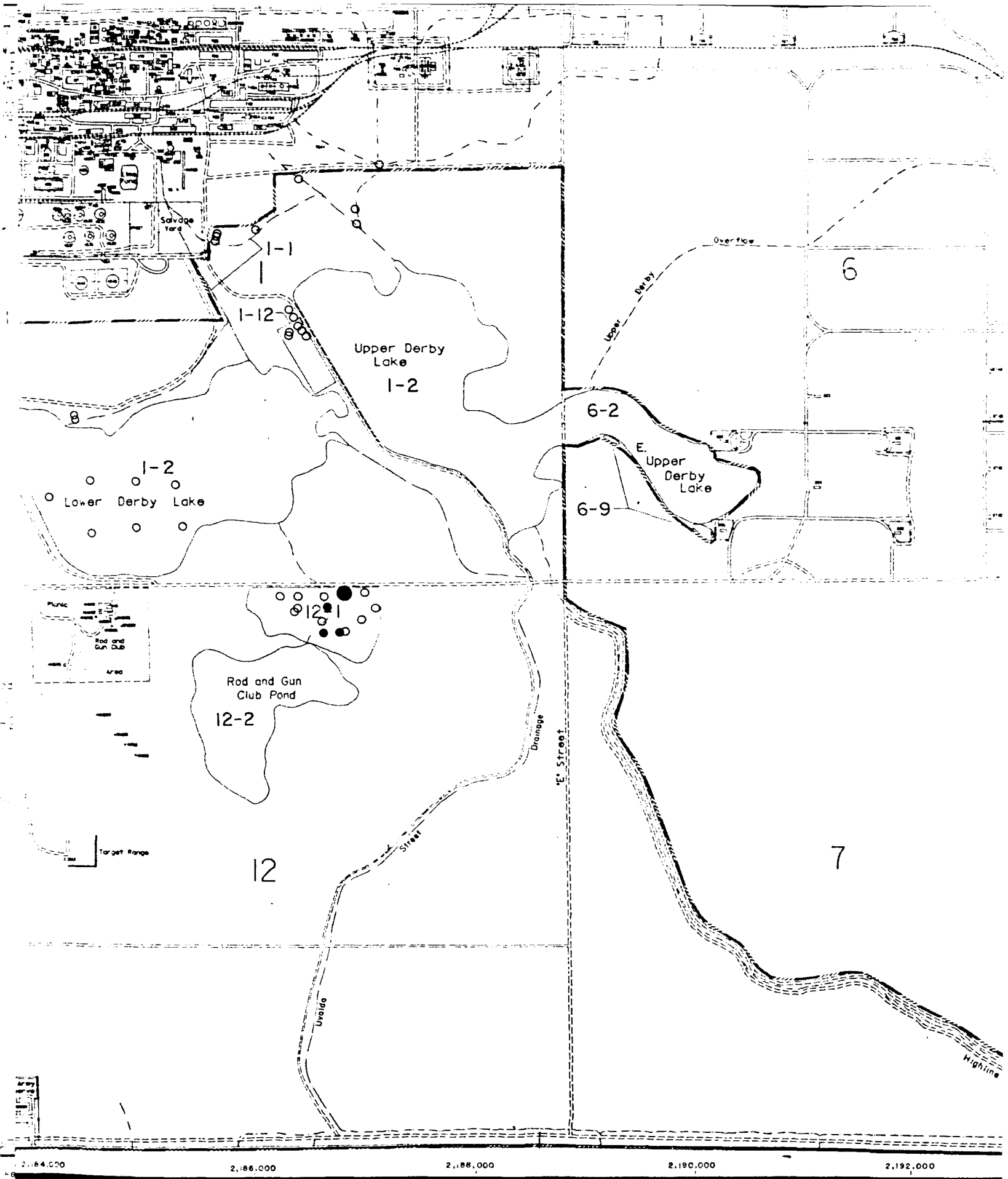
Sand

D Street

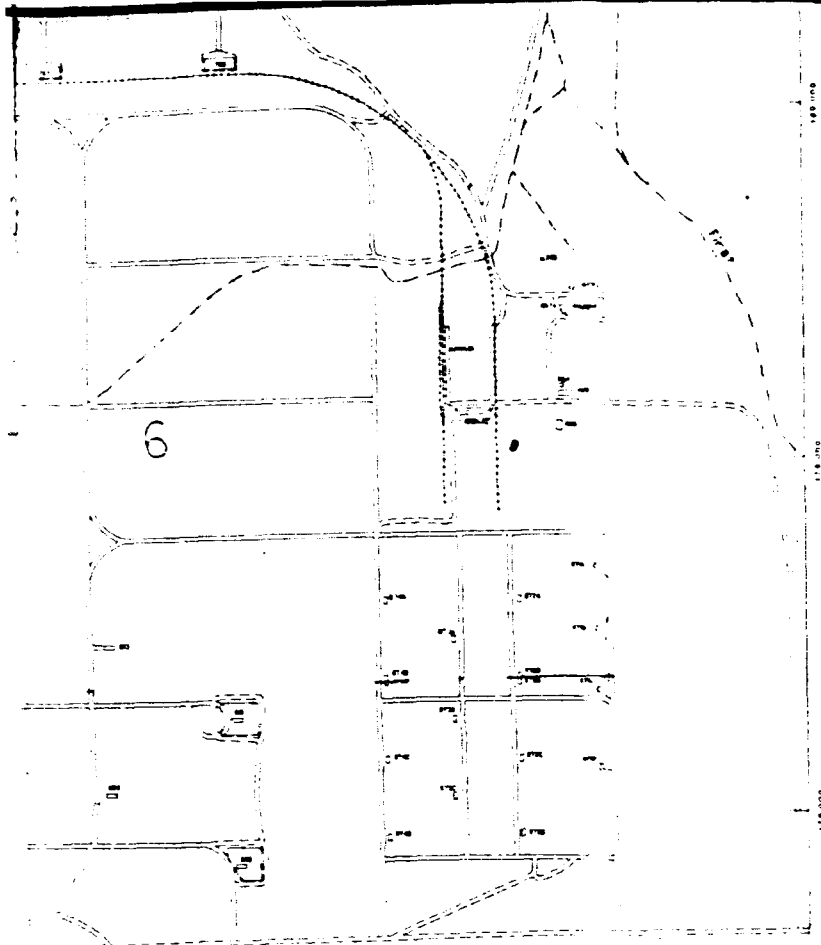
C Street

Storage

Save-ops yard



2,184,000      2,186,000      2,188,000      2,190,000      2,192,000

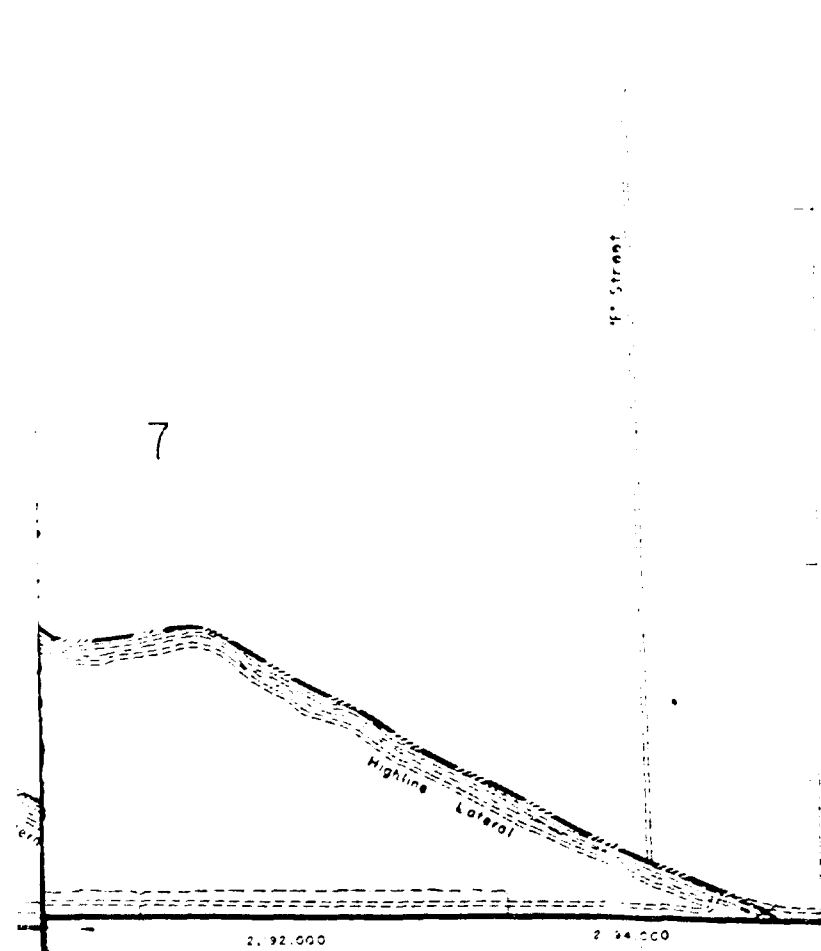


**LEGEND**

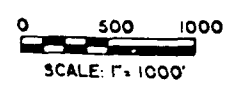
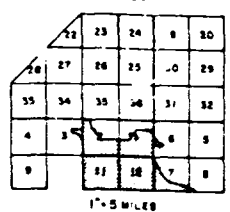
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL)
- 0.001-1.0
- > 1.0 - 10
- > 10 - 100
- > 100

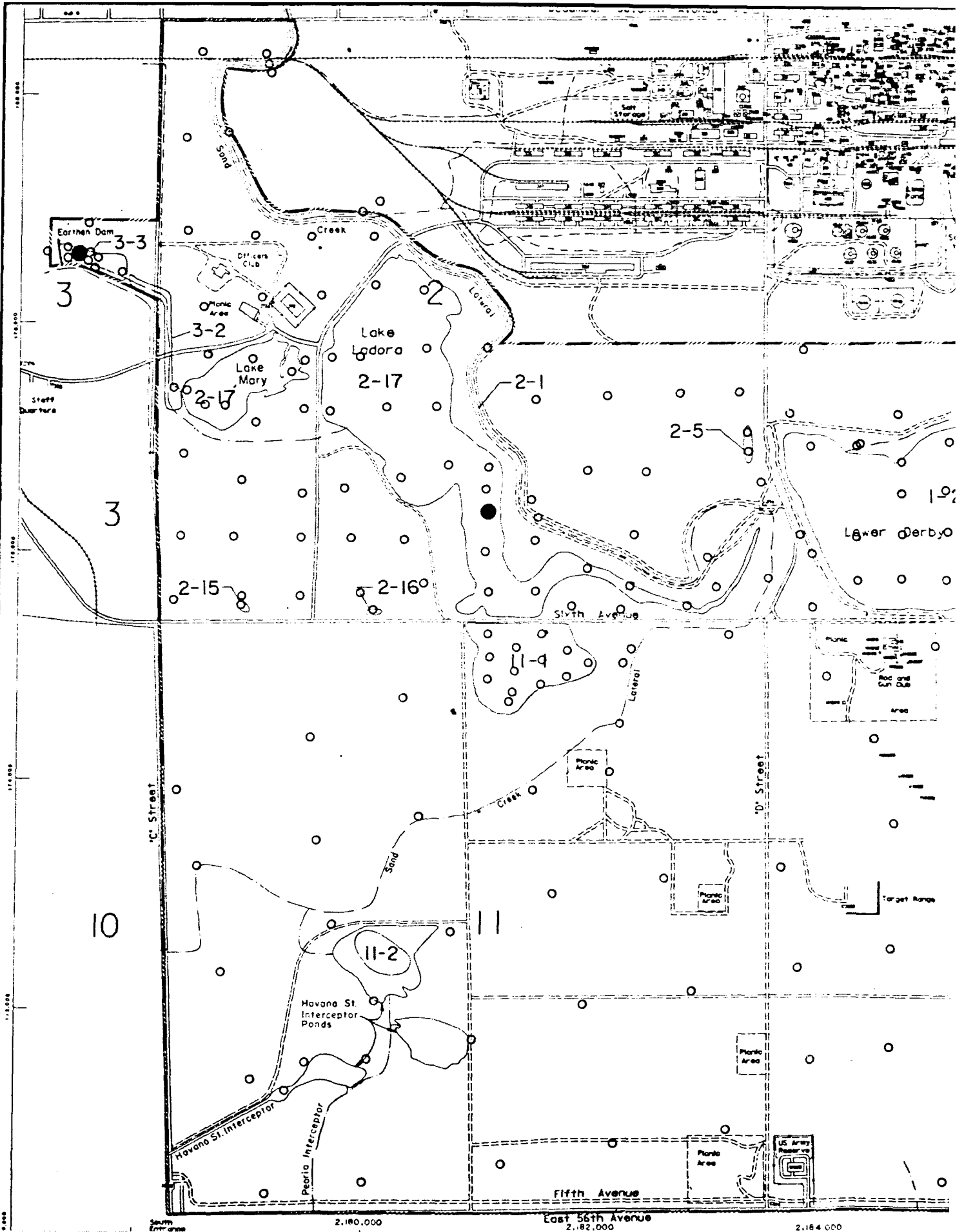


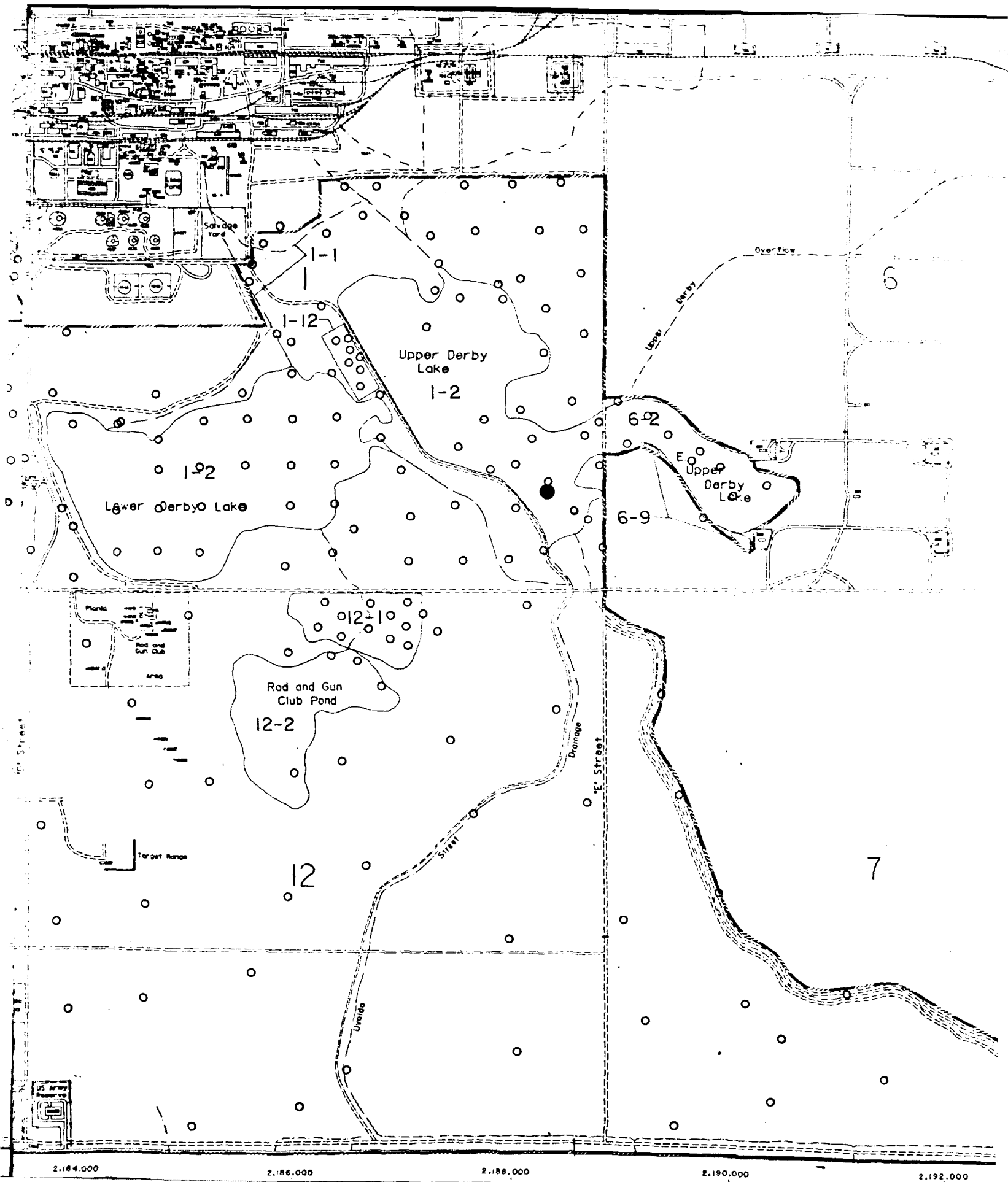
**ROCKY MOUNTAIN ARSENAL LOCATION**



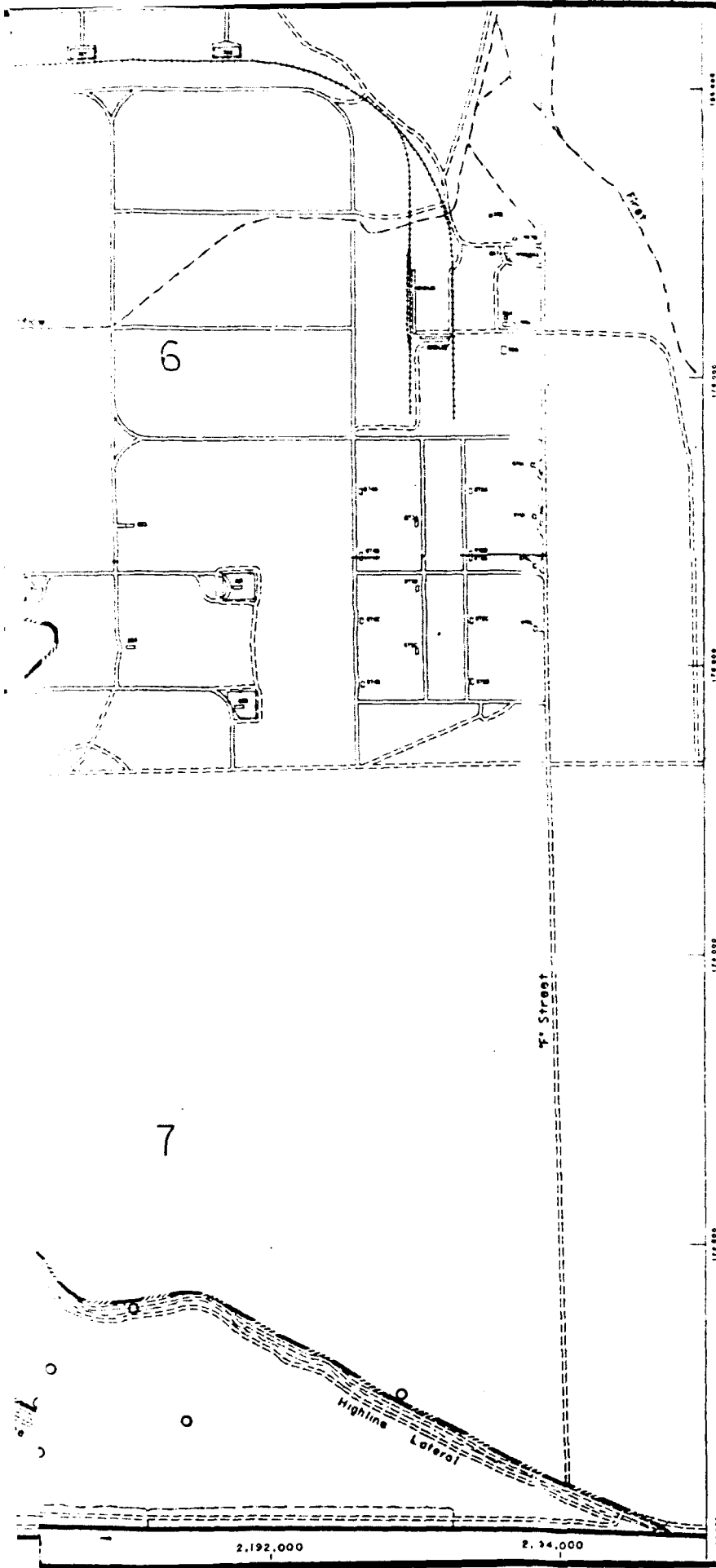
Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-18**  
 Organochlorine Pesticides in Soils in the 5-20 ft. Depth Interval, SUBGROUP 2 (Dichlorodiphenylethane, Dichlorodiphenylmethane, Chlordane)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated









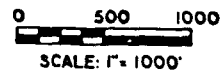
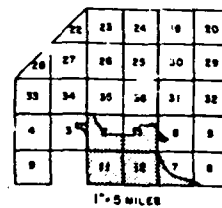
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL) to 10 (Indicator Level)
- > 10 - 100
- > 100 - 1,000
- > 1,000

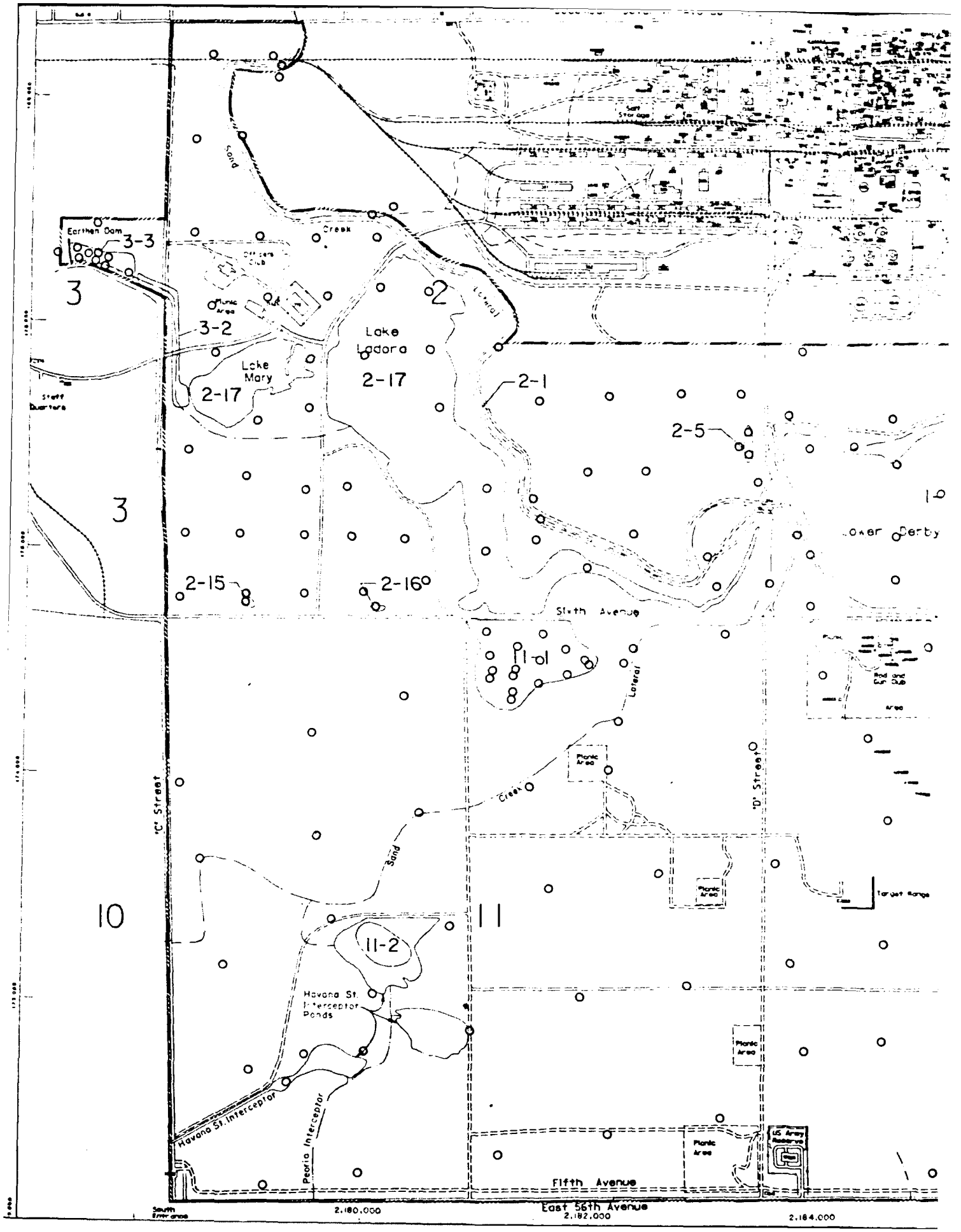
**ROCKY MOUNTAIN ARSENAL LOCATION**



Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-19**  
Arsenic in Soils  
in the 0-2 ft. Depth Interval  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated



Earthen Dam

3-3

3

3-2

2-17

Lake Mary

2-17

Lake Ladora

2-1

2-5

2-15

2-16

Sixth Avenue

Lower Derby

10

11-2

Havana St. Interceptor Ponds

Havana St. Interceptor

Pecaria Interceptor

Fifth Avenue

Plank Area

Plank Area

Plank Area

US Army Reservoir

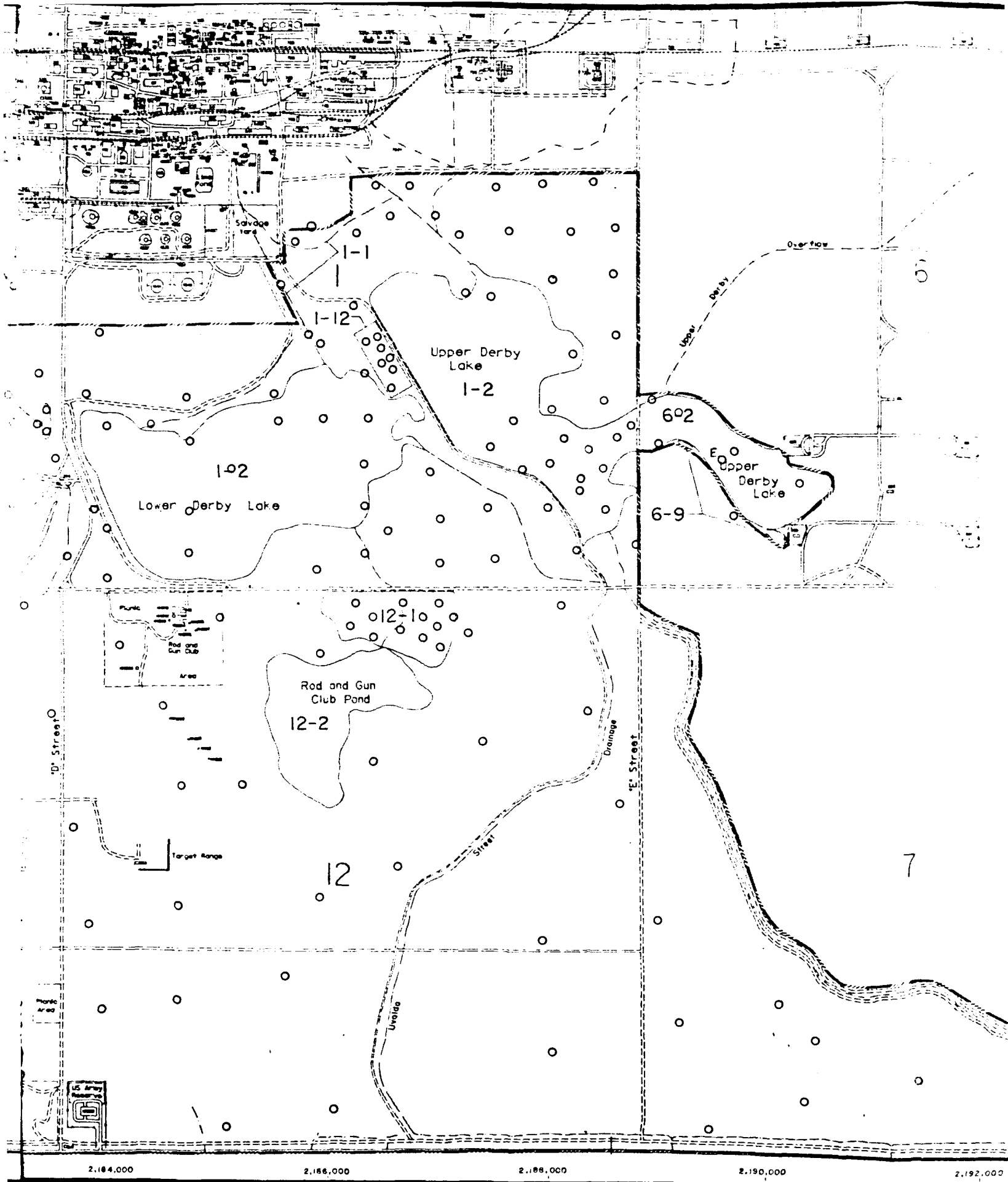
Target Range

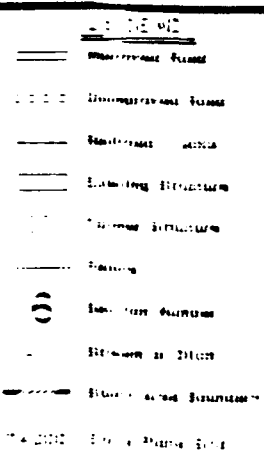
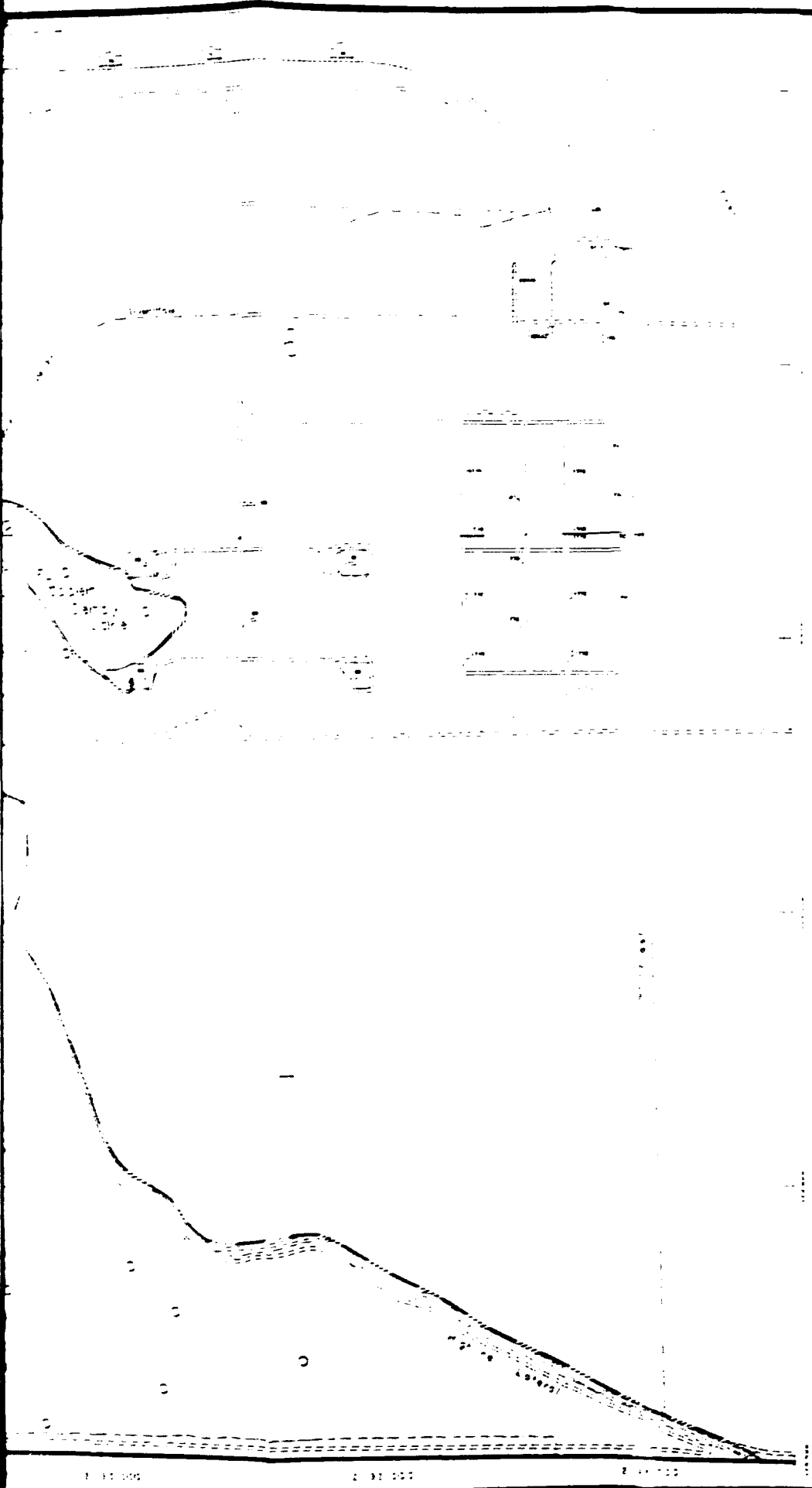
South Entrance

2,180,000

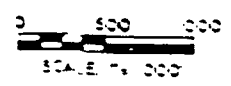
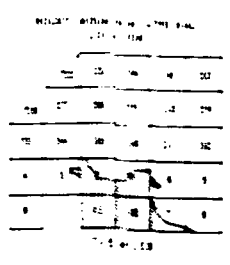
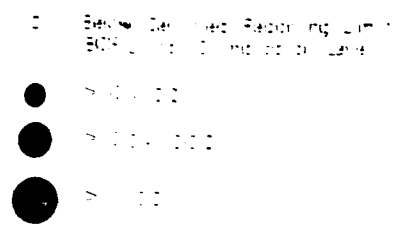
East 56th Avenue  
2,182,000

2,184,000



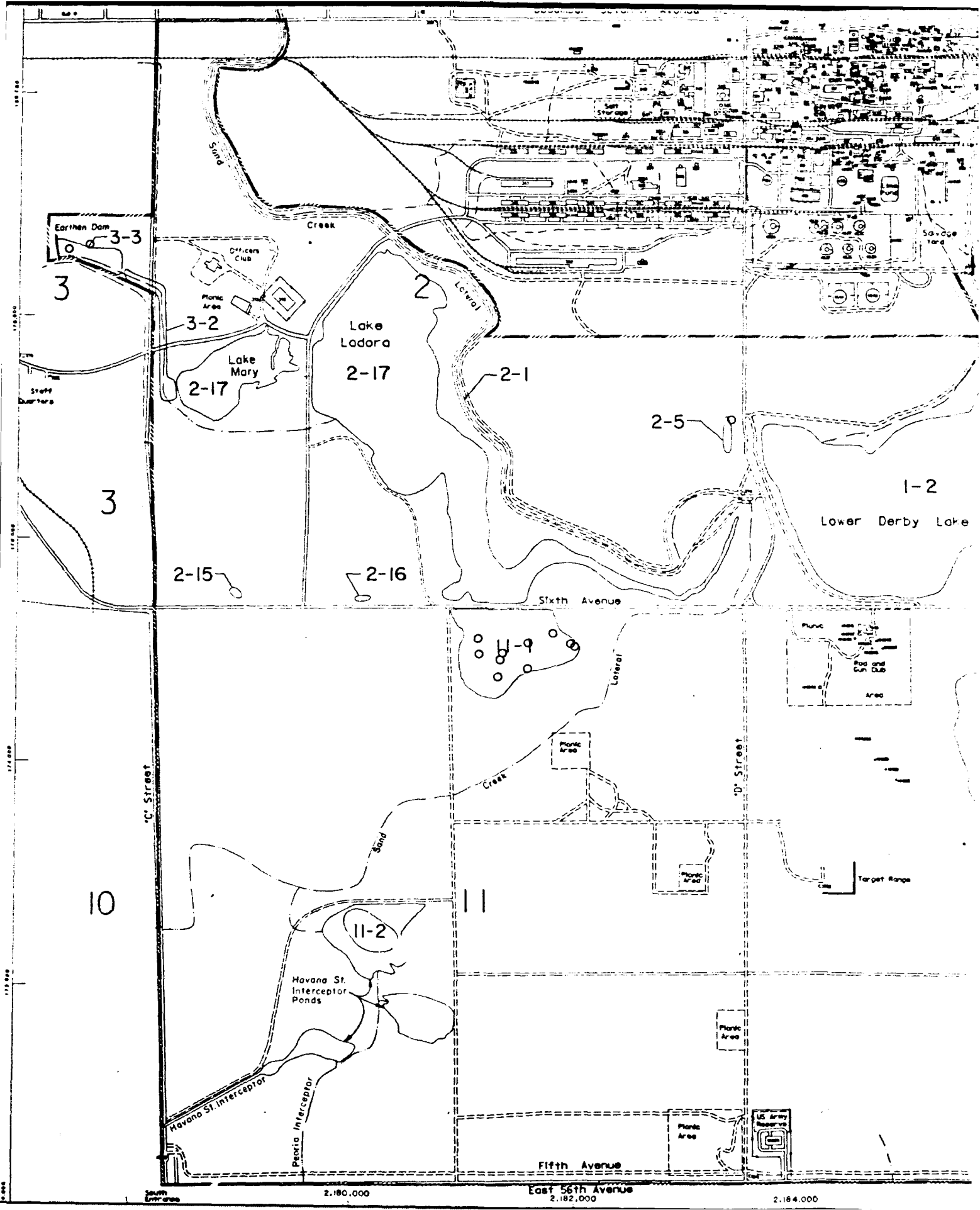


APPROXIMATE ARSENIC CONCENTRATION AND DISTRIBUTION IN GROUNDWATER



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.1-20  
 Arsenic in Soils  
 in the 2-5" Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



113,000  
114,000  
115,000  
116,000  
117,000  
118,000  
119,000

C Street

D Street

Sixth Avenue

Fifth Avenue

East 56th Avenue

Havana St. Interceptor Ponds

Havana St. Interceptor

Peoria Interceptor

2,180,000

2,182,000

2,184,000

South Entrance

US Army Reserve

Lower Derby Lake

Lake Ladora

Lake Mary

Officers Club

Plank Area

Earthen Dam

Staff Quarters

Public

Pud and Club Area

Target Range

Plank Area

Plank Area

Plank Area

Plank Area

Plank Area

Creek

Sand

Lateral

Creek

Sand

3

3

2-17

2-17

2

2-1

2-5

1-2

2-15

2-16

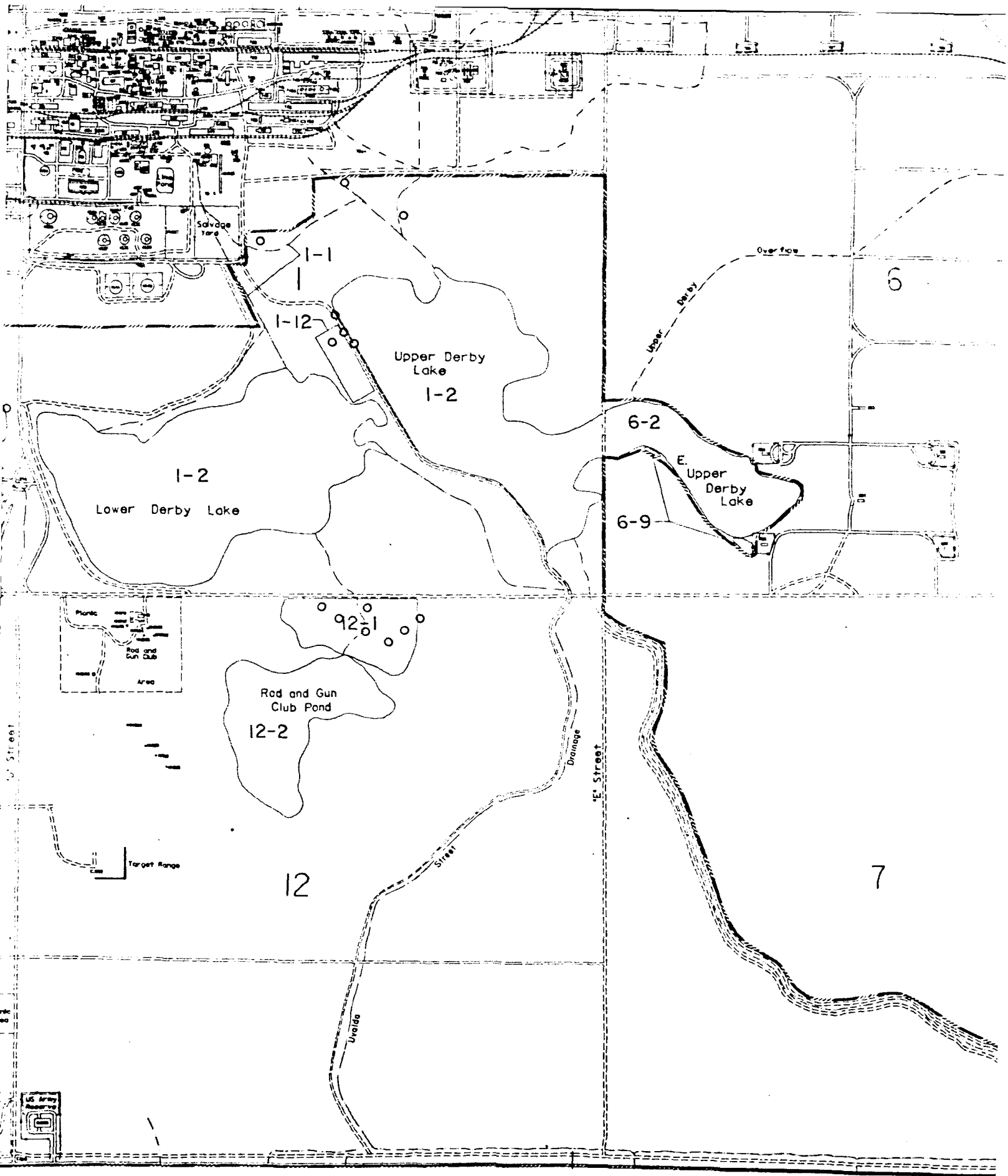
10

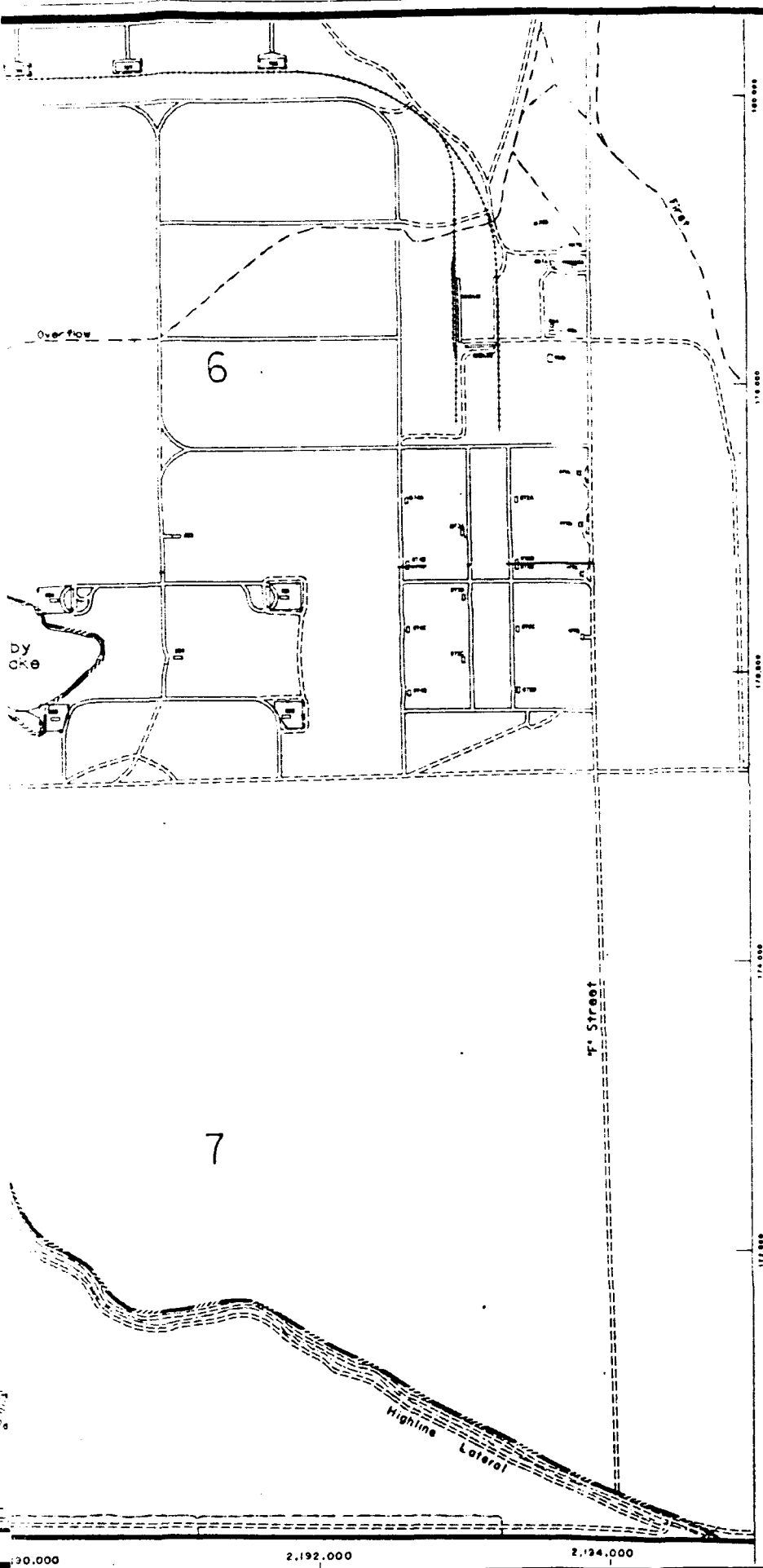
11

11-2

3-3

3-2





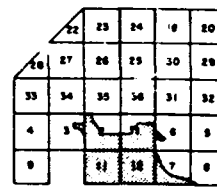
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

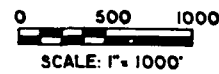
**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL) to 10 (Indicator Level)
- > 10-100
- > 100-1,000
- > 1,000

**ROCKY MOUNTAIN ARSENAL LOCATION**



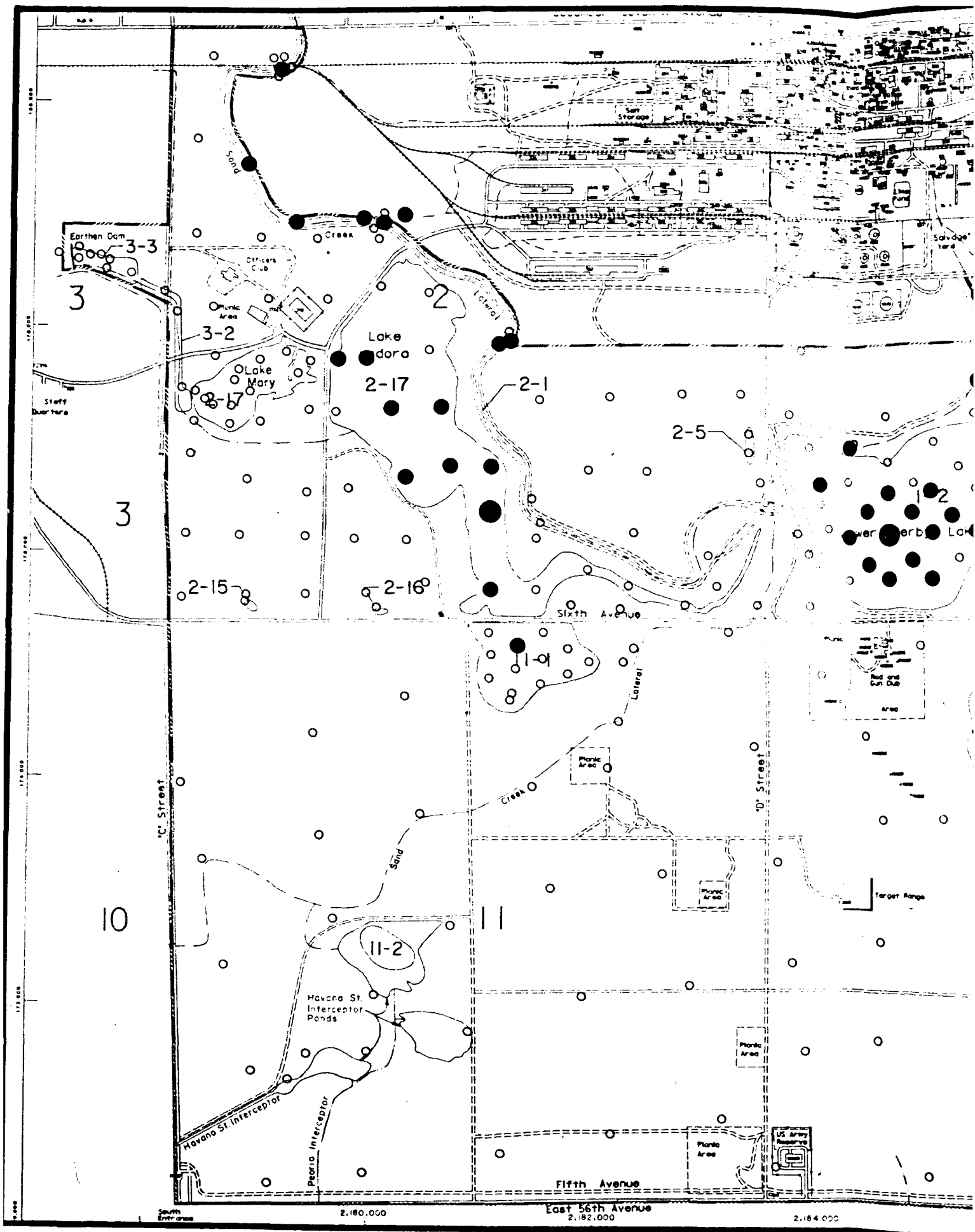
1" = 3 MILES



Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-21**  
Arsenic in Soils  
in the 5-20 ft. Depth Interval  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated

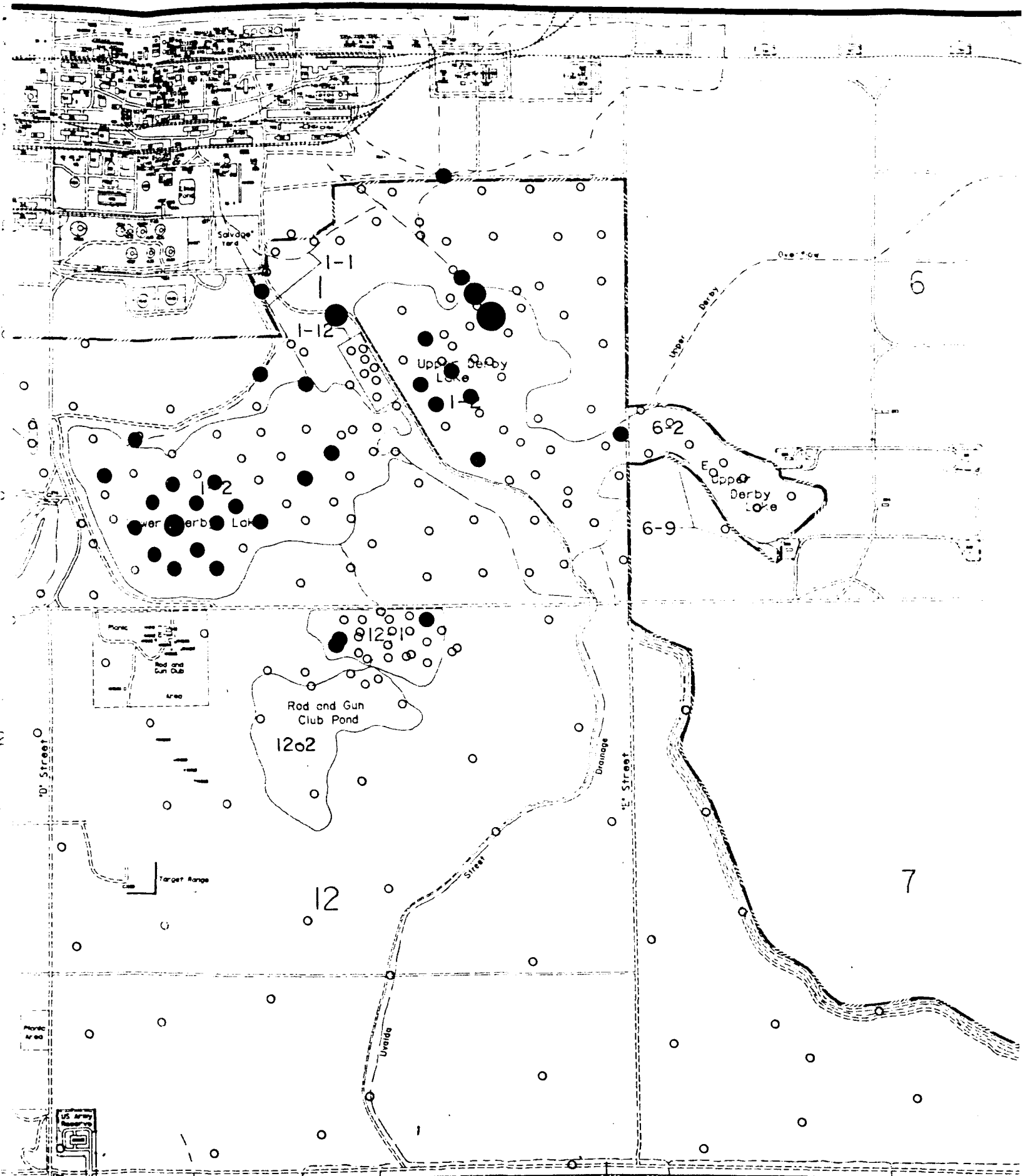


2,180,000

East 56th Avenue  
2,182,000

2,184,000





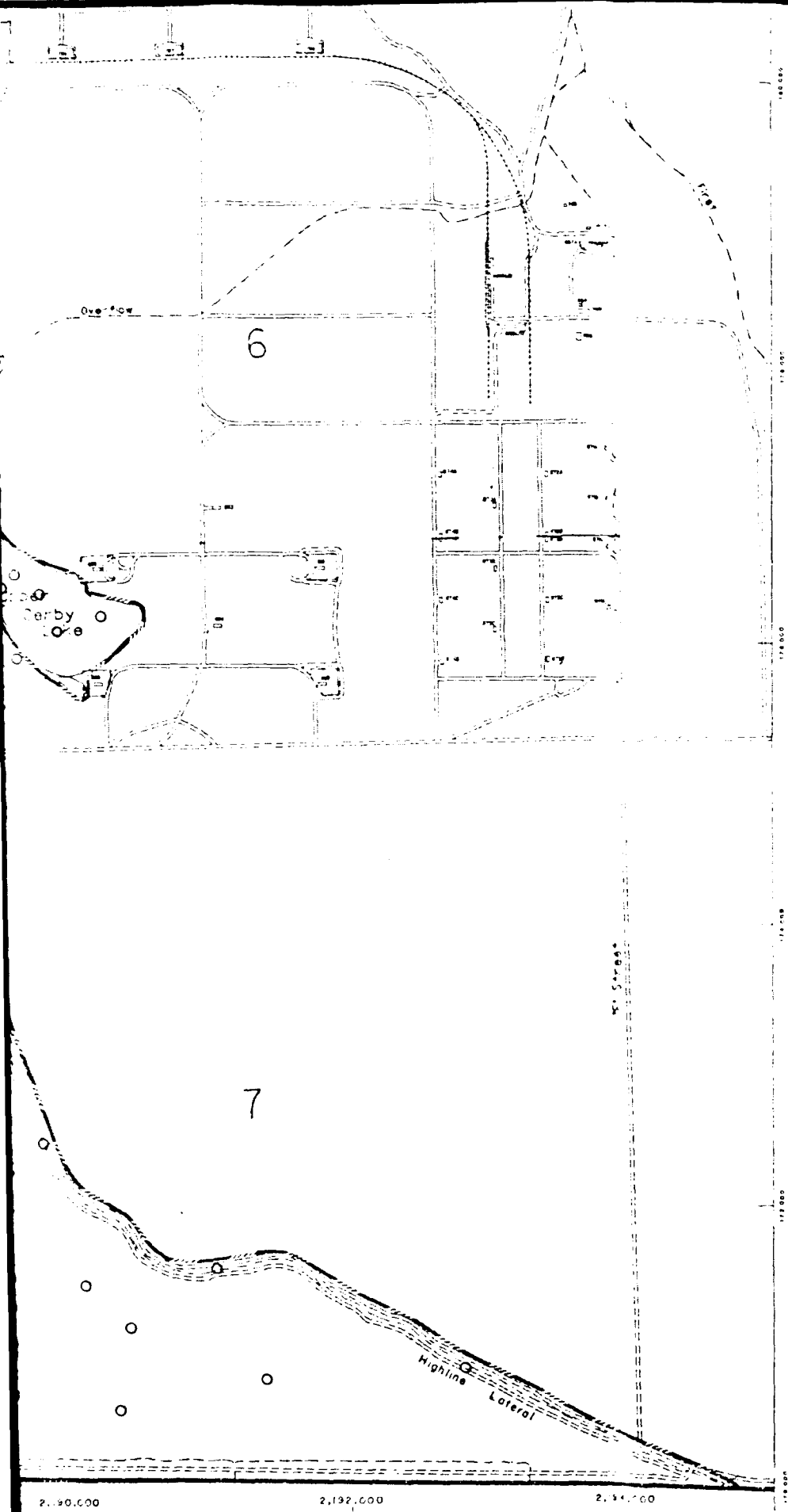
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



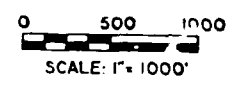
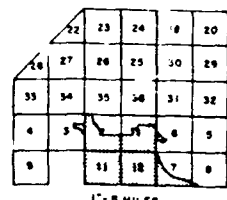
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

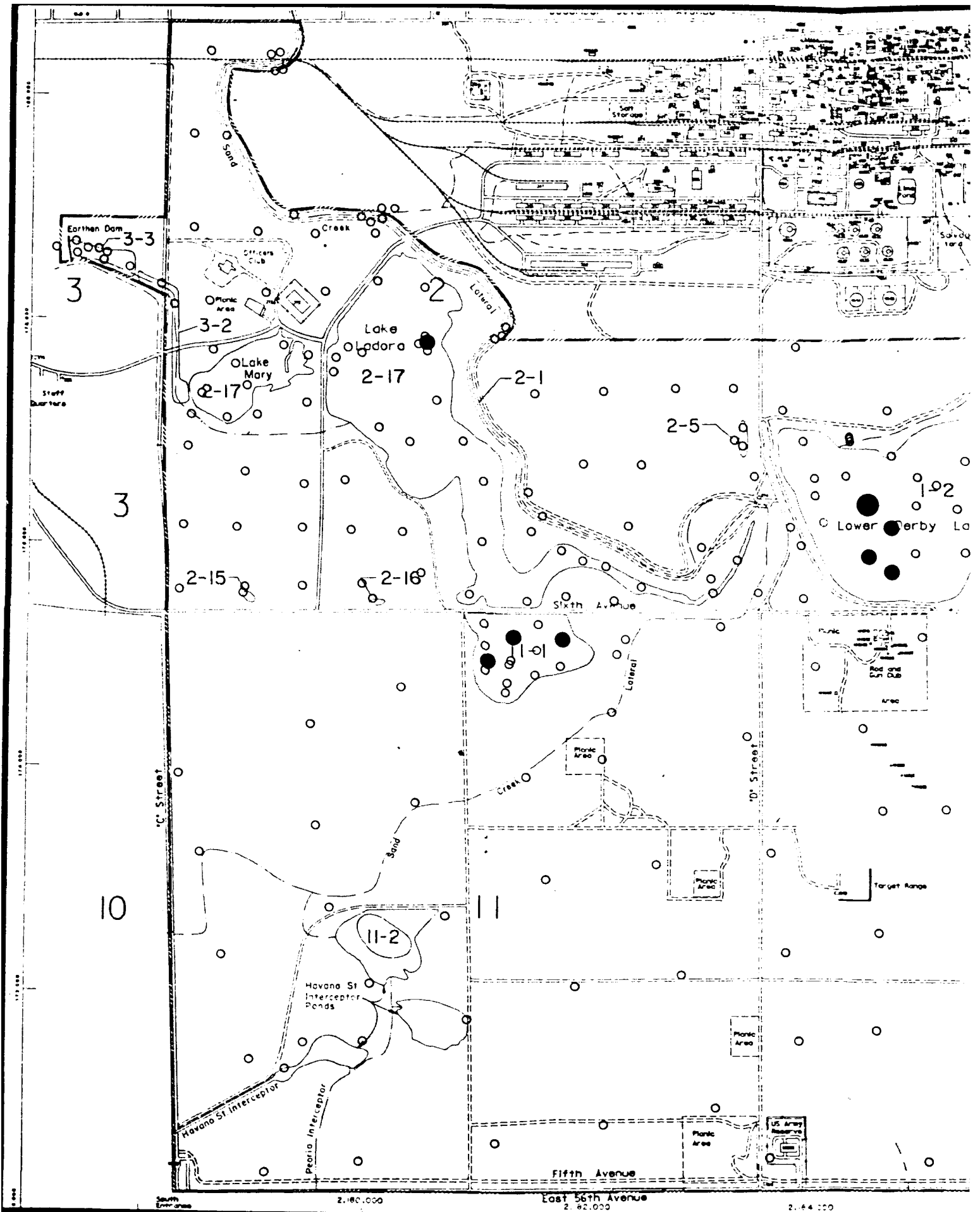
- Below Certified Reporting Limit (BCRL) to 0.10 (Indicator Level)
- > 0.10 - 1.0
- > 1.0 - 10
- > 10

**ROCKY MOUNTAIN ARSENAL LOCATION**



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

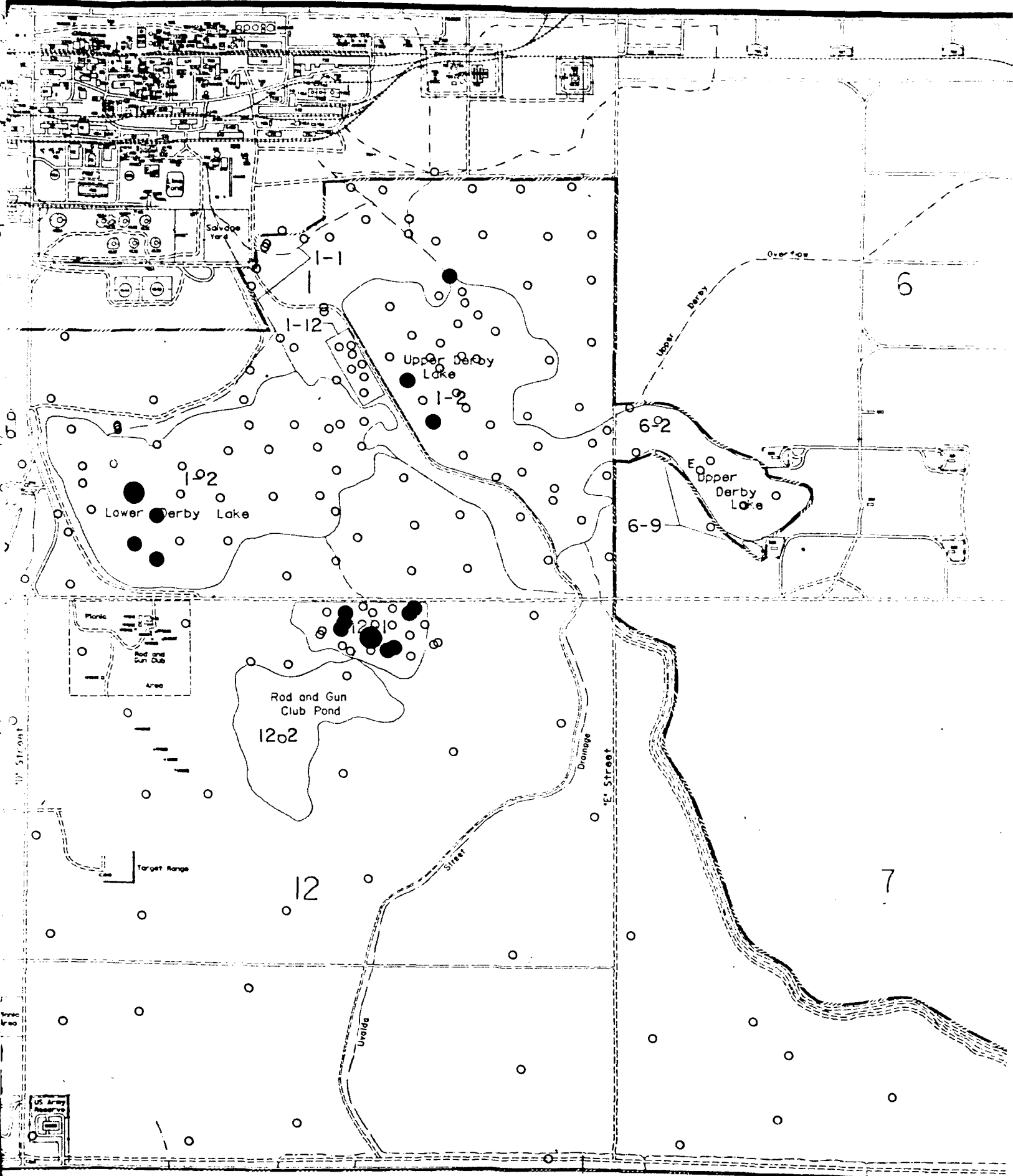
FIGURE: SSA 2.1-22  
 Mercury in Soils  
 in the 0-2 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



2,180,000

East 56th Avenue  
2,190,000

2,200,000



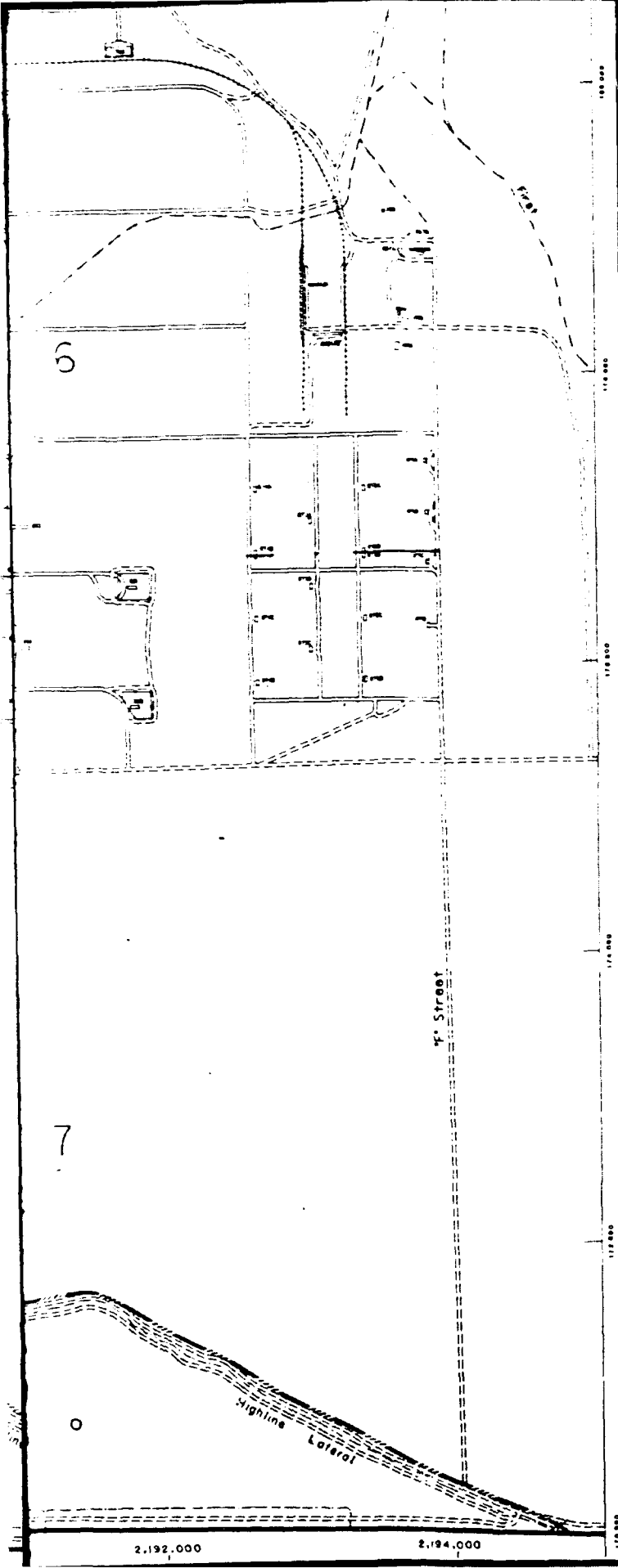
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

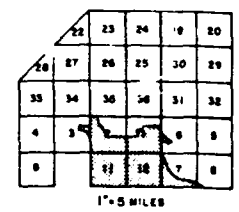
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

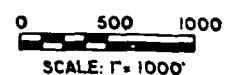
**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

- Below Certified Reporting Limit (BCRL) to 0.10 (Indicator Level)
- > 0.10 - 1.0
- > 1.0 - 10
- > 10

**ROCKY MOUNTAIN ARSENAL LOCATION**

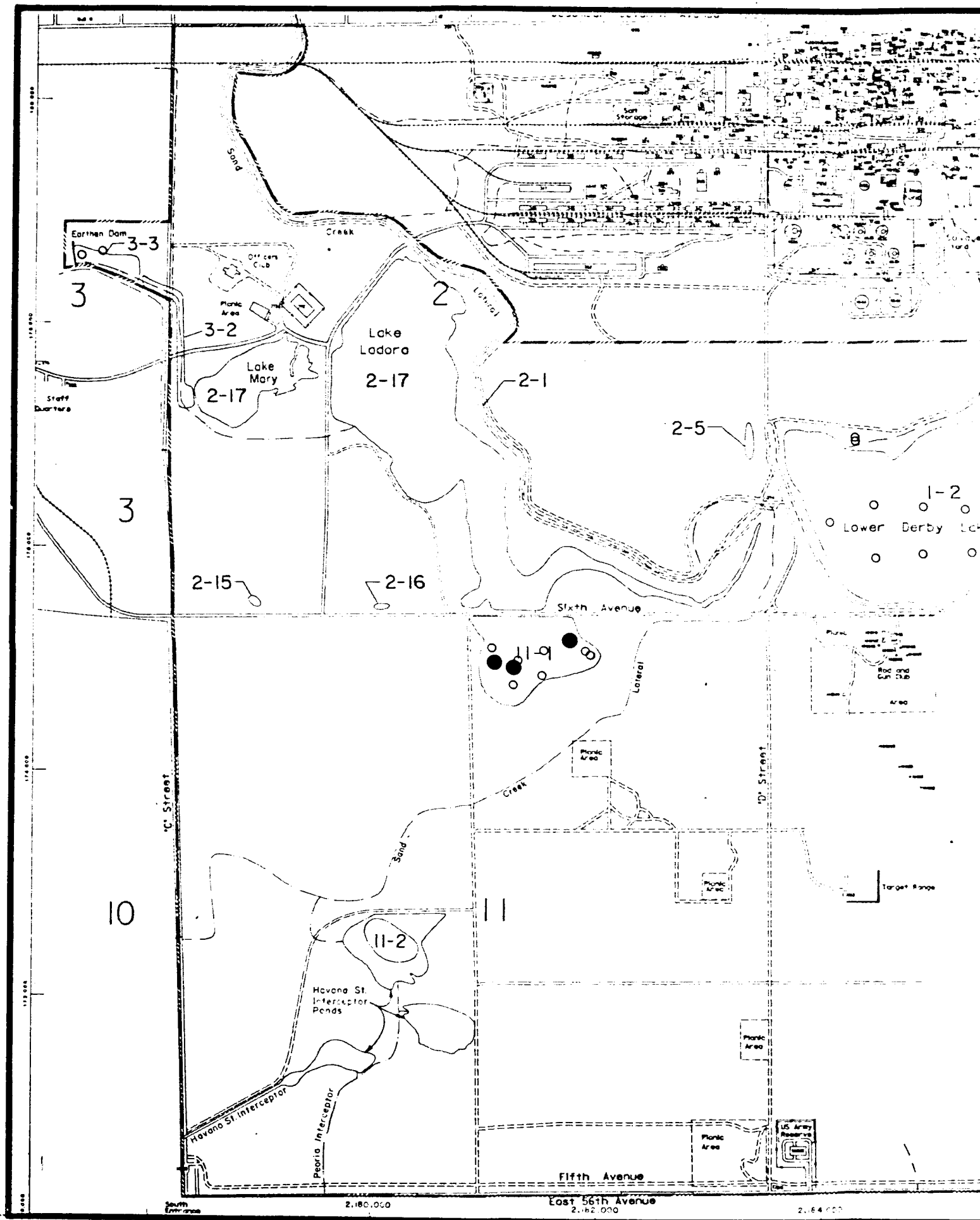


1" = 5 MILES



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-23**  
 Mercury in Soils  
 in the 2-5 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



Earthen Dam  
3-3

3

Officers Club

Planic Area  
3-2

Lake Mary  
2-17

Lake Ladora  
2-17

2-1

2-5

3

2-15

2-16

1-2  
Lower Derby Lt.

Sixth Avenue

C Street

10

11

Havana St. Interceptor Ponds

Havana St. Interceptor

Pearla Interceptor

11-2

Planic Area

D Street

Planic Area

Target Range

Planic Area

Planic Area

US Army Barracks

Fifth Avenue

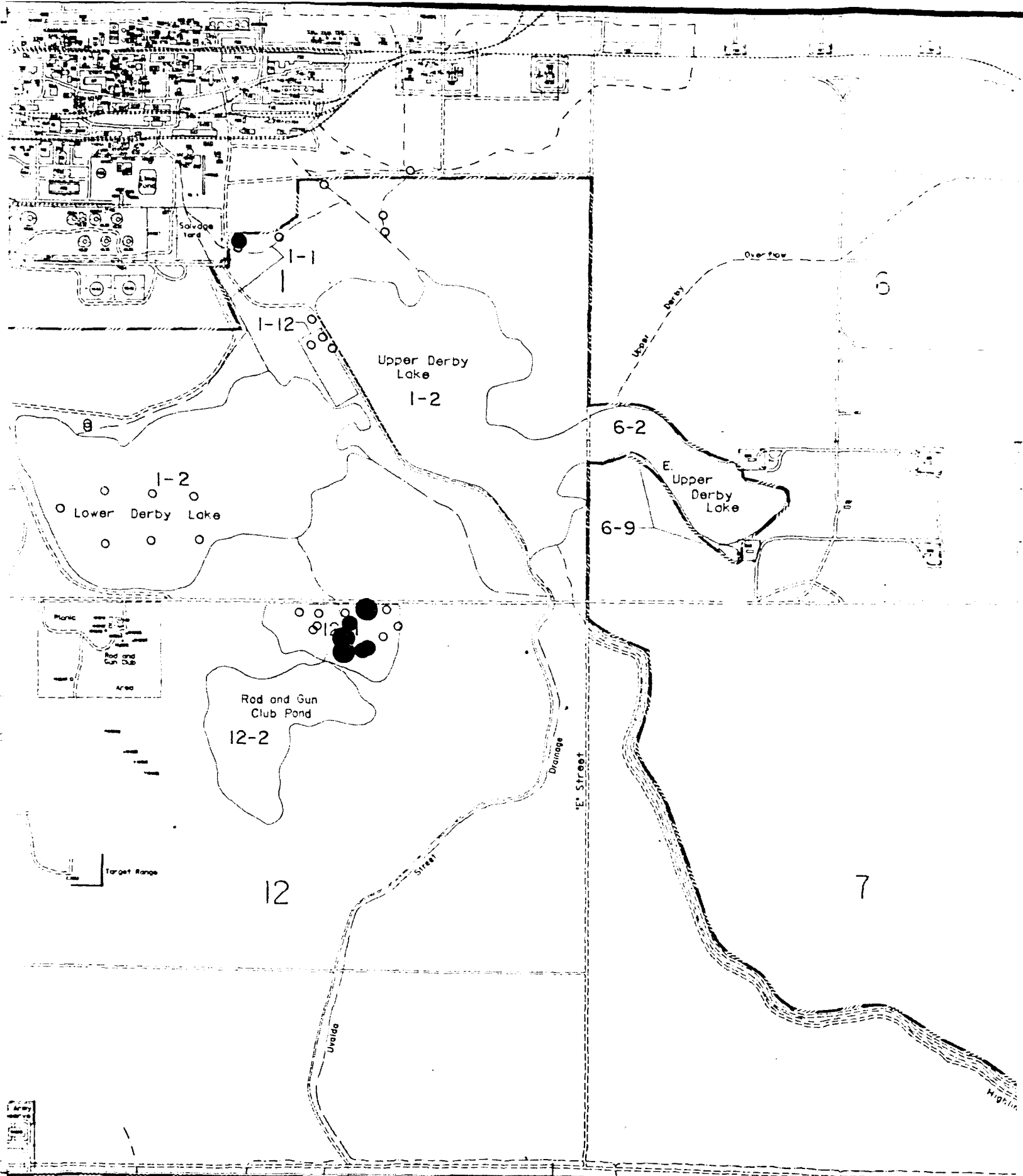
South Entrance

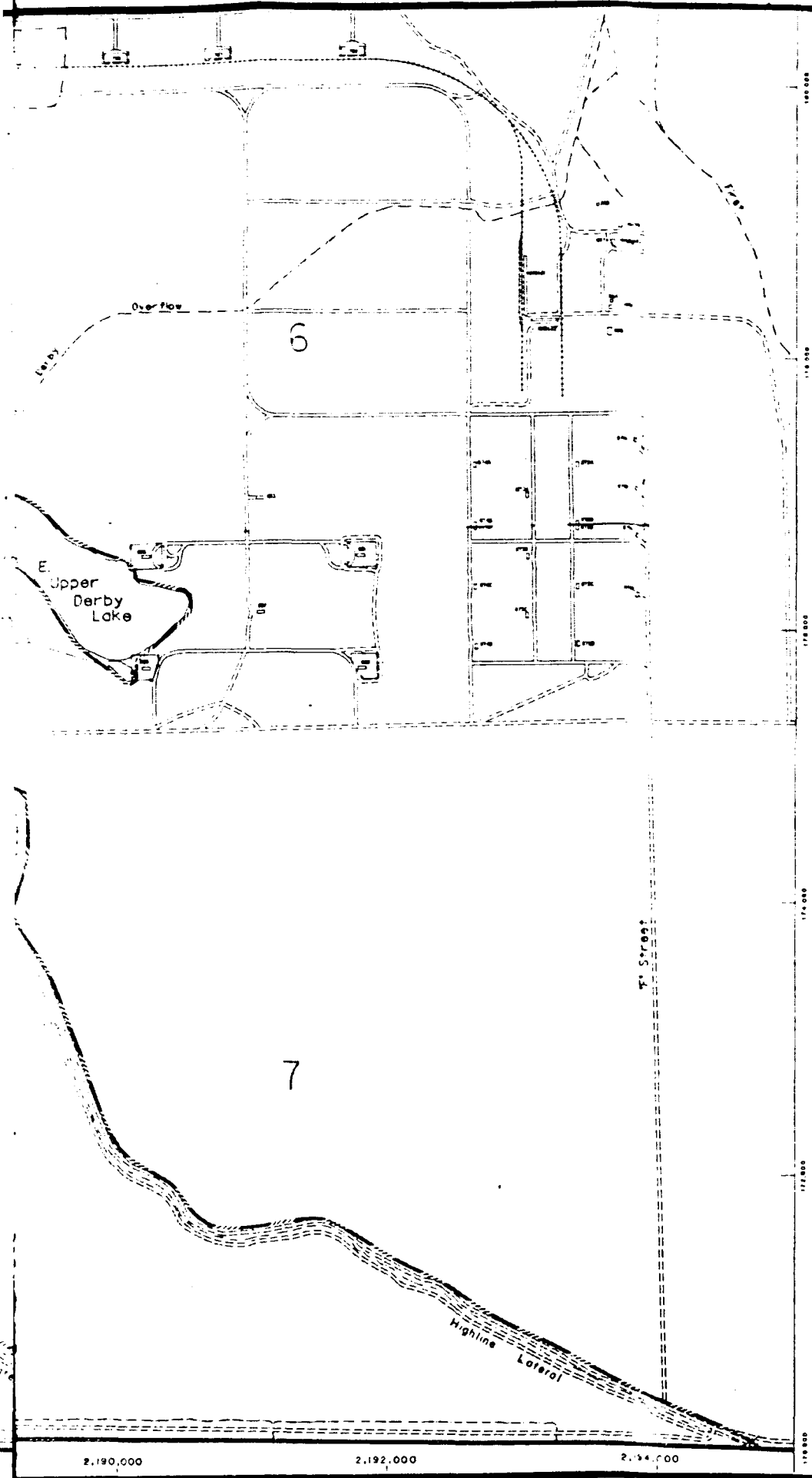
2,180,000

East 56th Avenue

2,182,000

2,184,000

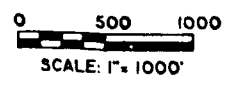
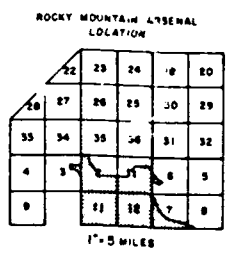




- LEGEND**
- Improved Road
  - Unimproved Road
  - Railroad Tracks
  - Existing Structure
  - Former Structure
  - Fence
  - 6** Section Number
  - Stream or Ditch
  - Study Area Boundary
  - 174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

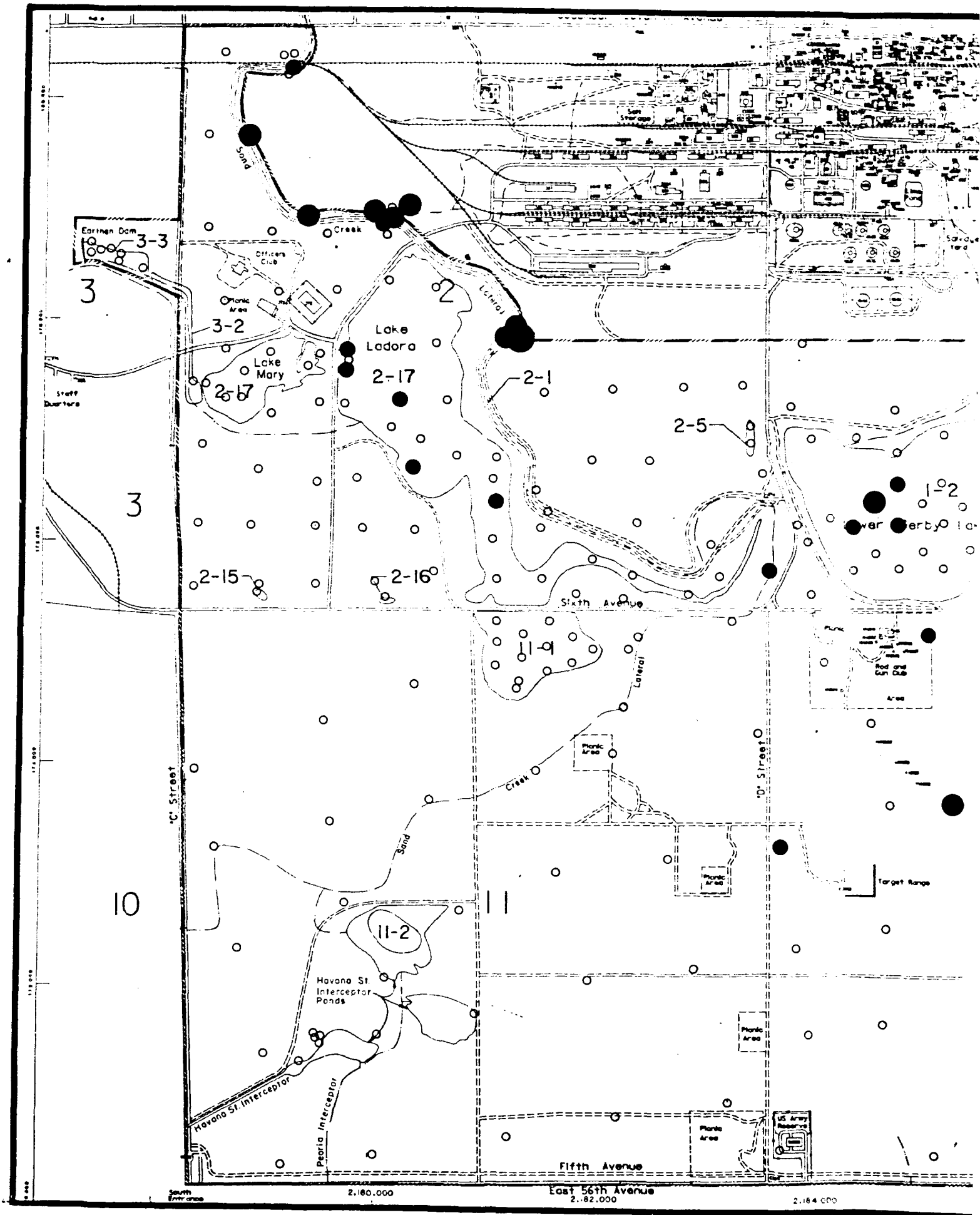
- Below Certified Reporting Limit (BCRL) to 0.10 (Indicator Level)
- > 0.10 - 1.0
- > 1.0 - 10
- > 10

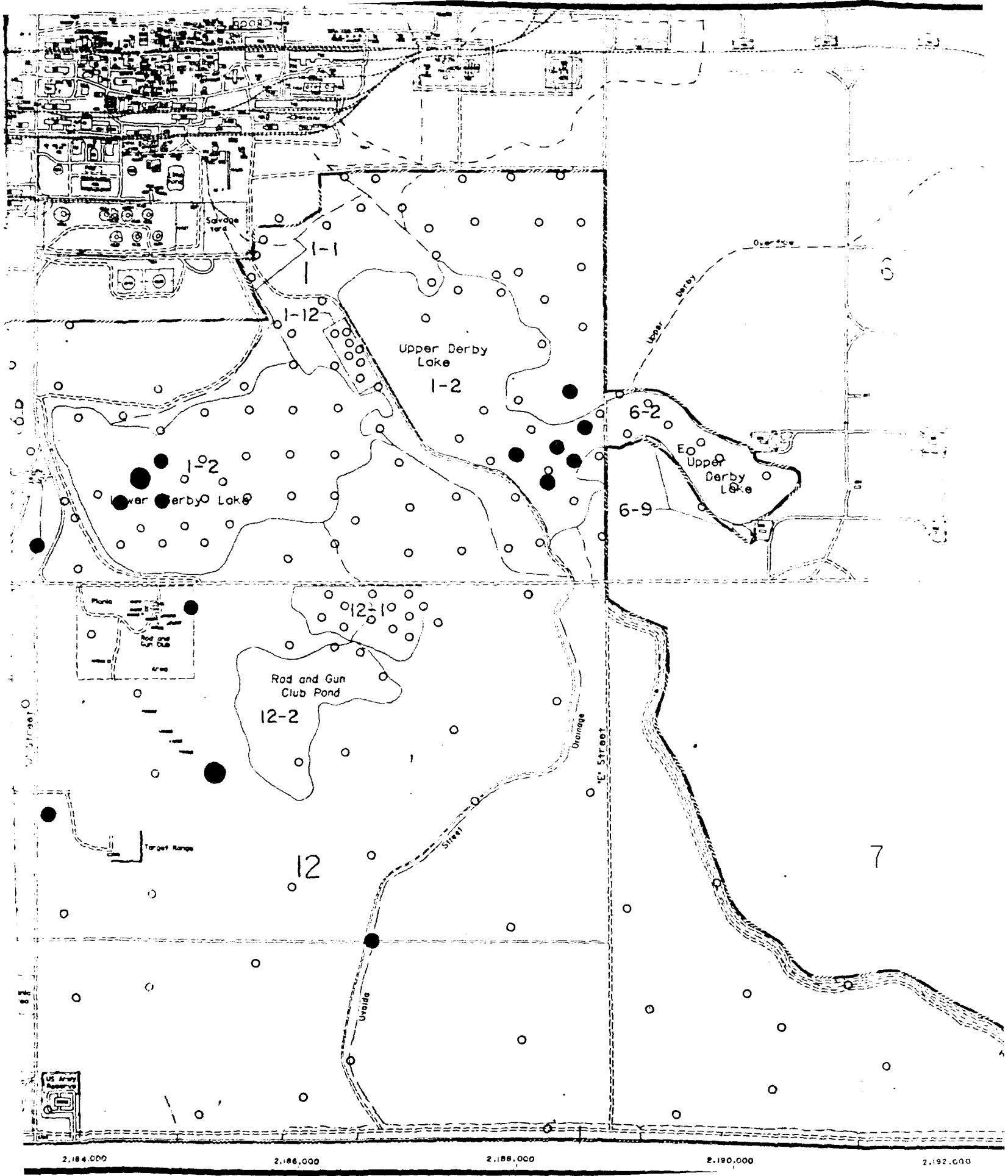


Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.1-24  
 Mercury in Soils  
 in the 5-20 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated







