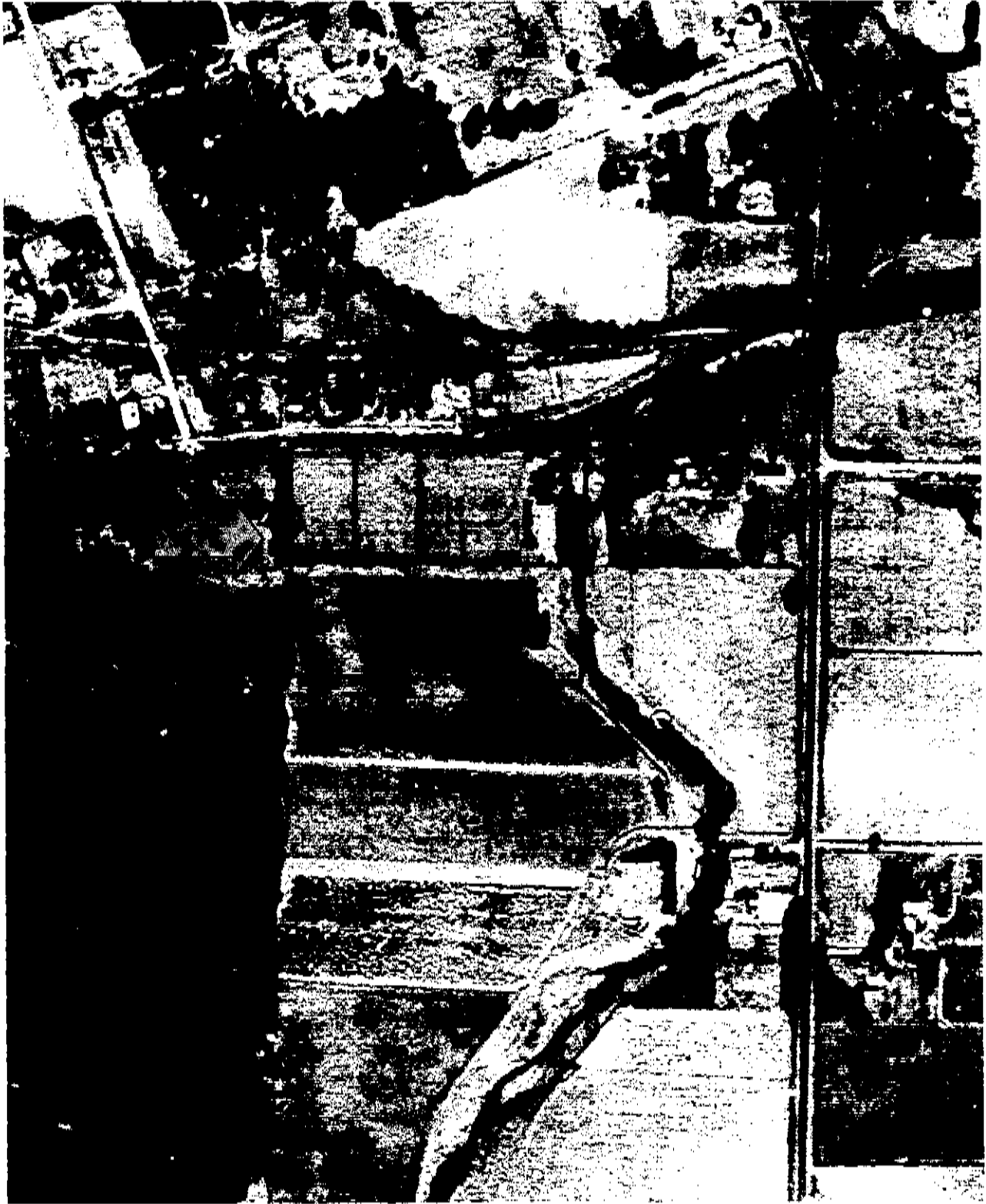


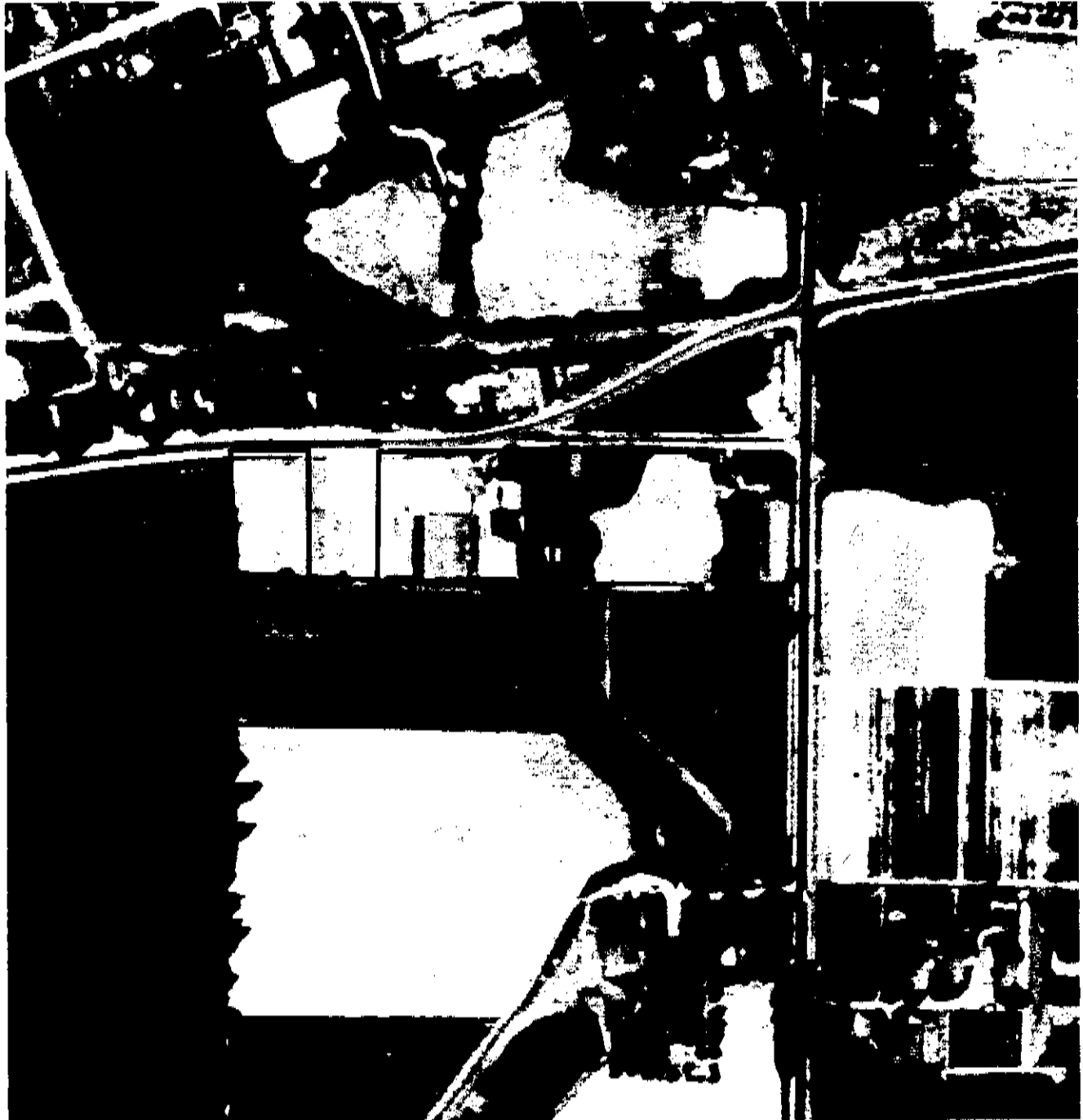
## **APPENDIX C**

