DECLARATION STATEMENT - RECORD OF DECISION

Site Name and Location:

Xerox Webster Landfill Site
Town of Webster, Monroe County, New York
Site Registry No. 8-28-013
Classification Code: 2

Statement of Purpose:

This Record of Decision sets forth the selected remedial action plan for the Xerox Webster Landfill site. This remedial action plan was developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the New York State Environmental Conservation Law (ECL). The selected remedial plan complies to the maximum extent practicable with Applicable or Relevant and Appropriate Requirements (ARARs) of Federal and State environmental statutes and would be protective of human health and environment.

Statement of Basis:

This decision is based upon the Administrative Record for the Xerox Webster Landfill site and upon public input to the Proposed Remedial Action Plan (PRAP). A copy of the Administrative Record is available at the New York State Department of Environmental Conservation, 50 Wolf Road, Albany, New York and copies of the Feasibility Study Report and Addendum to the Feasibility Study Report are available at the Town of Webster Public Library, 1 VanIngen Drive, Webster, New York. A bibliography of those documents included as part of the Administrative Record is contained in Appendix B. A Responsiveness Summary that documents the public's expressed concerns and related correspondence from other State and local government agencies has been included as Appendix A.

Description of the Selected Remedy:

The selected remedial action provides for protection of public health and safety, protection of the environment, technical feasibility and performance, and compliance with statutory requirements. Briefly, the selected remedial action includes:

- Macadam Cap - Capping the landfill site with macadam which will limit the amount of recharge from precipitation that may percolate through waste materials in the landfill site.

- Blast-Enhanced Drainage Zone - In order to increase the efficiency of the bedrock groundwater collection system, a linear blast zone (i.e. trench) would be developed in the

bedrock. Appropriate explosive charges would be detonated on approximately five-foot centers along the northern boundary of the site. Blasting would be done approximately 20 feet into the bedrock.

- Groundwater Recovery Wells - Two recovery wells would be advanced into the bedrock blast enhanced drainage zone. Each recovery well would be equipped with a pump with the discharge connected to a common header system. Also existing well clusters B-17/B-17A will be utilized as recovery wells because low concentrations of Volatile Organic Compounds were identified in this well cluster. Pumping at this location will serve to collect contaminated groundwater and establish hydraulic control in the area.

- Enhanced Overburden Drainage - In order to enhance drainage and subsequent collection of possibly contaminated groundwater in the overburden till, vertical large diameter (i.e. 10 inches or larger) borings would be advanced on approximate 25-foot centers to the bedrock - till interface above the blast-enhanced drainage zone. These boreholes would be backfilled with coarse sand to induce drainage from the till into the bedrock drainage zone.

- Discharge of collected groundwater to the Town of Webster POTW. The maximum permissible levels of contaminants in the groundwater to be discharged to the POTW shall be established during the design phase of the remedial action. Pretreatment, if any, will be done by Xerox to keep the contaminants within acceptable levels before discharge.

- Long-term monitoring for the effectiveness of the remedial action.

Declaration:

The selected remedial action will meet State and Federal ARARs by removing contaminants from the groundwater and by preventing the migration of contaminants away from the landfill site. The remedy will satisfy, to the maximum extent practicable, the statutory preference for remedies that employ treatment that reduces toxicity, mobility or volume as a principle element.

The selected remedial action will result in a small increase in short-term risks. Workers involved in its implementation will have the potential for increased exposure to chemical contaminants at the site. The community may also be exposed to increased risks due to exposure to air-borne contaminants which may escape from the site during the implementation of the selected remedial action.

The selected remedial action has been used successfully to contain hazardous wastes present at other hazardous waste sites. Because the selected remedial action will not result in a complete and permanent removal of contaminants from the site, detailed long-term monitoring and maintenance is required. Additionally, to ensure that the remedy continues to provide adequate protection of human health and the environment, a review of the

effectiveness of the remedy will be conducted every five years, or at any time that monitoring data indicates a flaw in the remedy.

Since some waste is going to remain in place at the site the landfill site shall be incorporated into the RCRA Corrective Plan and Post-Closure Permit with other solid waste management units of Xerox. This shall effectively restrict the future use of the landfill site.

JUN 3 0 1989

Date

Edward O. Sullivan
Deputy Commissioner
Office of Environmental
Remediation
New York State Department of
Environmental Conservation

I. Site Location and Description

The inactive hazardous landfill site is located on the grounds of the Xerox Corporation's Webster Manufacturing Complex, which is east of Rochester. Figure 1 shows the location of Xerox Manufacturing Complex in Webster. As shown on Figure 2 the landfill site is roughly square in shape and occupies approximately 3.8 acres. Most of the 3.8 acre landfill site is covered with native vegetation. Small portions of the landfill site are used for construction material storage, which use will terminate upon initiation of remediation.

Portions of the landfill site are surrounded by a security fence. Building No. 343 occupies the southeast corner of the landfill site. This building, which consists of covered and enclosed concrete pads, is an active hazardous waste storage area, operating under the Xerox Webster Facility's Resource Conservation and Recovery Act (RCRA) Part A Permit.

To the south of the landfill site lie various manufacturing units of Xerox Corporation. Schlegel Road is to the north, Salt Road is to the east and Phillips Road is to the west of the landfill site. Moderately dense residential areas lie to the north, east and west of the landfill site.

II. Site History

Xerox Corporation operated a trench and fill landfill from approximately 1960 until 1971 in the general area of the property designated on Figure 2. Xerox ceased this landfill operation in 1971.

Based upon available information, the five parallel trenches excavated were approximately 4 feet wide by 4 feet deep, spaced on 50 foot centers. The trenches are reported to be approximately 300 feet long and oriented in an east-west direction.

Wastes disposed of in the landfill were categorized as either "general" or "selenium." The wastes were residues from Xerox's Manufacturing operations at the Webster Complex and included various solid wastes and some waste solvents.

Reportedly, "general" wastes were typically placed in 12 inch thick lifts, with each lift consisting of 9 inch layers of wastes covered with 3 inches of intermediate soil cover up to grade. The trench was then capped with approximately 2 feet of soil.

Wastes classified as "selenium" were placed in 3 inch thick layers in trenches which were lined on the bottom and sides with 6 inches of clay. Reportedly, each 3 inch layer of waste material was encapsulated with approximately 6 inches of clay. These trenches were then capped with 6 inches of clay and then covered with approximately 2 feet of soil.

Xerox anticipates continued use of Building No. 343 in the southeastern corner of the landfill site as a RCRA-permitted hazardous waste storage facility. However, the remainder of the landfill site is not planned for any particular use, and access would be restricted to the landfill site from both Building No. 343 and the surrounding area by a security fence.

III. Current Status

A. Previous Investigations

1. Hydrogeological Investigation - 1979 - Recra Research and Wehran. The outcome of the investigation is as follows:

   - Landfill site is in area of high groundwater table; at or within three feet of surface.

   - Groundwater flow appears to be in a north to northwesterly direction under a very low gradient.

   - Groundwater near the landfill is contaminated with Volatile Organic Compounds (VOCs) including methylene chloride, trichloroethylene, perchloroethylene, 1,1,1-trichloroethane and Freon TF.

2. Additional borings and groundwater sampling performed by Recra Research and Wehran - 1980. Following are the conclusions:

   - Glaciolacustrine deposits under the site become very dense with depth; hence, permeability is lower with depth. Groundwater does, however, move vertically downward and recharge the bedrock aquifer.

   - Bedrock groundwater moves under a low gradient in a northerly direction.

   - Bedrock groundwater downgradient to the site has been contaminated with VOCs.

3. Water and mass balance report including some groundwater modelling done by Recra Research - May 1984. The findings of this report is:

   - Percolation from precipitation falling on this landfill site represented the major component of the water balance which causes impact to the underlying groundwater system.

4. Revised groundwater modelling report done by Recra Research - October 1984. One of the important conclusions of the report is:

   - Adverse groundwater quality impacts have generally been limited to the shallow water-bearing zone within the upper 15 feet of the unconsolidated materials immediately underlying the landfill.

B. Geology/Hydrogeology

   - Previous investigations have determined that the landfill site and surrounding area is underlain by various unconsolidated glacial deposits and sedimentary bedrock.

   - Figure 3 depicts the approximate geology in the immediate vicinity of the landfill site.

- Depth to bedrock ranges from approximately 25 to 30 feet in the immediate area of the landfill site.

- Horizontal flow in the till/bedrock interface (i.e. weathered bedrock) zone and bedrock is directed toward the north to northwest at a gradient of approximately 0.006 feet per foot. Hydraulic gradient of the surficial (water table) aquifer ranges from 0.0095 to 0.01 feet per foot.

- Permeability of the shallow water-bearing zone has been reported to be in the range of 1.6×10^{-5} to 4.4×10^{-3} cm/sec. Permeability data for the weathered bedrock and bedrock is reported to range from 6.3×10^{-7} to 3.7×10^{-4} cm/sec.

C. Soil and Water Contamination

Feasibility Study Report (FS) done by Woodward-Clyde Consultants in April 1986. The report identified the following as the contamination problems existing at the landfill site:

- The major potential release from the landfill site is from the shallow water-bearing zone which is contaminated with certain VOCs which include 1,1-dichloroethylene, 1,1-dichloroethane, 1,2-trans-dichloroethylene, 1,1,1-trichloroethane, trichloroethylene and tetrachloroethylene.

- These VOC contaminants have been detected in varying concentrations in the shallow groundwater immediately beneath and surrounding the site, groundwater from selected bedrock wells, surface waters immediately adjacent to the site and soil from within the site.

- Contamination of the bedrock aquifer appears to be limited to the VOCs; with the only consistently significant reported concentrations appearing in Well W-3 located just north (downgradient) of the site.

- Inorganic contaminants of concern (arsenic and selenium), and methylene chloride and freon do not appear to represent a contamination problem in either the shallow or bedrock groundwater.

For the purpose of the Feasibility Study, a parameter called Total Volatile Organics (TVO) was defined which represents the summation of concentrations of the 29 USEPA priority pollutant purgeable halocarbons (Volatile Organic halogens). Average, miniumum and maximum TVO concentration data for 1984 through the first quarter of 1986 for a total of 31 monitoring wells for which VOC analytical data were available are listed in Table 1.

In order to graphically illustrate the impact of TVO contaminants on the groundwater regime under and adjacent to the landfill site, both north-south and east-west cross sections were developed. Figures 4 and 5 show the north-south and east-west cross section layouts, respectively. TVO isoconcentration diagrams for both north-south and east-west cross sections are shown on

Figures 6 and 7 respectively. These figures show that the greatest concentrations of TVO compounds in the groundwater are localized immediately beneath and adjacent to the landfill site. In order to further define the areal extent of any TVO plume migration from the landfill site, Figure 8 shows an approximate delineation of the TVO isoconcentration line in plan view.

In consideration of the fact that wastes were last deposited in the landfill site at least 15 years ago, the overall impact of the major apparent contaminant release (i.e. the VOCs) is minimal. In support of this, the farthest any detectable level of VOCs have migrated from the landfill site is approximately 1,200 feet to the north in Boring B-17, as depicted by the 8 ppb TVO concentration shown on Figure 7 and reported in Table 1.

IV. Enforcement Status

The New York State Department of Environmental Conservation has entered into a Consent Agreement with the Xerox Corporation under article 27, title 13 of the Enviromental Conservation Law entitled "Inactive Hazardous Waste Disposal Sites."

The purpose of this agreement is to provide for the implementation of the Approved Remedial Program, consistent with applicable State and Federal laws, regulations and rules, which shall address both on-site and off-site contamination caused by the release of the hazardous waste at and in the vicnity of the site and shall be designed and constructed using Requisite Technology.

The Consent Agreement has been signed by the Commissioner of the New York State Department of Environmental Conservation on November 15, 1988.

V. Goals for the Remedial Action

Objectives of any remedial actions taken at the inactive landfill site must address the problems defined earlier. Ideally, the appropriate remedial action would eliminate or minimize problems that have been defined with the landfill site. However, even the most aggressive application of all appropriate remedial response actions may not completely eliminate all problems at the site.

General objectives of remedial activities at the landfill site would entail controlling, minimizing or eliminating the migration of contaminants (specifically the VOC compounds) from the site. Specific remedial activity goals include:

1. Minimize the amount of precipitation which infiltrates and subsequently percolates through the site.

2. Control the seasonal high water table condition which causes direct contact between wastes in the landfill site and the shallow groundwater.

3. Intercept and redirect shallow (and possibly contaminated)

groundwater such that contaminants are adequately collected and/or treated.

General remedial response actions and their related technologies are presented in Table 3 as they apply to the landfill site. Table 3 represents the initial consideration of remedial technologies that may be appropriate for the landfill site.

Certain remedial technologies may address one or more of the three specific remedial activity goals listed above. Figure 10 compares general remedial technology categories to the specific landfill site problems listed previously and describes whether a remedial technology category is applicable to a problem.

As implied by Figure 9, most of the defined landfill site problems may be amenable to remediation through a combination of surface water controls and leachate and/or groundwater controls. Most of the other remedial technology categories are classified as only partially applicable, or not applicable in some cases to remediate the landfill site problems.

VI. Summary of the Evaluation of the Alternatives

A comprehensive list of remedial technologies established by the United States Environmental Protection Agency was utilized to determine potentially feasible technologies within each remedial technology category depicted on Figure 9. These technologies are listed in Table 4. Each potentially feasible technology was then subjected to a technical screening process, as summarized in Table 5. In Table 5, each potentially feasible technology is briefly described and evaluated for its general ability to remediate the landfill site problems.

Based upon the technology screening process developed in Table 5, the most feasible technologies for application to the landfill site are summarized in Table 6. These technologies were initially combined into the six remedial alternatives listed here and in Table 7.