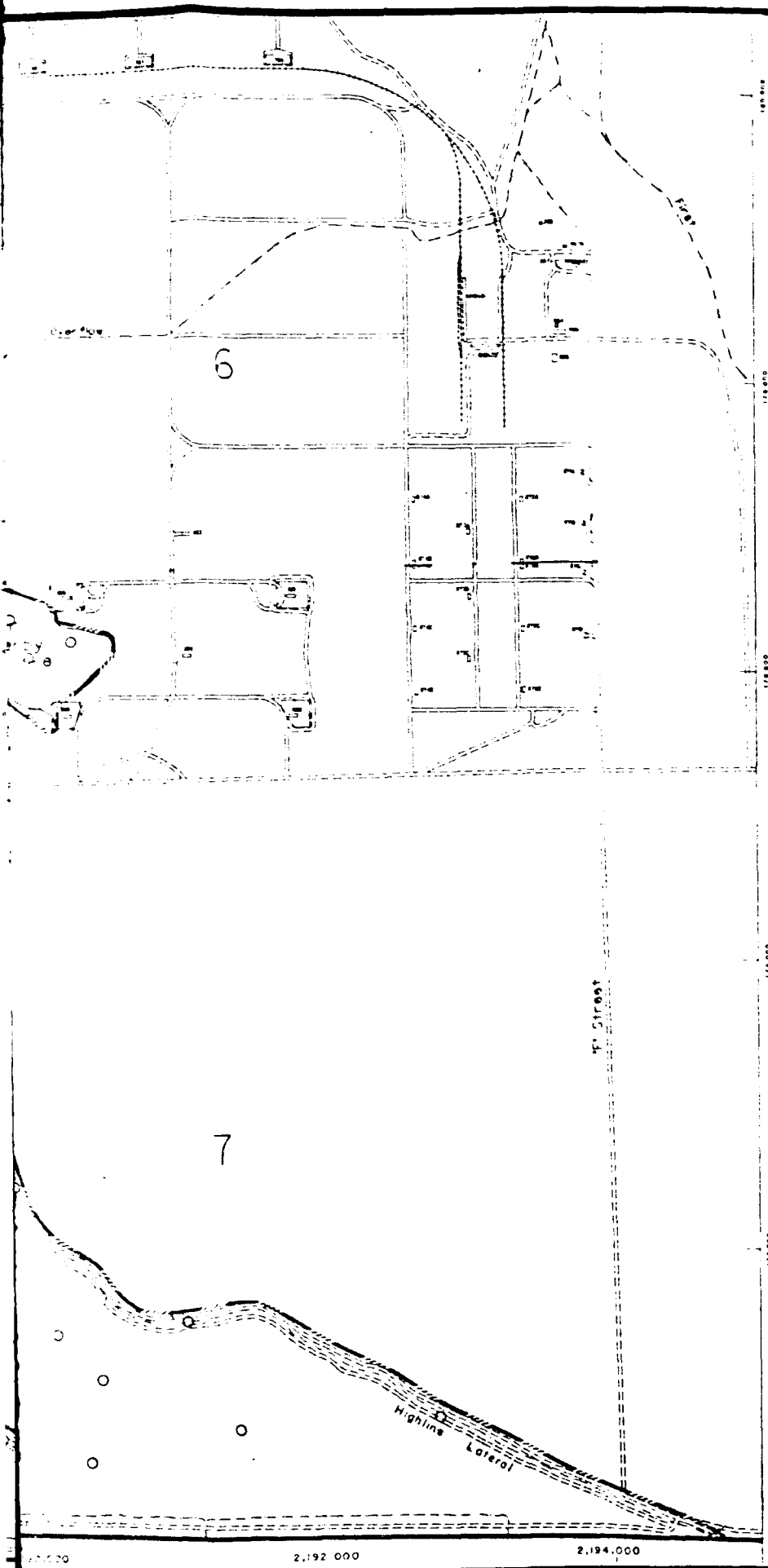
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

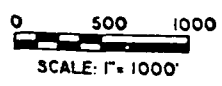
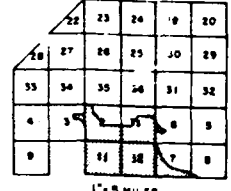
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

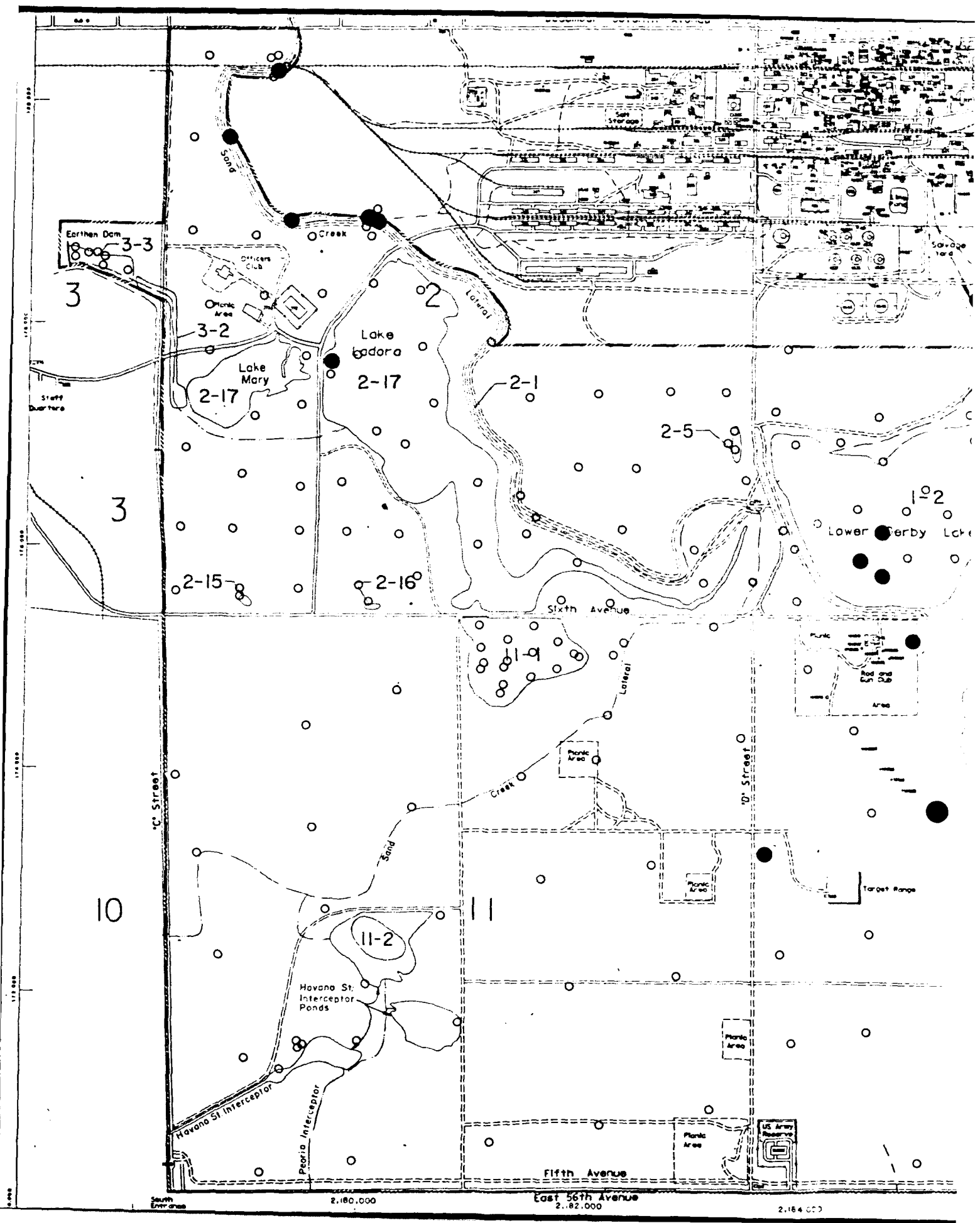
	Cd	Cr	Cu	Pb	Zn
○	BCRL-2.0	BCRL-40	BCRL-35	BCRL-40	BCRL-80
●	>2.0-10	>40-100	>35-100	>40-100	>80-1,000
●	>10-100	>100-1,000	>100-1,000	>100-1,000	>1,000-10,000
●	>100	>1,000	>1,000	>1,000	>10,000

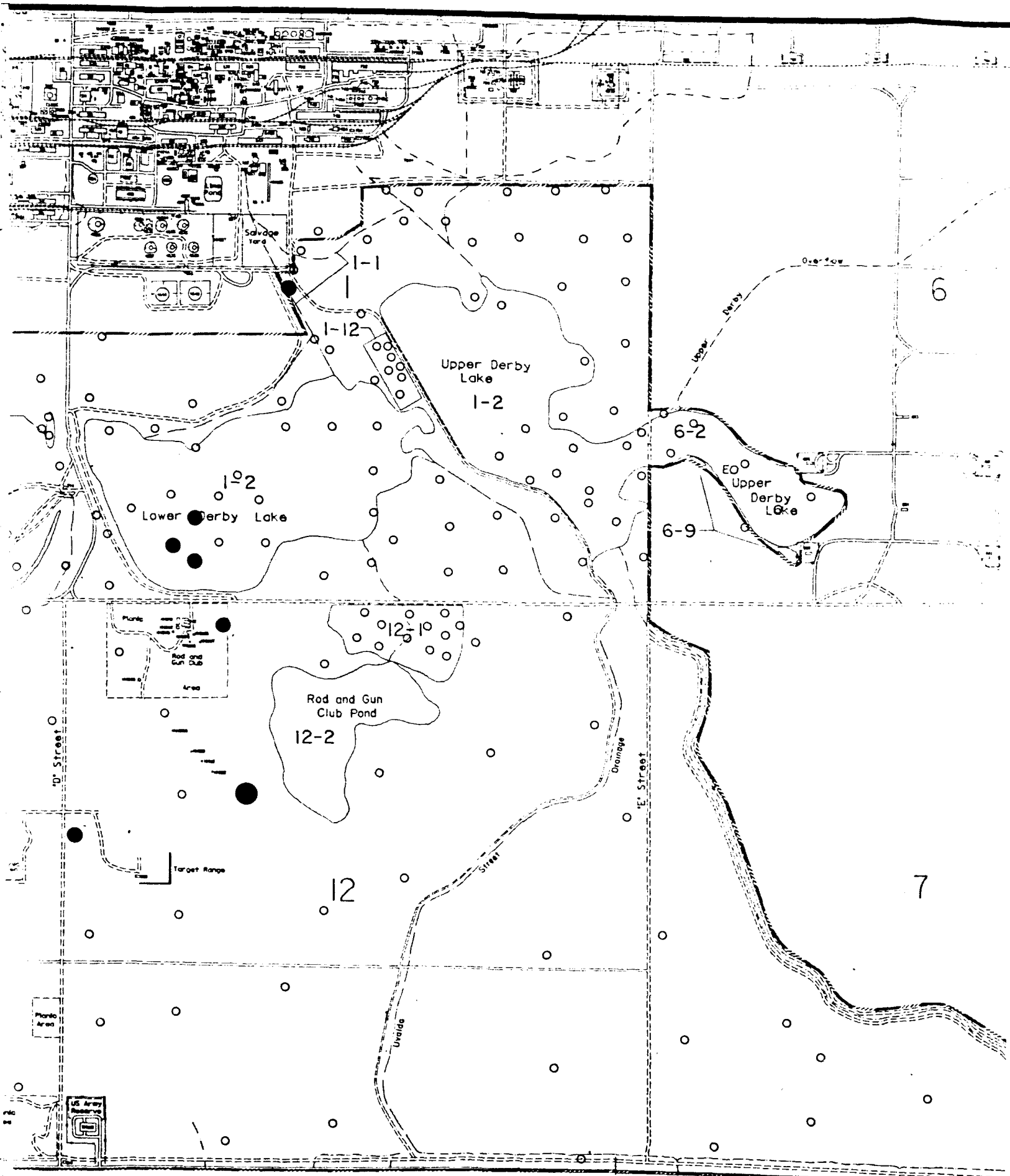
**ROCKY MOUNTAIN ARSENAL LOCATION**



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-25**  
 ICP Metals in Soils  
 in the 0-2 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated





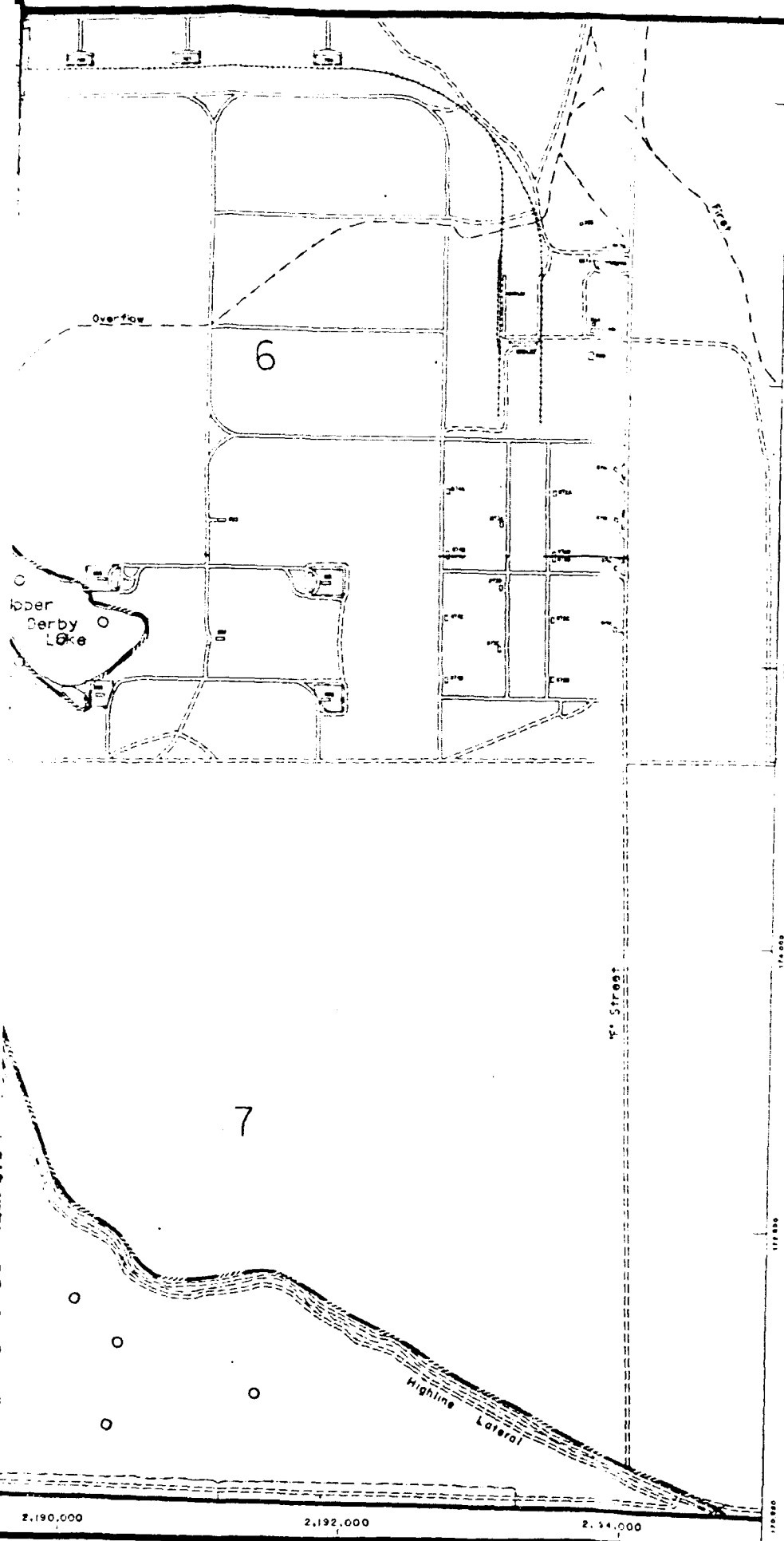
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

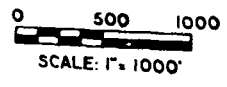
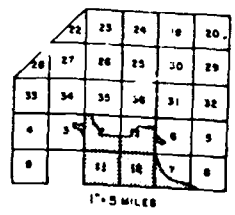
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

	<u>Cd</u>	<u>Cr</u>	<u>Cu</u>	<u>Pb</u>	<u>Zn</u>
○	BCRL-20	BCRL-40	BCRL-35	BCRL-40	BCRL-80
●	>2.0-10	>40-100	>35-100	>40-100	>80-1,000
●	>10-100	>100-1,000	>100-1,000	>100-1,000	>1,000-10,000
●	>100	>1,000	>1,000	>1,000	>10,000

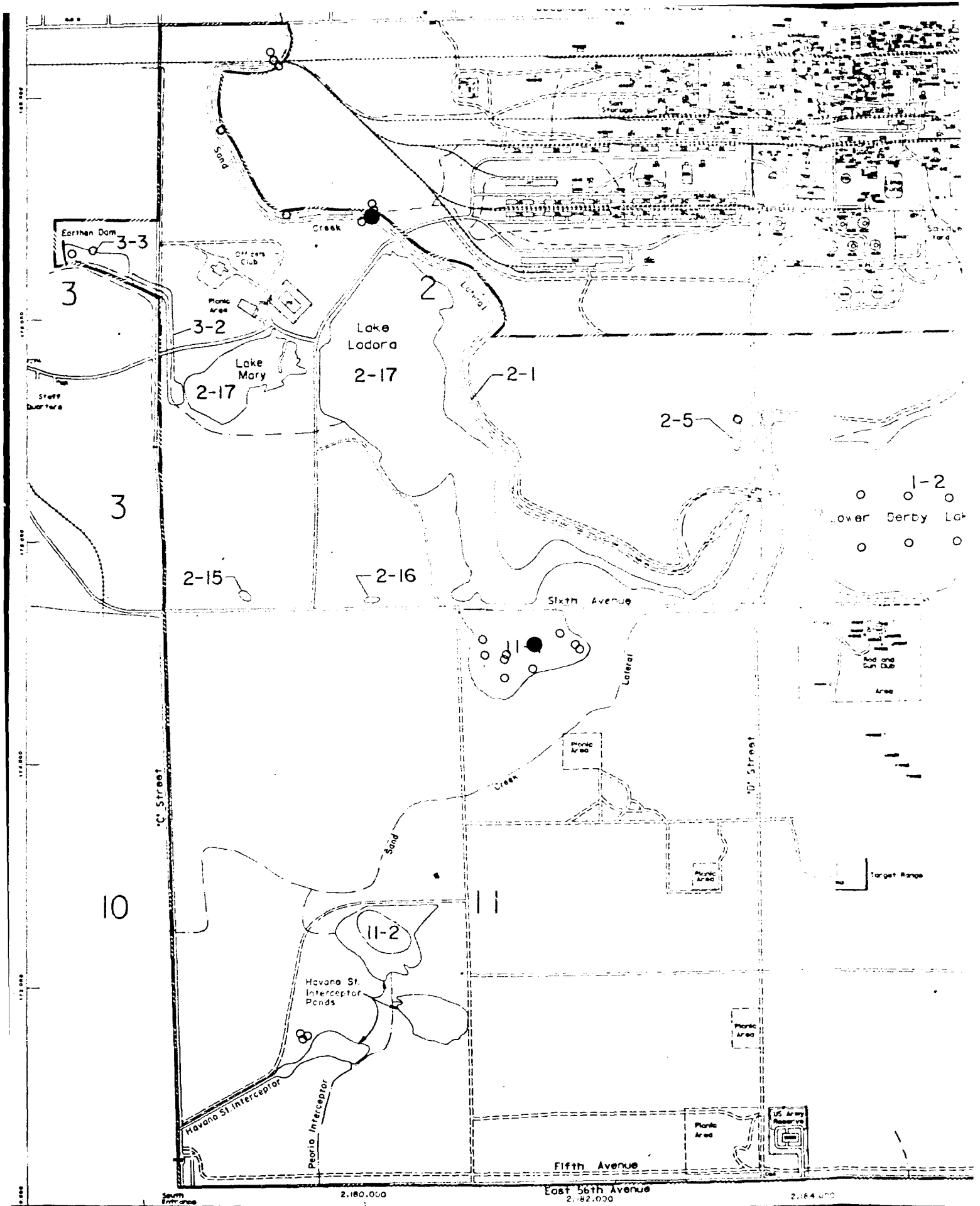
**ROCKY MOUNTAIN ARSENAL LOCATION**



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-26**  
 ICP Metals in Soils  
 in the 2-5 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

2,190,000                      2,192,000                      2,194,000

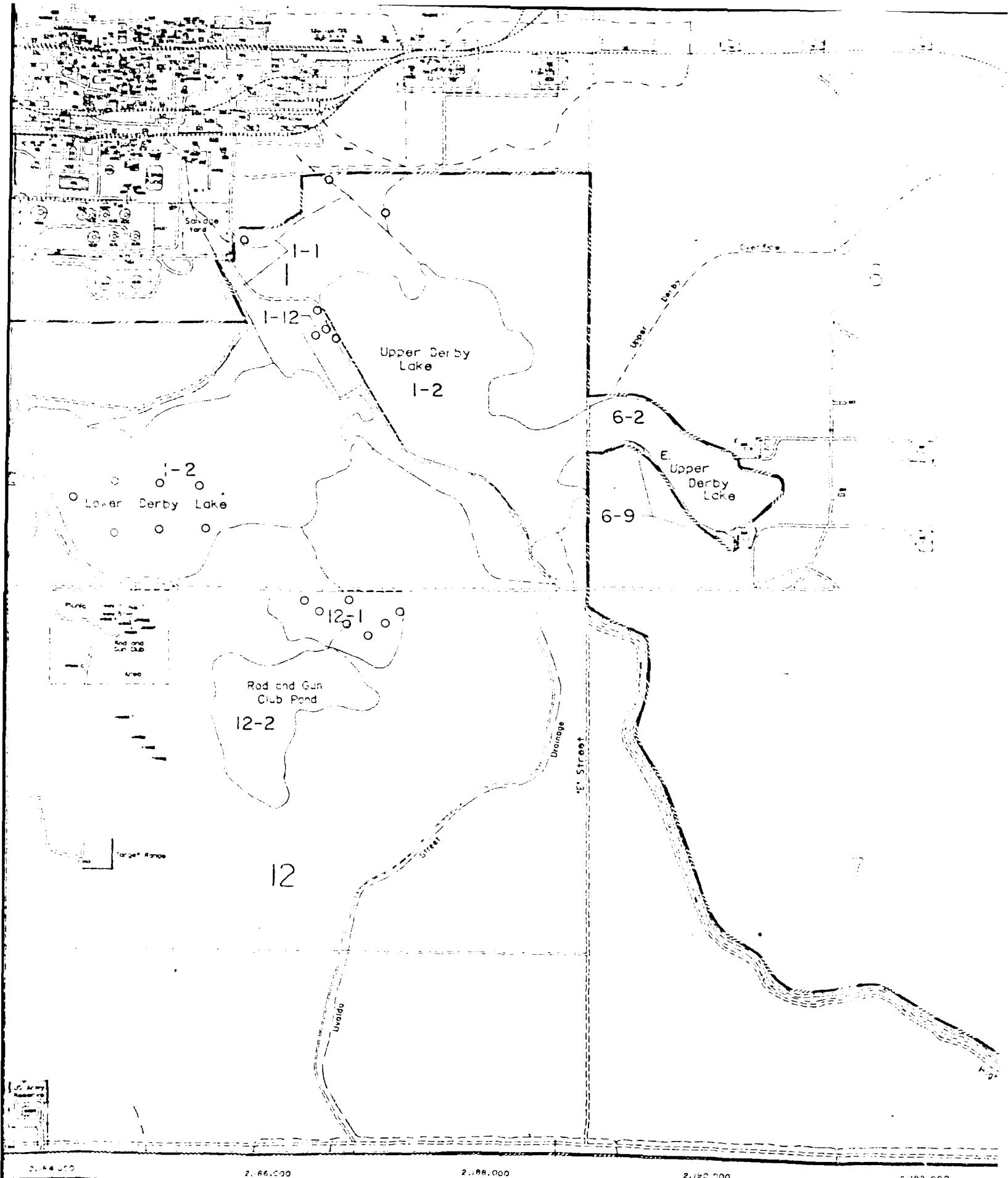


South Entrance

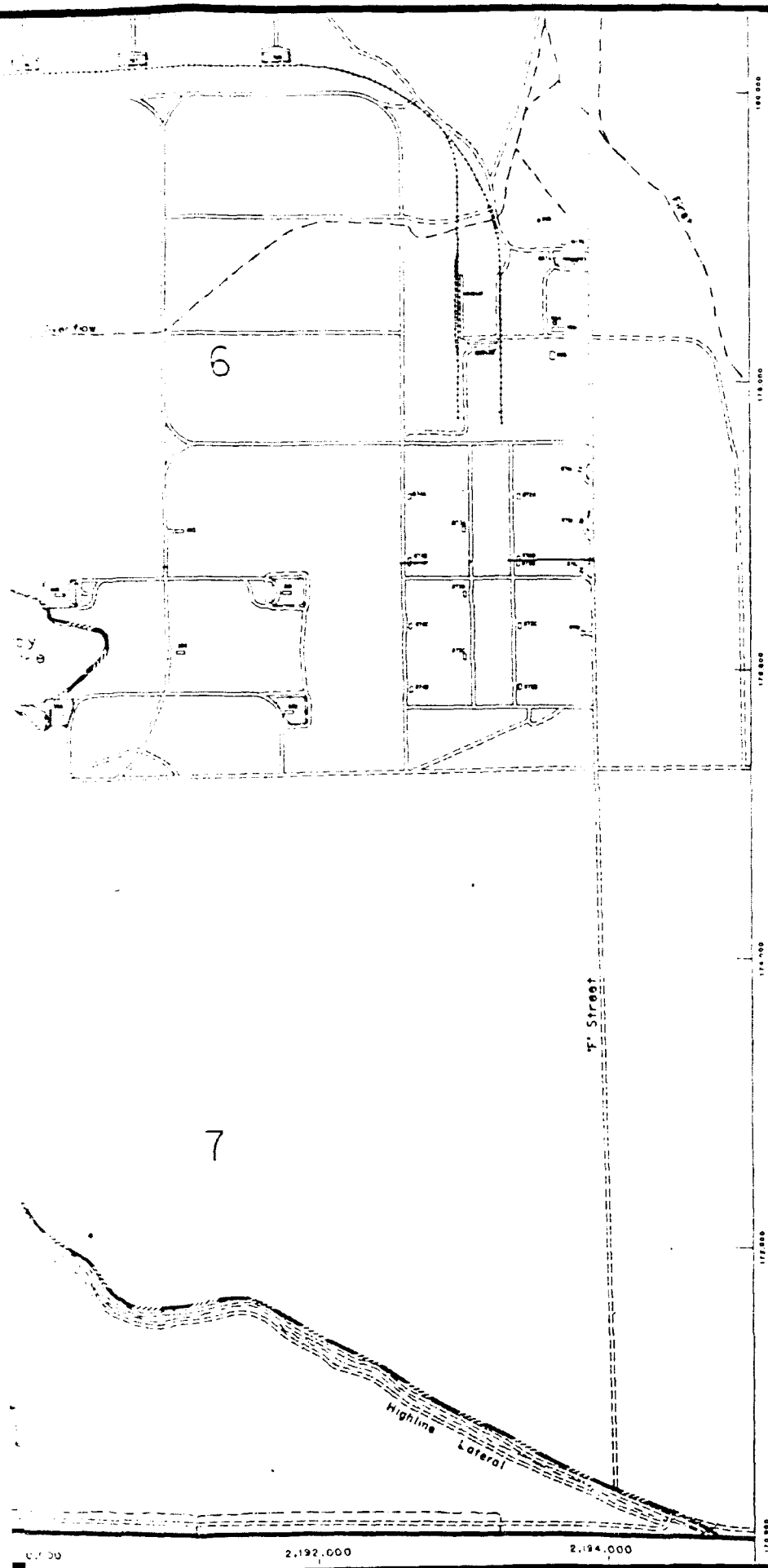
2,180,000

East 56th Avenue  
2,182,000

2,184,000







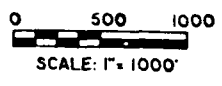
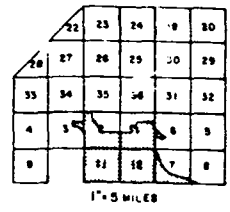
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

**ANALYTE SAMPLE LOCATION AND CONCENTRATION (ug/g)**

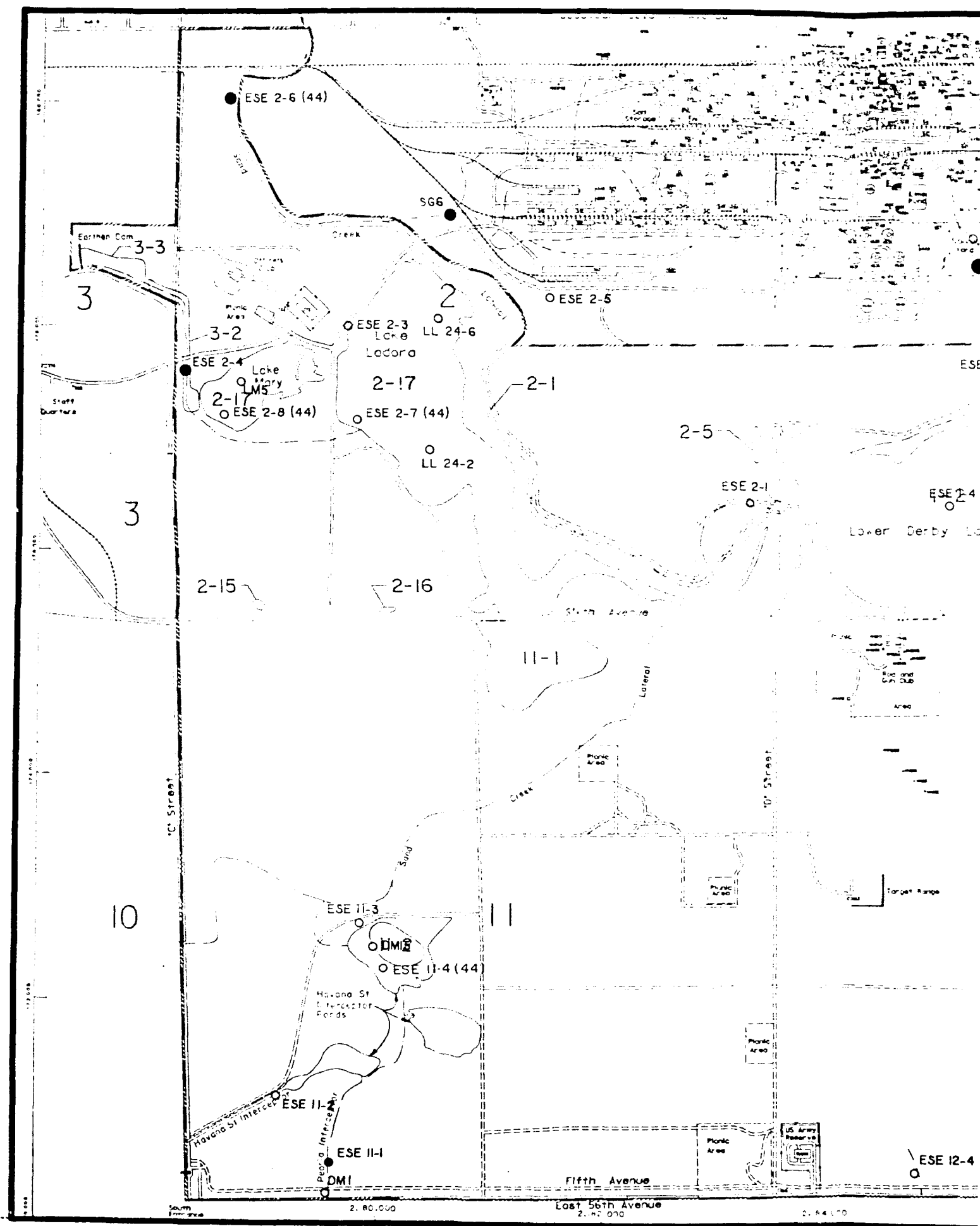
	<u>Cd</u>	<u>Cr</u>	<u>Cu</u>	<u>Pb</u>	<u>Zn</u>
○	BCRL-2.0	BCRL-40	BCRL-35	BCRL-40	BCRL-80
●	>2.0-10	>40-100	>35-100	>40-100	>80-1,000
●	>10-100	>100-1,000	>100-1,000	>100-1,000	>1,000-10,000
●	>100	>1,000	>1,000	>1,000	>10,000

**ROCKY MOUNTAIN ARSENAL LOCATION**



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.1-27**  
 ICP Metals in Soils  
 in the 5-20 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

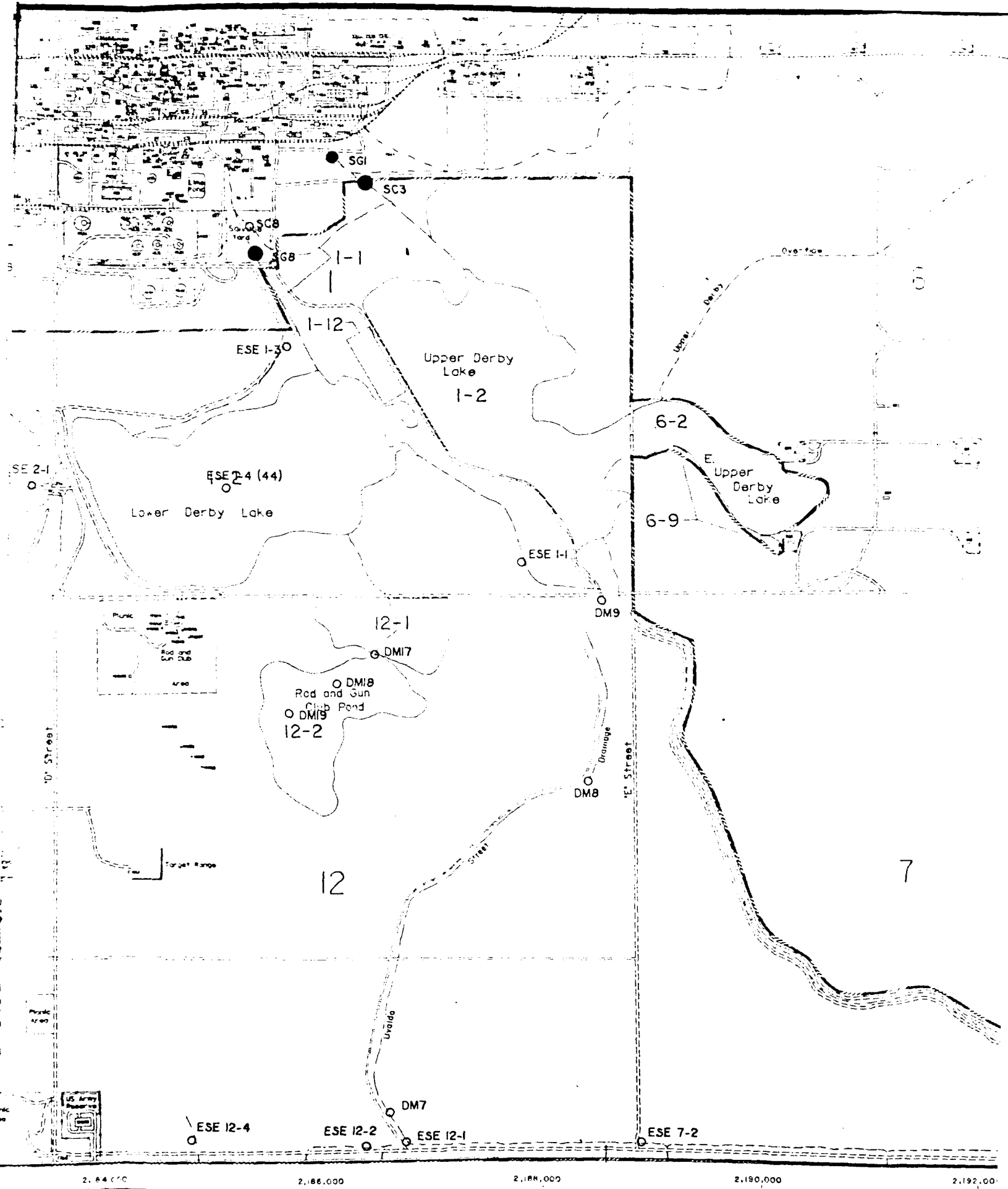


Scale

2, 40, 000

East 56th Avenue  
2, 00, 000

2, 44, 000



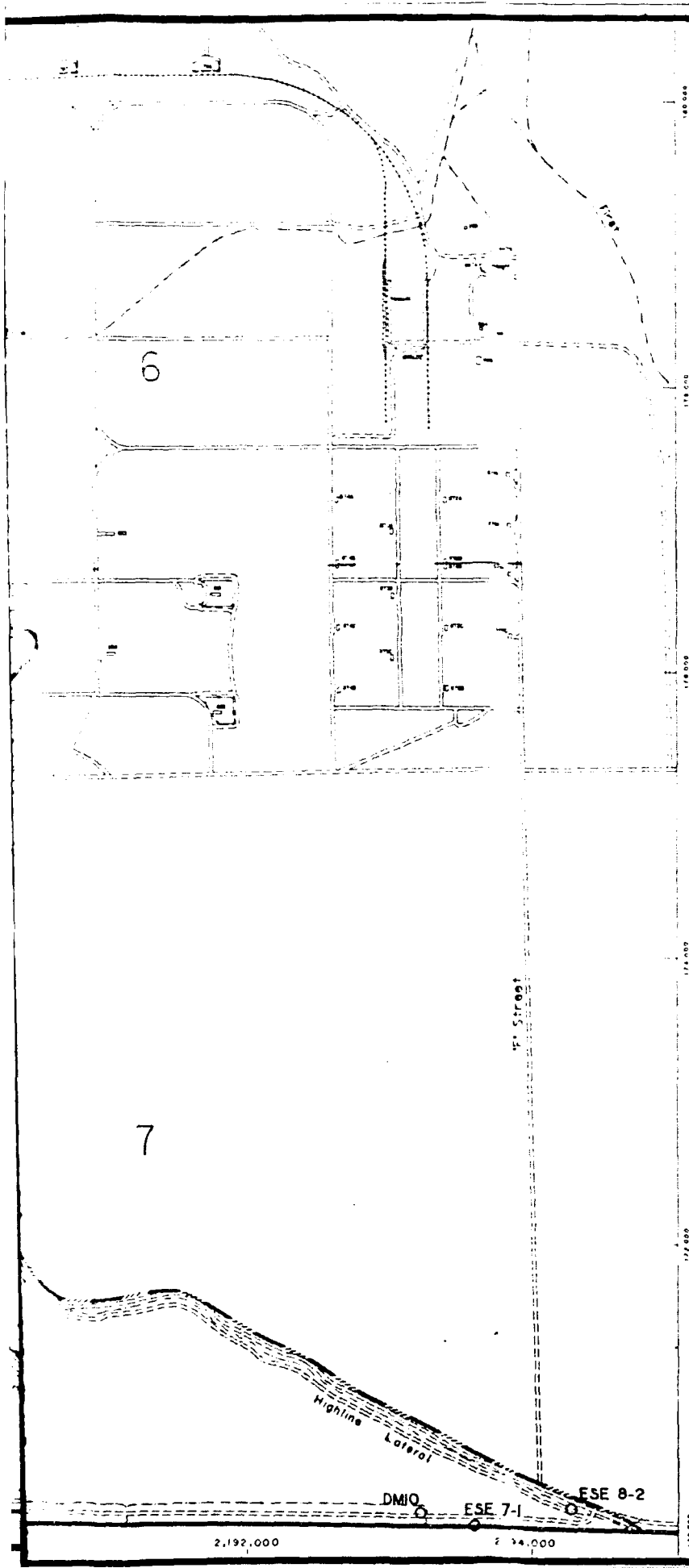
2, 84 000

2, 186, 000

2, 188, 000

2, 190, 000

2, 192, 000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

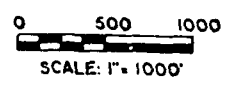
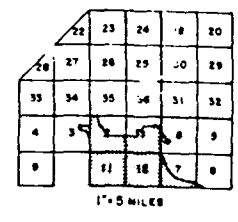
Analyte Sample Location and Concentration (ug/l)

- BDL\*
- 0-1.0
- >1.0 - 10
- >10 - 100
- >100 - 1,000

\* Below Detection Limit (BDL), see individual reports for specific detection limits or reporting limits.

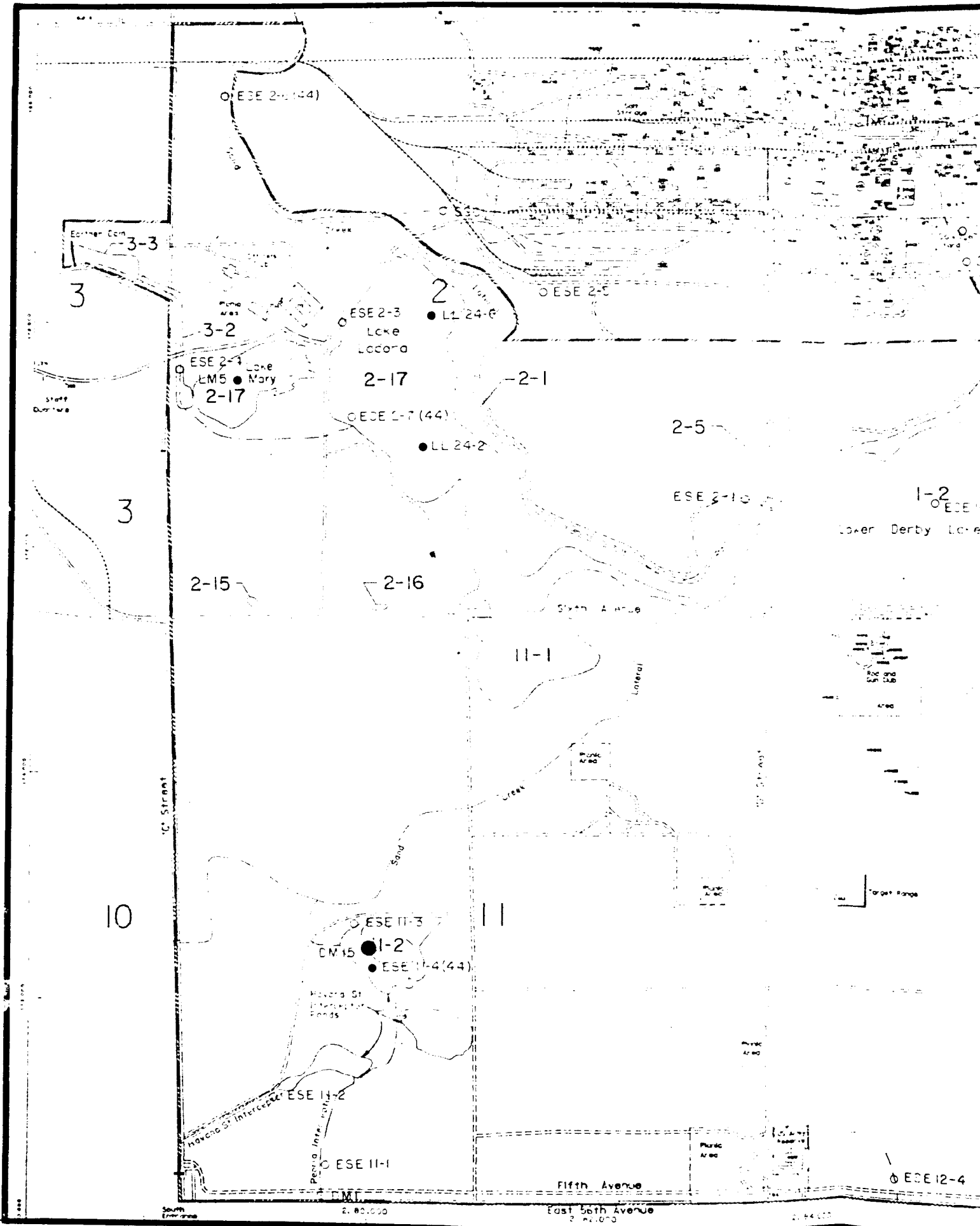
- LMI,LL24-2 ● USAWES Report, 1984
- DM7 ● James & Moore, 1985
- SG6 ● Spaine & Gregg, 1983
- SCI ● Shell Oil Co., 1980
- ESE 1-3 ● ESE, Task 4 Report, 1986
- ESE(1-3(44)) ● ESE, Water Remedial Investigation, 1987

ROCKY MOUNTAIN LYSERMAL LOCATION



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.2-1  
 Volatile Halogenated Organics  
 in Surface Water  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



O ESE 2-1 (44)

Eastern Can  
3-3

3

3-2

ESE 2-3  
Locke  
Luccora

● LL 24-6

O ESE 2-5

ESE 2-4  
LM 5 ● Mary  
2-17

2-17

-2-1

O ESE 2-7 (44)

● LL 24-2

2-5

3

ESE 2-10

1-2  
ESE 1-2

Lower Derby Lake

2-15

2-16

Sixth Avenue

11-1

Lateral

Public Area

Creek

Sand

C Street

10

O ESE 11-3

LM 15 ● 1-2  
● ESE 11-4 (44)

Hoyden St  
Interceptor  
Ponds

ESE 11-2

O ESE 11-1

Pecora Interceptor

Public Area

Fifth Avenue

Public Area

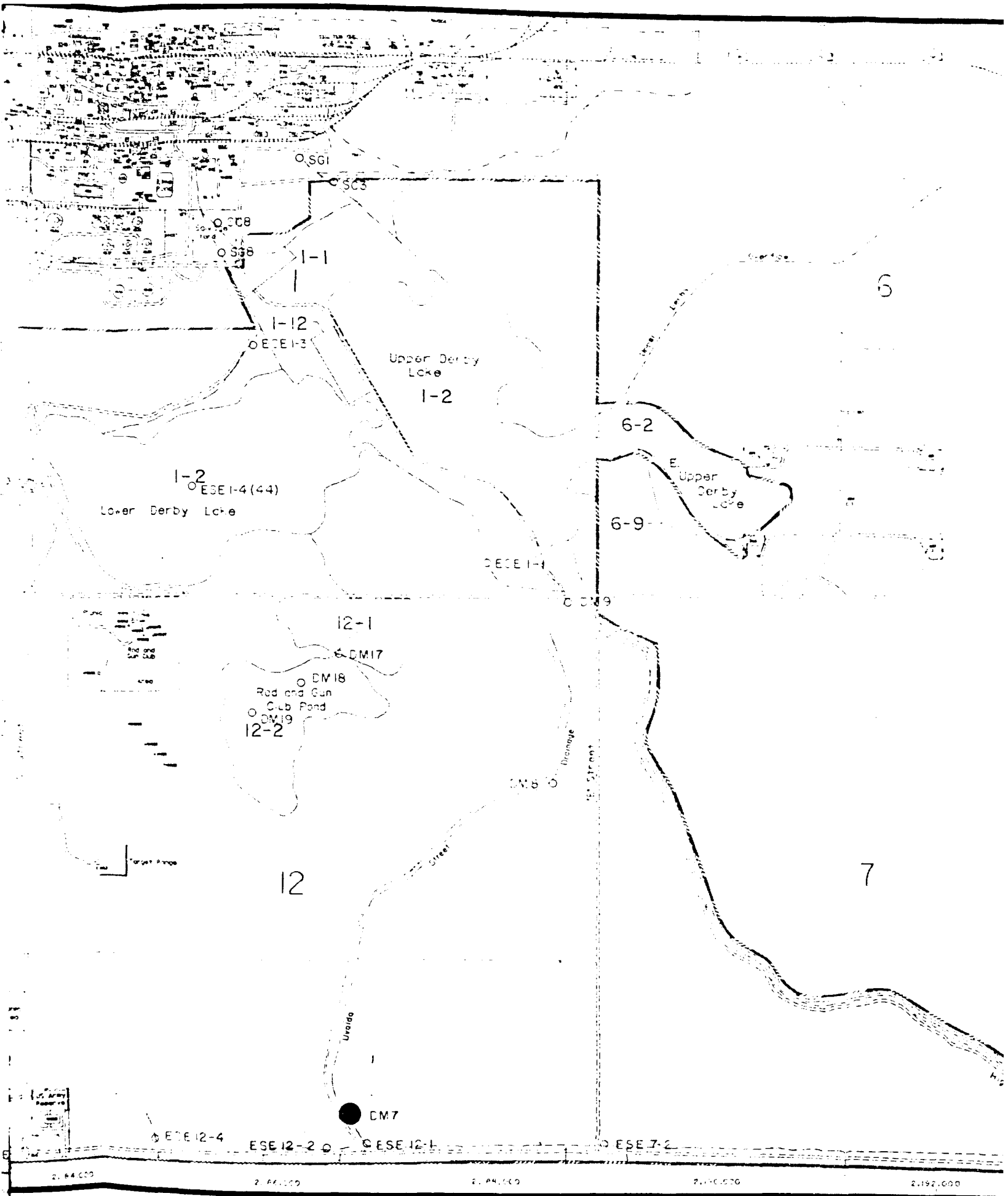
O ESE 12-4

Scale  
1" = 200'

2,000

East 6th Avenue  
2,000

2,440



OSG1

SC3

OS38

OS38

1-1

1-12

OECEI-3

Upper Derby Lake

1-2

6-2

E. Upper Derby Lake

1-2

ESEI-4 (44)

Lower Derby Lake

6-9

OECEI-4

CDI-9

12-1

DM17

DM18

Red and Gun Club Pond

DM19

12-2

DM8

Drainage

St. Street

12

7

Ureido

DM7

ESE 12-4

ESE 12-2

ESE 12-1

ESE 7-2

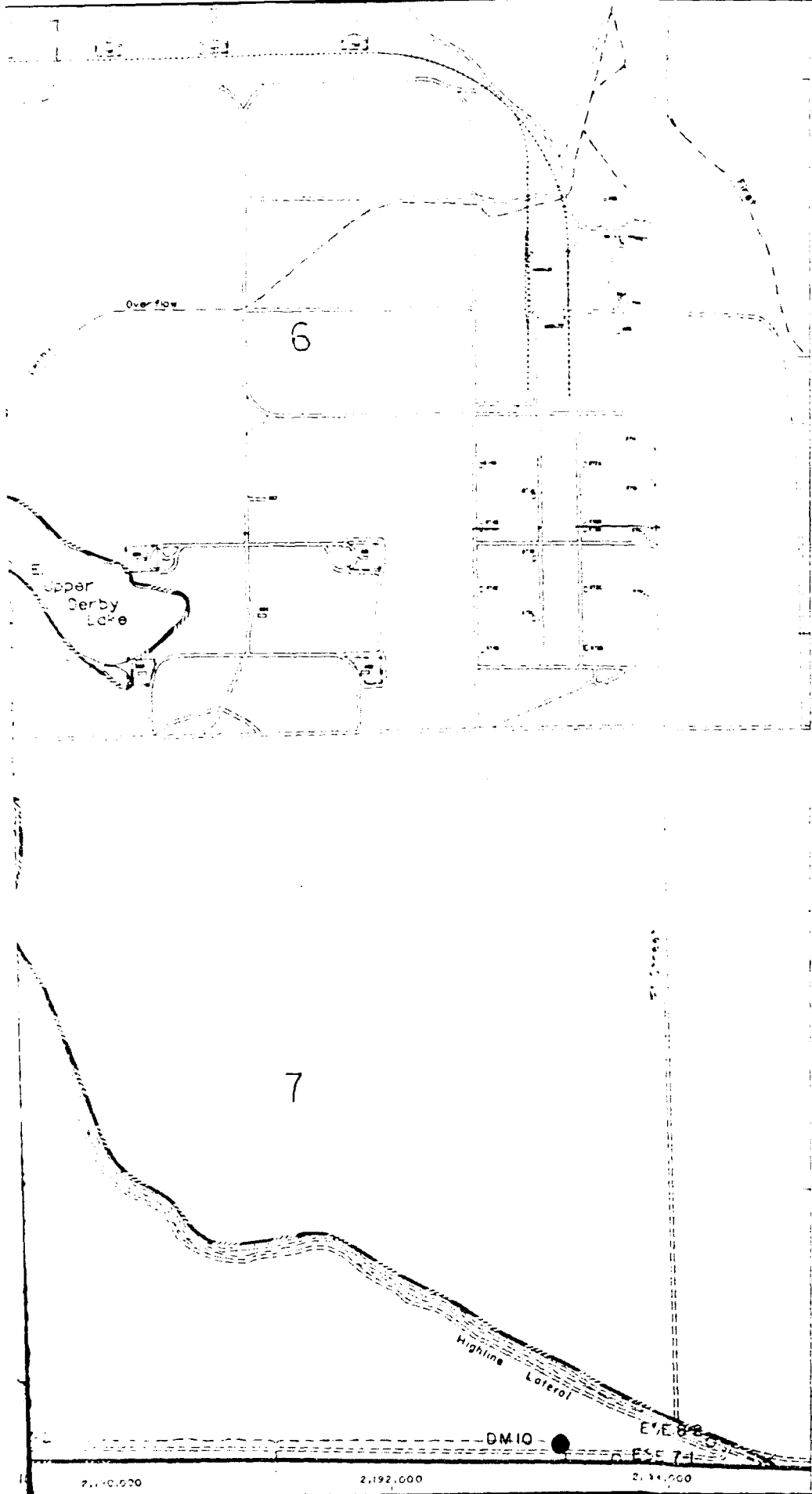
2,840,000

2,840,000

2,840,000

2,840,000

2,192,000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

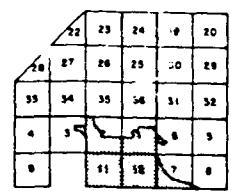
Analyte Sample Location and Concentration (ug/g)

- BDL\*
- 0-1.0
- >1.0 - 10
- >10 - 100
- >100 - 1000

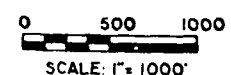
\* Below Detection Limit (BDL) see individual reports for specific detection limits or reporting limits.

- LMI,LL24-2 ● USAEWES Report, 1984
- DM7 ● Dames & Moore, 1985
- SG6 ● Spaine & Gregg, 1983
- SC1 ● Shell Oil Co., 1980
- ESE 1-3 ● ESE, Task 4 Report, 1986
- ESE1-3(44) ● ESE, Water Remedial Investigation, 1987

ROCKY MOUNTAIN ARSENAL LOCATION

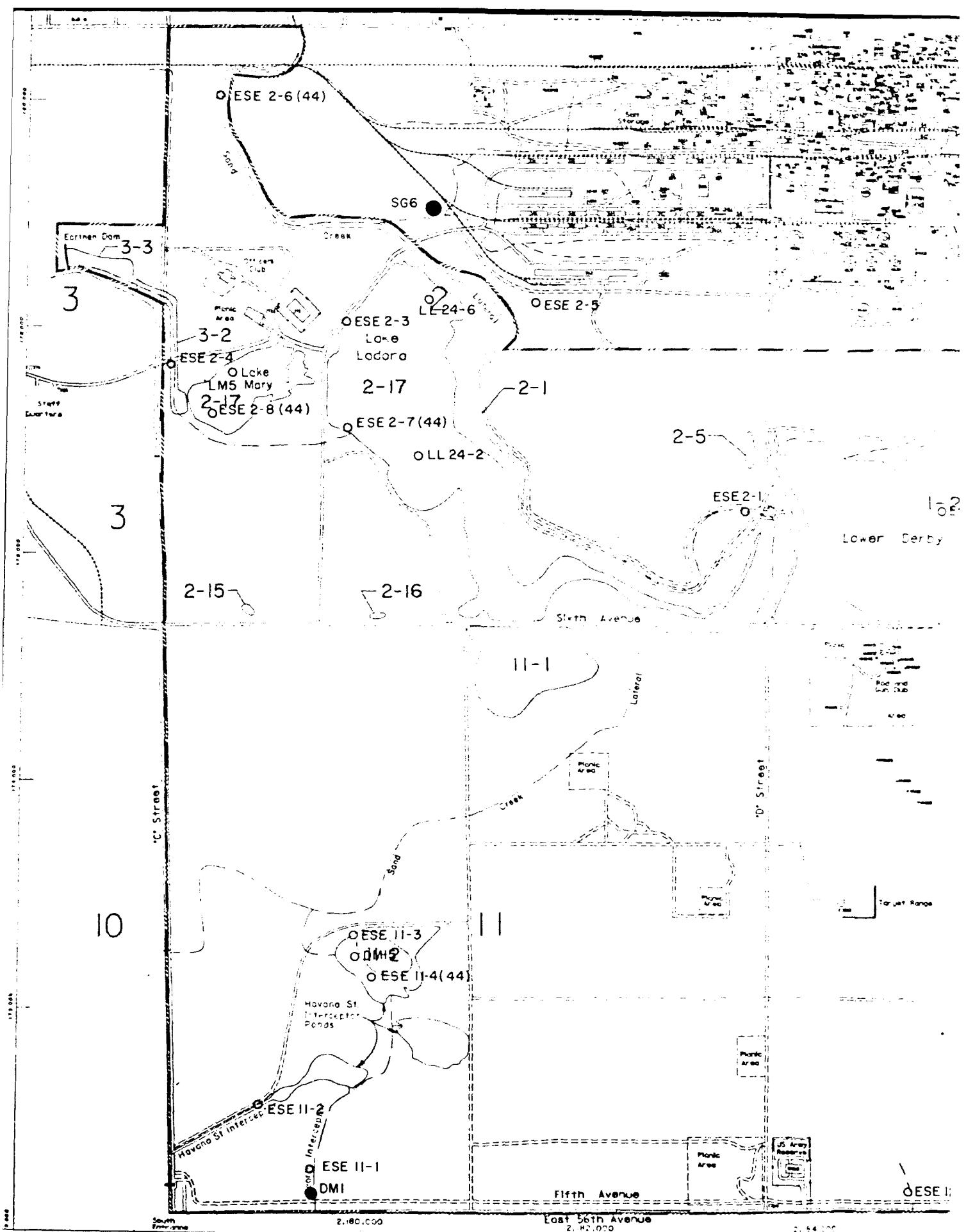


1" = 5 MILES



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA2.2-2  
 Volatile Halogenated Organics -  
 Methylene Chloride only  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



O ESE 2-6(44)

SG6

Eorinen Dam

3-3

3

Plank Area

3-2

O ESE 2-4

O Lcke  
LMS Mary

2-17

O ESE 2-8(44)

O ESE 2-3  
Lake  
Ladora

L24-6

O ESE 2-5

2-17

2-1

O ESE 2-7(44)

OLL 24-2

2-5

O ESE 2-1

1-2

Lower Derby

2-15

2-16

Sixth Avenue

11-1

Lateral

Creek

Sand

D Street

C Street

10

11

O ESE 11-3

O DM2

O ESE 11-4(44)

Havona St  
Interceptor  
Ponds

O ESE 11-2

O ESE 11-1

DM1

Havona St Interceptor

Fifth Avenue

Plank Area

Plank Area

Plank Area

US Army Reserve

Target Range

O ESE 11

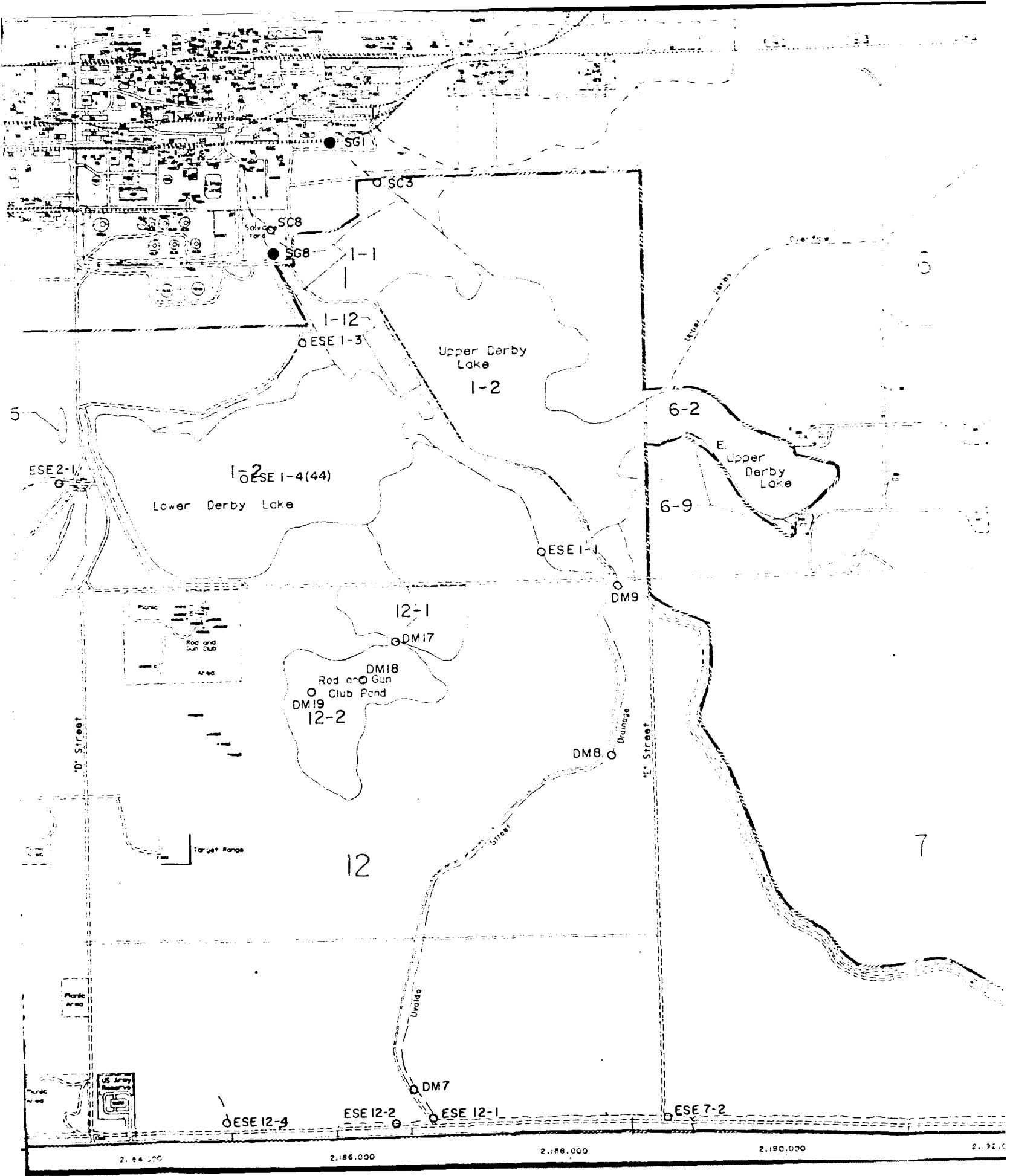
South Entrance

2,160,000

East 56th Avenue  
2,820,000

2,540,000





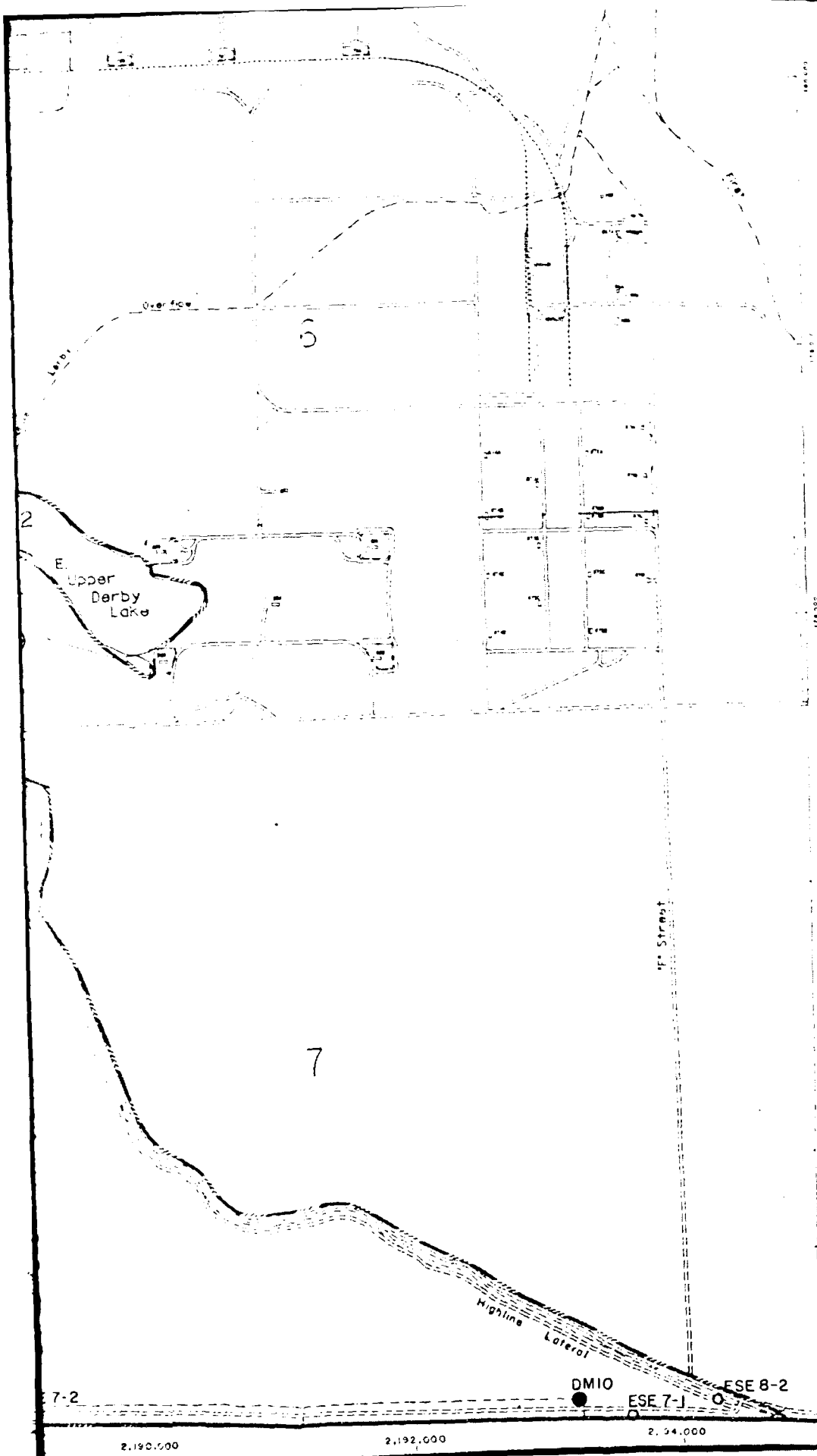
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

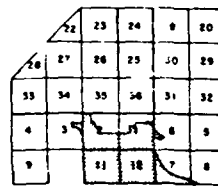
Analyte Sample Location and Concentration (ug/l)

- BDL\*
- 0-1.0
- >1.0 - 10
- >10 - 100
- >100 - 1,000

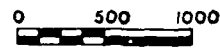
\* Below Detection Limit (BDL) see individual reports for specific detection limits or reporting limits.

- LMI, LL24-2 ● USAEWES Report, 1984
- DM7 ● James B Moore, 1985
- SG6 ● Spaine & Gregg, 1983
- SC1 ● Shell Oil Co., 1980
- ESE 1-3 ● ESE, Task 4 Report, 1986
- ESE1-3(4) ● ESE, Water Remedial Investigation, 1987

ROCKY MOUNTAIN ARSENAL LOCATION



1" = 5 MILES



SCALE: 1" = 1000'

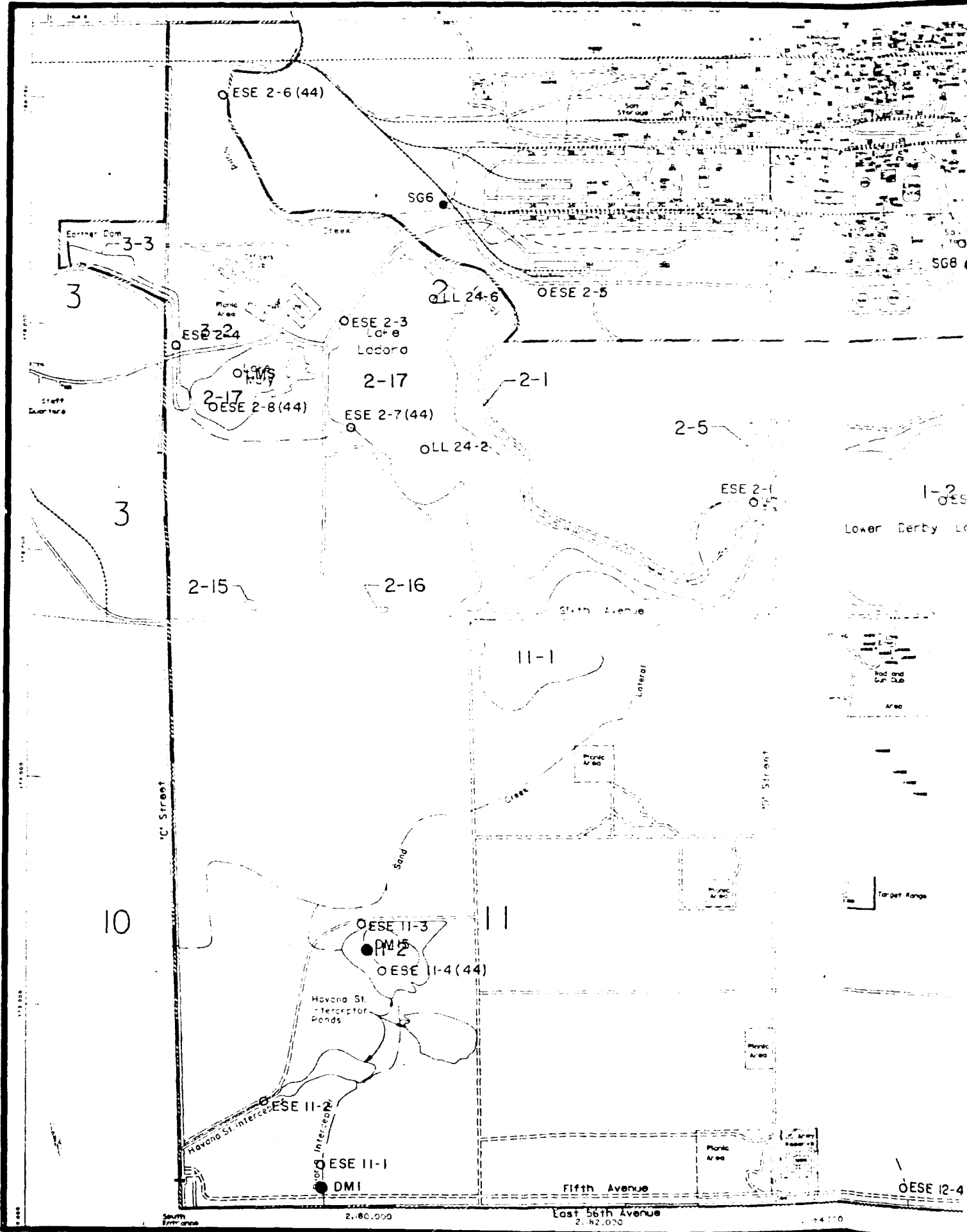
Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.2-3  
 Volatile Hydrocarbons  
 in Surface Water  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

2,190,000

2,192,000

2,24,000



O ESE 2-6 (44)

SG6

Eastern Dam 3-3

3

OLL 24-6

O ESE 2-5

O ESE 2-24

O ESE 2-3

Lodoro

2-17

2-1

Staff Quarters

O ESE 2-17

O ESE 2-8 (44)

O ESE 2-7 (44)

OLL 24-2

2-5

O ESE 2-1

O ESE 1-2

Lower Derby Lc

2-15

2-16

5th Avenue

11-1

Long Creek

Planic Area

5th Street

10

C Street

Long Creek

O ESE 11-3

DM 15

O ESE 11-4 (44)

Havana St. Interceptor Ponds

O ESE 11-7

O ESE 11-1

DMI

Havana St. Interceptor

Fifth Avenue

Planic Area

Army Reserve

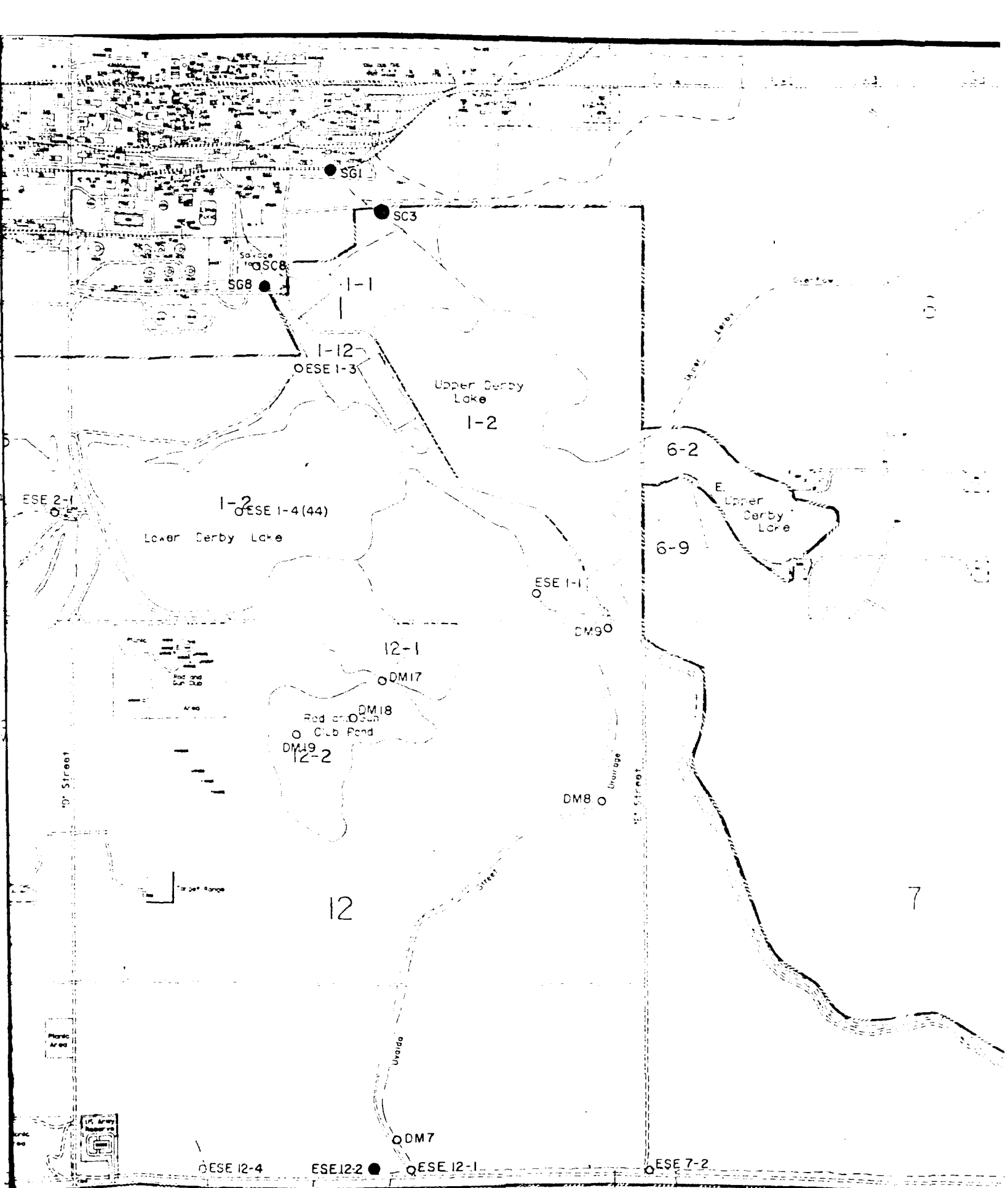
O ESE 12-4

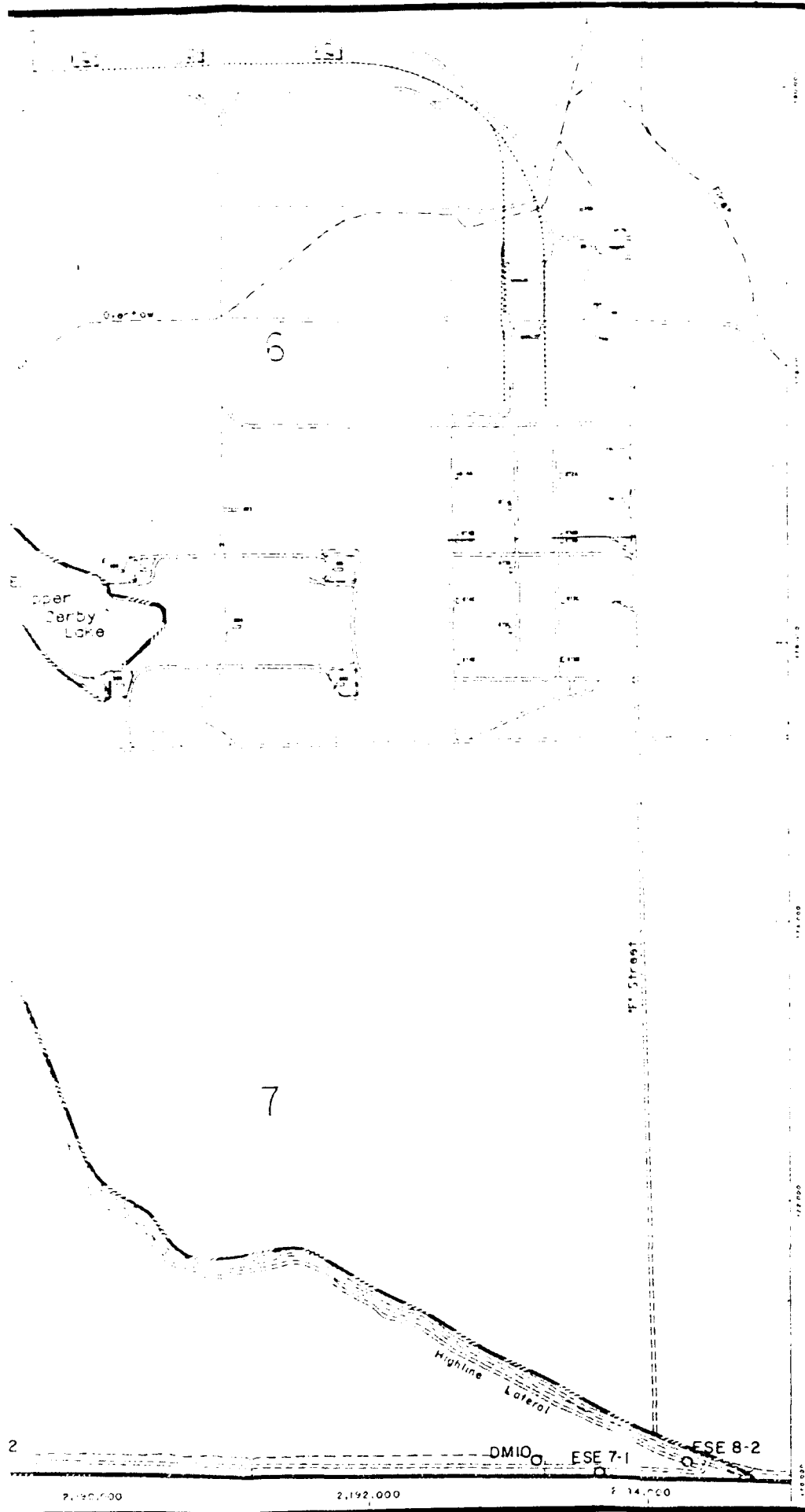
South Entrance

2,180,000

Last 56th Avenue  
2,182,000

2,184,100





**LEGEND**

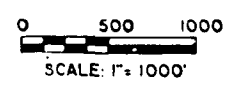
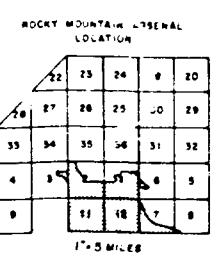
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 Store Plane Grid

Analyte Sample Location and Concentration (ug/l)

- BDL\*
- 0-1.0
- >1.0 - 10
- >10 - 100
- >100 - 1,000

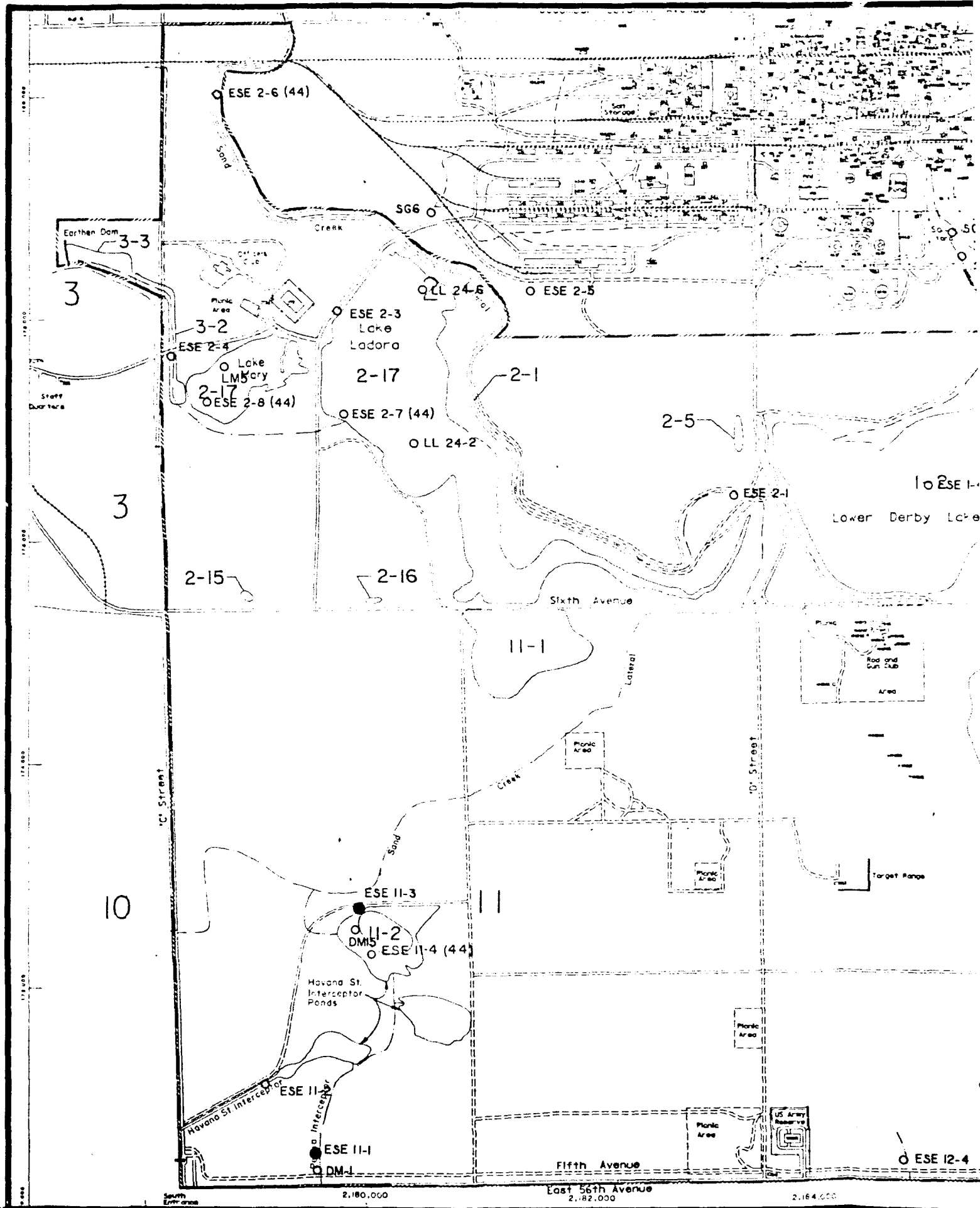
\* Below Detection Limit (BDL) see individual reports for specific detection limits or reporting limits.

- LMI,LL24-2 ● USAWES Report, 1984
- DM7 ● James & Moore, 1985
- SG6 ● Spaine & Gregg, 1983
- SCI ● Shell Oil Co., 1980
- ESE 1-3 ● ESE, Task 4 Report, 1986
- ESE 1-3(44) ● ESE, Water Remedial Investigation, 1987



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.2-4  
 Volatile Aromatic Organics  
 in Surface Water  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



ESE 2-6 (44)

Earthen Dam 3-3

3

3-2

ESE 2-4

Lake LM 5 dry

2-17

ESE 2-8 (44)

ESE 2-3

Lake Ladora

2-17

O ESE 2-7 (44)

OLL 24-2

2-16

2-15

ESE 11-3

DM 5

ESE 11-2

ESE 11-4 (44)

Havana St. Interceptor Ponds

Havana St Interceptor

ESE 11-5

ESE 11-1

DM-1

ESE 2-5

OLL 24-6

SG6

2-5

ESE 2-1

ESE 1-1

Lower Derby Lake

11-1

10

11

Target Range

10th Street

Sixth Avenue

Fifth Avenue

East 56th Avenue

Picnic Area

Picnic Area

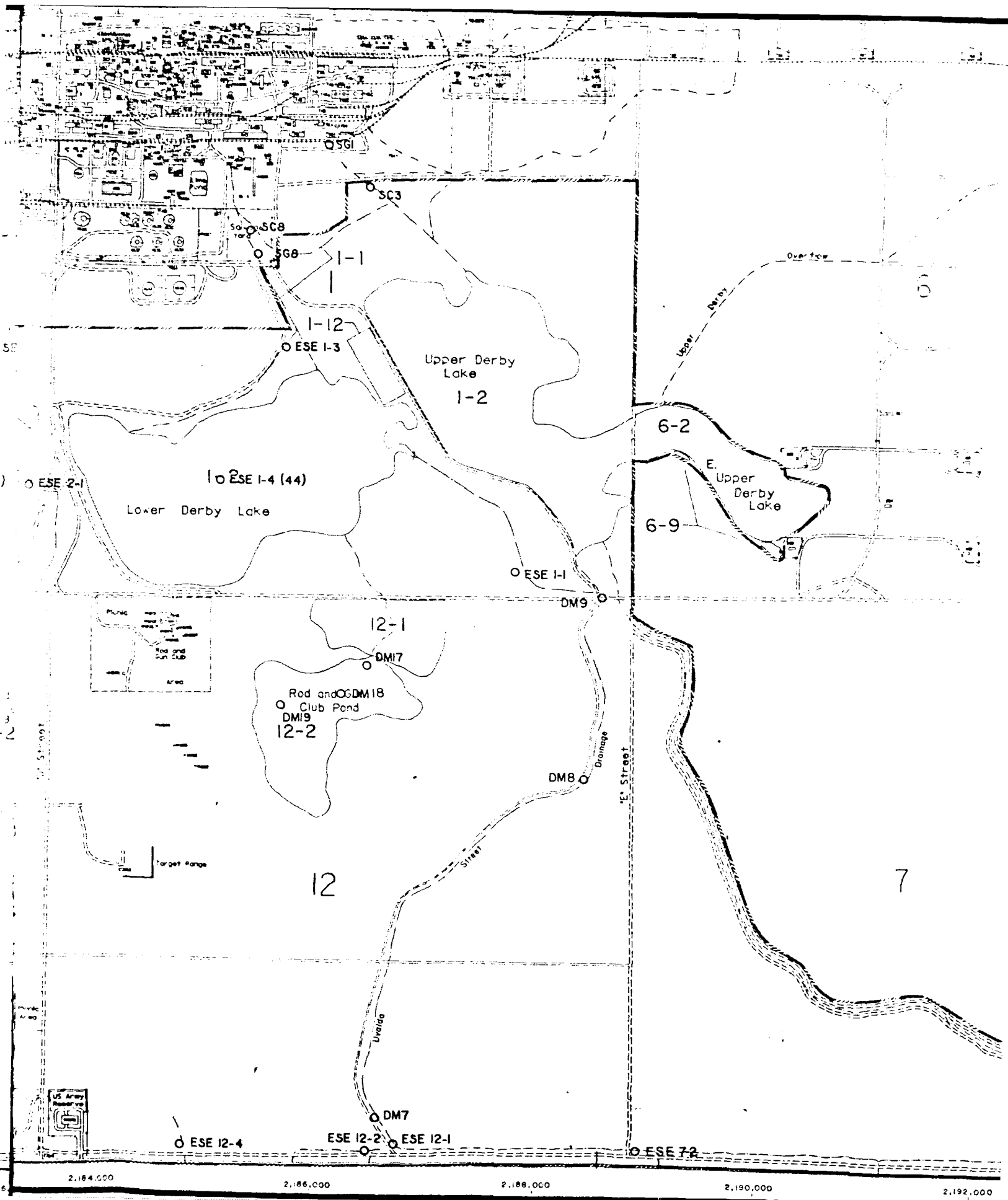
US Army Bakery

ESE 12-4

South Entrance

2,180,000

2,184,000



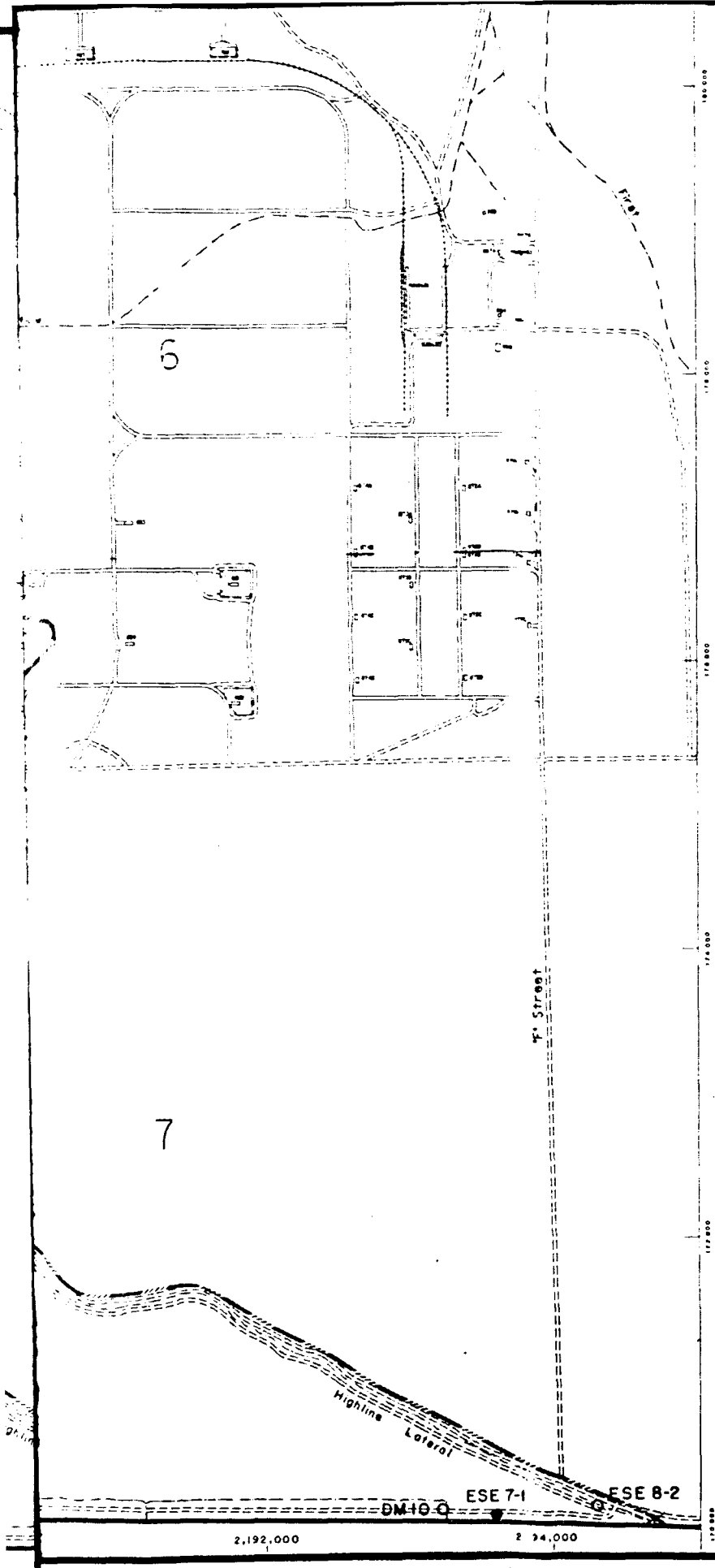
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

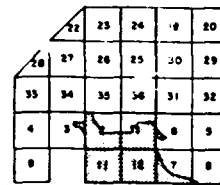
Analyte Sample Location and Concentration (ug/l)

- BDL\*
- 0-1.0
- >1.0 - 10
- >10 - 100
- >100 - 1,000

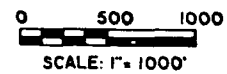
\* Below Detection Limit (BDL) see individual reports for specific detection limits or reporting limits.