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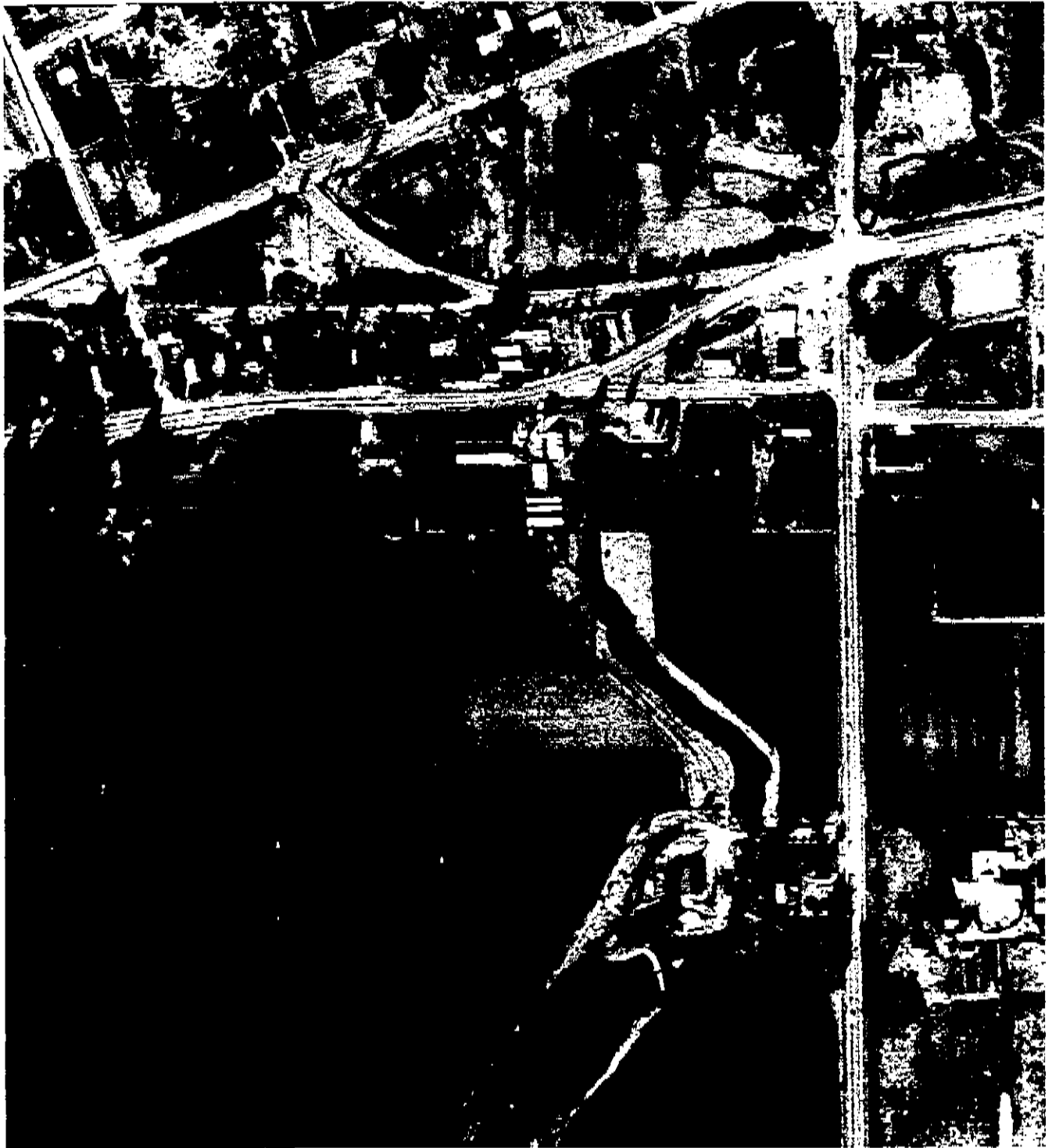
Research Documentation  
Historic Air Photos