1. Monitor Only (No Action)

2. Macadam Cap, Monitor

3. Macadam Cap, Hydraulic Barrier Well-Point Network, Discharge to Publicly Owned Treatment Works, Monitor

4. Macadam Cap, Curtain drain; Discharge to Publicly Owned Treatment Works, Monitor

5. Macadam Cap, Circumscribing Slurry Wall, Dewatering Wells, Discharge to Publicly Owned Treatment Works, Monitor

6. Macadam Cap, Circumscribing Slurry Wall, Curtain Drain, Discharge to Publicly Owned Treatment Works, Monitor

As shown on Table 8, a preliminary screening of these alternatives included the evaluation of environmental, public health, and cost factors. Alternatives 1 and 2 were eliminated from further consideration because they would not provide satisfactory control of volatile organic contaminants within and beneath the landfill site. The remaining four alternatives received detailed technical, environmental, and economic evaluations.

Alternative 3

This alternative involves placing a macadam cap over the entire landfill site to control infiltration and percolation. Ten 30-foot-deep, 4-inch-diameter recovery wells would be placed on approximately 50-foot centers along the northern edge of the landfill site, as depicted on Figure 10. A typical section through the landfill site is shown on Figure 11. Each individual well would have its own individually controlled submersible pump preset to achieve a selected drawdown with all discharges tied into a common header. The combined pumping discharge, estimated to be 11.5 gallons per minute (gpm) would be routed to a central drain sump for monitoring and/or flow measurement prior to discharge via another pump into the 15-inch sanitary sewer line along the southern landfill boundary for transport to the Town of Webster's publicly owned treatment works (POTW). A groundwater monitoring program would be put into effect for the anticipated life of the remedial action (i.e., 30 years).

Alternative 4

As shown schematically on Figure 12, Alternative 4 also involves placing a macadam cap over the entire landfill site. A fully circumscribing curtain drain (i.e., collector trench drain) would be installed to a depth of approximately 10 feet below grade as shown on Figures 12 and 13. Collected shallow groundwater (estimated at 26 gpm) would be routed by gravity to a central drain sump for flow measurement and/or monitoring prior to discharge to the 15-inch sanitary sewer line that runs along the southern boundary of the landfill site. A groundwater monitoring program would be put into effect which would continue for the duration of the remedial effort, approximately 30 years.

Alternative 5

This alternative involves the placement of a soil-bentonite slurry wall to a depth of approximately 30 feet completely encircling the landfill as shown on Figures 14 and 15. Again, the macadam cap is utilized to divert precipitation from the landfill site surface. Four recovery wells would be placed inside the slurry wall to withdraw shallow groundwater from the overburden aquifer, which would be isolated by the slurry wall, in order to maintain control of the groundwater surface beneath the landfill site. Approximately 9 gpm would be withdrawn by the four recovery wells and discharged to the central sump for flow measurement and sampling prior to discharge to the 15-inch sanitary sewer line. A groundwater monitoring program would continue for the duration of the remedial activity.

Alternative 6

As shown on Figures 16 and 17, this alternative is identical to Alternative 5, with the exception that the curtain drain, as described for Alternative 4, is used inside the slurry wall rather than dewatering wells to draw down the water table beneath the cap. Anticipated groundwater flow (9 gpm) is the same as that for Alternative 5 and is similarly discharged to the Town of Webster POTW. A groundwater monitoring program would continue for the duration of the remedial activity.

As shown on Table 9, the technical feasibility evaluation found that Alternatives 5 and 6, with their fully circumscribing slurry walls, were the most potentially effective combination of technologies to control the volatile organic contaminants in the landfill. Based on the environmental effects as shown on Table 10, Alternatives 3, 4, 5 and 6 were found to be identical to one another. As shown on Table 11, the economic evaluation considered initial construction costs, periodic replacement costs, and annual operation and maintenance costs. On a present worth basis, Alternative 3 was found to be the least expensive. Finally, Alternative 6 was selected as the best plan because it was equal to Alternative 5 in technical feasibility and environmental effectiveness and had a slightly lower cost on a present worth basis.

VII. Summary of the Government's Decision

The NYSDEC's significant concern regarding Alternative 6 was that the bedrock groundwater contamination has not been fully addressed. This concern along with other comments were presented at a meeting held between the officials of Xerox and the State. Xerox then agreed to prepare a proposal to respond to this concern.

In the revised Addendum to the Feasibility Study report, Xerox proposed Alternative 7 which will be effective in remediating the bedrock groundwater contamination. This alternative comprises of:

- A Macadam Cap
- A blast enhanced drainage zone to increase the efficiency of the bedrock groundwater collection system.
- Sand filled large diameter boreholes through the soil overlying the blast enhanced zone to induce drainage from the soil.
- Groundwater recovery wells.
- Discharge to Webster wastewater treatment.
- Monitor

Figure 18 shows the computed effects on the bedrock potentiometric contours under the conditions described above. Figure 19 depicts a schematic north-south cross section view of the landfill remediation under Alternative 7. A typical section detail through the blast enhanced bedrock zone is shown on Figure 20.

Table 12 represents the comparison of the five Alternatives (3, 4, 5, 6 and 7) against the public health environmental and technical concerns. NYSDEC evaluated the five final alternatives against the following eight criteria: 1) compliance with applicable or relevant and appropriate regulations (ARAR's), 2) reduction of toxicity, mobility or volume, 3) short-term impacts, 4) long-term effectiveness and permanence, 5) implementability, 6) cost, 7) community acceptance, and 8) overall protection of human health and the environment. After review and evaluation, the NYSDEC's technical personnel concurred that Alternative 7 is the preferred alternative.

In summary, at this time the preferred alternative is believed to provide the best balance of trade-offs among alternatives with respect to the criteria used to evaluate remedies. Based on the information available at this time, it is believed that the preferred alternative would be protective of human health and the environment, would be in compliance with applicable or relevant and appropriate requirements of other Federal and State environmental statutes (ARAR's), and would be cost-effective.

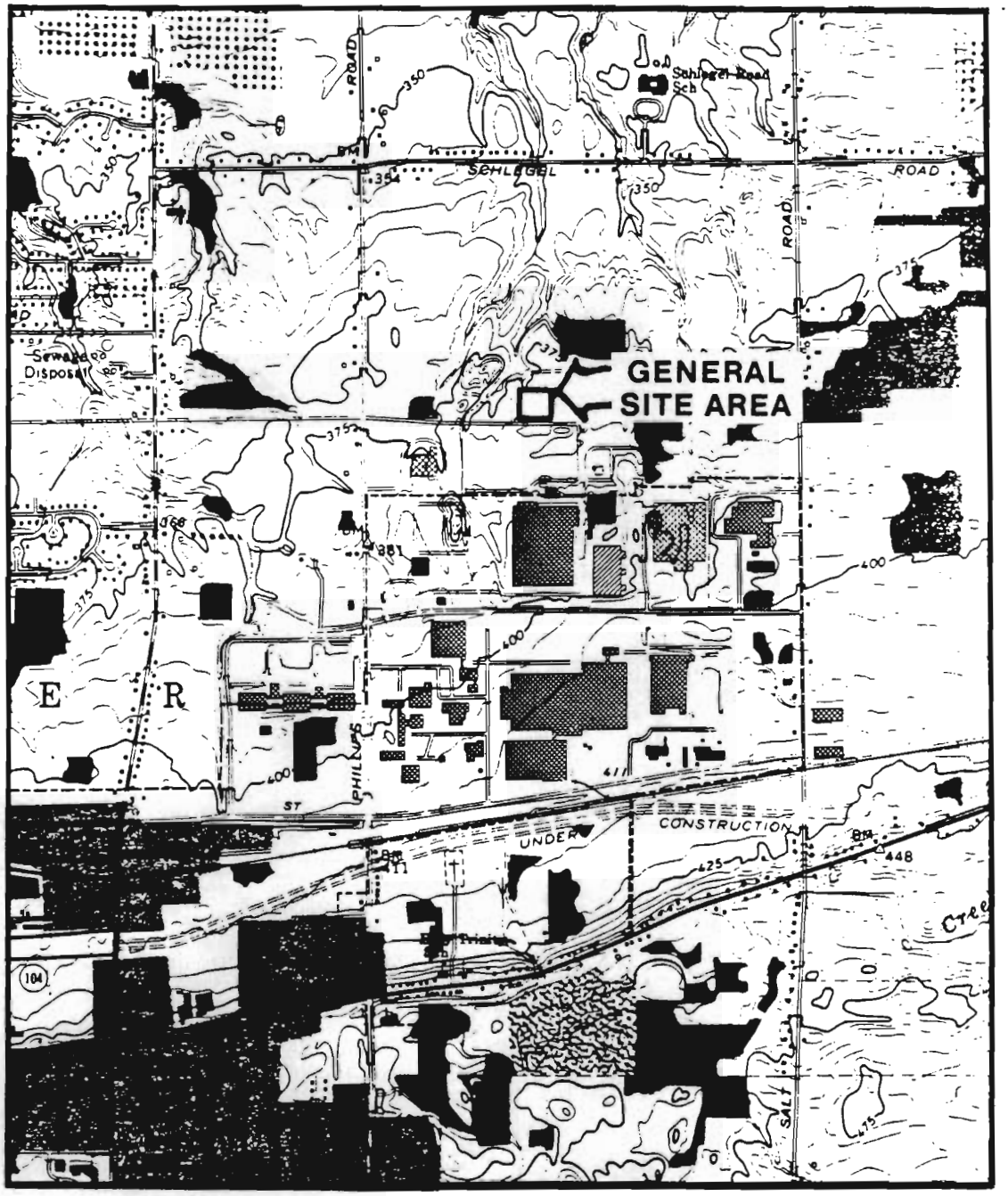
On January 19, 1989, a public participation meeting was held at the Town of Webster Parks/Recreation Facility. A Responsiveness Summary was prepared by the NYSDEC summarizing the public comments and the responses related to RI/FS work at the Xerox Webster Landfill Site. No significant changes and/or modifications to the preferred remedial action Alternative 7 were suggested during the public meeting.

The copies of the correspondence between the NYSDEC and Xerox regarding the review of the Feasibility Study report and revised Addendum to the Feasibility Study reports are contained in Appendix A. The copies of the letters from Monroe County Health Department and the NYSDOH supporting the preferred Alternative 7 are also contained in Appendix A.