- LMI, LL24-2 ● USAEWES Report, 1984
- DM7 ● Dames & Moore, 1985
- SG6 ● Spaine & Gregg, 1983
- SCI ● Shell Oil Co., 1980
- ESE 1-3 ● ESE, Task 4 Report, 1986
- ESE1-3(44) ● ESE, Water Remedial Investigation, 1987

ROCKY MOUNTAIN ARSENAL LOCATION



1" = 5 MILES



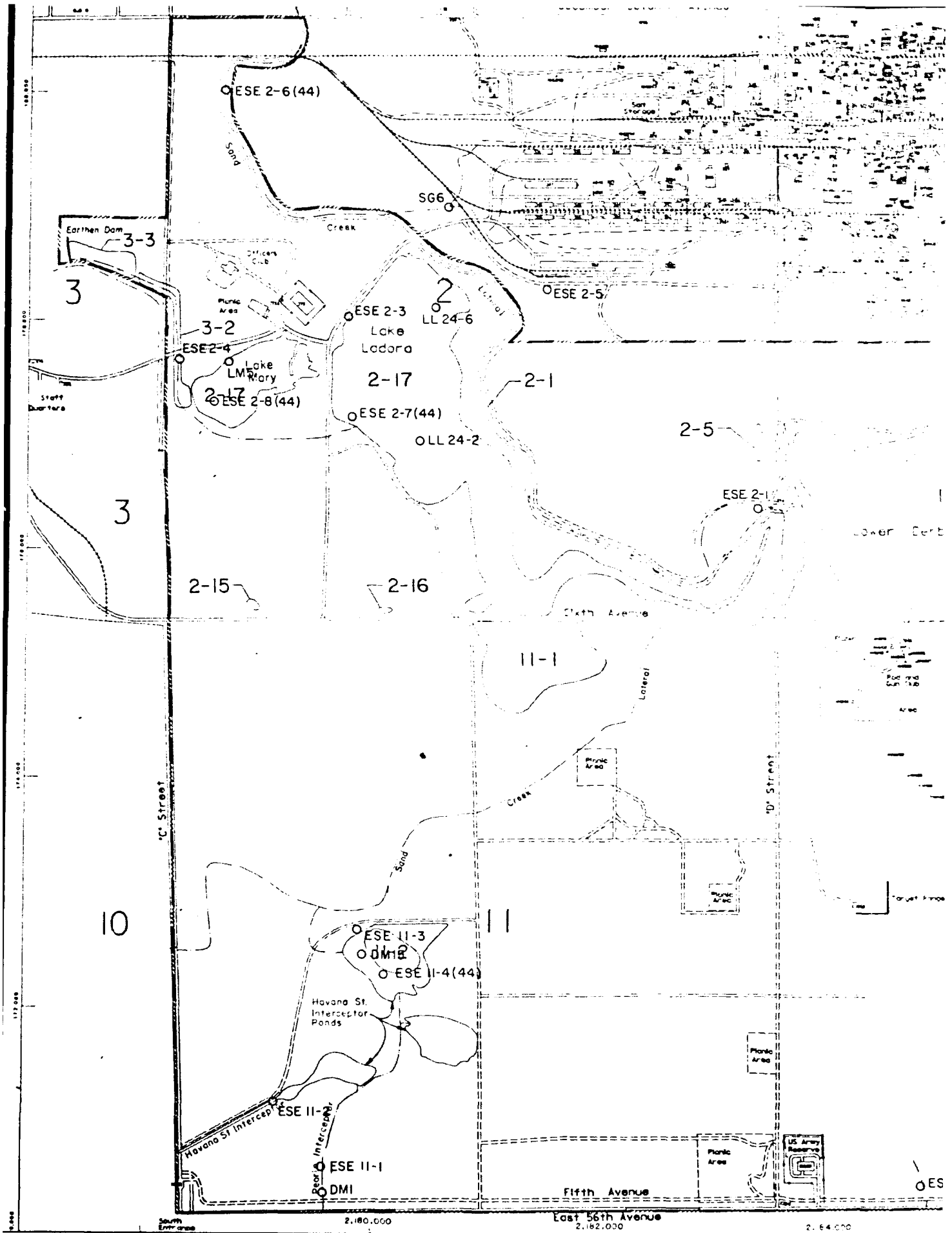
Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.2-5  
Organosulfur Compounds  
in Surface Water

Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated





ESE 2-6(44)

Earthen Dam 3-3

3

SG6

ESE 2-5

ESE 2-3  
Lake Lodora

LL 24-6

3-2

Lake Mary

2-17

2-1

ESE 2-4

ESE 2-8(44)

ESE 2-7(44)

OLL 24-2

2-5

ESE 2-1

3

2-15

2-16

11-1

10

11

ESE 11-3

DMI

ESE 11-4(44)

Havana St. Interceptor Ponds

Havana St Interceptor

ESE 11-1

DMI

Fifth Avenue

US Army Reserve

ES

100,000  
116,000  
118,000  
114,000  
112,000  
110,000

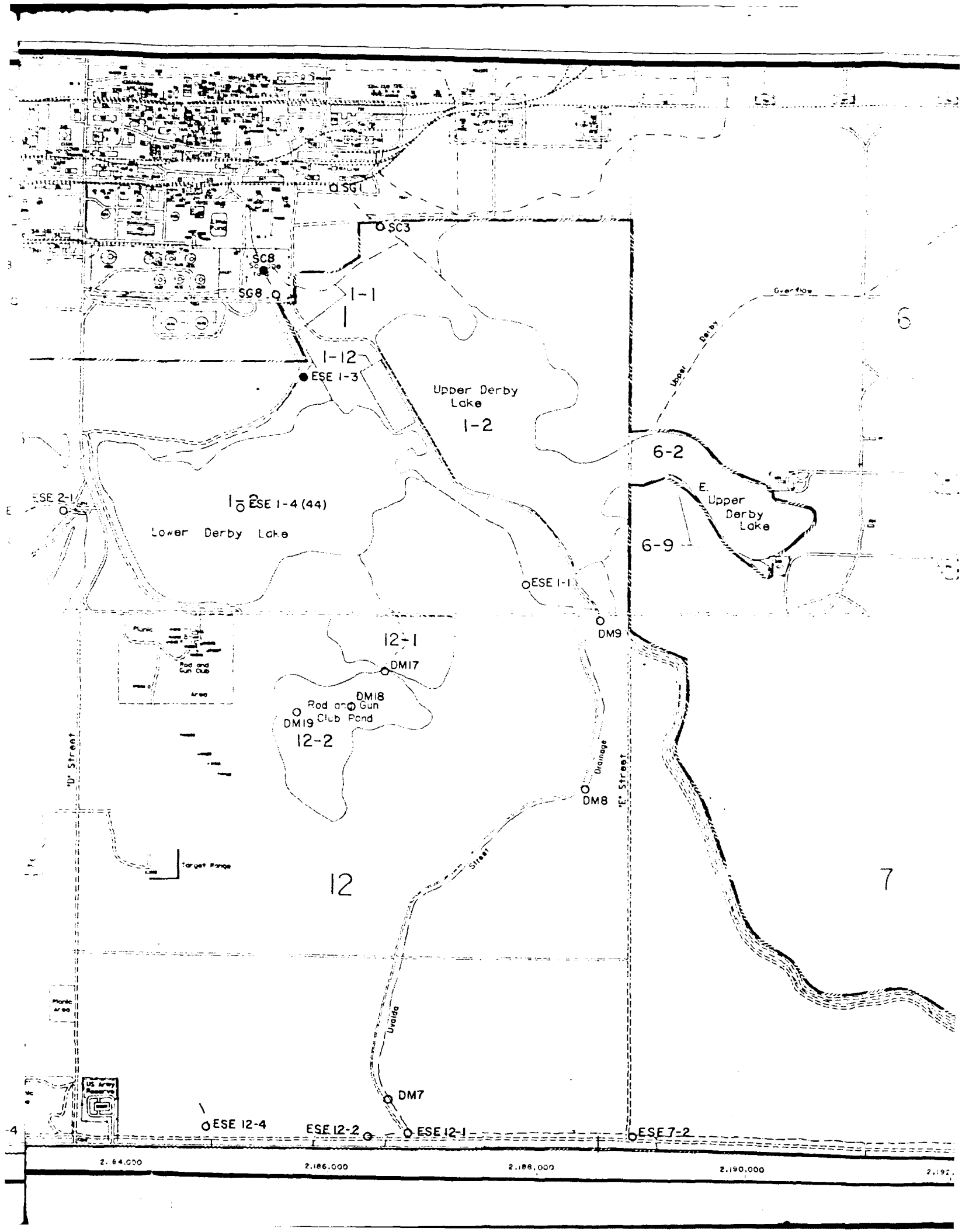
C Street

South Entrance

2,160,000

East 56th Avenue  
2,162,000

2,164,000



Upper Derby Lake  
1-2

Lower Derby Lake  
1-1  
1-12  
ESE 1-3  
ESE 1-4 (44)

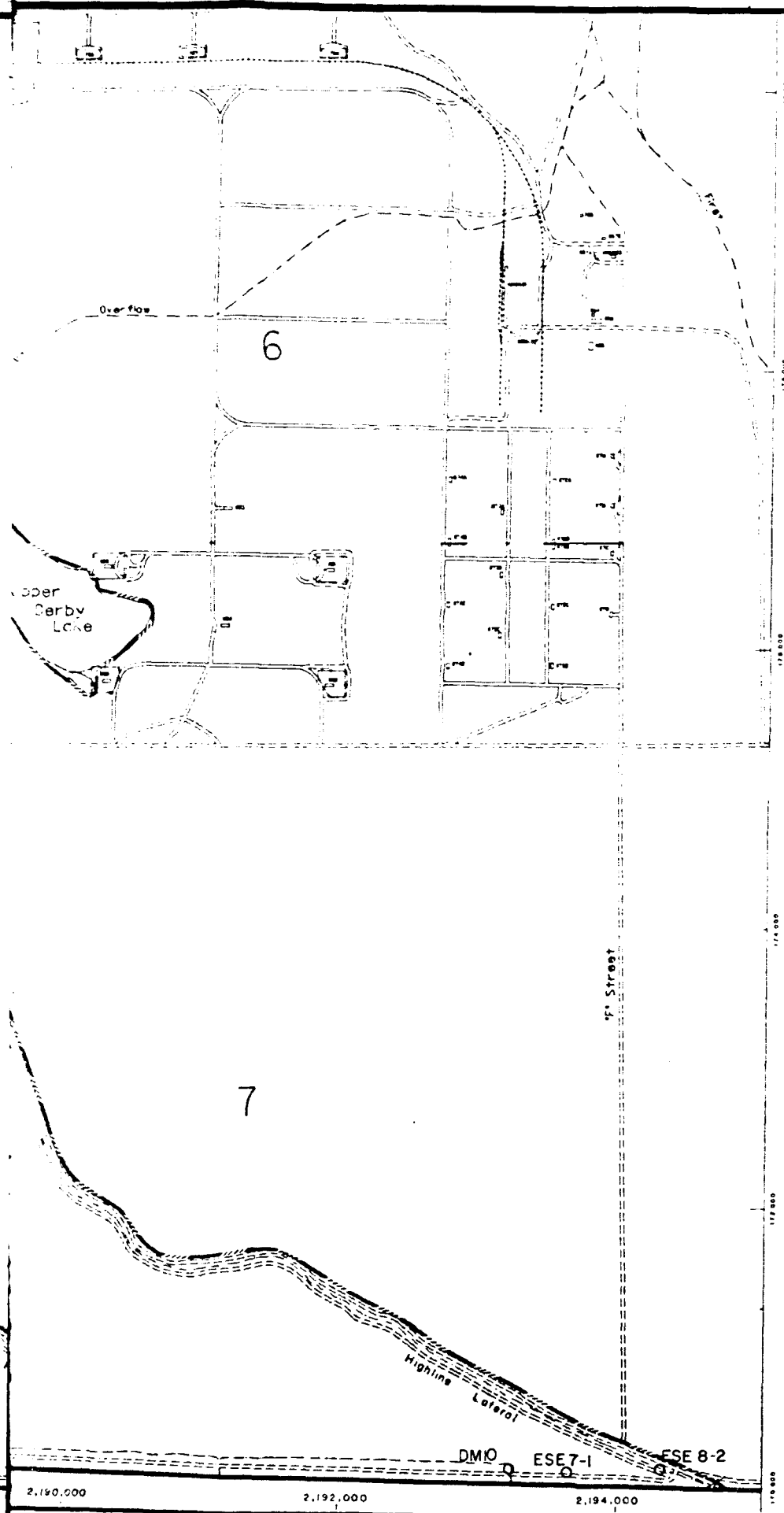
6-2  
E. Upper Derby Lake  
6-9

12-1  
DM17  
DM18  
Rod and Gun Club Pond  
DM19  
12-2

Park Area  
Target Range

ESE 12-4  
ESE 12-2  
ESE 12-1  
ESE 7-2

2,640,000      2,186,000      2,188,000      2,190,000      2,192,000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

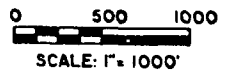
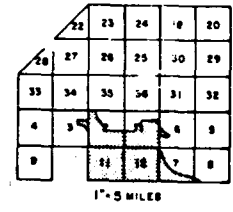
Analyte Sample Location and Concentration (ug/l)

- BDL\*
- 0-1.0
- >1.0 - 10
- >10 - 100
- >100 - 1,000

\* Below Detection Limit (BDL) see individual reports for specific detection limits or reporting limits.

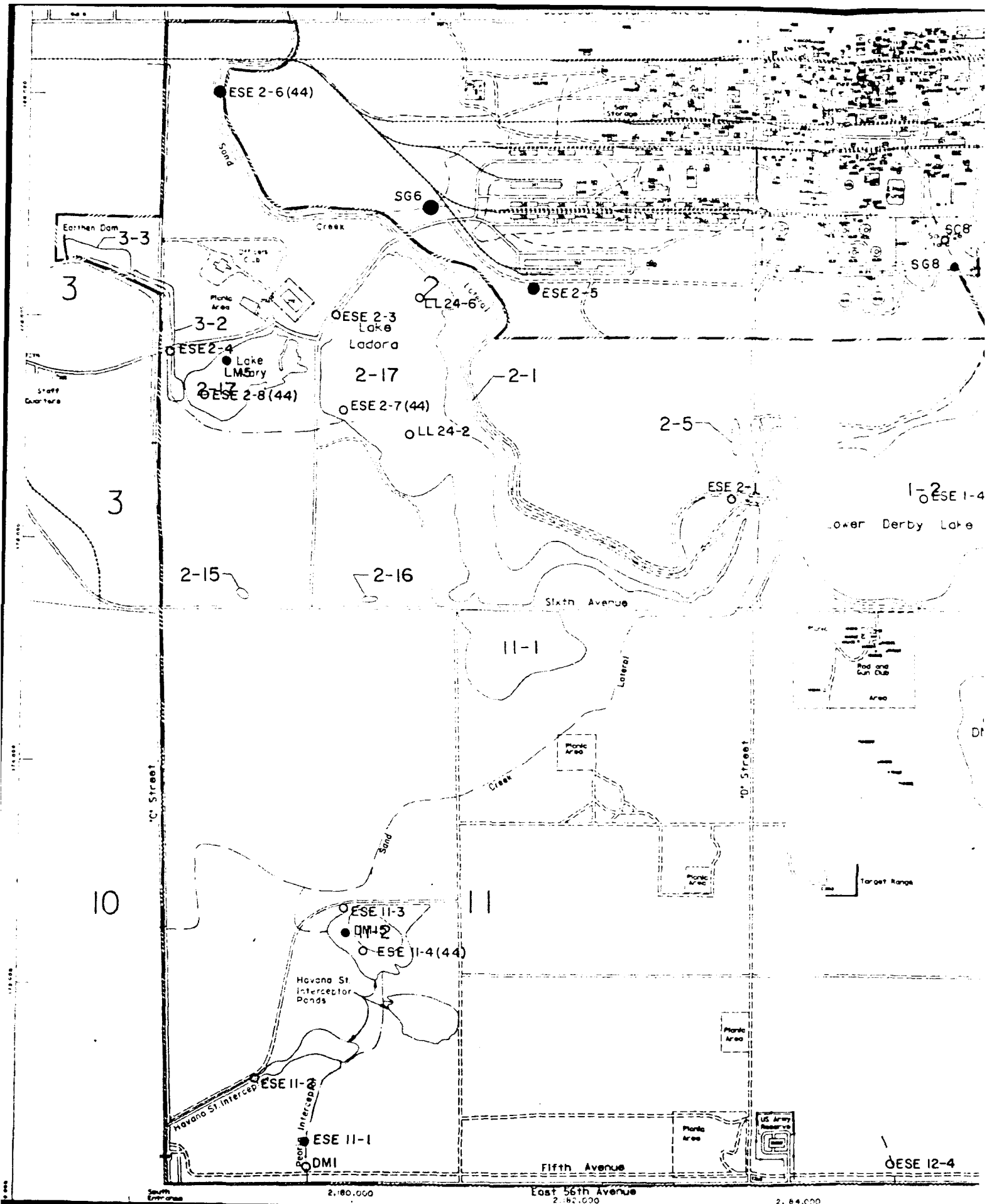
- LMI,LL24-2 ● USAEWS Report, 1984
- DM7 ● Dames & Moore, 1985
- SG6 ● Spaine & Gregg, 1983
- SCI ● Shell Oil Co., 1980
- ESE 1-3 ● ESE, Task 4 Report, 1986
- ESE1-3(44) ● ESE, Water Remedial Investigation, 1987

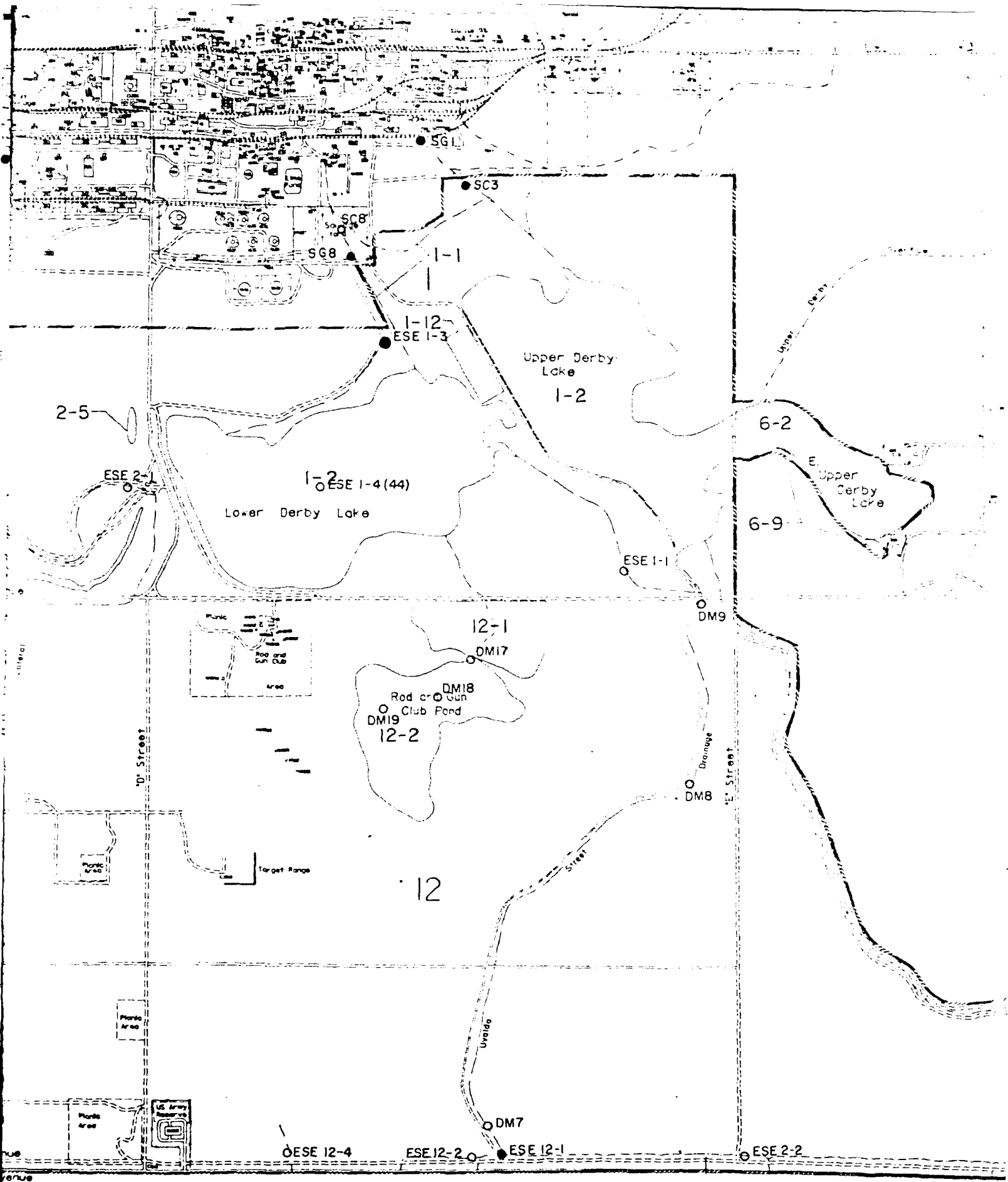
ROCKY MOUNTAIN ARSENAL LOCATION



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE; SSA 2.2-6  
 Dibromochloropropane  
 in Surface Water  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



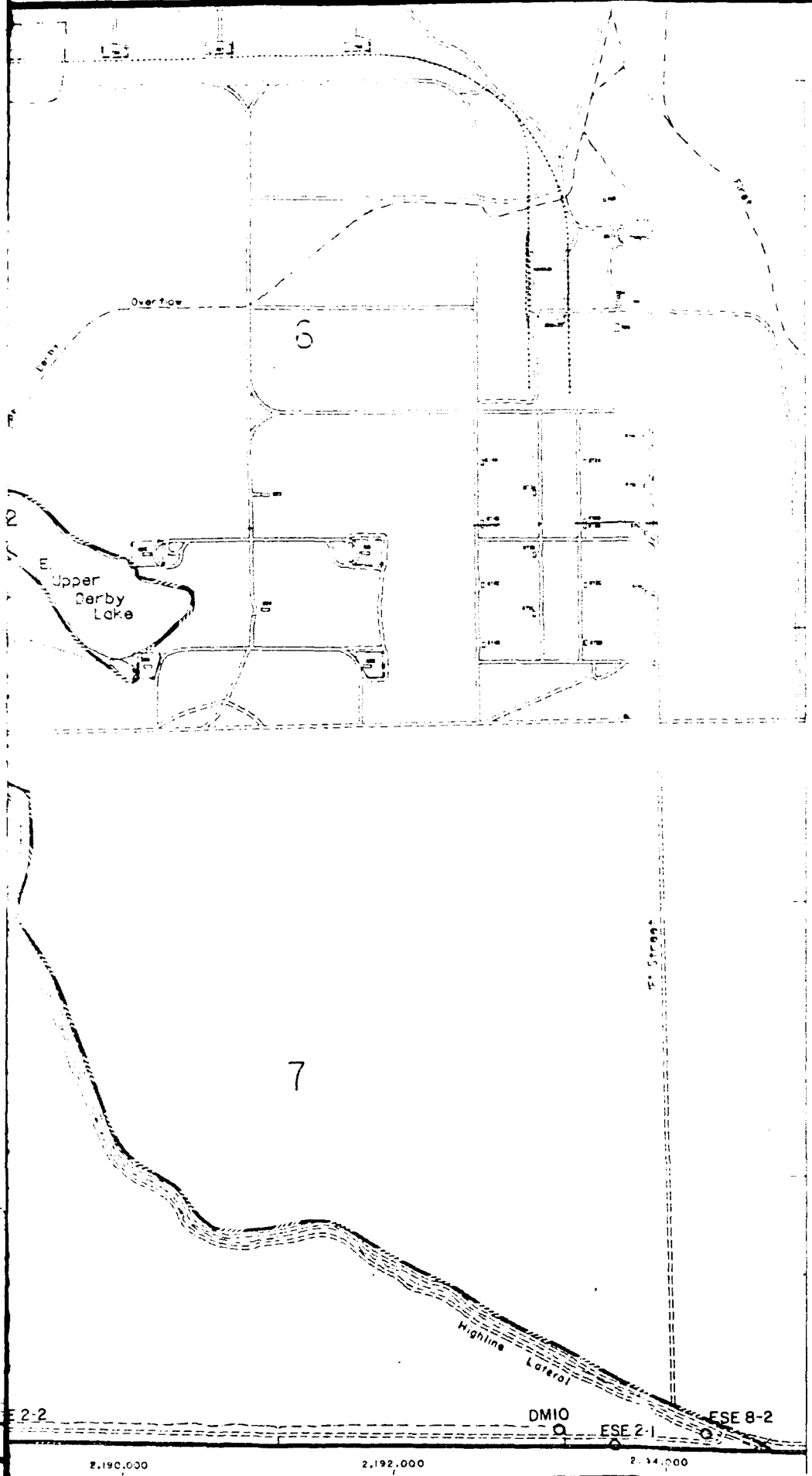


2,184,000

2,186,000

2,188,000

2,190,000



**LEGEND**

- Improved Road
- - - Unimproved Road
- +— Railroad Tracks
- ▭ Existing Structure
- - - Former Structure
- Fence
- 6** Section Number
- - - Stream or Ditch
- ▬ Study Area Boundary

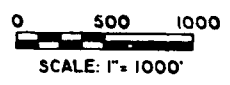
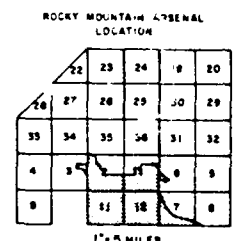
174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

- BDL\*
- 0-1.0
- >1.0-10
- >10-100
- >100-1,000

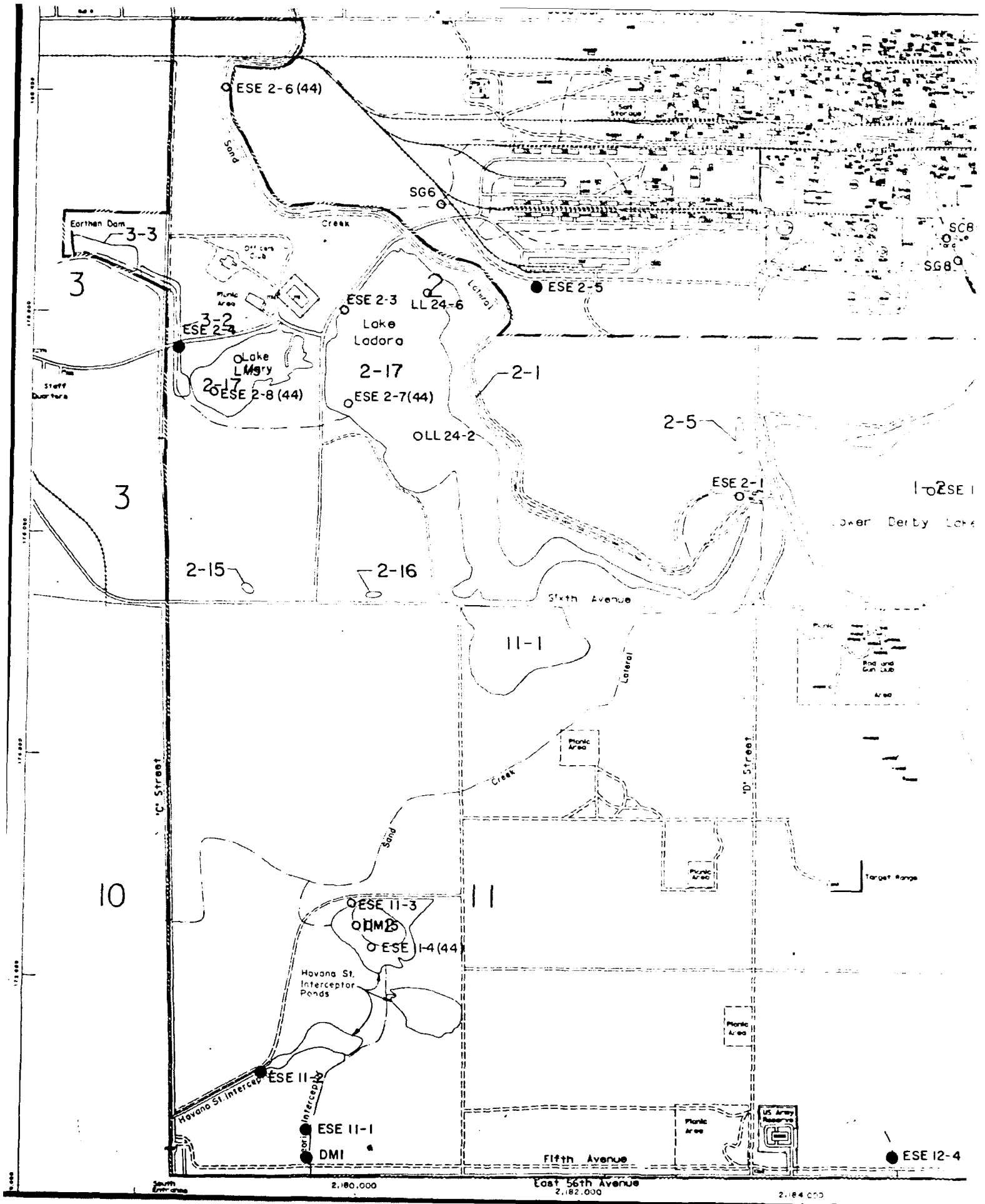
\* Below Detection Limit (BDL) see individual reports for specific detection limits or reporting limits.

LMI,LL24-2 ● USAEWES Report,1984  
 DM7 ● Dames & Moore,1985  
 SG6 ● Spaine & Gregg,1983  
 SC1 ● Shell Oil Co.,1980  
 ESE 1-3 ● ESE,Task 4 Report,1986  
 ESE1-3(44) ● ESE,Water Remedial Investigation,1987



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.2-7  
 Organochlorine Pesticides  
 in Surface Water  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



ESE 2-6(44)

Earthen Dam 3-3

SG6

3

ESE 2-2

ESE 2-3

LL 24-6

ESE 2-5

Lake Ladora

Lake Ladora

2-17

ESE 2-7(44)

OLL 24-2

2-5

3

2-15

2-16

Sixth Avenue

11-1

ESE 2-1

1-2 ESE 1

Lower Derby Lake

10

C Street

ESE 11-3

DMB

ESE 11-4(44)

Havana St. Interceptor Ponds

ESE 11-2

ESE 11-1

DMI

Havana St. Interceptor

Fifth Avenue

Picnic Area

Picnic Area

Target Range

Picnic Area

Picnic Area

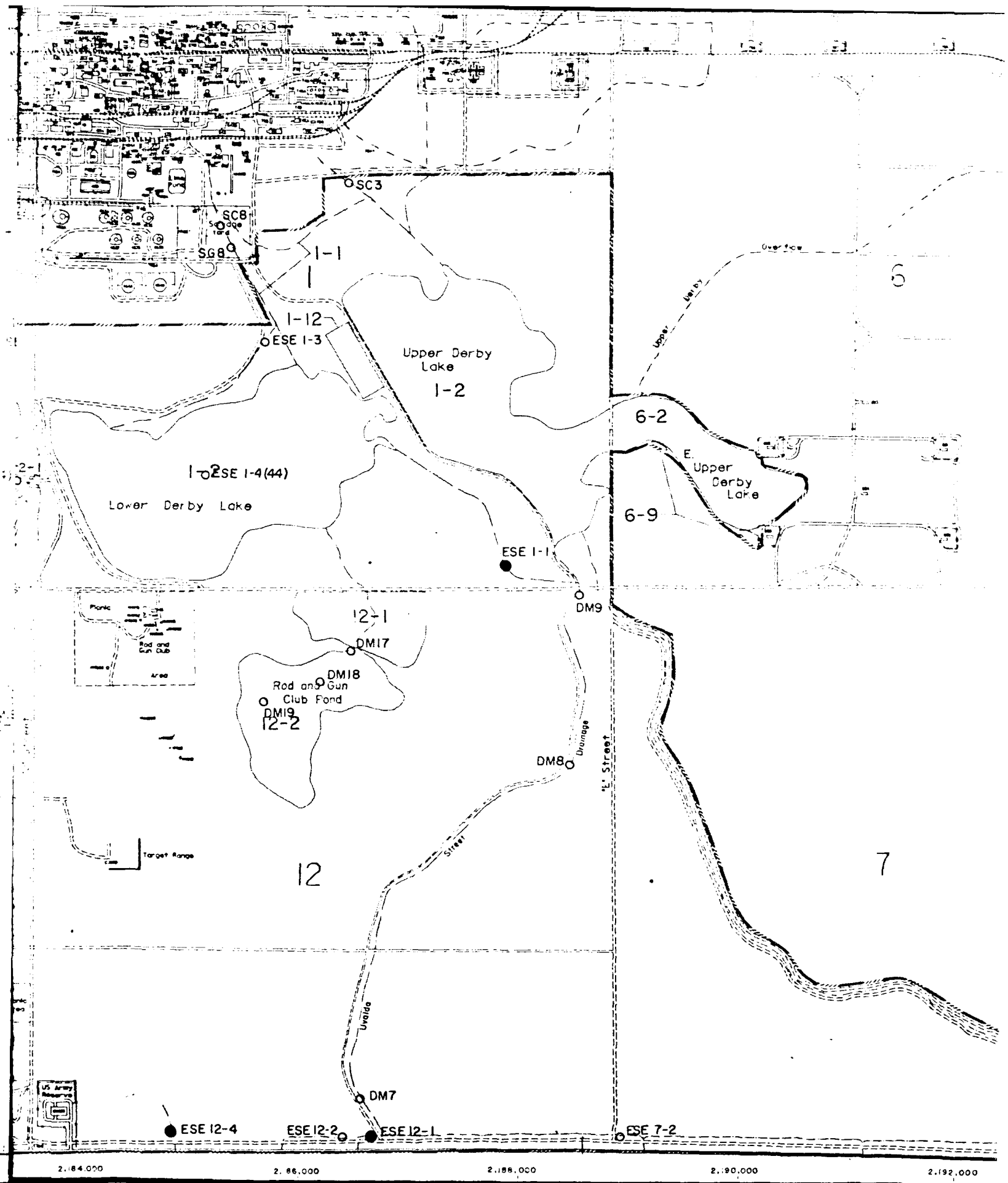
US Army Magazine

ESE 12-4

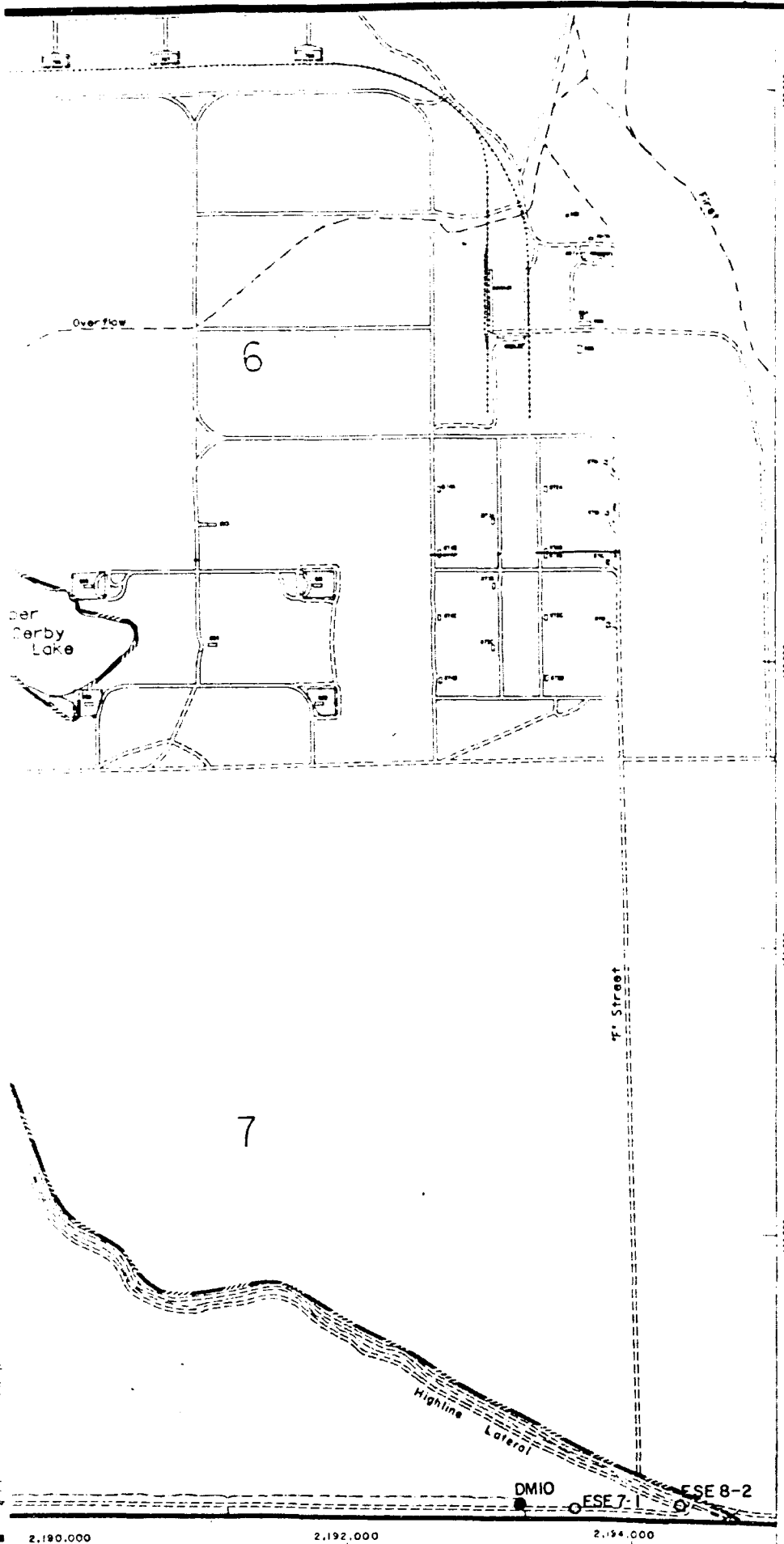
2,180,000

East 56th Avenue  
2,182,000

2,184,000







**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

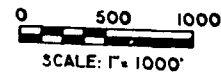
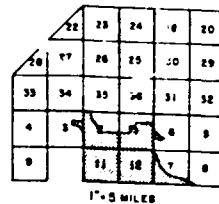
Analyte Sample Location and Concentration (ug/l)

- BDL\*
- 0-1.0
- >1.0 - 10
- >10 - 100
- >100 - 1,000

\* Below Detection Limit (BDL) see individual reports for specific detection limits or reporting limits.

- LMI,LL24-2 ● USAEWES Report, 1984
- DM7 ● Dames & Moore, 1985
- SG6 ● Spaine & Gregg, 1983
- SCI ● Shell Oil Co, 1980
- ESE 1-3 ● ESE, Task 4 Report, 1986
- ESE 1-3(44) ● ESE, Water Remedial Investigation, 1987

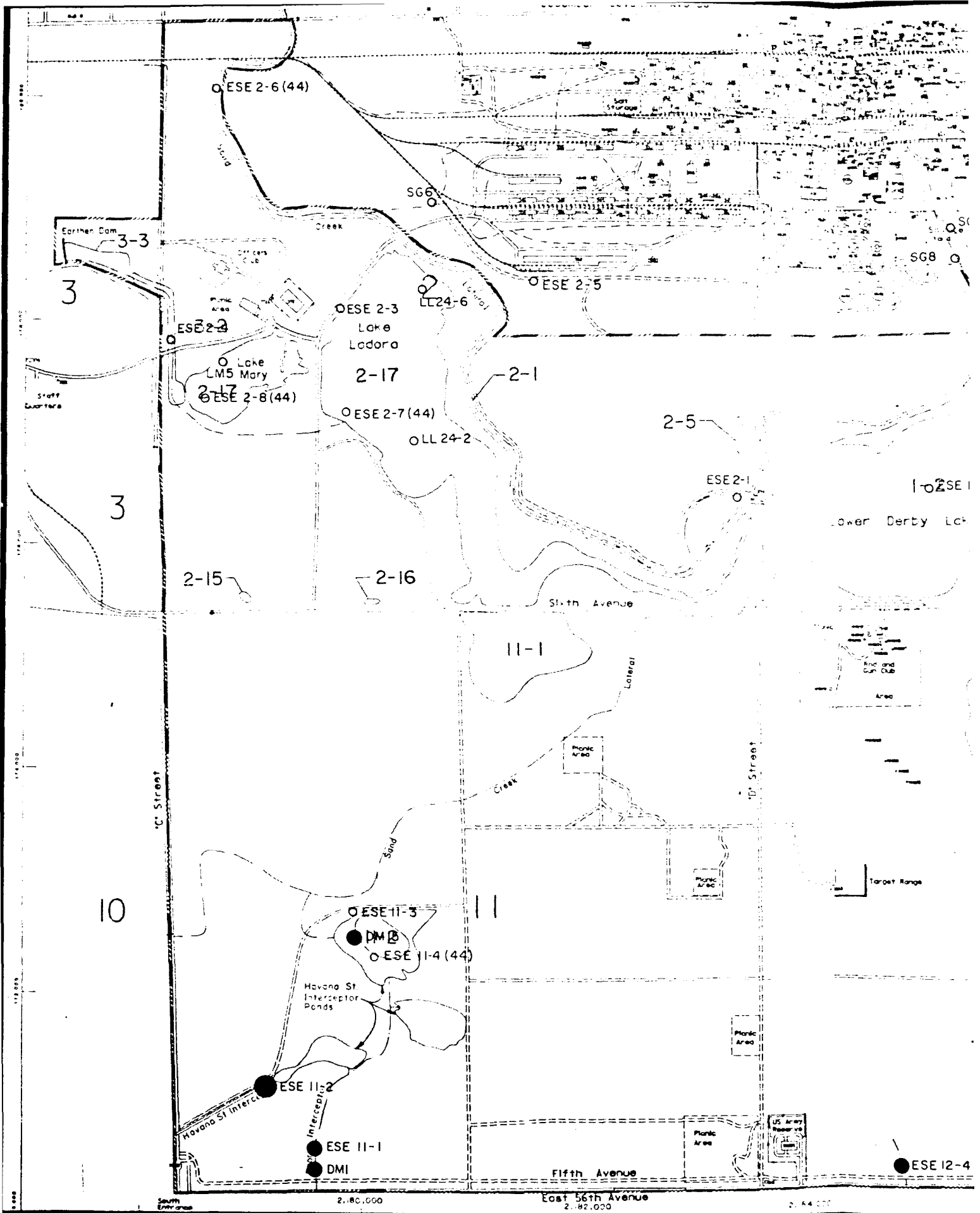
ROCKY MOUNTAIN ARSENAL LOCATION



Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

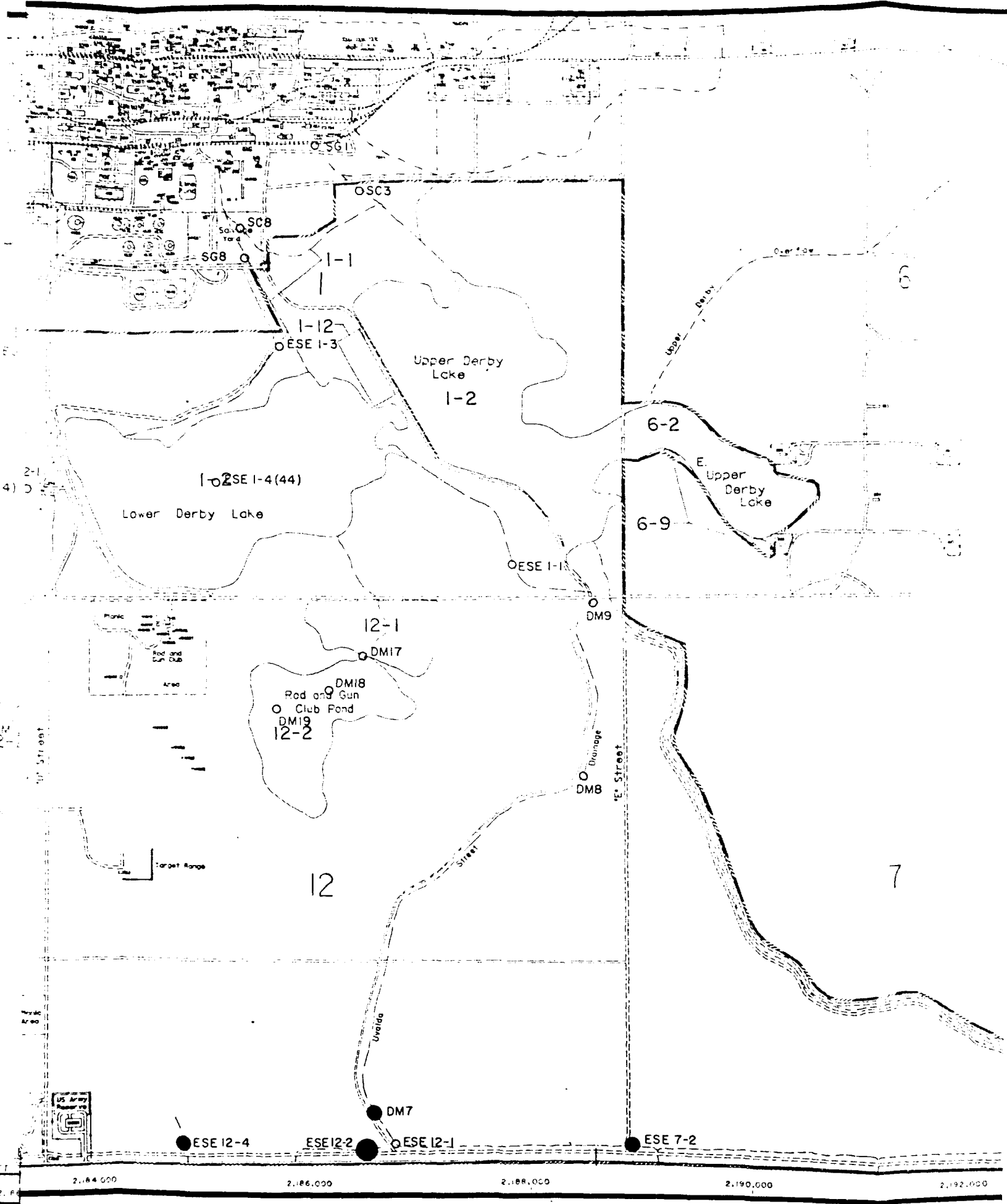
FIGURE: SSA 2.2-8  
Arsenic  
in Surface Water  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated



2,180,000

East 56th Avenue  
2,182,000

2,184,000



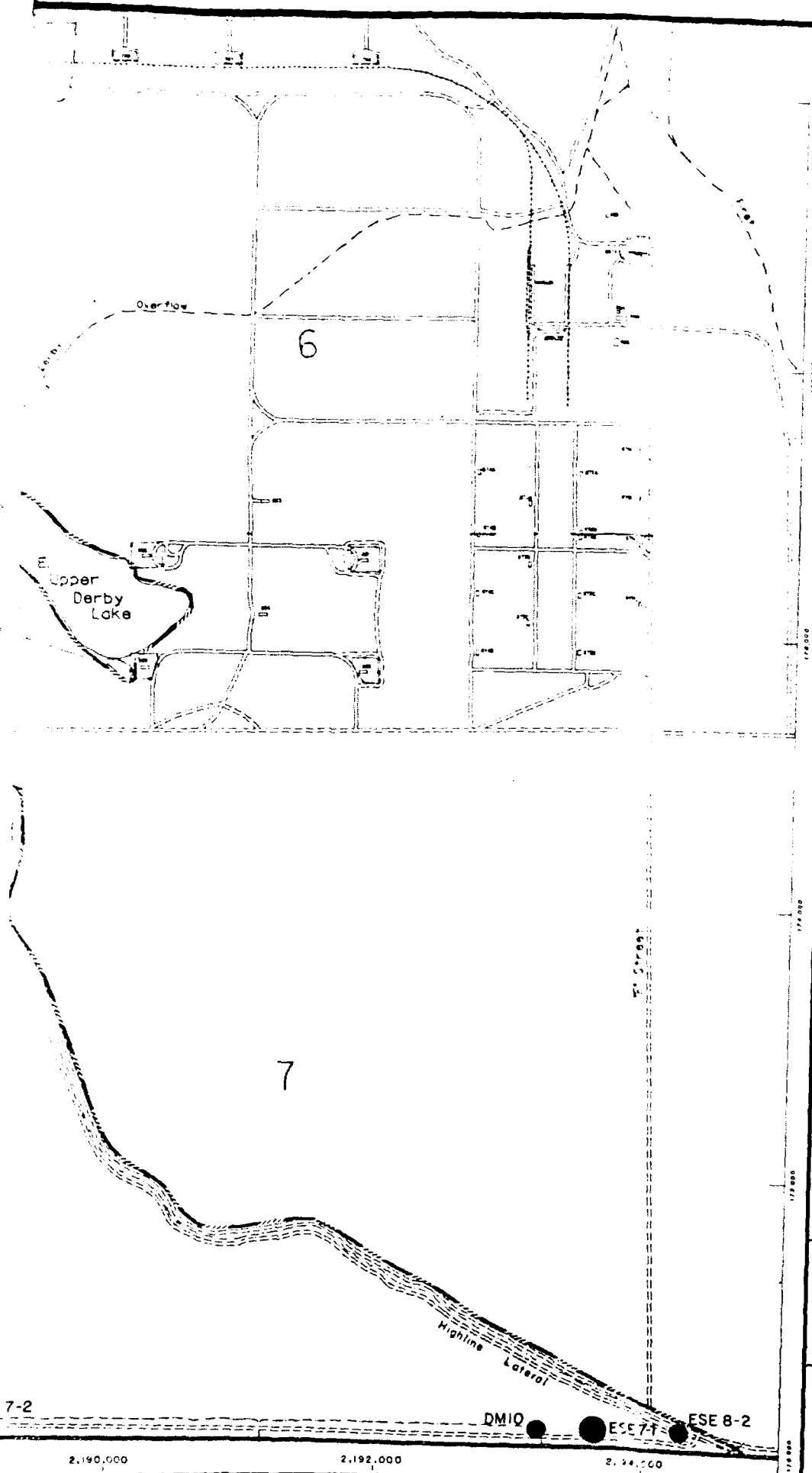
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

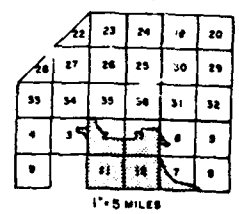
Analyte Sample Location and Concentration (ug/l)

- BDL\*
- 0-1.0
- >1.0 - 10
- >10 - 100
- >100 - 1,000

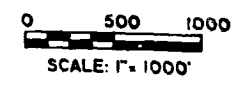
\* Below Detection Limit (BDL) see individual reports for specific detection limits or reporting limits.

- LMI, LL24-2 ● USAEWES Report, 1984
- DM7 ● Dames & Moore, 1985
- SG6 ● Spaine & Gregg, 1983
- SCI ● Shell Oil Co., 1980
- ESE 1-3 ● ESE, Task 4 Report, 1986
- ESE 1-3(44) ● ESE, Water Remedial Investigation, 1987

ROCKY MOUNTAIN ARSENAL LOCATION



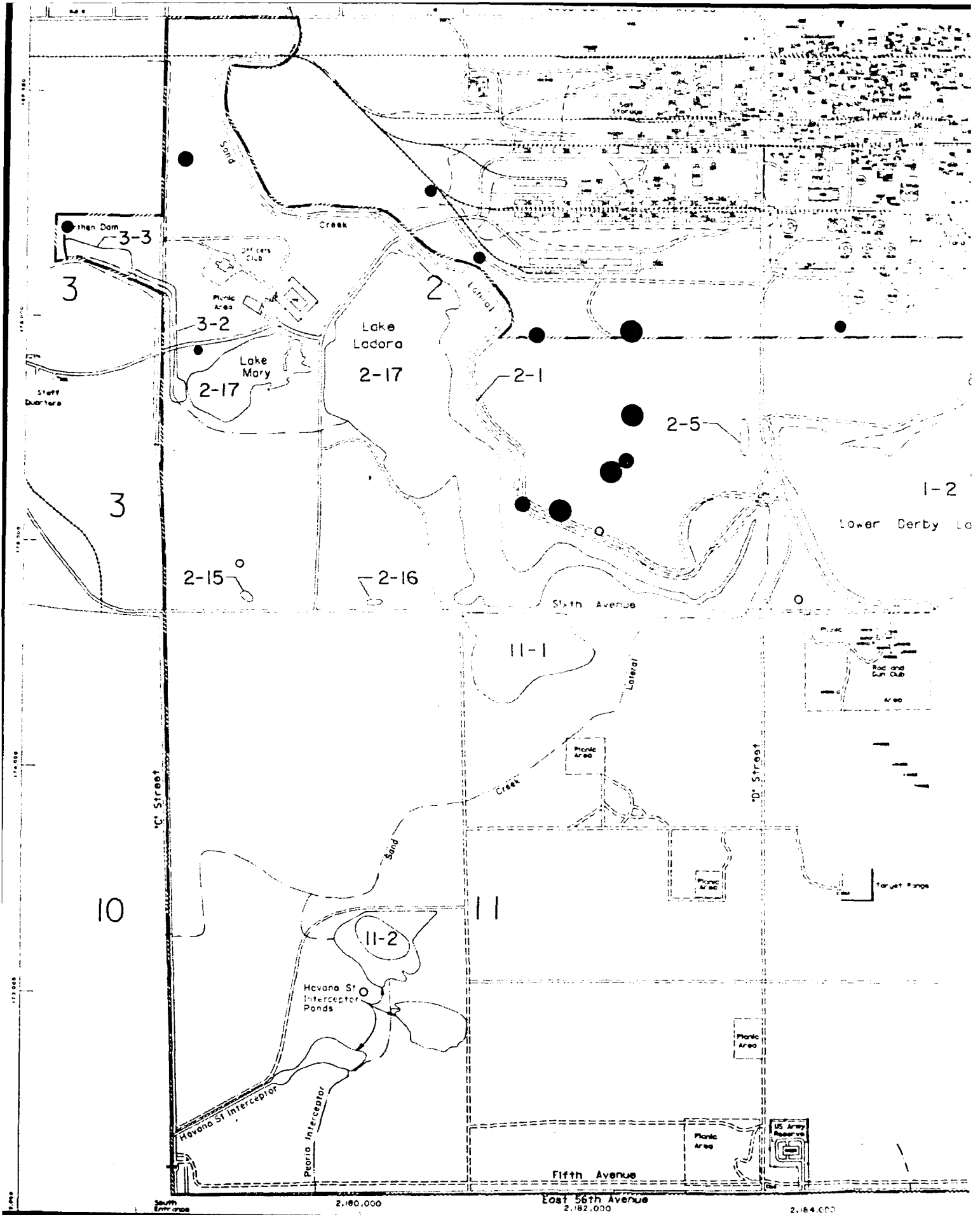
1" = 5 MILES

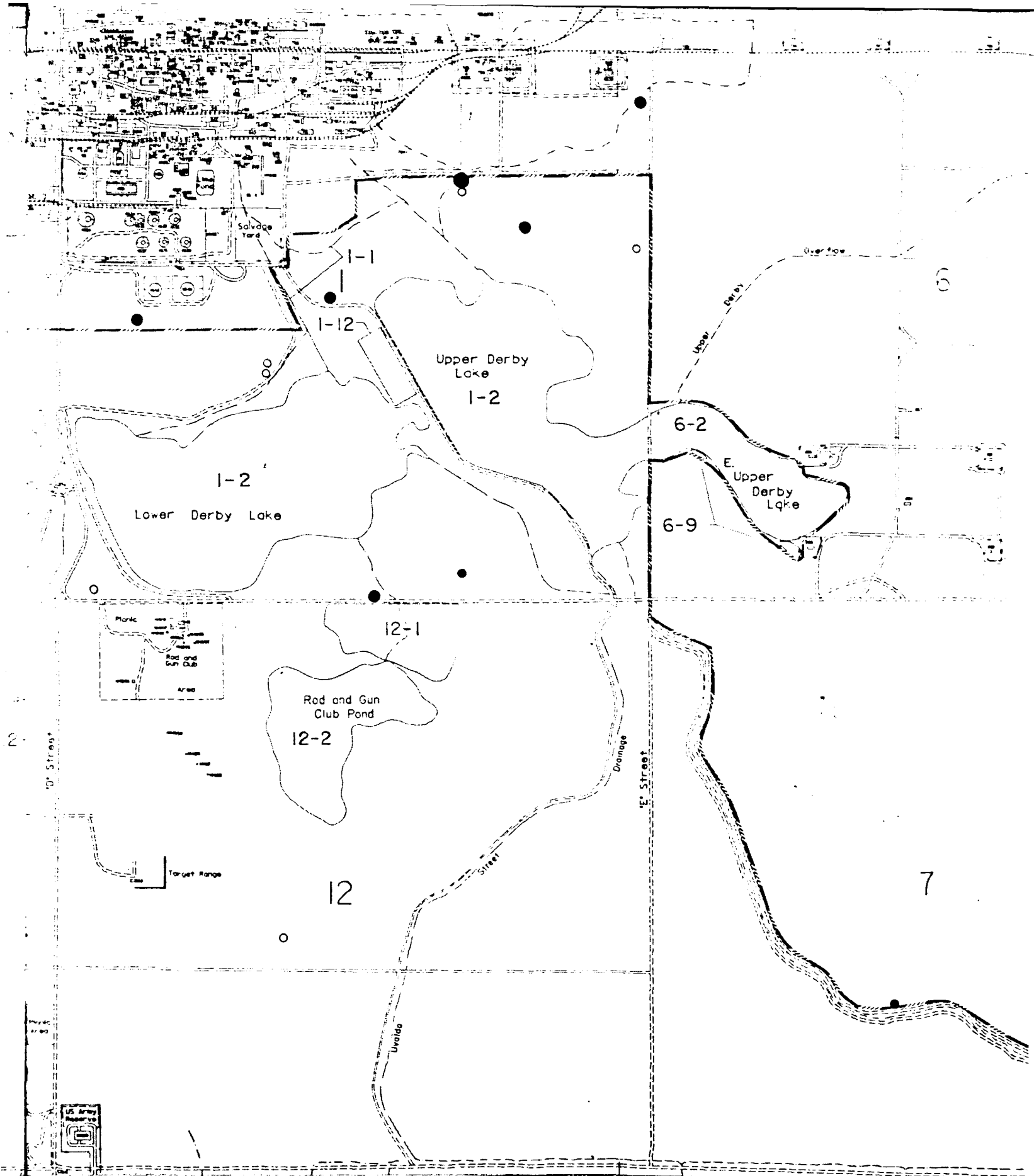


Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.2-9  
ICP Metals  
in Surface Water  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated

7-2  
DM10 ● ESE 7-1 ● ESE 8-2





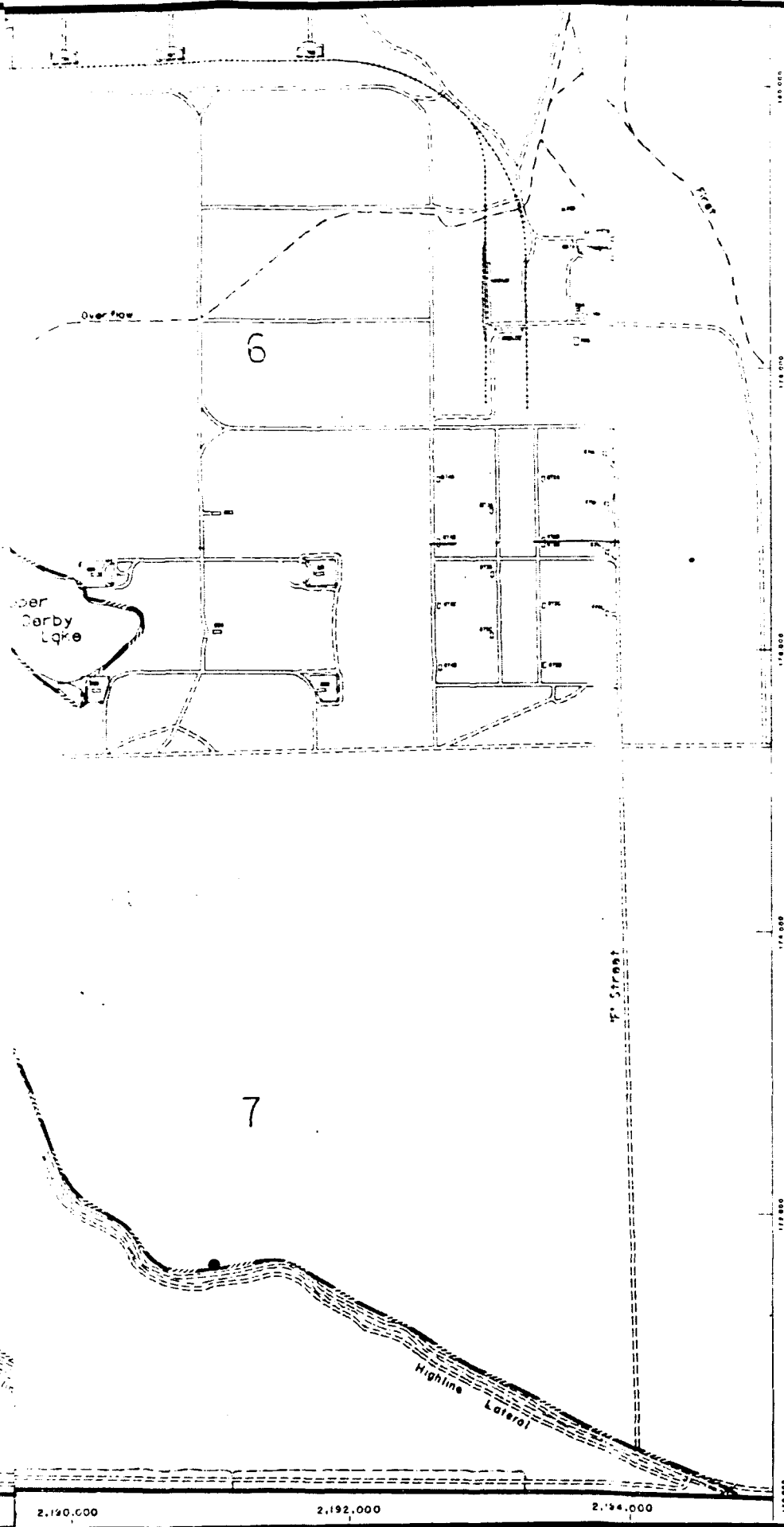
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

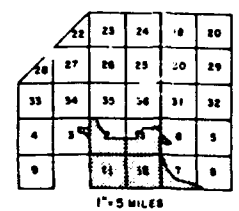
174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

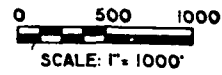
- BCRL\*
- 0-1.0
- >1.0-10
- >10-100
- >100-1,000
- >1,000-10,000
- >10,000

\* Below Certified Reporting Limits (BCRL)

ROCKY MOUNTAIN ARSENAL LOCATION

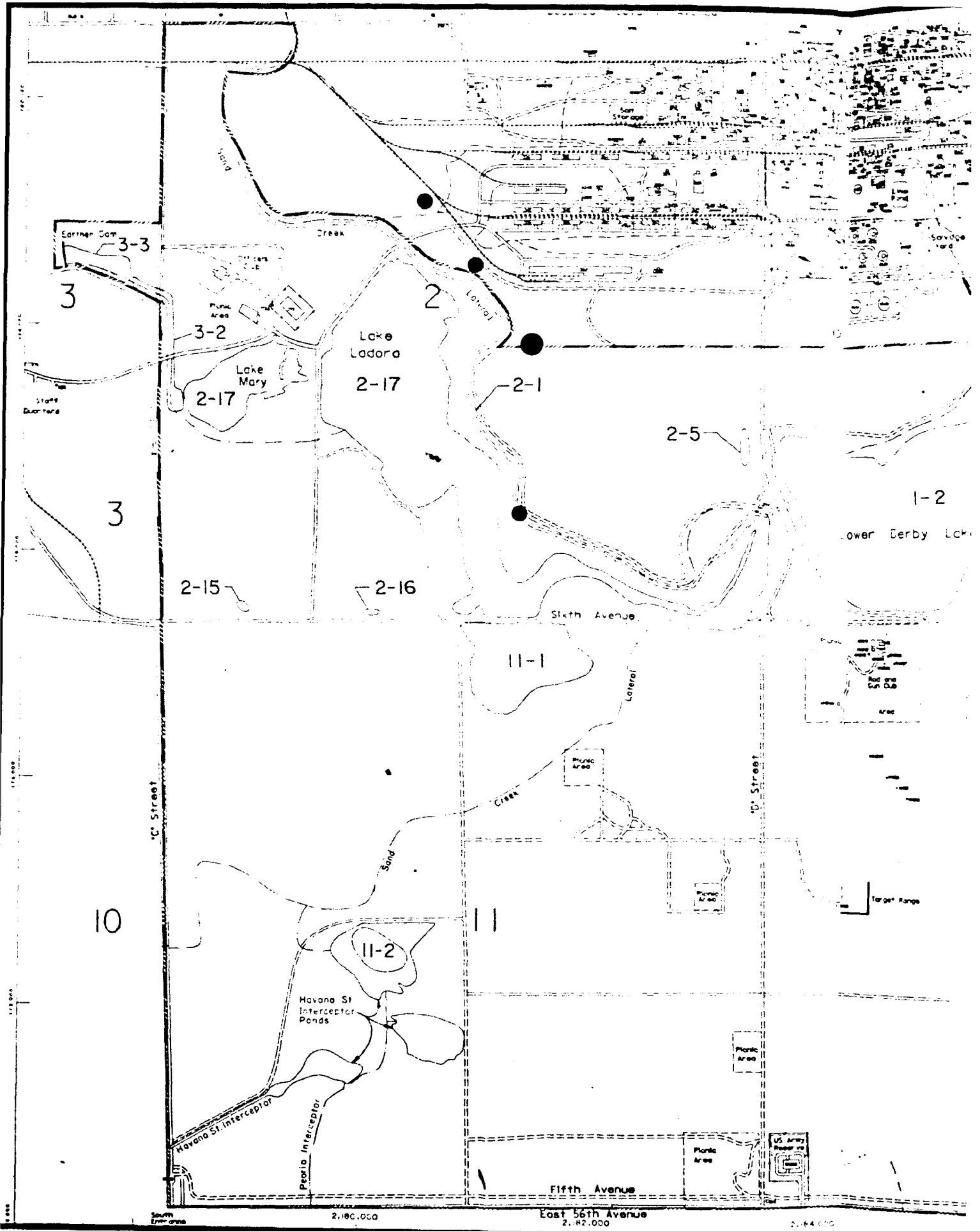


1" = 5 MILES

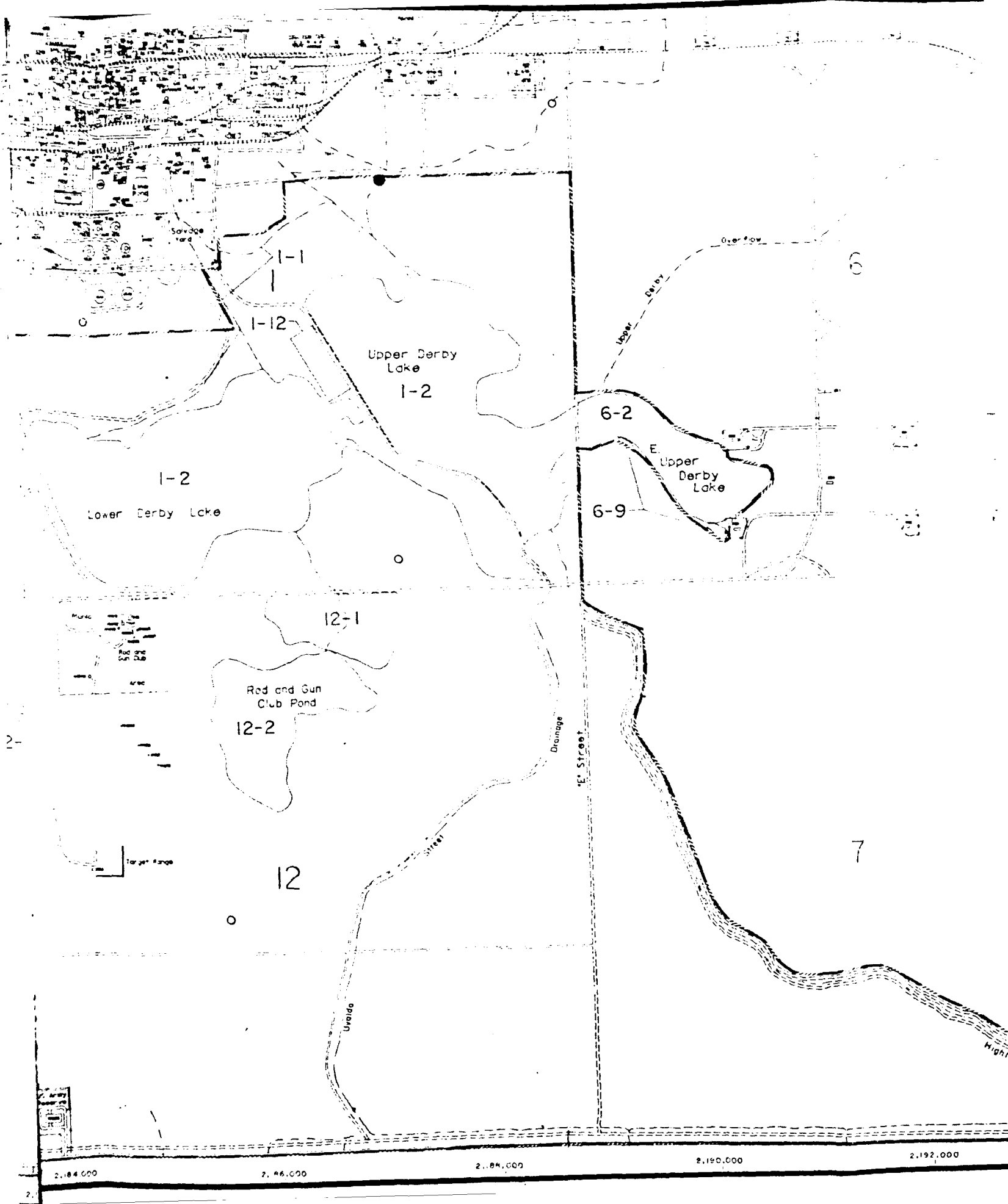


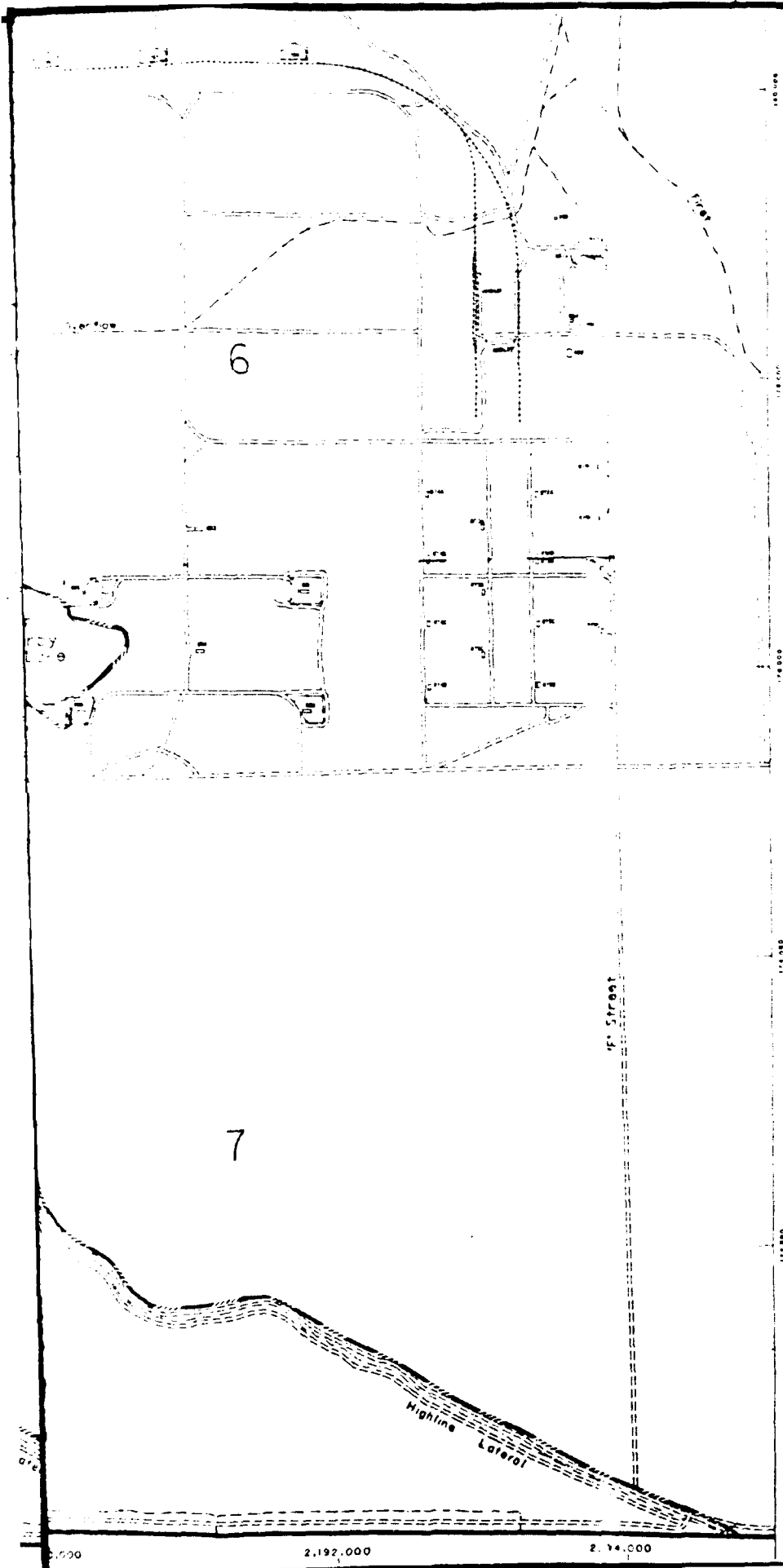
Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-1  
 Volatile Halogenated Organics  
 in Groundwater (WBZ 1A-1)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated









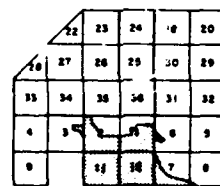
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

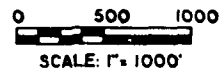
Analyte Sample Location and Concentration (ug/l)

- BCRL<sup>®</sup>
- 0-1.0
- >1.0-10
- >10-100
- >100-1,000
- >1,000-10,000
- >10,000
- Below Certified Reporting Limits (BCRL)

ROCKY MOUNTAIN ARSENAL LOCATION



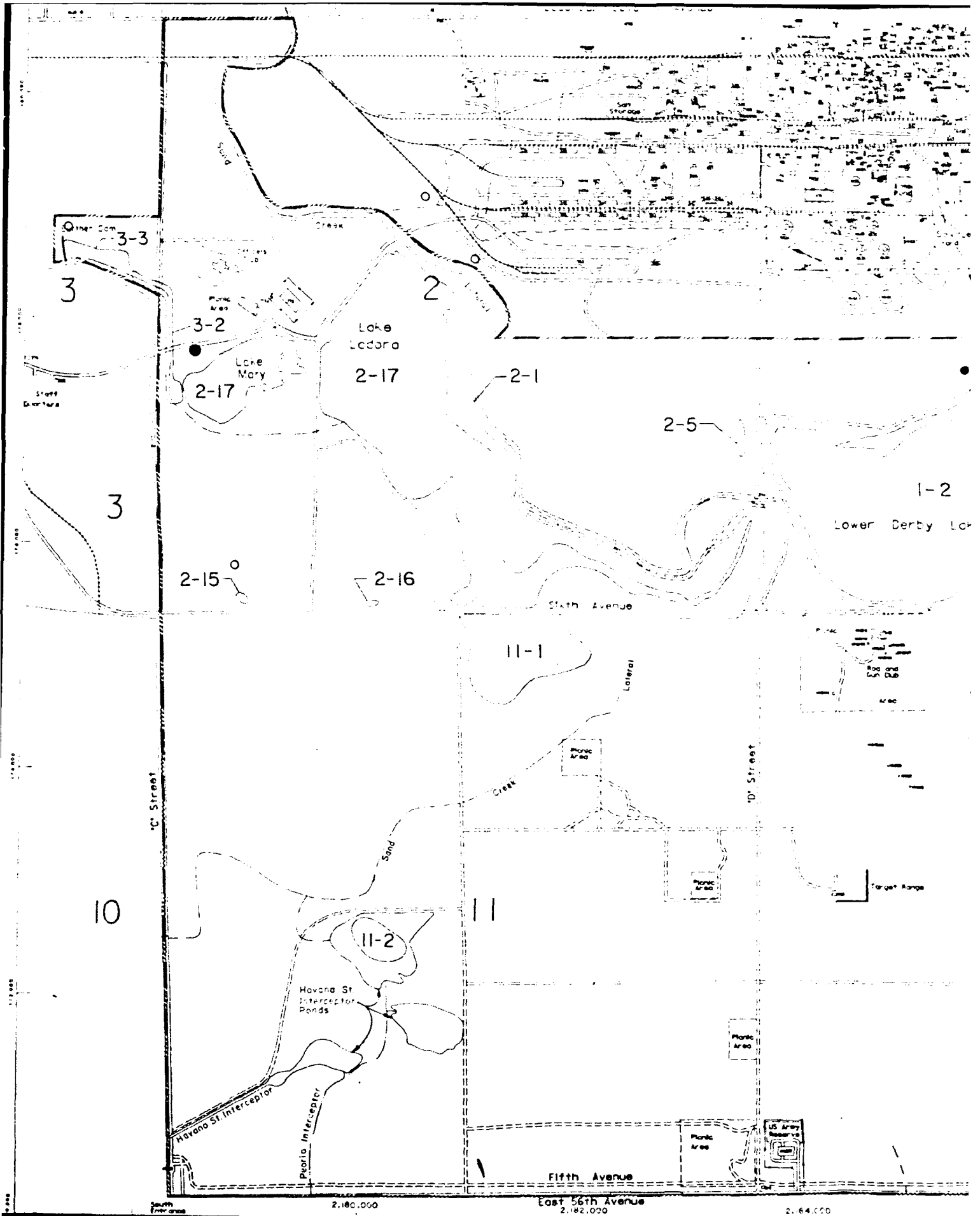
1" = 5 MILES



Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-2  
Volatile Halogenated Organics  
in Groundwater (WBZ 2)  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated

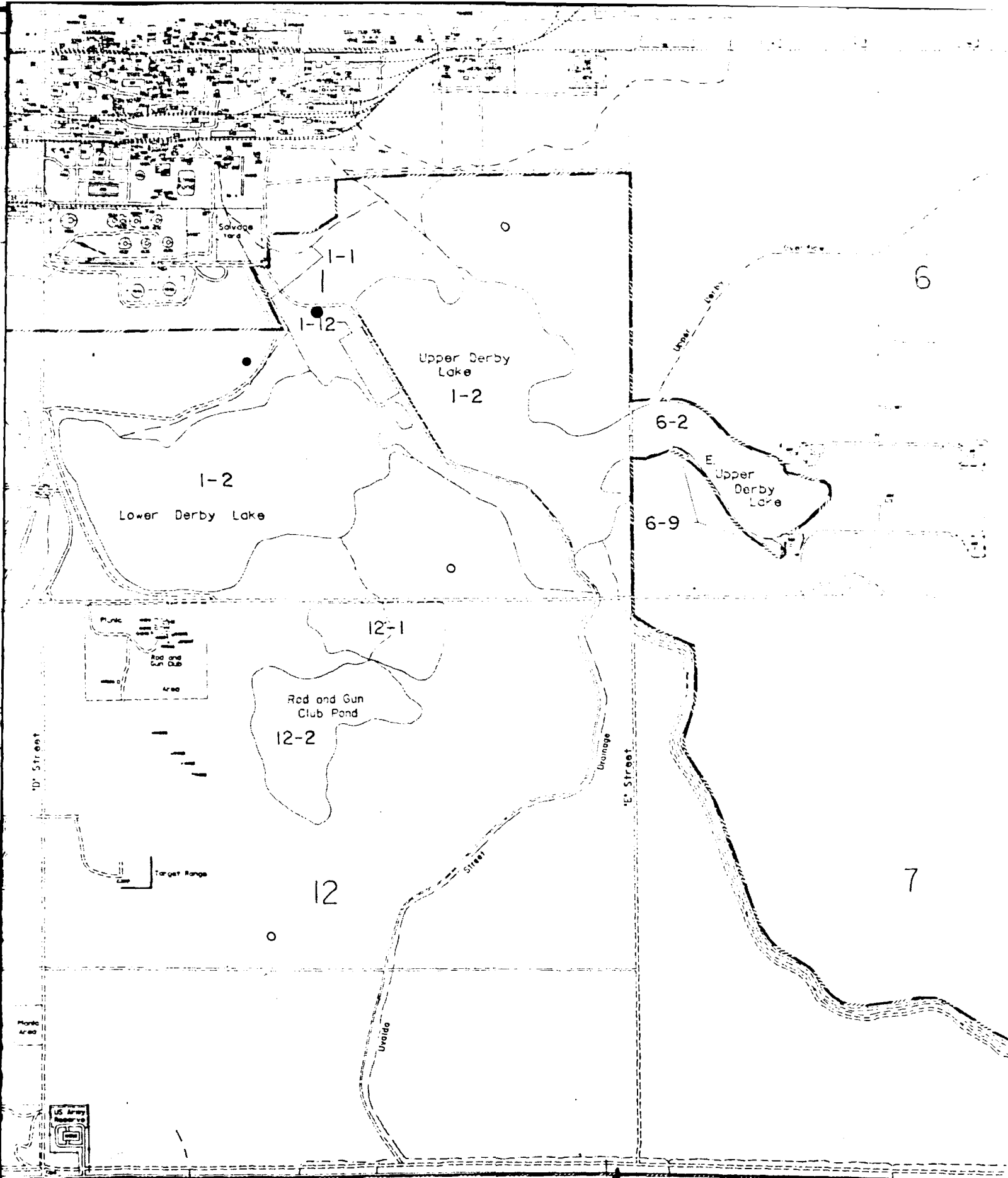


South Entrance

2,180,000

East 56th Avenue  
2,182,000

2,164,000



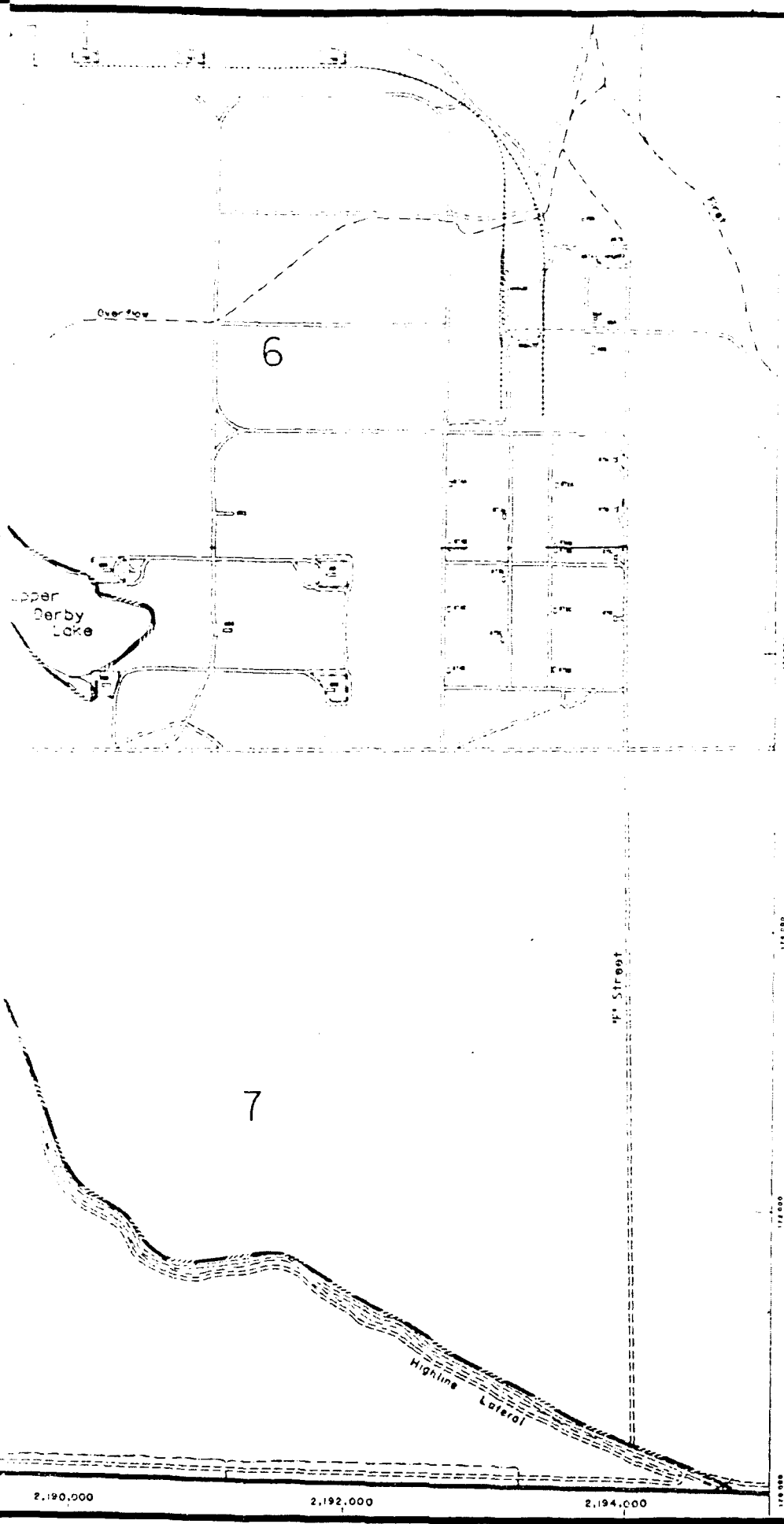
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

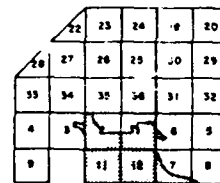
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

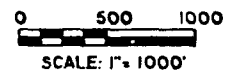
- BCRL \*
- 0-1.0
- >1.0-10
- >10-100
- >100-1,000
- >1,000-10,000
- >10,000

\* Below Certified Reporting Limits (BCRL)

ROCKY MOUNTAIN ARSENAL LOCATION



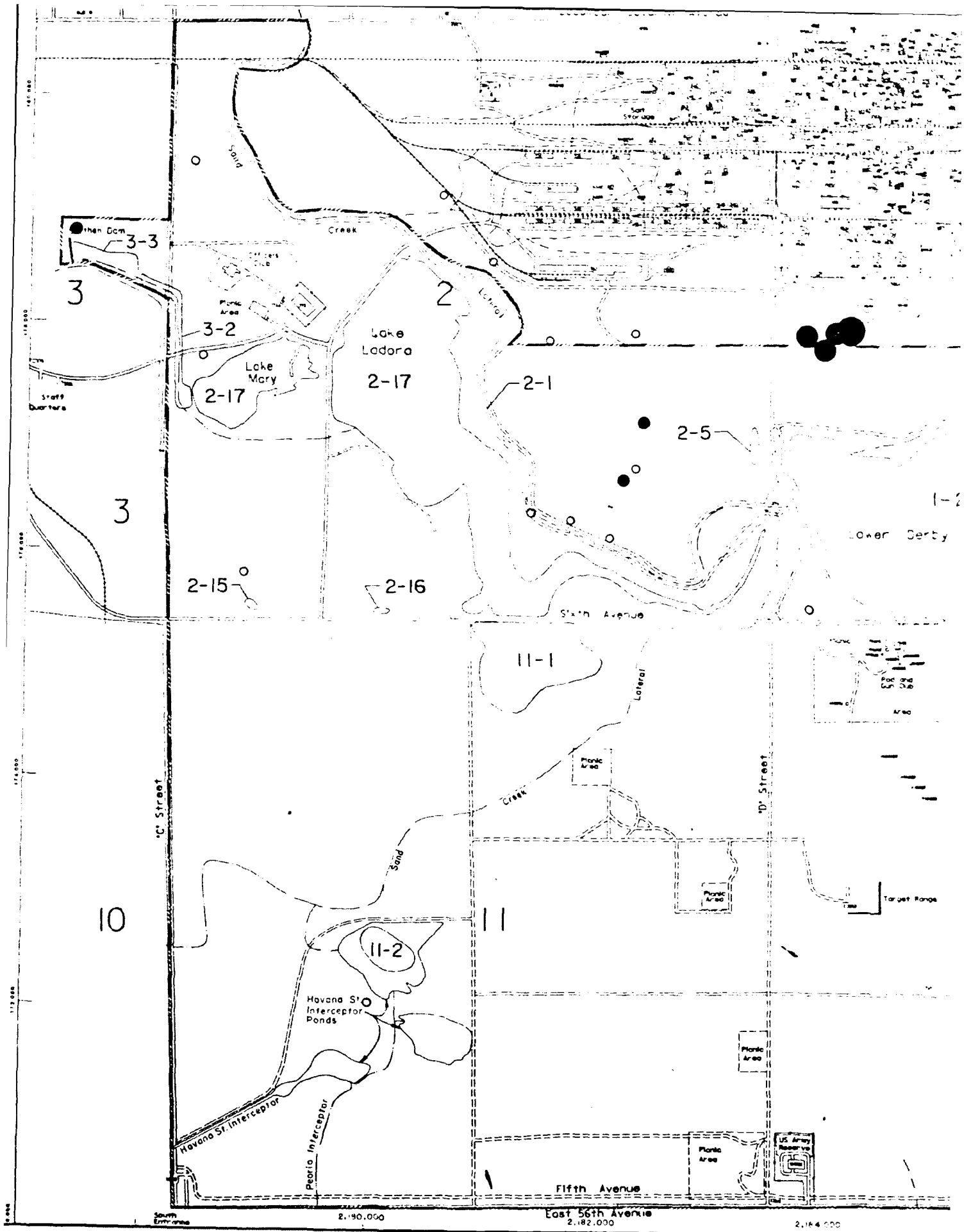
1" = 5 MILES

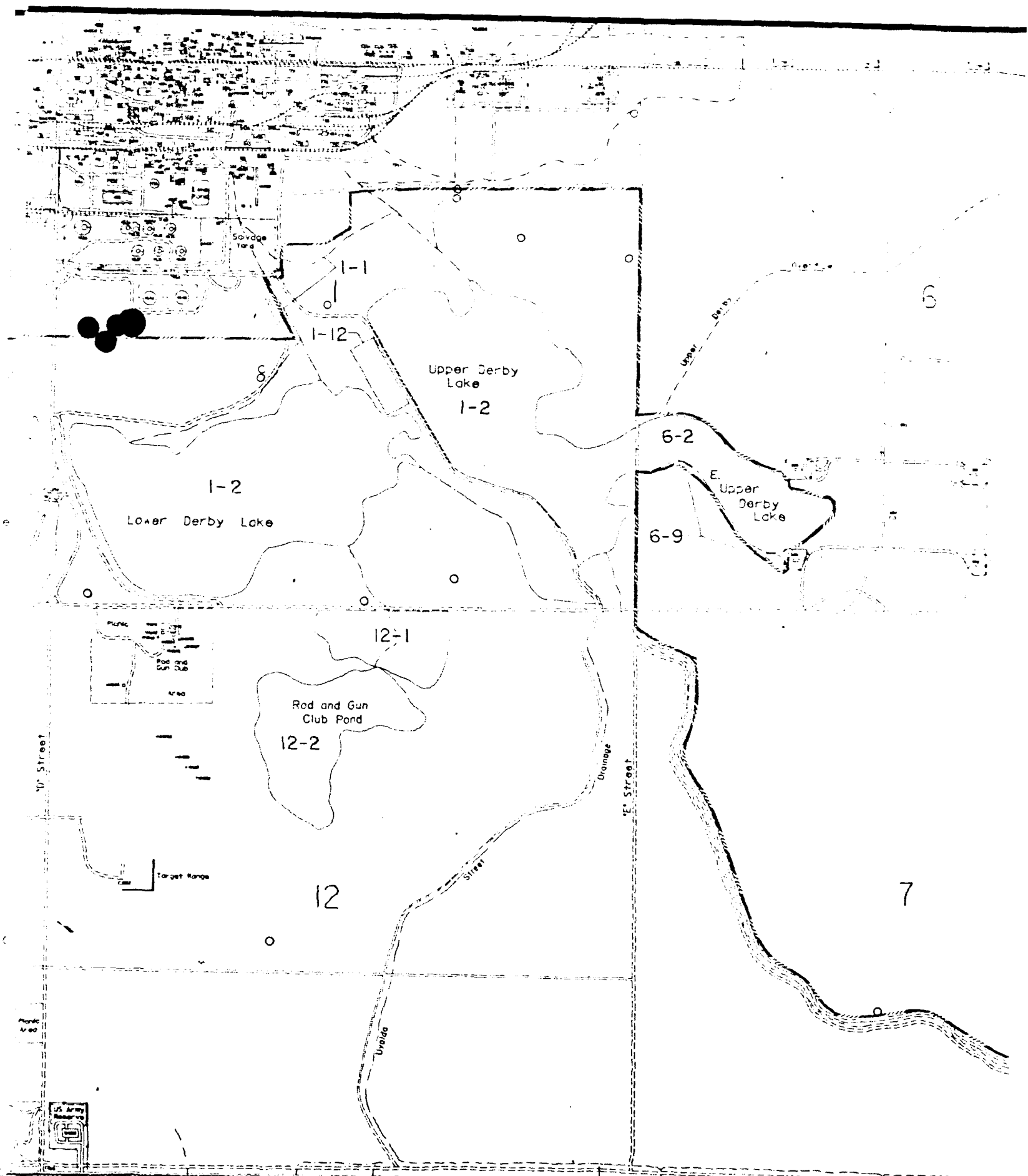


Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-3  
Volatile Halogenated Organics  
in Groundwater (WBZ 3-4)  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated





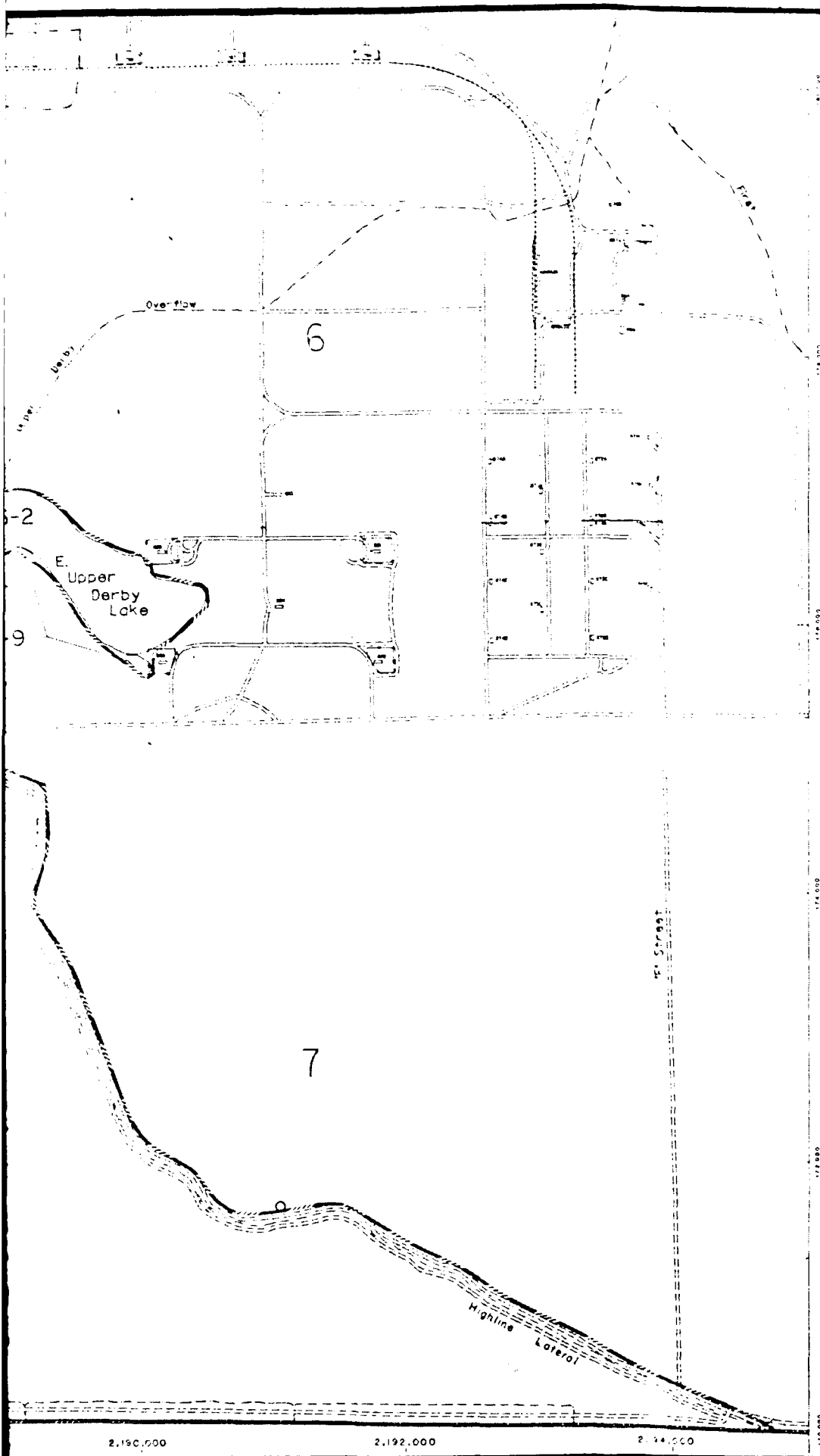
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

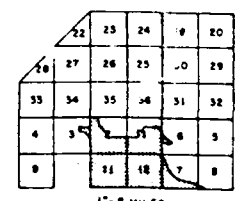
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

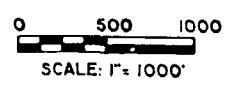
Analyte Sample Location and Concentration (ug/l)

- BCRL\*
- 0-1.0
- > 1.0-10
- > 10-100
- > 100-1,000
- > 1,000-10,000
- > 10,000
- \* Below Certified Reporting Limits (BCRL)

ROCKY MOUNTAIN ARSENAL LOCATION



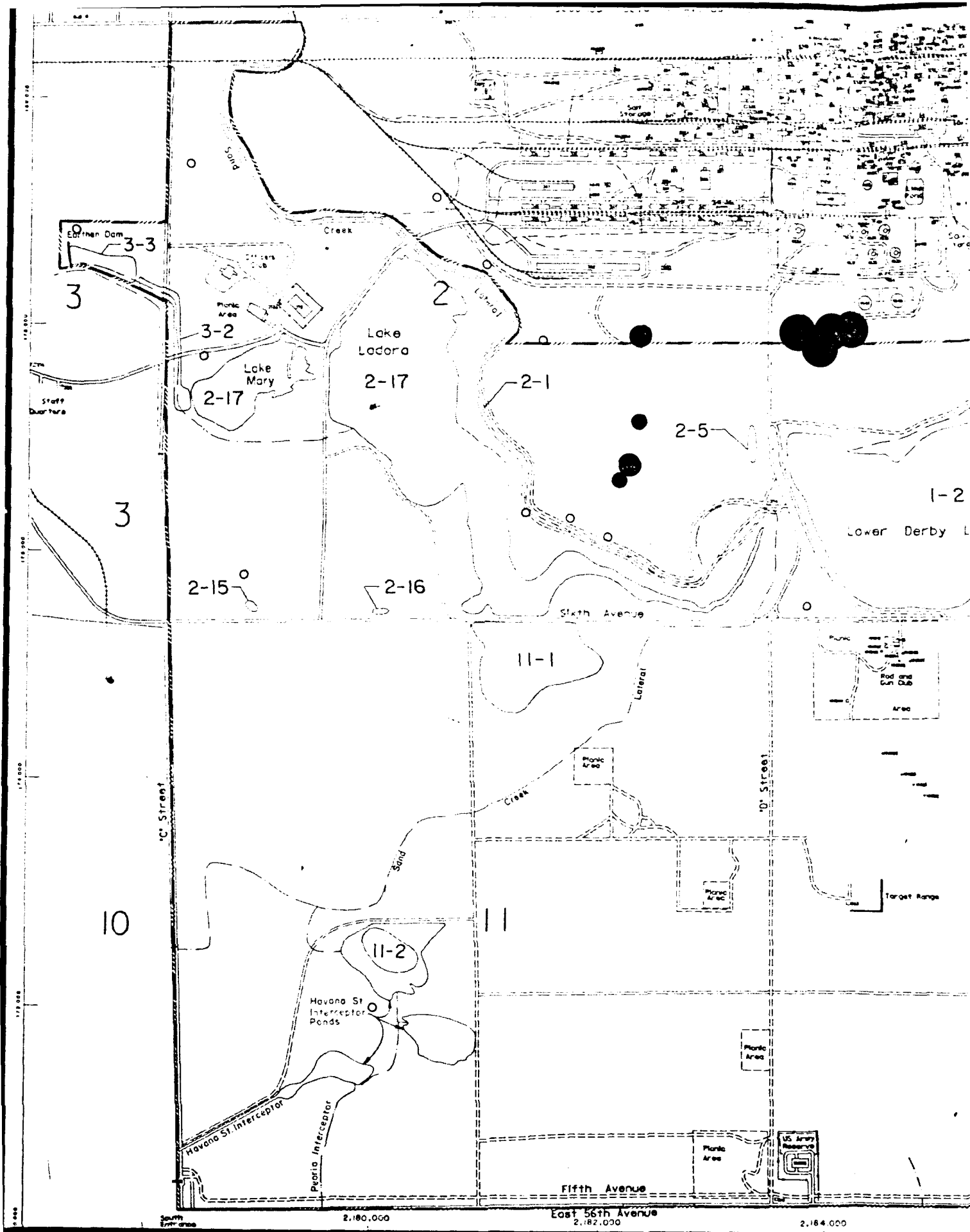
1" = 5 MILES



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-4  
 Volatile Hydrocarbons  
 in Groundwater (WBZ 1A-1)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



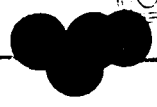
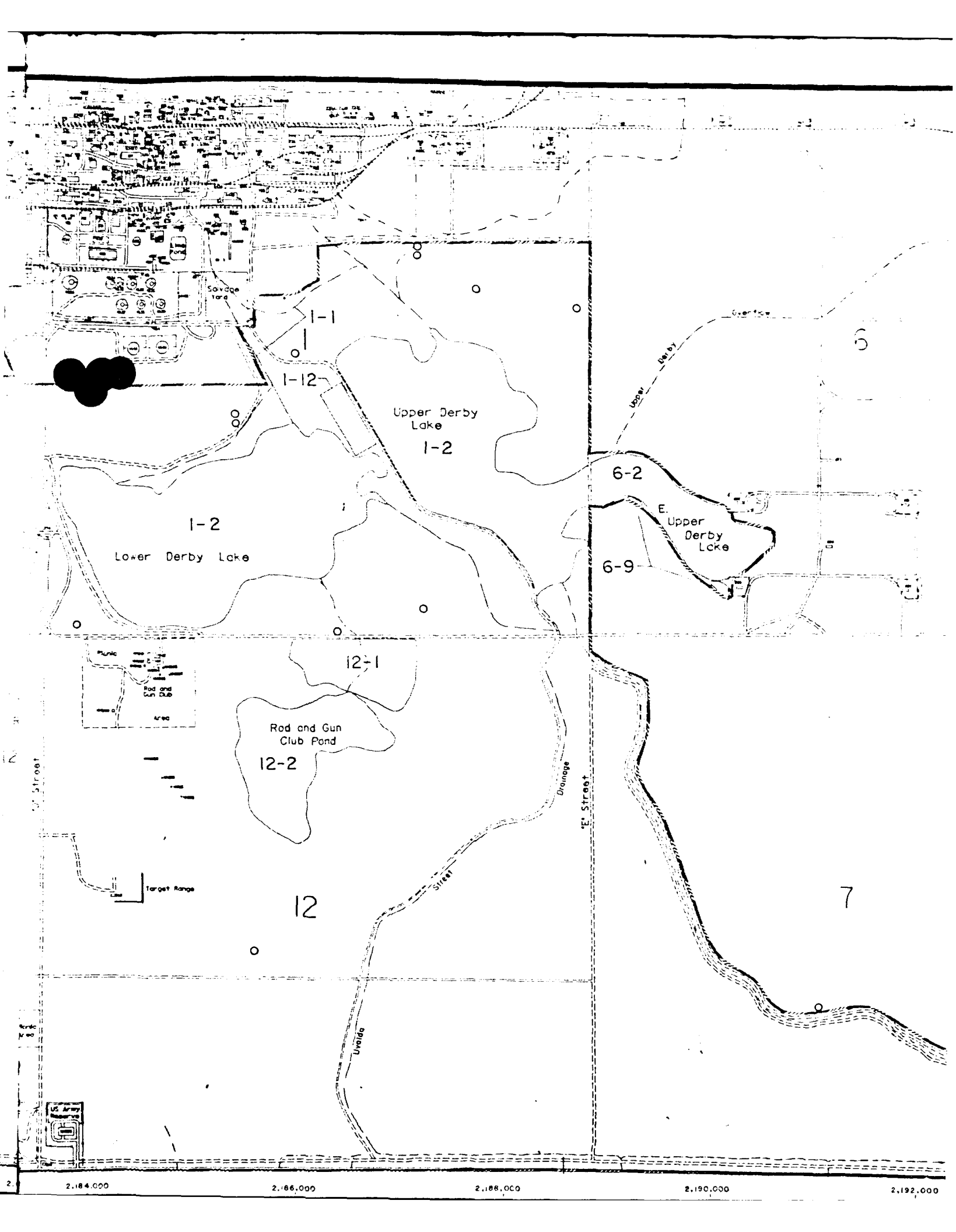


South  
1:50,000

2,180,000

East 56th Avenue  
2,182,000

2,184,000



1-2  
Lower Derby Lake

Upper Derby Lake  
1-2

6-2

E. Upper Derby Lake

6-9

Rod and Gun Club Pond  
12-2

12-1

12

7

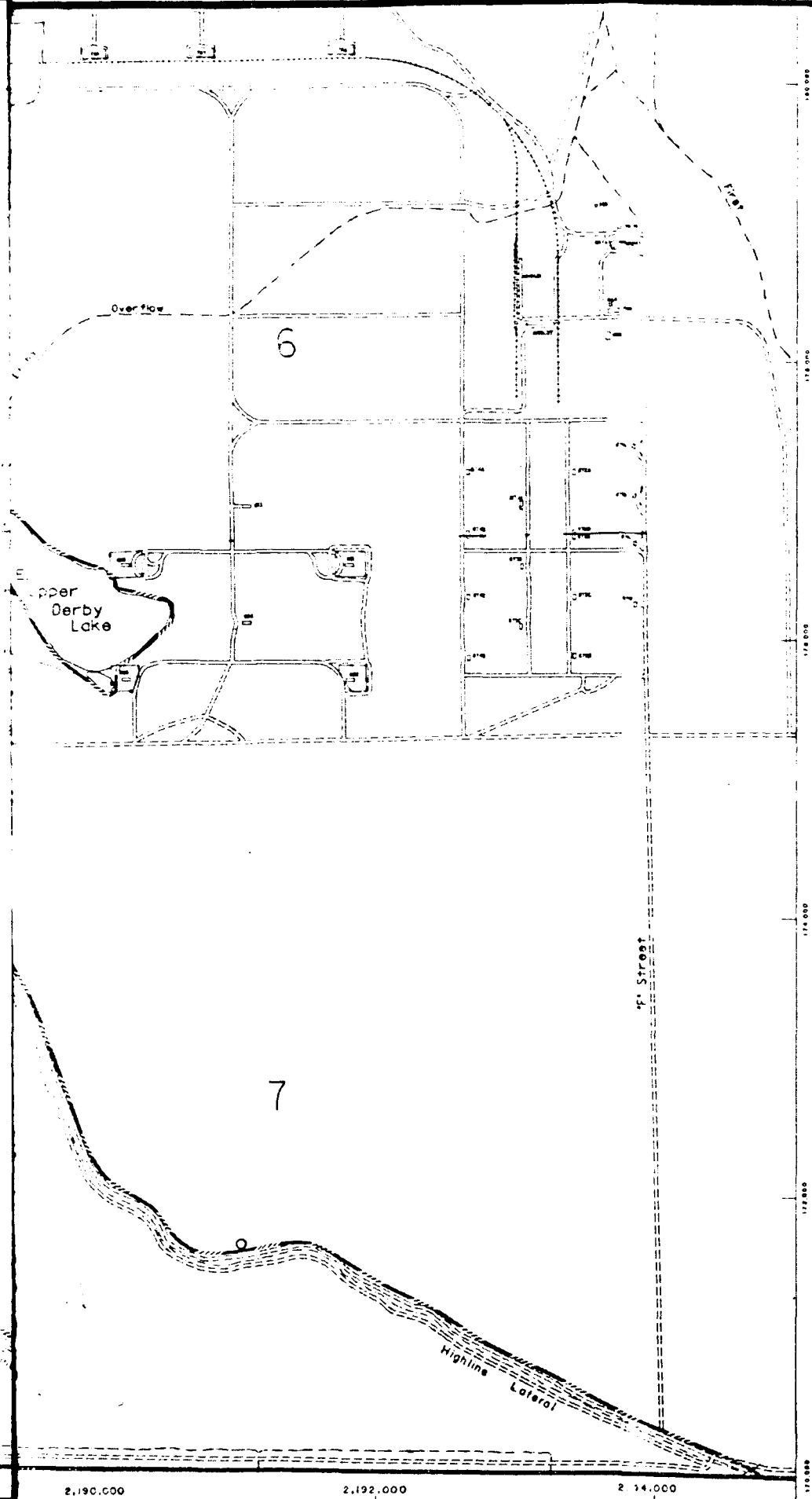
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



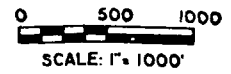
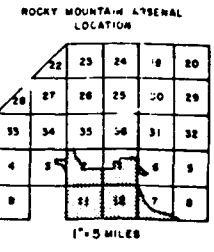
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

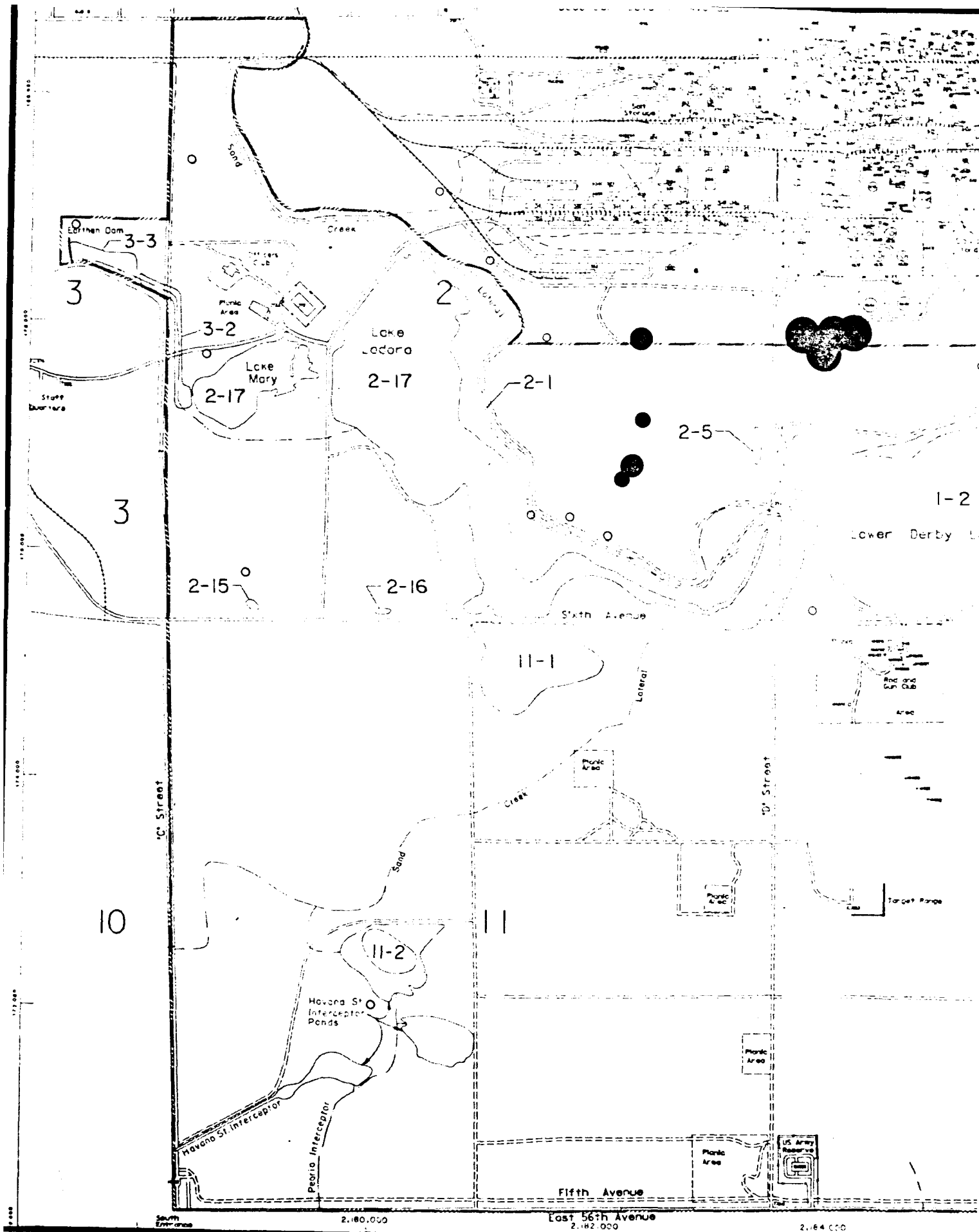
- BCRL \*
- 0-1.0
- > 1.0-10
- > 10-100
- > 100-1,000
- > 1,000-10,000
- > 10,000

\* Below Certified Reporting Limits (BCRL)



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

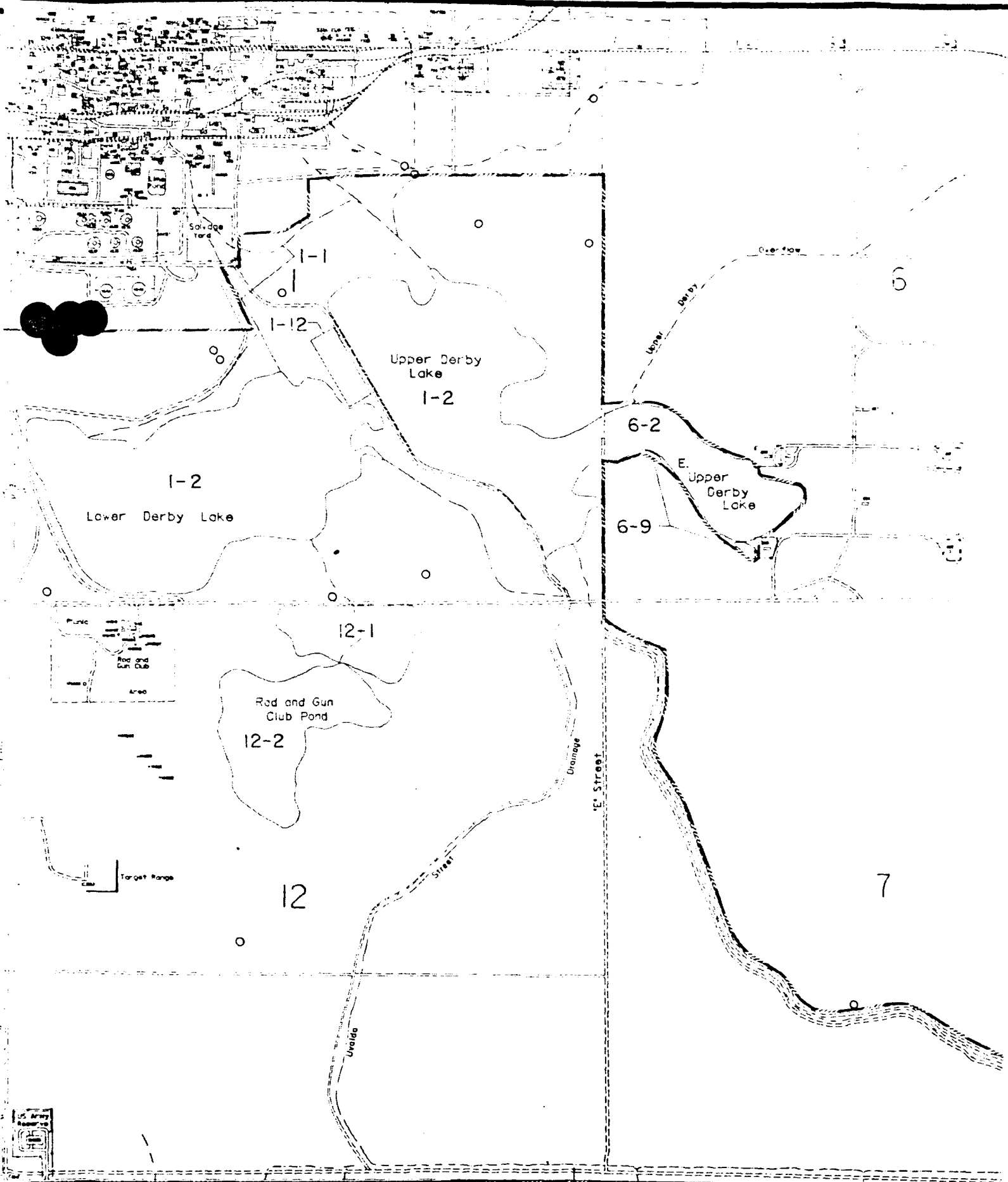
FIGURE: SSA 2.3-5  
 Volatile Aromatic Organics  
 in Groundwater (WBZ 1A-1)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



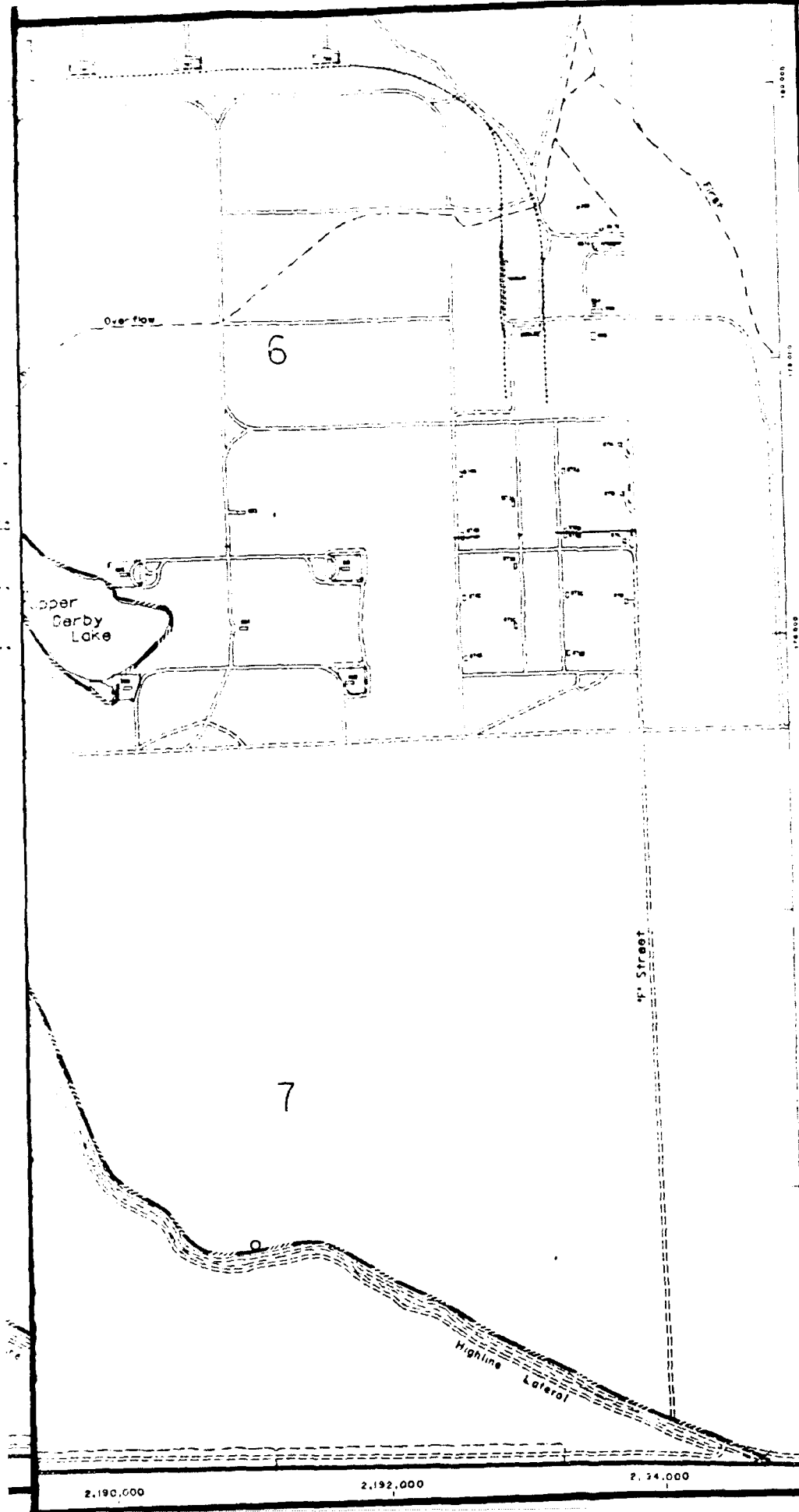
2,180,000

East 56th Avenue  
2,182,000

2,184,000



2,184,000      2,186,000      2,188,000      2,190,000      2,192,000



**LEGEND**

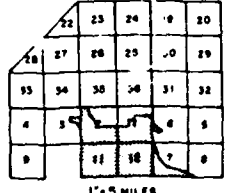
- Improved Road
- - - Unimproved Road
- +— Railroad Tracks
- ▭ Existing Structure
- · - · - Former Structure
- Fence
- 6** Section Number
- / - Stream or Ditch
- ▭ Study Area Boundary
- 174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

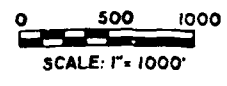
- BCRL\*
- 0-1.0
- >1.0-10
- >10-100
- >100-1,000
- >1,000-10,000
- >10,000

\* Below Certified Reporting Limits (BCRL)

ROCKY MOUNTAIN ARSENAL LOCATION

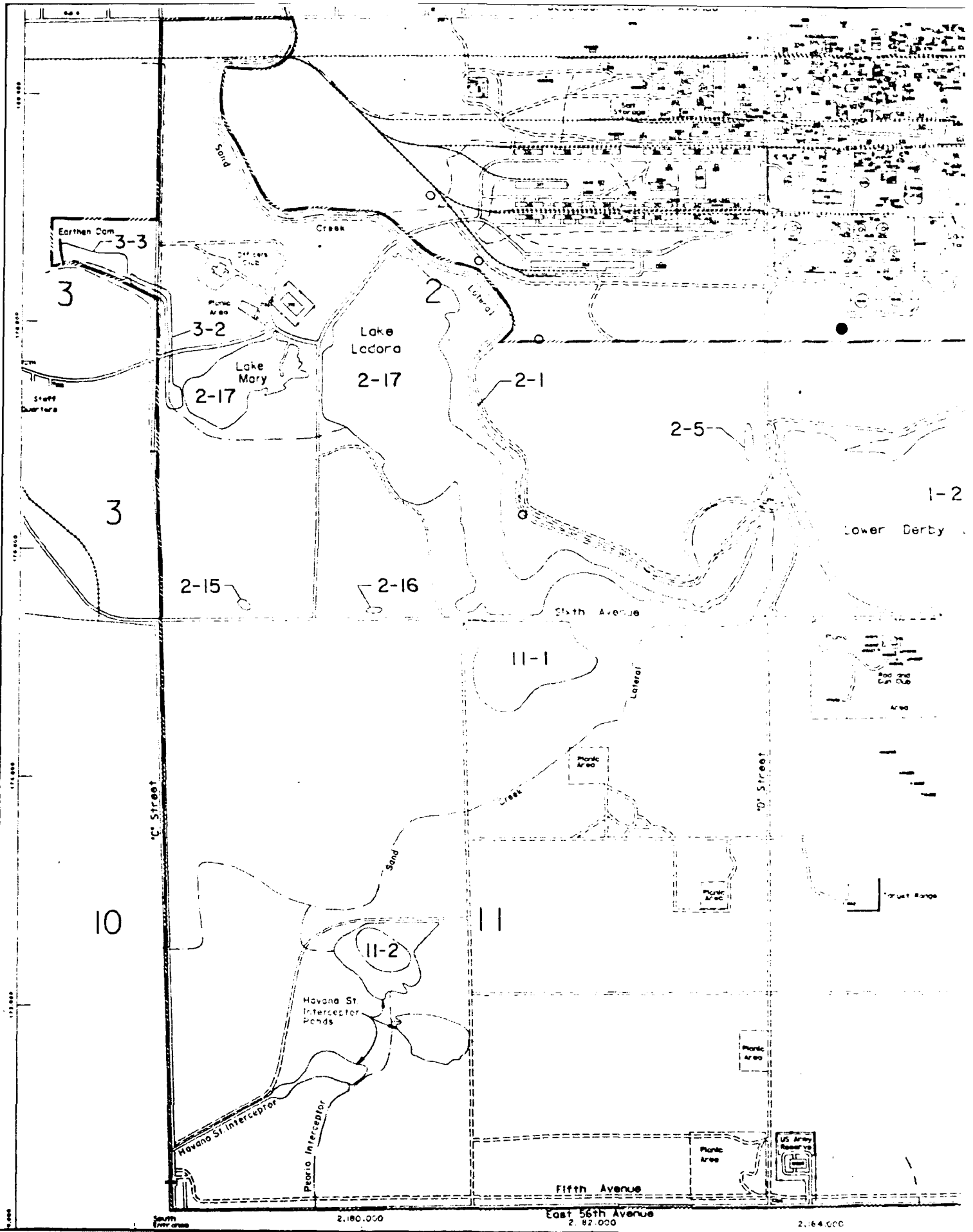


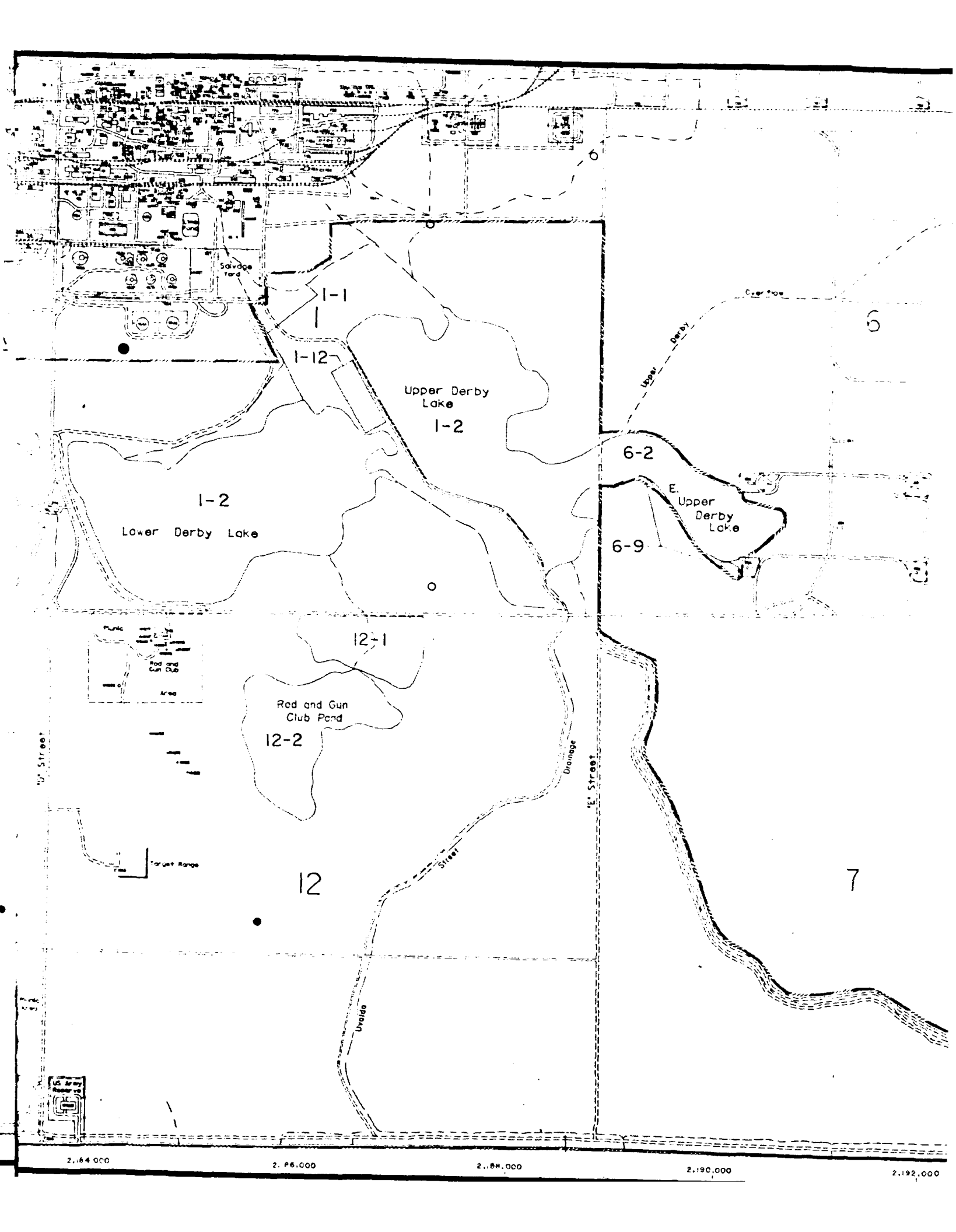
1" = 5 MILES



Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-6  
Volatile Aromatic Organics-Benzene  
Only-in Groundwater (WBZ IA-1)  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated





2,184,000

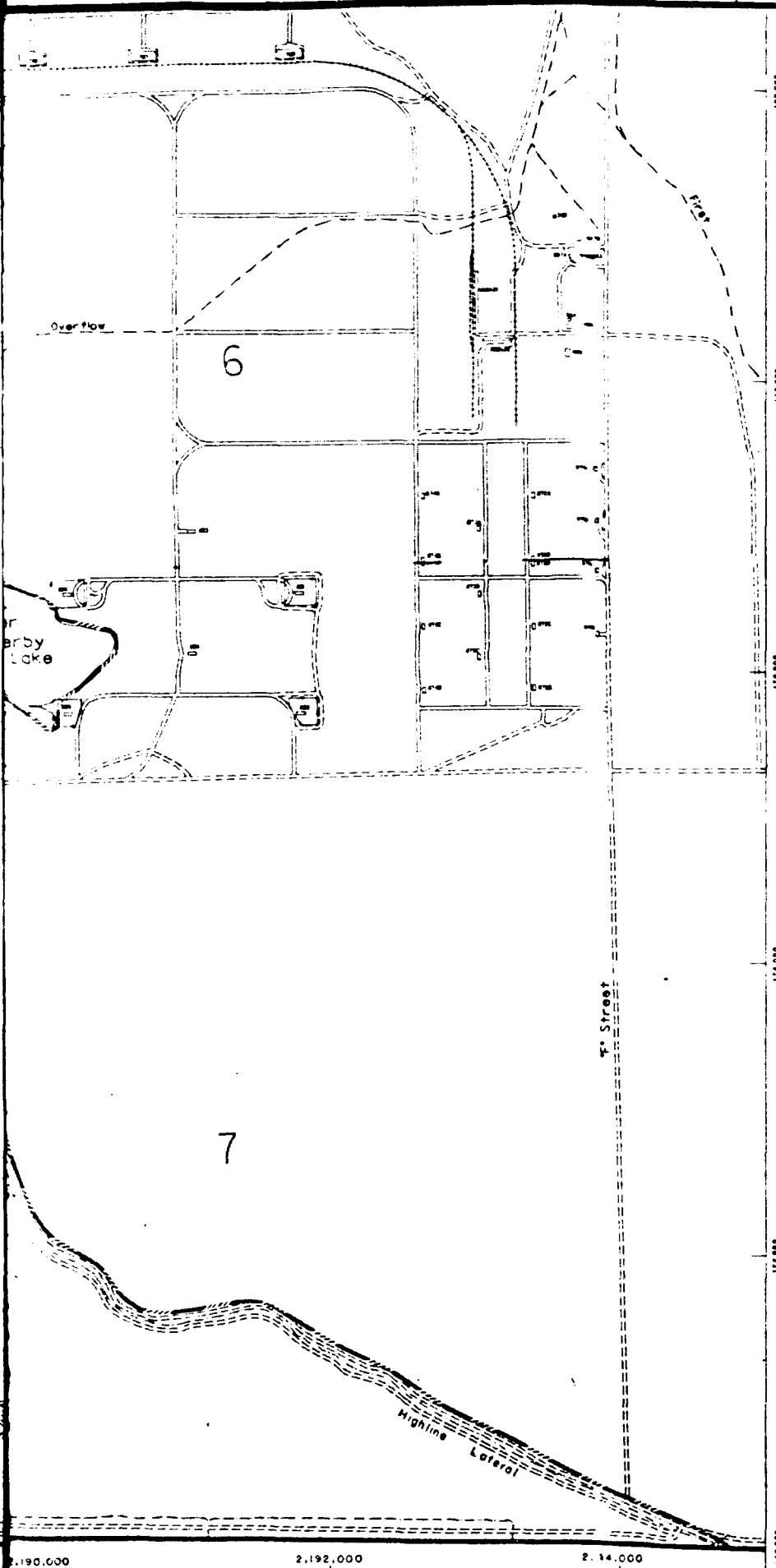
2,186,000

2,188,000

2,190,000

2,192,000





**LEGEND**

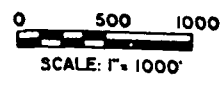
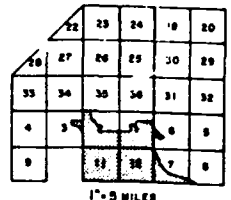
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

- BCRL \*
- 0-1.0
- >1.0-10
- >10-100
- >100-1,000
- >1,000-10,000
- >10,000

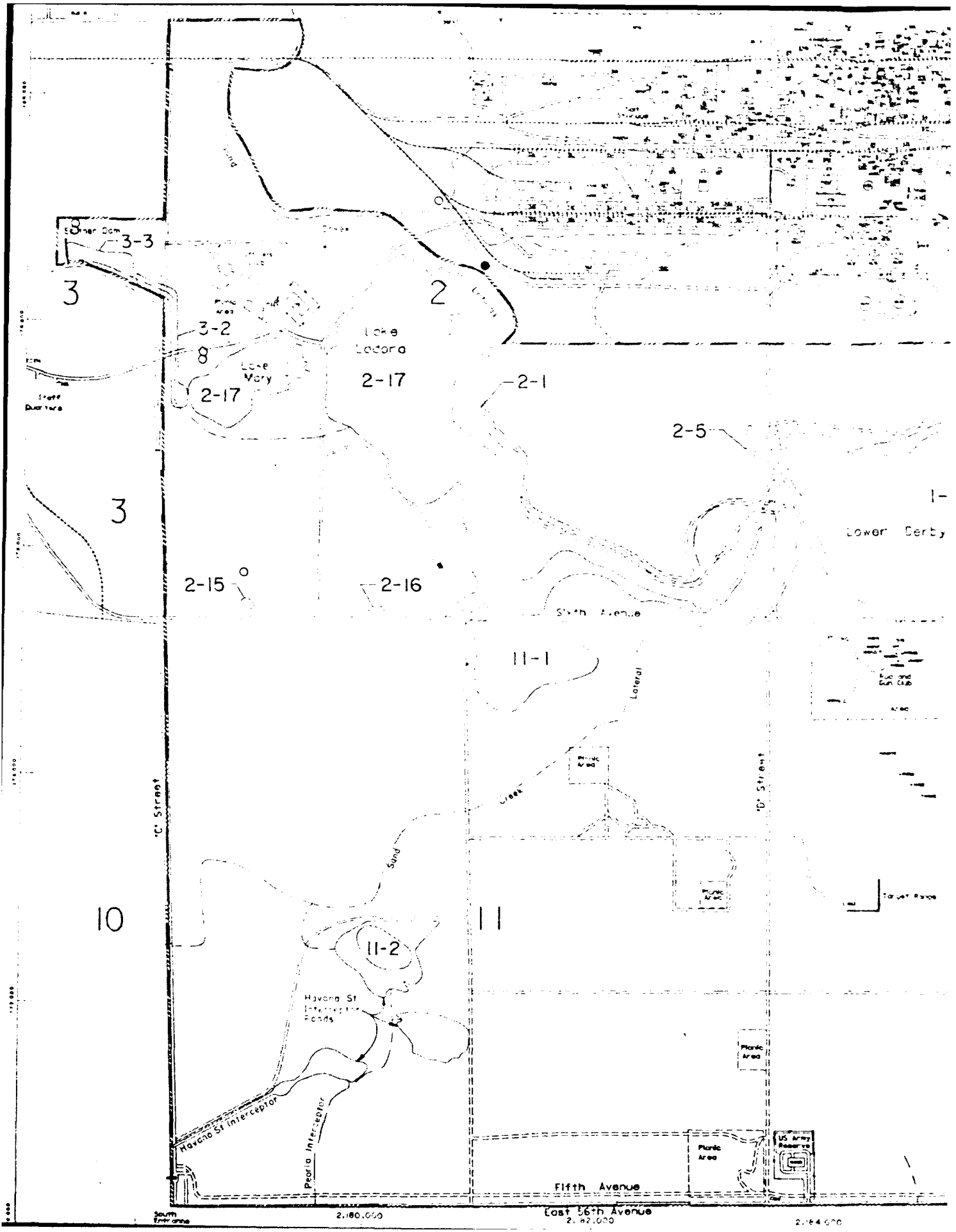
\* Below Certified Reporting Limits (BCRL)

ROCKY MOUNTAIN ARSENAL LOCATION



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-7  
 Volatile Aromatic Organics-Benzene  
 Only-in Groundwater (WBZ 2)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



3-3

3

3-2

8

2-17

2

Lake Ladara

2-17

2-1

2-5

3

2-15

2-16

1-

Lower Derby

Sixth Avenue

11-1

Lateral

10

11

11-2

Havana St Interceptor  
Fonds

Havana St Interceptor  
Piedra Interceptor

Fifth Avenue

Plank Area

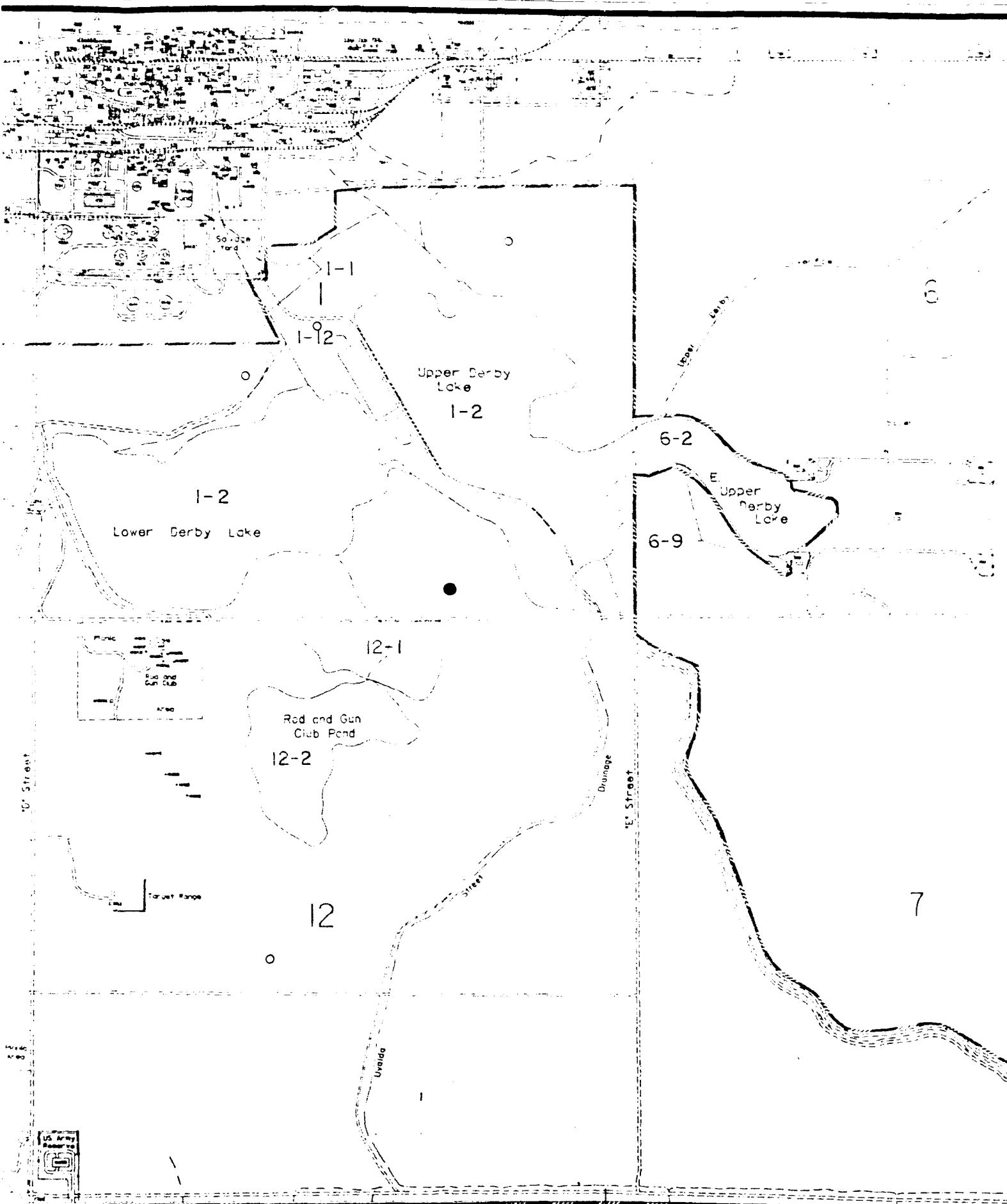
US Army Reserve

South Entrance

2,180,000

East 56th Avenue  
2,192,000

2,164,000



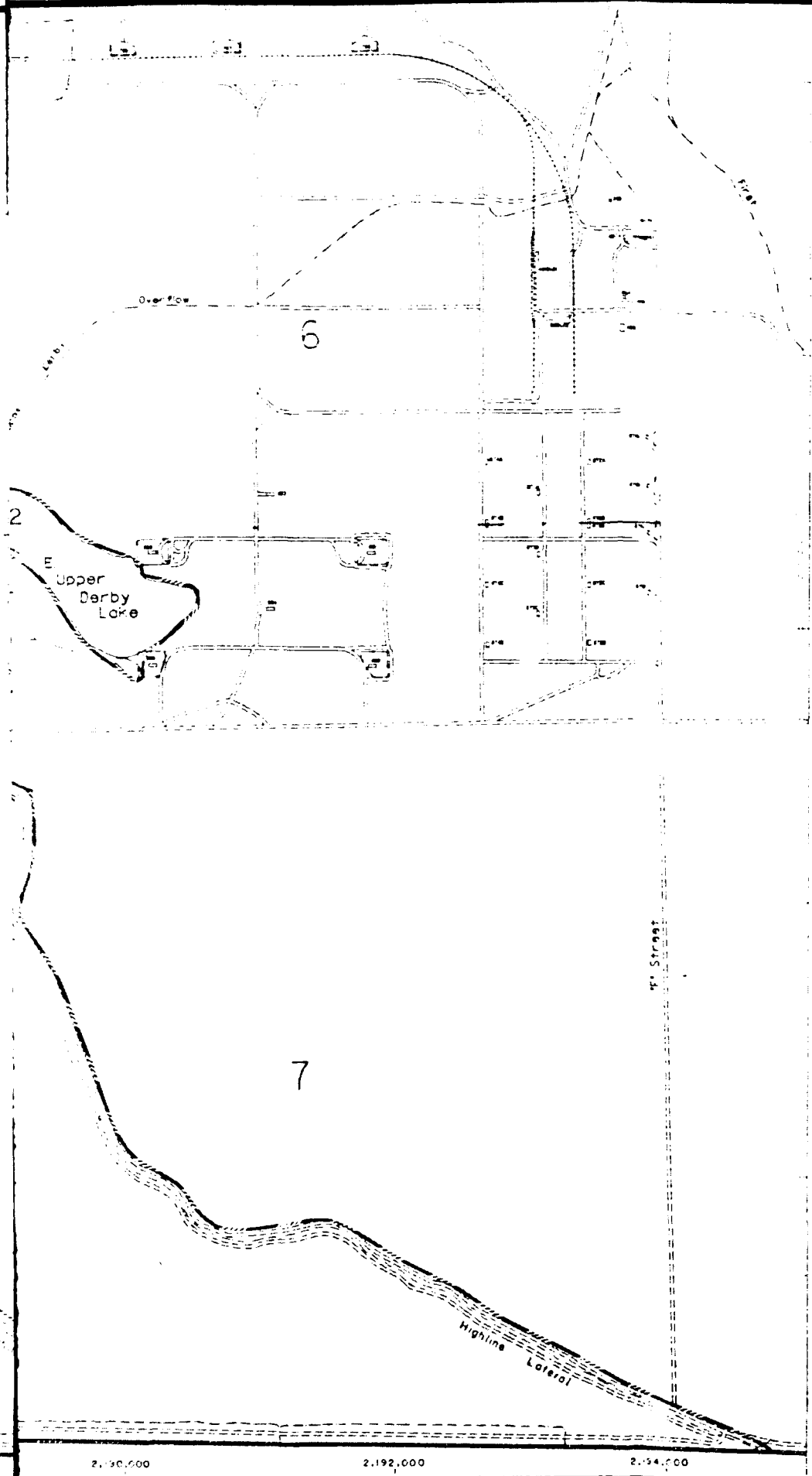
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

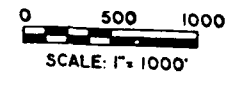
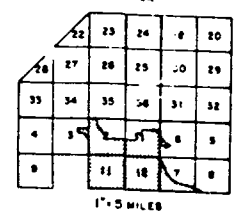
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

- BCRU \*
- 0-1.0
- >1.0-10
- >10-100
- >100-1,000
- >1,000-10,000
- >10,000

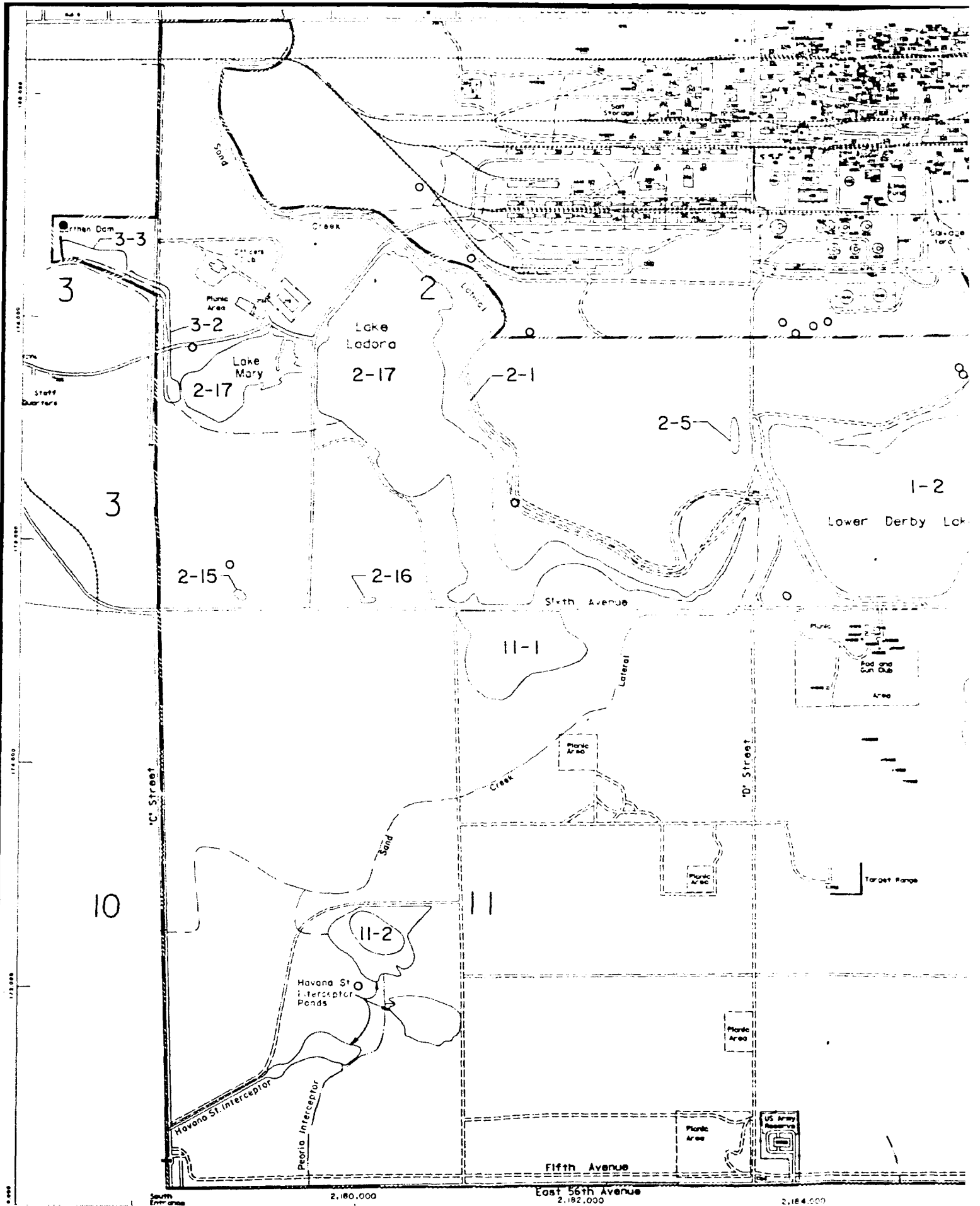
\* Below Certified Reporting Limits (BCRL)

ROCKY MOUNTAIN ARSENAL LOCATION



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-8  
 Volatile Aromatic Organics-Benzene  
 Only-in Groundwater (WBZ 3-4)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

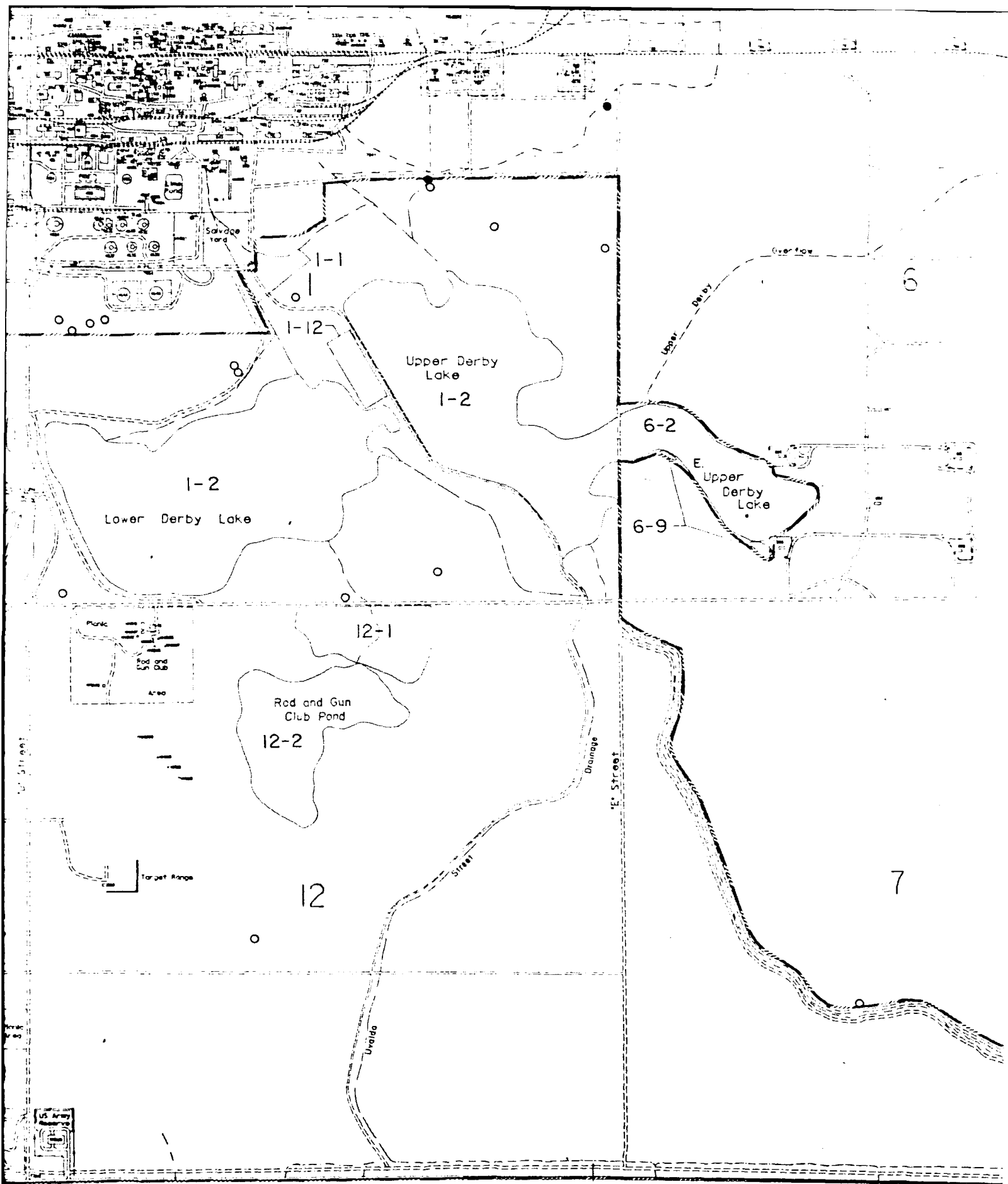


South Entrance

2,180,000

East 56th Avenue  
2,182,000

2,184,000



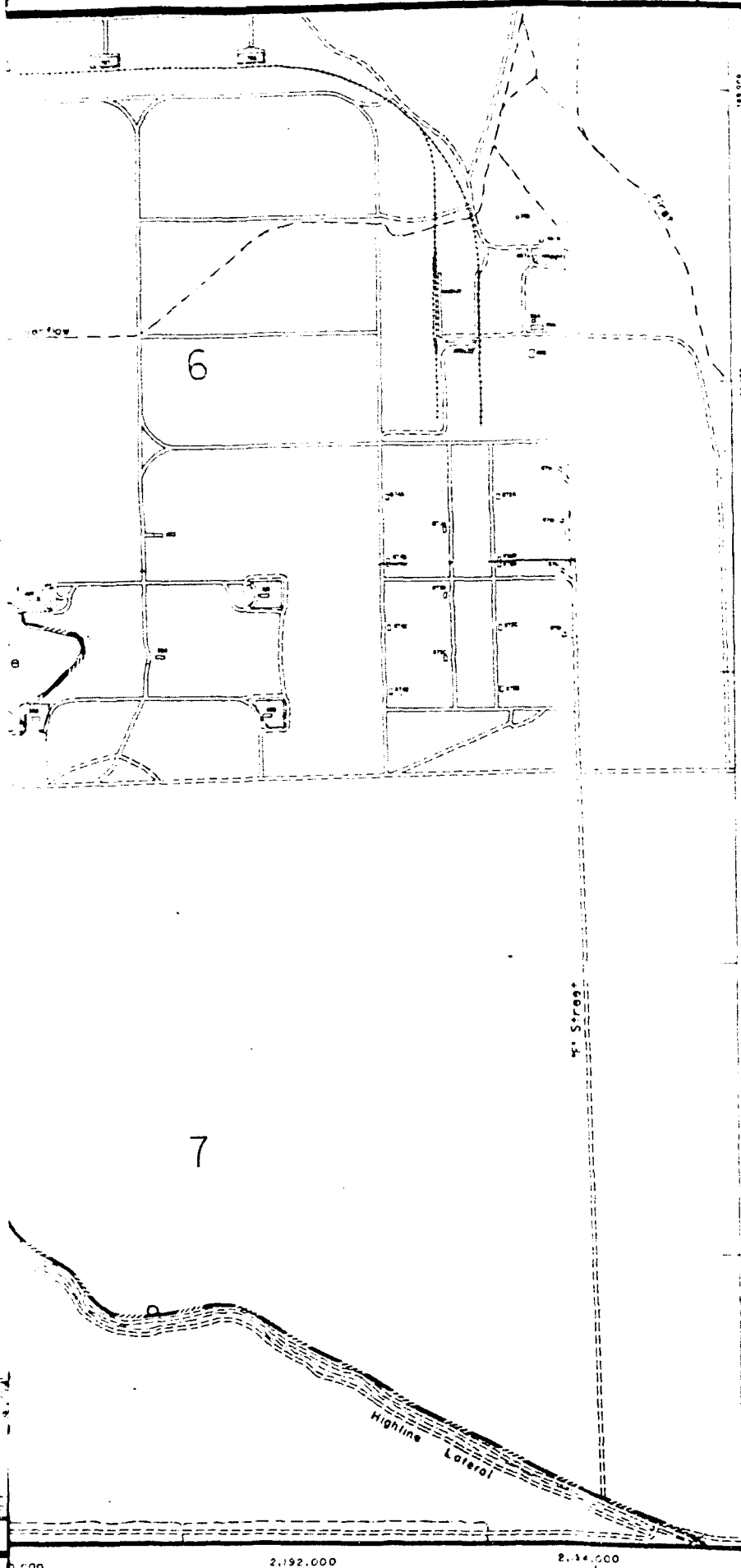
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

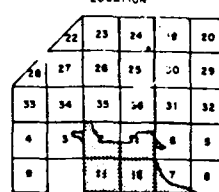
174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

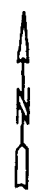
- BCRL \*
- 0-1.0
- >1.0-10
- >10-100
- >100-1,000
- >1,000-10,000
- >10,000

\* Below Certified Reporting Limits (BCRL)

ROCKY MOUNTAIN ARSENAL LOCATION



1" = 5 MILES



SCALE: 1" = 1000'

Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

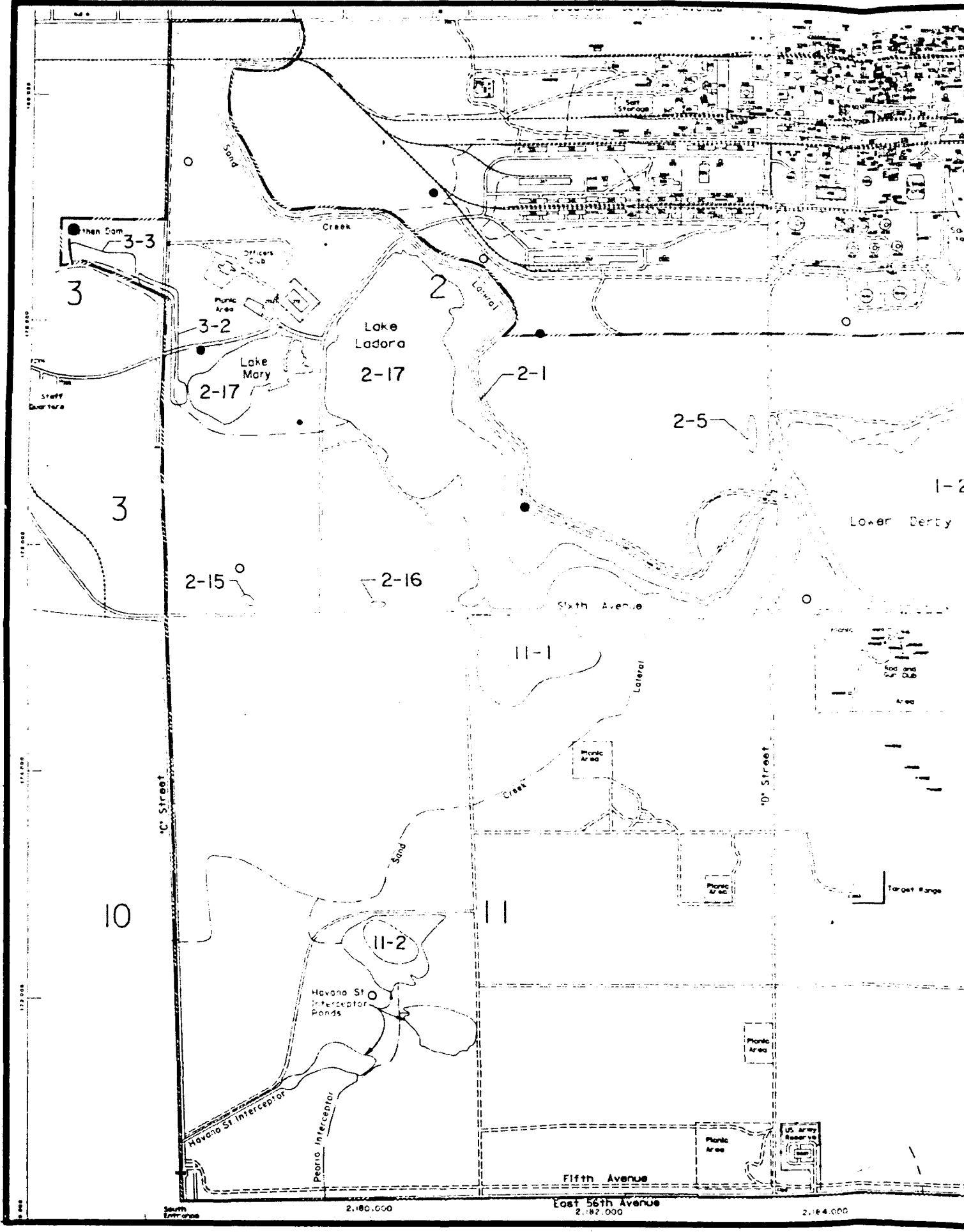
FIGURE: SSA 2.3-9

Dibromochloropropane  
in Groundwater (WBZ 1A-1)

Rocky Mountain Arsenal

Prepared by:

Ebasco Services Incorporated



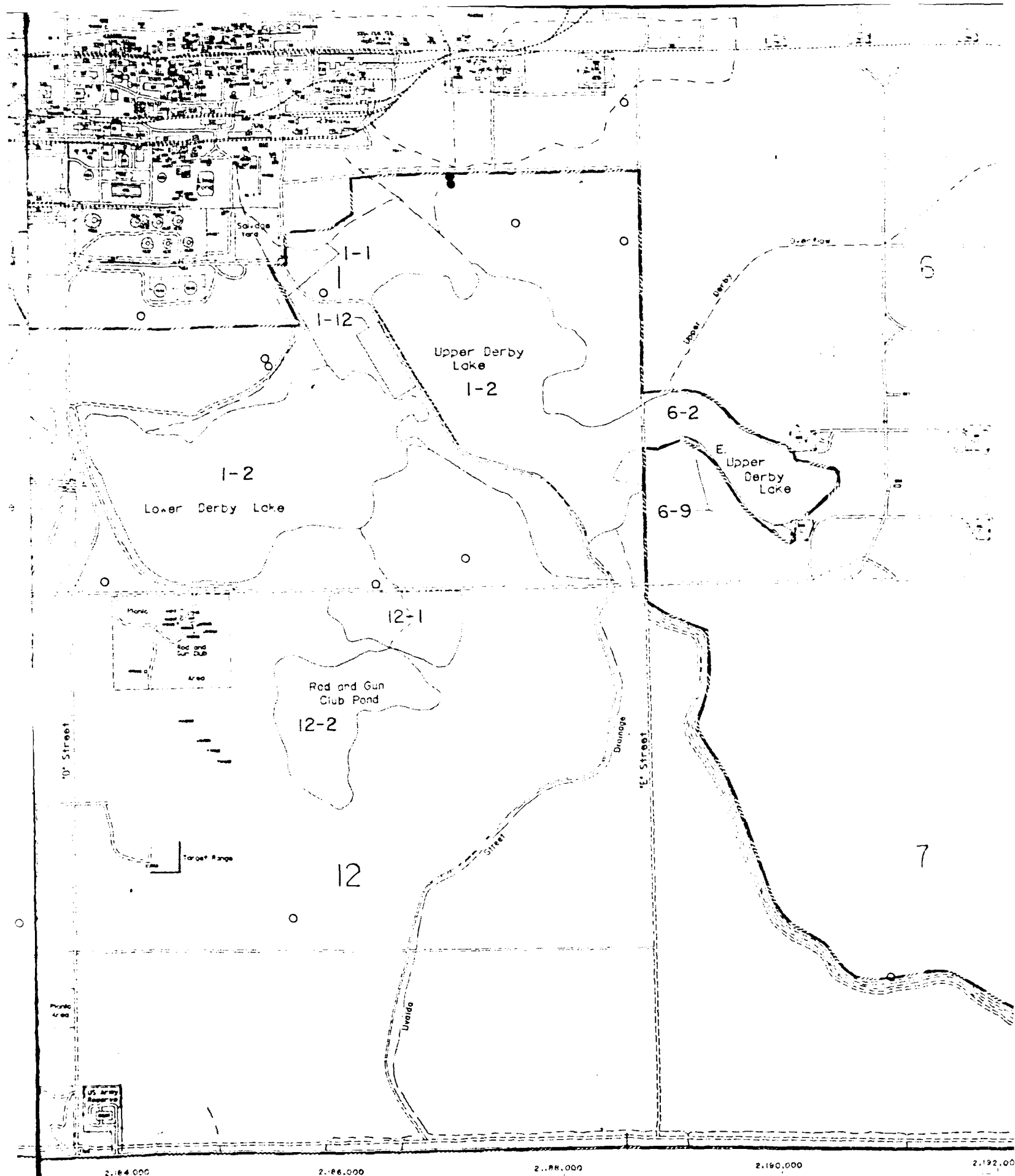
South Entrance

2,180,000

East 56th Avenue  
2,187,000

2,164,000





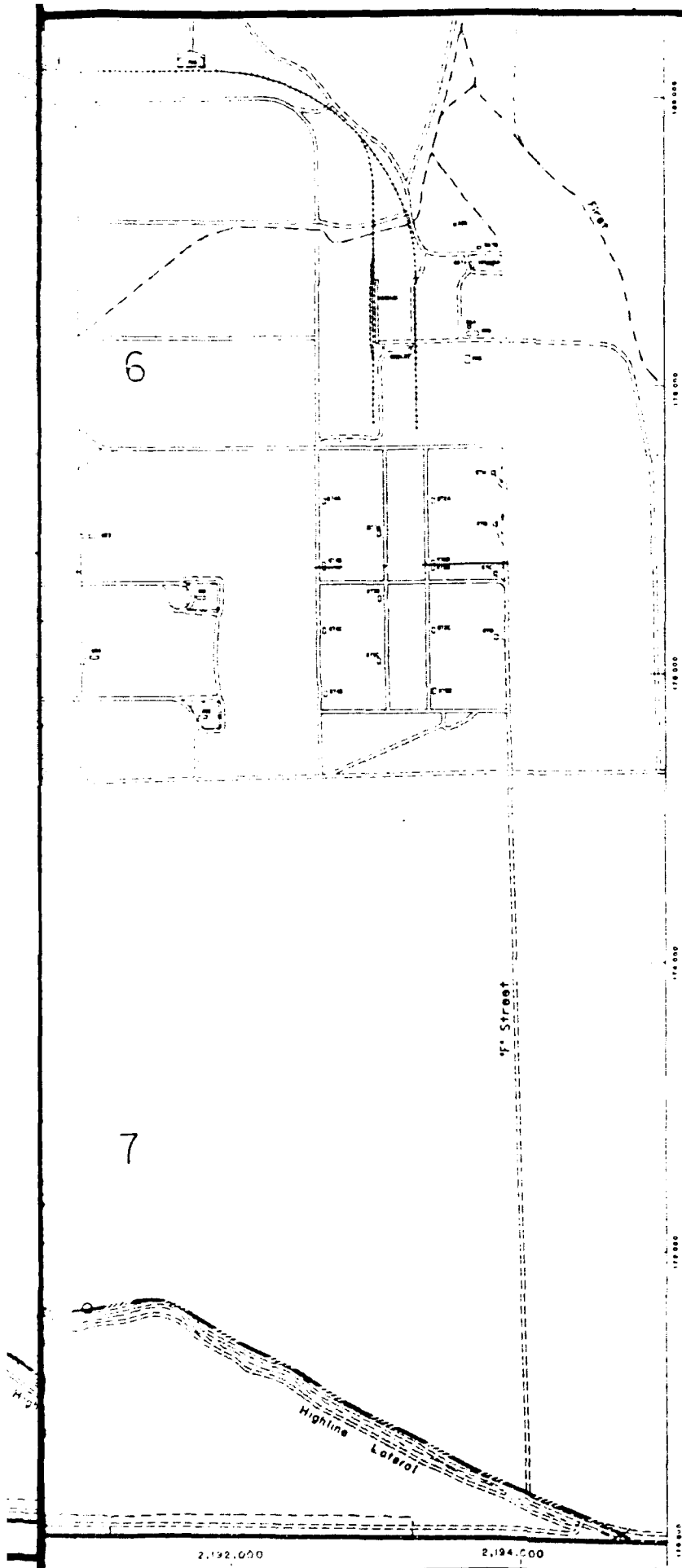
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



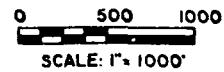
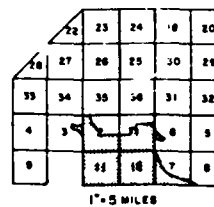
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

- BCRL\*
- 0-1.0
- >1.0-10
- >10-100
- >100-1,000
- >1,000-10,000
- >10,000
- Below Certified Reporting Limits (BCRL)

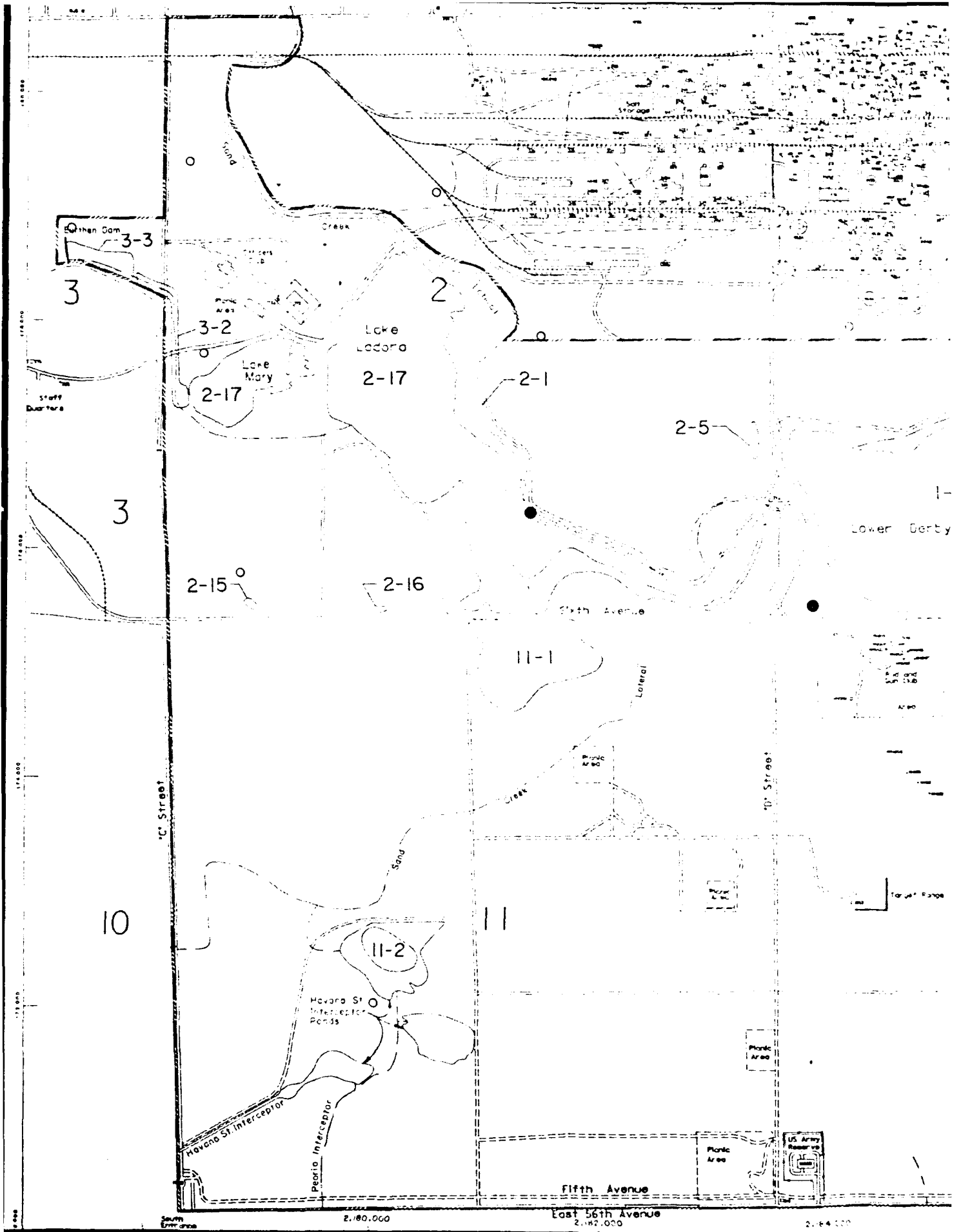
ROCKY MOUNTAIN ARSENAL LOCATION

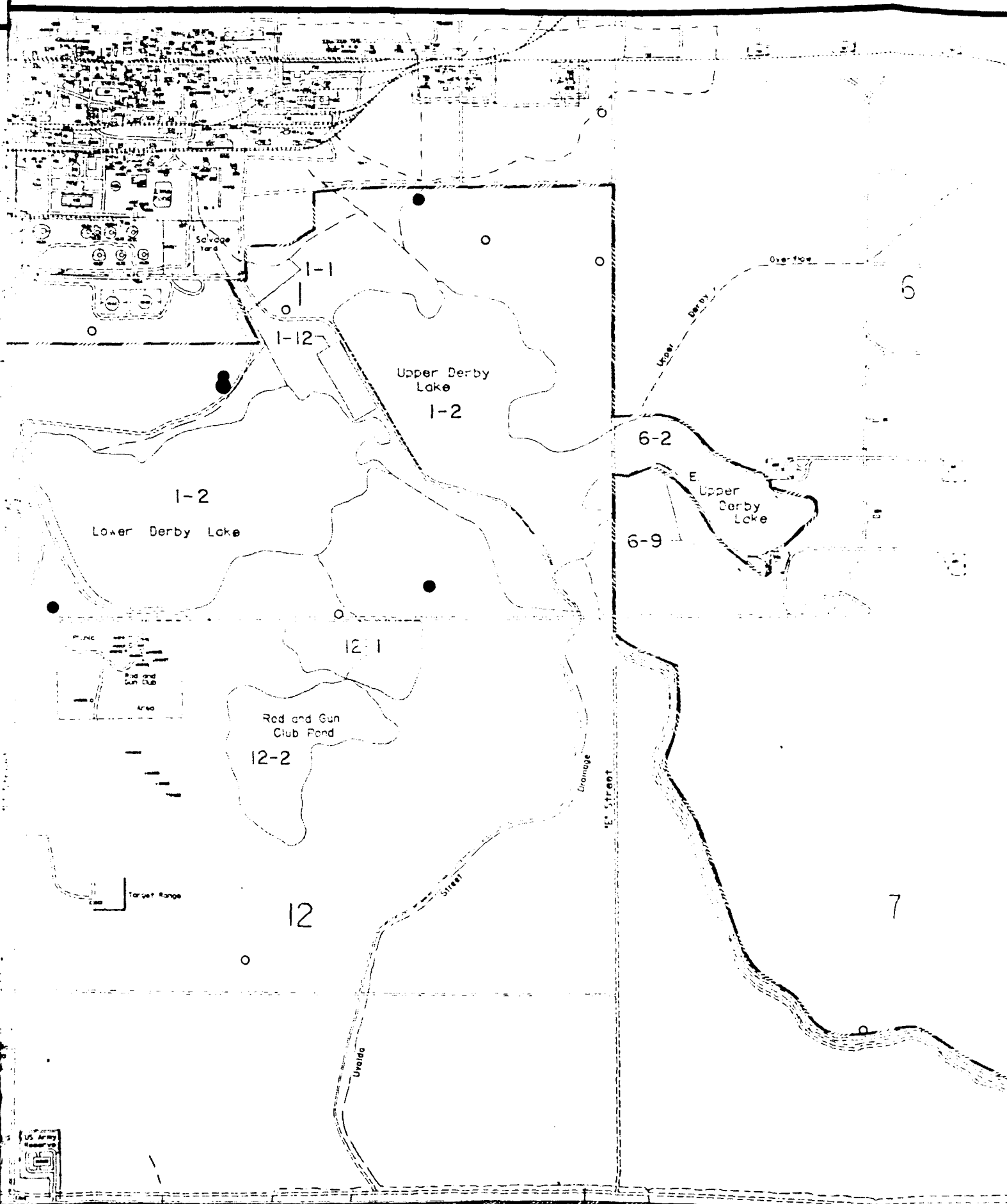


Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-10  
Organochlorine Pesticides  
in Groundwater (WBZ 1A-1)  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated





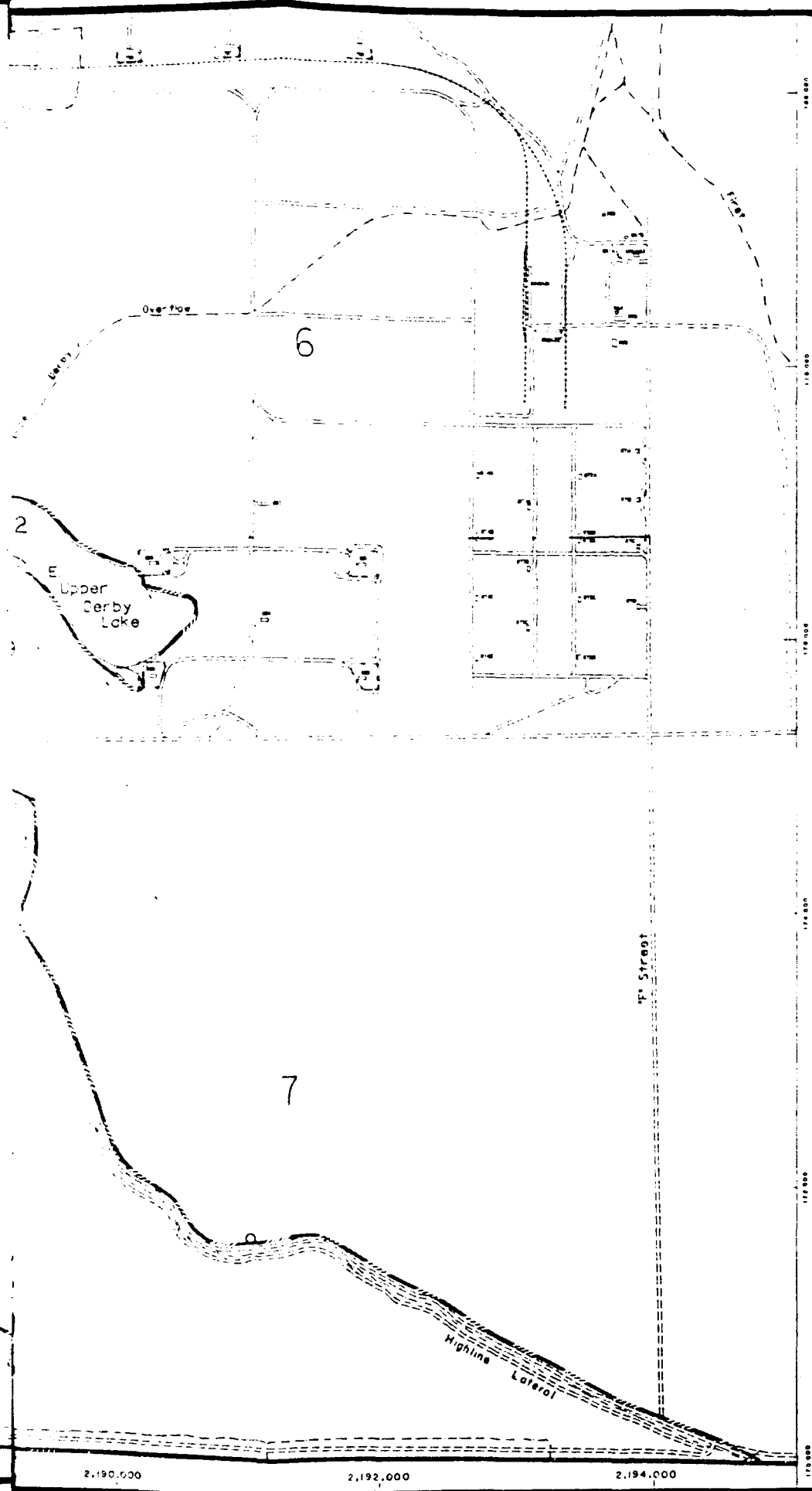
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