1936 Aerial Photograph



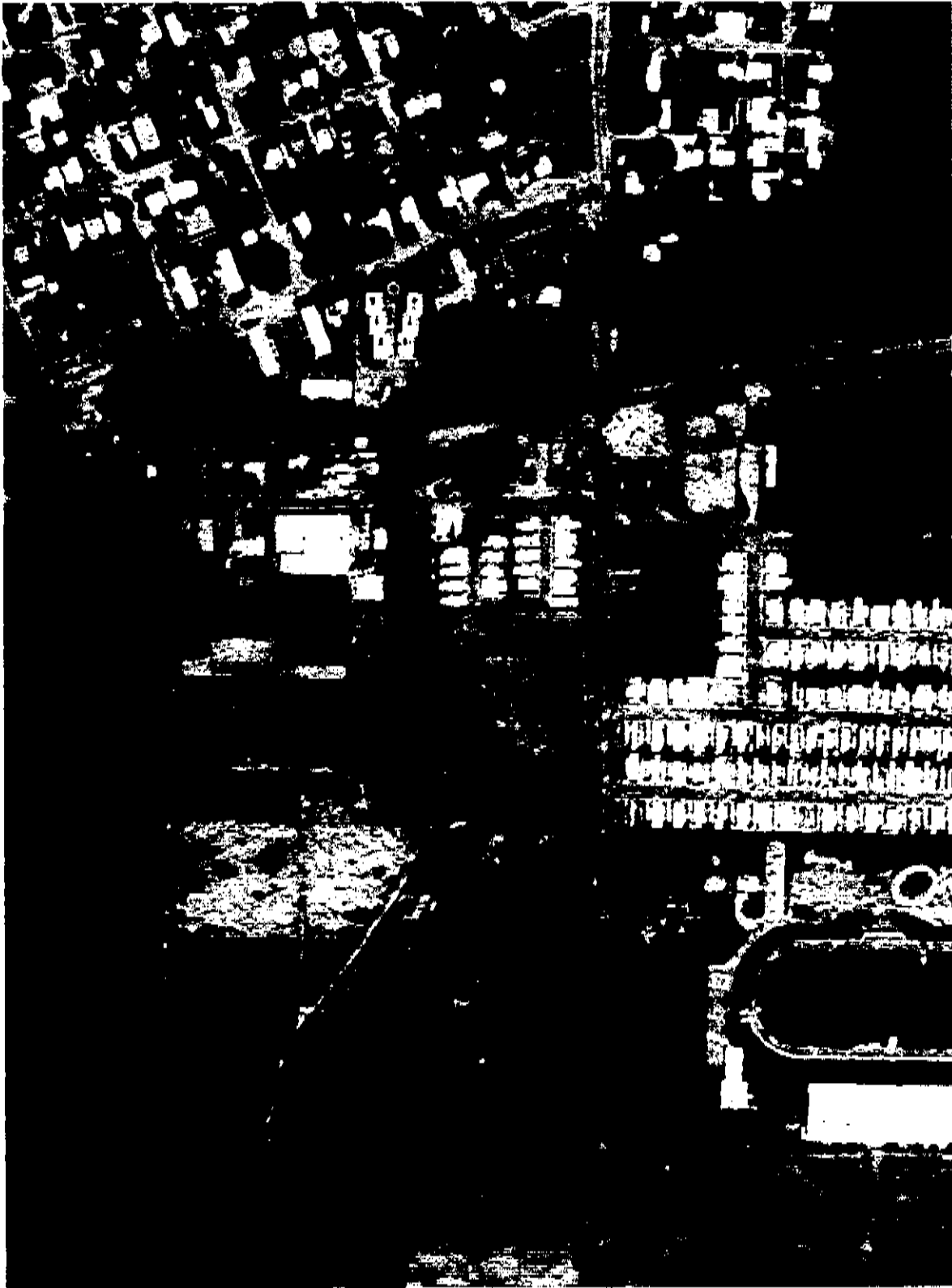
1948 Aerial Photograph



1956 Aerial Photograph



1964 Aerial Photograph



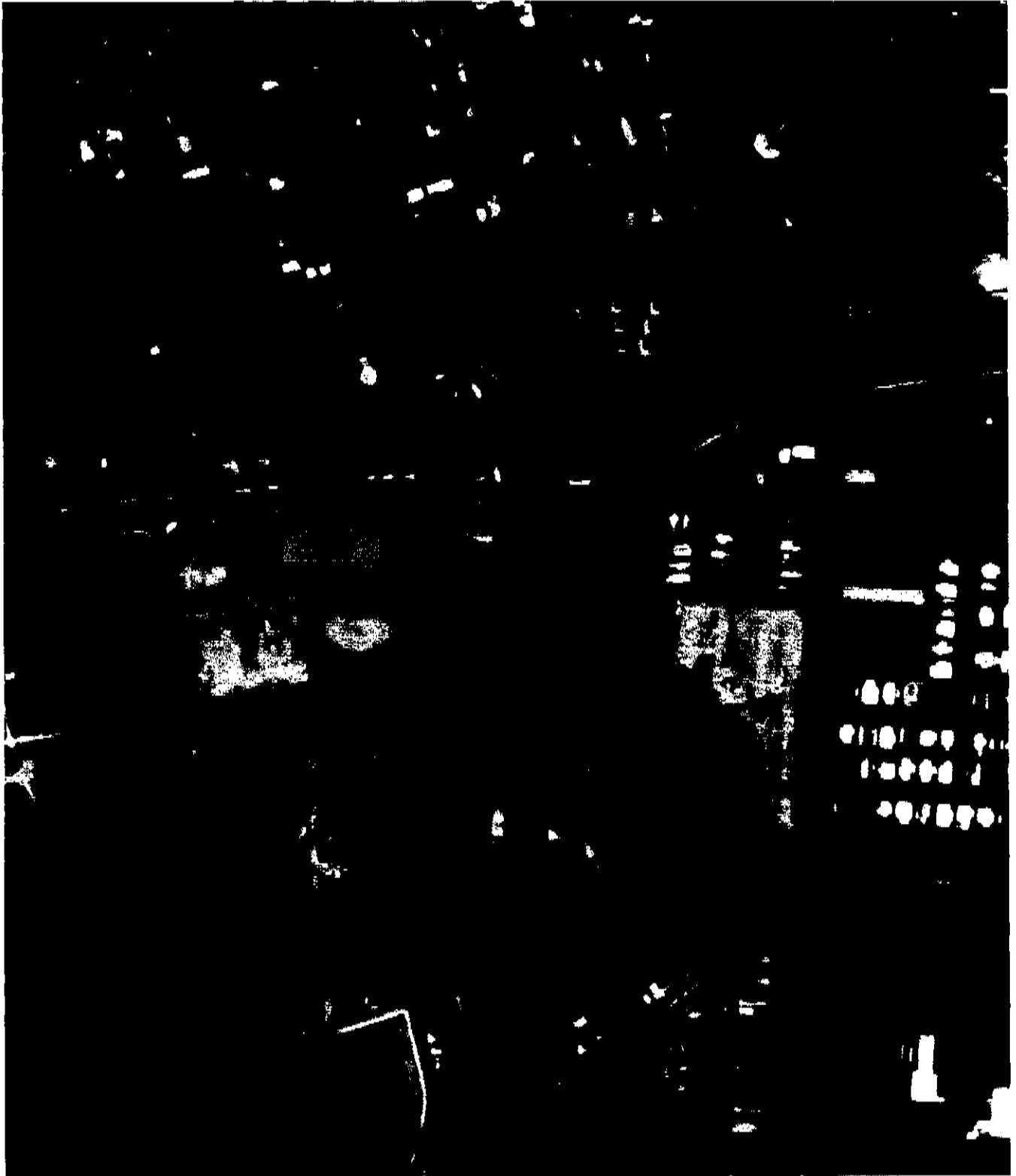