XEROX WEBSTER LANDFILL SITE

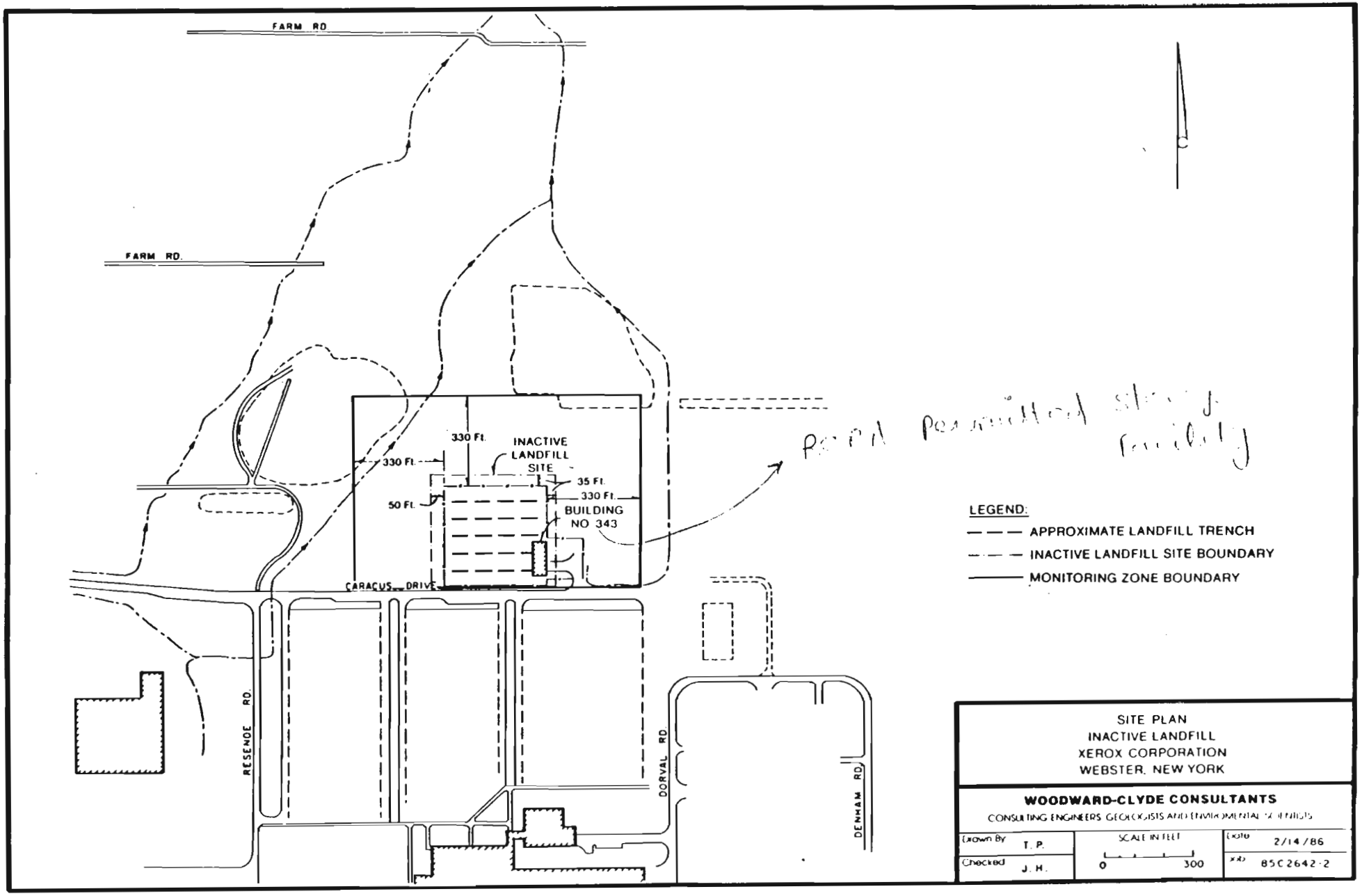
RECORD OF DECISION

FIGURES



LOCATION MAP
INACTIVE LANDFILL
XEROX CORPORATION
WEBSTER, NEW YORK

FIGURE 1


FARM RD.
FARM RD.
330 Ft.
330 Ft.
INACTIVE LANDFILL SITE
35 Ft.
330 Ft.
50 Ft.
BUILDING NO 343
CARACUS DRIVE
RESENDE RD.
DORVAL RD.
DENHAM RD.
LEGEND:
APPROXIMATE LANDFILL TRENCH
INACTIVE LANDFILL SITE BOUNDARY
MONITORING ZONE BOUNDARY
SITE PLAN
INACTIVE LANDFILL
XEROX CORPORATION
WEBSTER, NEW YORK
WOODWARD-CLYDE CONSULTANTS
CONSULTING ENGINEERS GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
Drawn By T. P.
Checked J. H.
SCALE IN FEET
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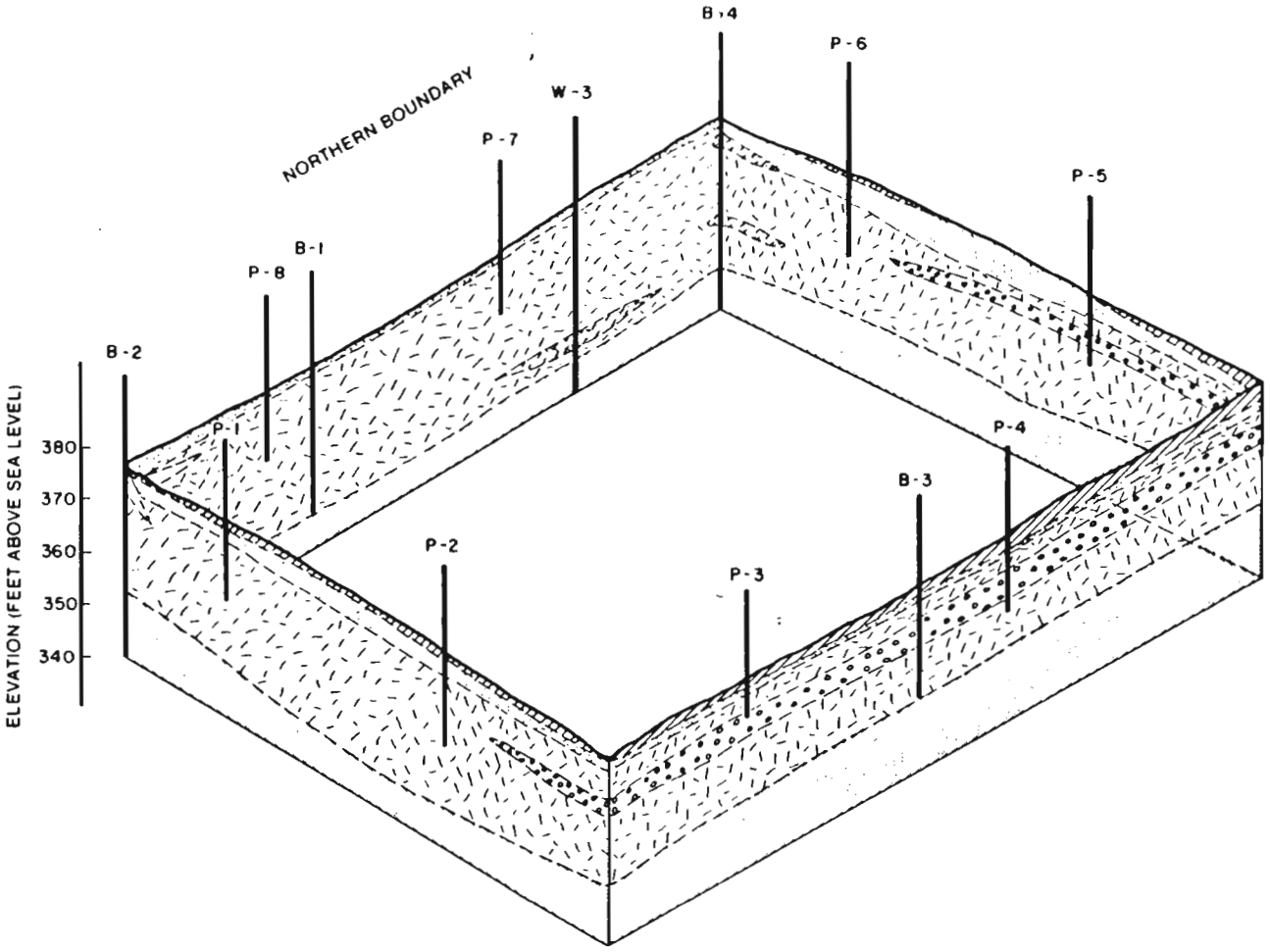
Date 2/14/86
Job 85C2642-2

FIGURE 2



LEGEND:

- FILL
- UPPER GLACIOLACUSTRINE FINE SAND
- GLACIOFLUVIAL SAND & GRAVEL
- REWORKED GLACIAL TILL
- SILT
- BEDROCK

SOURCE: ADAPTED FROM RECRA RESEARCH, INC., MAY 1984 REPORT

PANEL DIAGRAM OF INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK

WOODWARD-CLYDE CONSULTANTS
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

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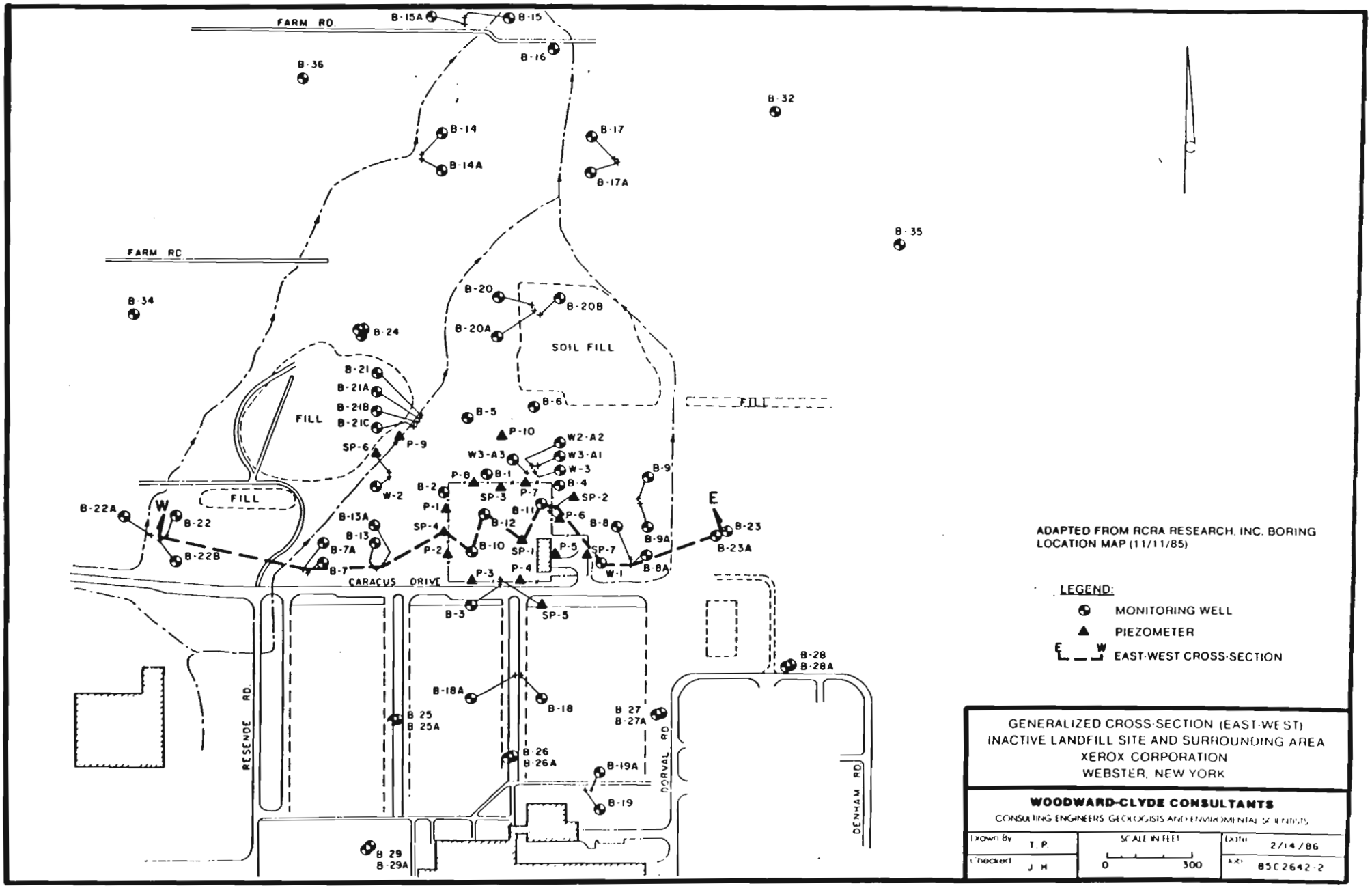
FIGURE 3

FIGURE 3



GENERALIZED CROSS-SECTION (EAST-WEST)
INACTIVE LANDFILL SITE AND SURROUNDING AREA
XEROX CORPORATION
WEBSTER, NEW YORK

WOODWARD-CLYDE CONSULTANTS
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

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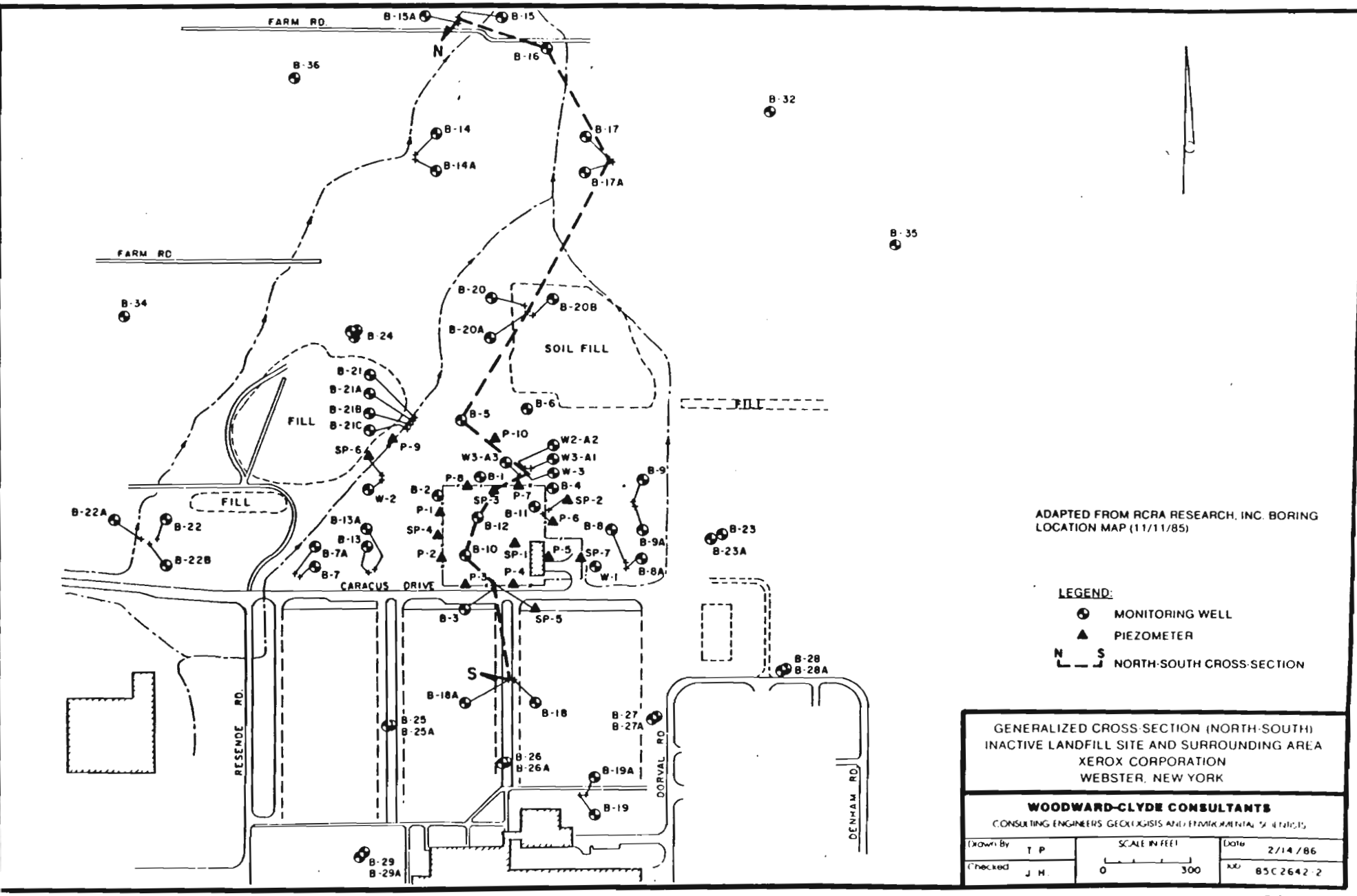
FIGURE 6



ADAPTED FROM RCRA RESEARCH, INC. BORING LOCATION MAP (11/11/85)