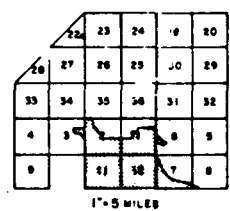
174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

- BCRL\*
- 0-1.0
- >1.0-10
- >10-100
- >100-1,000
- >1,000-10,000
- >10,000

\* Below Certified Reporting Limits (BCRL)

ROCKY MOUNTAIN LATERAL LOCATION



1" = 5 MILES

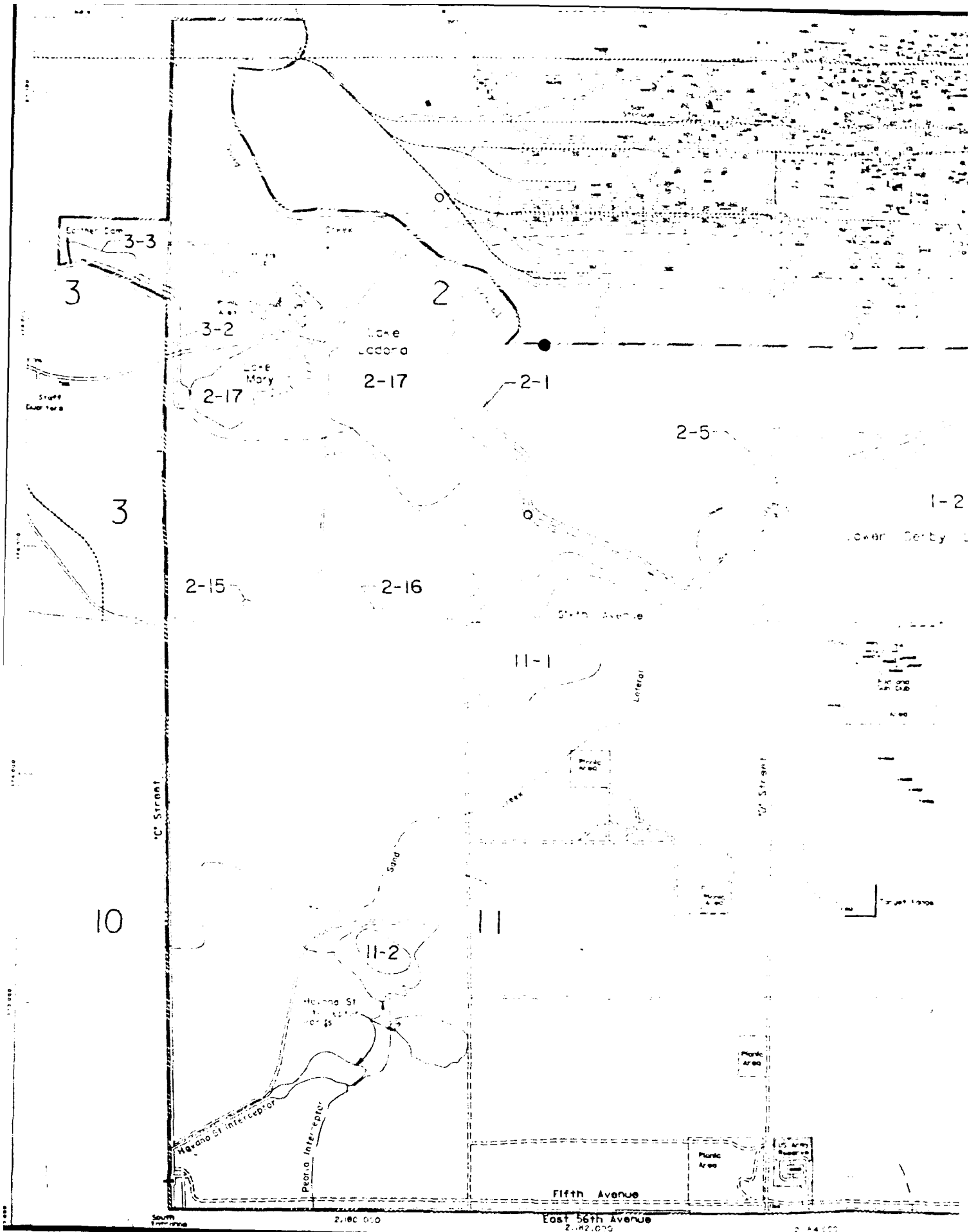


SCALE: 1" = 1000'

Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-11  
 Arsenic  
 in Groundwater (WBZ IA-1)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

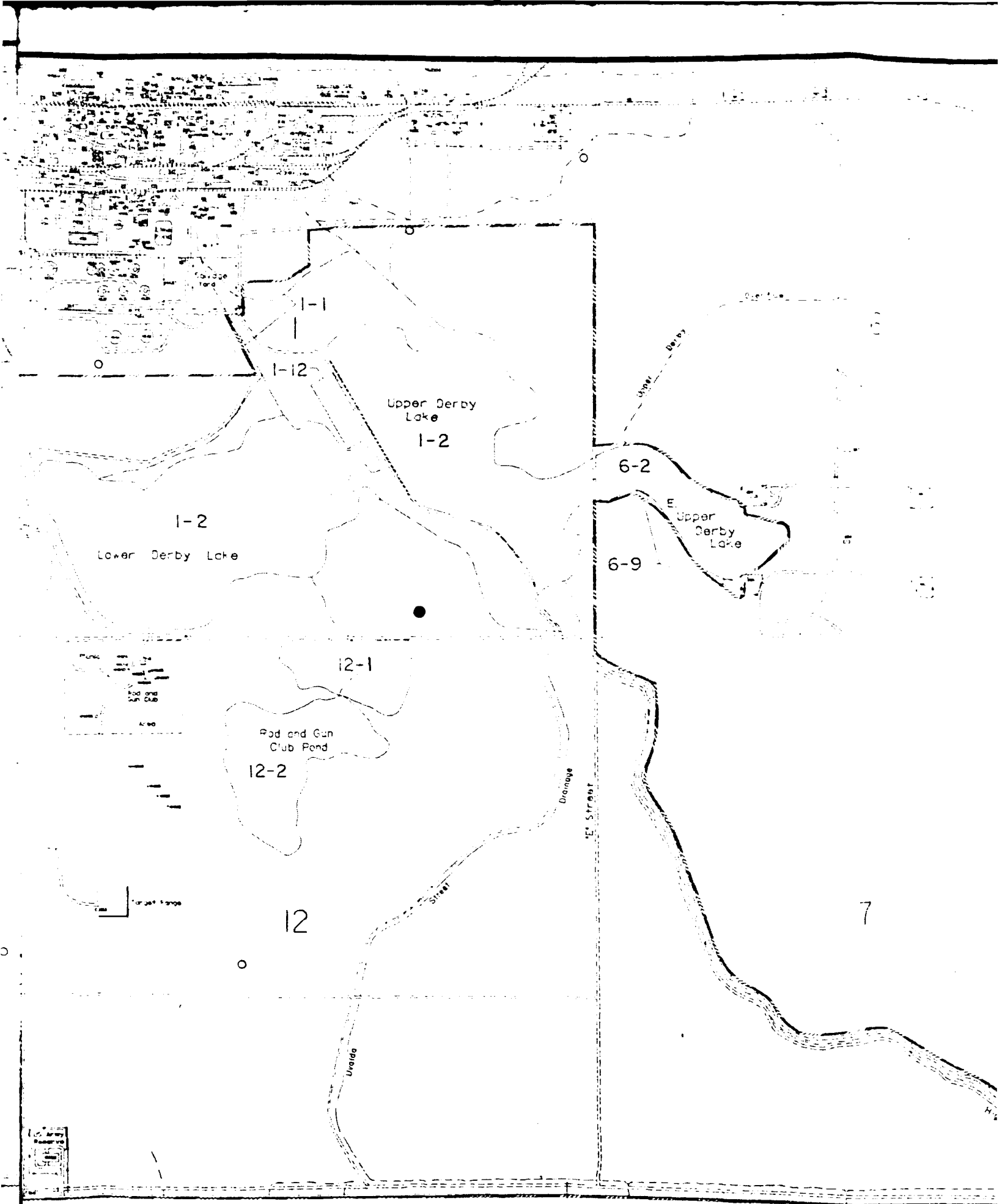
2,190,000                      2,192,000                      2,194,000



2,180,000

East 56th Avenue

2,44,000



Upper Derby Lake

Lower Derby Lake

E. Upper Derby Lake

Rod and Gun Club Pond

12-1

12-2

12

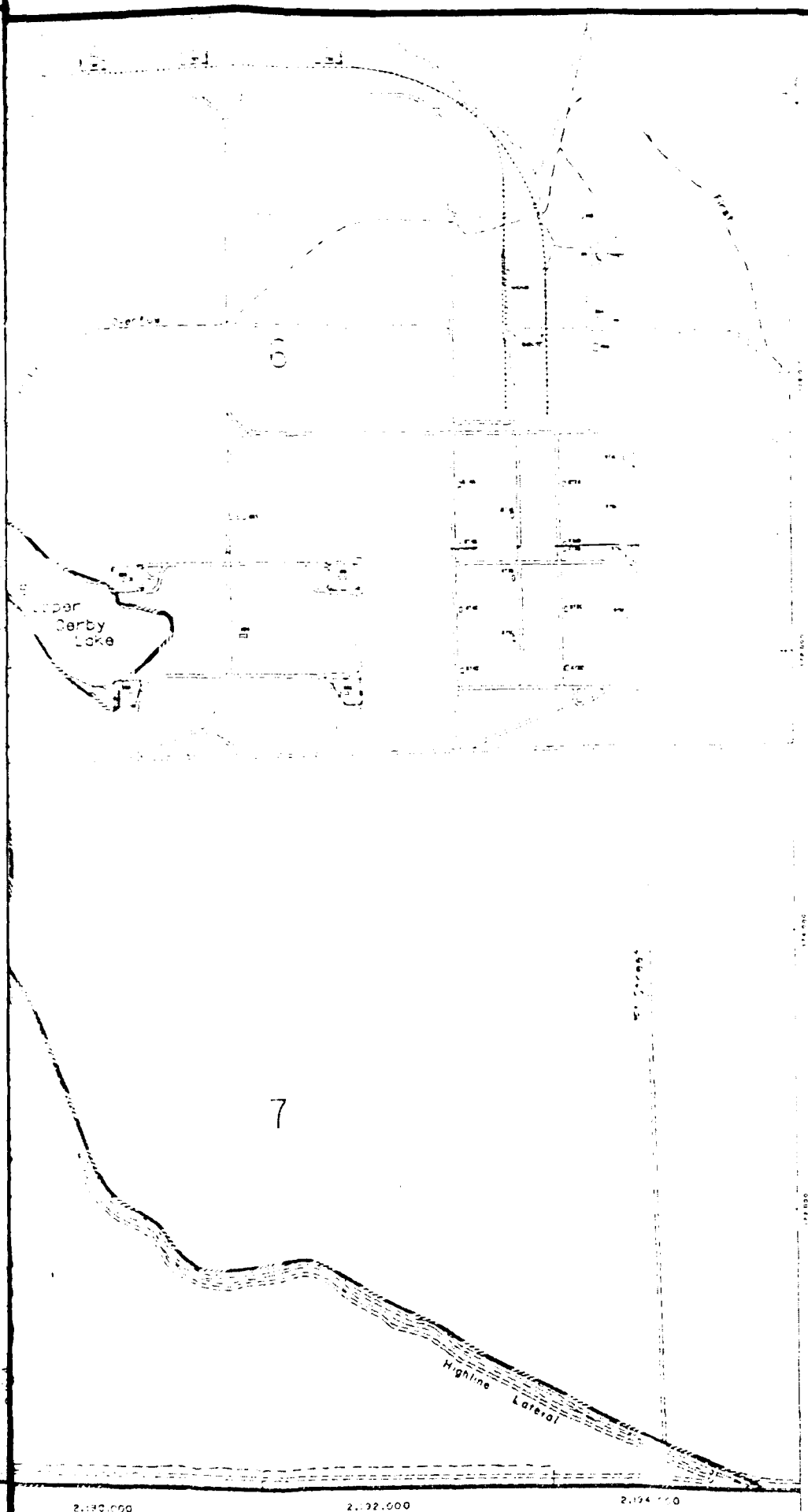
6-2

6-9

1-12

1-1

1-2



**LEGEND**

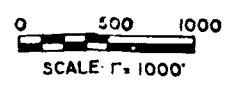
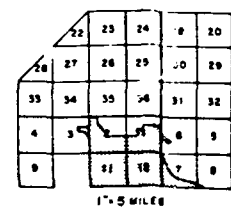
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

- BCRL \*
- 0-1.0
- >1.0-10
- >10-100
- >100-1,000
- >1,000-10,000
- >10,000

\* Below Certified Reporting Limits (BCRL)

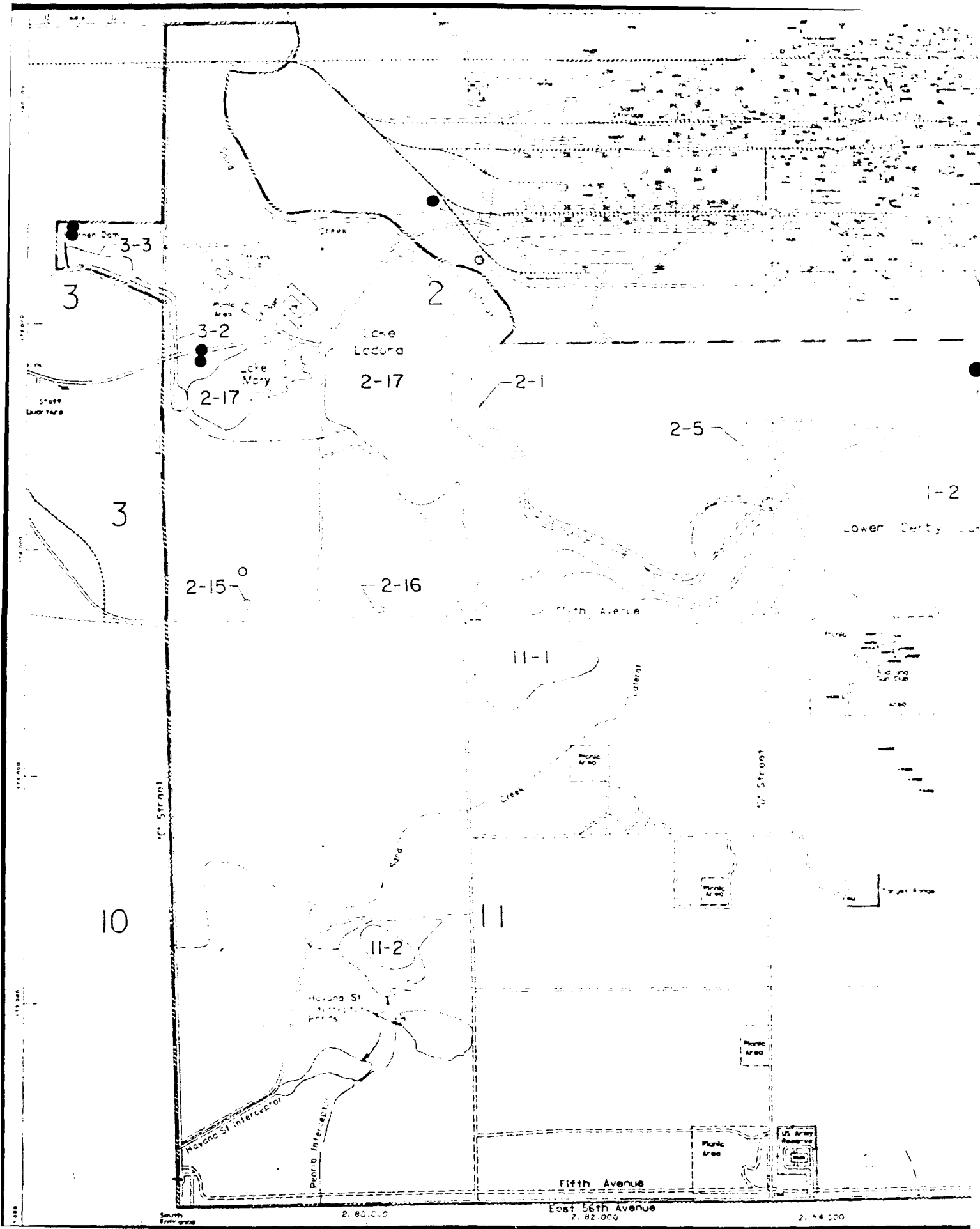
ROCKY MOUNTAIN ARSENAL LOCATION



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-12  
 Arsenic  
 in Groundwater (WBZ 2)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated





3-3

3

3-2

2-17

2

Lake Lecora

2-17

2-1

2-5

1-2

Lower Derby

3

2-15

2-16

11-1

10

11-2

Hawking St

Maryona St Interceptor

Pedra Interceptor

Fifth Avenue

East 56th Avenue

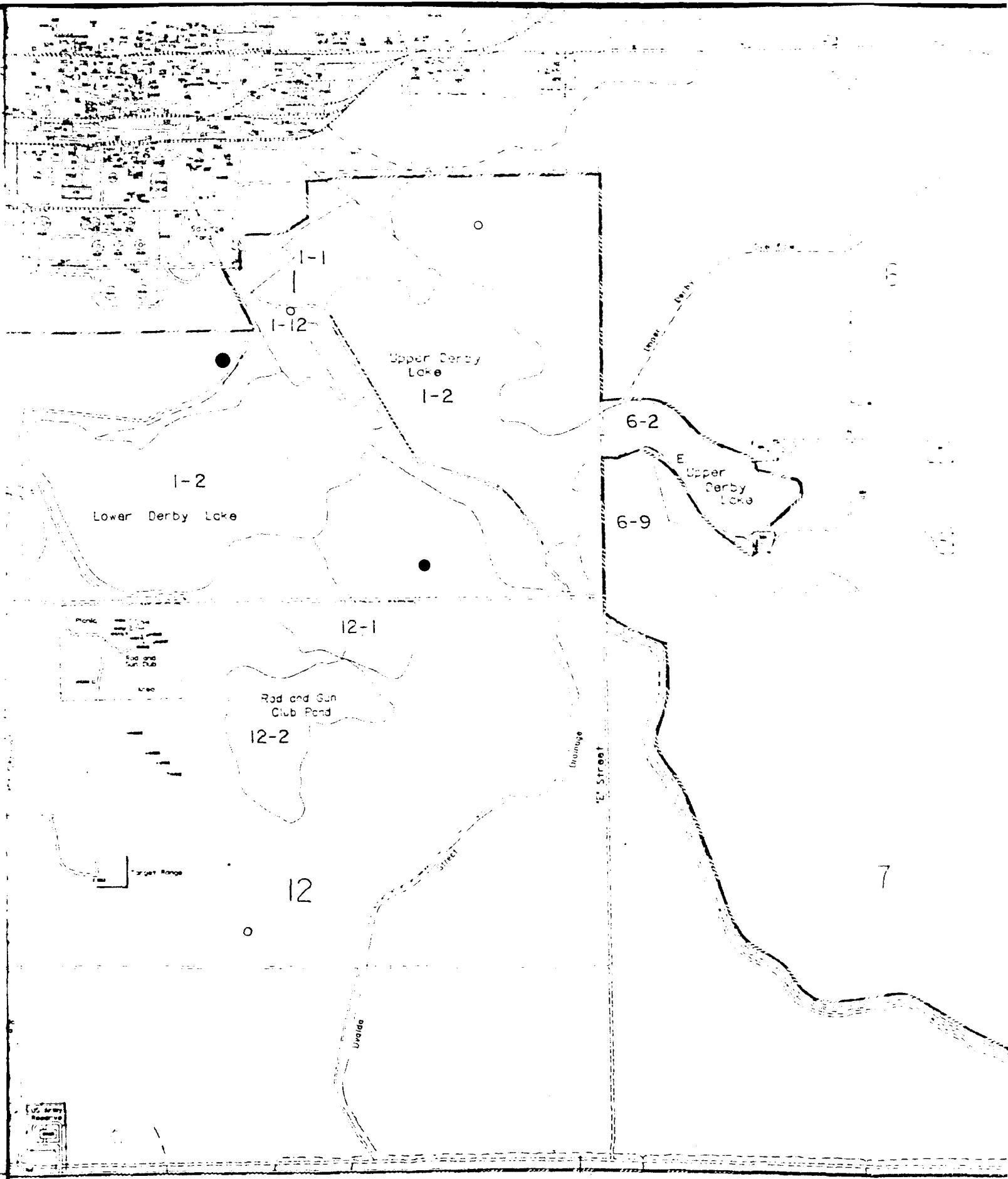
US Army Reserve

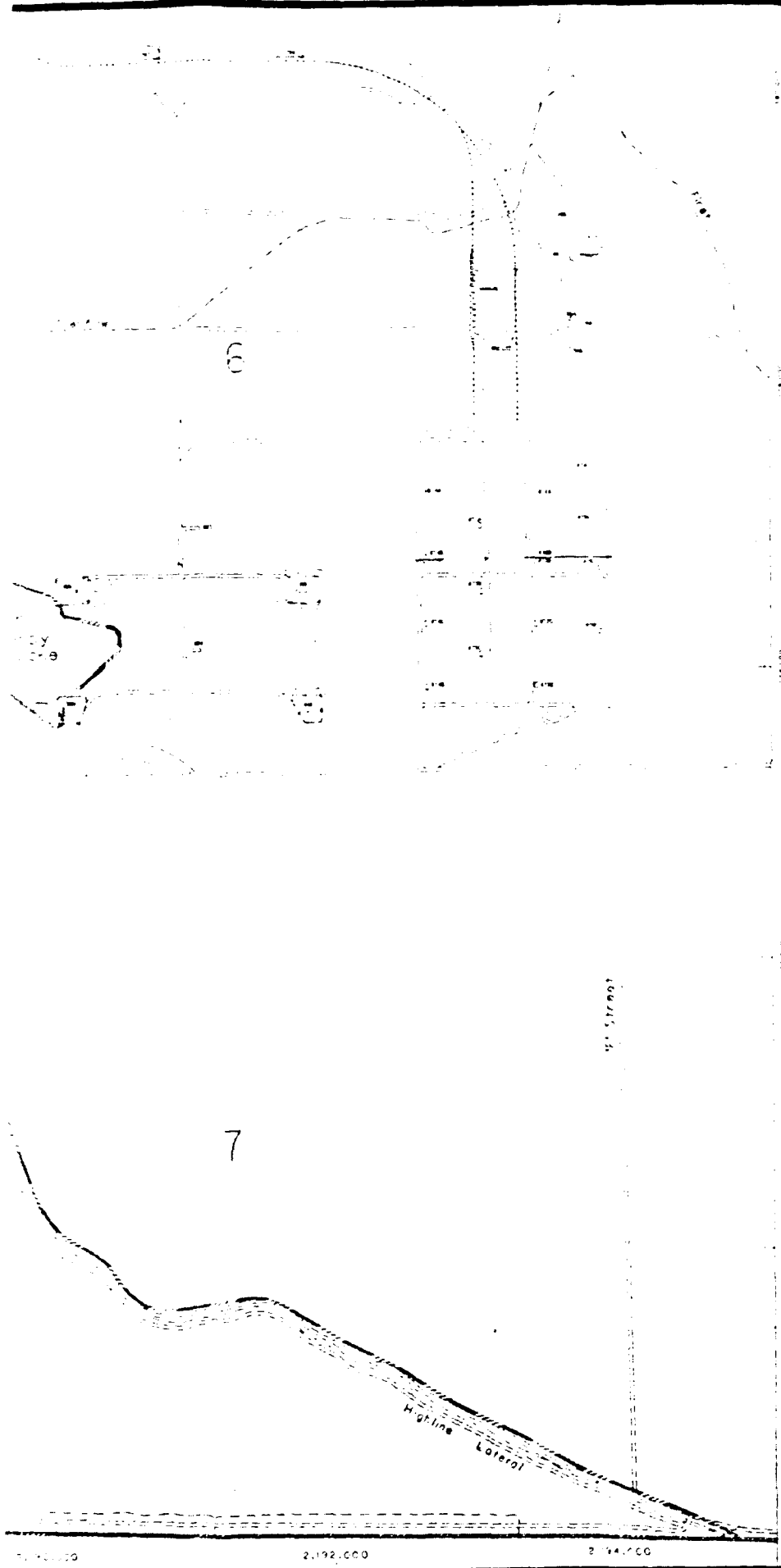
South

2, 80,000

2, 82,000

2, 84,000





**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

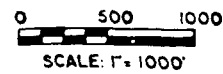
174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

- BCR<sub>L</sub>\*
- 0-10
- >10-100
- >100-1,000
- >1,000-10,000
- >10,000

\* Below Certified Reporting Limits (BCRL)

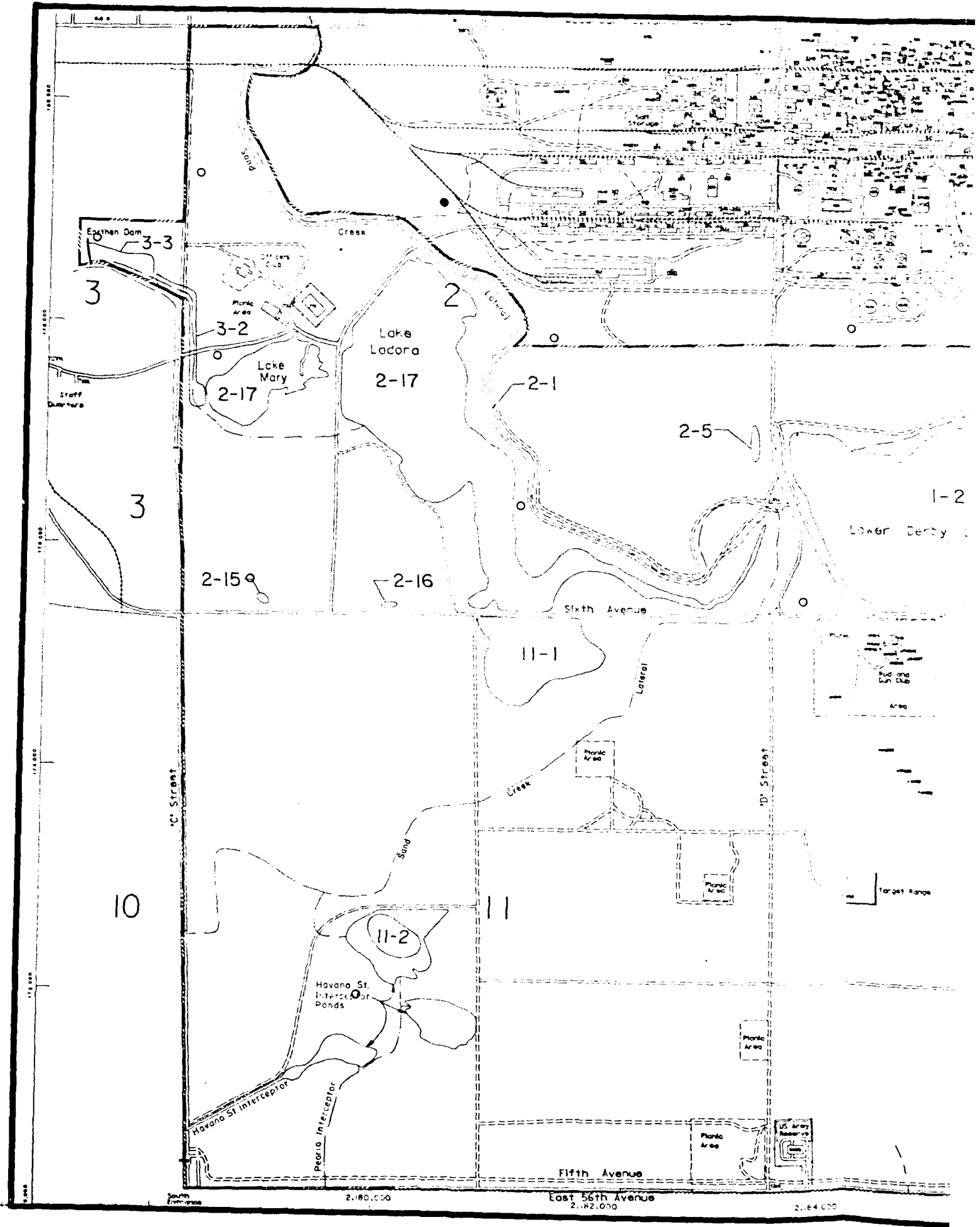
ROCKY MOUNTAIN ARSENAL LOCATION

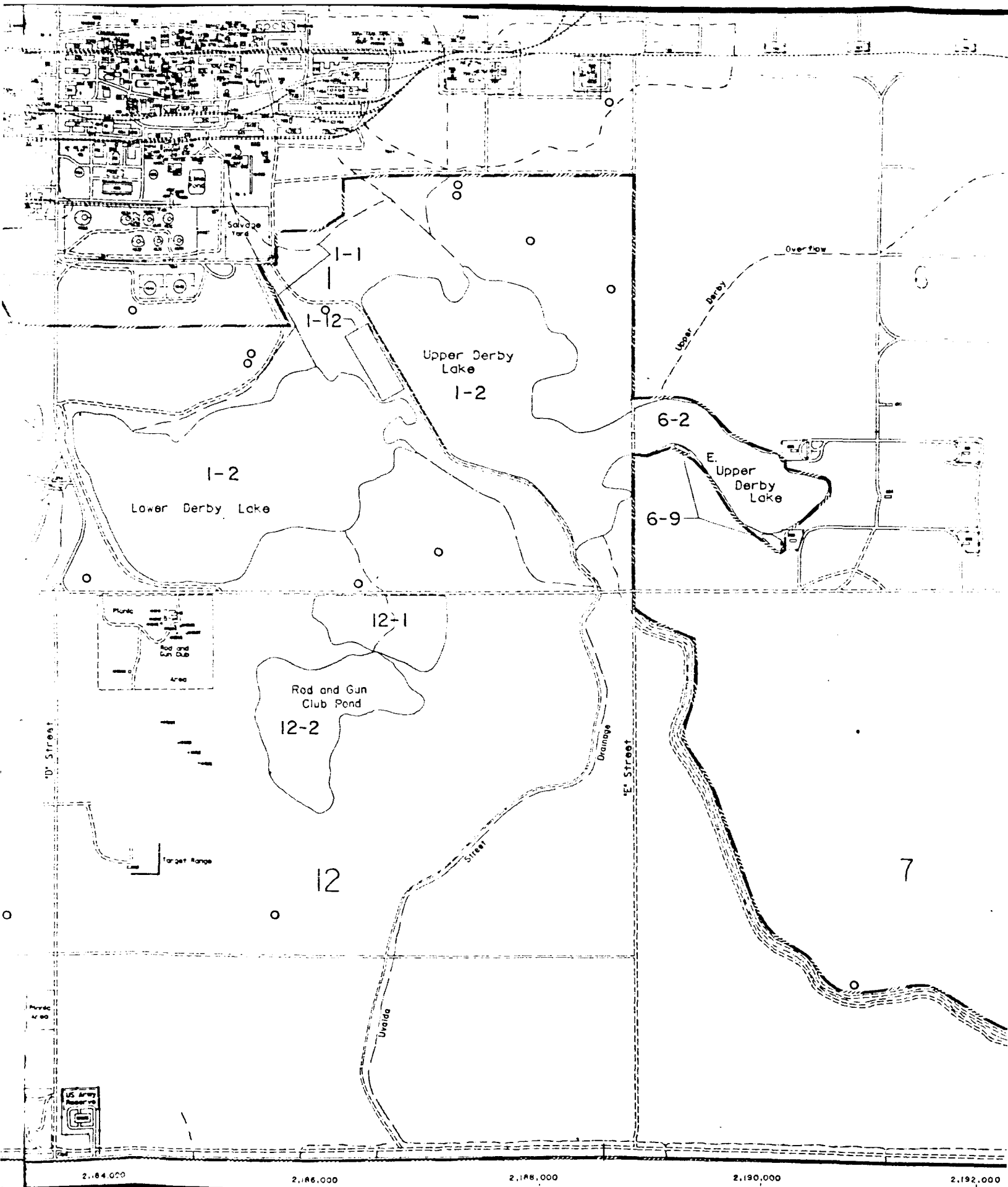


Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-13  
Arsenic  
in Groundwater (WBZ 3-4)  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated





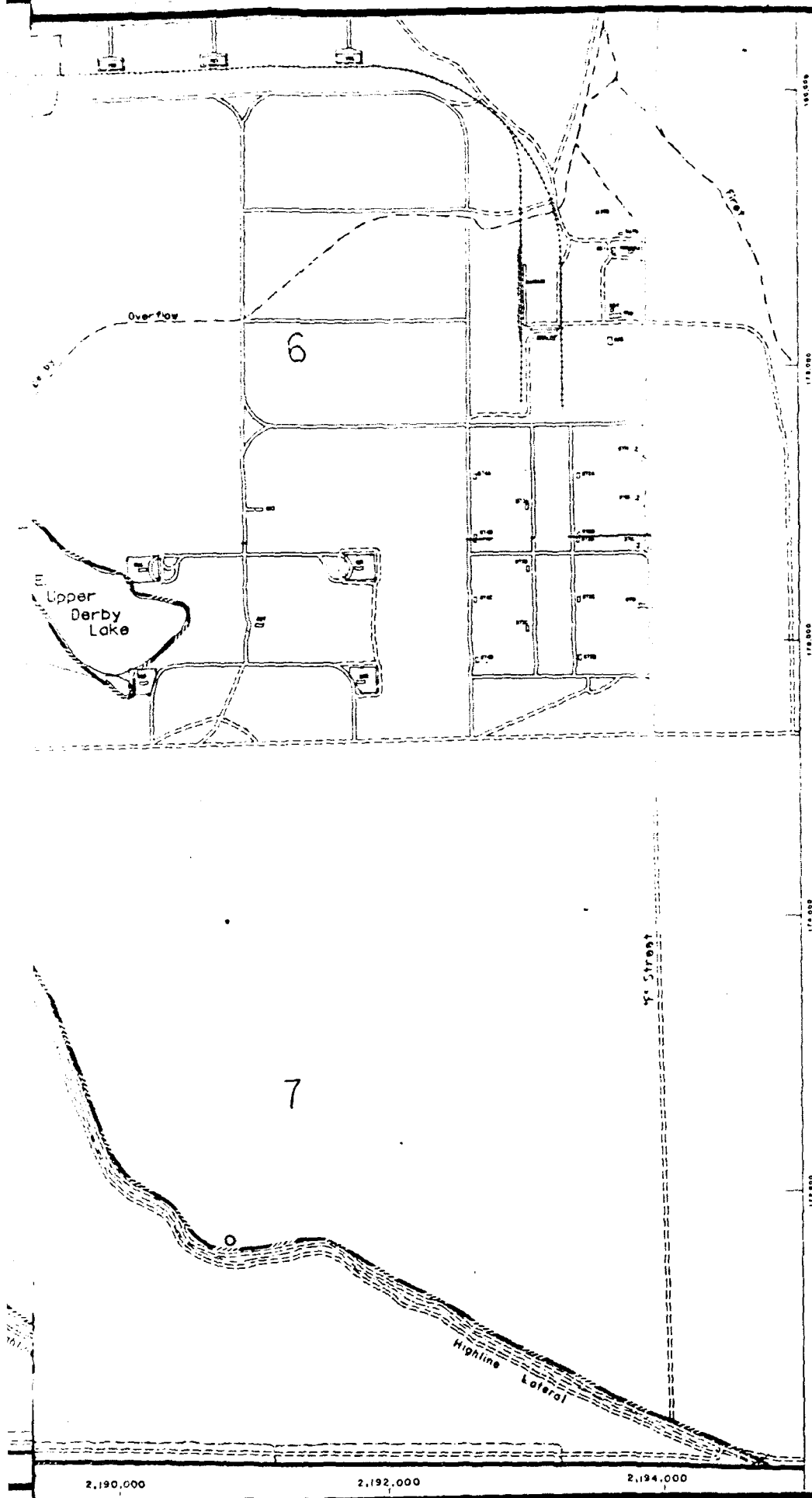
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

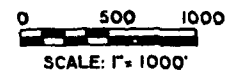
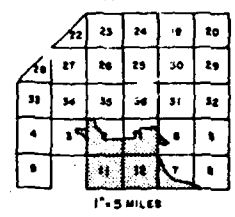
174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

- BCRL\*
- 0-1.0
- > 1.0-10
- > 10-100
- > 100-1,000
- > 1,000-10,000
- > 10,000

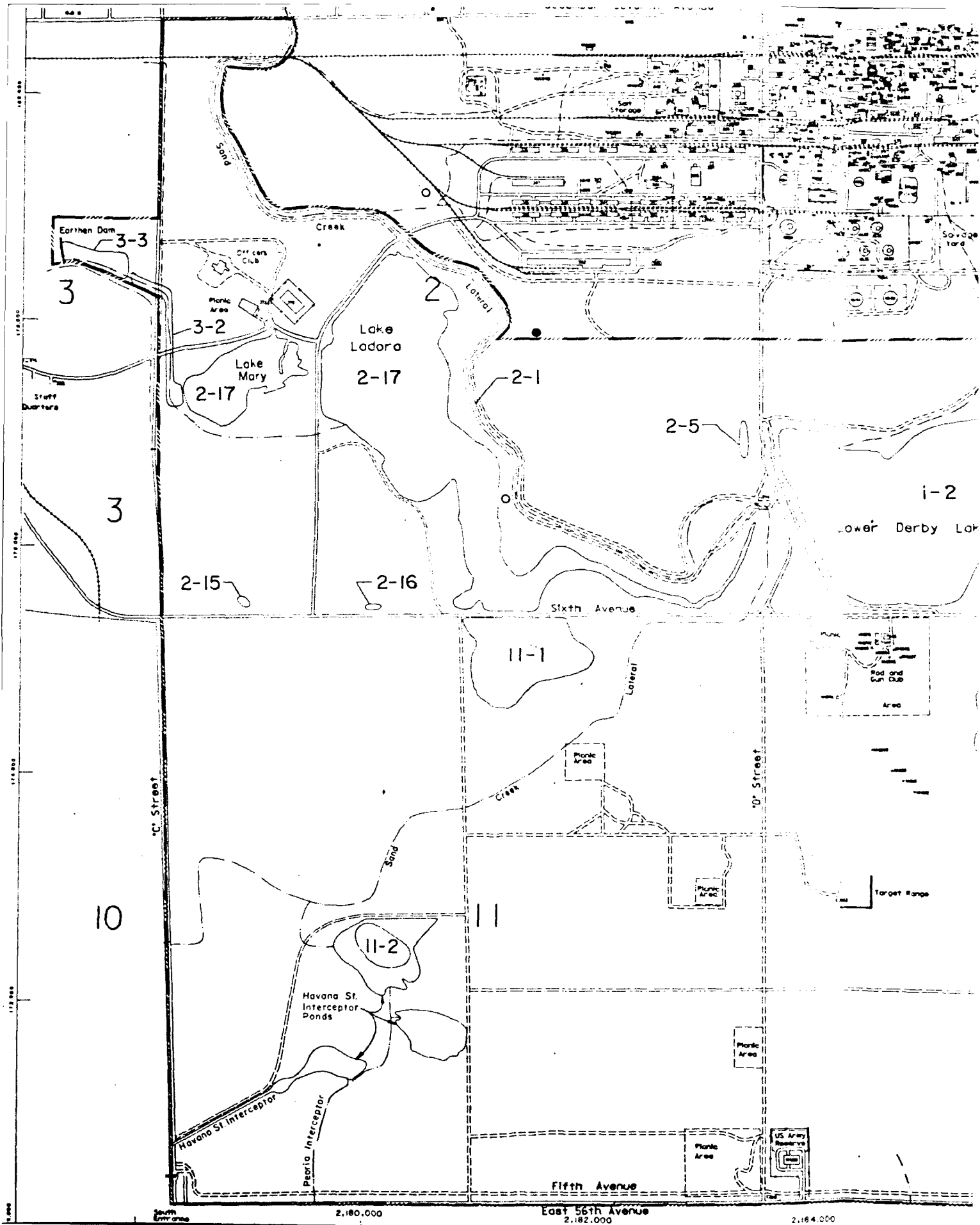
\* Below Certified Reporting Limits (BCRL)

ROCKY MOUNTAIN ARSENAL LOCATION



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

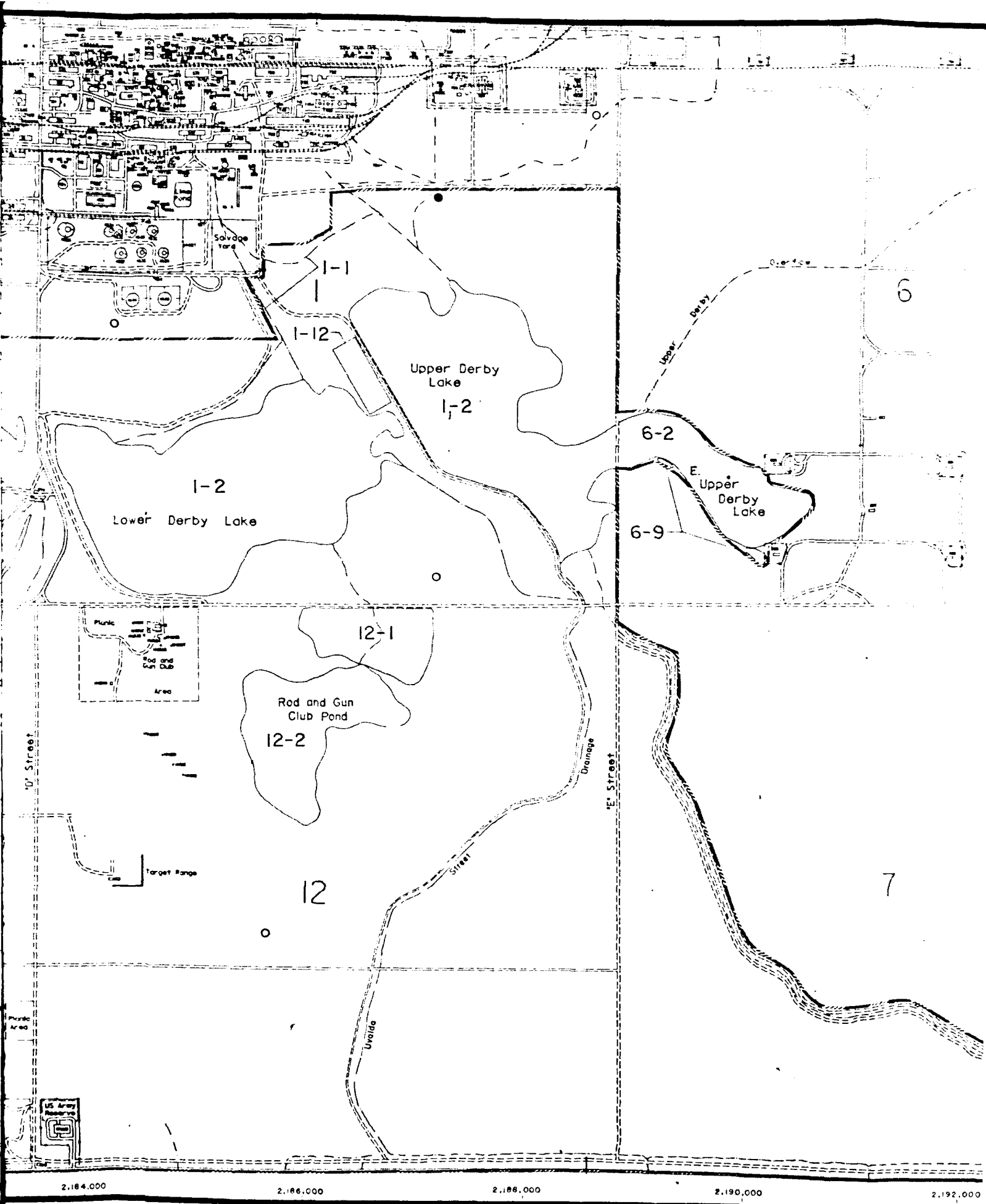
FIGURE: SSA 2.3-14  
 Mercury in Groundwater (WBZ 1A-1)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



2,180,000

East 56th Avenue  
2,182,000

2,184,000



2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

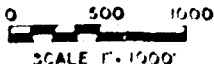
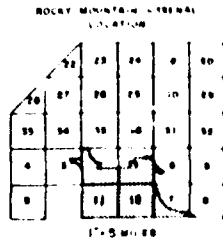
- Improved Road
- Railroad Line
- Existing Structure
- Other Structure
- Fence
- Security Boundary
- Stream or Drain
- Study Area Boundary

1:2000 State Plane Zone

Soil Sampling Locations and Concentrations

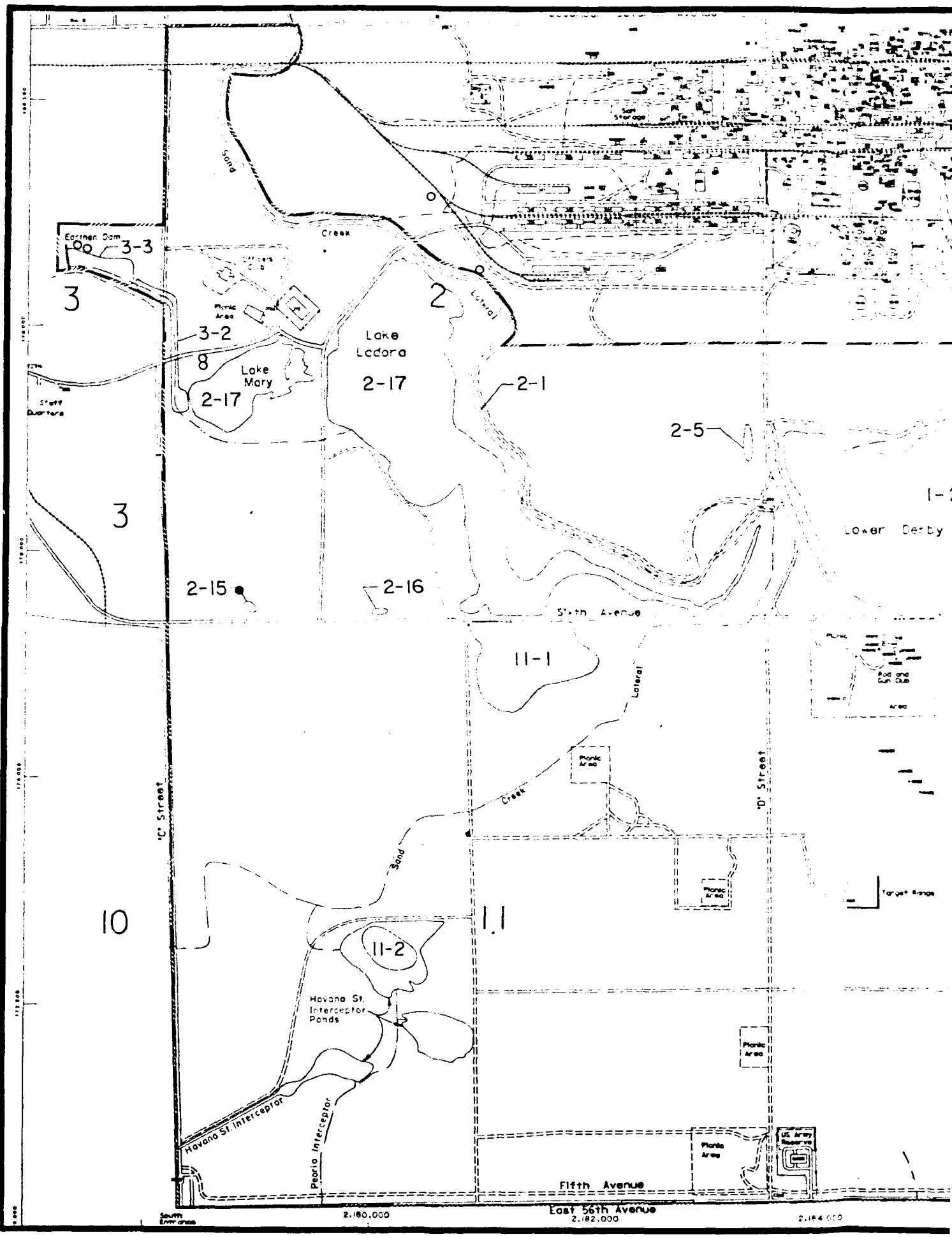
- 500
- 1000
- 2000
- 3000
- 4000
- 5000
- 6000
- 7000
- 8000
- 9000
- 10000

Below Certified Reporting Limits (CRL)



Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE: SCA 2 3-5  
Mercury in Groundwater (M/GW)  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated



Eastern Dam

3-3

3

3-2

8

Lake Mary

2-17

Lake Ledora

2-17

2

2-1

2-5

3

2-15

2-16

Sixth Avenue

Lower Derby

11-1

Lateral

C Street

D Street

10

11

11-2

Havana St. Interceptor Ponds

Havana St. Interceptor

Peoria Interceptor

Fifth Avenue

East 56th Avenue

US Army Reserve

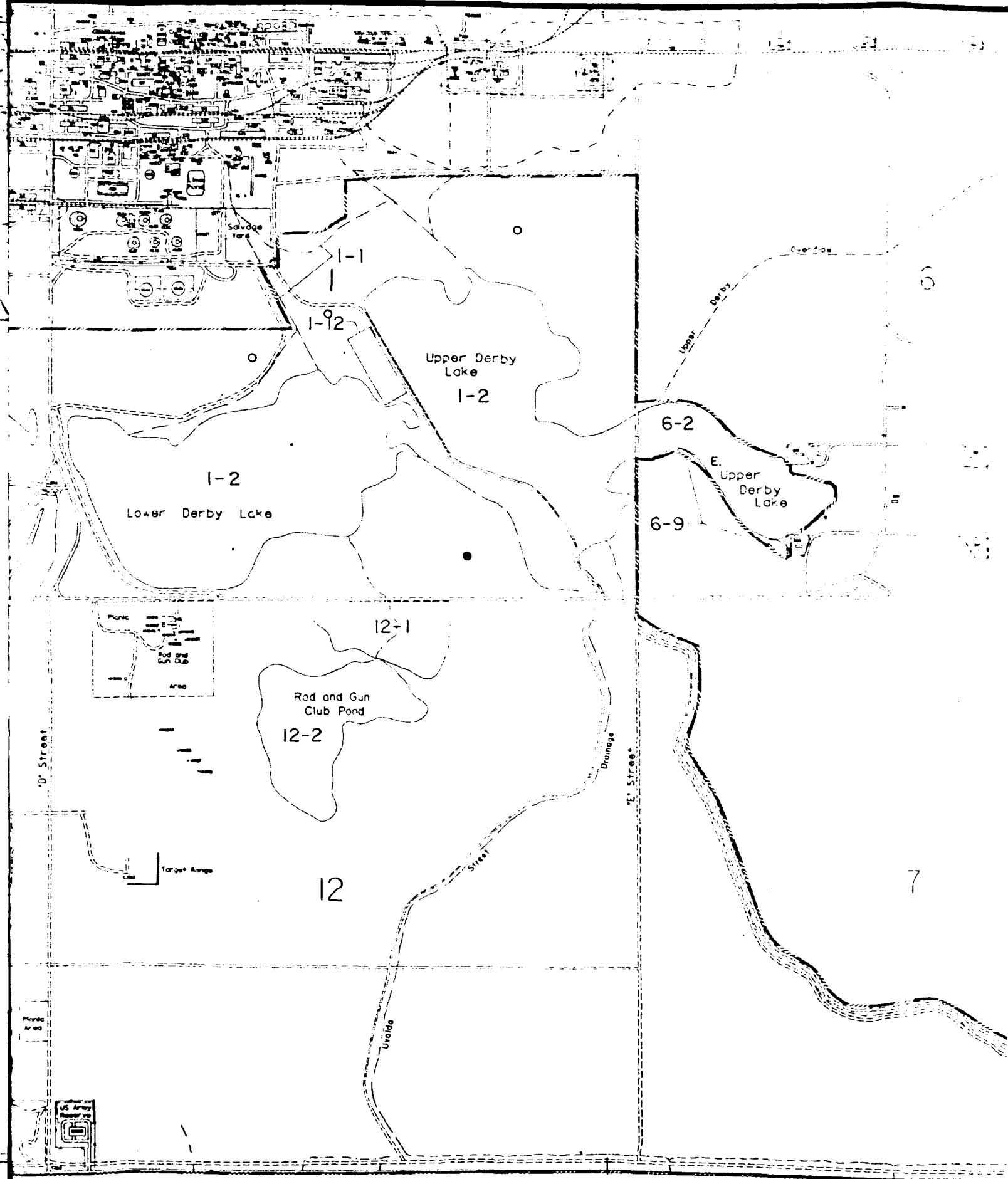
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6,000  
5,000  
4,000  
3,000  
2,000  
1,000  
0

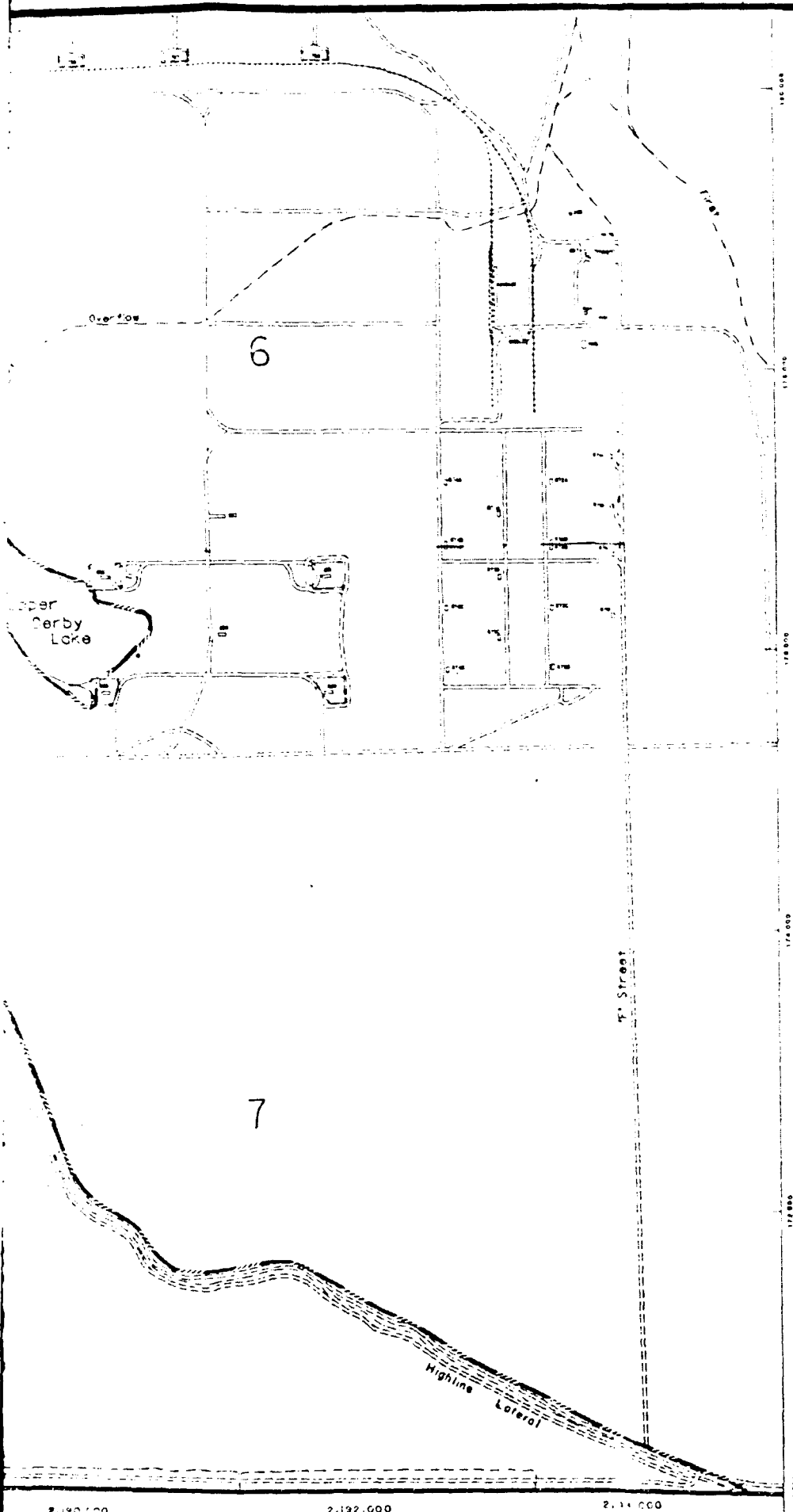
South  
Entrance

2,180,000

2,182,000

2,184,000





**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

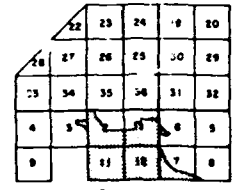
174,000 State Plane Grid

Analyte Sample Location and Concentration (ug/l)

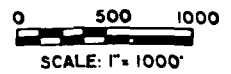
- BCRL \*
- 0-1.0
- > 1.0-10
- > 10-100
- > 100-1,000
- > 1,000-10,000
- > 10,000

\* Below Certified Reporting Limits (BCRL)

ROCKY MOUNTAIN ARSENAL LOCATION

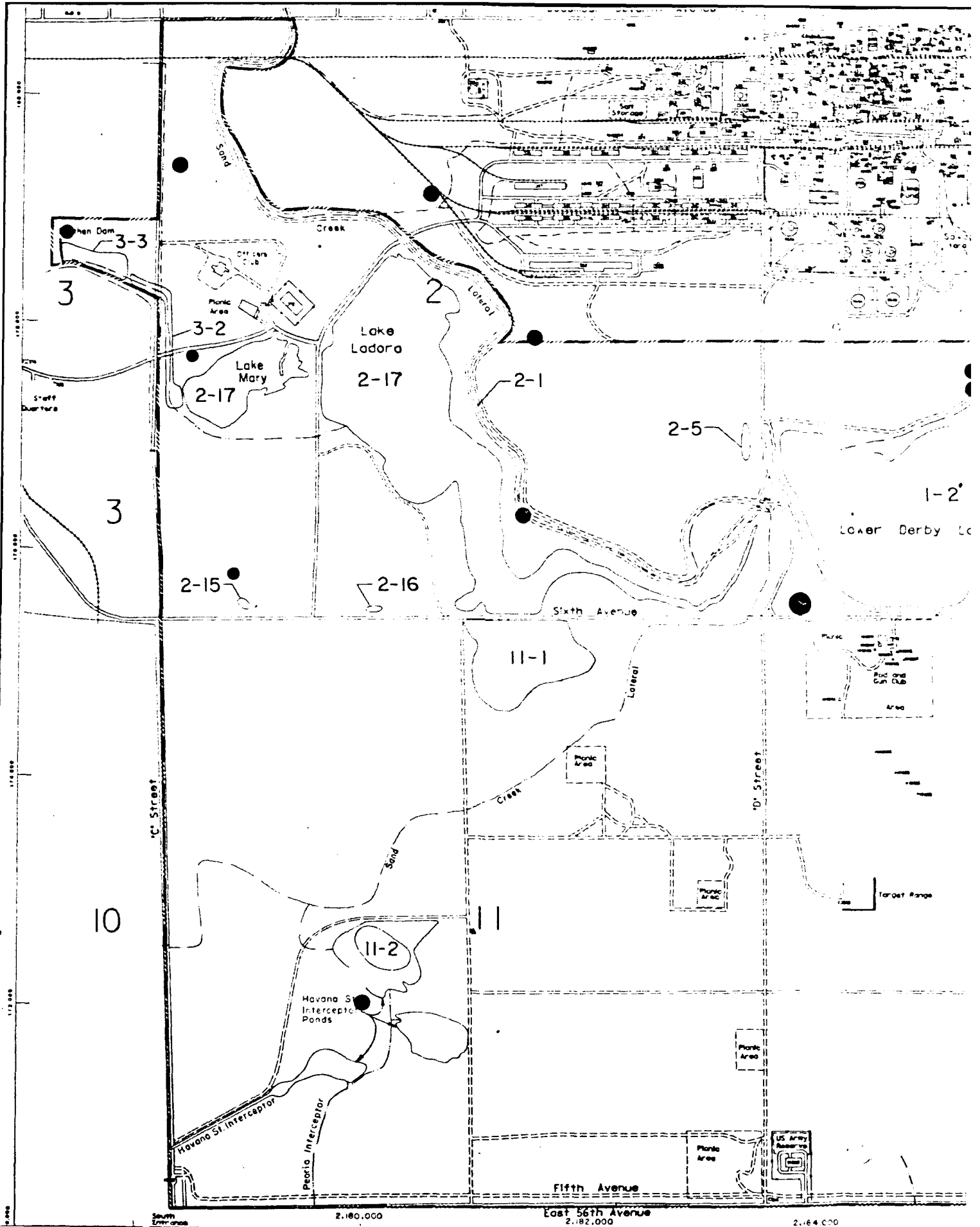


1" = 5 MILES



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

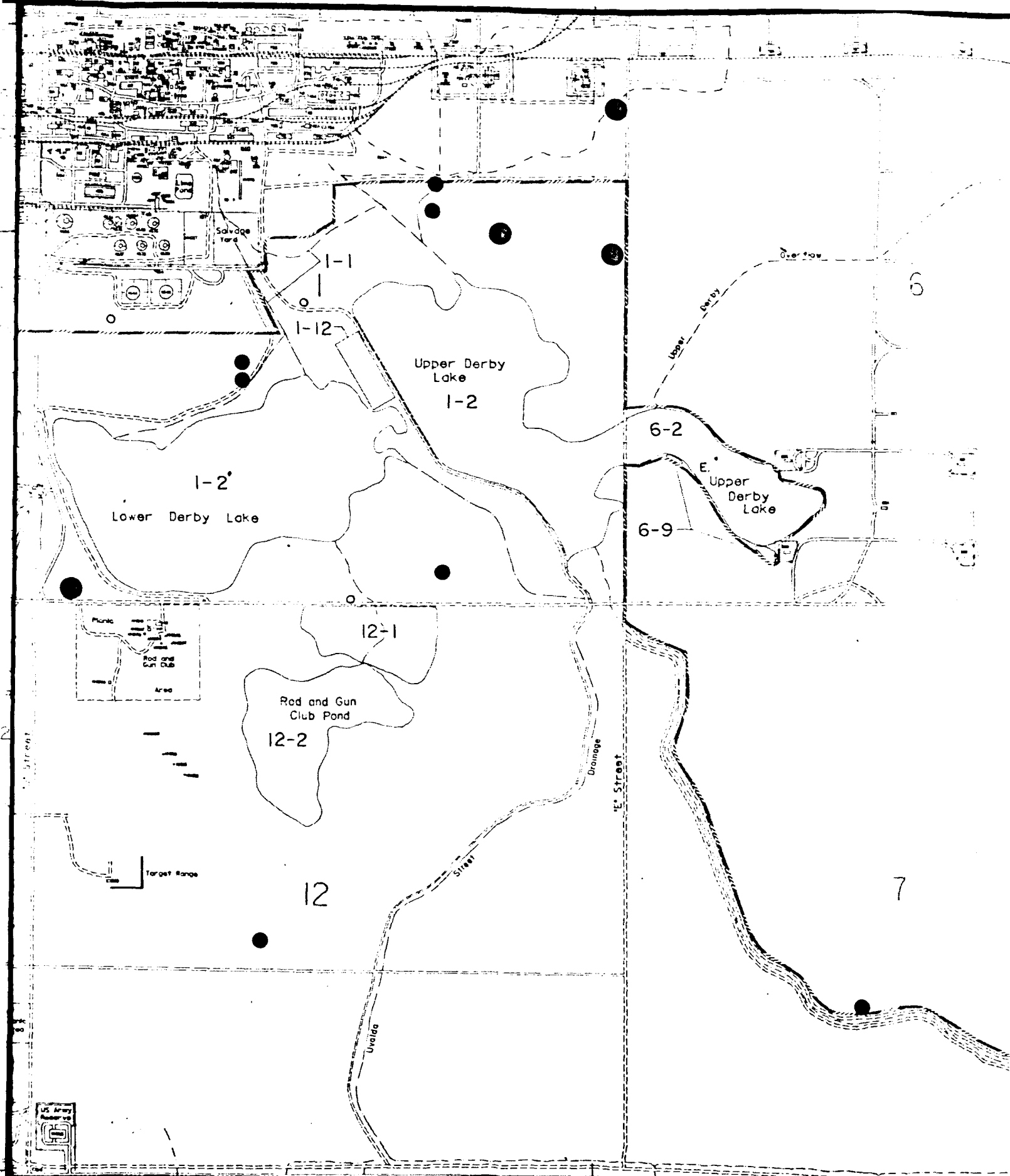
FIGURE: SSA 2.3-16  
 Mercury in Groundwater (WBZ 3 & 4)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



2,180,000

East 56th Avenue  
2,182,000

2,164,000



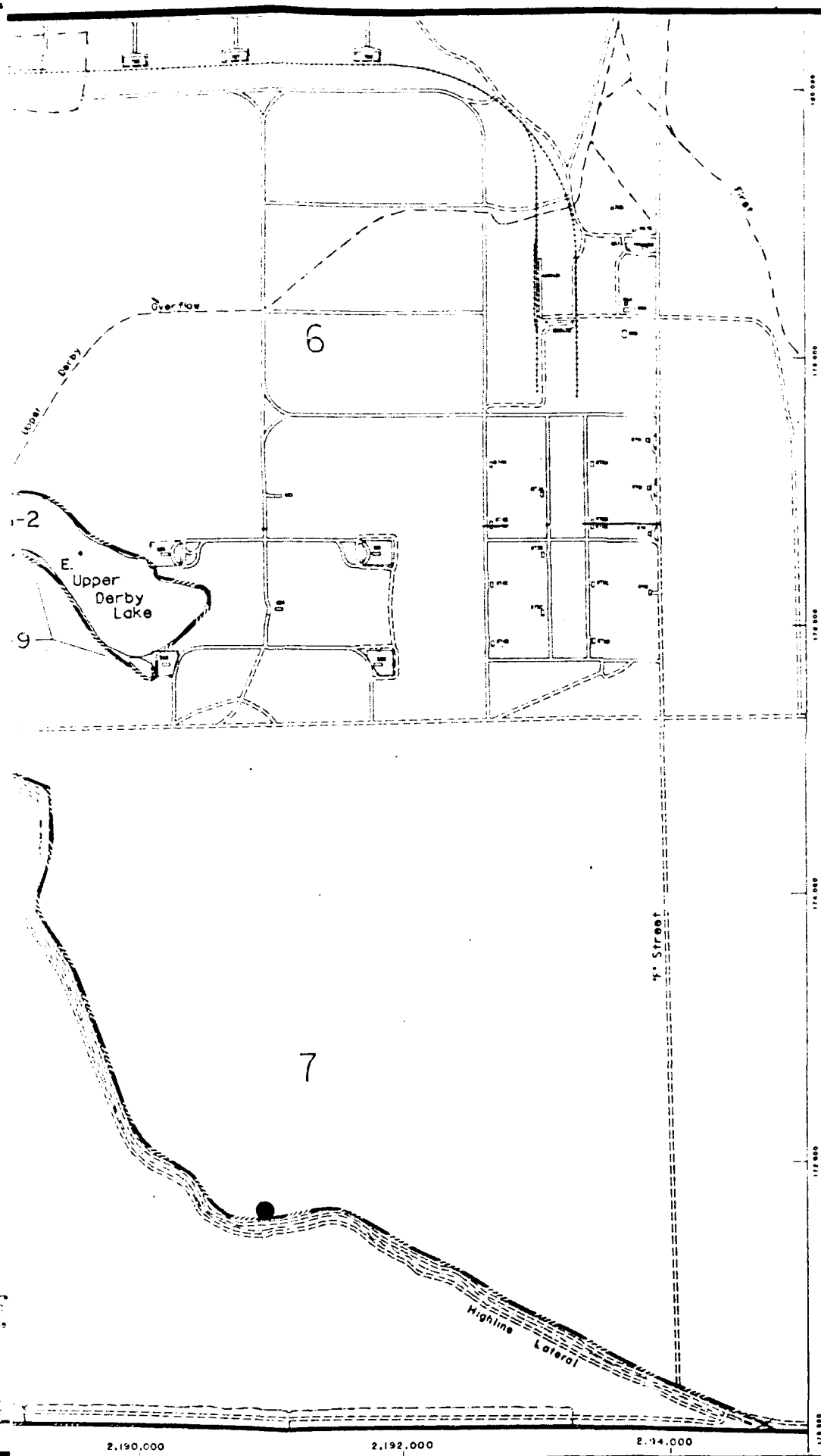
2,184,000

2,186,000

2,188,000

2,190,000

2,192,000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid  
 ICP Metals Include Zn, Cu, Cr, Cd, Pb

Analyte Sample Location and Concentration (ug/l)

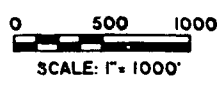
- BCRL\*
- 0-1.0
- > 1.0-10
- > 10-100
- > 100-1,000
- > 1,000-10,000
- > 10,000

\* Below Certified Reporting Limits (BCRL)

ROCKY MOUNTAIN ARSENAL LOCATION



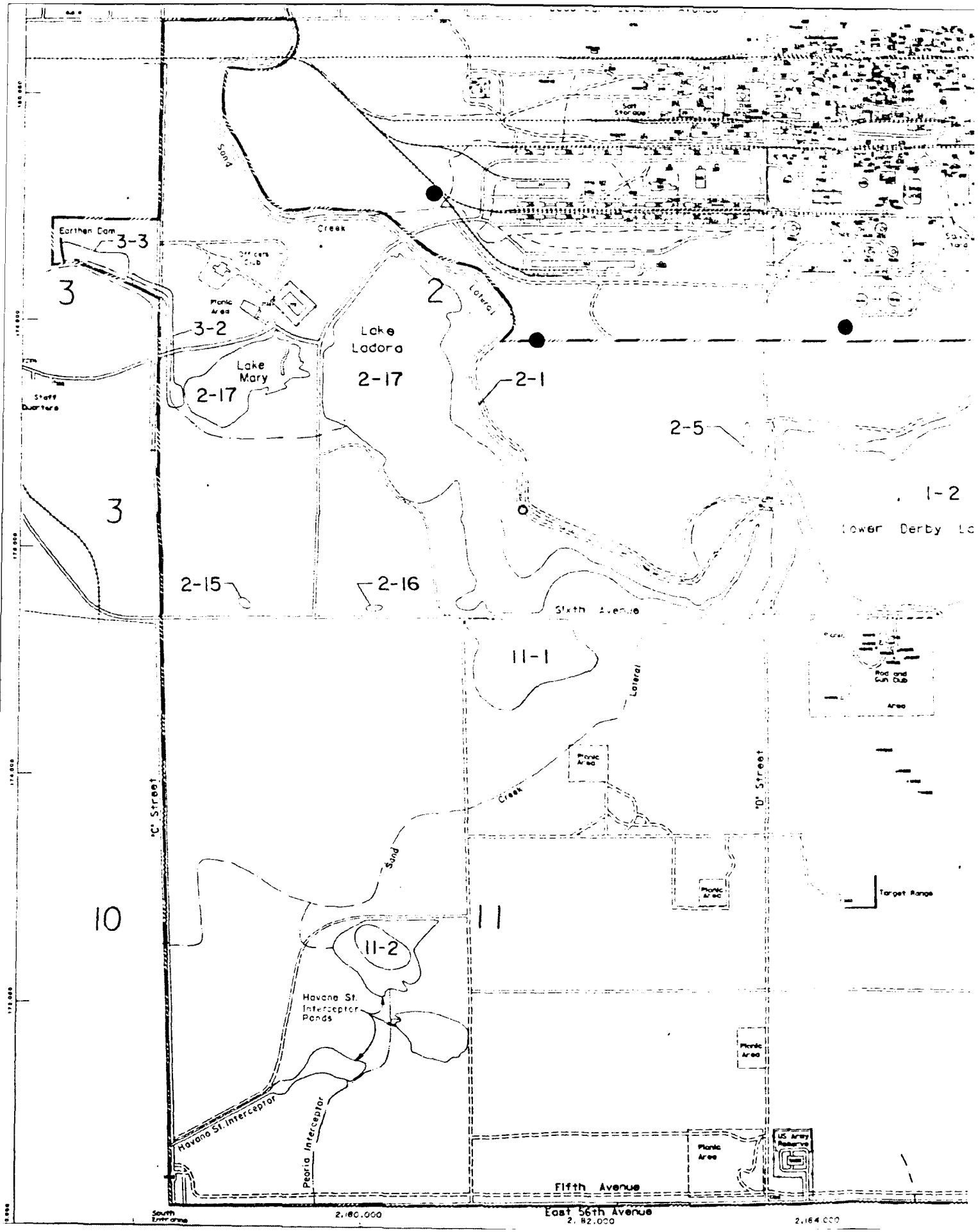
1" = 5 MILES



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-17  
 ICP Metals  
 in Groundwater (WBZ 1A-1)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

2,190,000                      2,192,000                      2,194,000



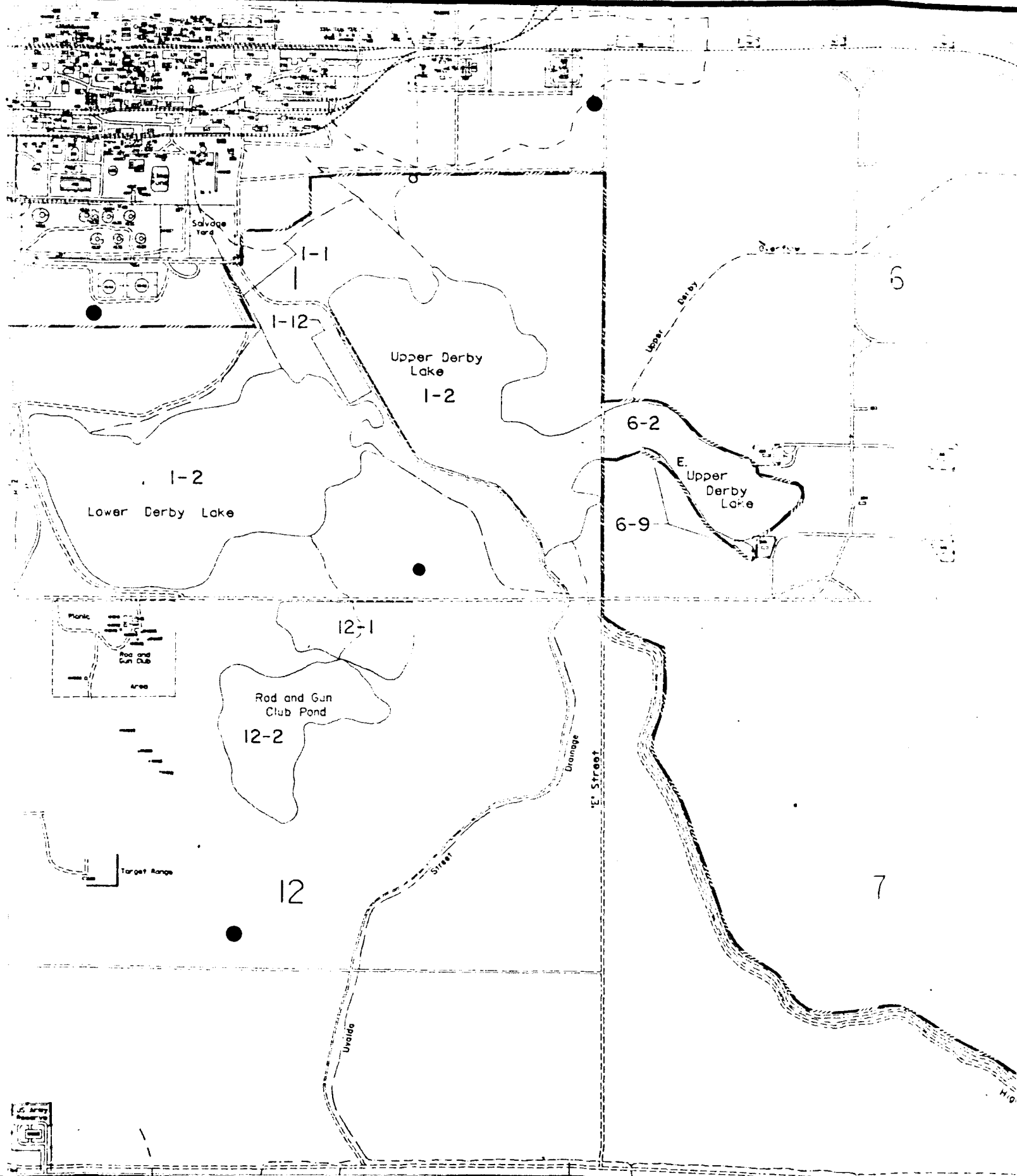
South  
Entrance

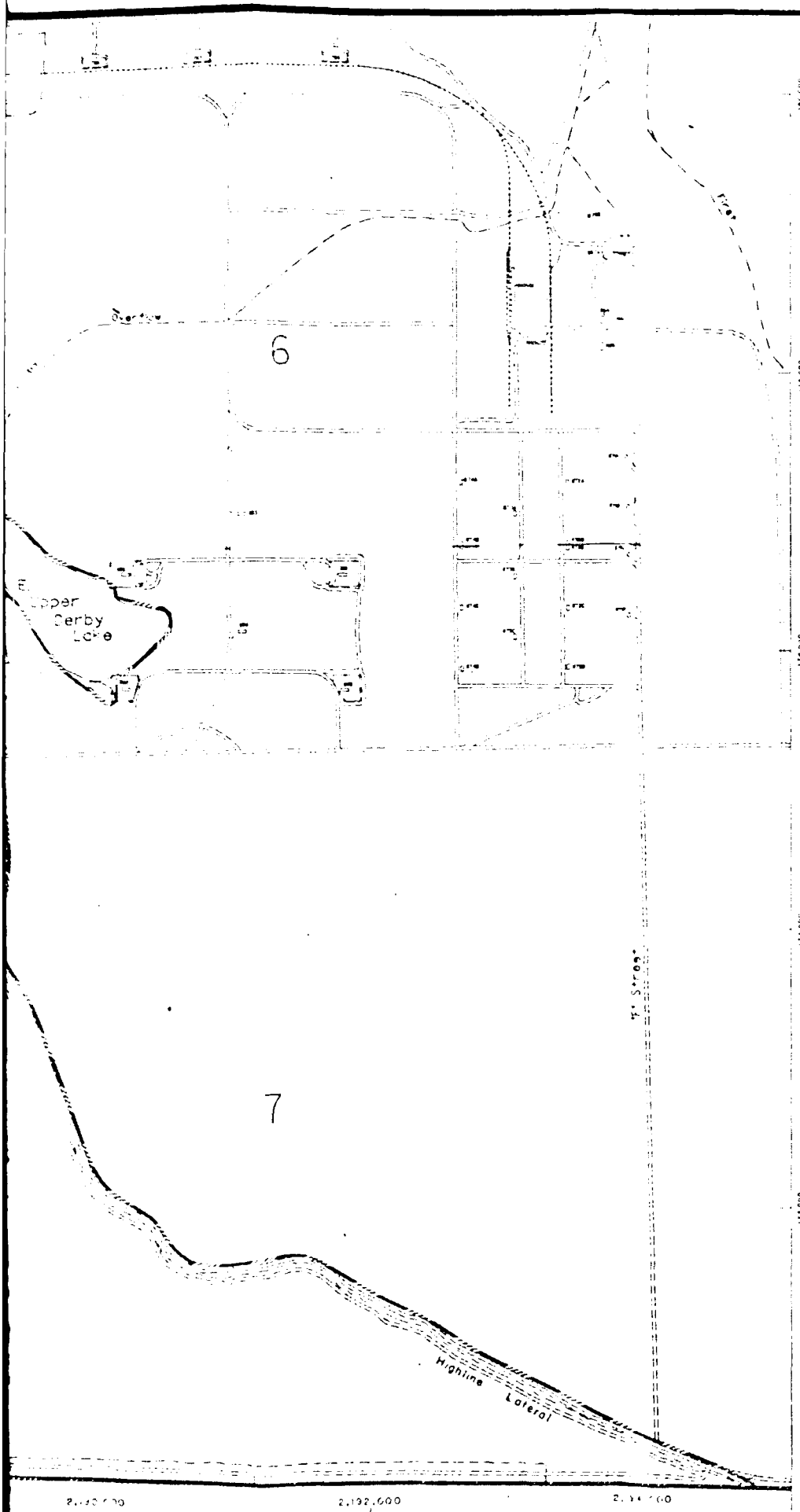
2,160,000

East 56th Avenue  
2,162,000

2,164,000



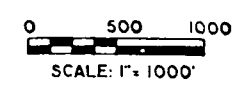
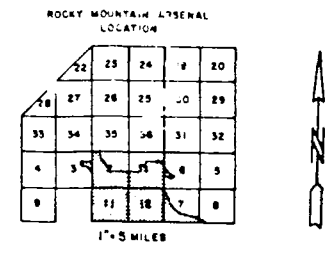




- LEGEND**
- Improved Road
  - - - Unimproved Road
  - - - Railroad Tracks
  - - - Existing Structure
  - - - Former Structure
  - - - Fence
  - 6 Section Number
  - - - Stream or Ditch
  - - - Study Area Boundary

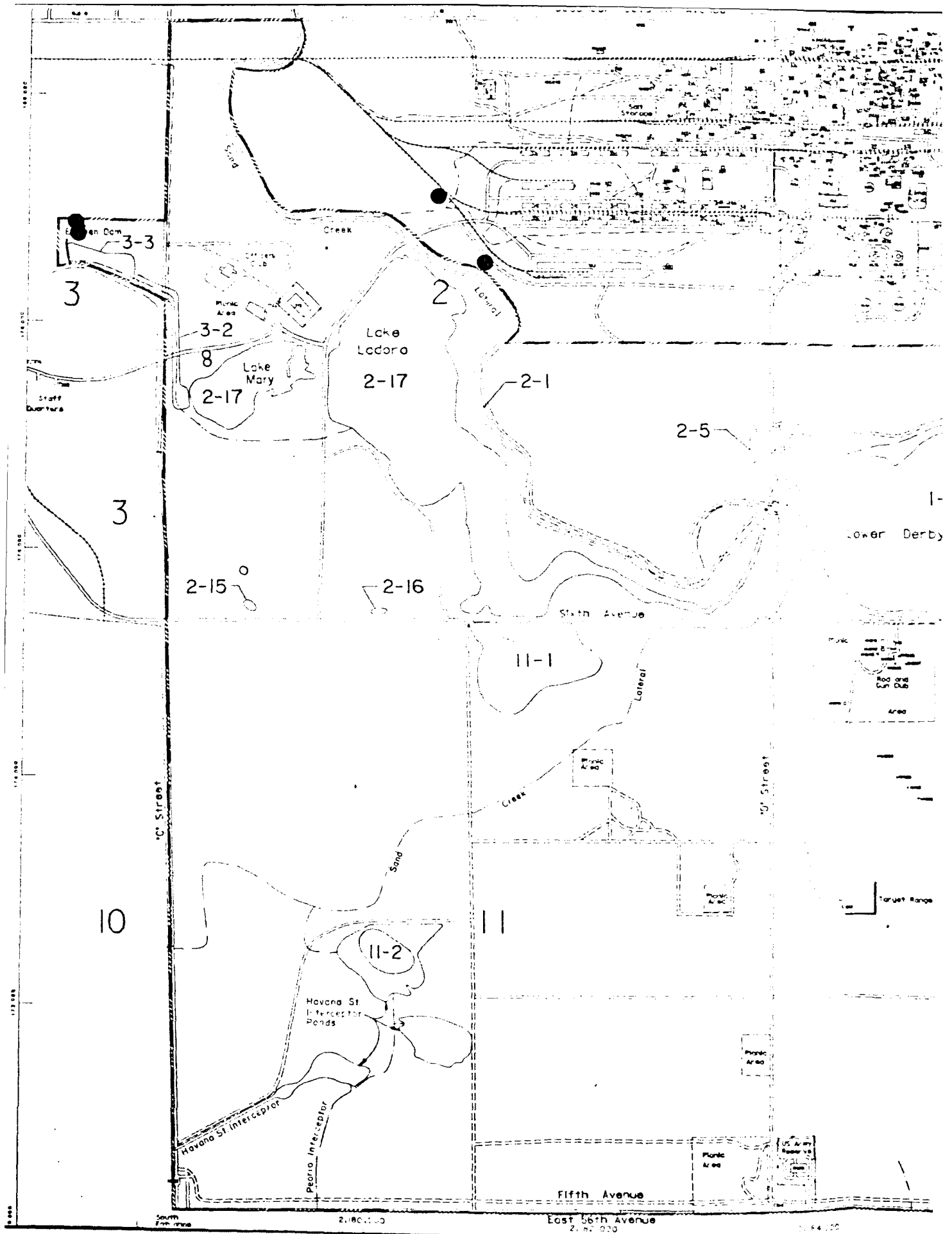
174,000 State Plane Grid  
 ICP Metals Include Zn, Cu, Cr, Cd, Pb

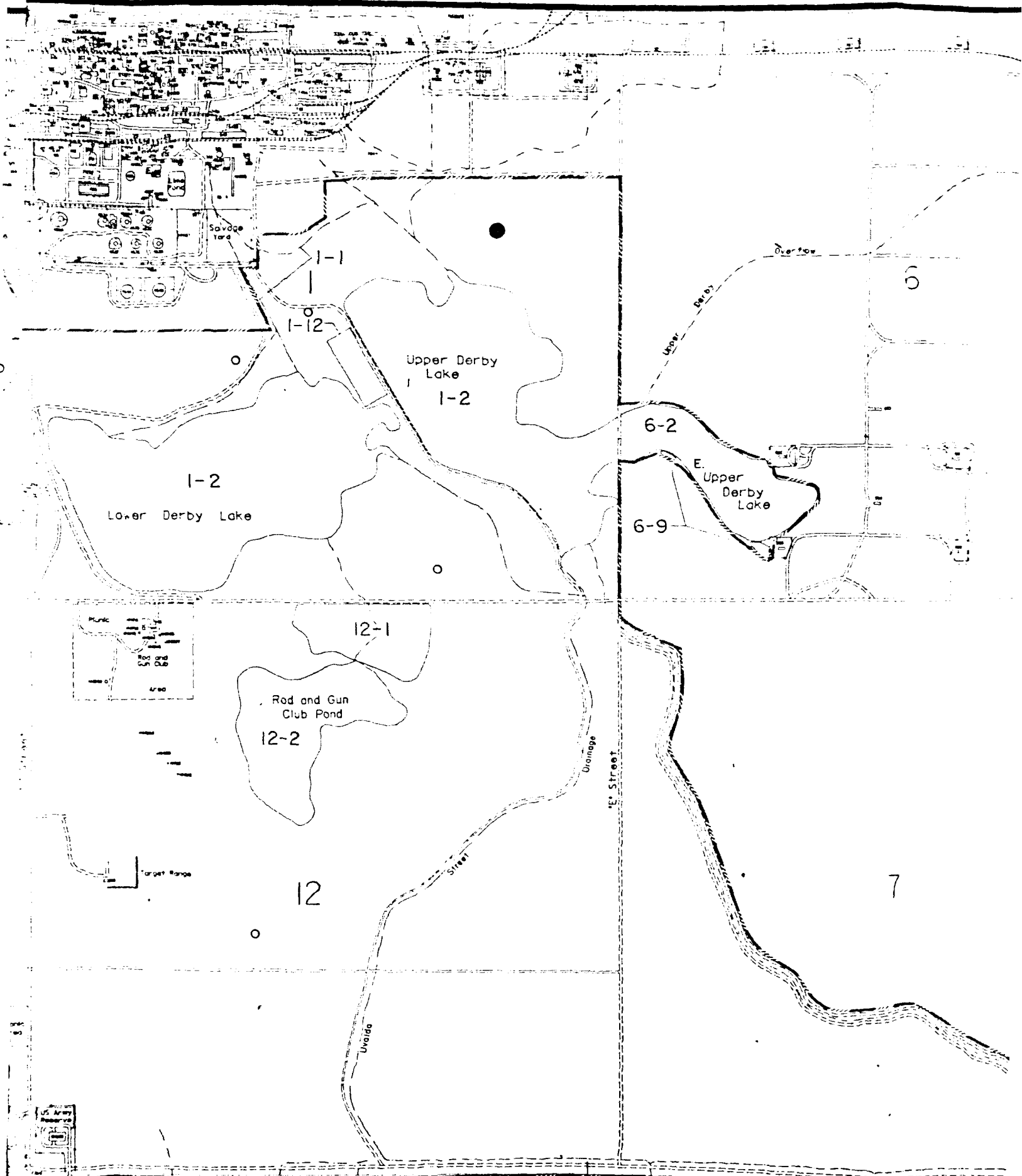
- Analyte Sample Location and Concentration (ug/l)
- BCRL\*
  - 0-1.0
  - >1.0-10
  - >10-100
  - >100-1,000
  - >1,000-10,000
  - >10,000
- \* Below Certified Reporting Limits (BCRL)



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 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-18  
 ICP Metals  
 In Groundwater (WBZ 2)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated





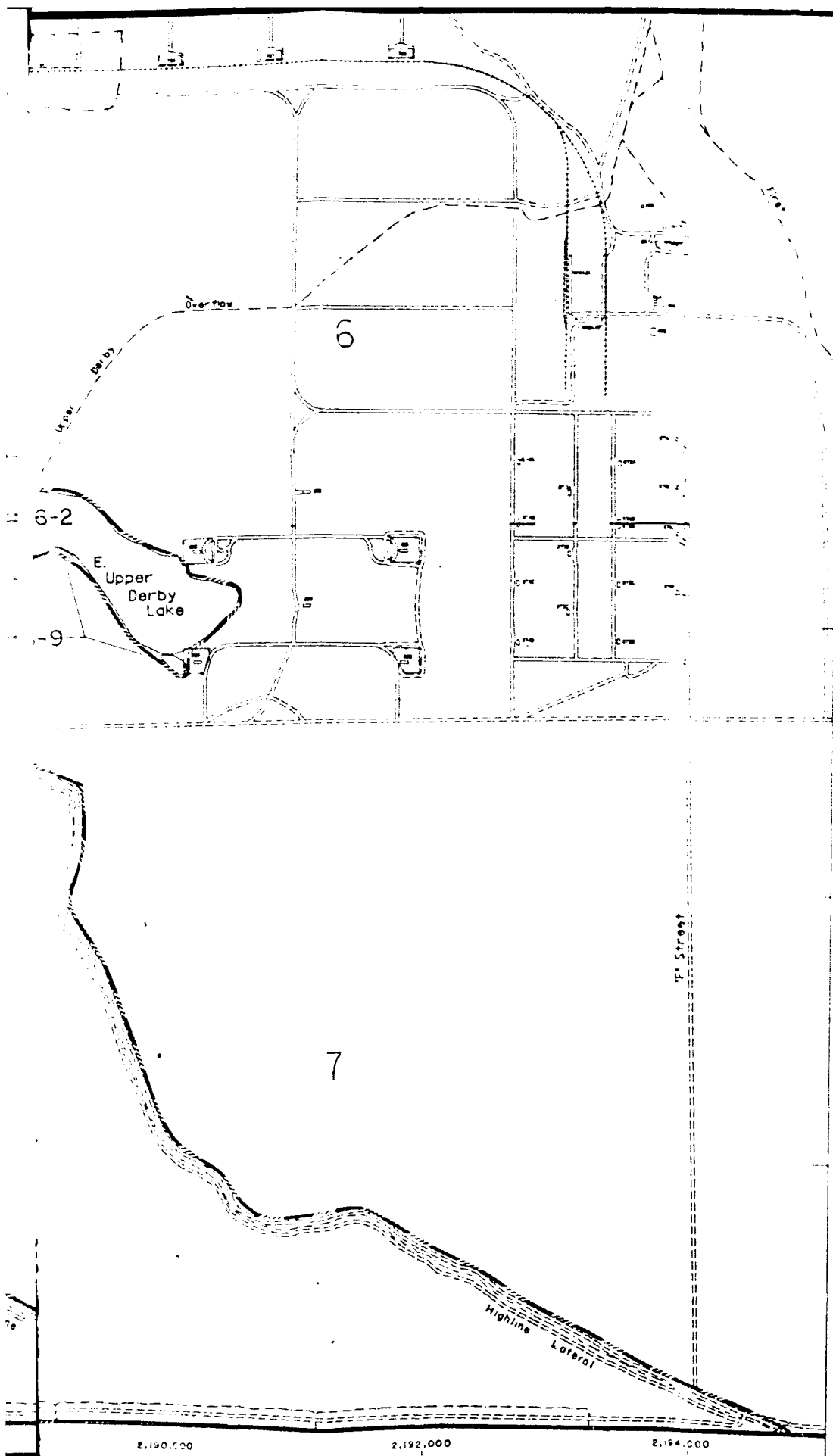
2,640,000

2,186,000

2,188,000

2,150,000

2,192,000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

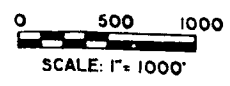
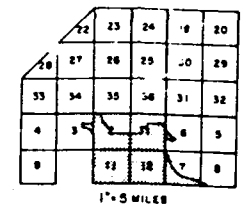
174,000 State Plane Grid  
 ICP Metals Include Zn, Cu, Cr, Cd, Pb

Analyte Sample Location and Concentration (ug/l)

- BCRL\*
- 0-1.0
- > 1.0-10
- > 10-100
- > 100-1,000
- > 1,000-10,000
- > 10,000

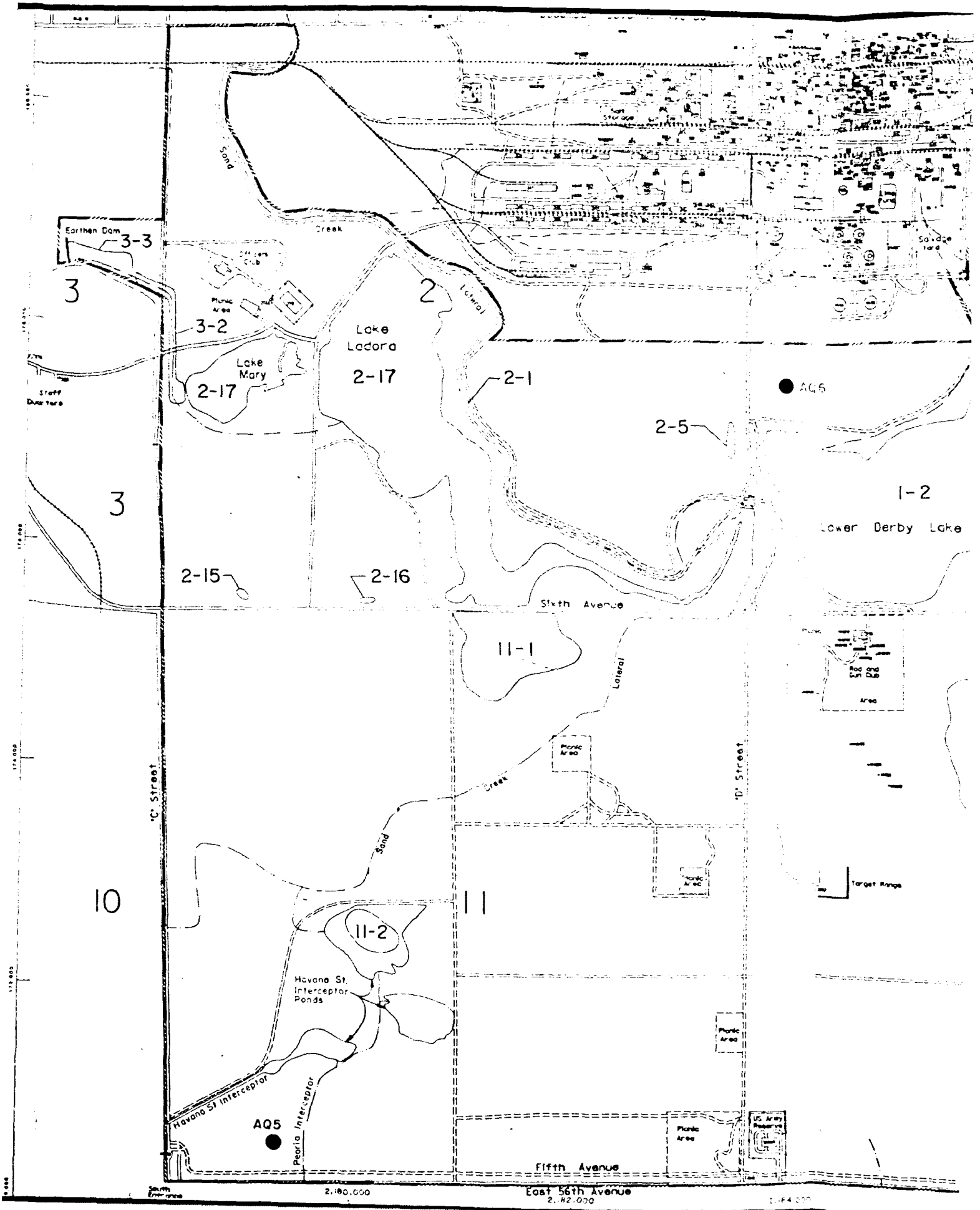
\* Below Certified Reporting Limits (BCRL)

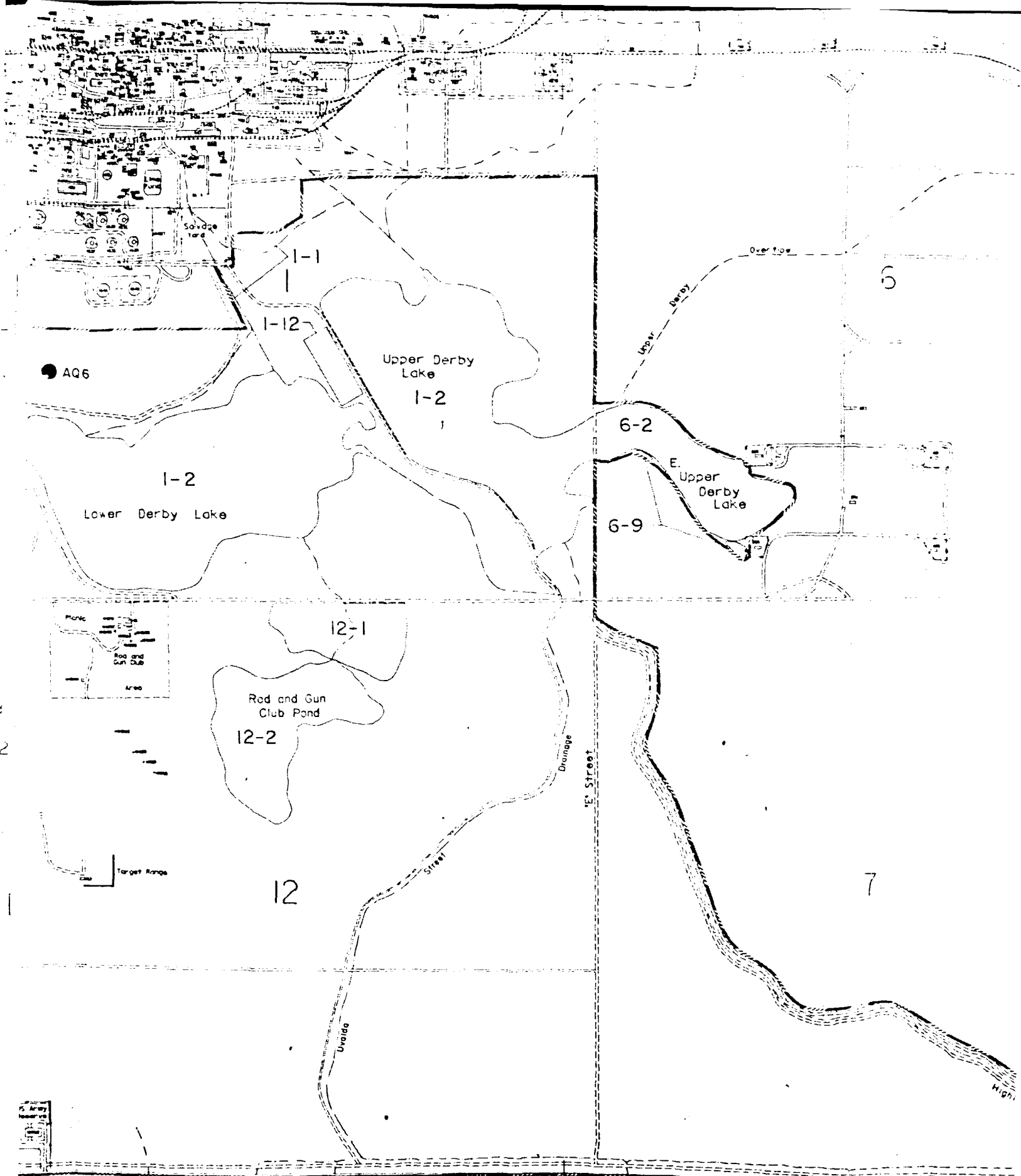
ROCKY MOUNTAIN ARSENAL LOCATION



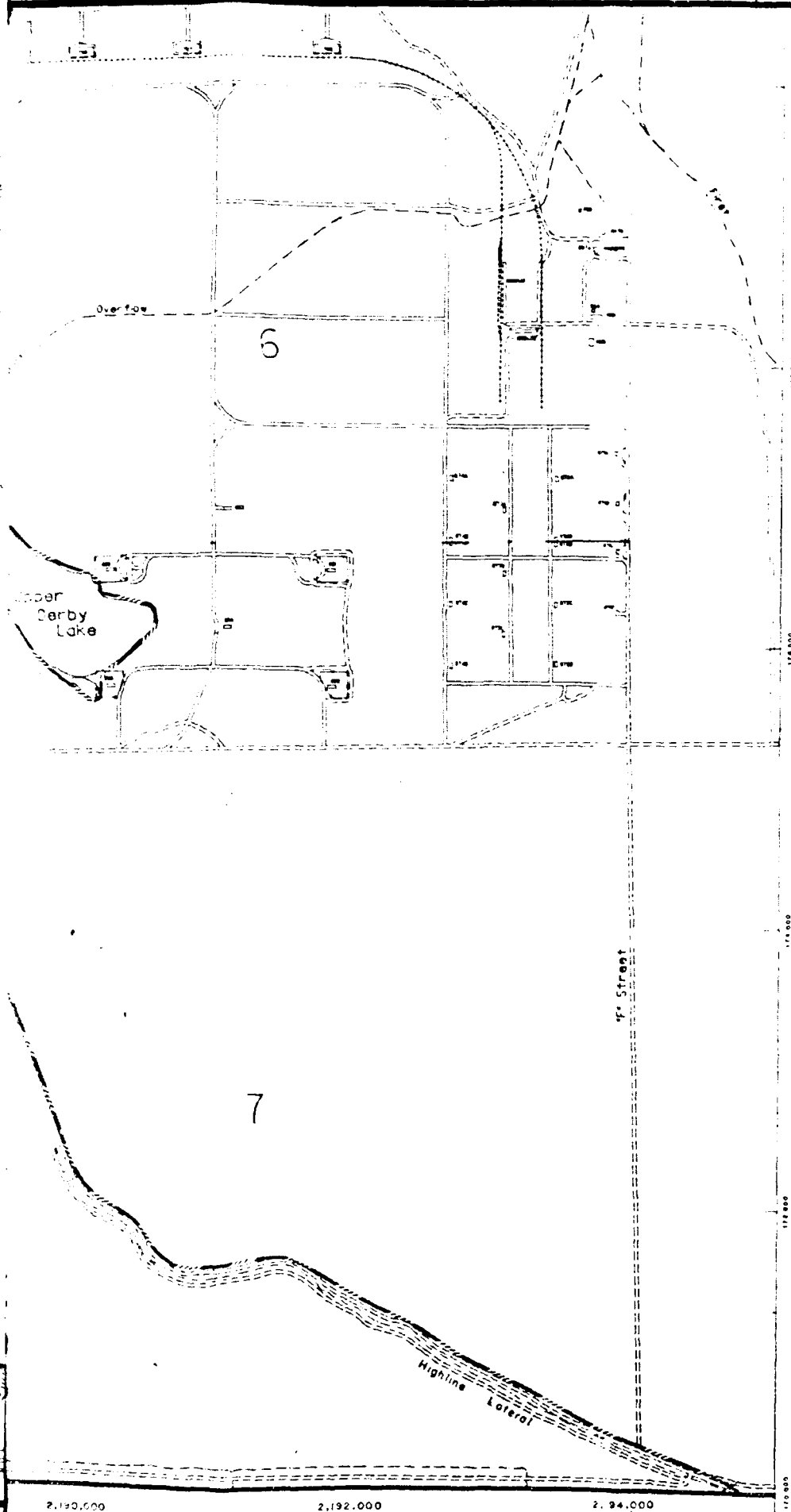
Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

FIGURE: SSA 2.3-19  
 ICP Metals  
 in Groundwater (WBZ 3-4)  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

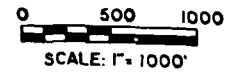
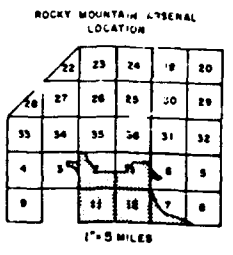




2,184,000      2,186,000      2,188,000      2,190,000      2,192,000



- LEGEND**
- Improved Road
  - Unimproved Road
  - Railroad Tracks
  - Existing Structure
  - Former Structure
  - Fence
  - 6** Section Number
  - Stream or Ditch
  - Study Area Boundary
  - 174,000 State Plane Grid
  - Air Quality Monitor Station



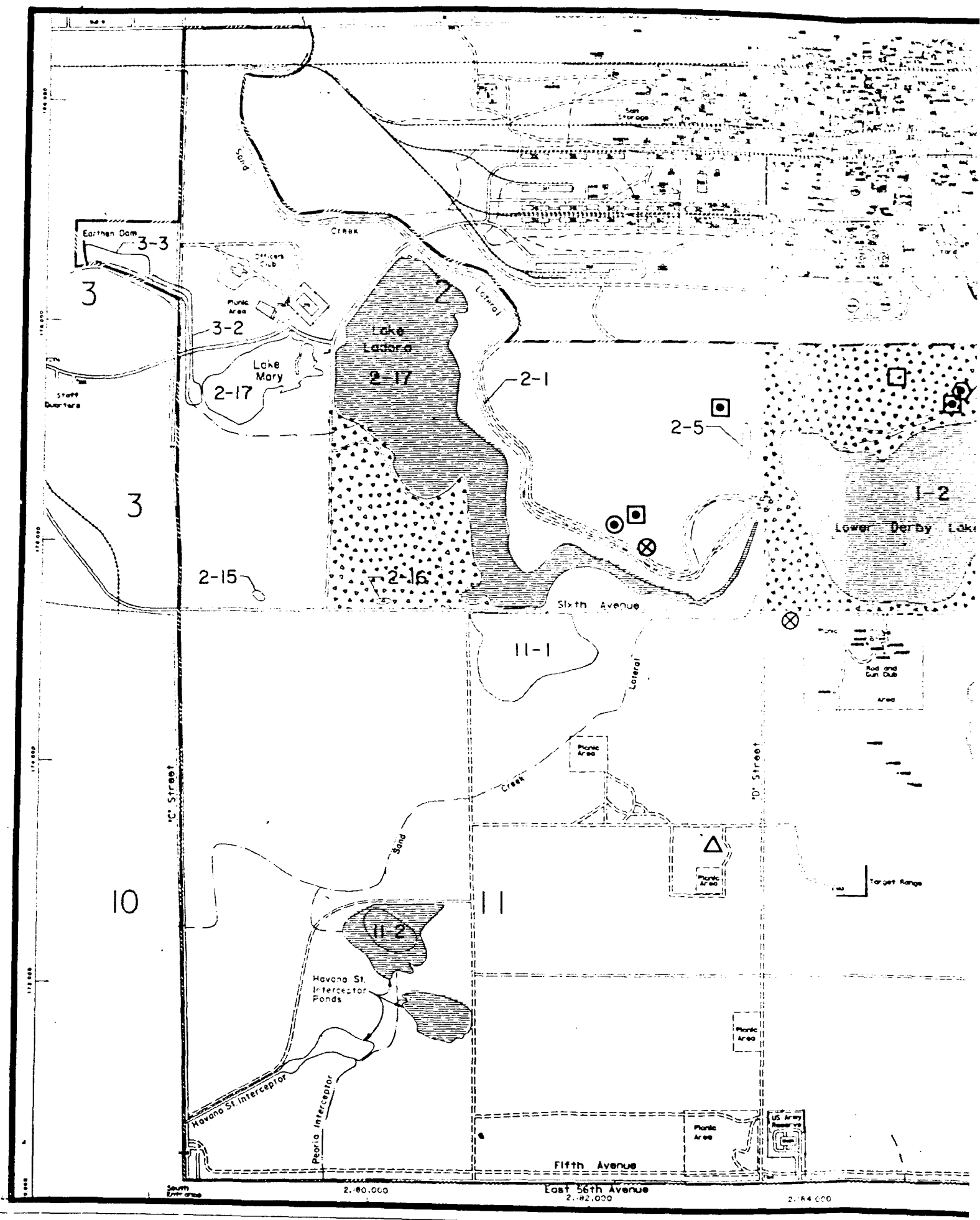
Reference: Air Remedial Investigation, 1988

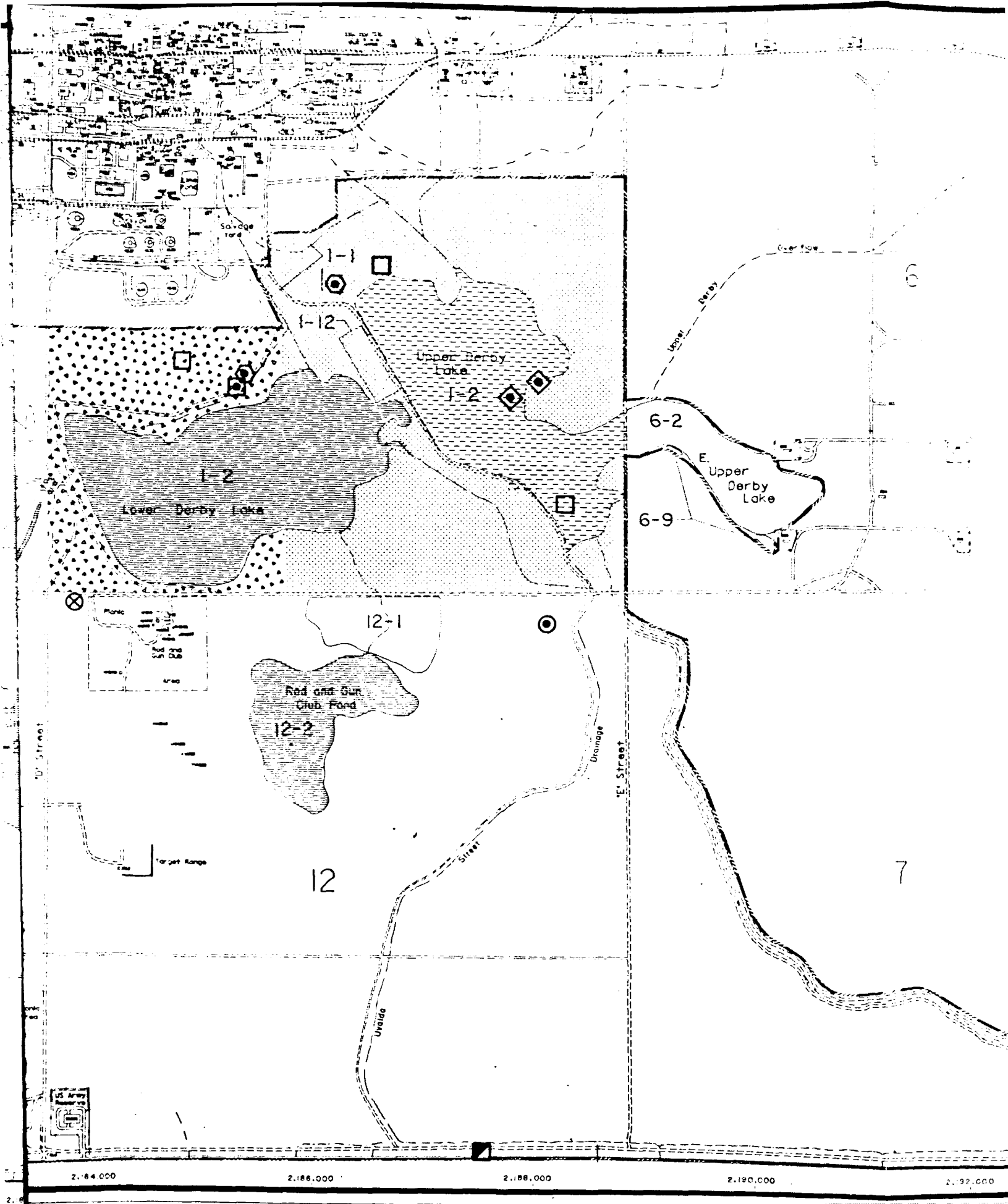
Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 2.5-1**  
 Air Quality Monitoring Stations  
 in the Southern Study Area  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

2,190,000                      2,192,000                      2,194,000







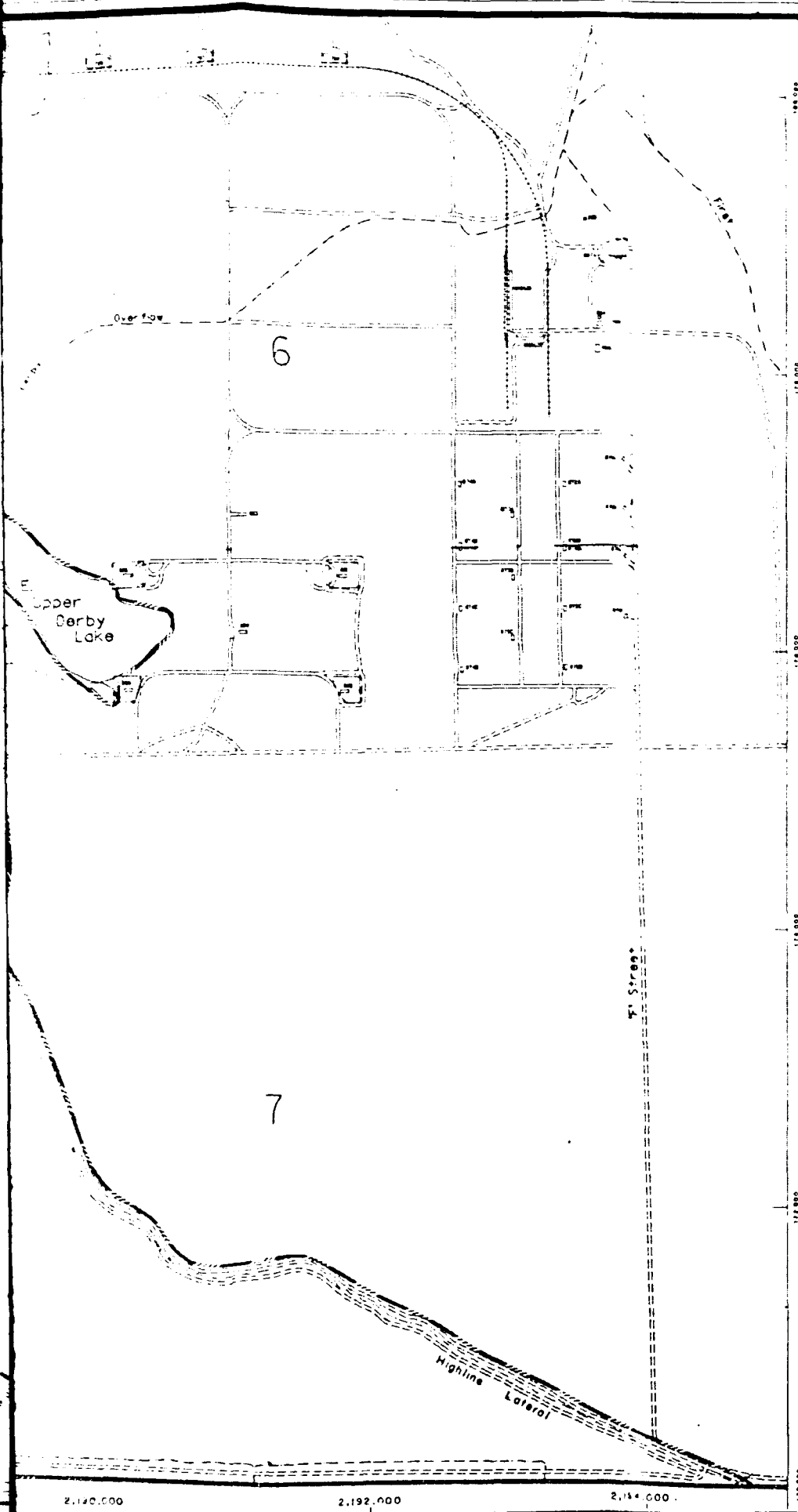
2,184,000

2,186,000

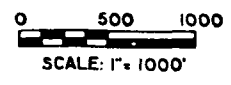
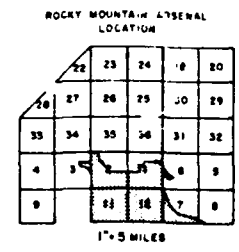
2,188,000

2,190,000

2,192,000



- LEGEND**
- Improved Road
  - - - Unimproved Road
  - +— Railroad Tracks
  - ▭ Existing Structure
  - - - Former Structure
  - - - Fence
  - 6** Section Number
  - - - Stream or Ditch
  - - - Study Area Boundary
  - 174,000 State Plane Grid
  - American Kestrel Eggs
  - American Kestrel Fledging Corcass
  - Ferruginous Hawk Sample Location
  - ⬡ Mallard Eggs
  - ◇ Northern Harrier Eggs
  - △ Red-Tailed Hawk Sample Location
  - Ring Necked Pheasant Sample Location
  - ⊙ Ring Necked Pheasant Eggs
  - ▨ USFWS Waterfowl Sample Location
  - ▩ Mallard Sample and Corcass Collection Site
  - ⊠ Ring Necked Pheasant Corcass Collection Site
  - ▤ Mule Deer Sample Collection Site
  - ▥ Contaminant Values Below Detection Limit



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FIGURE: SSA 2.6-1  
 Biota Sample Locations in the  
 Southern Study Area  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

SSA-2c-

SSA-2b

3

2

SSA-1e

SSA-1f

SSA-2b

SSA-2b

SSA-1

3

SSA-3a

SSA-5a

SSA-5c

10

SSA-5b

SSA-5b

Fifth Avenue

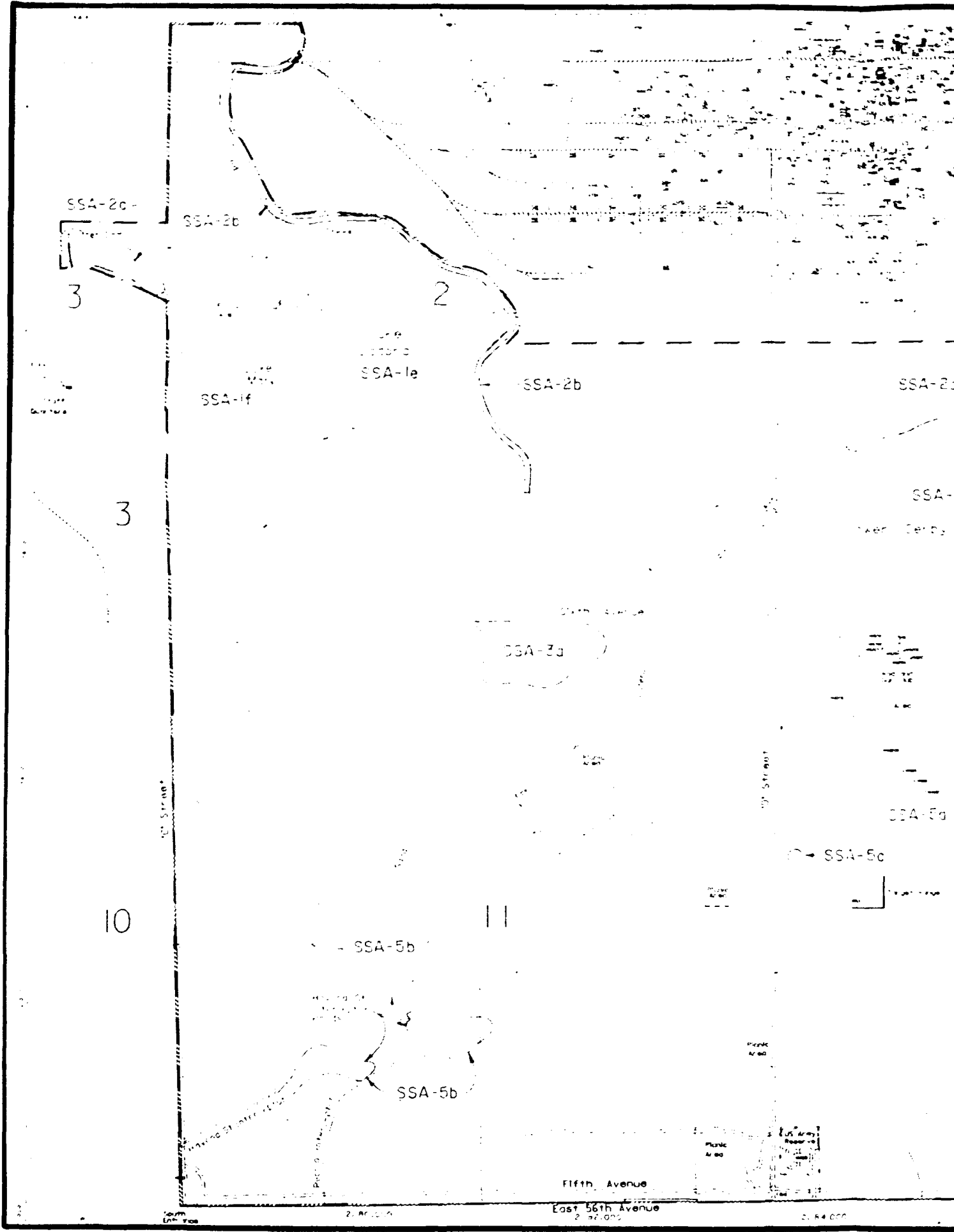
East 56th Avenue

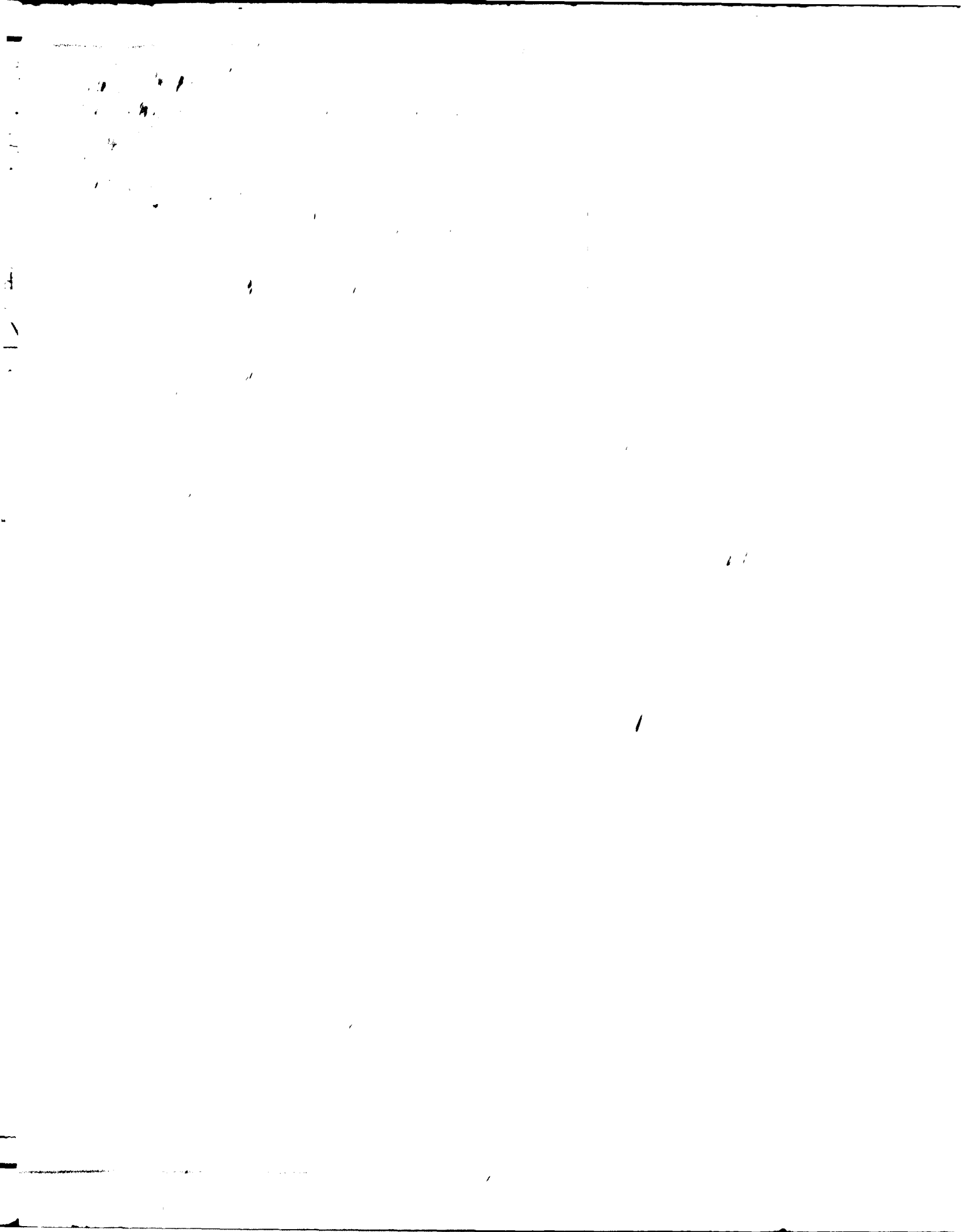
2:54.000

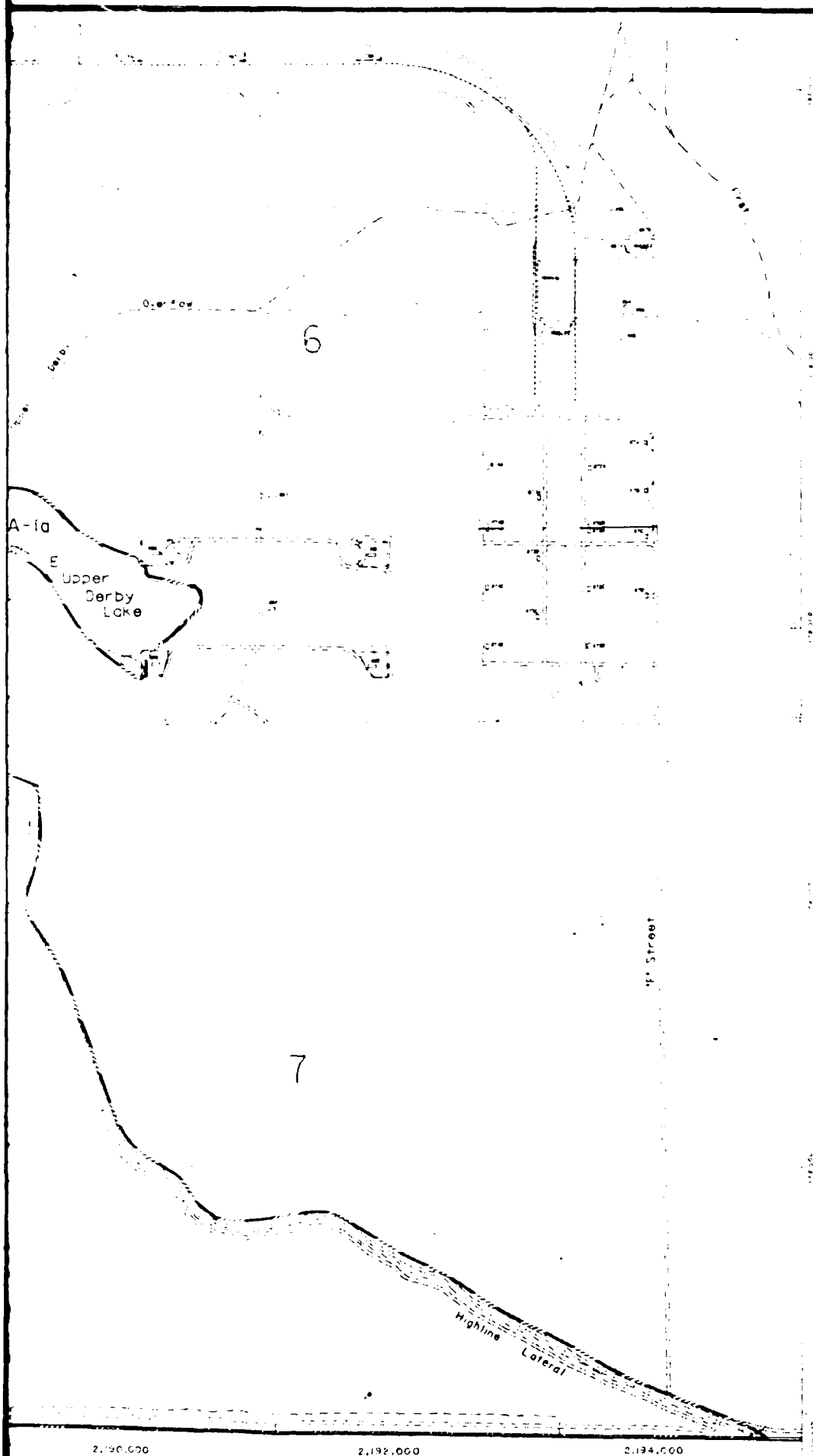
2:54.000

2:54.000

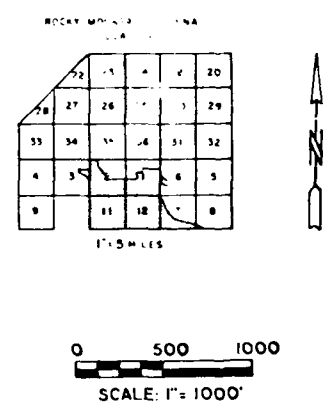
2:54.000





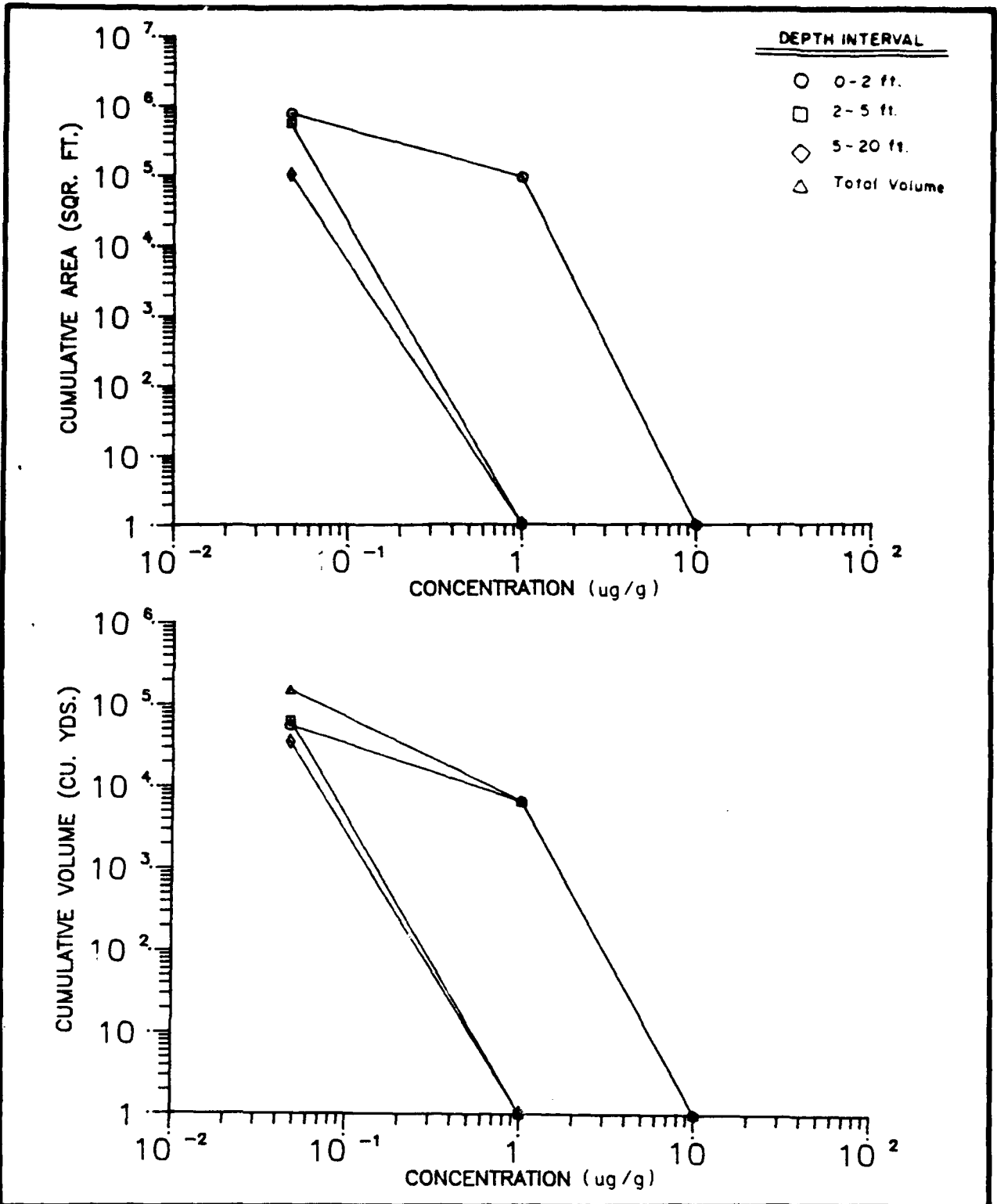


- LEGEND**
- Improved Road
  - Unimproved Road
  - Railroad Tracks
  - Existing Structure
  - Former Structure
  - Fence
  - 6** Section Number
  - Stream or Ditch
  - Study Area Boundary
  - 174,000 State Plane Grid



Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE: SSA 3.2-1  
Revised Site Designations -  
Southern Study Area  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated



Prepared for:

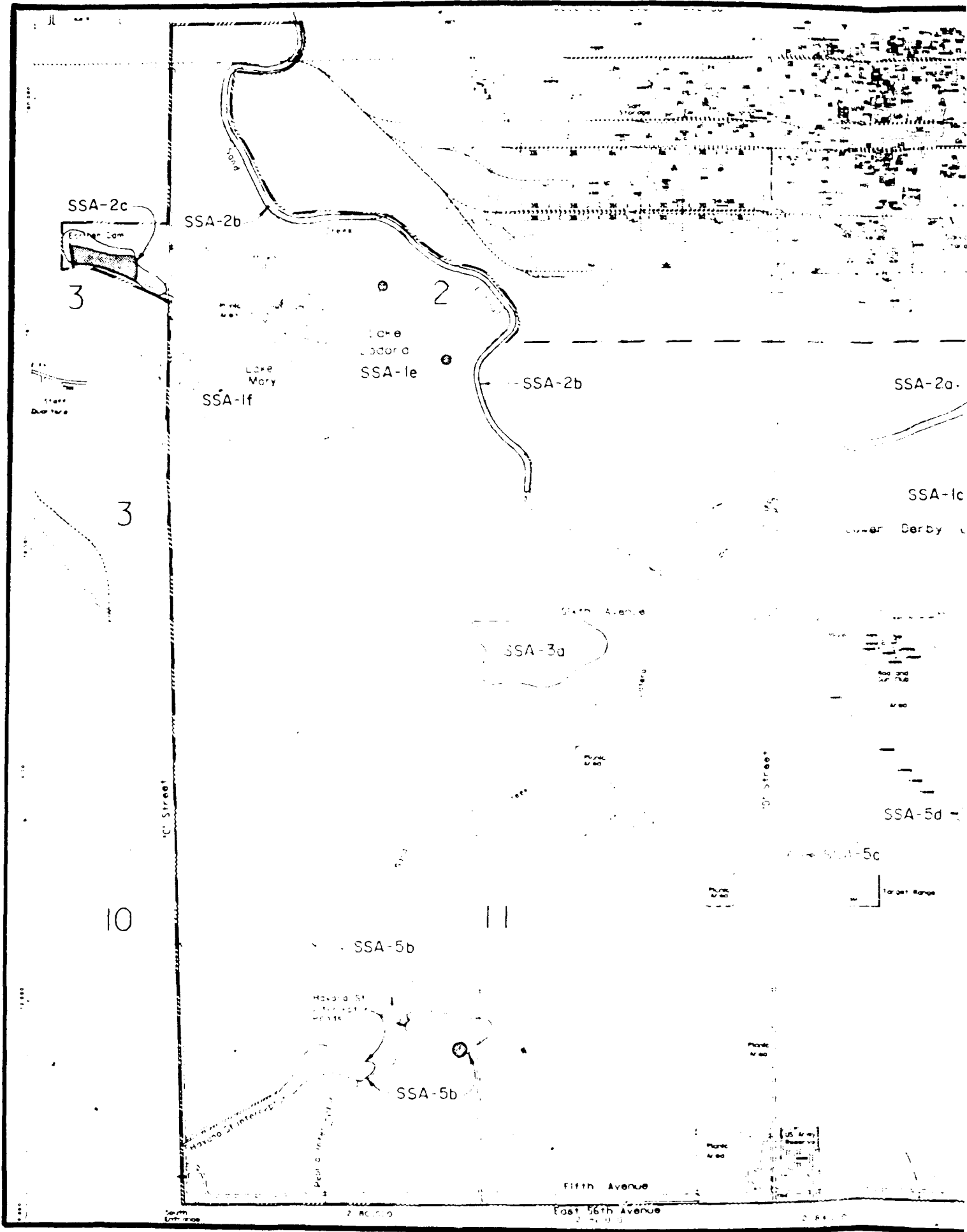
Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup  
 Aberdeen Proving Ground, Maryland

FIGURE SSA 3.4-1

Cumulative Area and Volume of  
 Potentially Contaminated Soil for  
 Volatile Halogenated Organics

Rocky Mountain Arsenal

Prepared by: Ebasco Services Incorporated



SSA-2c

SSA-2b

3

2

Lake Superior  
SSA-1e

SSA-1f

SSA-2b

SSA-2a

SSA-1c

3

SSA-3a

SSA-5d

SSA-5c

10

11

SSA-5b

SSA-5b

Target Range

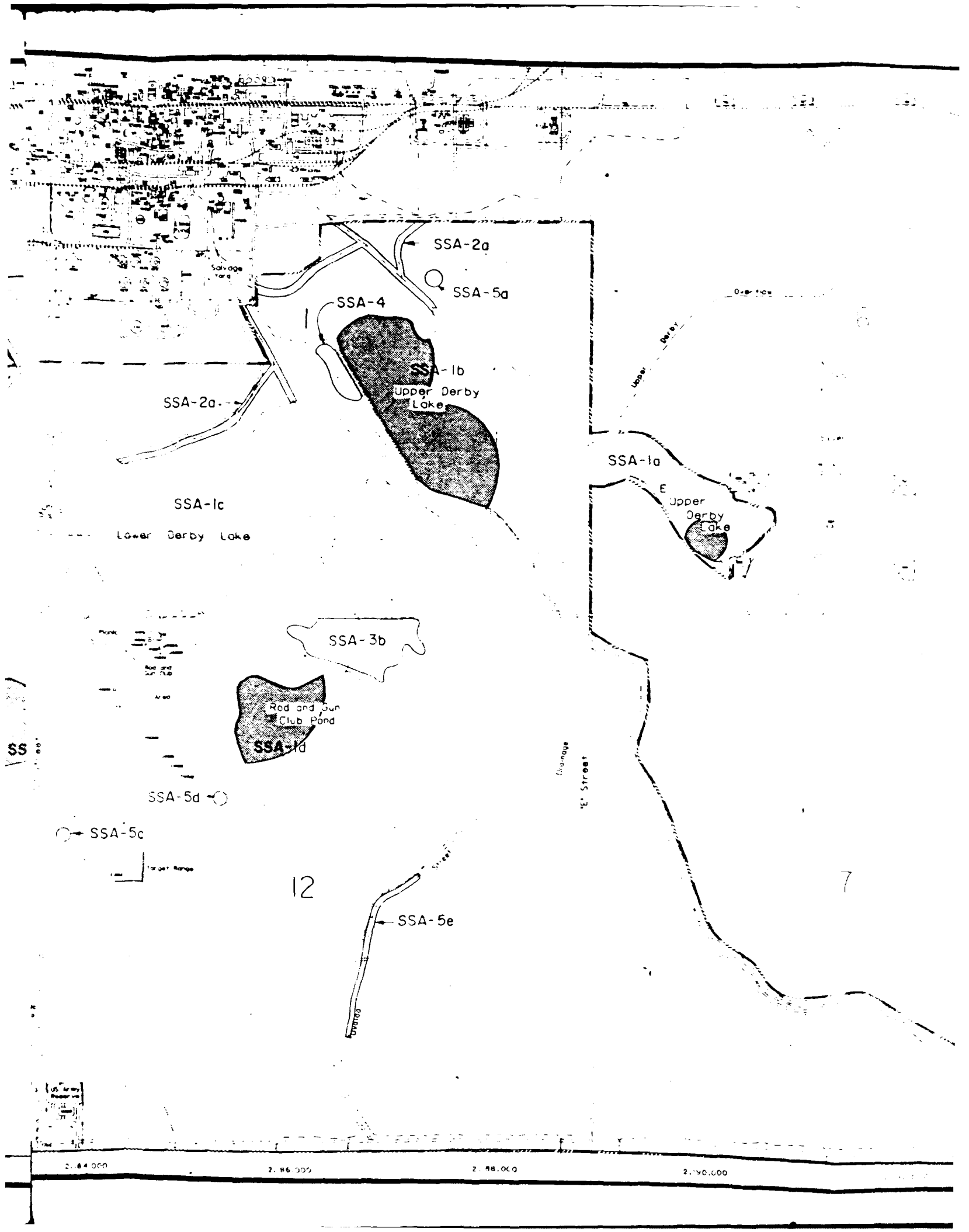
Fifth Avenue

East 56th Avenue

2 AC 110

2 84 10





SSA-2a

SSA-5a

SSA-4

SSA-1b

Upper Derby Lake

SSA-2a

SSA-1c

Lower Derby Lake

SSA-1a

Upper Derby Lake

SSA-3b

Red and Jun Club Pond

SSA-1d

SSA-5d

SSA-5c

12

SSA-5e

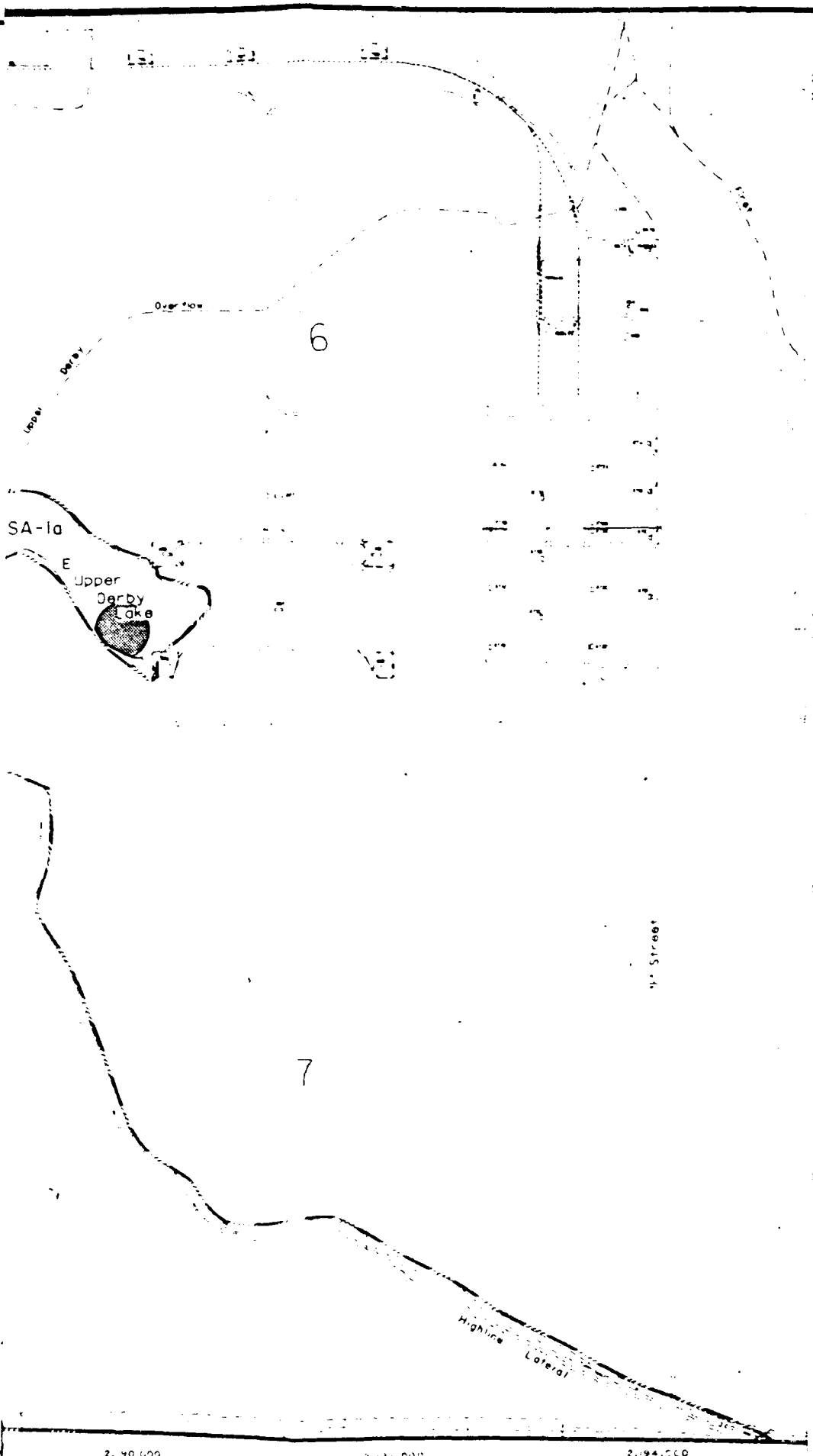
7

2,84,000

2,86,000

2,88,000

2,90,000



**LEGEND**

- Improved Road
- - - Unimproved Road
- +— Railroad Tracks
- - - Existing Structure
- - - Former Structure
- - - Fence
- 6** Section Number
- - - Stream or Ditch
- - - Study Area Boundary

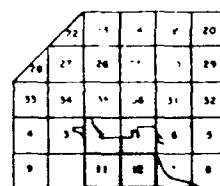
174,000 State Plane Grid



Extent Of Potential Contamination  
in Soils and Sediments

Widths less Than 50 Feet and Diameters  
less Than 75 Feet, Not Shown To Scale

ROCKY MOUNTAIN ARSENAL



1/2 MILES



SCALE: 1" = 1000'

Prepared for:

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Rocky Mountain Arsenal Cleanup

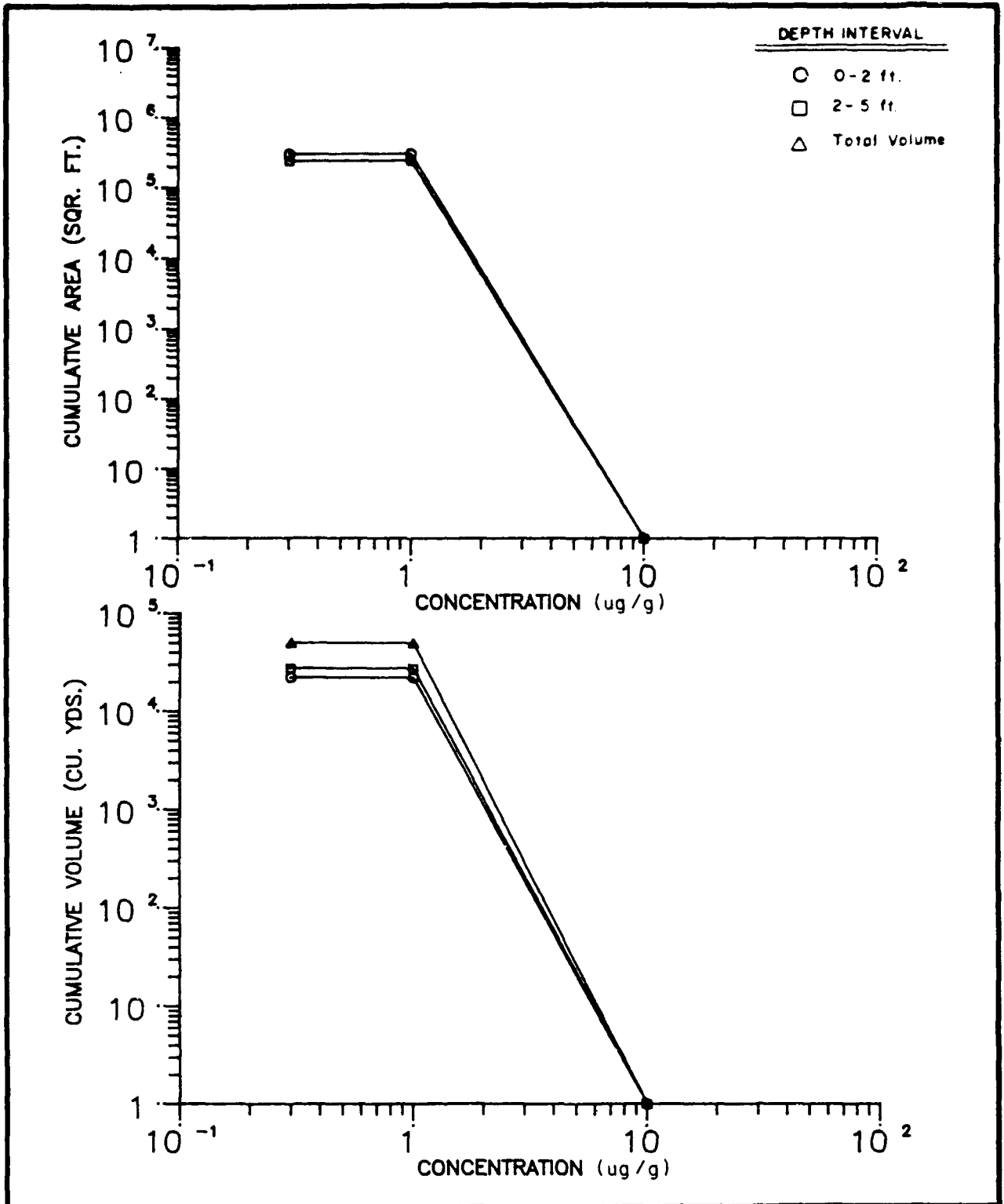
**FIGURE: SSA 3.4-2**

Estimated Areal Extent of Potential Contamination  
for Volatile Halogenated Organics, 0-5 ft. Depth  
Interval

Rocky Mountain Arsenal

Prepared by:

Ebasco Services Incorporated



Prepared for:

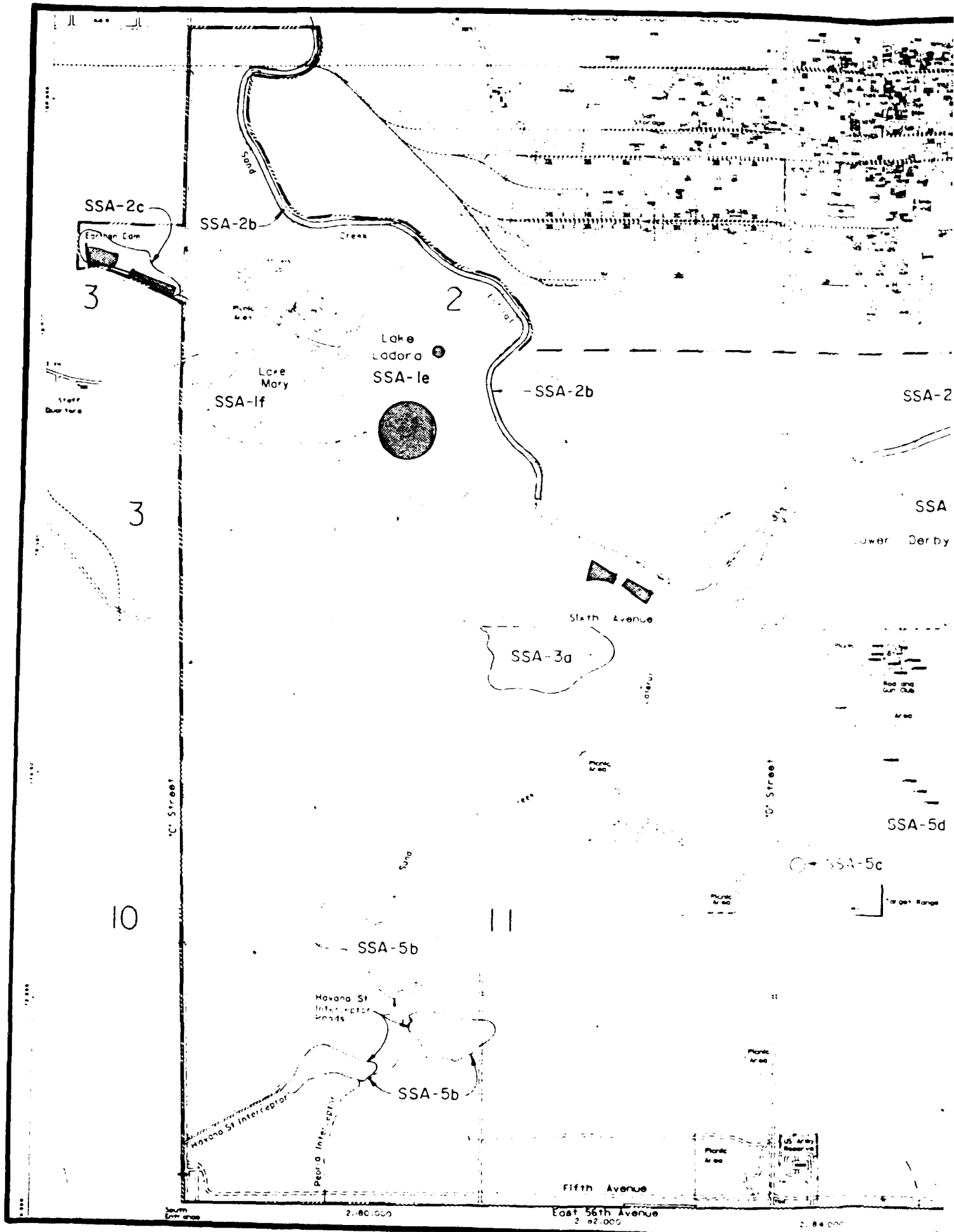
Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup  
 Aberdeen Proving Ground, Maryland

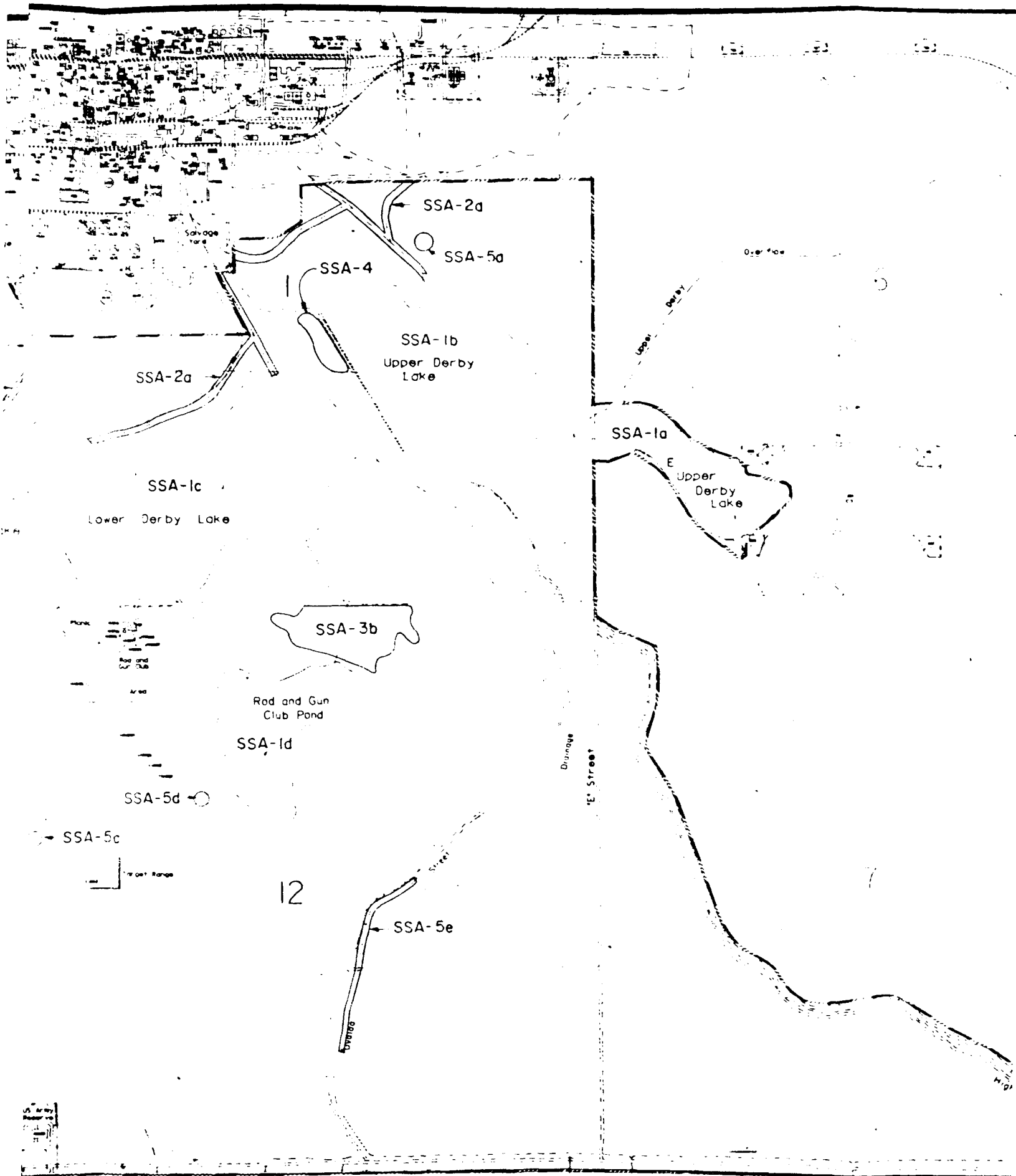
FIGURE SSA 3.4-3

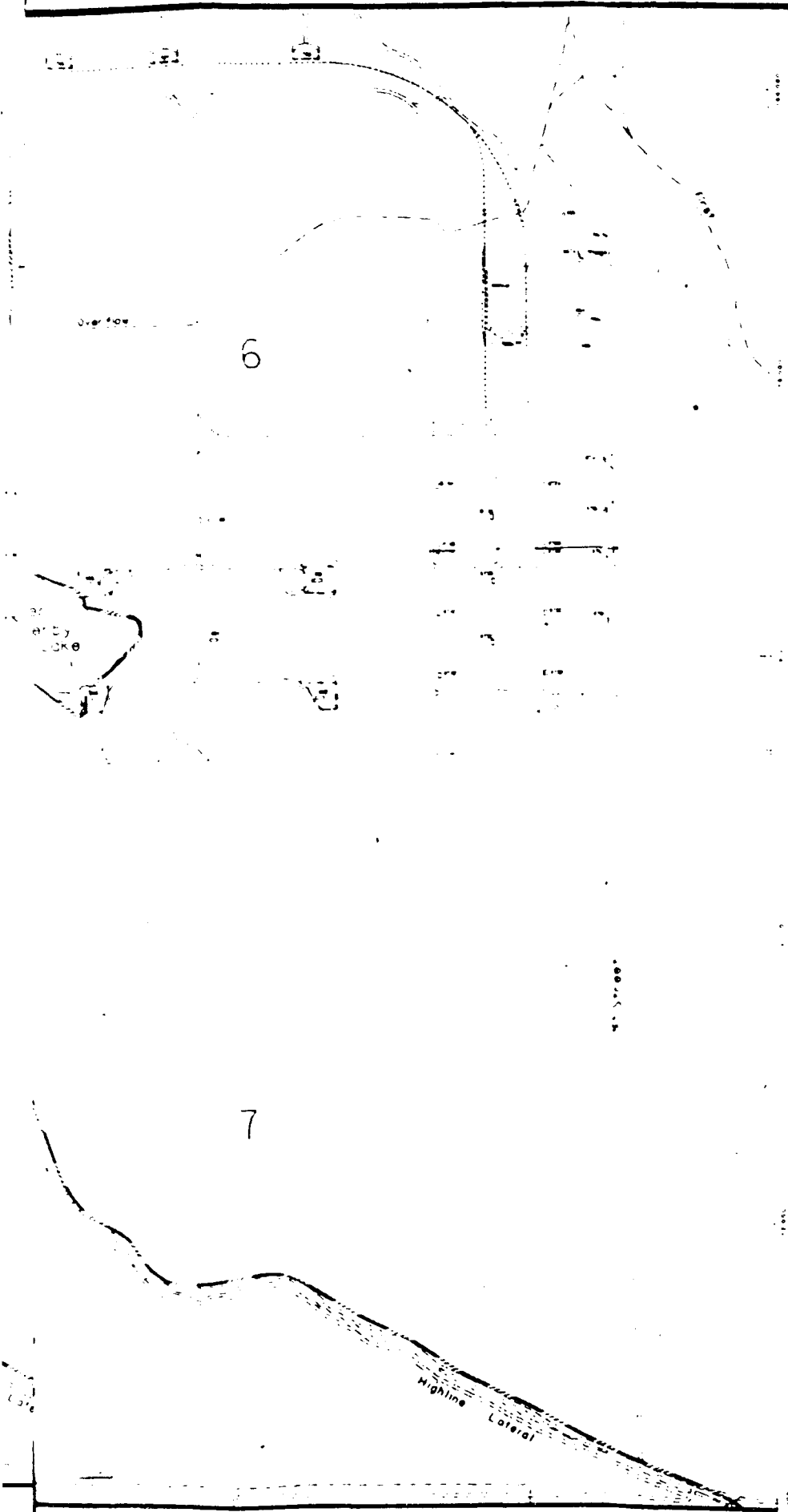
Cumulative Area and Volume of  
 Potentially Contaminated Soil for  
 Methylene Chloride

Rocky Mountain Arsenal

Prepared by: Ebasco Services Incorporated







**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

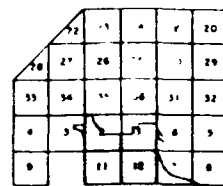
174,000 State Plane Grid



Extent Of Potential Contaminaton  
in Soils and Sediments

Widths less Than 50 Feet and Diameters  
less Than 75 Feet, Not Shown To Scale

ROCKY MOUNTAIN ARSENAL



1/25 MILES

0 500 1000

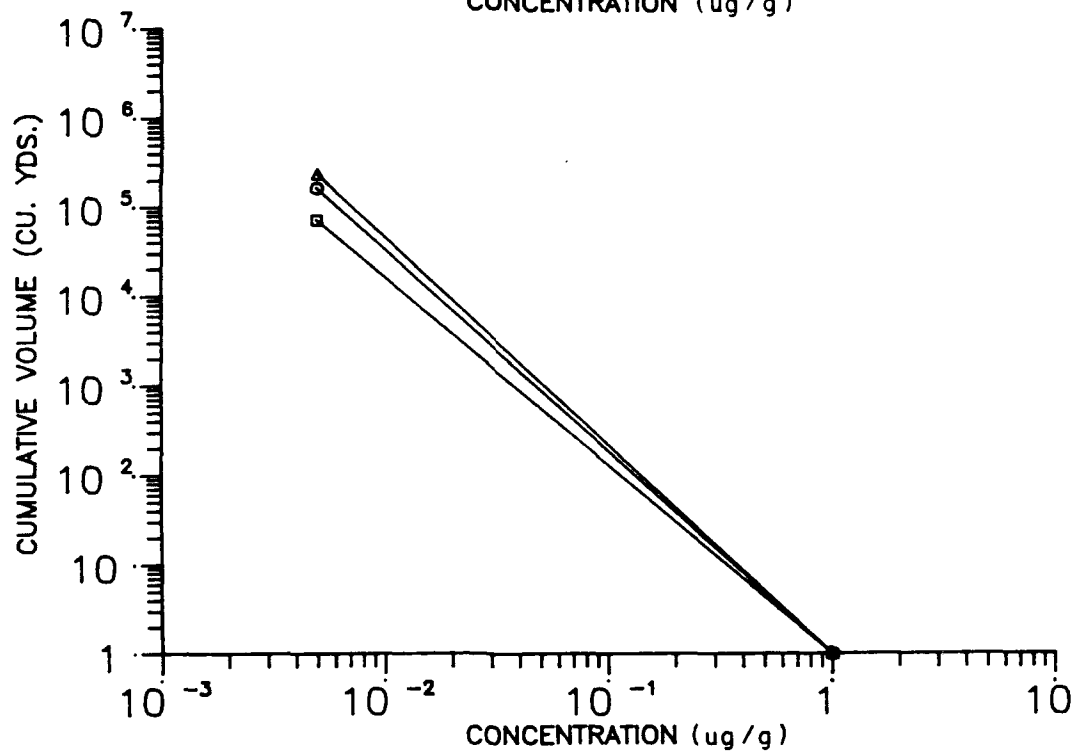
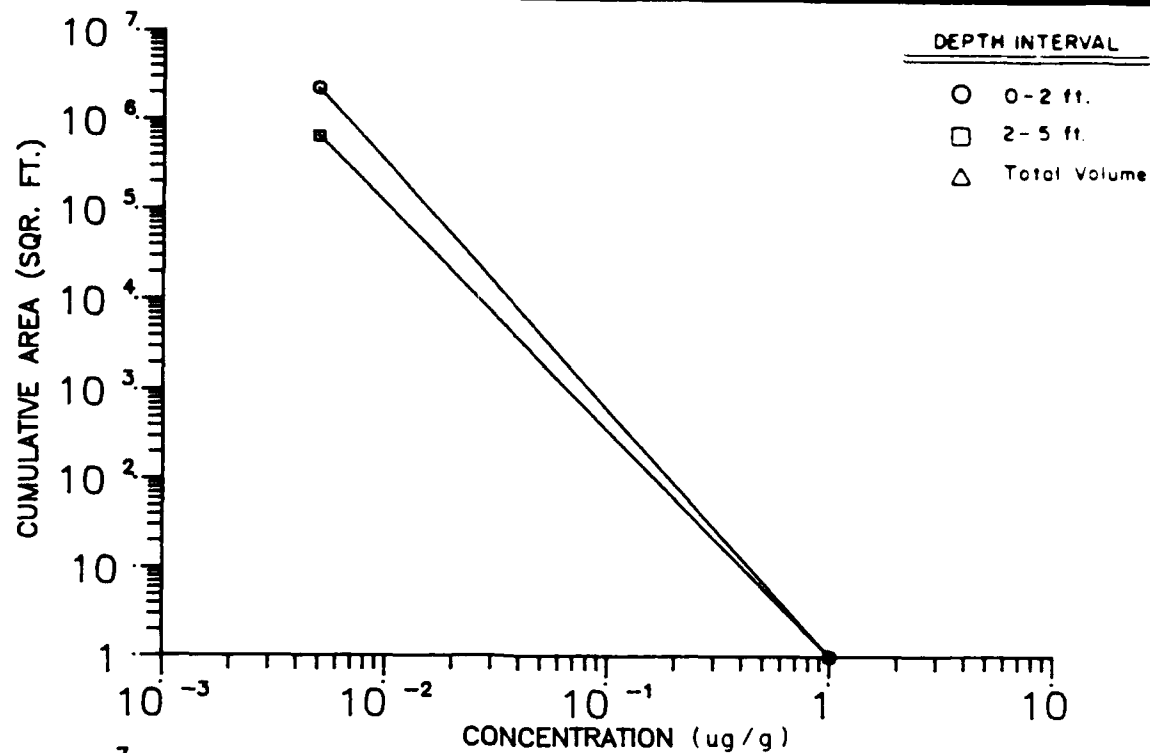
SCALE: 1" = 1000'

Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE: SSA 3.4-4  
Estimated Areal Extent of Potential Contamination  
for Methylene Chloride, 0-5 ft. Depth Interval

Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated



**Prepared for:**

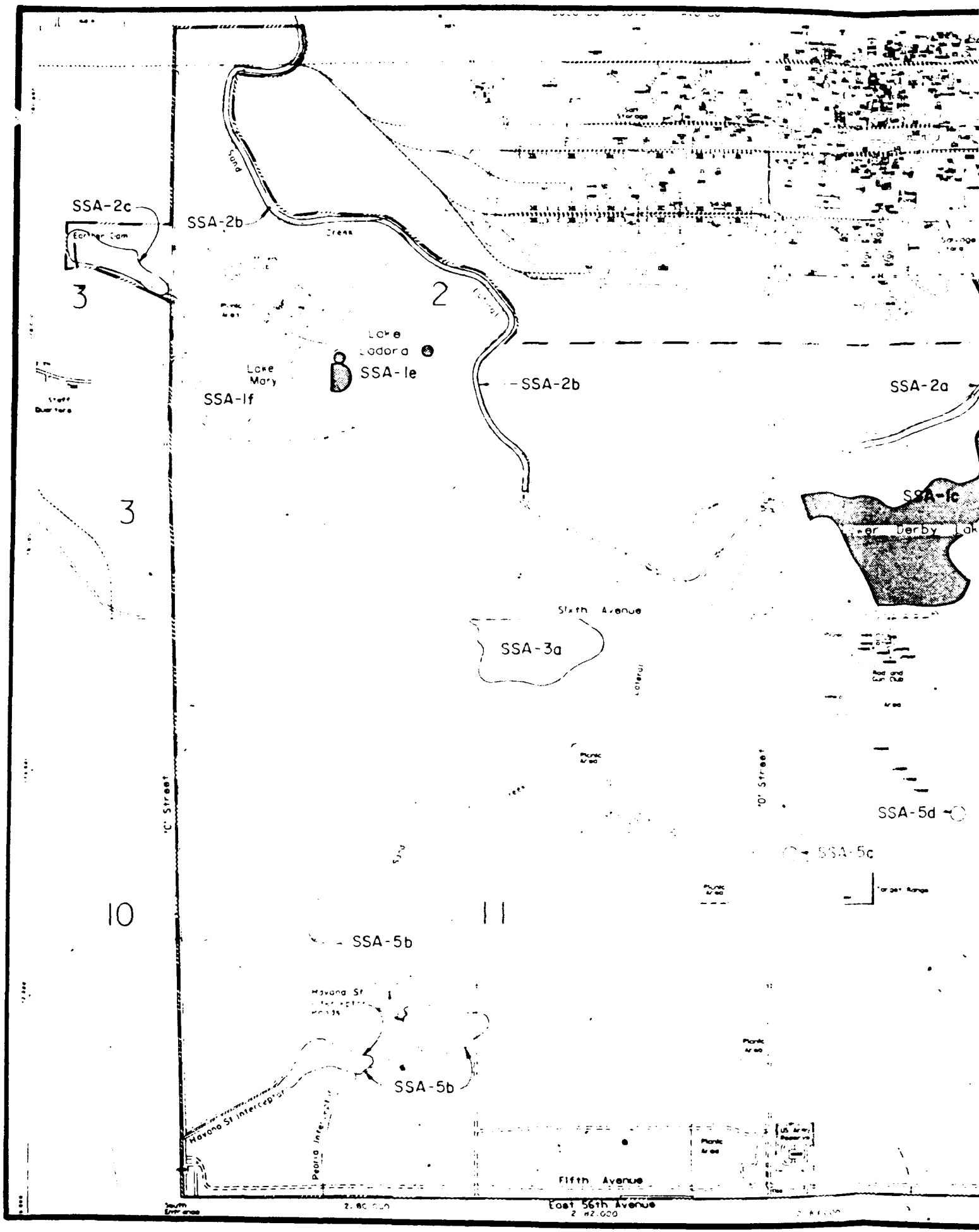
Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup  
 Aberdeen Proving Ground, Maryland

**FIGURE SSA 3.4-5**

Cumulative Area and Volume of  
 Potentially Contaminated Soil for  
 Dibromochloropropane

Rocky Mountain Arsenal

Prepared by: Ebasco Services Incorporated



SSA-2c

Earlham Dam

3

SSA-2b

2

Lake Ladora  
SSA-1e

SSA-1f

SSA-2a

SSA-1c

Lake Derby

Sixth Avenue

SSA-3a

SSA-5d

SSA-5c

SSA-5b

SSA-5b

Fifth Avenue

East 56th Avenue

10

10th Street

10th Street

Mayona St Interceptor

Mayona St Interceptor

Peoria Interceptor

Park Area

Park Area

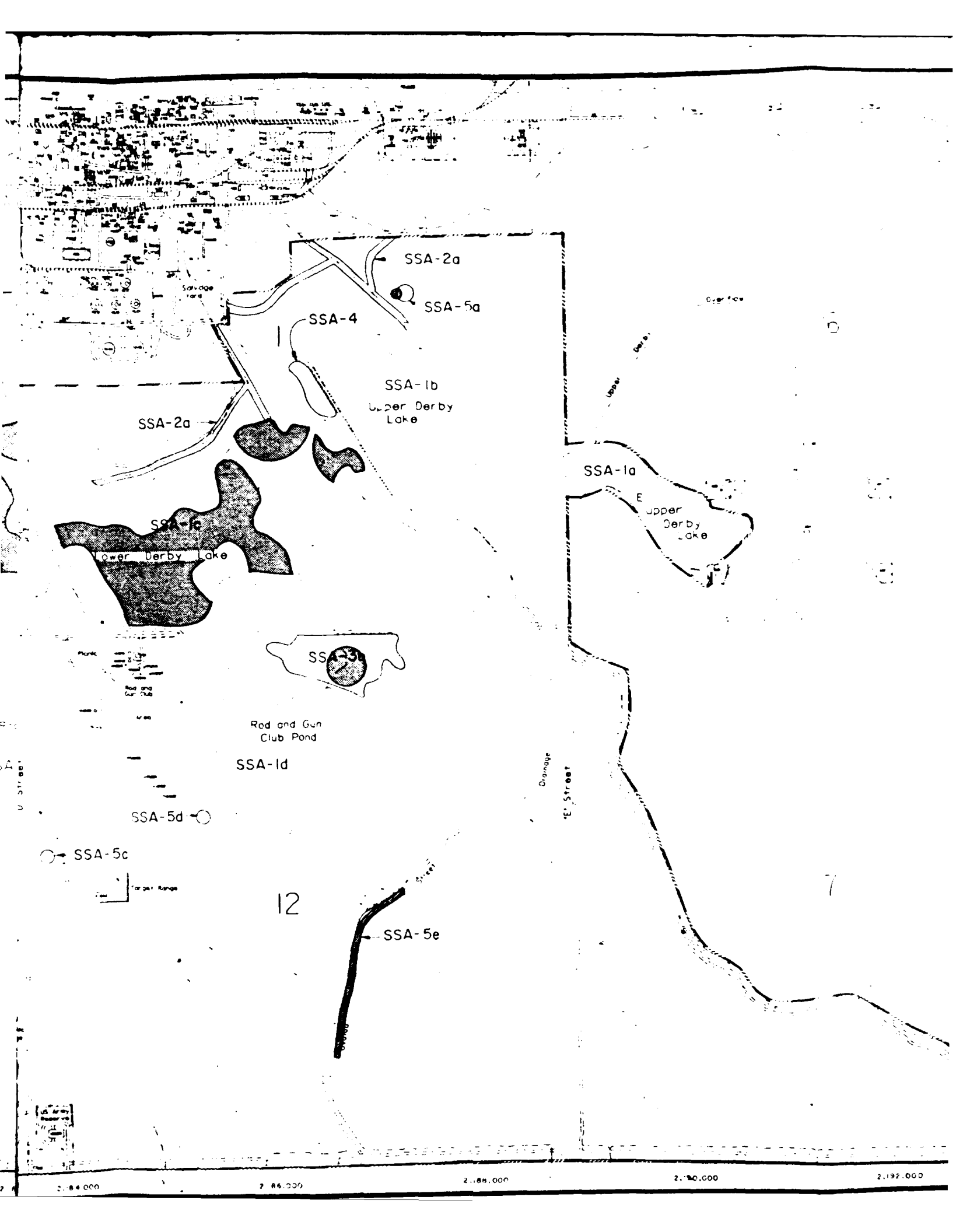
Park Area

US Army Reserve

2-80-000

2-80-000





SSA-2a

SSA-5a

SSA-4

SSA-1b  
Upper Derby  
Lake

SSA-2a

SSA-1c

Lower Derby  
Lake

SSA-1a

Upper  
Derby  
Lake

SSA-5b

Red and Gun  
Club Pond

SSA-1d

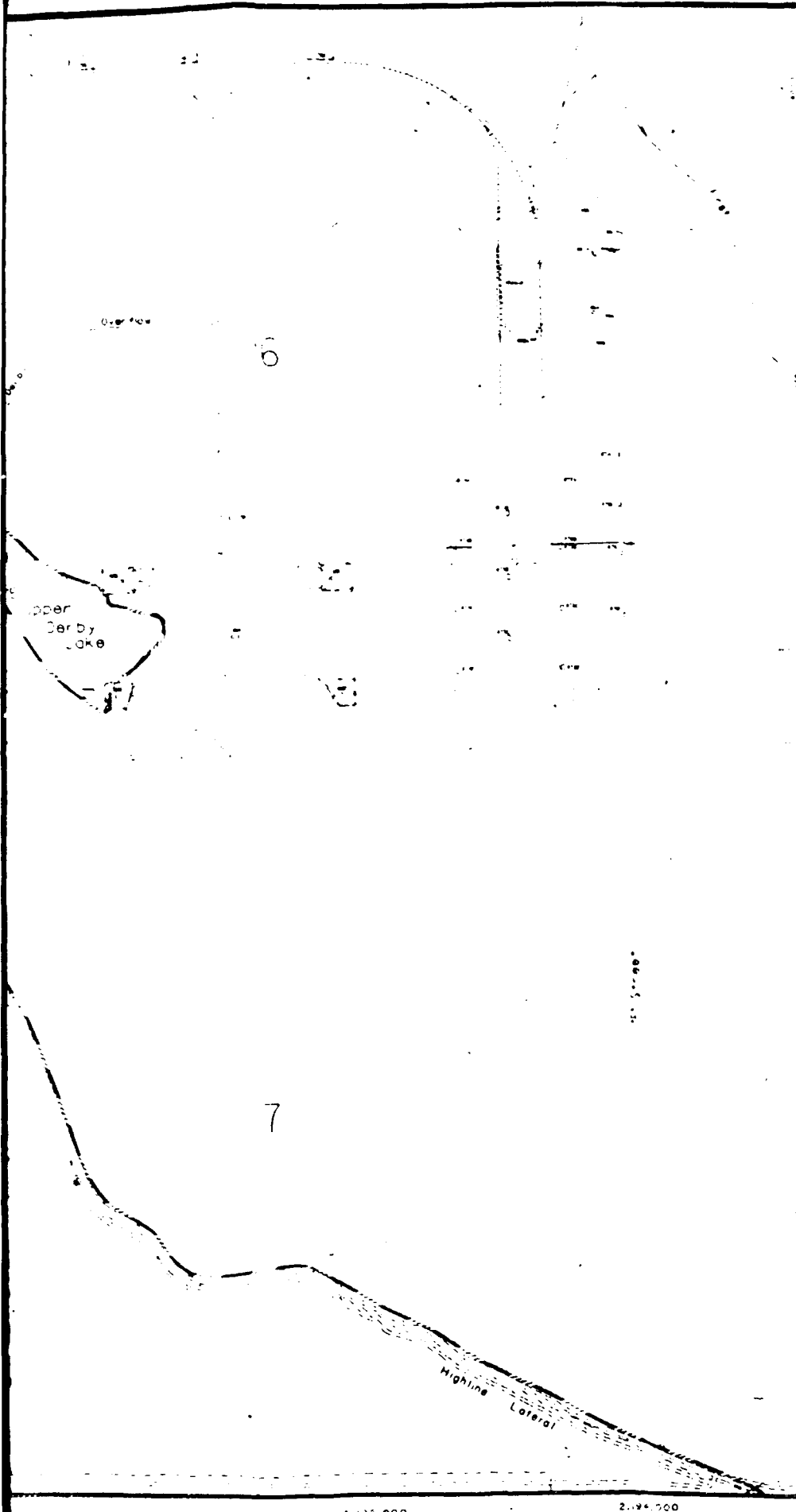
SSA-5d

SSA-5c

Target Range

12

SSA-5e



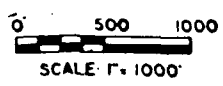
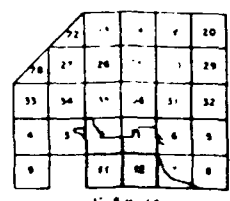
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid



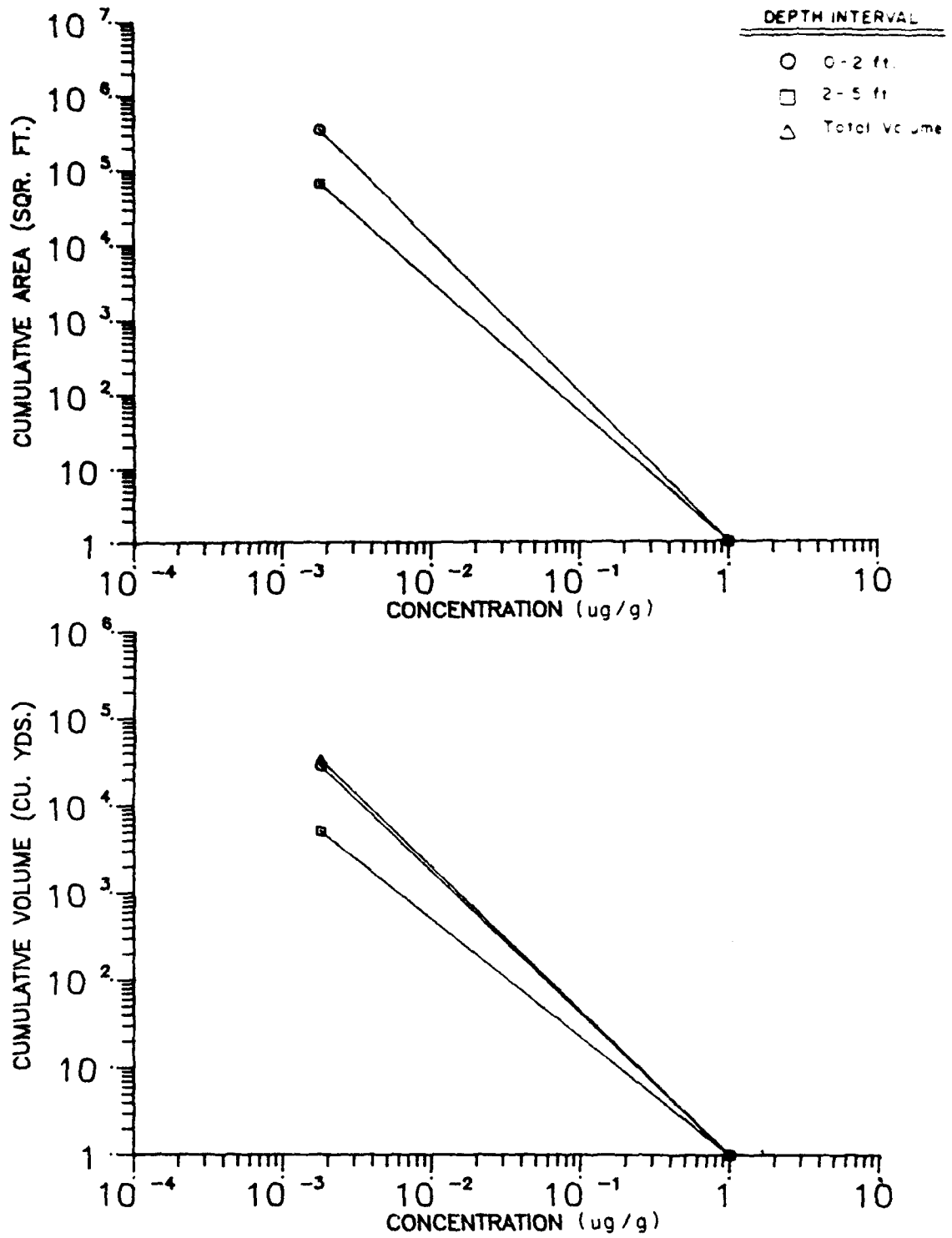
Extent Of Potential Contamination  
in Soils and Sediments  
Widths less Than 50 Feet and Diameters  
less Than 75 Feet, Not Shown To Scale

ROCKY MOUNTAIN ARSENAL



Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 3.4-6**  
Estimated Areal Extent of Potential Contamination  
for Dibromochloropropane, 0-5 ft. Depth Interval  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated



**Prepared for:**

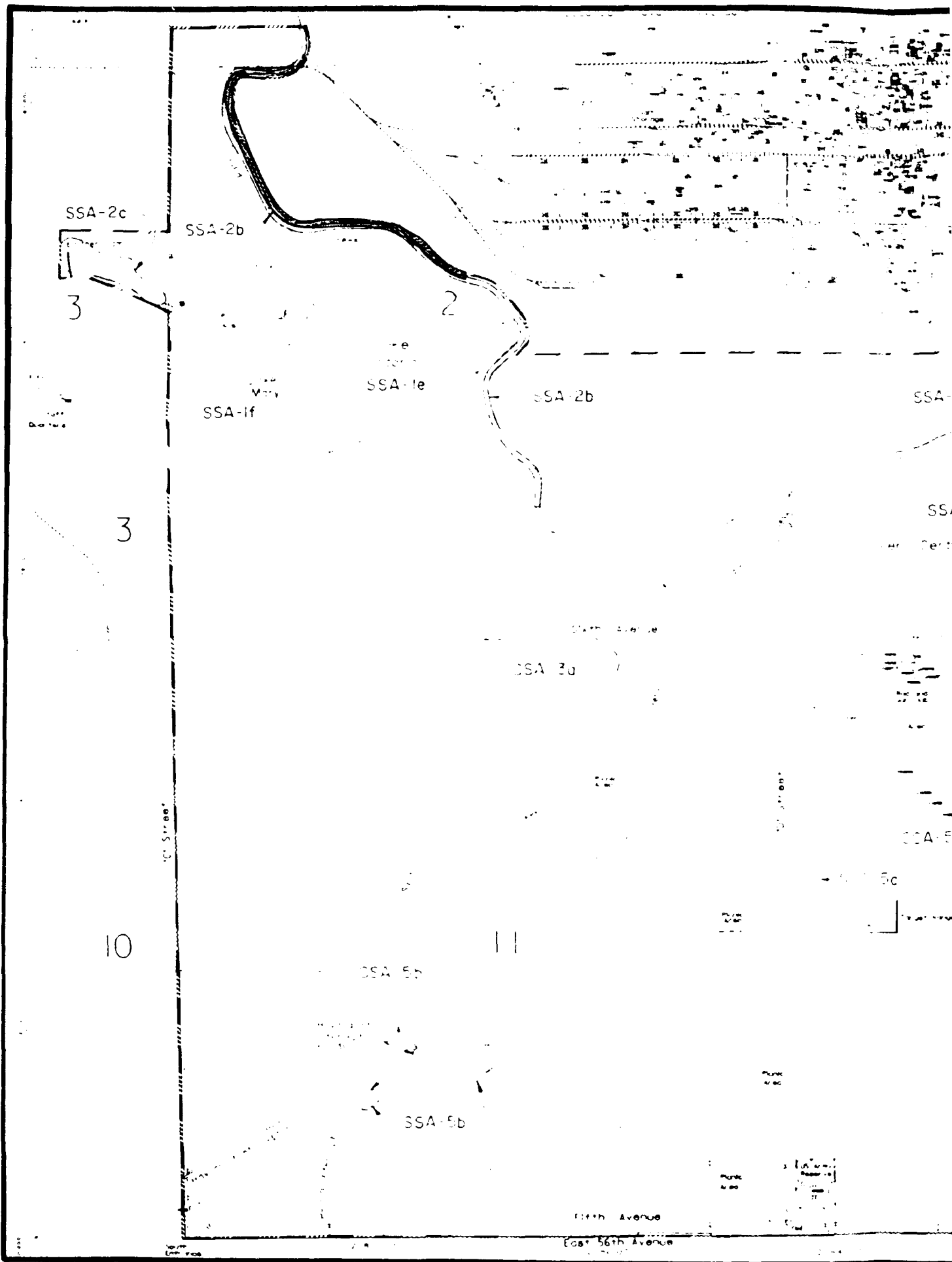
Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup  
 Aberdeen Proving Ground, Maryland

**FIGURE SSA 3.4-7**

Cumulative Area and Volume of  
 Potentially Contaminated Soil for  
 Semivolatile Halogenated Organics

Rocky Mountain Arsenal

Prepared by: Ebasco Services Incorporated



SSA-2c

SSA-2b

3

2

SSA-1e

SSA-1f

SSA-2b

SSA-

3

SSA

Per. Cert

SSA 3d

SSA-5

SSA-5c

10

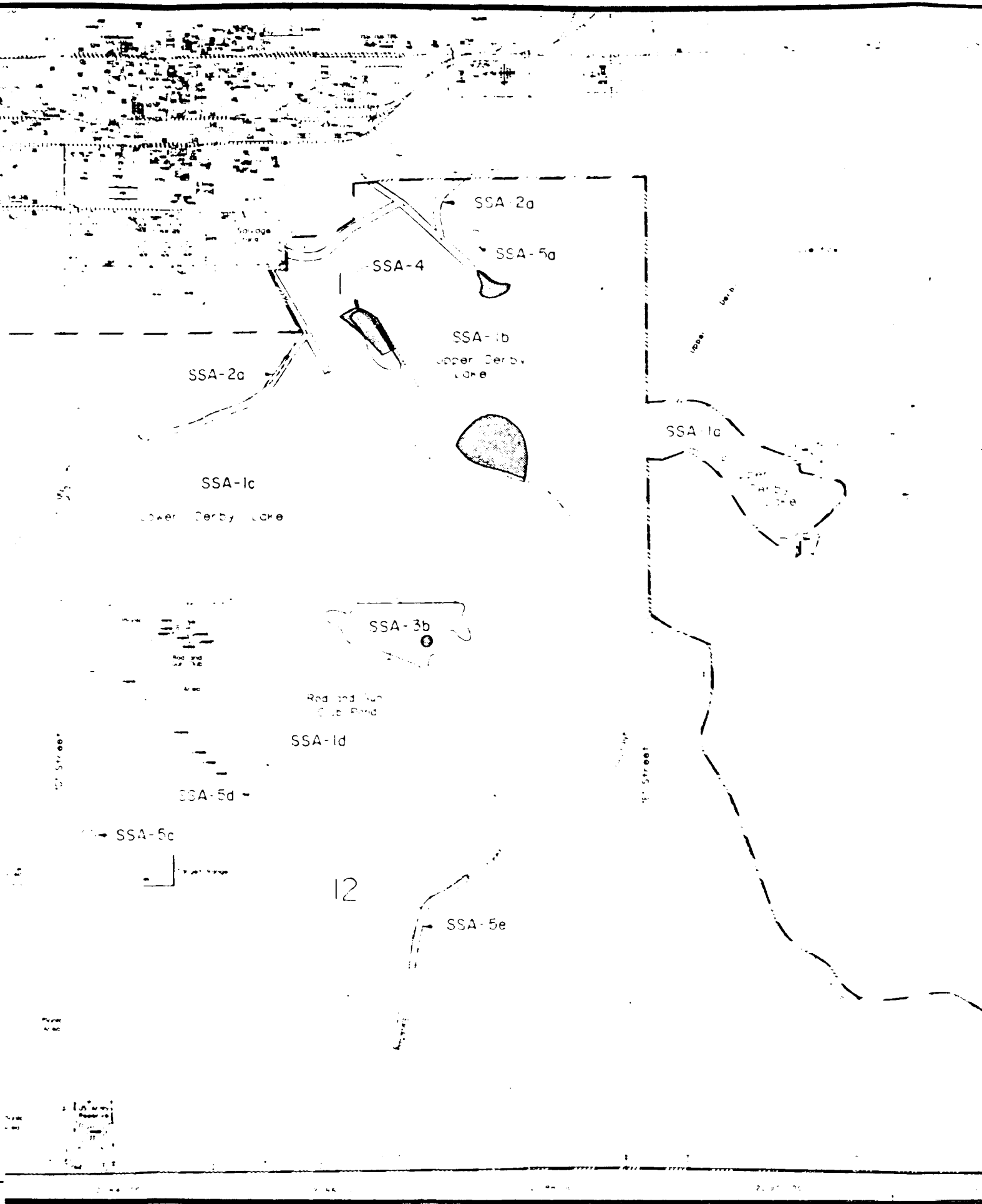
11

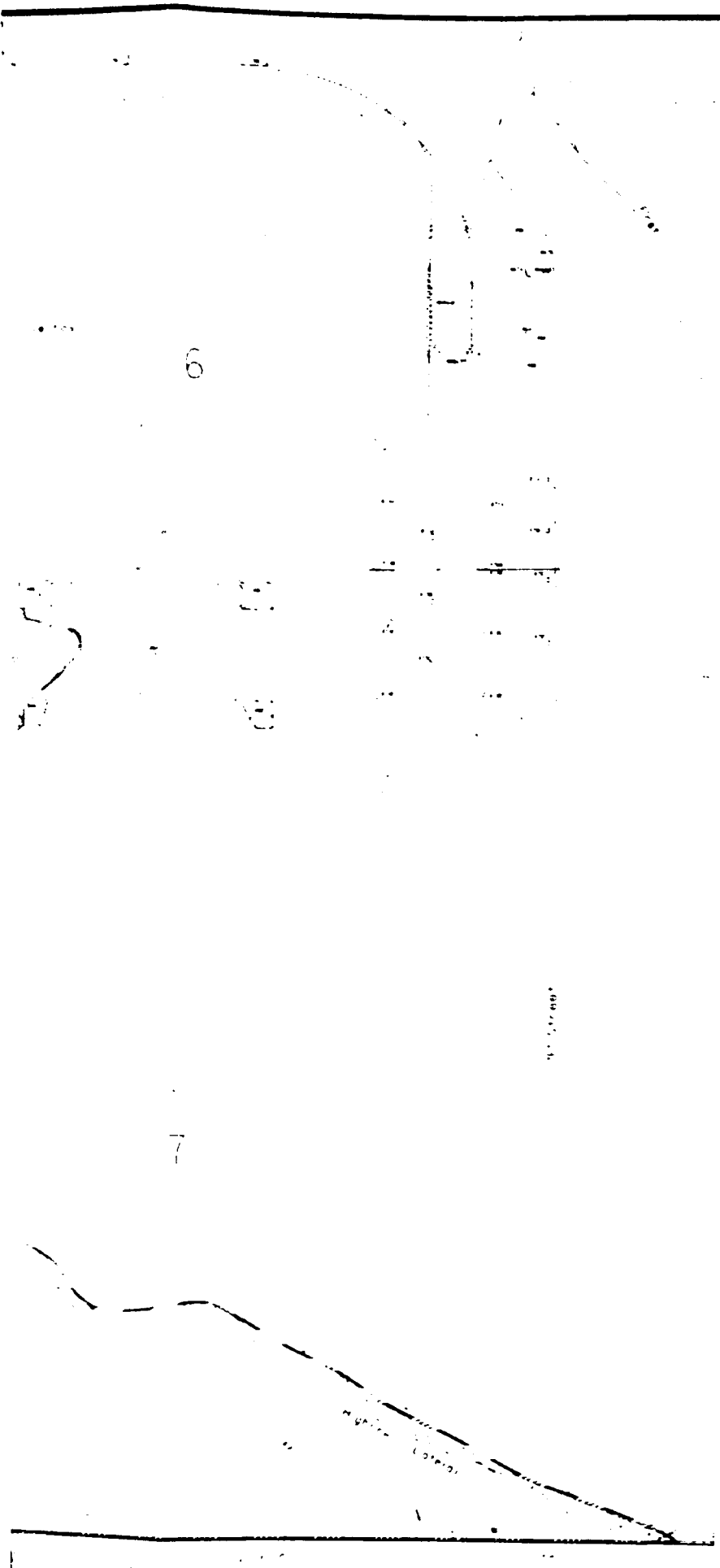
SSA-5b

SSA-5b

Fifth Avenue

East 56th Avenue

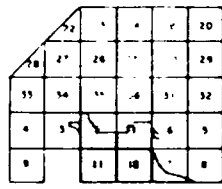




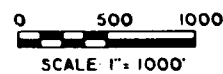
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid
- Extent of Potential Contamination in Soils and Sediments  
Widths less Than 50 Feet and Diameters less Than 75 Feet, Not Shown To Scale

ROCKY MOUNTAIN ARSENAL

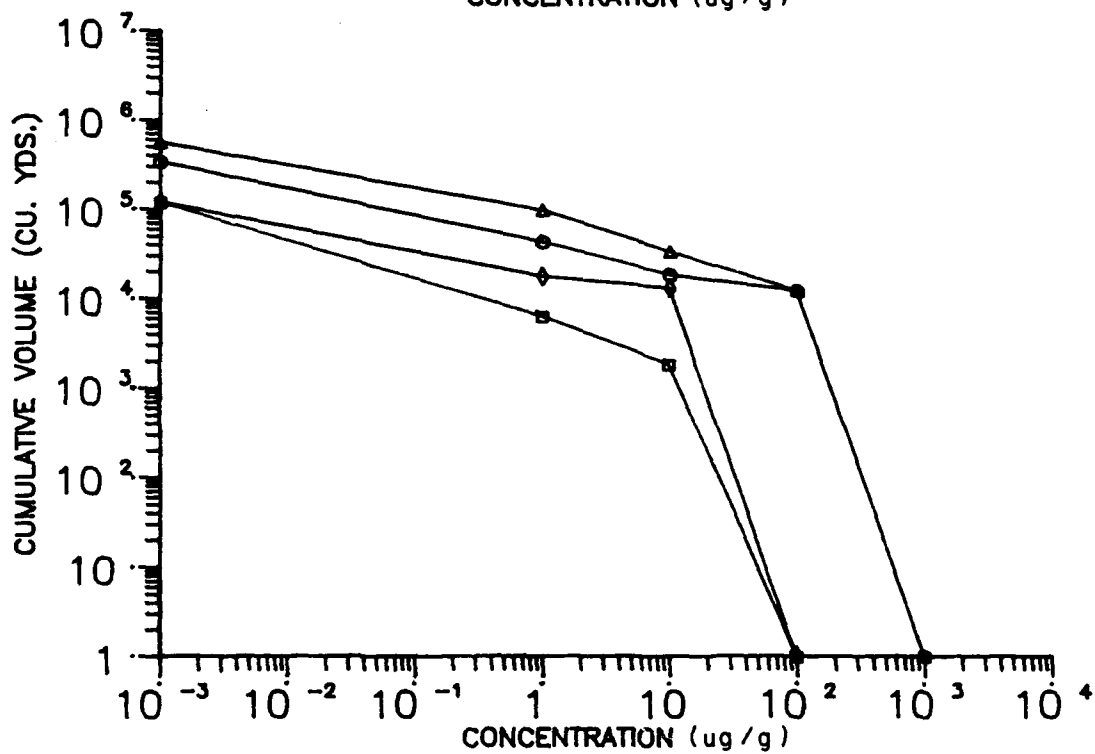
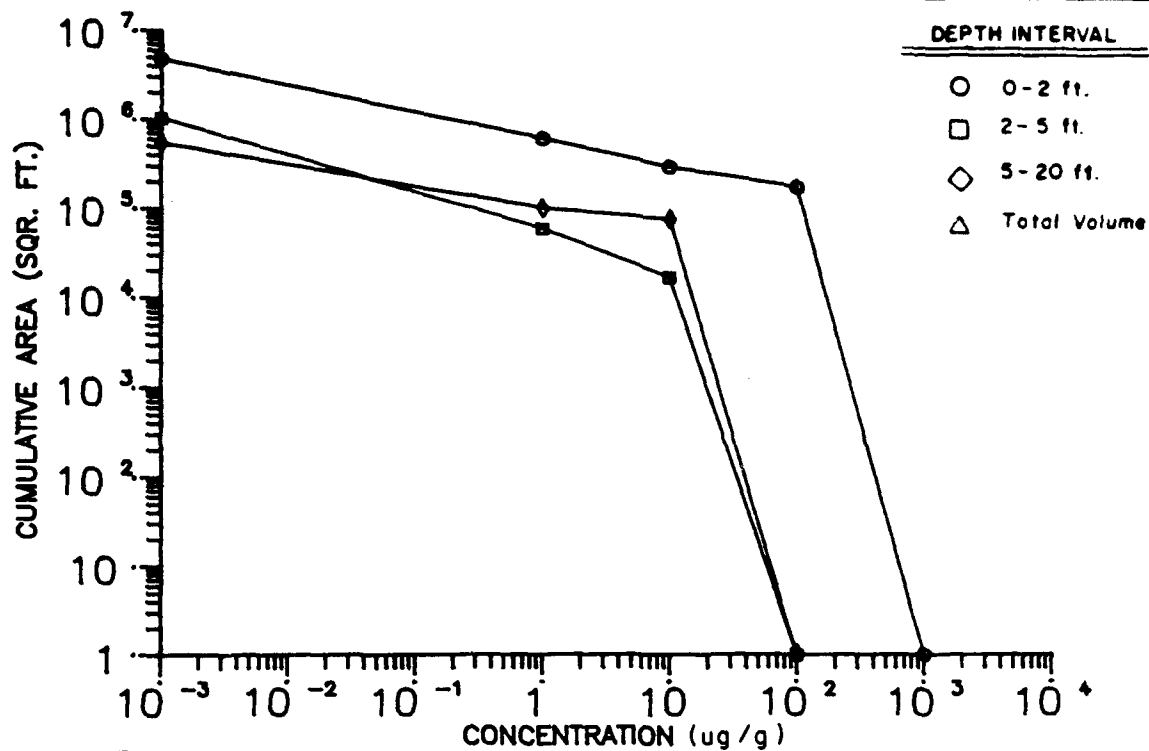


1" = 500 FEET



Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 3.4-8**  
Estimated Areal Extent of Potential Contamination  
For Semivolatile Halogenated Organics, 0-5 ft.  
Depth Interval  
**Rocky Mountain Arsenal**  
Prepared by:  
Ebasco Services Incorporated



Prepared for:

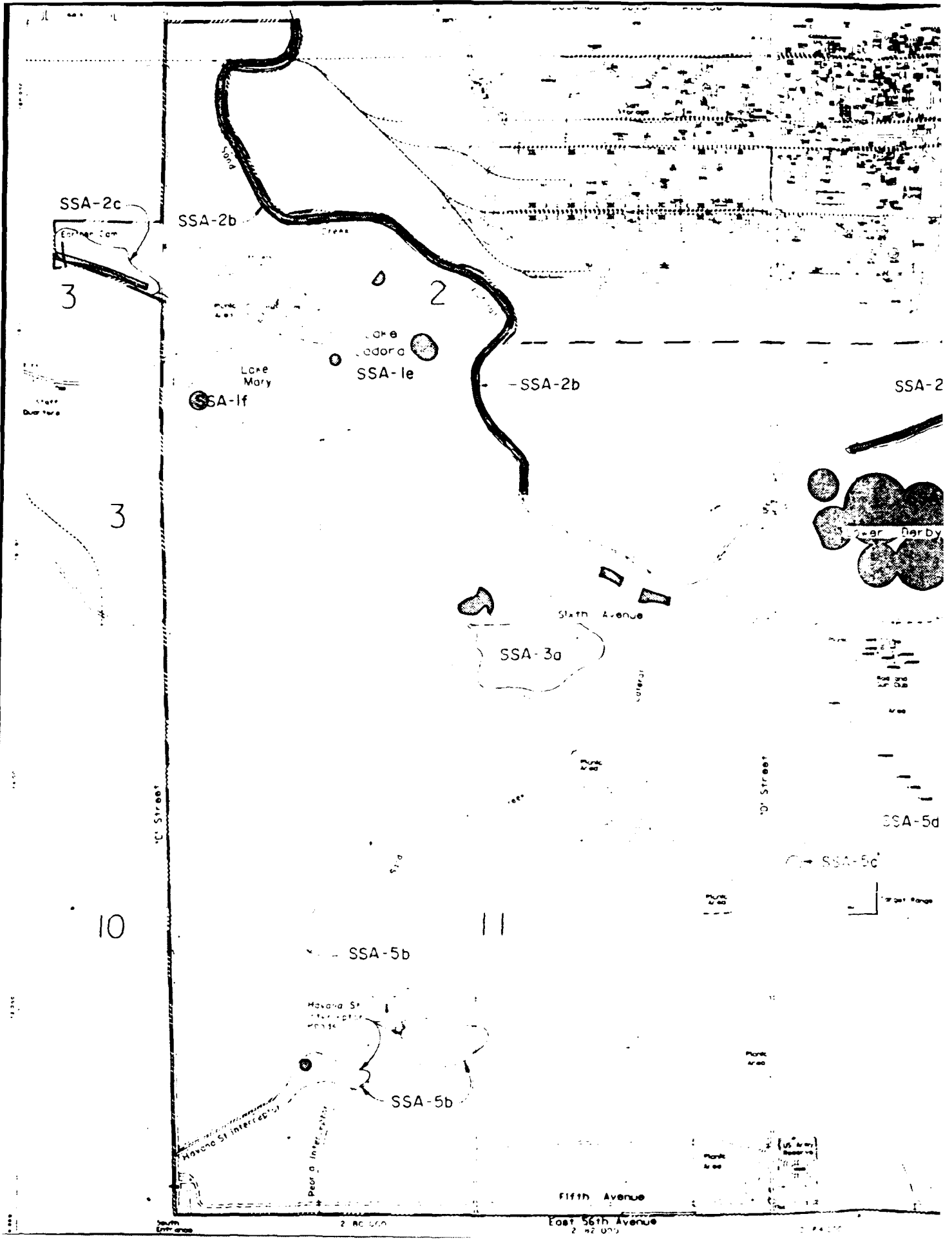
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup  
Aberdeen Proving Ground, Maryland

FIGURE SSA 3.4-9

Cumulative Area and Volume of Potentially  
Contaminated Soil for Organochlorine Pesticides  
( Aldrin, Dieldrin, Endrin, Isodrin )

Rocky Mountain Arsenal

Prepared by: Ebasco Services Incorporated



SSA-2c

SSA-2b

3

2

Lake Ladora

SSA-1e

Lake Mary

SSA-1f

SSA-2b

SSA-2

3

St. Ann's Church

SSA-3a

Near Derby

SSA-5d

SSA-5c

10

SSA-5b

Havana St. Interceptor

SSA-5b

Havana St. Interceptor

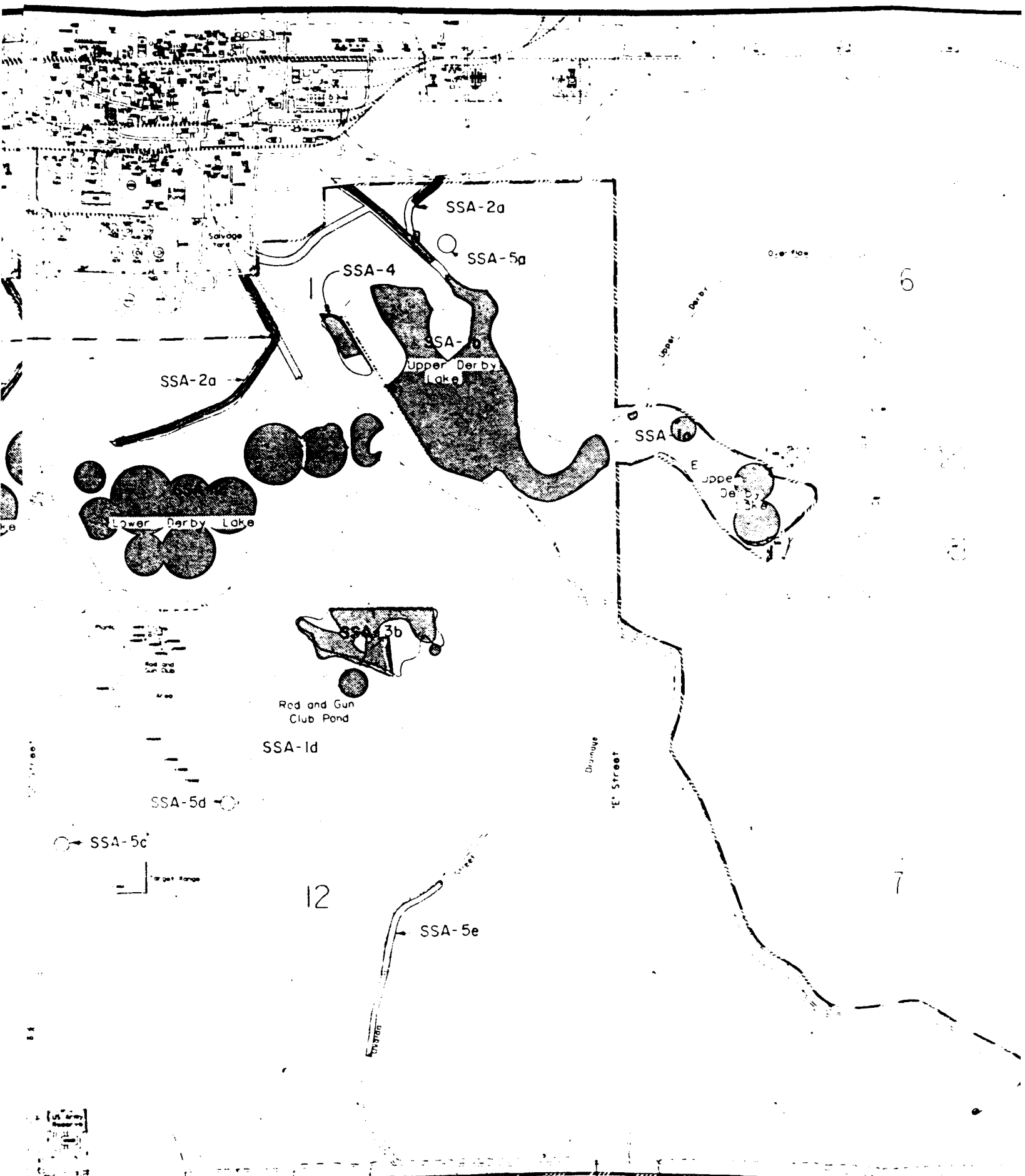
Pearl St. Interceptor

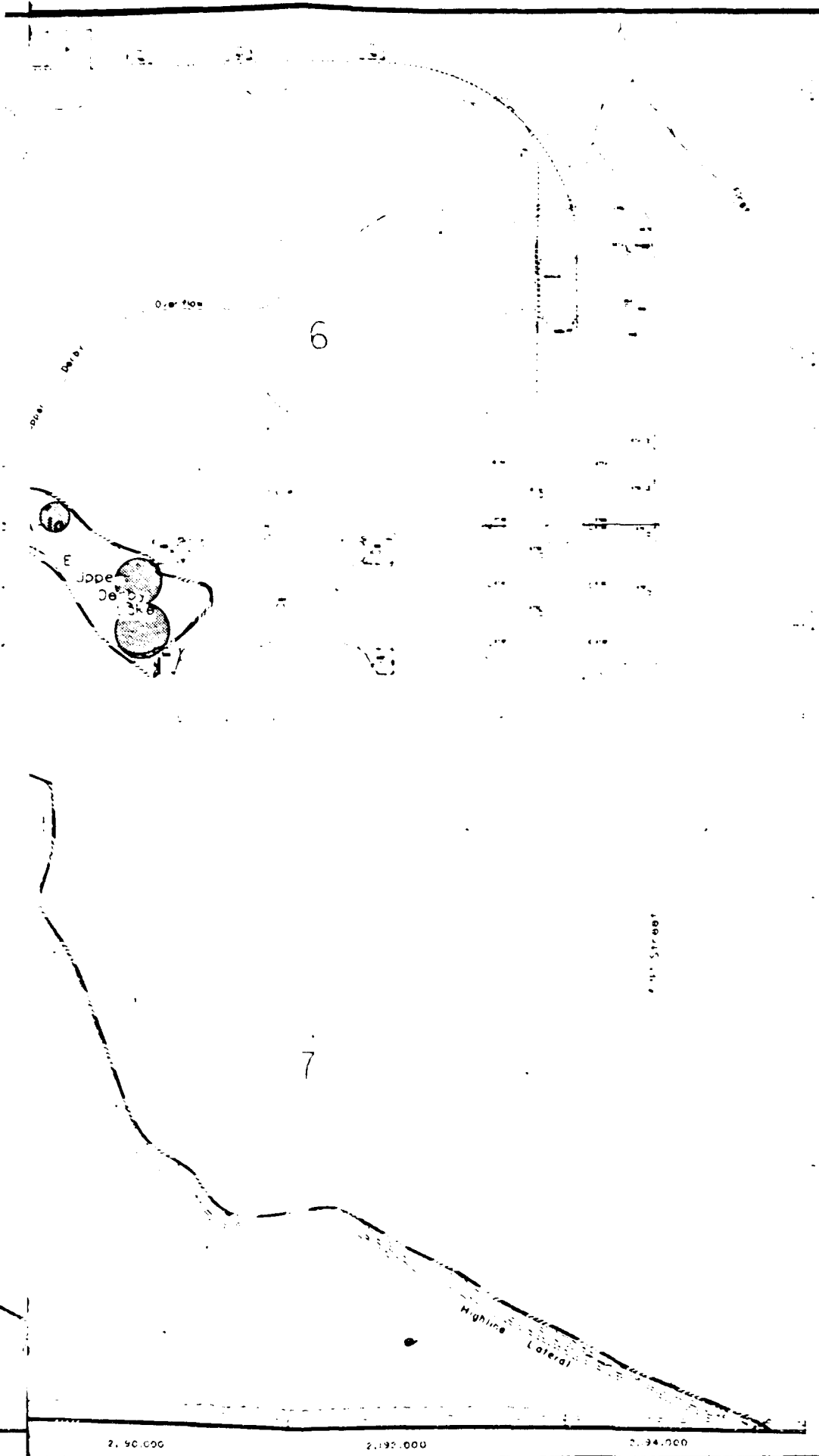
Fifth Avenue

East 56th Avenue

US Army Reserve

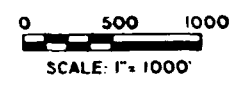
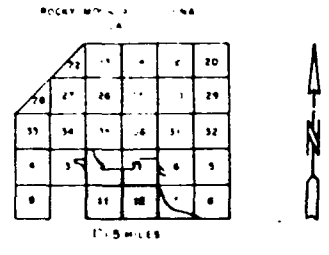






**LEGEND**

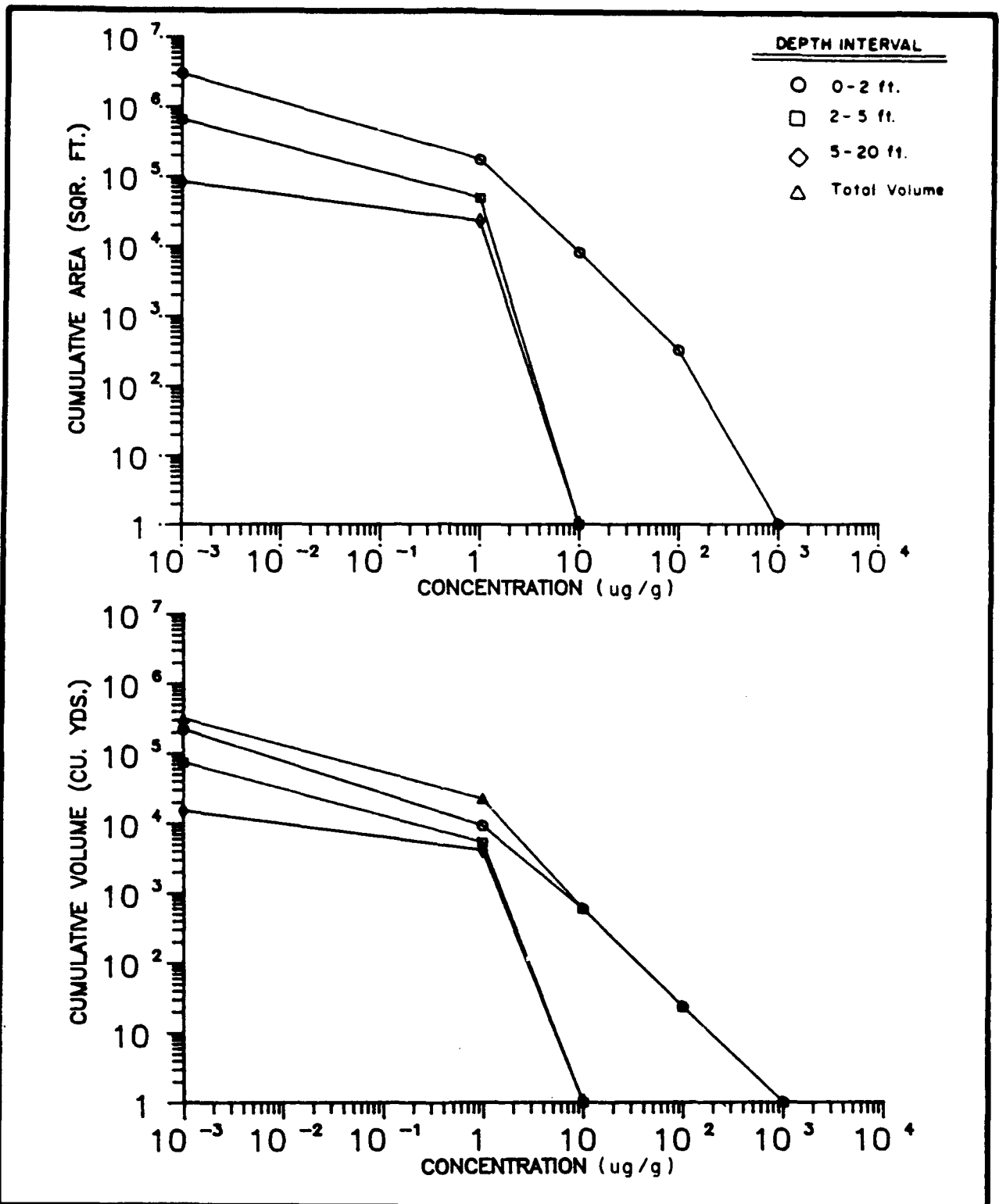
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid
- Extent Of Potential Contamination in Soils and Sediments  
Widths less Than 50 Feet and Diameters less Than 75 Feet, Not Shown To Scale



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 3.4-10**  
 Estimated Areal Extent of Potential Contamination For  
 Organochlorine Pesticides (Aldrin, Dieldrin, Endrin,  
 Isodrin), 0-5 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated

2,900,000      2,192,000      2,94,000



Prepared for:

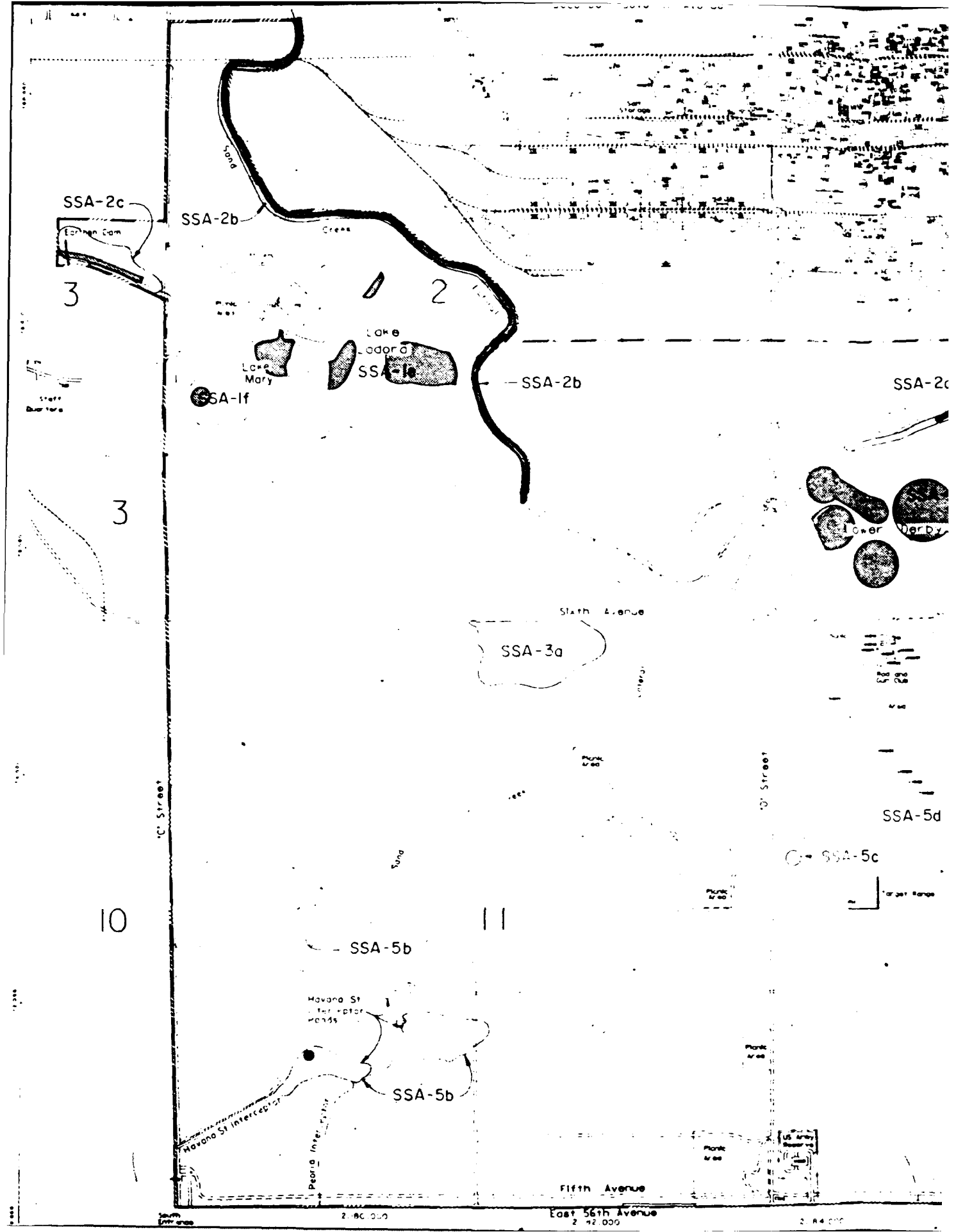
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup  
Aberdeen Proving Ground, Maryland

FIGURE SSA 3.4-II

Cumulative Area and Volume of Potentially  
Contaminated Soil for Organochlorine  
Pesticides (DDE, DDT, and Chlordane)

Rocky Mountain Arsenal

Prepared by: Ebasco Services Incorporated



SSA-2c

SSA-2b

3

2

Lake Mary

Lake Ladoga

SSA-1f

SSA-2b

SSA-2c

3

Sixth Avenue

SSA-3a

Lower Body

SSA-5d

SSA-5c

10

SSA-5b

Havana St Interceptor

SSA-5b

Havana St Interceptor

Peoria Interceptor

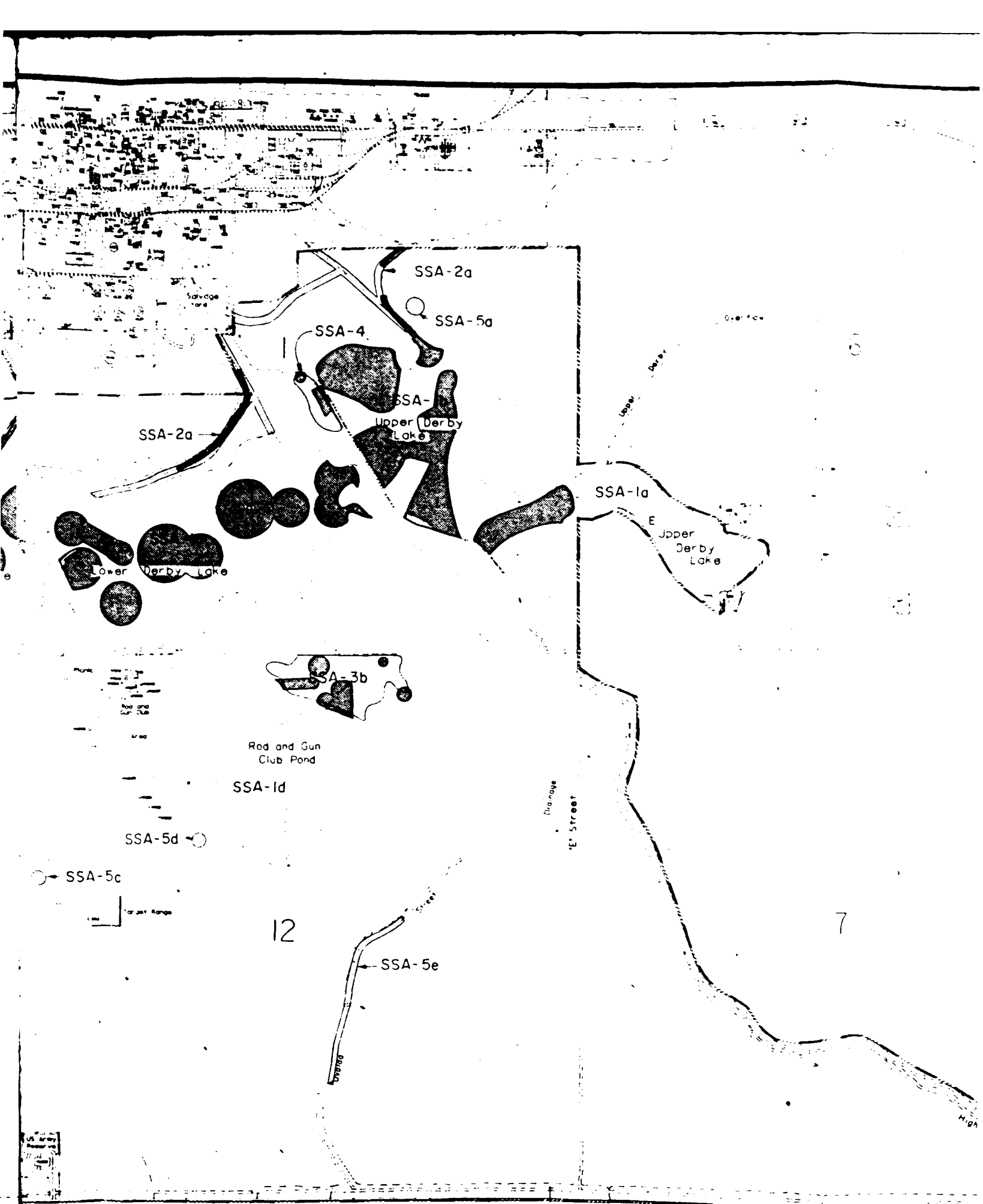
Fifth Avenue

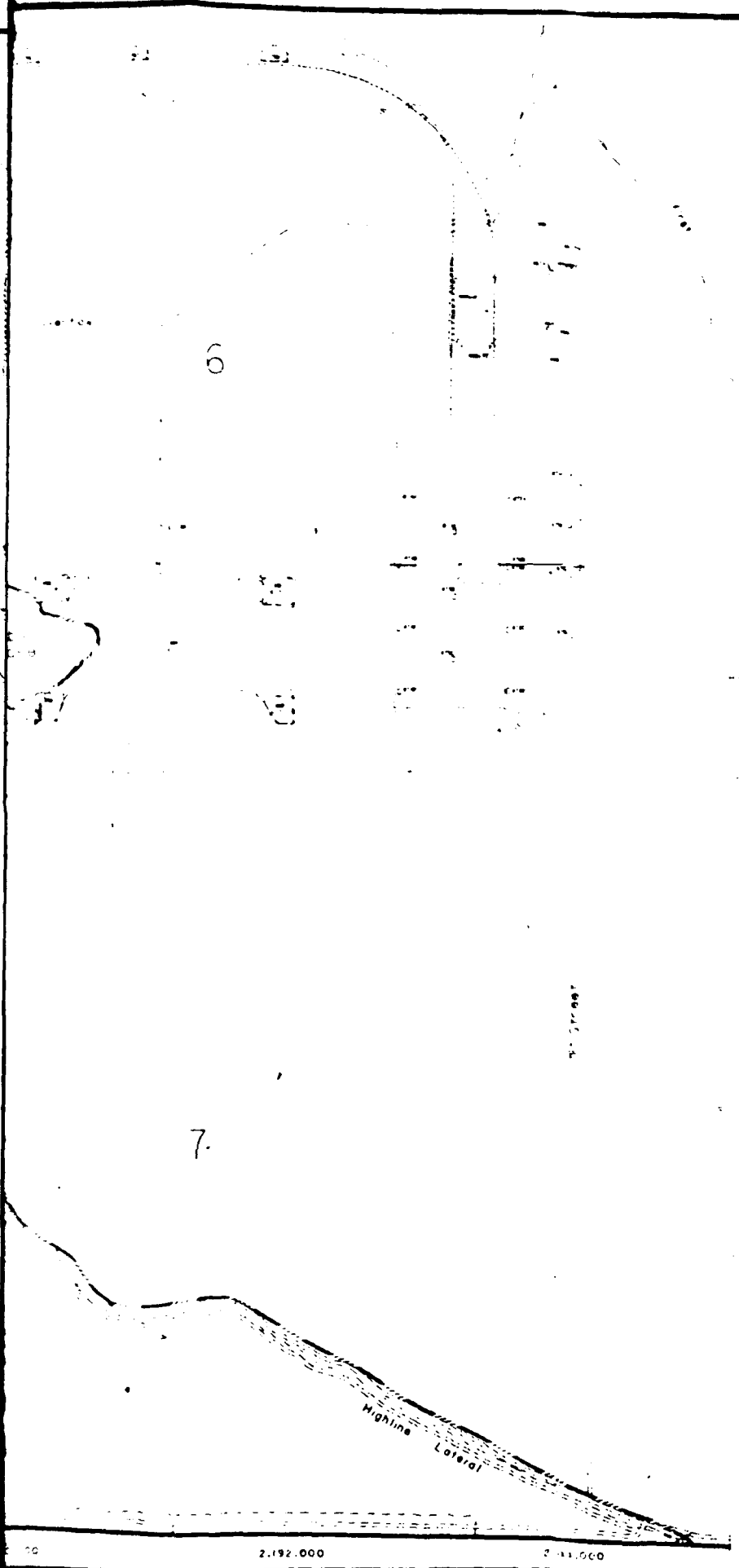
East 56th Avenue

South Entrance

2-8C 0-0

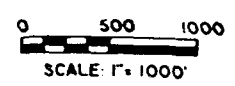
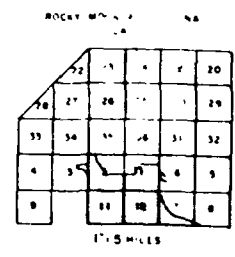
2-84 0-0





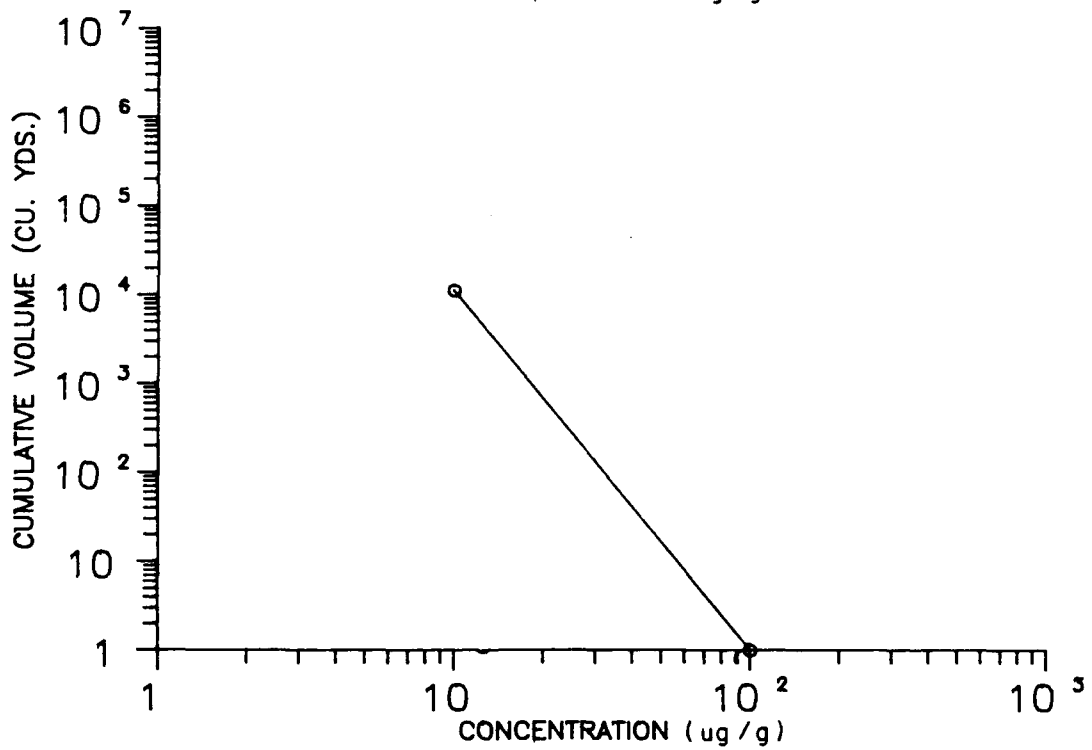
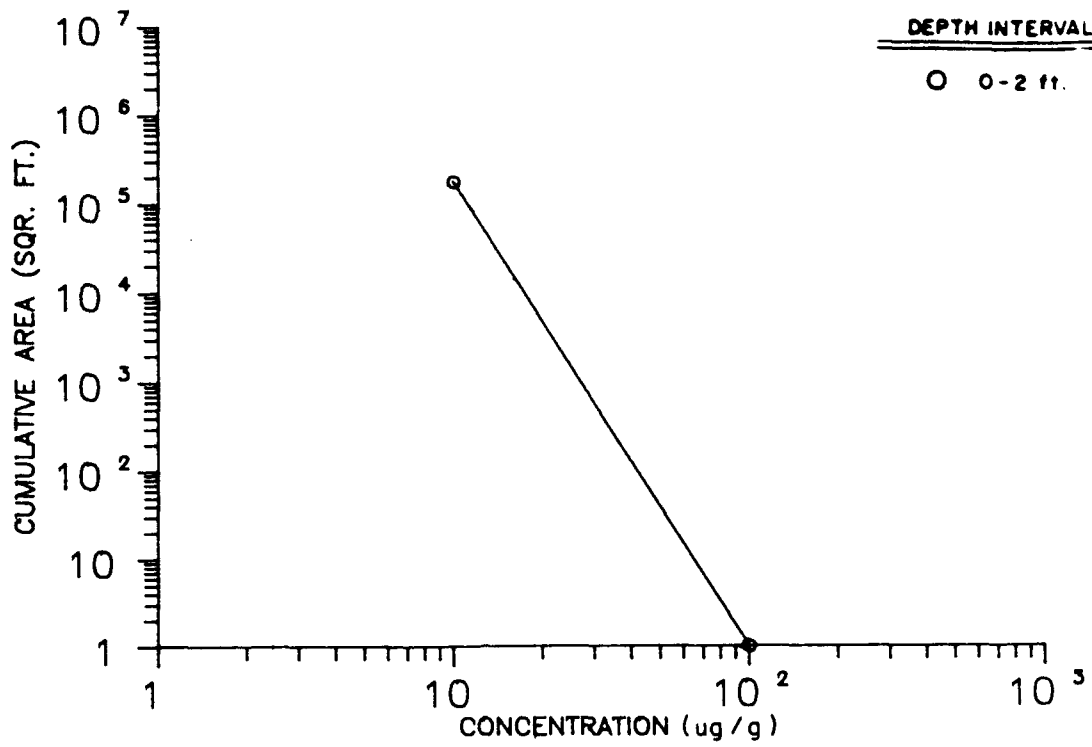
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid
- Extent Of Potential Contamination in Soils and Sediments  
Widths less Than 50 Feet and Diameters less Than 75 Feet, Not Shown To Scale



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 3.4-12**  
 Estimated Areal Extent of Potential Contamination for  
 Organochlorine Pesticides (DDE, DDT, and  
 Chlordane) 0-5 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated



**Prepared for:**

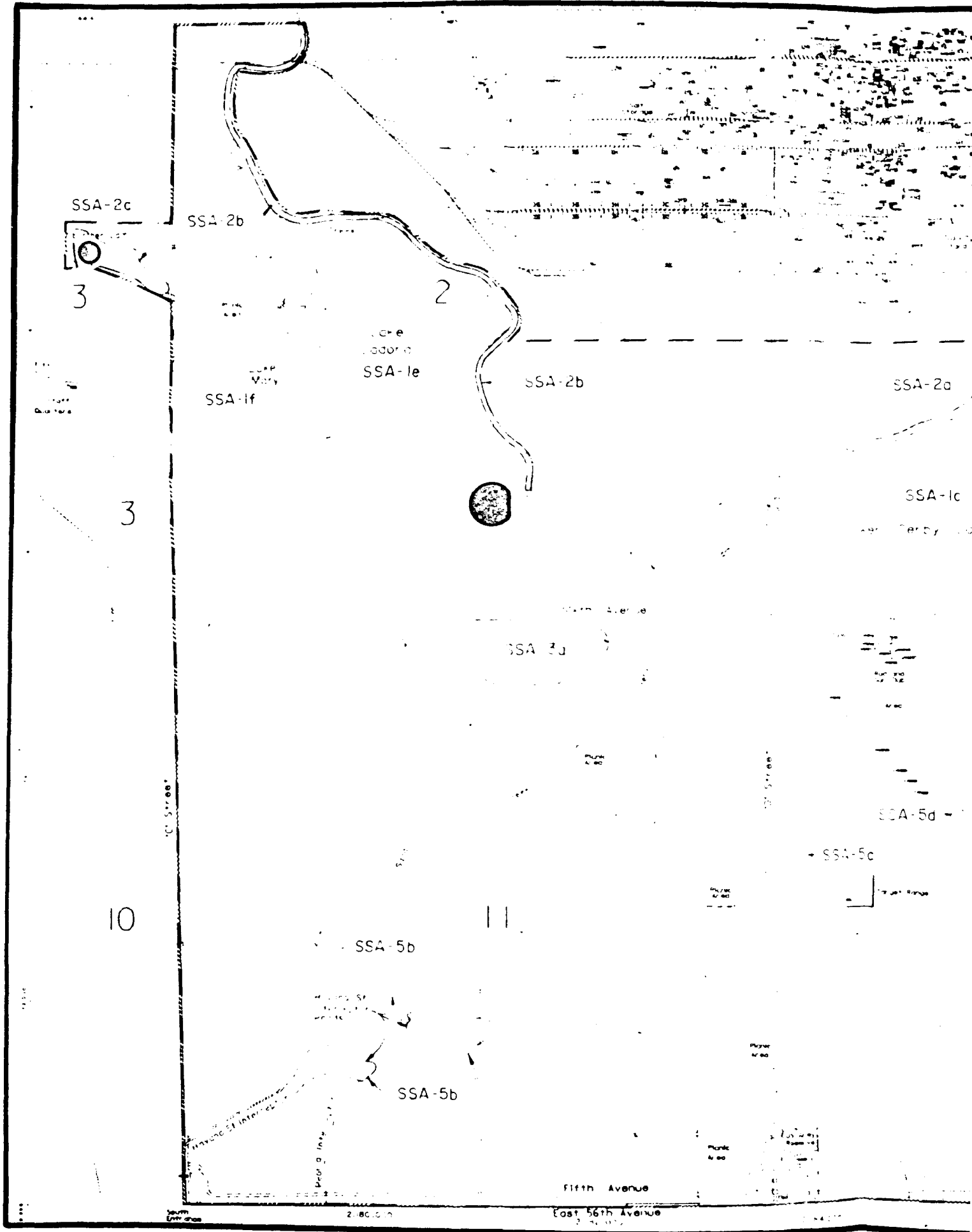
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup  
Aberdeen Proving Ground, Maryland

**FIGURE SSA 3.4-13**

**Cumulative Area and Volume of  
Potentially Contaminated Soil for  
Arsenic**

Rocky Mountain Arsenal

Prepared by: Ebasco Services Incorporated



SSA-2c

SSA-2b

3

2

SSA-1e

SSA-1f

SSA-2b

SSA-2a

3

SSA-1c

SSA-3a

SSA-5d

SSA-5c

10

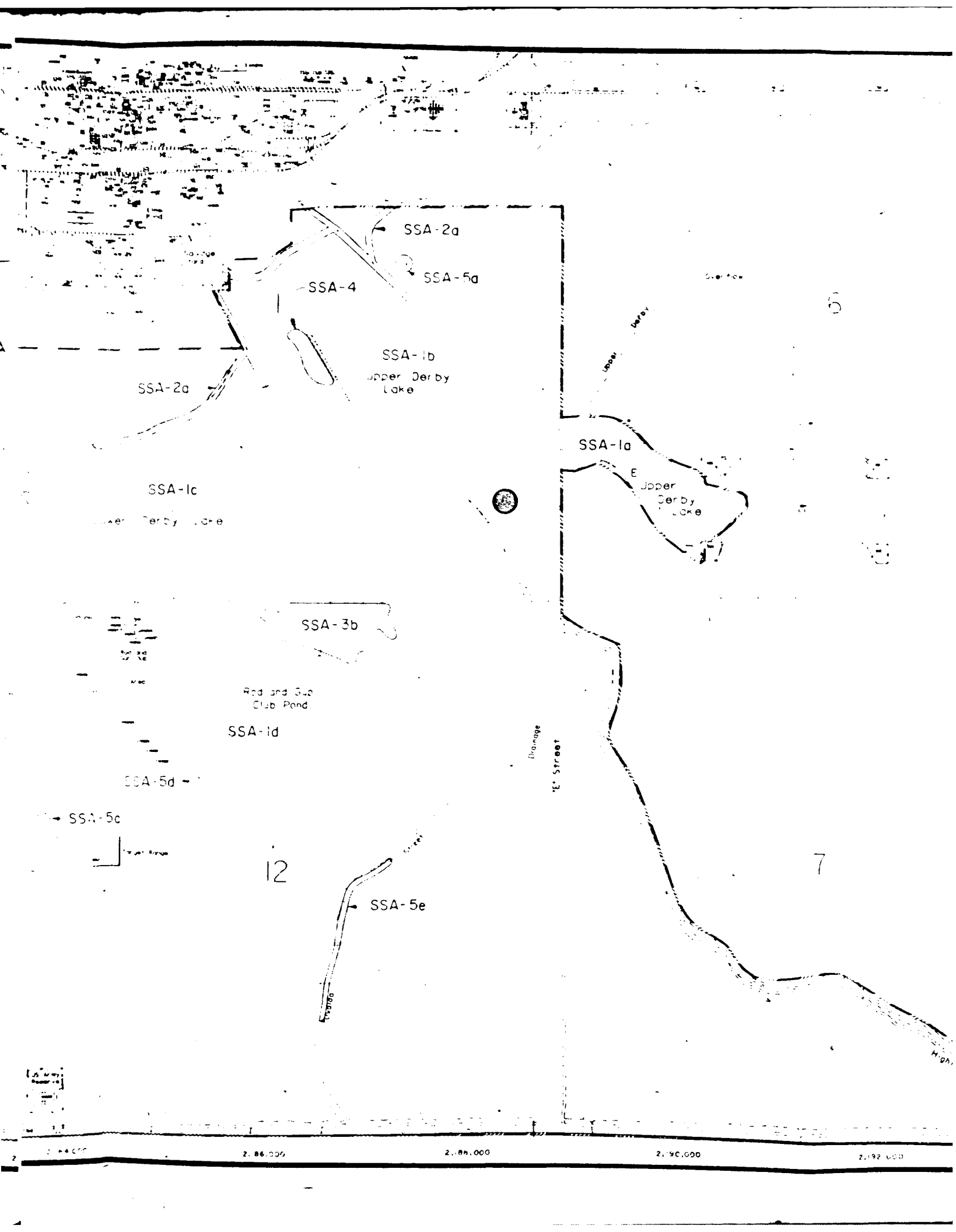
SSA-5b

SSA-5b

Fifth Avenue

East 56th Avenue





SSA-2a

SSA-4

SSA-5a

SSA-1b

Upper Derby Lake

SSA-2a

SSA-1c

Lower Derby Lake

SSA-1a

E Derby High

SSA-3b

Red and Sub Club Pond

SSA-1d

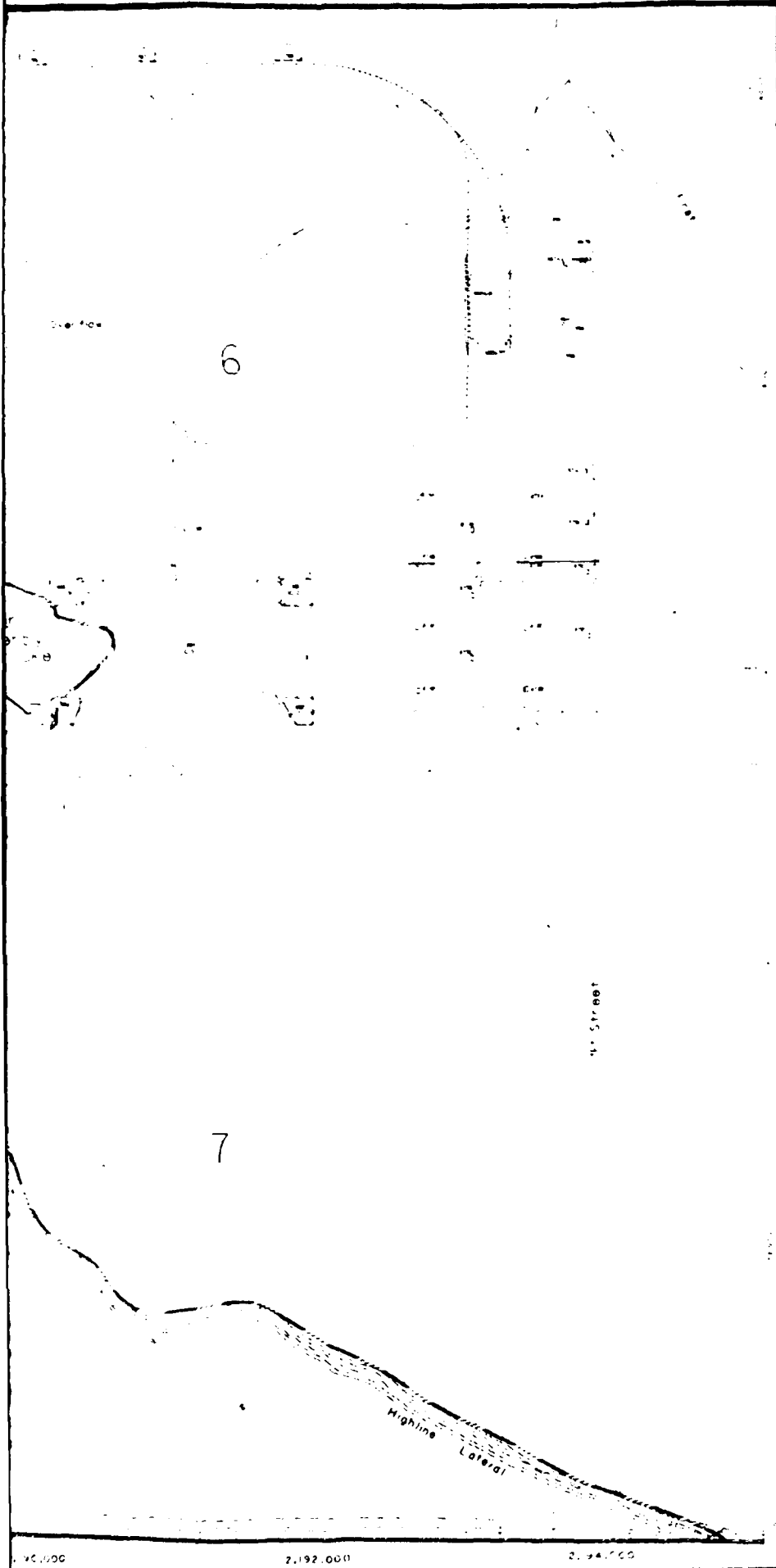
SSA-5d

SSA-5c

12

SSA-5e

7



**LEGEND**

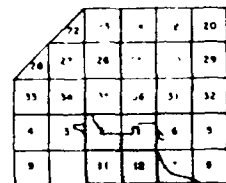
- Improved Road
- - - Unimproved Road
- - - - Railroad Tracks
- ▭ Existing Structure
- ▭ Former Structure
- - - Fence
- 6 Section Number
- - - Stream or Ditch
- ▭ Study Area Boundary

174,000 State Plane Grid

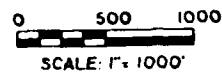


Extent of Potential Contamination in Soils and Sediments  
Widths less than 50 feet and diameters less than 75 feet, not shown to scale.

ROCKY MOUNTAIN ARSENAL



17.5 MILES

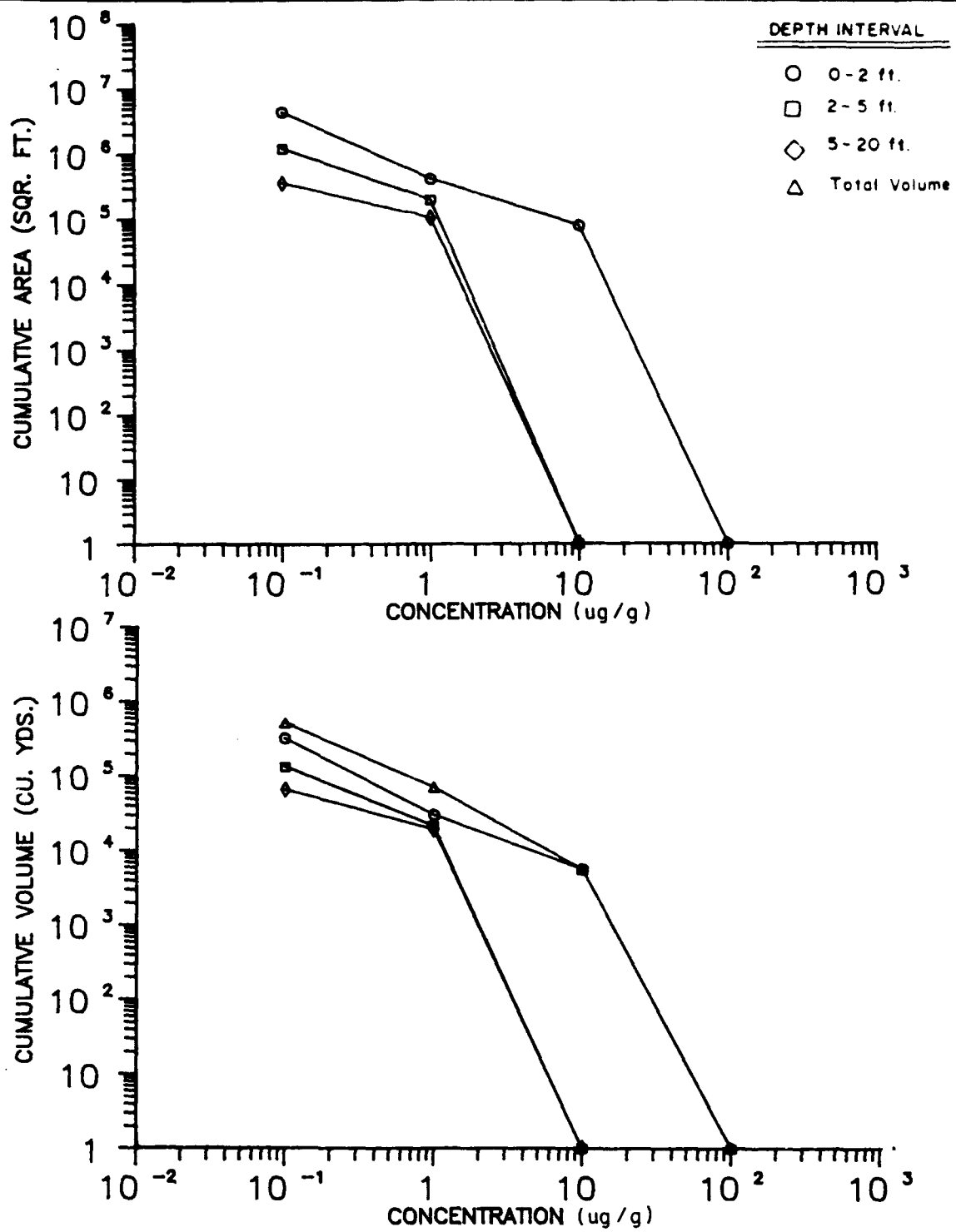


Prepared for:

Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE SSA 3.4-14**  
Estimated Areal Extent of  
Potential Contamination for Arsenic,  
0-5 ft. Depth Interval  
Rocky Mountain Arsenal

Prepared by:  
**Ebasco Services Incorporated**



Prepared for:

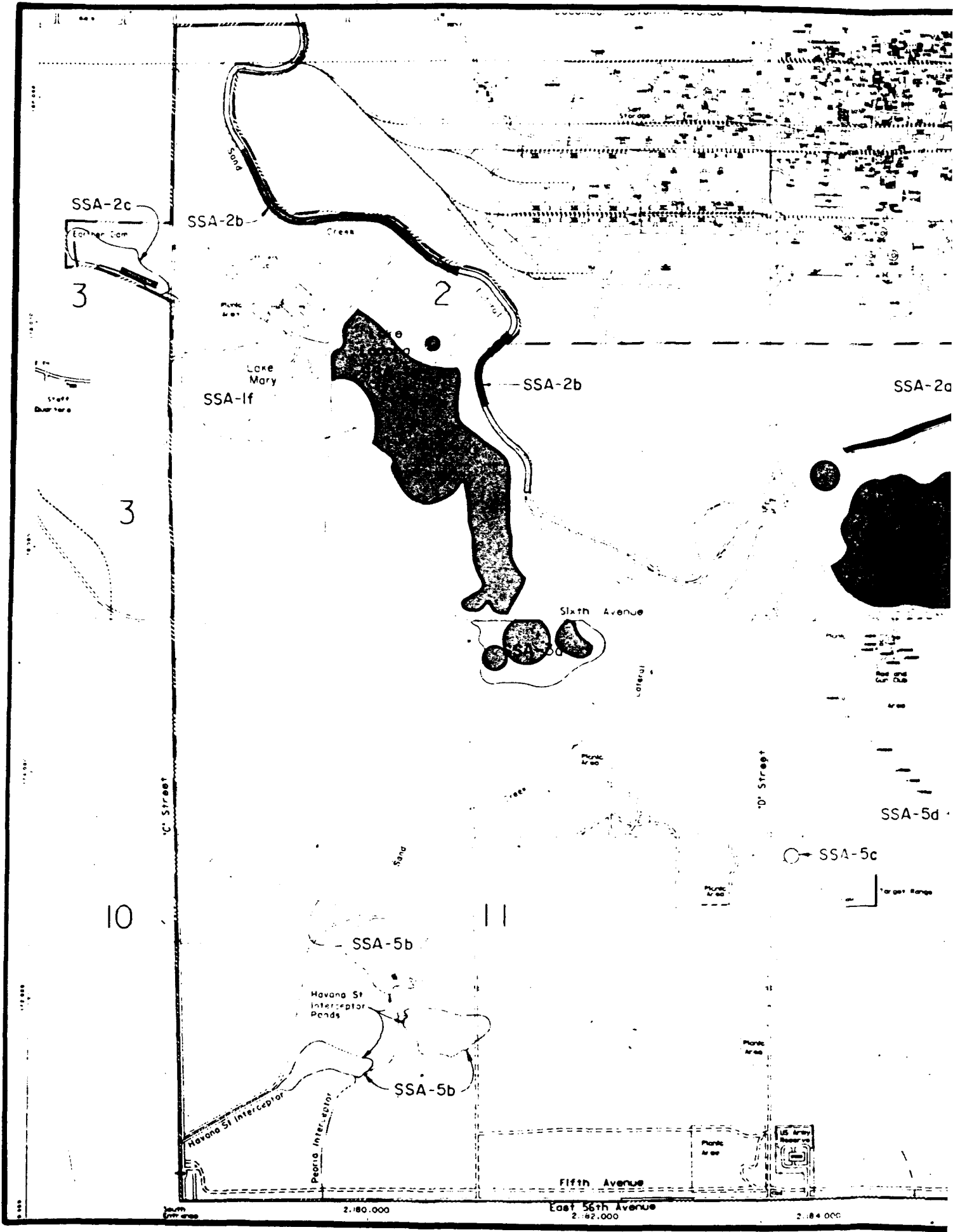
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup  
Aberdeen Proving Ground, Maryland

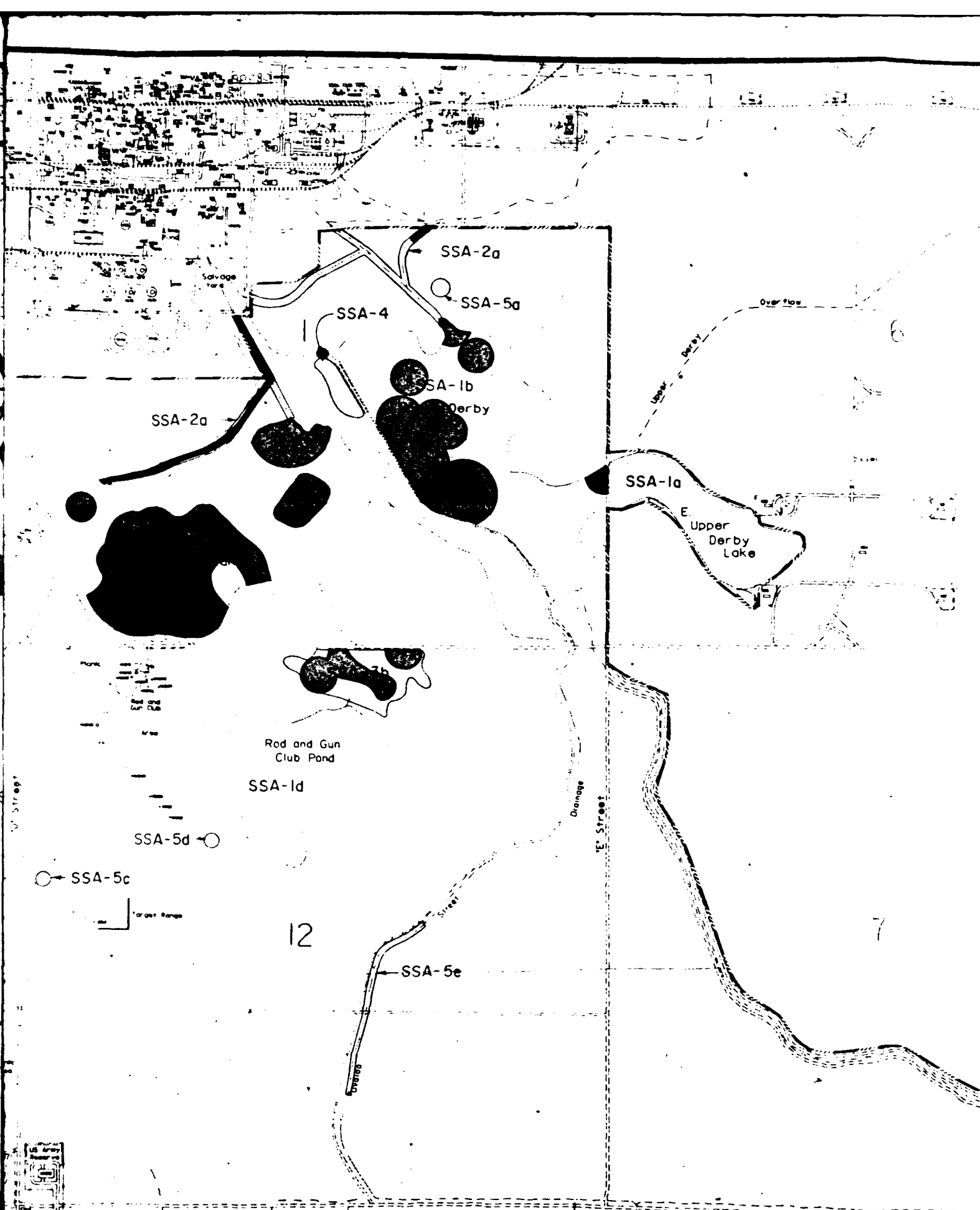
FIGURE SSA 3.4-15

Cumulative Area and Volume of  
Potentially Contaminated Soil for  
Mercury

Rocky Mountain Arsenal

Prepared by: Ebasco Services Incorporated





Salvage Yard

SSA-2a

SSA-5a

SSA-4

SSA-1b

Derby

SSA-2a

SSA-1a

E Upper Derby Lake

Rod and Gun Club Pond

SSA-1d

SSA-5d

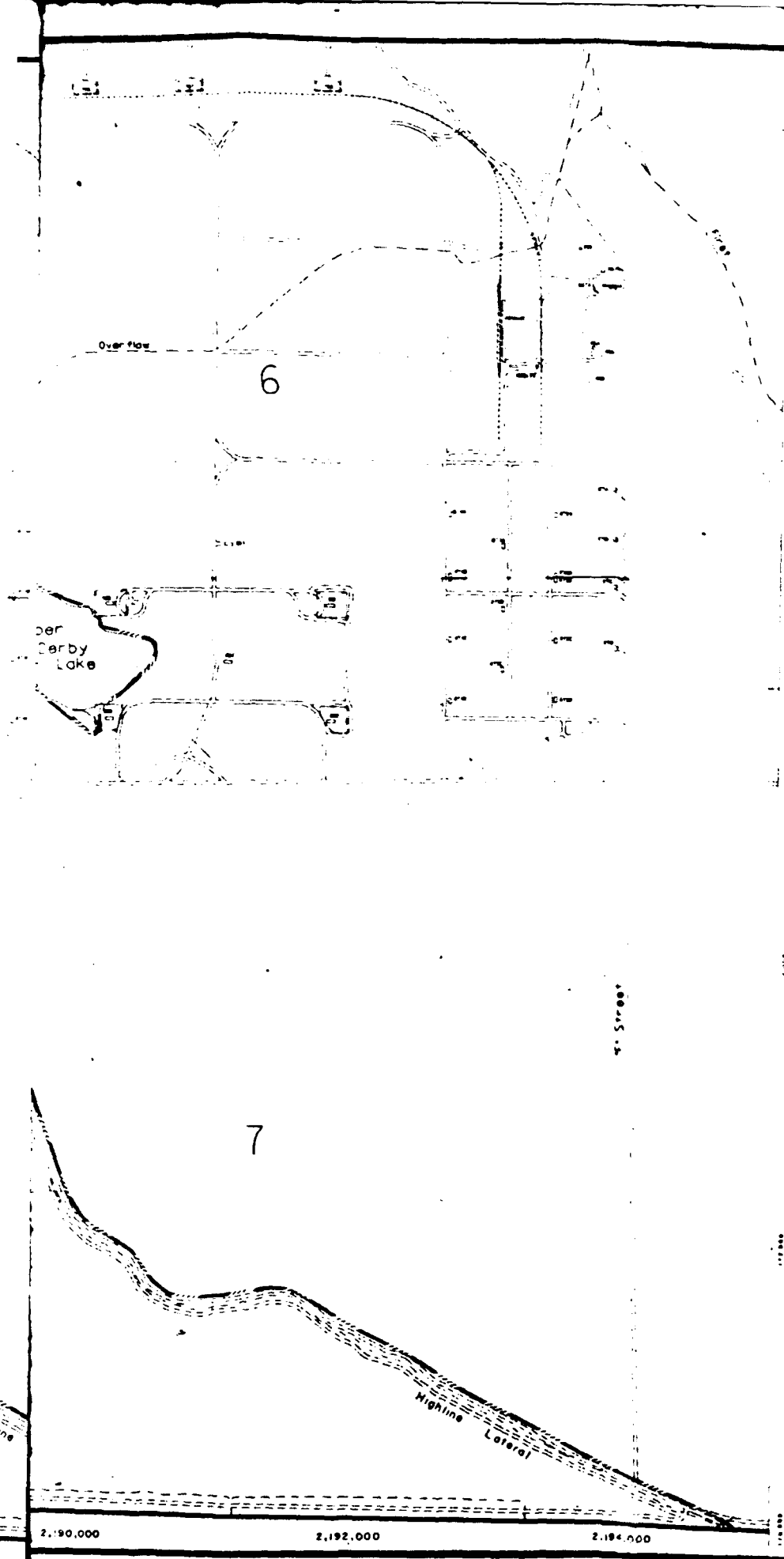
SSA-5c

Target Range

12

SSA-5e

7



**LEGEND**

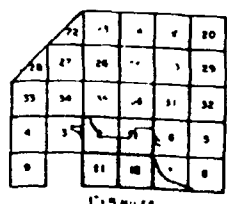
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid



Extent of Potential Contamination in Soils and Sediments  
Widths less than 50 feet and diameters less than 75 feet, not shown to scale.