1973 Aerial Photograph



1980 Aerial Photograph



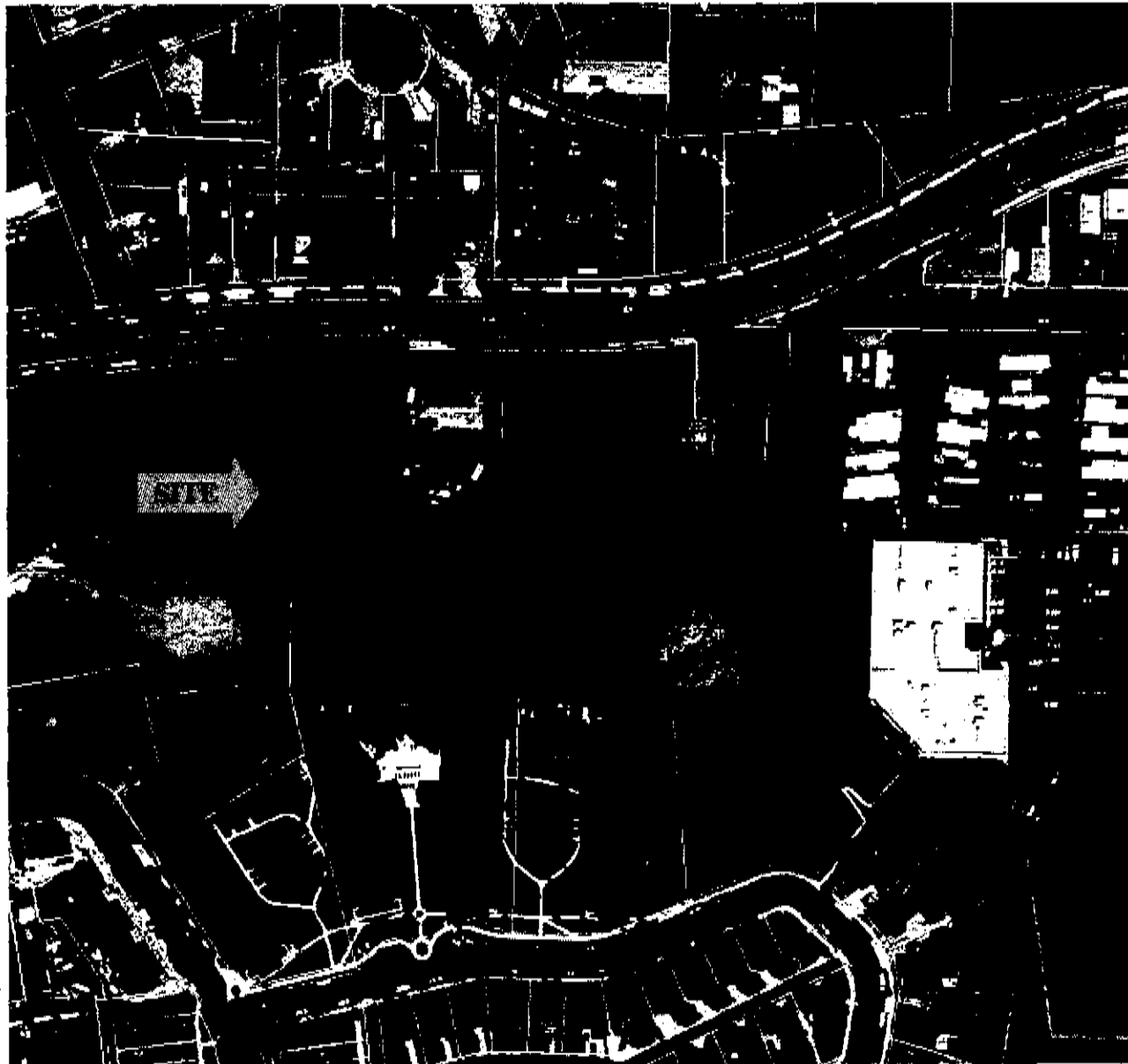
1990 Aerial Photograph



1998 Aerial Photograph



2004 Aerial Photograph



2004 Aerial Photograph

# EAST MULTNOMAH COUNTY GROUND WATER CONTAMINATION OREGON

EPA ID# ORD987185030

Last Update: October, 2003

**EPA Region 10**  
Multnomah County  
Portland

3rd Congressional District  
Other Names:

## ▼ Site Description

The East Multnomah County Groundwater Contamination site is approximately three square miles in size and is located east of Portland, Oregon. In 1986, Boeing closed a surface impoundment at its Portland facility that had been permitted to operate in compliance with the Resource Conservation and Recovery Act (RCRA). At that time, volatile organic compounds (VOCs) were found in groundwater. A subsequent investigation by Boeing revealed groundwater contamination upgradient of the plant. Between 1987 and 1991, EPA inventoried local businesses, many of which used VOCs and solvents, and investigated the area extensively, including sampling wells and conducting an area-wide soil gas survey. EPA has documented that the Boeing Company Portland Plant and Cascade Corporation are two sources of the groundwater contamination. About 280,000 people, including 267,500 in Portland and the vicinity, use the affected groundwater as standby wells only.

**Site Responsibility:** This site is being addressed through state actions.

NPL Listing History	Dates
Proposed Date:	05/10/1993
Removed Date:	
Withdrawal Date:	09/23/2004
Final Date:	
Deleted Date:	

## ▼ Threats and Contaminants

### Media Affected: Groundwater, Soil & Sludges

Groundwater is contaminated with trichloroethylene (TCE) and related chlorinated solvents tetrachloroethene (PCE) and cis-1,2-dichloroethene (cis-DCE). TCE was commonly used by local business as an industrial solvent. Soils at the Cascade Corporation facility that were contaminated with VOCs have been cleaned up under DEQ oversight. Institutional controls including regular monitoring of water supply wells located within the project area are being

performed to protect groundwater users in the area from exposure to contaminated groundwater.

## ▾Cleanup Progress

The final remedy, which includes twenty-three extraction wells, four air stripper treatment systems and one activated carbon treatment system, has been fully operational since August 1998. Treated groundwater from three of the systems is discharged to the Columbia Slough, and the remaining two systems to Fairview Lake via Osbourne Creek.

Since completion of the remedial investigation and implementation of interim groundwater cleanup in 1994, the overall size of the contaminated area has declined by approximately 55 percent and the volume of contaminated groundwater has decreased by 70 percent. TCE concentrations within the plume have decreased significantly since 1994, with the maximum TCE concentration now below 50 parts per billion (ppb) throughout the remaining contaminated area. Residual TCE concentrations exceeding the MCL for TCE is largely confined to Boeing and Cascade properties with the exception of a limited area east of Cascade along I-84. Estimates of remaining TCE within the groundwater system range from 50 to 60 pounds down from over 500 pounds prior to remedy implementation. Monitoring data and modeling estimates indicate that remaining groundwater contamination north of Sandy Boulevard will be cleaned up within three years, and remaining contamination beneath Boeing and Cascade properties within five to eight years.

In 2001, DEQ also lifted the use restrictions on the City of Portland's South Shore wellfield specified in the ROD. Although the restrictions were lifted based on the progress in the cleanup, Boeing and Cascade continue to monitor groundwater conditions during any City pumping of the wellfield.

## ▾Regional Contacts

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ODEQ

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503-229-6662

**COMMUNITY INVOLVEMENT**

Marcia Dana, ODEQ

**COORDINATOR:**

**E-MAIL ADDRESS**

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**PHONE NUMBER:**

503-229-6488

**Information pertaining to this site is housed at the following location(s):**

Oregon Department of Environmental Quality (Administrative Record)  
Northwest Region Office  
2020 SW Fourth Avenue, Suite 400  
Portland, OR 97204