LEGEND:

- MONITORING WELL
- PIEZOMETER
- N S NORTH-SOUTH CROSS-SECTION

GENERALIZED CROSS-SECTION (NORTH-SOUTH)
INACTIVE LANDFILL SITE AND SURROUNDING AREA
XEROX CORPORATION
WEBSTER, NEW YORK

WOODWARD-CLYDE CONSULTANTS
CONSULTING ENGINEERS GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

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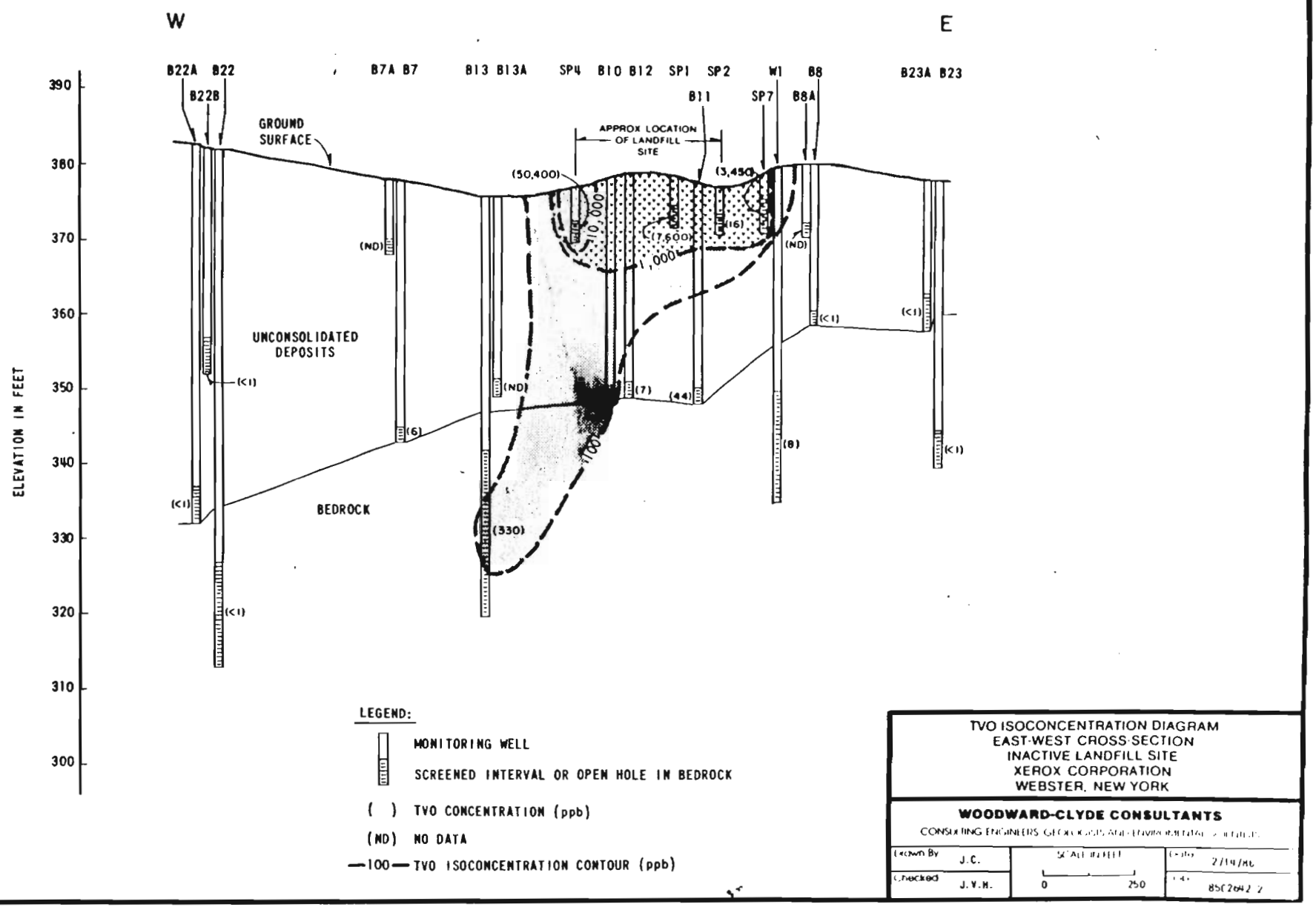
FIGURE 5


W
E
B22A
B22
B22B
B7A B7
B13 B13A
SP4
B10 B12
SP1
SP2
B11
W1
SP7
B8
B8A
B23A B23
GROUND SURFACE
APPROX LOCATION OF LANDFILL SITE
(50,400)
(3,450)
10,000
1,000
100
(7,600)
(16)
(ND)
(ND)
(<1)
(<1)
(<1)
(ND)
(7)
(44)
(6)
(8)
(<1)
(330)
UNCONSOLIDATED DEPOSITS
BEDROCK
ELEVATION IN FEET
390
380
370
360
350
340
330
320
310
300
LEGEND:
MONITORING WELL
SCREENED INTERVAL OR OPEN HOLE IN BEDROCK
( ) TVO CONCENTRATION (ppb)
(ND) NO DATA
—100— TVO ISOCONCENTRATION CONTOUR (ppb)
TVO ISOCONCENTRATION DIAGRAM
EAST-WEST CROSS-SECTION
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK
WOODWARD-CLYDE CONSULTANTS
CONSULTING ENGINEERS, GEOLOGISTS, AND ENVIRONMENTAL SCIENTISTS
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0
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FIGURE 8

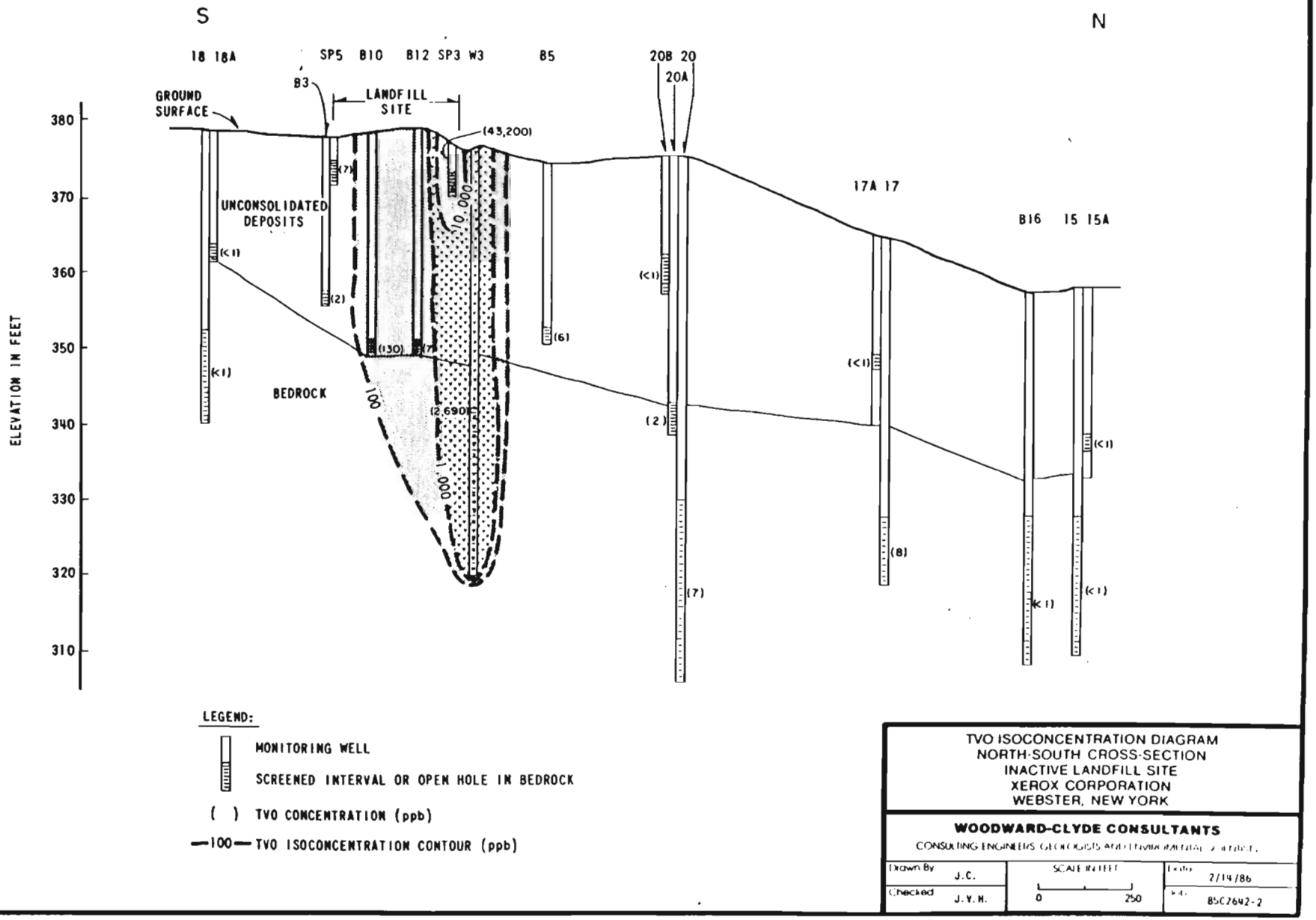


FIGURE 7

FIGURE 7

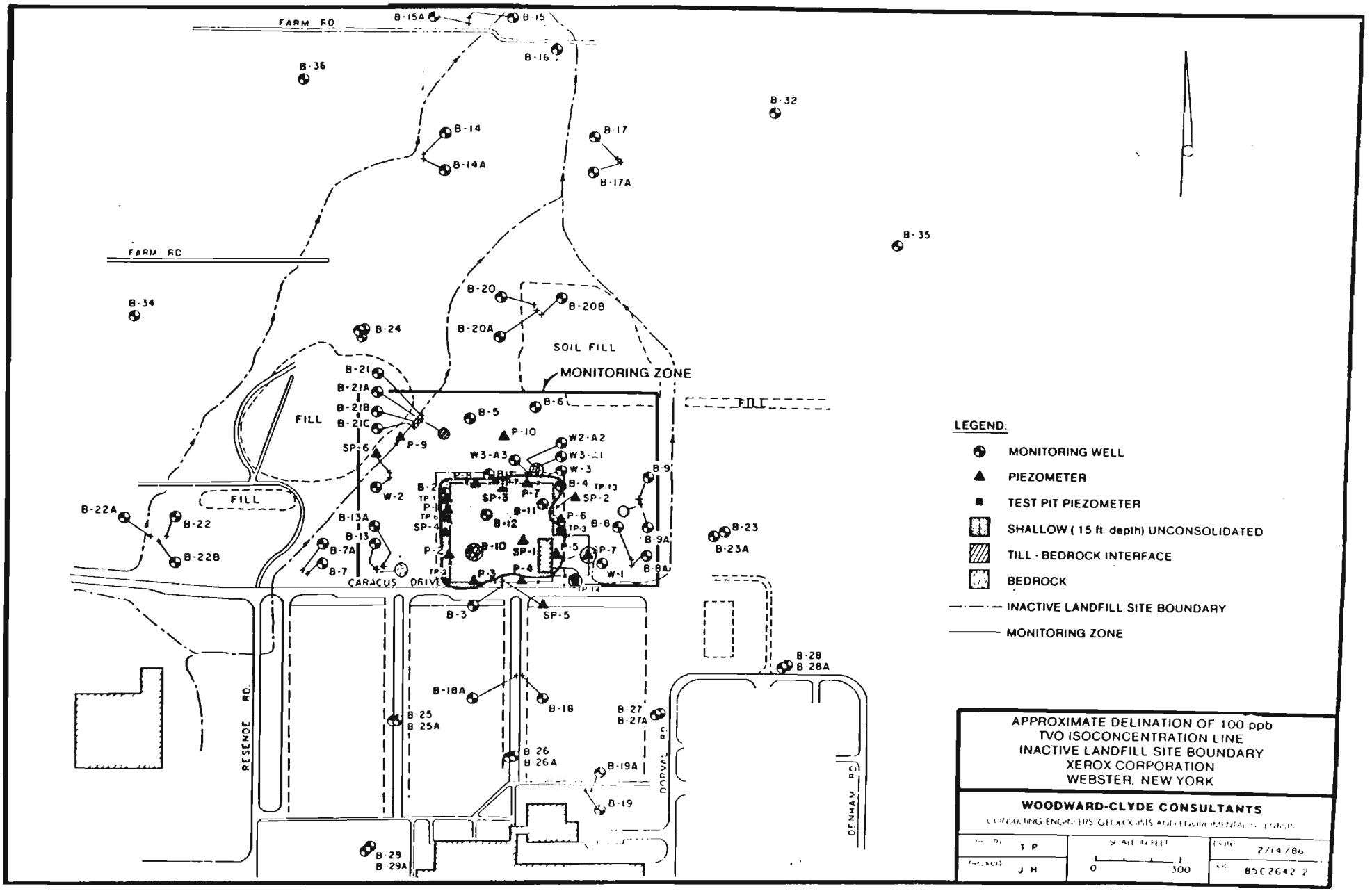


FIGURE 8

FIGURE 9

SITE PROBLEM	GENERAL REMEDIAL TECHNOLOGY CATEGORY									
	Air Pollution Control	Surface Water Controls	Leachate and Groundwater Controls	Gas Migration Control	Waste and Soil Excavation and Removal	Contaminated Sediments Removal and Containment	In situ Treatment	Direct Waste Treatment	Land Disposal and Temporary Storage	Contaminated Water and Sewer Line Controls
1. Surface seepage of contaminated groundwater		●	●				●	●		
2. Leachate migrating horizontally and/or vertically		●	●							
3. High water table resulting in contact between wastes and groundwater	Not Applicable	●	●	Not Applicable		Not Applicable			Not Applicable	Not Applicable
4. Precipation infiltrating / percolating through site to form leachate		●	●							
5. Contaminated groundwater			●				●	●		
6. Contaminated soils					●		●			