ROCKY MOUNTAIN ARSENAL



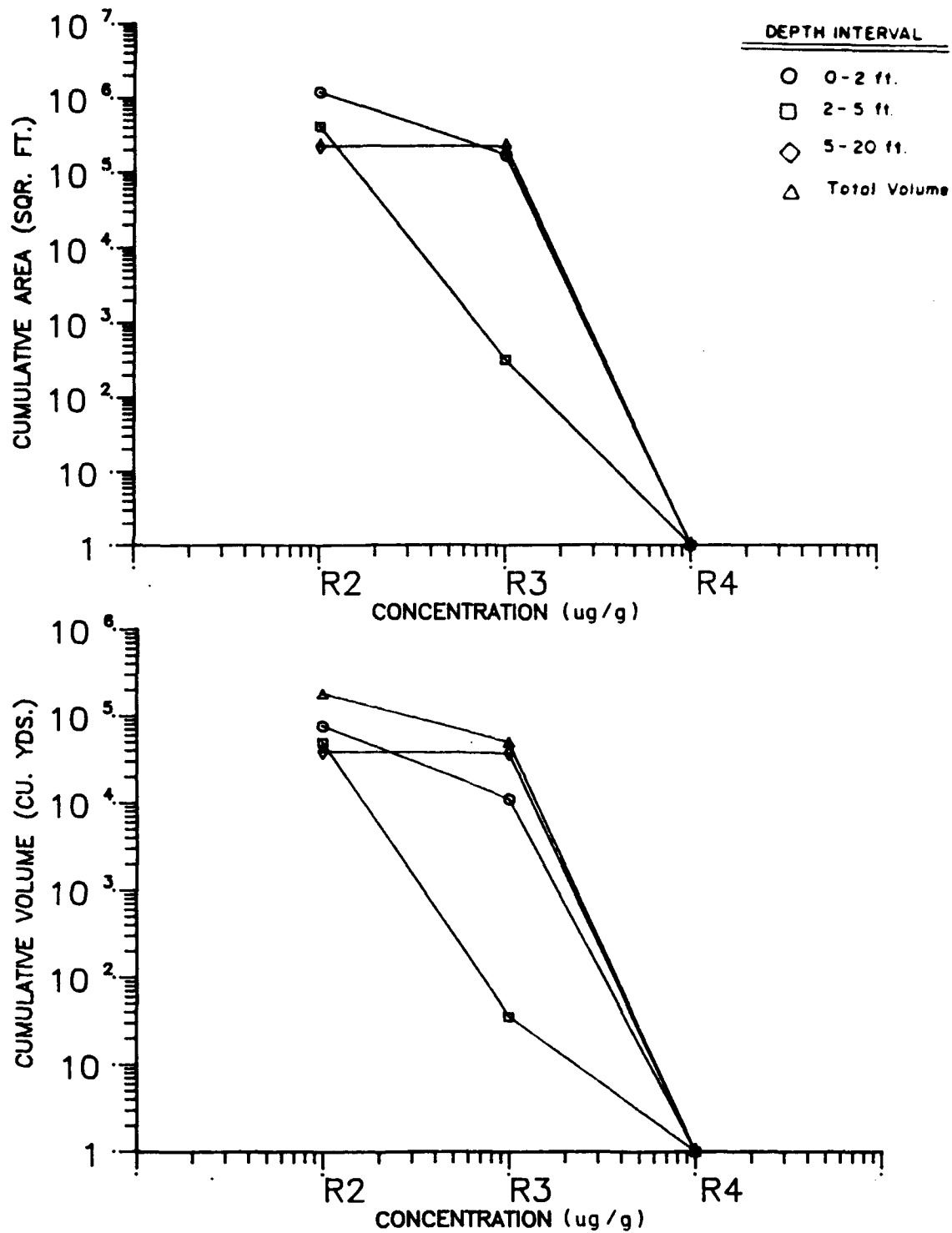
1" = 5 MILES



SCALE: 1" = 1000'

Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE: SSA 3.4-16  
Estimated Areal Extent of  
Potential Contamination for Mercury,  
0-5 ft. Depth Interval  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated



**Prepared for:**

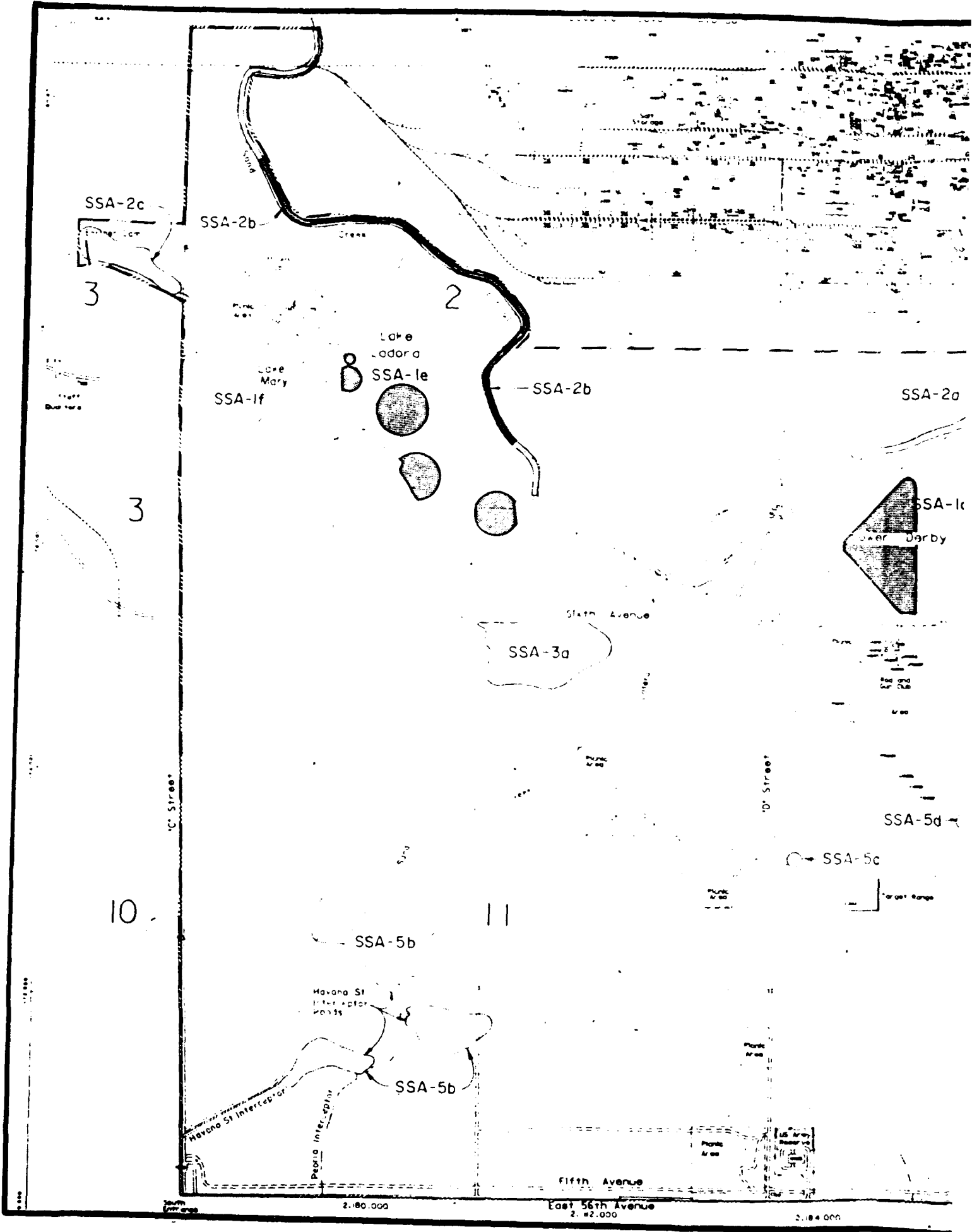
Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup  
 Aberdeen Proving Ground, Maryland

**FIGURE SSA 3.4-17**

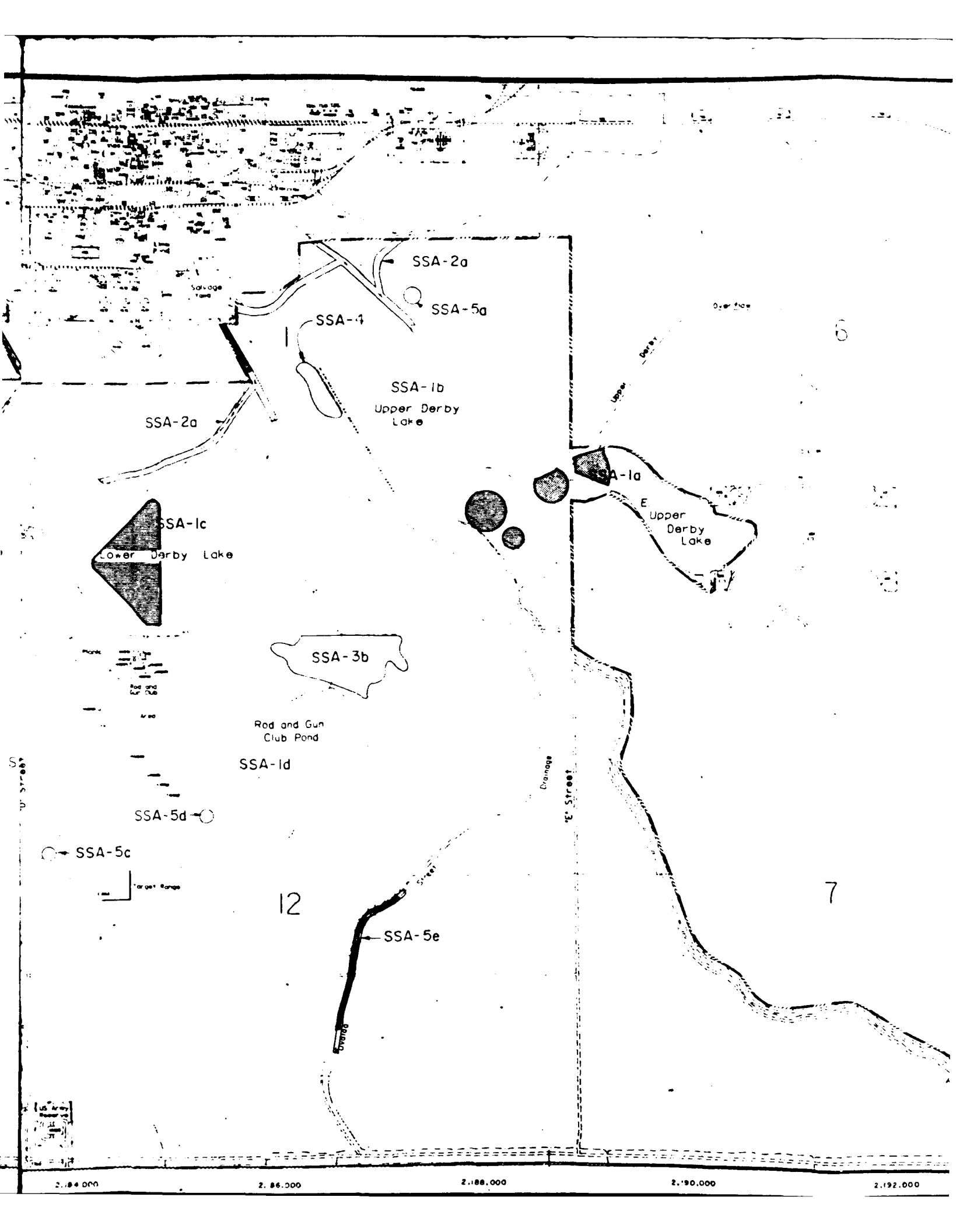
Cumulative Area and Volume of  
 Potentially Contaminated Soil for  
 ICP Metals

Rocky Mountain Arsenal,

Prepared by: Ebasco Services Incorporated







SSA-2a

SSA-5a

SSA-4

SSA-1b  
Upper Derby Lake

SSA-2a

SSA-1c

Lower Derby Lake

SSA-1a

E Upper Derby Lake

SSA-3b

Rod and Gun Club Pond

SSA-1d

SSA-5d

SSA-5c

SSA-5e

2,184,000

2,186,000

2,188,000

2,190,000

2,192,000

6

7

12

Target Range

S Street

E Street

Drainage

Sewage Line

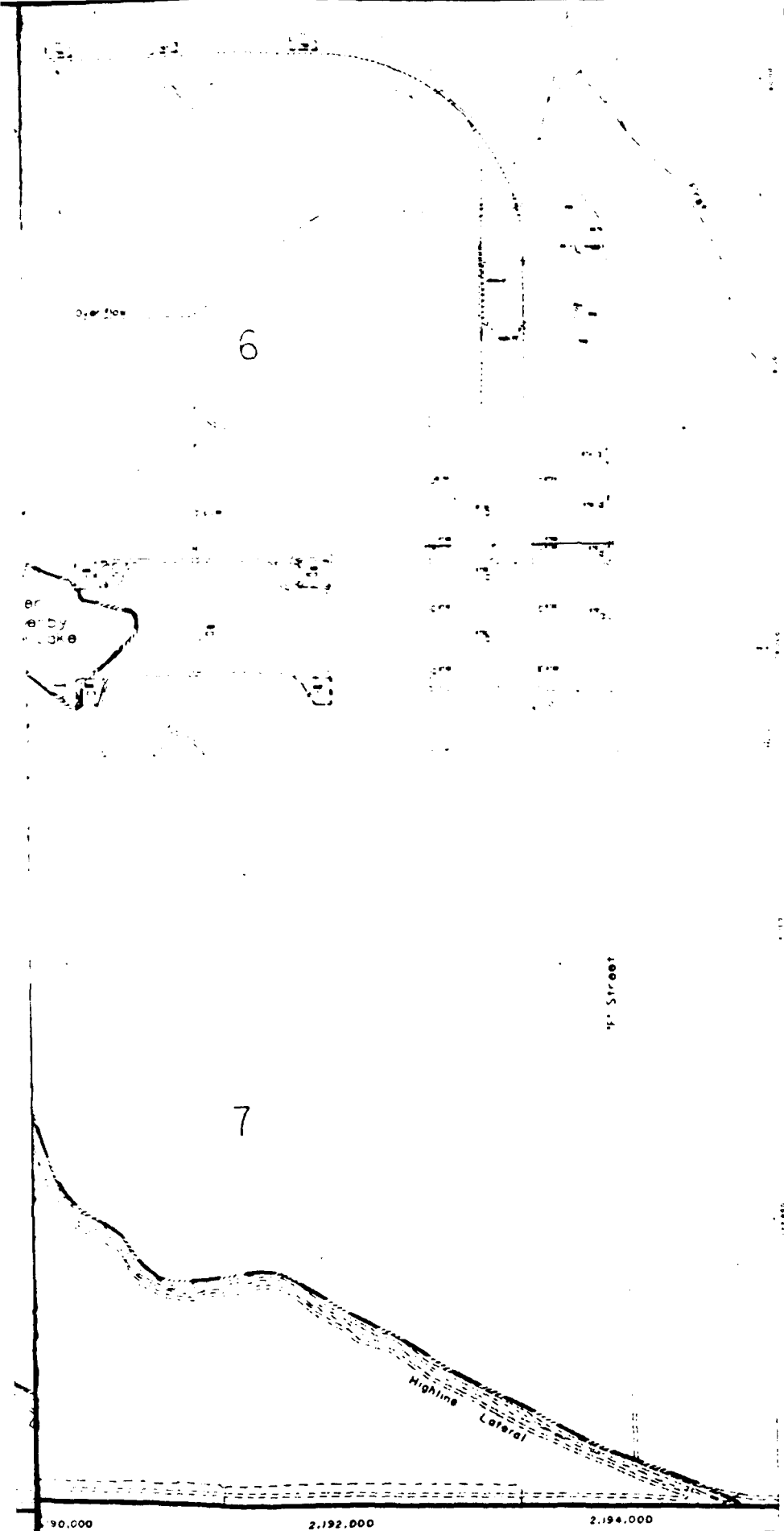
Over flow

Upper Derby

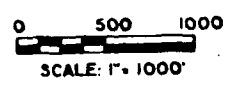
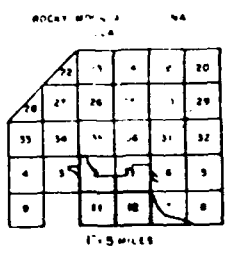
Drainage

Street

Scale bar and other markings

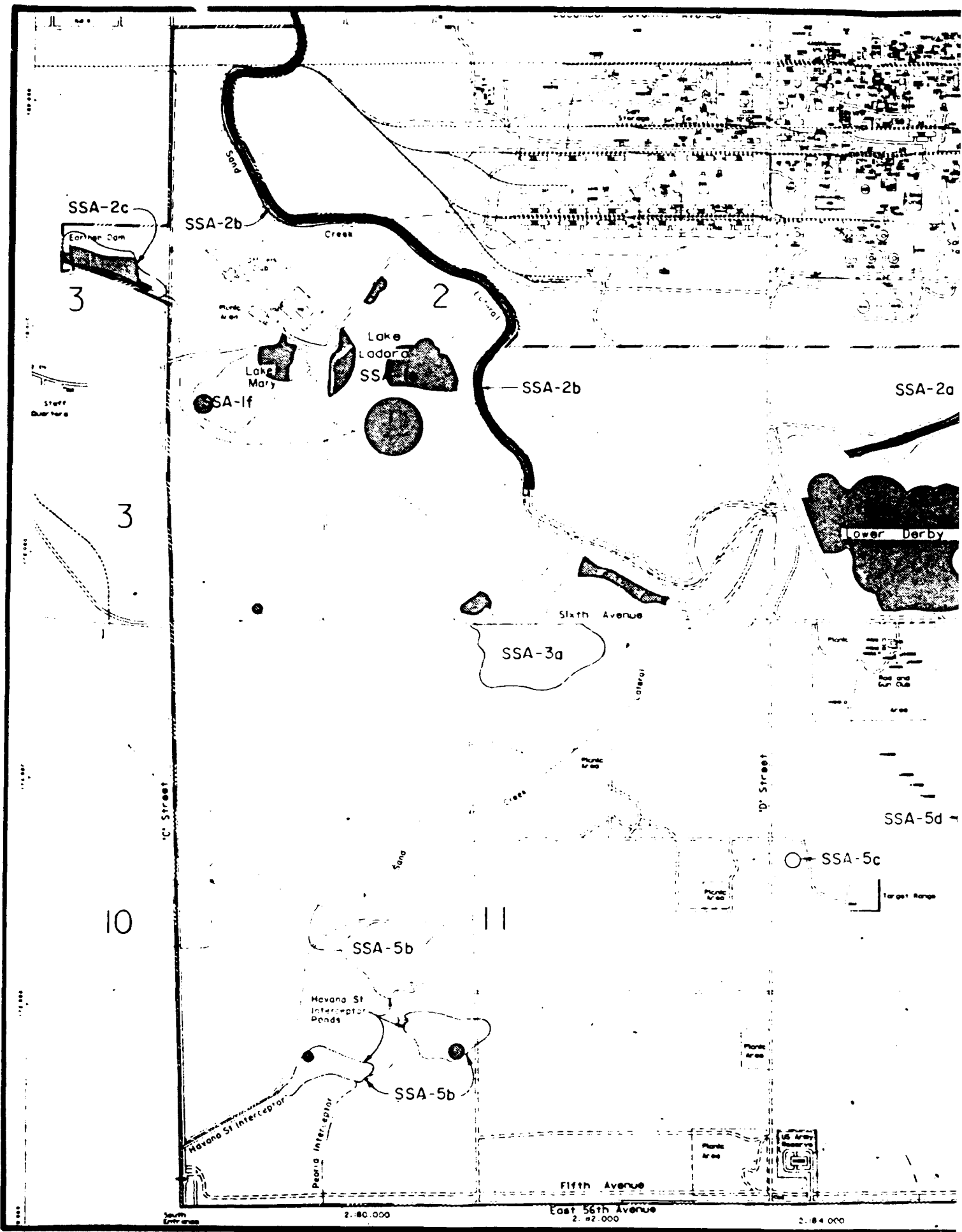


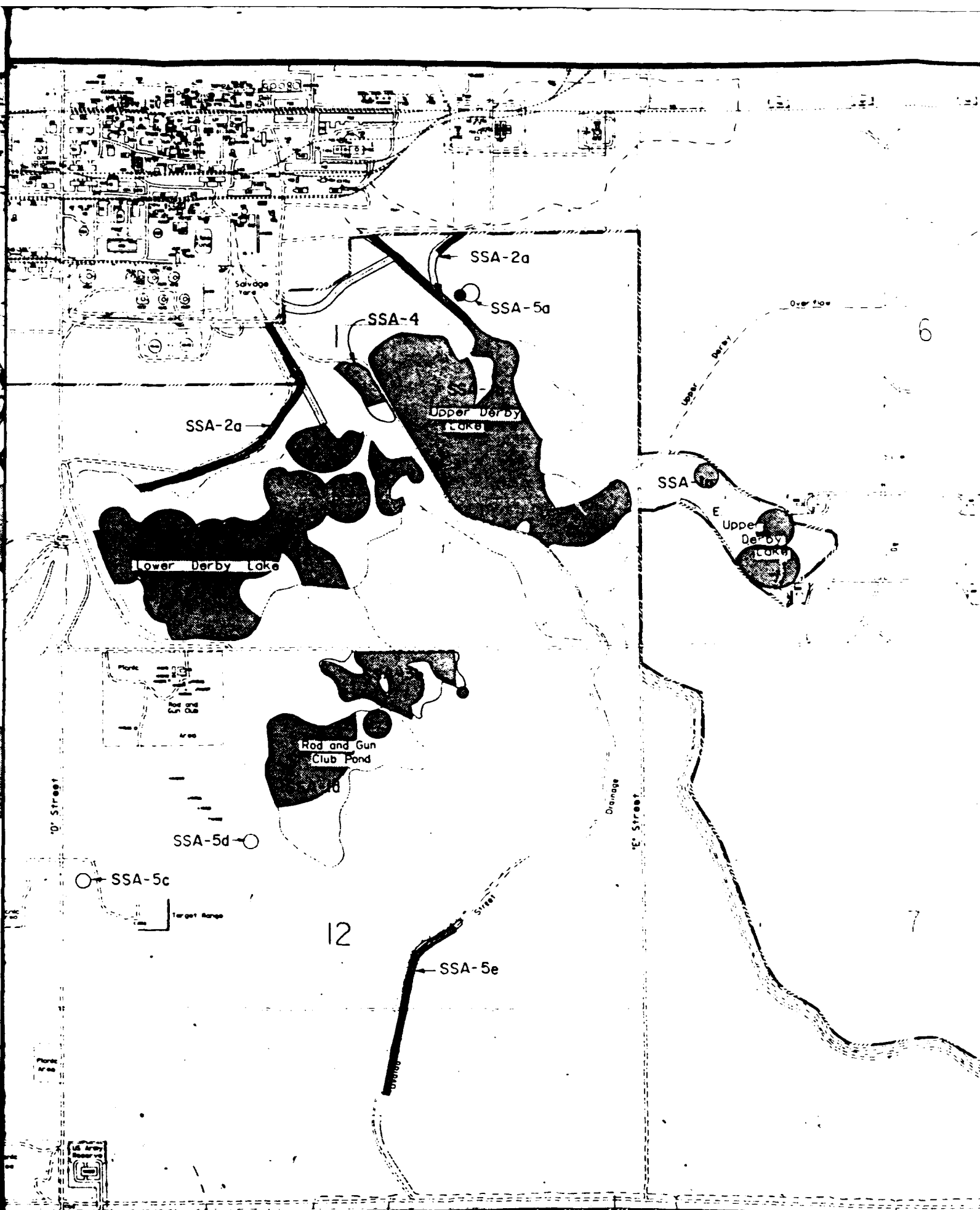
- LEGEND**
- Improved Road
  - - - Unimproved Road
  - - - Railroad Tracks
  - - - Existing Structure
  - - - Former Structure
  - - - Fence
  - 6** Section Number
  - - - Stream or Ditch
  - - - Study Area Boundary
  - 174,000 State Plane Grid
  - Extent of Potential Contamination in Soils and Sediments  
Widths less than 50 Feet and Diameters less than 75 Feet, Not Shown To Scale



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

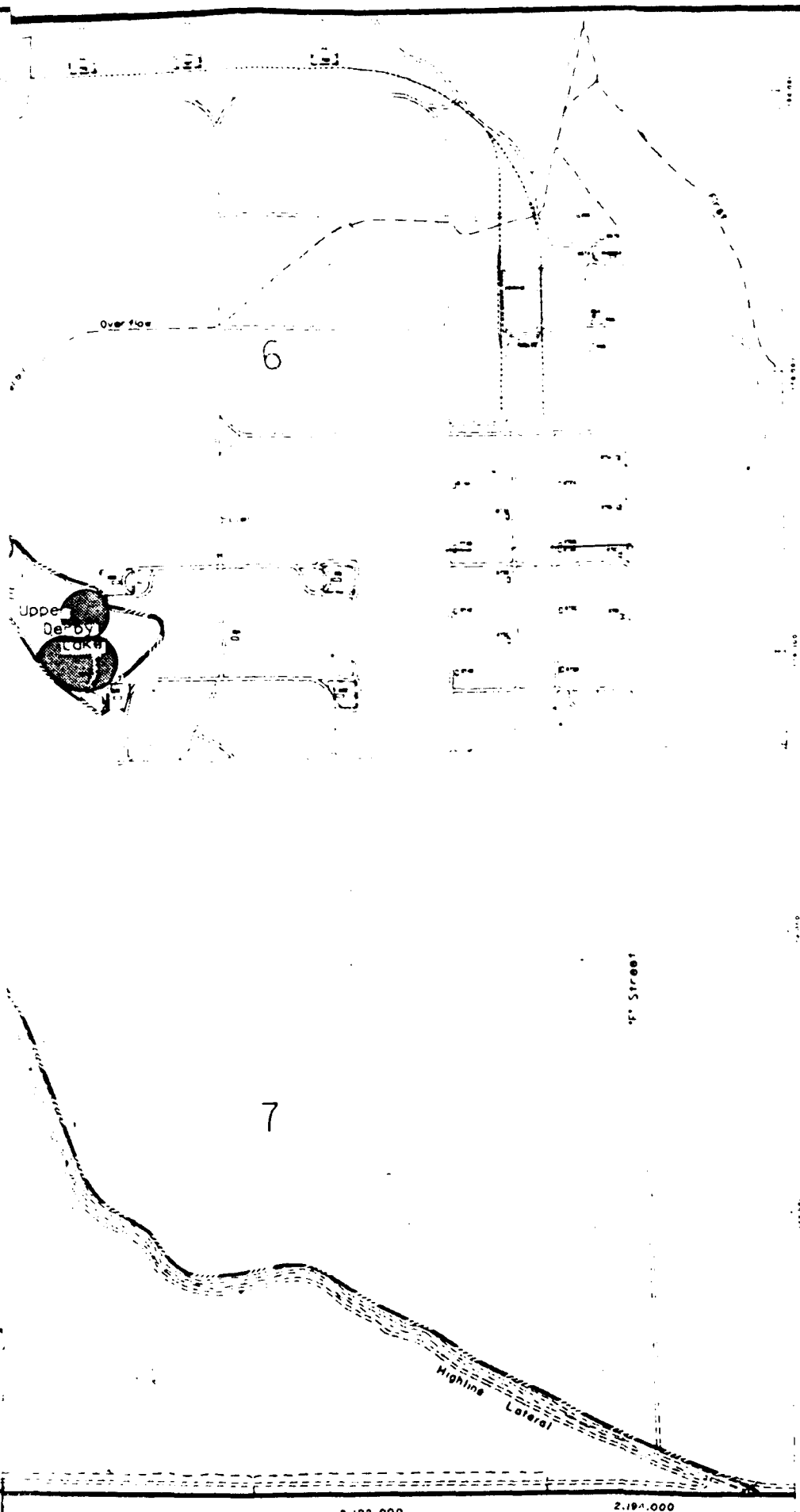
**FIGURE: SSA 3.4-18**  
 Estimated Areal Extent of Potential Contamination  
 for ICP Metals, 0-5 ft. Depth Interval  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated





6

7



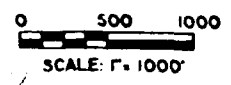
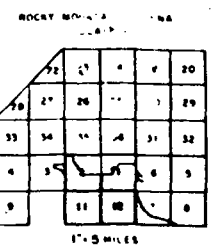
**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

1"=4,000 State Plane Grid

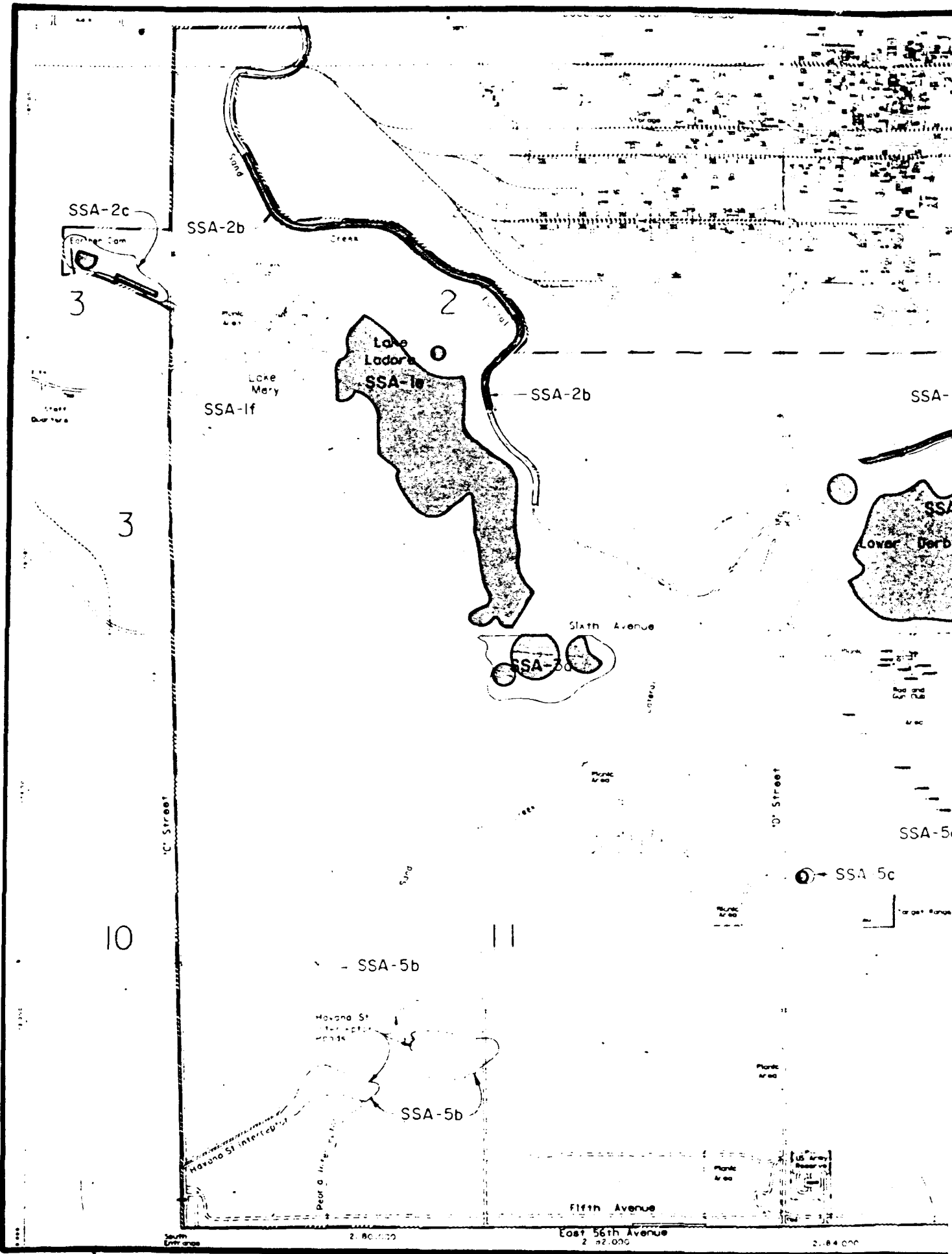


Extent Of Potential Contamination  
In Soils and Sediments  
Widths less Than 50 Feet and Diameters  
less Than 75 Feet, Not Shown To Scale



Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 3.4-19**  
Estimated Areal Extent of Potential Contamination  
for Total Organics, 0-5 ft. Depth Interval  
**Rocky Mountain Arsenal**  
Prepared by:  
**Ebasco Services Incorporated**



SSA-2c

Entrance Cam

3

SSA-2b

2

Lowe Ladora

SSA-1a

SSA-2b

SSA-1f

SSA-1

3

SSA-1  
Lowe Ladora

Sixth Avenue

SSA-2d

SSA-5a

5 → SSA-5c

SSA-5b

SSA-5b

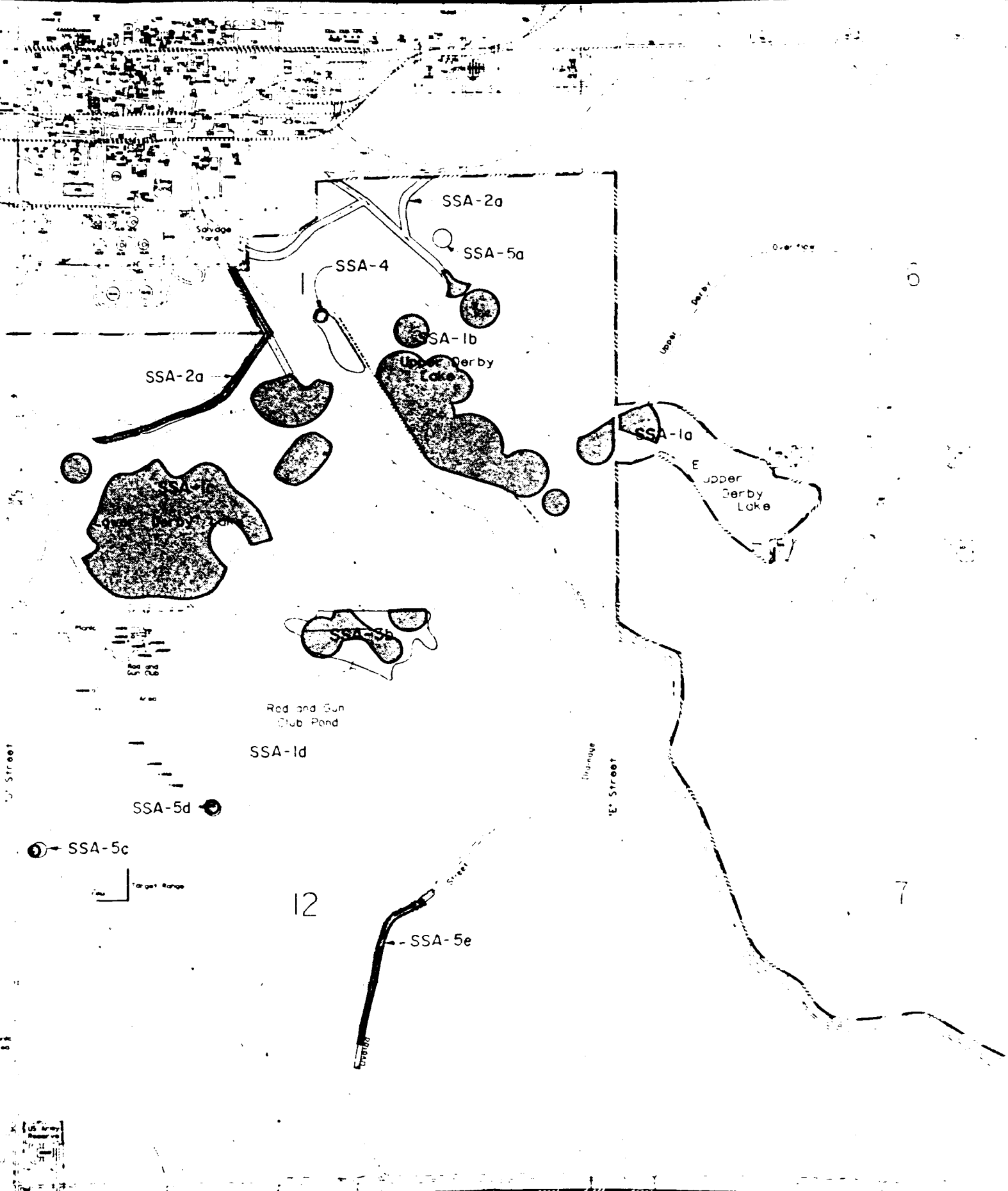
Fifth Avenue

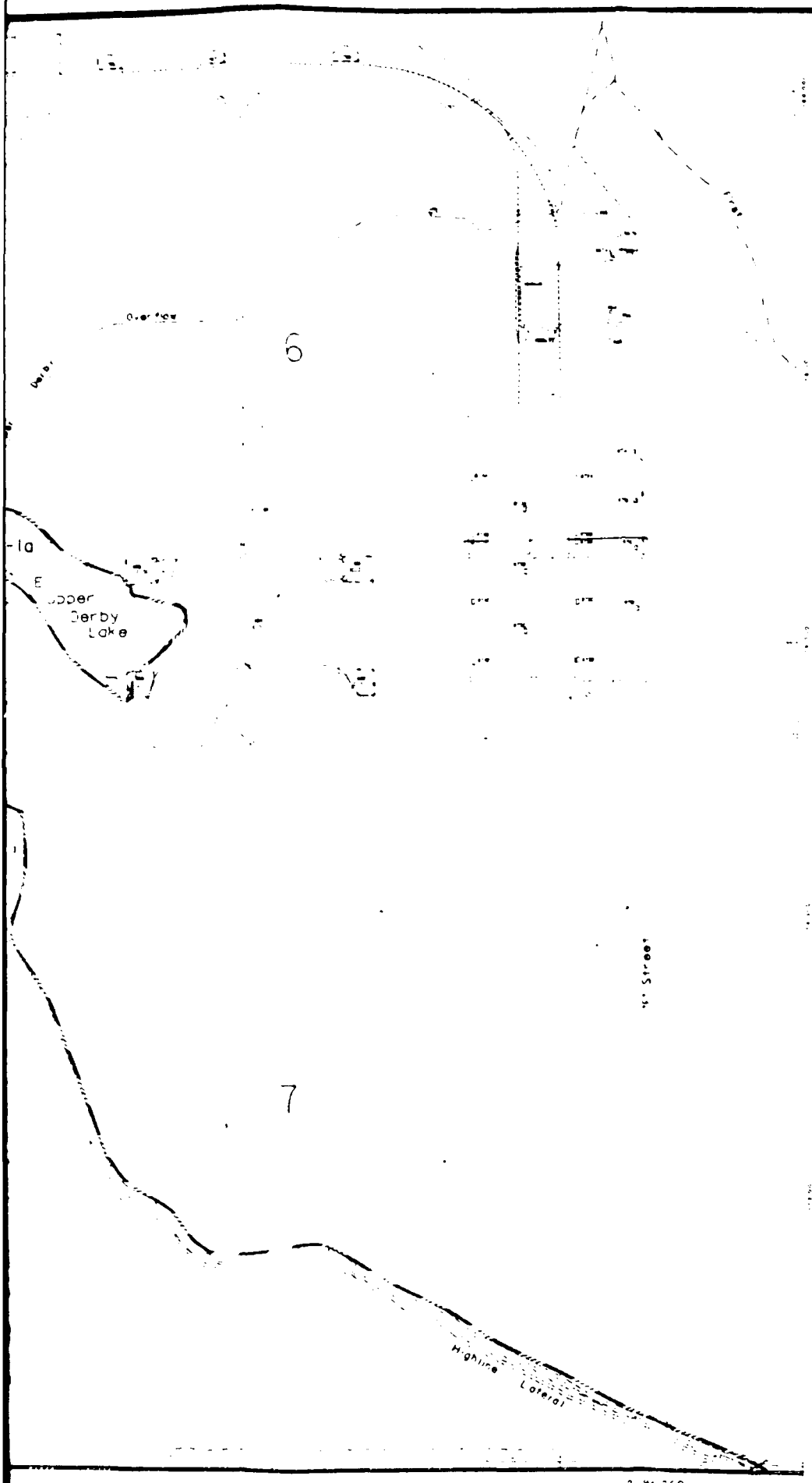
East 56th Avenue  
2 02 030

2 04 000

South Entrance

2 06 000





**LEGEND**

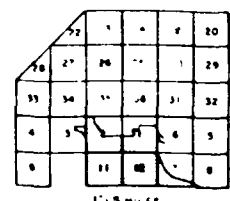
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary

174,000 State Plane Grid

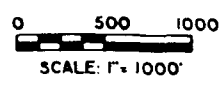


Extent of Potential Contamination in Soils and Sediments  
Widths less than 50 feet and diameters less than 75 feet, not shown to scale.

ROCKY MOUNTAIN ARSENAL



1" = 500 FEET



Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

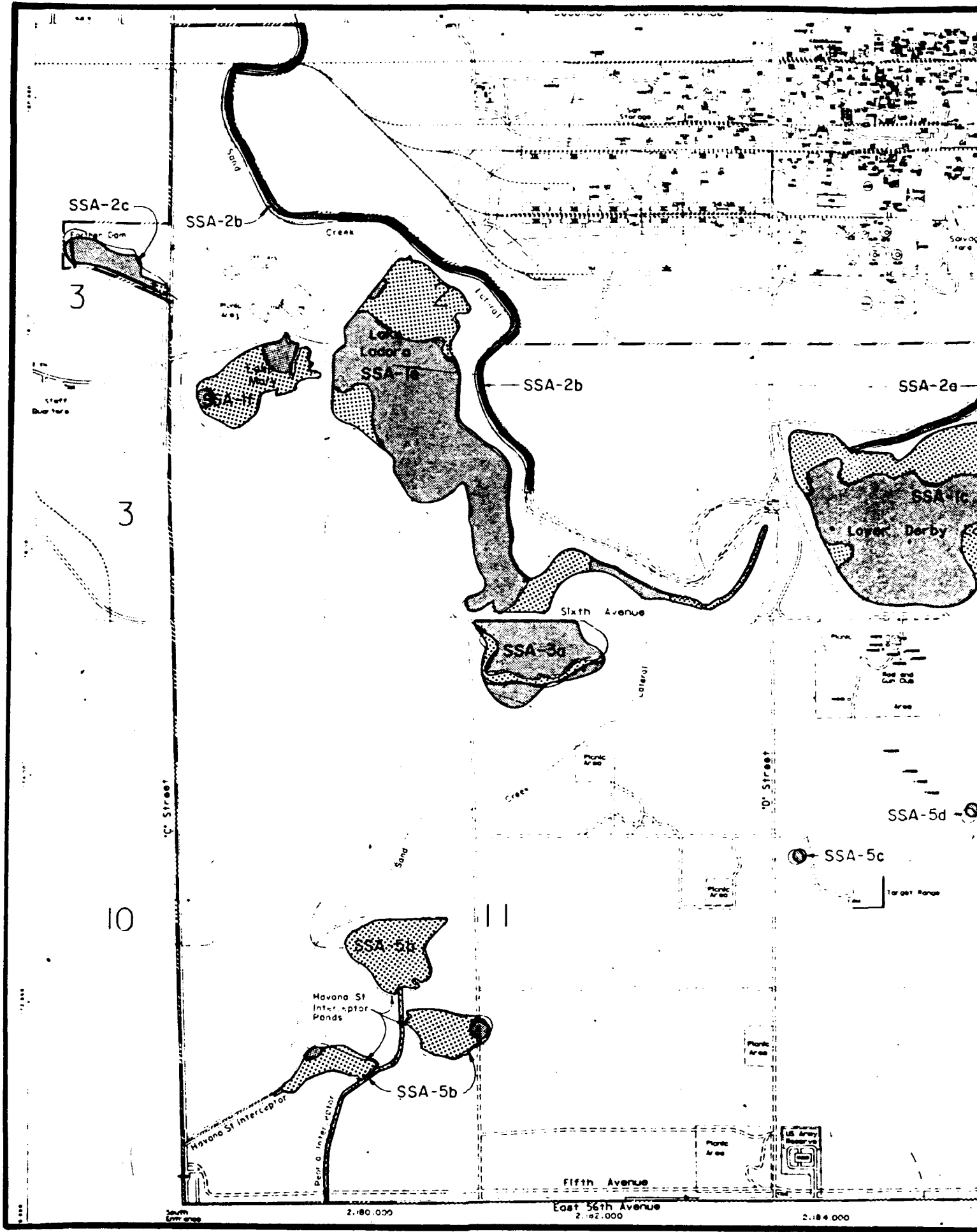
FIGURE: SSA 3.4-20  
Estimated Areal Extent of Potential  
Contamination for Total Inorganics,  
0-5 ft. Depth Interval  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated

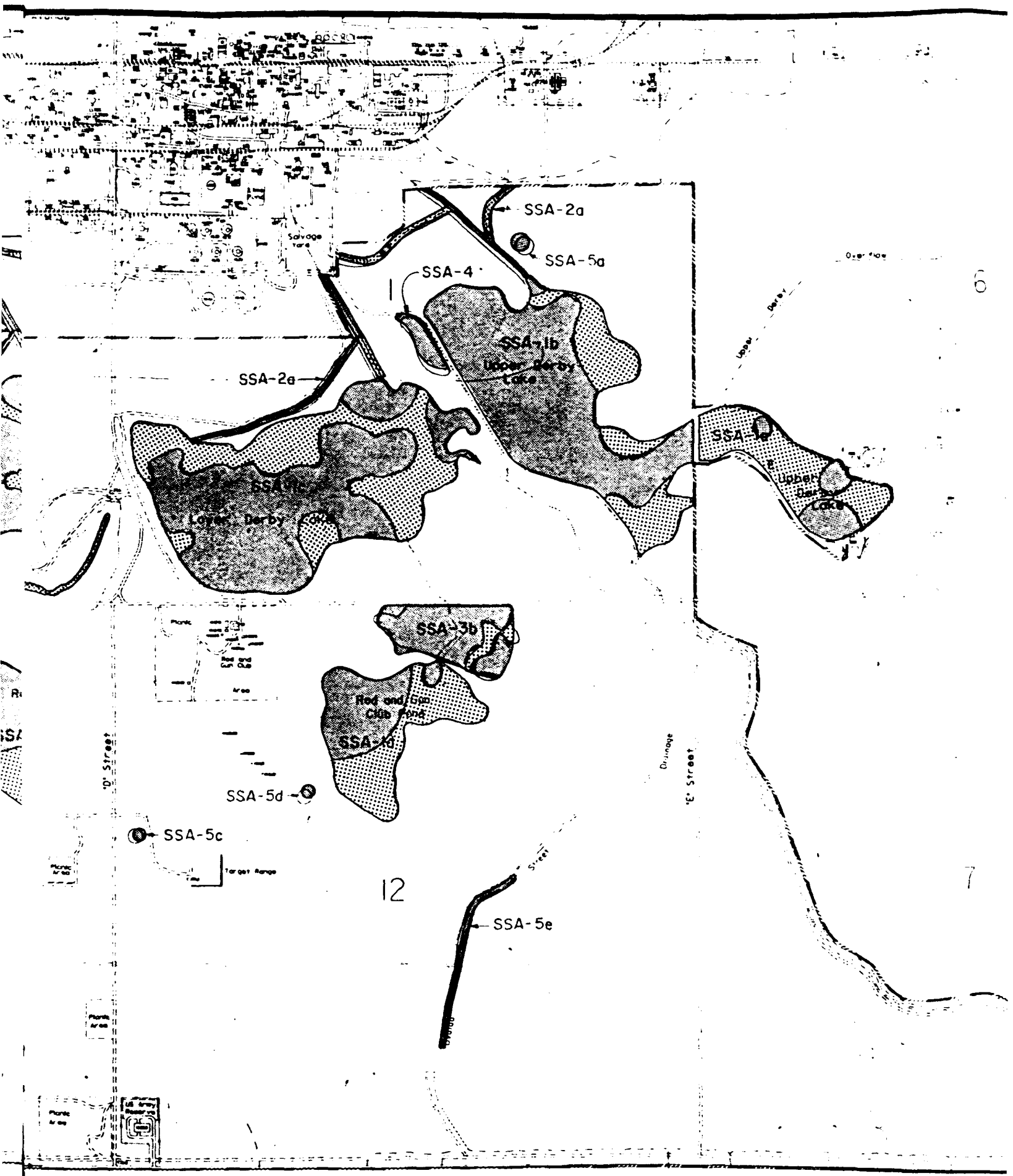
2,190,000

2,192,000

2,194,000



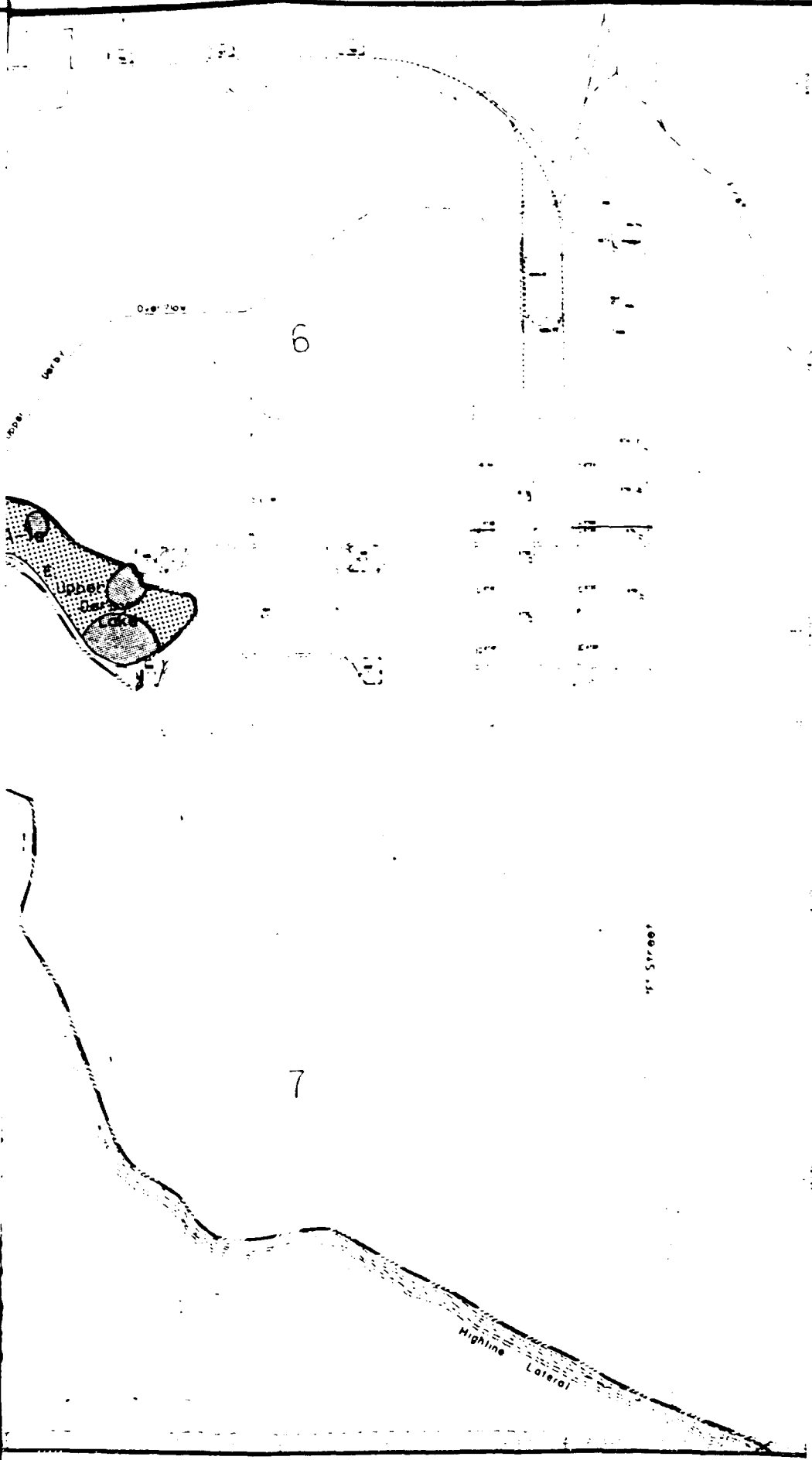




6

7

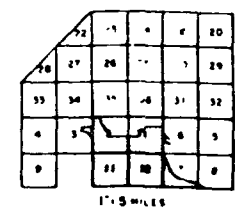
12



**LEGEND**

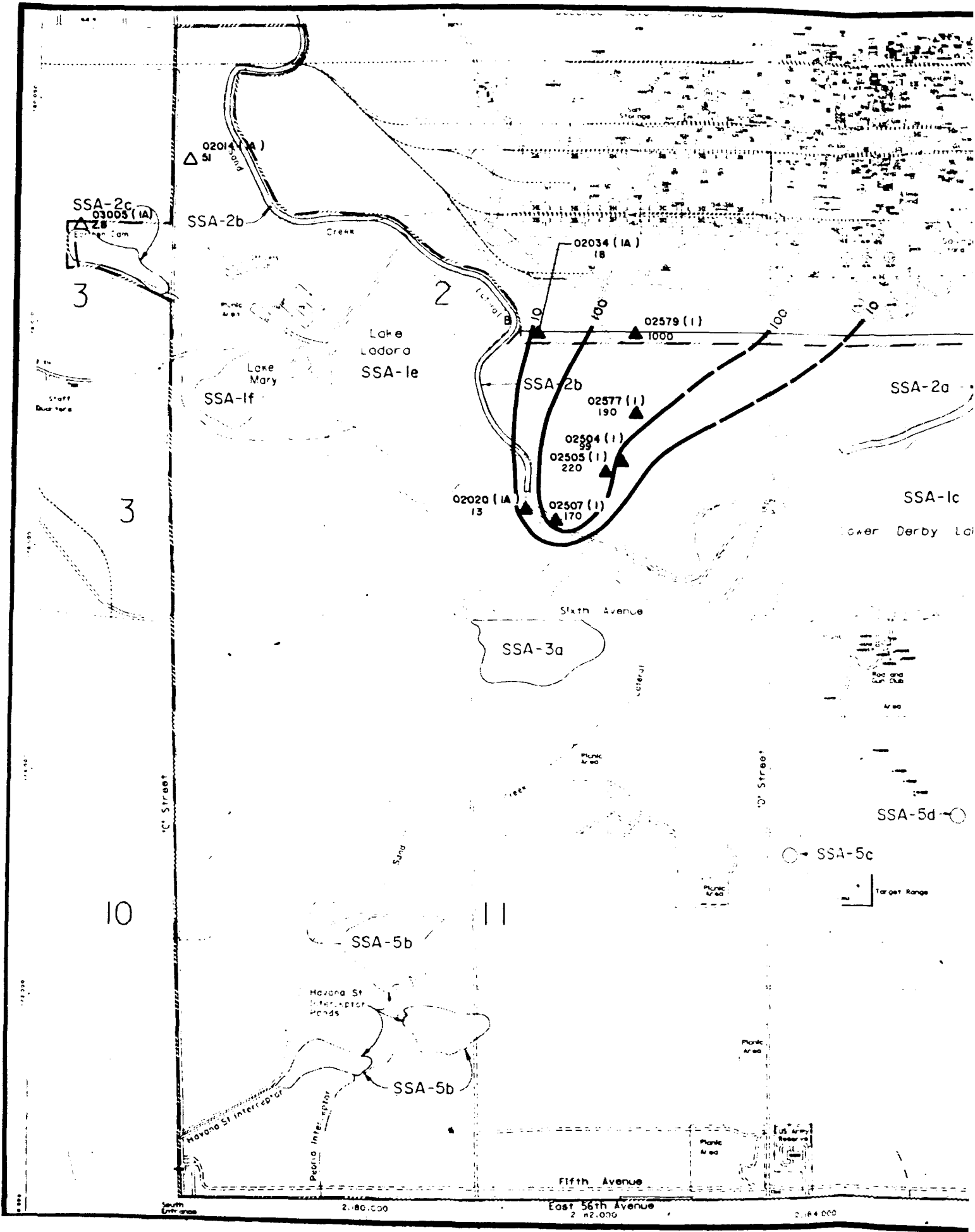
- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid
- Total area of potential contaminants in soils based on historical information, and distribution mechanisms
- Total area of detected contaminants in soils of all depths based on analytical results

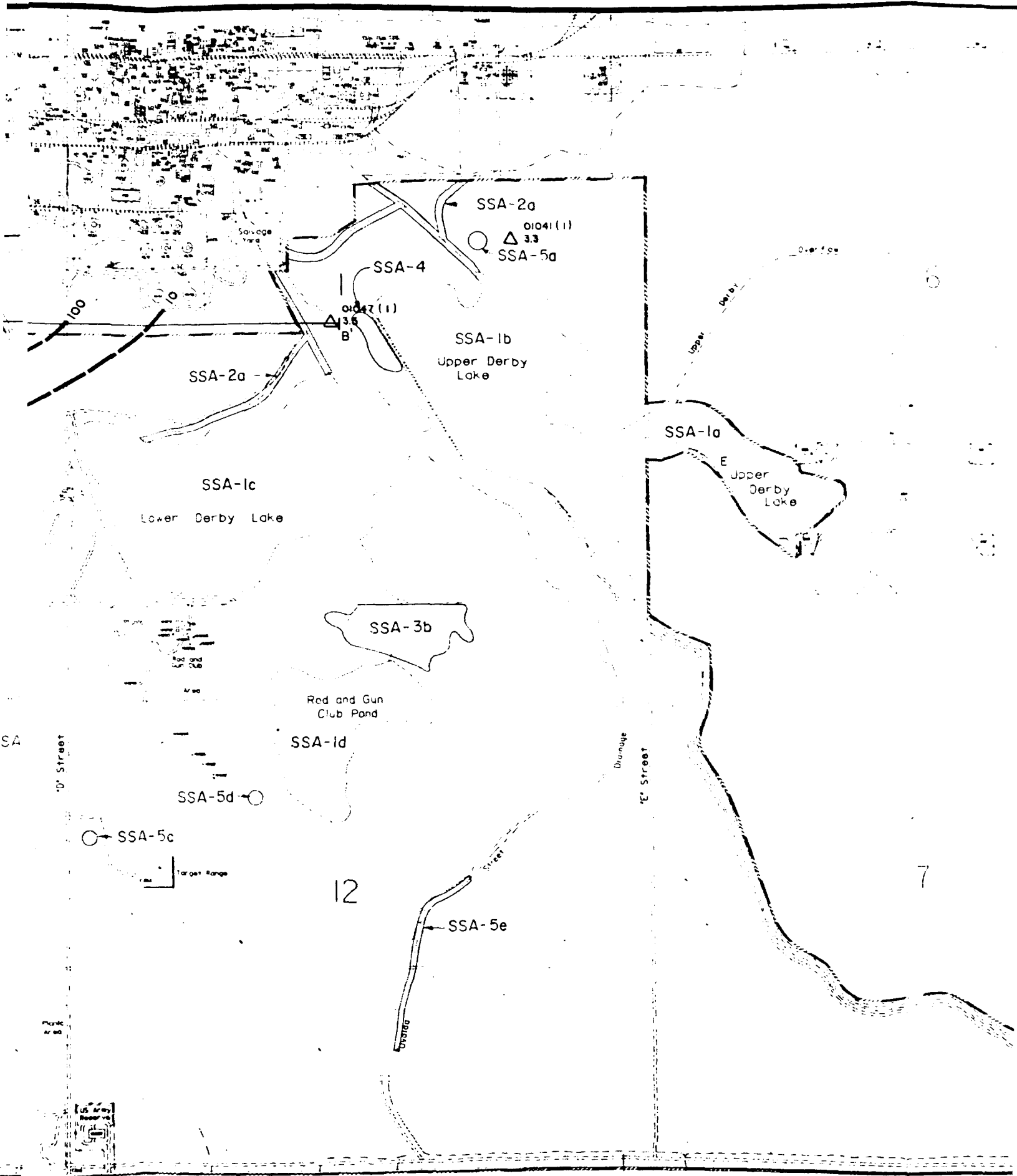
ROCKY MOUNTAIN ARSENAL



Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 3.4-21**  
 Total Area of Potential Contaminants in Soils  
 Based on Analytical Results, Historical  
 Information, and Distribution Mechanisms  
 Rocky Mountain Arsenal  
 Prepared by:  
 Ebasco Services Incorporated





SSA-2a

01041 (1)  
3.3  
SSA-5a

SSA-4

01047 (1)  
3.6  
B

SSA-1b  
Upper Derby Lake

SSA-2a

SSA-1c

Lower Derby Lake

SSA-1a

E  
Upper Derby Lake

SSA-3b

Red and Gun Club Pond

SSA-1d

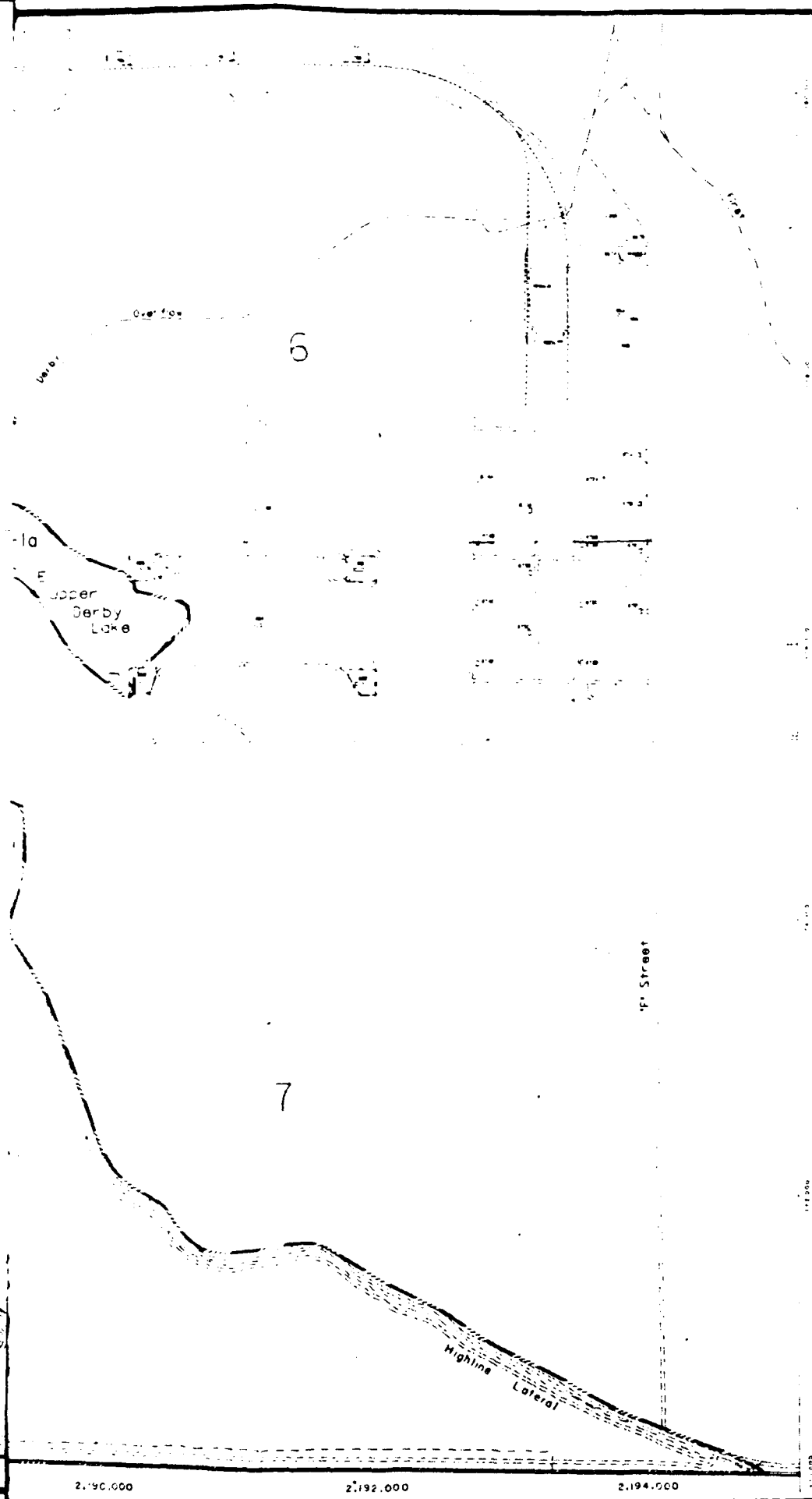
SSA-5d

SSA-5c

Target Range

12

SSA-5e



**LEGEND**

- Improved Road
- - - - Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- - - - Fence
- 6** Section Number
- ~ Stream or Ditch
- ▬ Study Area Boundary

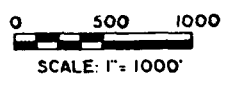
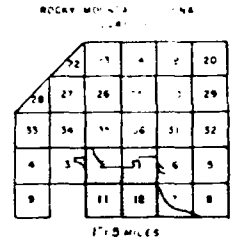
174,000 State Plane Grid

- ▲ 02579(i) Well ( Water Bearing Zone )  
1000 Detection in micrograms per liter (ug/l)
- △ 02014(iA)  
3.0 Isolated Detection in micrograms per liter (ug/l)

Equipconcentration Line,  
Concentration in (ug/l )  
( Dashed Where Inferred )

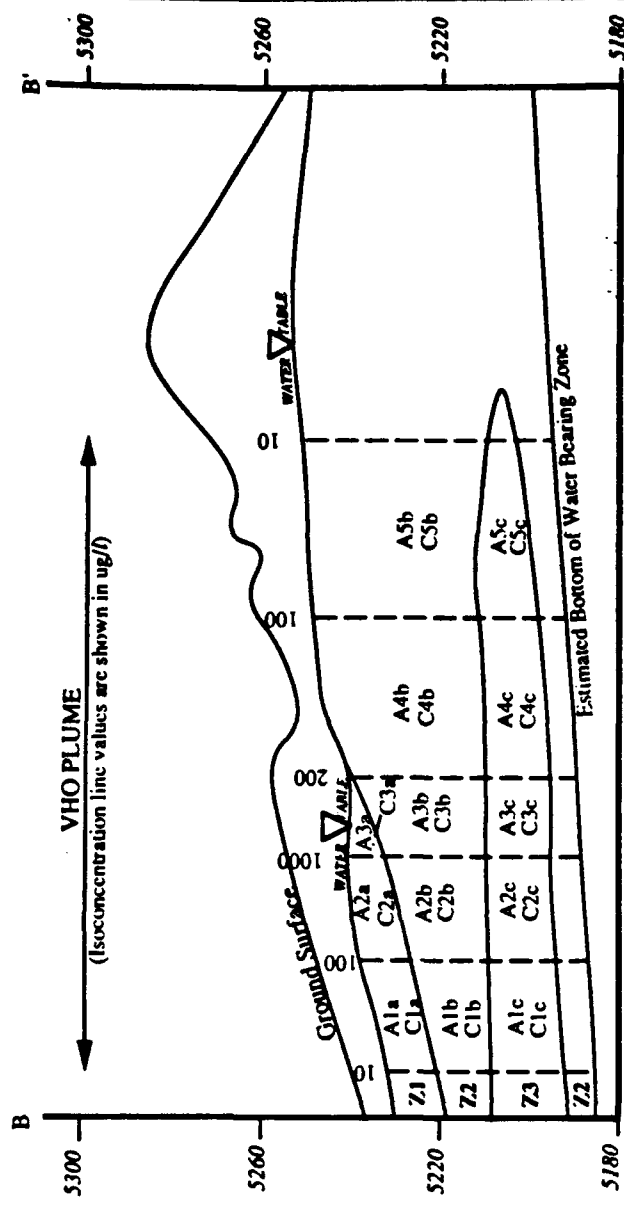
B B'  
Cross-section Location

**Notes:**  
All data from Morrison Knudsen  
Engineers, ( 1988 ) and,  
Environmental Science and  
Engineering, ( 1987 )



Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

**FIGURE: SSA 3.5-1**  
Volatile Halogenated Organics  
Plume in Water Bearing Zones IA & I  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated



APPROXIMATE HORIZONTAL SCALE: 1" = 800'  
 APPROXIMATE VERTICAL SCALE: 1" = 40'  
 NOTE: Vertical dimension in feet msl.

A1a= 5000	C1a= 59.5	ug/l
A2a= 3975	C2a= 340	"
A3a= 880	C3a= 1000	"
A1b= 8750	C1b= 61.4	"
A2b= 12,190	C2b= 609	"
A3b= 13,200	C3b= 547	"
A4b= 22,010	C4b= 148	"
A5b= 35,275	C5b= 49.2	"
A1c= 7750	C1c= 53.5	"
A2c= 7685	C2c= 535	"
A3c= 6160	C3c= 600	"
A4c= 8990	C4c= 148	"
A5c= 8715	C5c= 74.3	"

TOTAL AREA OF SATURATED ALLUVIUM = A = 138,520 sq ft

AVERAGE HYDRAULIC CONDUCTIVITY (Z1) = K1 = 0.02 cm/sec

AVERAGE HYDRAULIC CONDUCTIVITY (Z2) = K2 = 0.001 cm/sec

AVERAGE HYDRAULIC CONDUCTIVITY (Z3) = K3 = 0.008 cm/sec

AVERAGE HYDRAULIC GRADIENT = I = 0.015

CONVERSION FACTORS

(sqft)(cm/sec) = 21,203 gpd

(gpd/sqft) = 3.7854 EE-6 cm/day

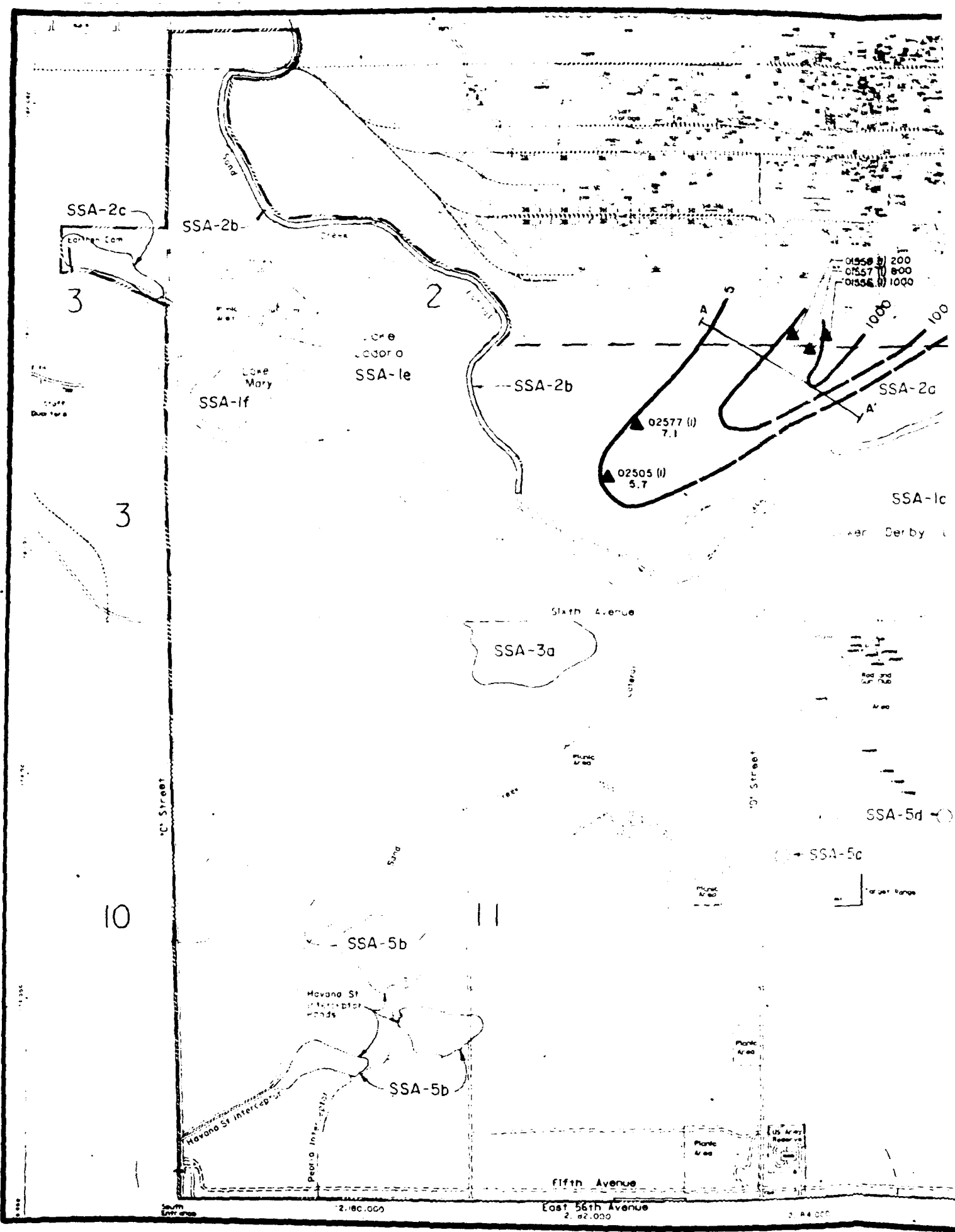
UNCONFINED ALLUVIAL FLOW RATE = Q = (21,203)(K)(A)(i) = 191,757.3 gpd

CONTAMINANT MASS FLOW RATE = M = (3.7854 EE-6)(Q)(A) C<sub>n</sub>A<sub>n</sub>; n = 1,2,...,13 = 183.4 grams/day

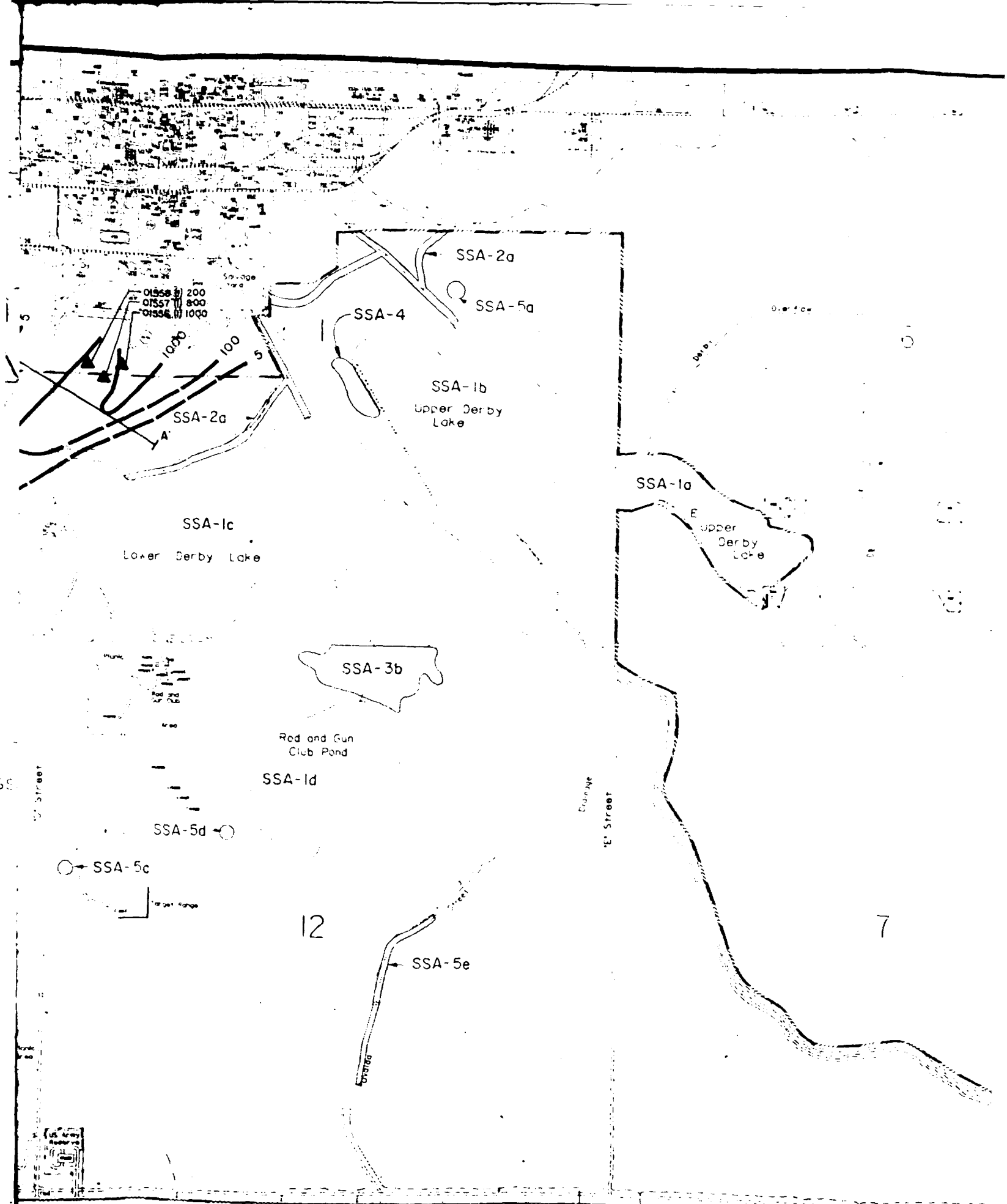
- Z1 = ALLUVIUM
- Z2 = DENVER FORMATION CLAYSTONE
- Z3 = DENVER FORMATION SANDSTONE

Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup  
 Aberdeen Proving Ground, Maryland

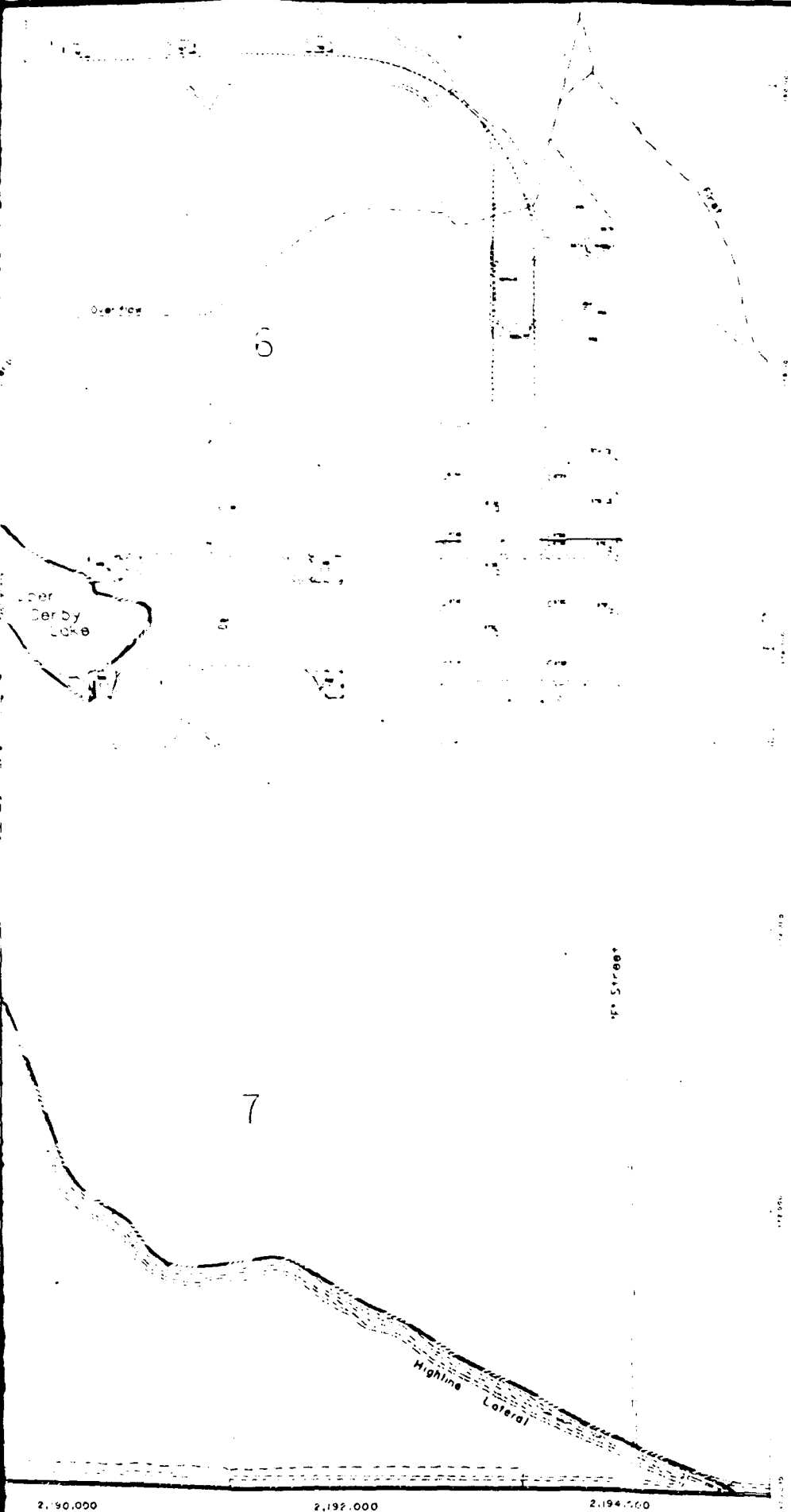
FIGURE SSA 3.5-2  
 Contaminant Mass Flow Rate Across Section B-B' of VOLATILE HALOGENATED ORGANICS PLUME (VHO)  
 Rocky Mountain Arsenal, BR 52  
 Prepared by: I-Tesco, Services Incorporated, 07/1989







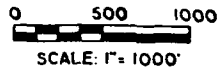
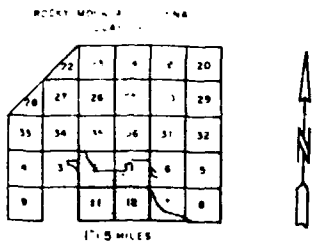
2,184,000      2,186,000      2,188,000      2,190,000      2,192,000



**LEGEND**

- Improved Road
- Unimproved Road
- Railroad Tracks
- Existing Structure
- Former Structure
- Fence
- 6** Section Number
- Stream or Ditch
- Study Area Boundary
- 174,000 State Plane Grid
- 02505 (i) 5.7 Well ( Water Bearing Zone )  
Detection in micrograms per liter (ug/l)
- 0.05 Equalconcentration Line, Concentration in micrograms per liter (ug/l) ( Dashed Where Inferred )
- A A' Cross-section Location

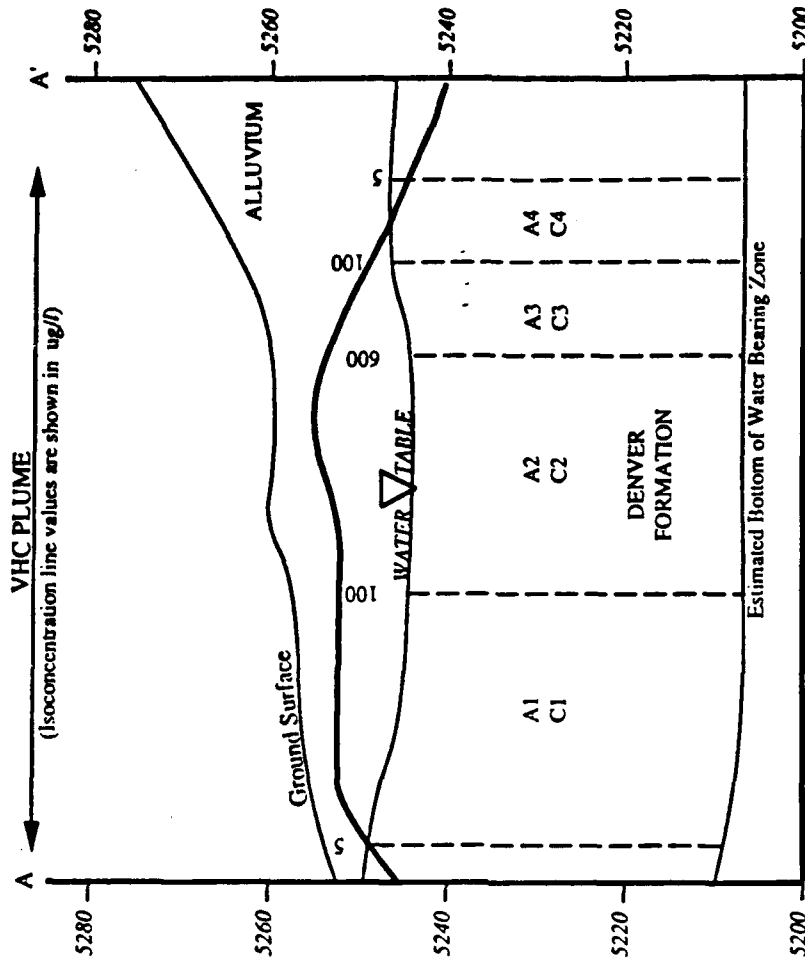
Notes:  
All data from Morrison Knudsen Engineers, ( 1988 )



Prepared for:  
Program Manager's Office for  
Rocky Mountain Arsenal Cleanup

FIGURE: SSA 3.5-3  
Volatile Hydrocarbon Plume in  
Water Bearing Zones IA and I  
Rocky Mountain Arsenal  
Prepared by:  
Ebasco Services Incorporated

2,190,000                      2,192,000                      2,194,000



APPROXIMATE HORIZONTAL SCALE: 1" = 400'  
 APPROXIMATE VERTICAL SCALE: 1" = 20'

NOTE: Vertical dimension in feet msl.

A1= 17,420 sqft    C1= 50.4 ug/l  
 A2= 14,520    "    C2= 357.6    "  
 A3= 7000    "    C3= 342.9    "  
 A4= 6205    "    C4= 51.8    "

TOTAL AREA OF SATURATED ALLUVIUM = A = 45,145 sq ft

AVERAGE HYDRAULIC CONDUCTIVITY = K = 0.001 cm/sec

AVERAGE HYDRAULIC GRADIENT = I = 0.012

CONVERSION FACTORS

(sqft)(cm/sec) = 21,203 gpd

(gpd/sqft) = 3.7854 EE-6 cm/day

UNCONFINED ALLUVIAL FLOW RATE = Q = (21,203)(K)(A)(I) = 11486.5 gpd

CONTAMINANT MASS FLOW RATE = M = (3.7854 EE-6)(Q/A)C<sub>n</sub>A<sub>n</sub>; n = 1,2,...,4 = 8.5 grams/day

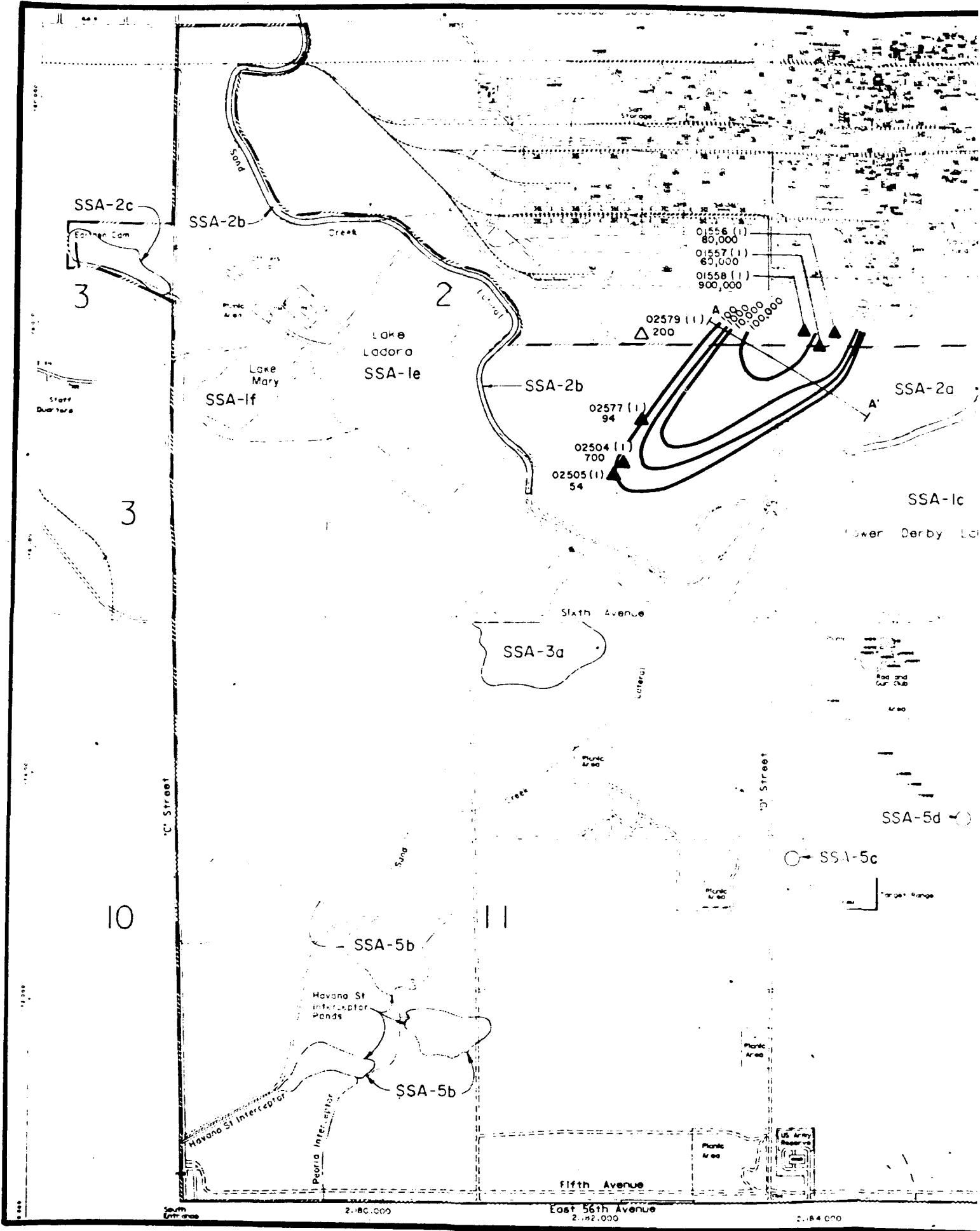
Prepared for:

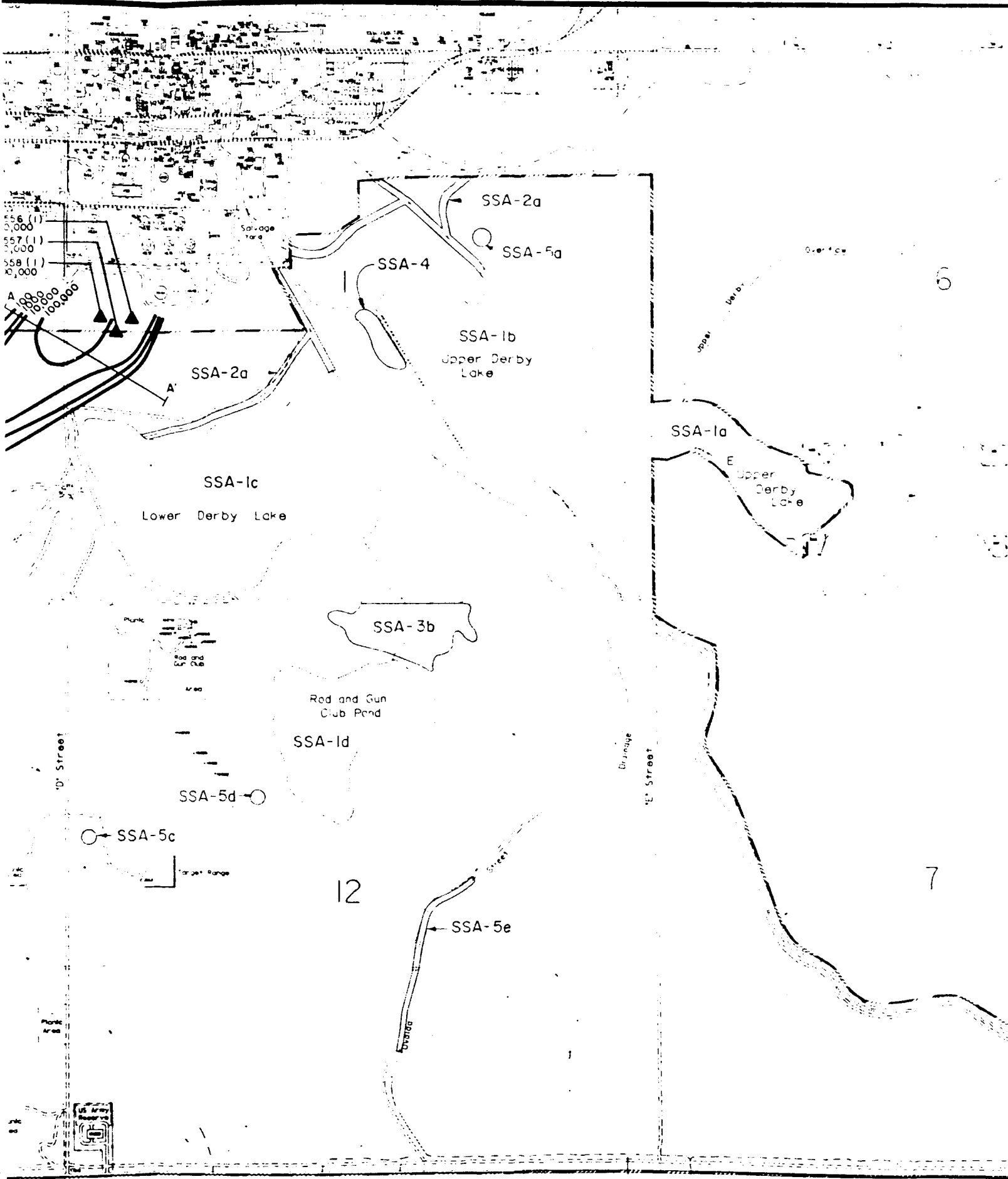
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 Rocky Mountain Arsenal Cleanup  
 Aberdeen Proving Ground, Maryland

FIGURE SSA 3.5-4

Contaminant Mass Flow Rate Across Section A-A' of VOLATILE HYDROCARBON PLUME

Rocky Mountain Arsenal, RPS2  
 Prepared by: Fluoro Services Incorporated 07/AN/89



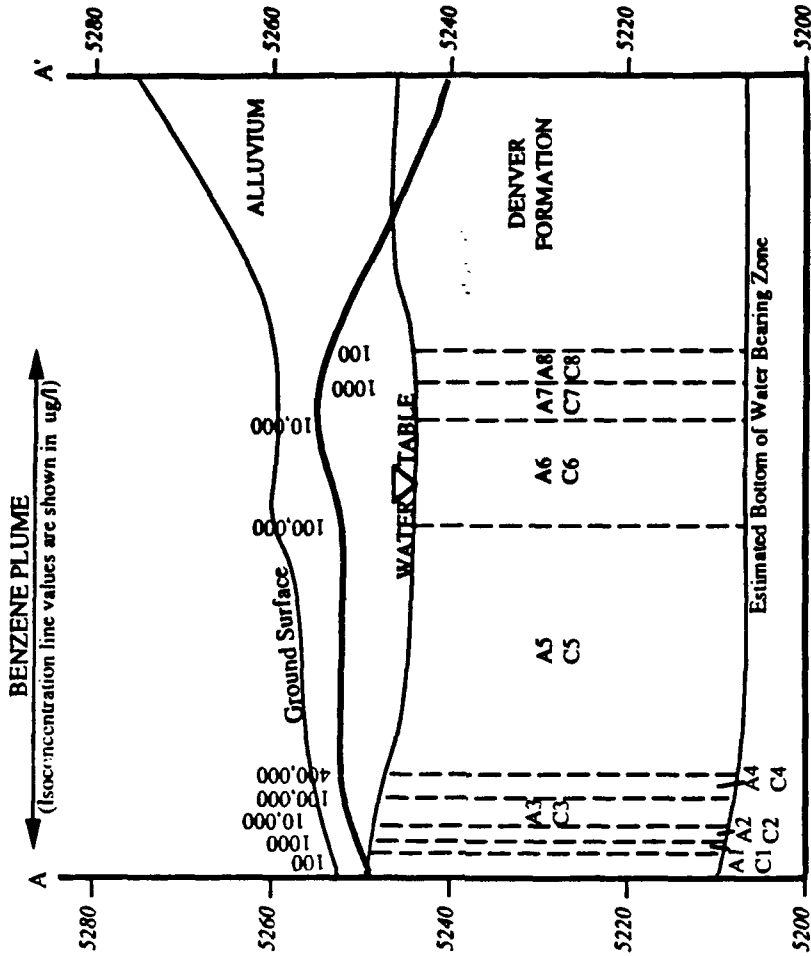


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7

12





APPROXIMATE HORIZONTAL SCALE: 1" = 400'  
 APPROXIMATE VERTICAL SCALE: 1" = 20'  
 NOTE: Vertical dimension in feet real.

A1= 1050	sqft	C1= 550	ug/l
A2= 1050	"	C2= 5500	"
A3= 2100	"	C3= 55,000	"
A4= 1400	"	C4= 250,000	"
A5= 14,500	"	C5= 208,000	"
A6= 4250	"	C6= 100,000	"
A7= 1700	"	C7= 10,000	"
A8= 1530	"	C8= 1000	"

TOTAL AREA OF SATURATED ALLUVIUM = A = 27,570 sq ft

AVERAGE HYDRAULIC CONDUCTIVITY = K = 0.001 cm/sec

AVERAGE HYDRAULIC GRADIENT = i = 0.012

CONVERSION FACTORS  
 (sqft)(cm/sec) = 21,203 gpd  
 (gpd/sqft) =  $3.7854 \times 10^{-6}$  cm/day

UNCONFINED ALLUVIAL FLOW RATE = Q = (21,203)(K)(A)(i) = 7014.8 gpd

CONTAMINANT MASS FLOW RATE = M = (3.7854 x 10<sup>-6</sup>)(Q)(A)<sub>n</sub> C<sub>n</sub> ; n = 1,2,...,8 = 3782 grams/day

Prepared for:  
 Program Manager's Office for  
 Rocky Mountain Arsenal Cleanup  
 Aberdeen Proving Ground, Maryland

Rocky Mountain Arsenal, RIFA2  
 Prepared by: Helicon Services Incorporated 07/19/89

FIGURE SPSA 3.5-6  
 Contaminant Mass Flow Rate Across Section A-A' of BENZENE PLUME