**Impact of Groundwater Contamination in East Multnomah County on the  
Interlachen Community**

by

**Scott A. Wells, Professor of Civil Engineering**  
**ShuGuang Li, Assistant Professor of Civil Engineering**  
**Marvin Beeson, Professor of Geology**  
**Michael Cummings, Professor of Geology**  
**Richard Pratt, Professor of Environmental Sciences and Resources**  
**Robert Annear, Graduate Research Assistant, Department of Civil Engineering**

and

**Karann Brandt , PRC Environmental Management, Inc.**

**Technical Report EWR-3-96**  
**Department of Civil Engineering**



**P. O. Box 751**  
**Portland State University**  
**Portland, Oregon 97207-0751**

**October 28, 1996**

**Prepared for Friends of Fairview and Blue Lake under support of the U.S. Environmental Protection  
Agency TAG Program**

parties (Boeing and Cascade Corporations and their consultants), the State of Oregon Department of Environmental Quality, and the Portland Water Bureau and its

consultants. The community was able to secure the EPA TAG to provide an independent review of the contamination problem facing their community and to assist the community in understanding the nature of the contamination problem. Issues of concern identified from this review will be recommended for incorporation in the Department of Environmental Quality's (DEQ) final Record of Decision concerning site remediation efforts. This review will help assure remediation strategies that protect groundwater and surface water for the Interlachen community will be pursued by the responsible parties.

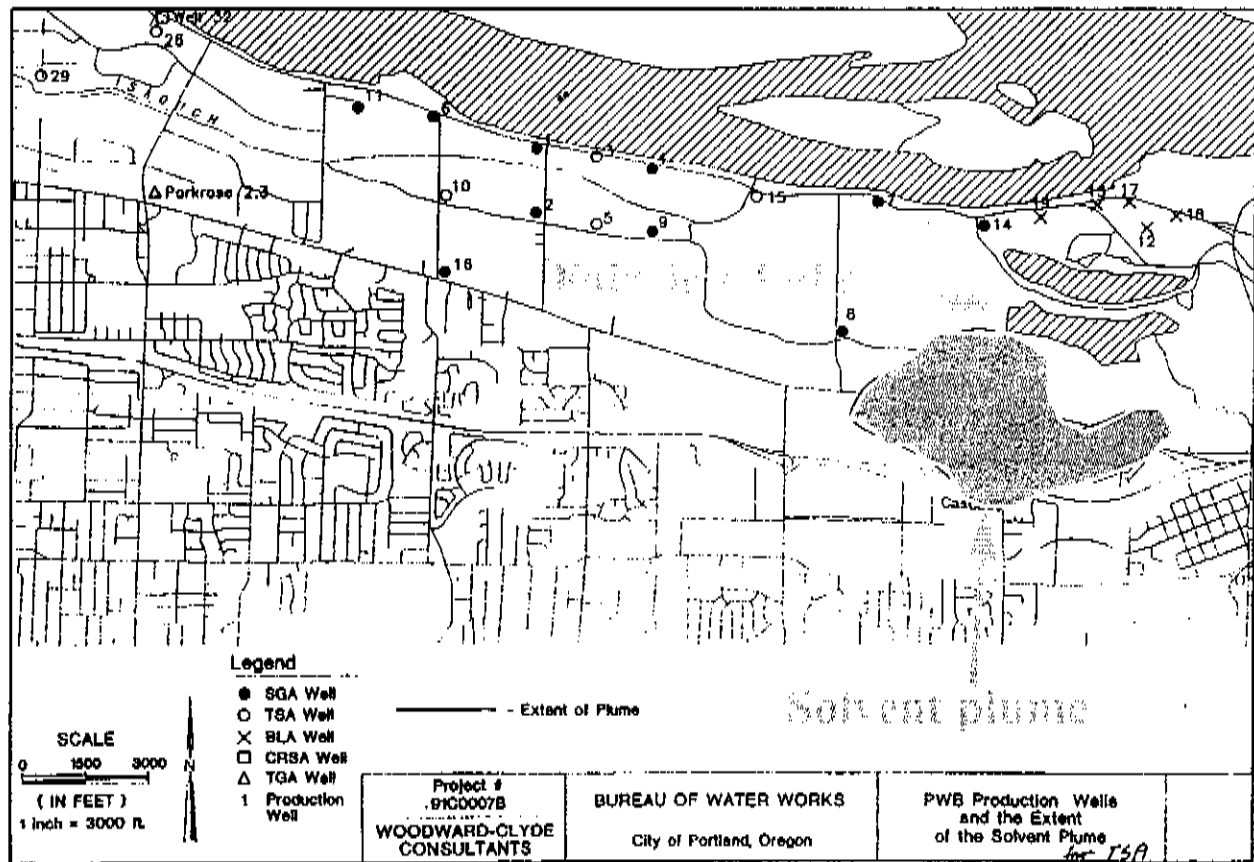


Figure 2: Schematic of TCE plume in the Troutdale Sandstone Aquifer (Woodward-Clyde).