FIGURE 9

APPLICATION OF GENERAL REMEDIAL
TECHNOLOGY CATEGORIES TO SITE PROBLEMS
XEROX CORPORATION
WEBSTER, NEW YORK

FIGURE 10

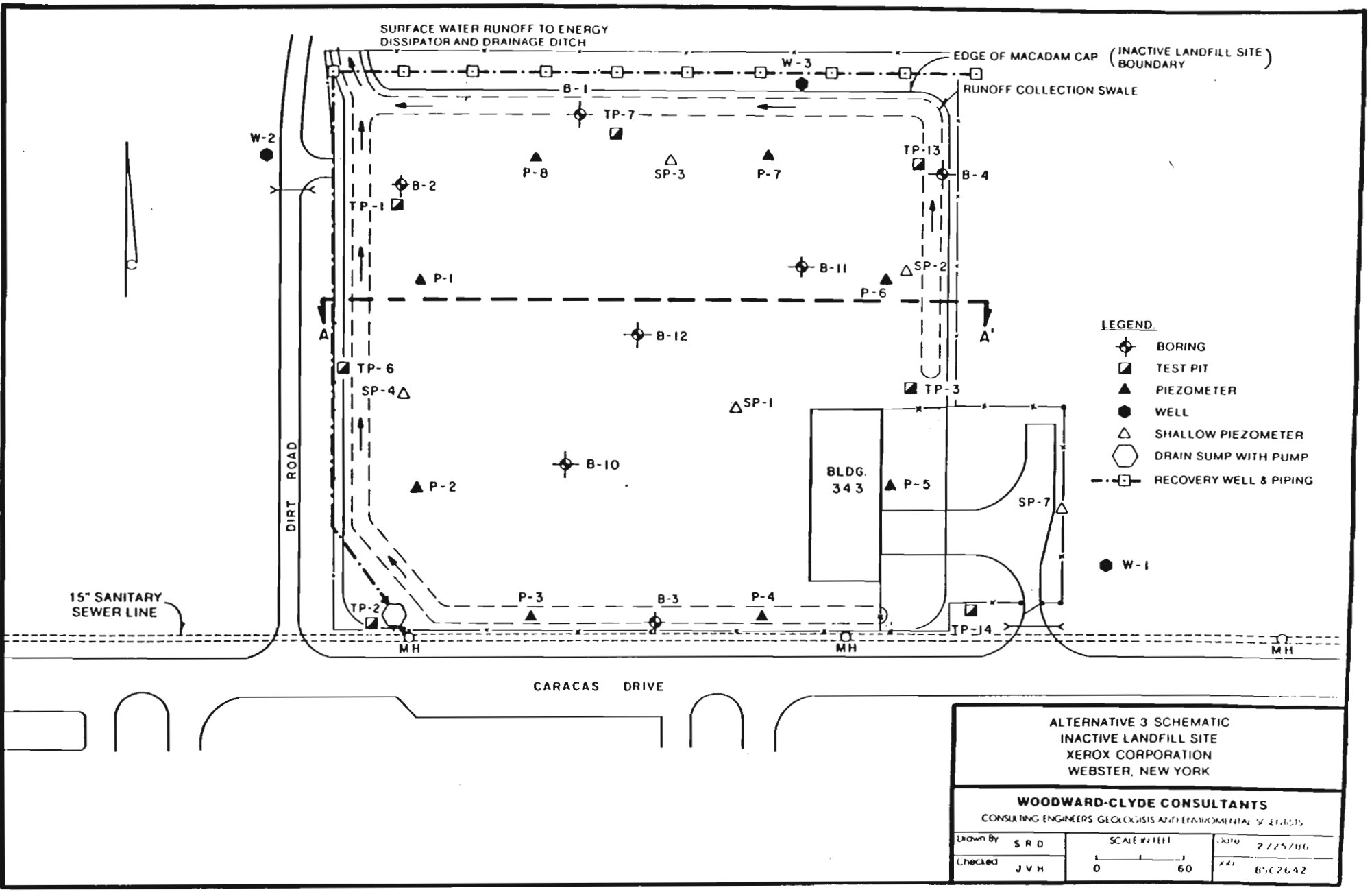

SURFACE WATER RUNOFF TO ENERGY DISSIPATOR AND DRAINAGE DITCH
EDGE OF MACADAM CAP
(INACTIVE LANDFILL SITE BOUNDARY)
RUNOFF COLLECTION SWALE
W-1
W-2
W-3
B-1
B-2
B-3
B-4
B-10
B-11
B-12
TP-1
TP-2
TP-3
TP-4
TP-6
TP-7
TP-13
P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8
SP-1
SP-2
SP-3
SP-4
SP-7
A
A'
BLDG. 343
DIRT ROAD
15" SANITARY SEWER LINE
MH
MH
MH
CARACAS DRIVE
LEGEND
BORING
TEST PIT
PIEZOMETER
WELL
SHALLOW PIEZOMETER
DRAIN SUMP WITH PUMP
RECOVERY WELL & PIPING
ALTERNATIVE 3 SCHEMATIC
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK
WOODWARD-CLYDE CONSULTANTS
CONSULTING ENGINEERS GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
Drawn By S R D
Checked J V H
SCALE IN FEET
0 60
Date 2/25/86
Job 85C2642

FIGURE 14

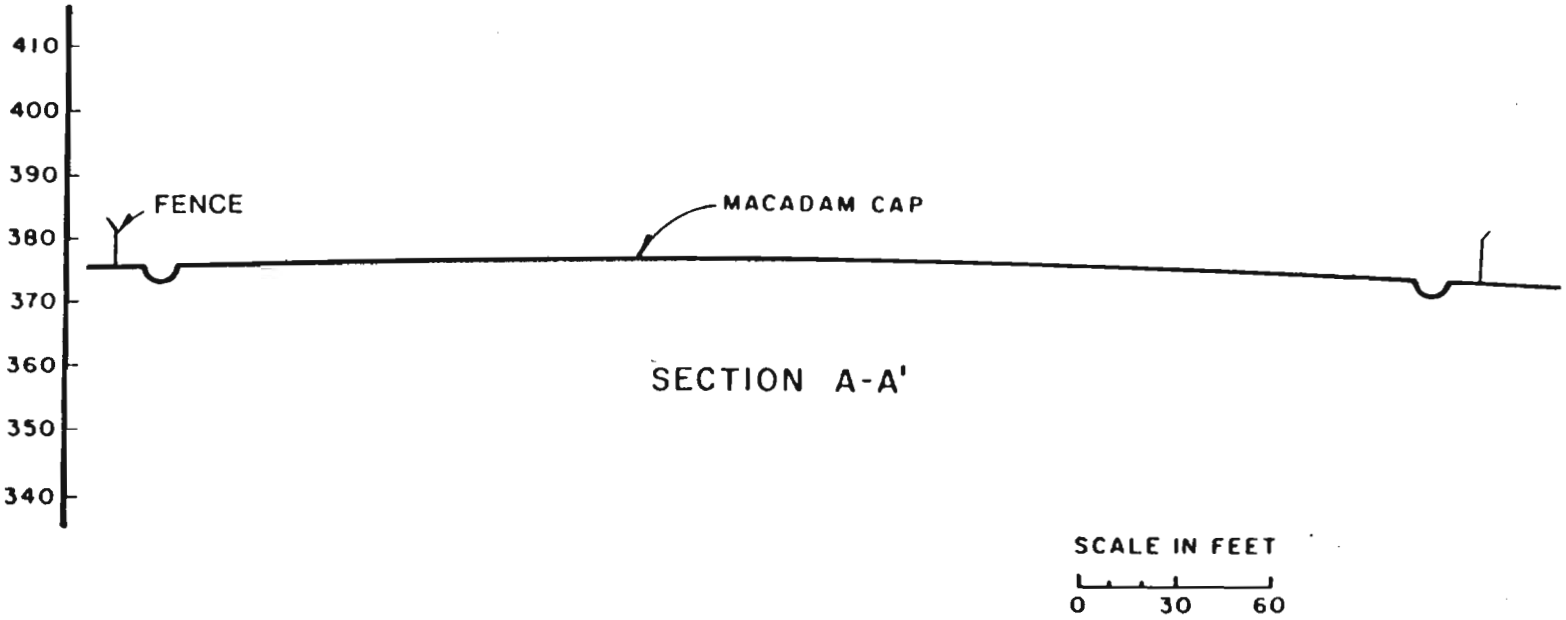


FIGURE 11

ALTERNATIVE 3 TYPICAL SECTION
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK

FIGURE 15

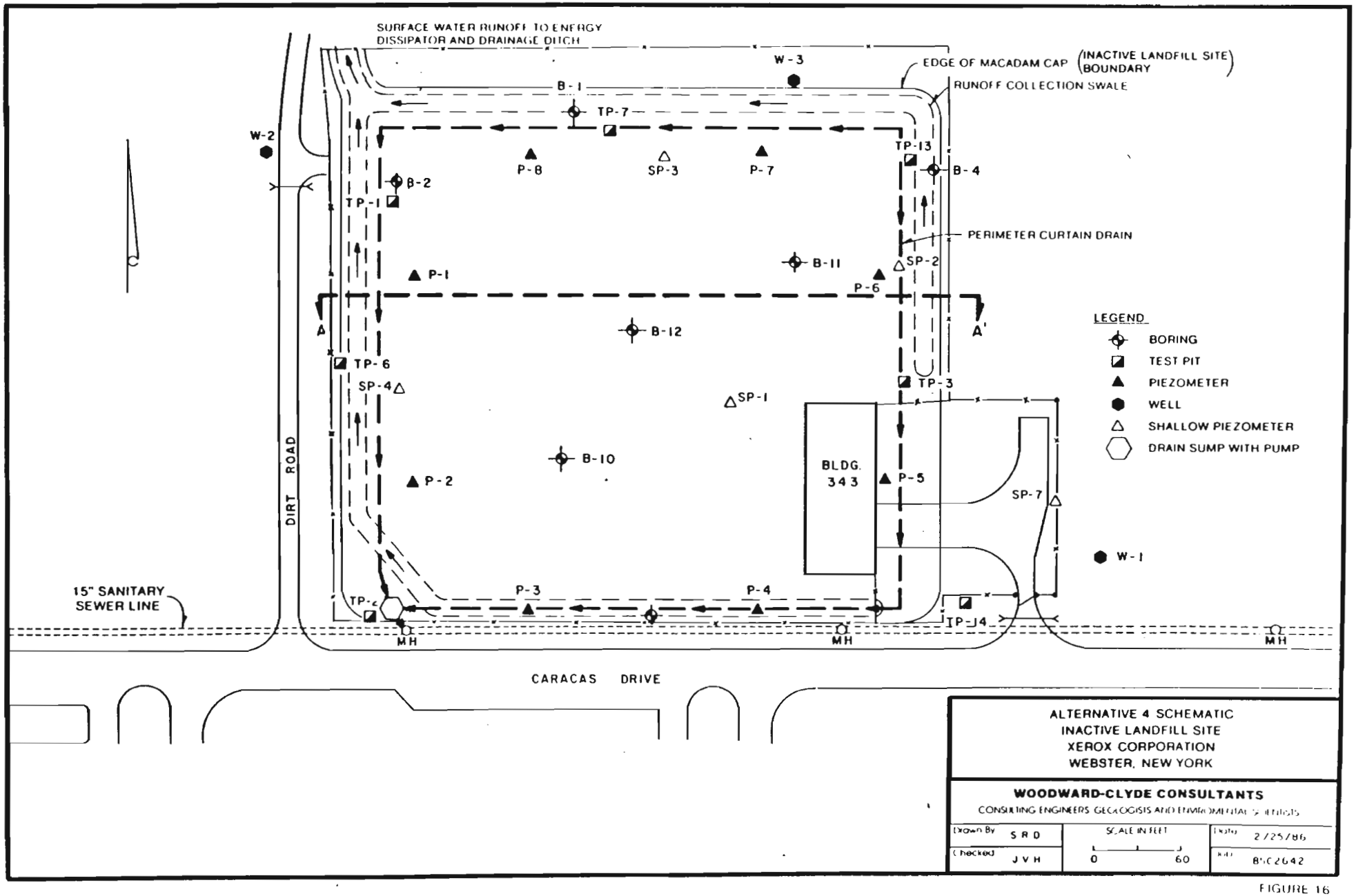


FIGURE 12

FIGURE 16

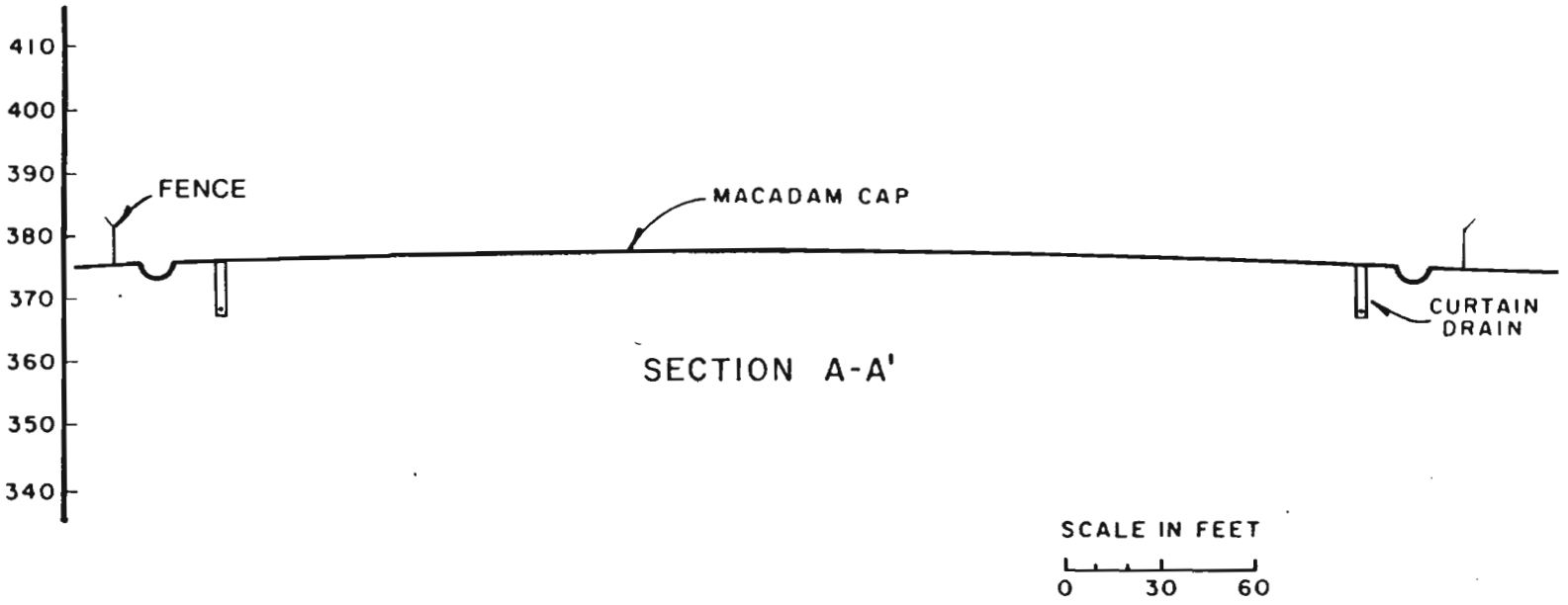


FIGURE 13

ALTERNATIVE 4 TYPICAL SECTION
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK

FIGURE 17

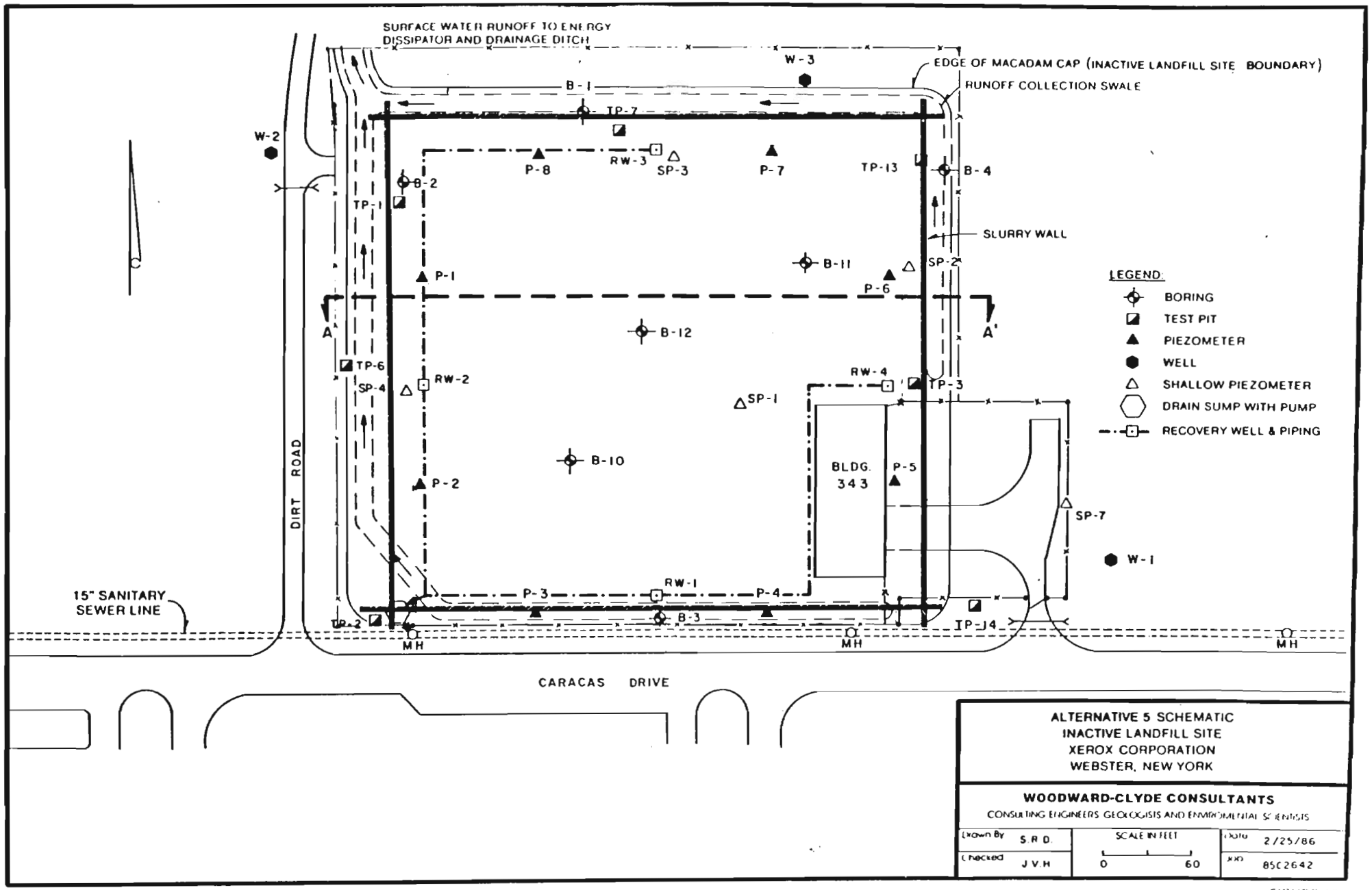

SURFACE WATER RUNOFF TO ENERGY DISSIPATOR AND DRAINAGE DITCH
EDGE OF MACADAM CAP (INACTIVE LANDFILL SITE BOUNDARY)
RUNOFF COLLECTION SWALE
SLURRY WALL
W-1
W-2
W-3
B-1
B-2
B-3
B-4
B-10
B-11
B-12
TP-1
TP-2
TP-3
TP-4
TP-5
TP-6
TP-7
TP-13
P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8
RW-1
RW-2
RW-3
RW-4
SP-1
SP-2
SP-3
SP-4
SP-7
A
A'
BLDG. 343
DIRT ROAD
15" SANITARY SEWER LINE
MH
CARACAS DRIVE
LEGEND:
BORING
TEST PIT
PIEZOMETER
WELL
SHALLOW PIEZOMETER
DRAIN SUMP WITH PUMP
RECOVERY WELL & PIPING
ALTERNATIVE 5 SCHEMATIC
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK
WOODWARD-CLYDE CONSULTANTS
CONSULTING ENGINEERS GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
Drawn By S.R.D.
Checked J.V.H
SCALE IN FEET
0 60
Date 2/25/86
Job No. 85C2642

FIGURE 18

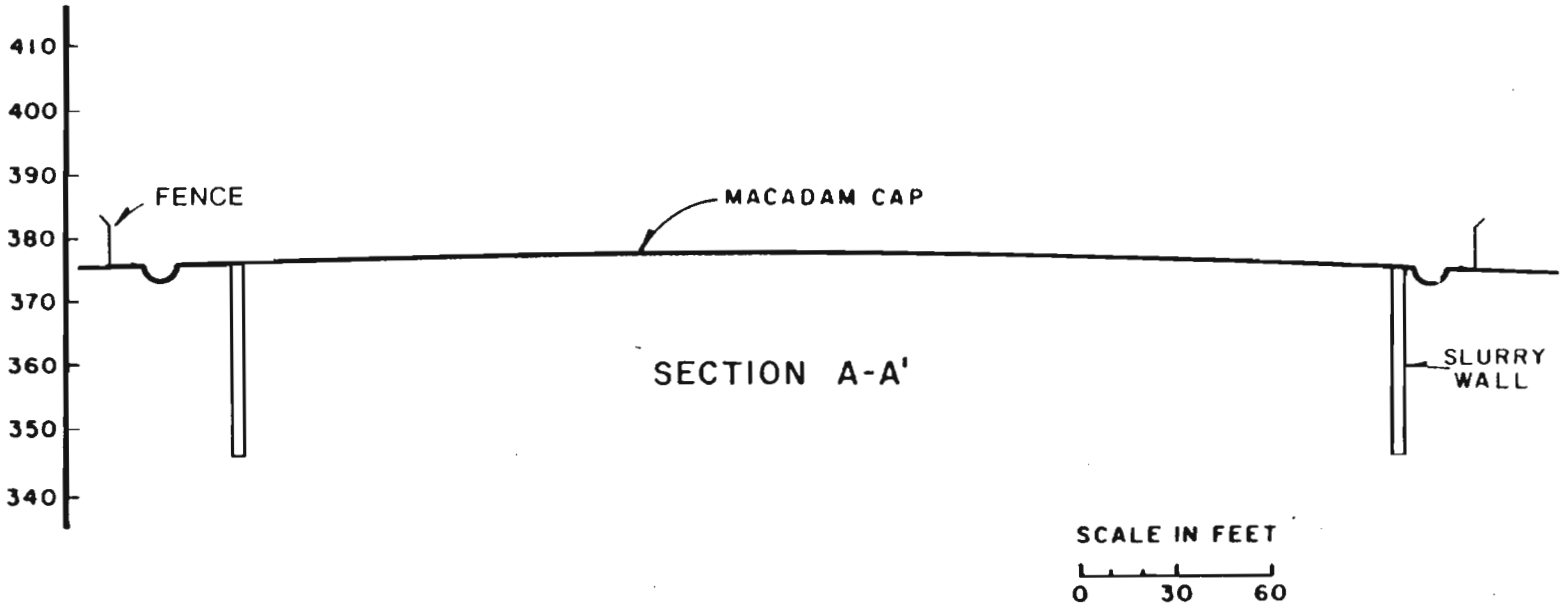
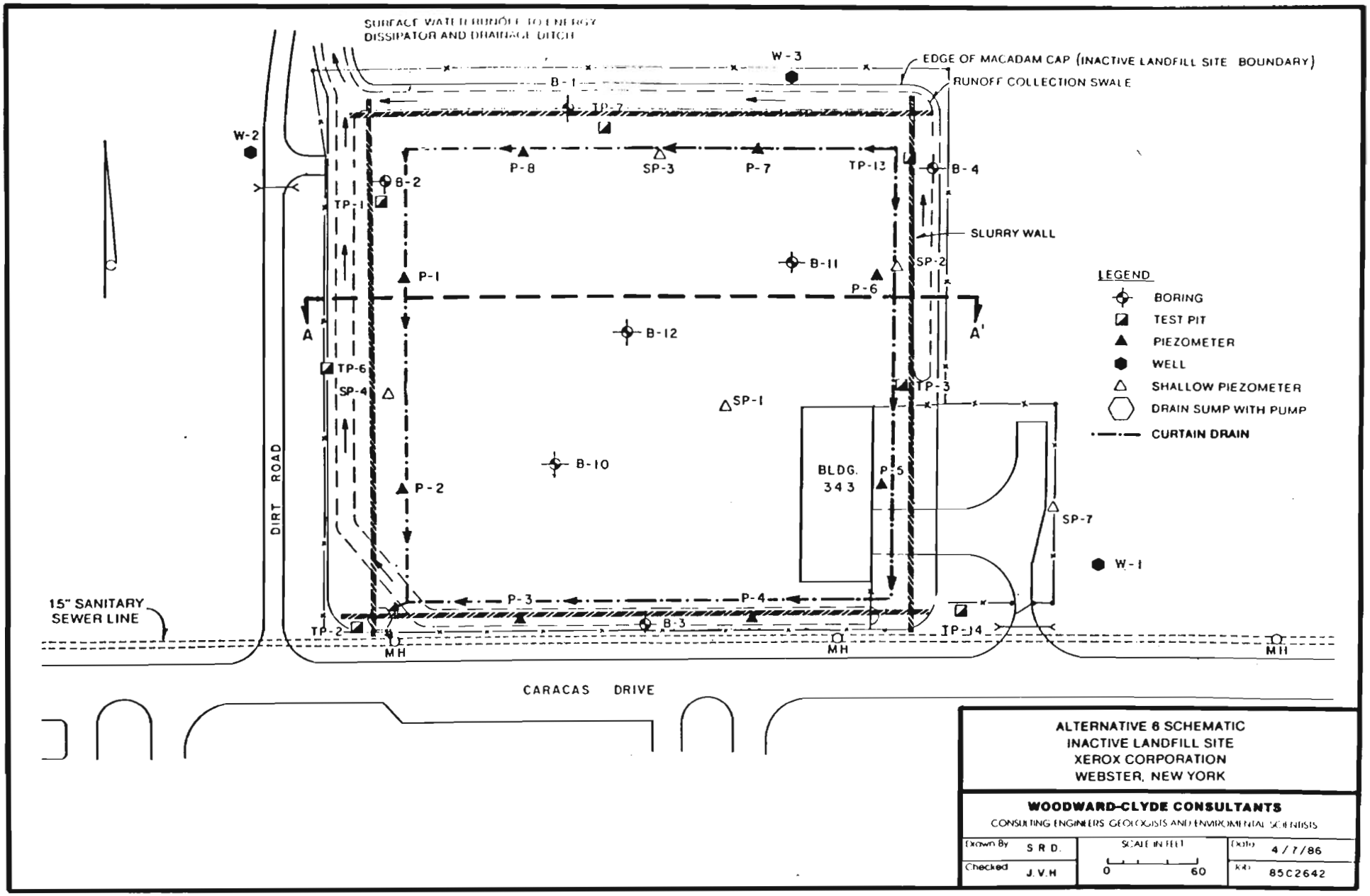


FIGURE 15

ALTERNATIVE 5 TYPICAL SECTION
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK

FIGURE 19



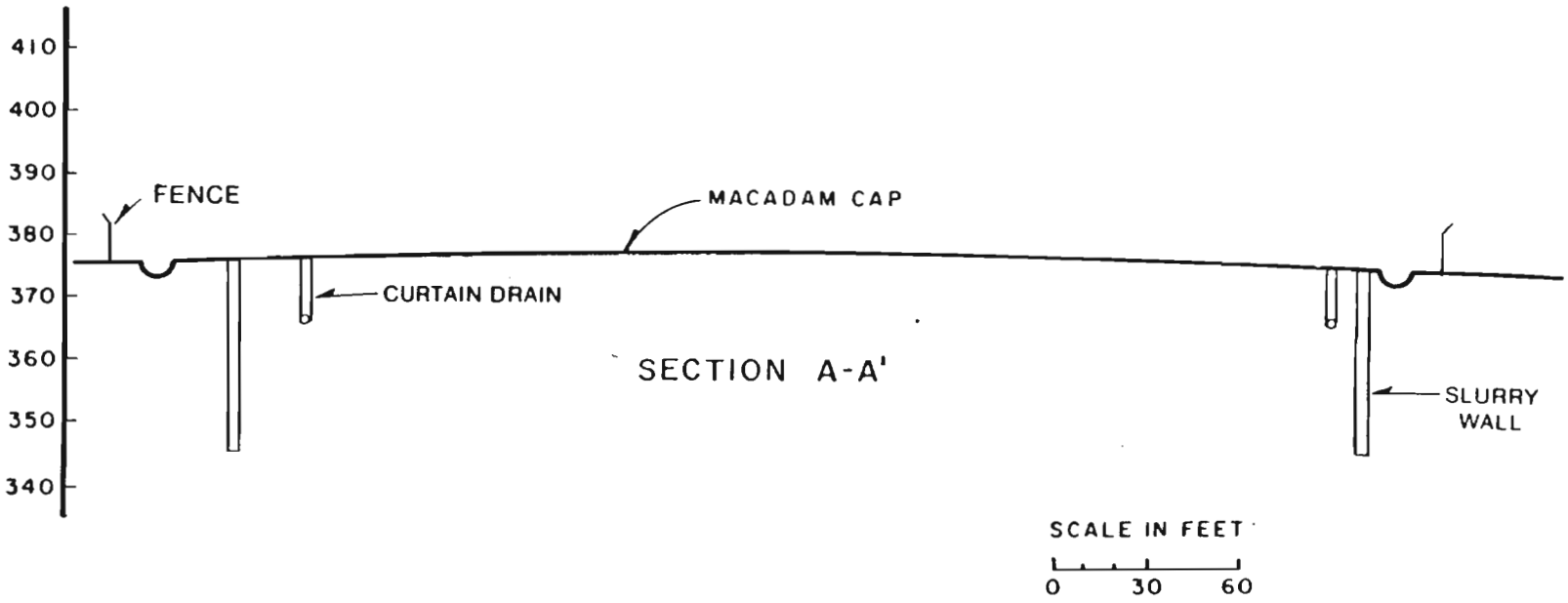
ALTERNATIVE 6 SCHEMATIC
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK

WOODWARD-CLYDE CONSULTANTS
CONSULTING ENGINEERS GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

Drawn By	S R D.	SCALE IN FEET 0 60	Date 4/7/86
Checked	J.V.H		Job 85C2642

FIGURE 16

FIGURE 20



ALTERNATIVE 6 TYPICAL SECTION
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK

FIGURE 21

FIGURE 17

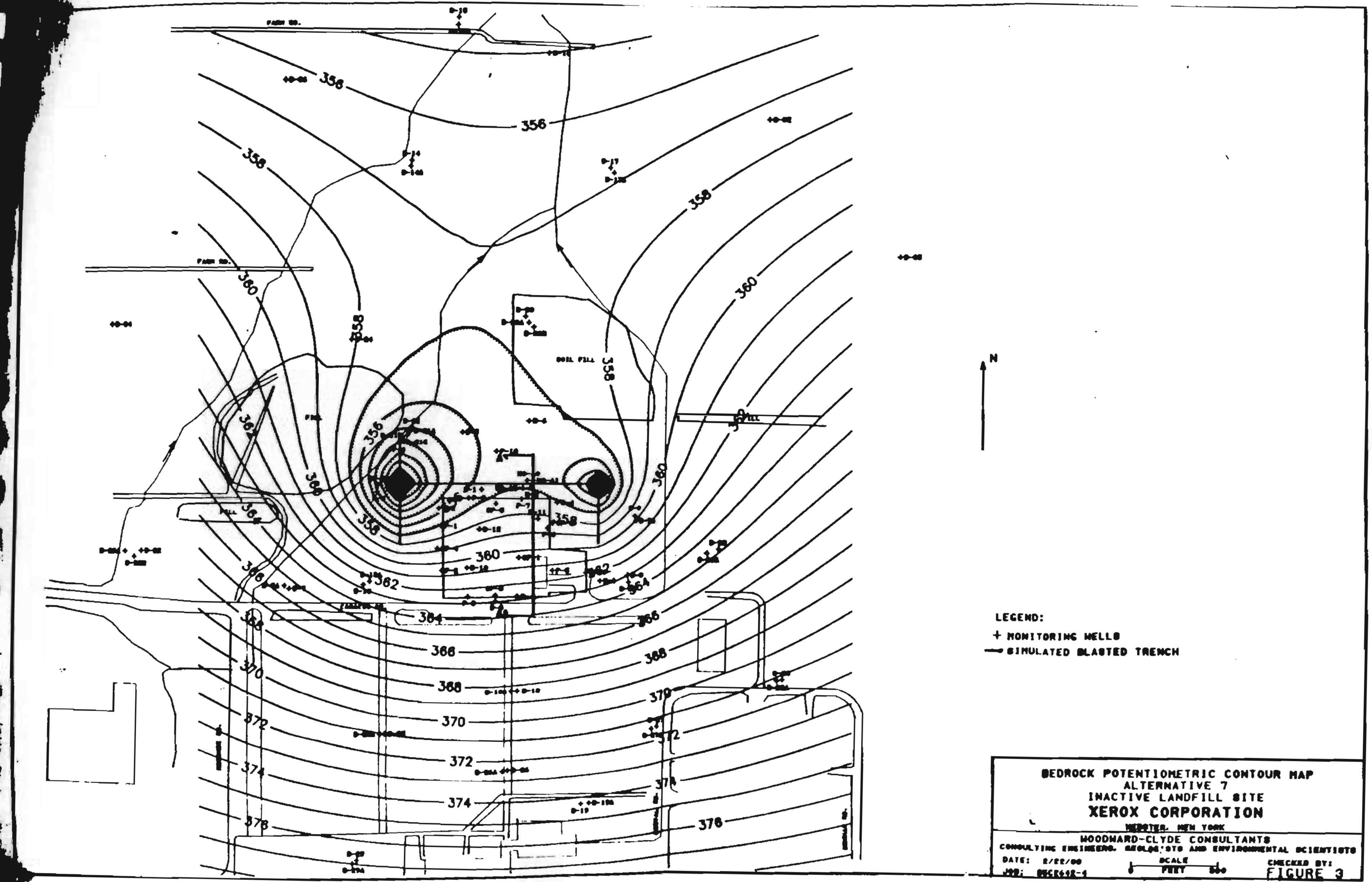

BEDROCK POTENTIOMETRIC CONTOUR MAP
ALTERNATIVE 7
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK
WOODWARD-CLYDE CONSULTANTS
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
DATE: 2/22/88
SCALE
FEET
CHECKED BY:
FIGURE 3
LEGEND:
+ MONITORING WELLS
SIMULATED BLASTED TRENCH
N
SOIL FILL
356
358
360
362
364
366
368
370
372
374
376

FIGURE 18

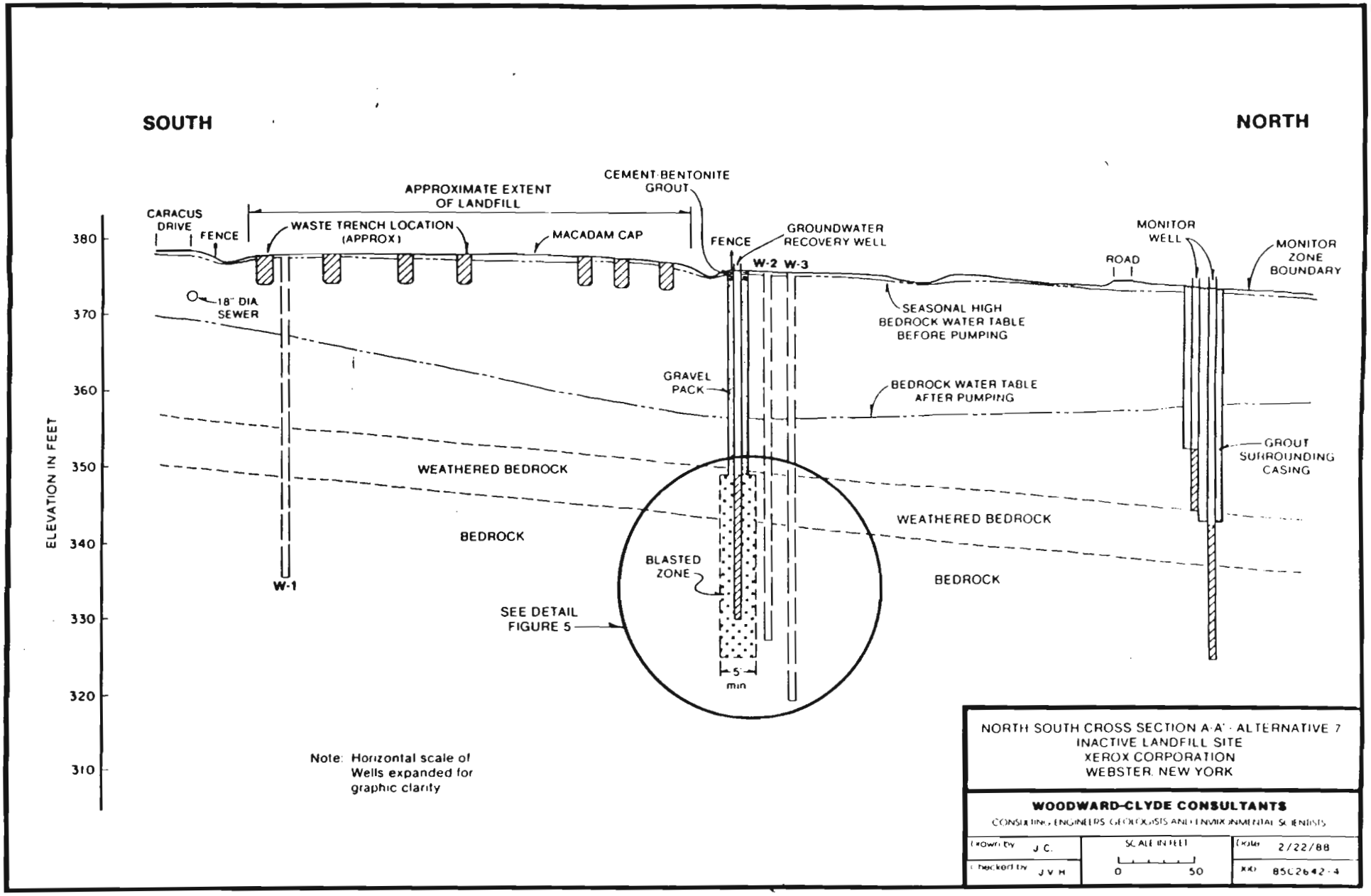
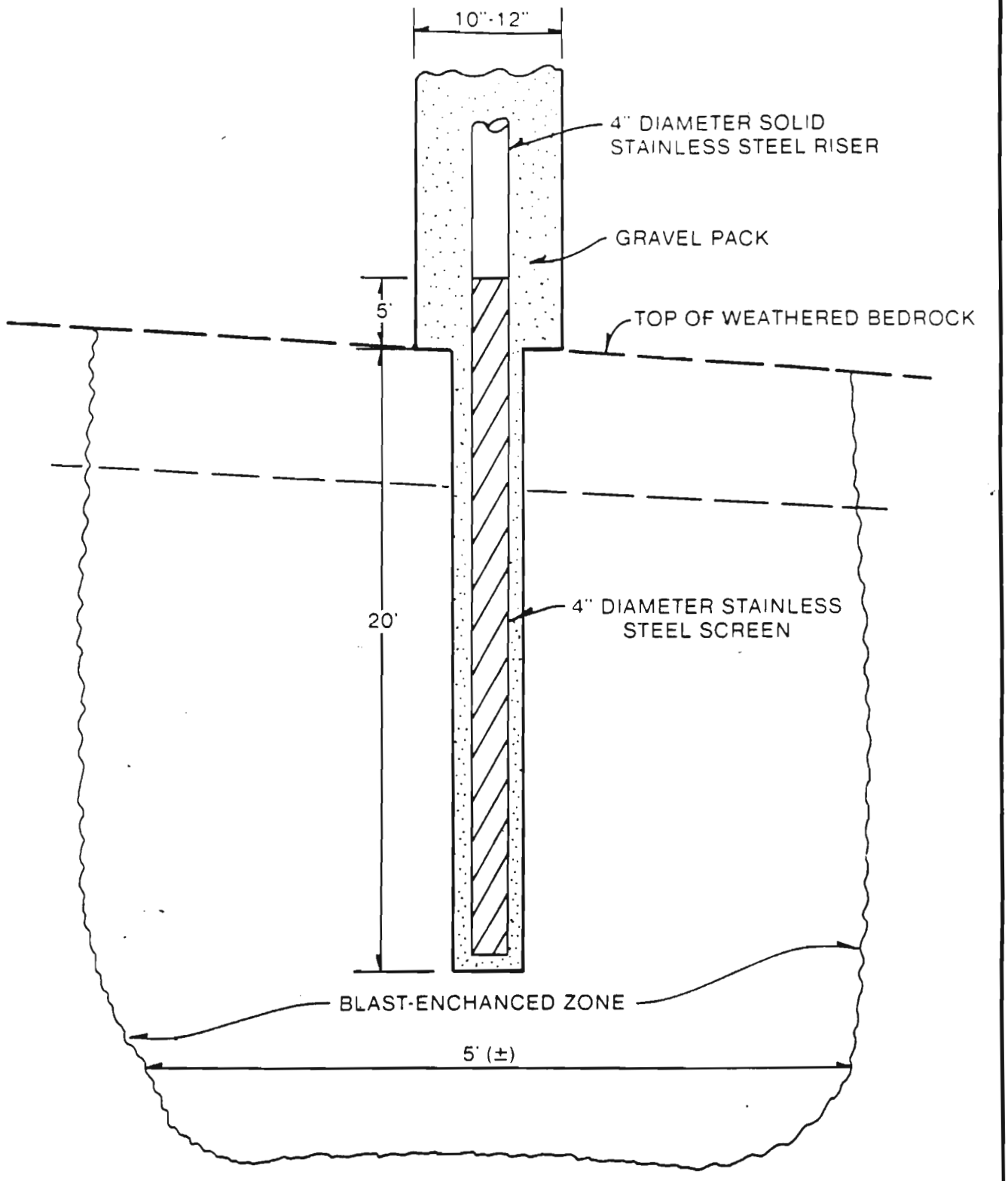


FIGURE 4

FIGURE 19



N.T.S.