### 1.1 Interlachen Community Risk

Risks to the community can be itemized as follows:

- drinking water from contaminated groundwater since their potable water supply is in the contamination area
- inhalation risk from contaminated groundwater and from air stripping towers in the community
- recreational risks associated with ingestion of contaminated surface water in the Columbia Slough or Fairview Lake or consumption of fish and other aquatic life from these surface waters

- Restore the remaining portion of the TSA to cleanup levels within 20 years of implementation of Phase 1 of the remedy;
- Control horizontal spreading of the TSA contaminated groundwater plume at all times, including during pumping of the PWB south shore well field; and
- Control vertical migration of the TSA contaminated groundwater in areas where CU2 is thin or absent and the lower TSA is contaminated at or above MCLs. This criteria would apply during operation of all the PWB SGA supply wells for 60 days annually, or 90 days annually, if PWB supply wells 7, 8, and 14 are not pumped.

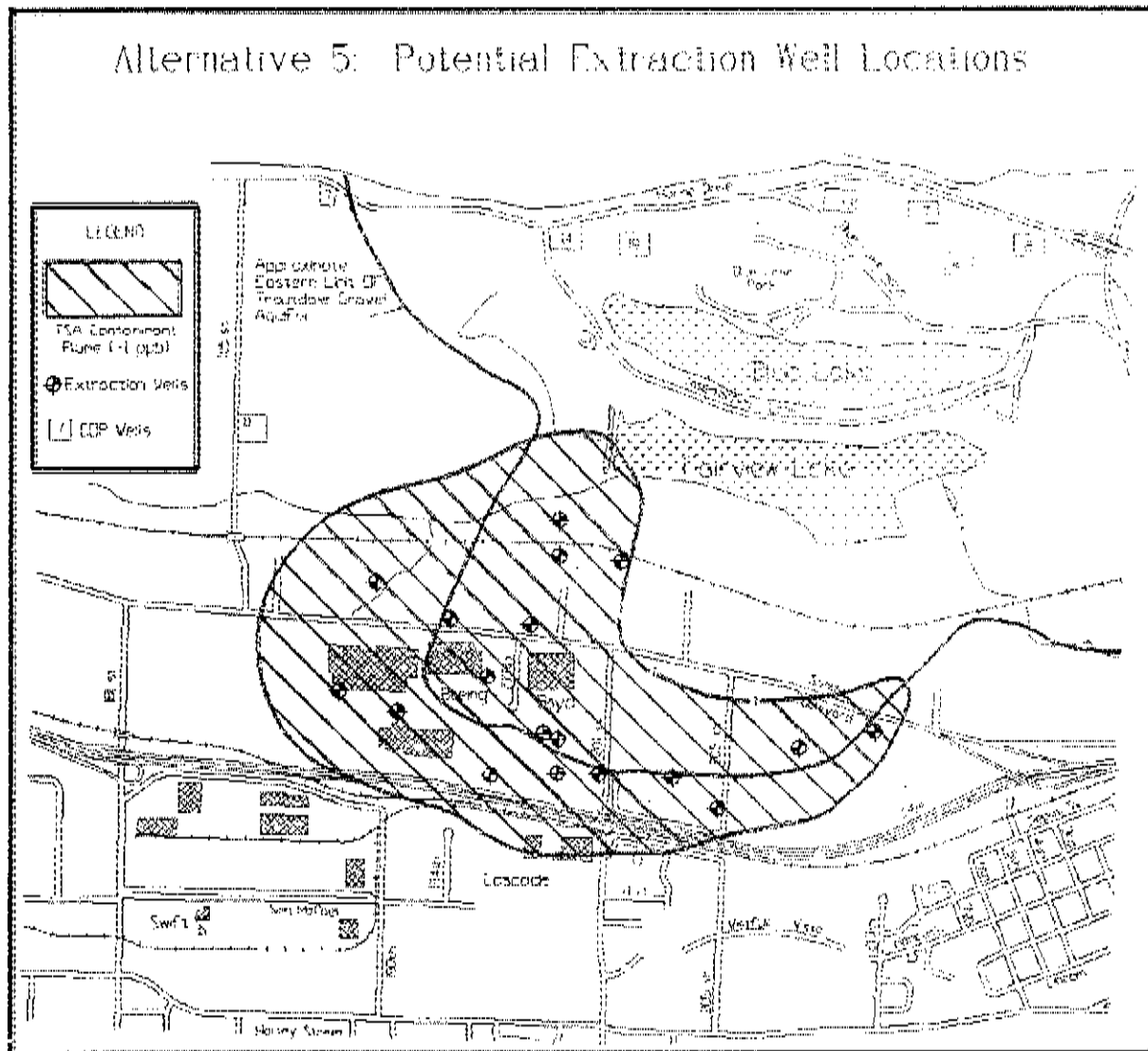


Figure 9: Remediation plan for the TSA cleanup (DEQ, 1996).