SCHEMATIC CROSS-SECTION OF
BLAST-ENCHANCED ZONE
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK

FIGURE 5

XEROX WEBSTER LANDFILL SITE

RECORD OF DECISION

TABLES

TABLE 1

1984-1986 TVO CONCENTRATION DATA

Boring/Well/Piezometer No.	No. of Values	Concentration - ppm Minimum	Maximum	Average
North-South Cross Section				
B-18	1	< 0.001	< 0.001	< 0.001
B-18A	2	< 0.001	< 0.001	< 0.001
B-3	7	< 0.001	0.011	0.002
SP-5	7	< 0.001	0.044	0.007
B-10	2	0.116	0.144	0.130
B-12	7	< 0.001	0.041	0.007
SP-3	4	0.554	106	43.2
W-3	9	1.77	4.40	2.69
B-5	7	< 0.001	0.038	0.006
B-20B	3	< 0.001	0.001	0.001
B-20A	3	< 0.001	0.005	0.002
B-20	3	< 0.001	0.019	0.007
B-17A	2	< 0.001	< 0.001	< 0.001
B-17	3	< 0.001	0.016	0.008
B-16	1	< 0.001	< 0.001	< 0.001
B-15A	2	< 0.001	< 0.001	< 0.001
B-15	2	< 0.001	< 0.001	< 0.001
East-West Cross Section				
B-23	1	< 0.001	< 0.001	< 0.001
B-23A	1	< 0.001	< 0.001	< 0.001
B-8	7	< 0.001	< 0.001	< 0.001
W-1	5	< 0.001	0.038	0.008
SP-7	6	0.083	8.50	3.45
SP-2	4	< 0.001	0.057	0.016
B-11	7	0.010	0.118	0.044
SP-1	7	0.911	31.9	7.61
B-12	7	< 0.001	0.041	0.007
B-10	2	0.116	0.144	0.130
SP-4	1	50.4	50.4	50.4
B-13	1	0.330	0.330	0.330
B-7	7	< 0.001	0.026	0.006
B-22	3	< 0.001	< 0.001	< 0.001
B-22B	2	< 0.001	< 0.001	< 0.001
B-22A	2	< 0.001	< 0.001	< 0.001

TABLE 3

PRELIMINARY SCREENING OF GENERAL RESPONSE ACTIONS
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK

General Response Action	Technologies	Applicable	Not Applicable	May Be Applicable
No Action	Some monitoring and analyses may be performed.			X
Containment	Capping; groundwater containment barrier walls; bulkheads; gas barriers.	X		
Pumping	Groundwater pumping; liquid removal; dredging.			
On-site		X		
Off-site			X	
Collection	Sedimentation basins; French drains; gas vents; gas collection systems.	X		
Diversion	Grading; dikes and berms; stream diversion ditches; trenches; terraces and benches; chutes and downpipes; levees; seepage basins.			X
Complete Removal	Tanks; drums; soils; sediments; liquid wastes; contaminated structures; sewers and water pipes.			X
Partial Removal	Tanks; drums; soils; sediments; liquid wastes.			X
On-site Treatment	Incineration; solidification; land treatment; biological, chemical, and physical treatment.			X
Off-site Treatment	Incineration; biological, chemical, and physical treatment.			X
In Situ Treatment	Permeable treatment beds; bio-reclamation; soil flushing; neutralization; land farming.			X

TABLE 3
(Continued)

General Response Action	Technologies	Applicable	Not Applicable	May Be Applicable
Storage	Temporary storage structures.		X	
On-site Disposal	Landfills; land application.	X		
Off-site Disposal	Landfills; surface impoundments; land application.			X
Alternative Drinking Water Supply	Cisterns; aboveground tanks; deeper or upgradient wells; municipal water system; relocation of intake structure; individual treatment devices.		X	
Relocation of Receptors	Relocate residents temporarily or permanently.		X	

TABLE 4

SUMMARY OF POTENTIALLY FEASIBLE TECHNOLOGIES
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK

Remedial Technology Category	Feasible Technology
Surface Water Controls	Capping
Leachate and Groundwater Controls	Capping Containment Barriers Groundwater Pumping Subsurface Collection Drains
Waste and Soil Excavation and Removal	Complete Excavation Partial Excavation
In-Situ Treatment	Soil Aeration Soil Flushing Bioreclamation
Direct Waste Treatment	Air Stripping Discharge to POTW

TABLE 5

SCREENING OF POTENTIALLY FEASIBLE TECHNOLOGIES

	Technology	Technical Factors Precluding Implementation At Landfill Site	Factors Affecting Selection For Use at Landfill Site
1.	Capping Purpose: To divert surface water and prevent infiltration of precipitation.	None	1. All capping materials subject to degradation from subsidence. 2. Regular inspections/maintenance required. 3. Must be vented to prevent buildup of hazardous or toxic vapors.
1A.	Clay	None	1. Must be kept moist to retain integrity. 2. Must be covered with protective soil layer. 3. Subject to deterioration from root penetration.
1B.	Asphalt (Bituminous Concrete)	None	1. Subject to cracking (repairable). 2. Subject to photodegradation. 3. Easily inspected for integrity.
1C.	Flexible Membrane Liners (FML)	Subject to attack by possible VOC vapors.	1. Must be covered with protective soil layer. 2. Requires extensive subgrade preparation.
1D.	Soil Cement Composite	None	1. Must be covered with protective soil layer to prevent freezing/ cracking of upper soil cement layer.

TABLE 5
(Continued)

Technology	Technical Factors Precluding Implementation At Landfill Site	Factors Affecting Selection For Use at Landfill Site
2. Containment Barriers		
Purpose: To restrict horizontal flow of shallow groundwater into area beneath landfill and thereby reduce volume of water pumped for dewatering.	None: 30-foot depth to bedrock feasible for installation.	1. Excavation of lower till may be difficult. 2. Some boulders reported may cause installation problems.
2A. Circumferential Soil-Bentonite Slurry Wall	None	1. Circumferential barrier preferred to only upgradient or downgradient placement due to highly variable permeability of unconsolidated material. 2. Soil-bentonite composition adequate for desired permeability (10^{-7} cm/sec).
3. Groundwater Pumping		
Purpose: To remove contaminated groundwater for subsequent treatment/disposal and/or to draw down water table to create a hydraulic barrier.	Low permeability of formation may restrict well yields and zone of influence.	1. Off-site (Xerox complex) pumping not appropriate due to limited zones of influence caused by low permeabilities. 2. Extraction only from well-point network or closely spaced pumping wells necessary because of low permeabilities.

TABLE 5
(Continued)

Technology	Technical Factors Precluding Implementation At Landfill Site	Factors Affecting Selection For Use at Landfill Site
4. Subsurface Collection Drains		
Purpose: To provide static control of shallow water table elevation and/or to remove contaminated groundwater for subsequent treatment.	None	1. Continuous trench (i.e., curtain) drain generally effective as perimeter collection system. 2. Extracted water must be treated/disposed.
5. Excavation and Removal		
Purpose: To physically remove contaminants or the source of contaminants from the site for disposal elsewhere.	None	1. Site environmental problems do not justify disruptive nature of excavation. 2. Site requires dewatering in order to effectively excavate waste materials. 3. Contamination problem transferred to another site.
5A. Complete Excavation	None	1. Same as for No. 5 above.
5B. Partial Excavation	None	1. Geophysical investigations unable to pinpoint exact locations of waste materials. 2. Same as for No. 5 above.
6. Soil Aeration		
Purpose: To remove VOC contaminants from soil by vigorous agitation.	None	1. Soil must be dewatered prior to excavation/aeration. 2. Excavated wastes/wasted-soil mixture must be removed/disposed off-site.

TABLE 5
(Continued)

Technology	Technical Factors Precluding Implementation At Landfill Site	Factors Affecting Selection For Use at Landfill Site
7. Soil Flushing		
Purpose: To cleanse water soluble/mobile contaminants from soil via hydraulic flushing/ collecting leachate and treating prior to recycle for flushing.	Low permeability of soils limits effectiveness of technology.	1. Can require long time periods to be effective.
8. Bioreclamation		
Purpose: To destroy contaminants through in-situ biological processes.	Low permeability of soils limits effectiveness of technology.	1. Soil subject to sealing from biological slime growth.
9. Air Stripping		
Purpose: To remove VOC contaminants from water via rigorous aeration with subsequent capture/destruction of the VOC contaminants.	None	1. Can require long-term operation and maintenance.

TABLE 5
(Continued)

Technology	Technical Factors Precluding Implementation At Landfill Site	Factors Affecting Selection For Use at Landfill Site
10. Discharge to POTW		
Purpose: To utilize the treatment capabilities of a POTW to remove VOC contaminants from a waste stream prior to discharge.	None	1. VOC concentrations in waste stream must be within limits acceptable for treatment by POTW. 2. Sanitary sewer line exists adjacent to landfill site.

TABLE 6

SUMMARY OF MOST FEASIBLE TECHNOLOGIES
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK

CAPPING

(1B) Asphalt Bituminous Concrete (Macadam)

CONTAINMENT BARRIER

(2A) Circumscribing Soil-Bentonite Slurry Wall

GROUNDWATER PUMPING

(3) Extraction from Well-Point Network

SUBSURFACE COLLECTION DRAINS

(4) Circumscribing Curtain (Collector Trench) Drain

TREATMENT OF RECOVERED WATER

(10) Discharge to POTW

TABLE 7

SYNTHESIS OF REMEDIAL ALTERNATIVES
INACTIVE LANDFILL SITE
XEROX CORPORATION
WEBSTER, NEW YORK

Alternative No.	Description
1	Monitor Only (No Action)
2	Macadam Cap - Monitor
3	Macadam Cap - Hydraulic Barrier Well-Point Network - Discharge to POTW - Monitor
4	Macadam Cap - Curtain Drain - Discharge to POTW - Monitor
5	Macadam Cap - Circumscribing Slurry Wall - Dewatering Wells - Discharge to POTW - Monitor
6	Macadam Cap - Circumscribing Slurry Wall - Curtain Drain - Discharge to POTW - Monitor

TABLE 8

PRELIMINARY ALTERNATIVE SCREENING MATRIX

No.	Alternative Description	Environmental/Public Health Factors	Cost Factors: Capital Cost	Annual O&M Cost	5-Year Replacement Cost	Present Worth (1,000's)
1	Monitor Only - No Action	No control is effected over contaminant sources. Localized environmental quality degradation may continue unabated.	--	$12,000	--	$ 113
2	Cap - Monitor	Capping only may not be effective in eliminating the waste-groundwater contact that is required for adequate source control.	$289,000	$17,000	$40,000	$ 511
3	Cap - Hydraulic Barrier Well Points - POTW - Monitor	Moderately effective in controlling sources of VOC contaminants within the landfill site.	$370,000	$49,000	$58,000	$ 921
4	Cap - Curtain Drain - POTW - Monitor	Should effectively control sources of VOC contaminants and tend to effect limited contaminant migration control on the shallow and bedrock groundwater around the landfill.	$345,000	$78,000	$43,000	$1,147
5	Cap - Slurry Wall - Dewatering Wells - POTW - Monitor	Most effective source control that could reverse the trend toward localized groundwater contamination by VOC.	$610,000	$42,000	$49,000	$1,082
6	Cap - Slurry Wall - Curtain Drain - POTW - Monitor	Same as for Alternative 5	$610,000	$42,000	$49,000	$1,082

Present Worth = Capital Cost + USPWF 30/10% (O&M cost) + 5-year replacement cost (SPPWF 5/10% + SPPWF 10/10% + SPPWF 15/10% + SPPWF 20/10% + SPPWF 25/10% + SPPWF 30/10%)

= Capital Cost + 9.427 (O&M cost) + 1.544 (5-year replacement cost)

TABLE 9

SUMMARY OF TECHNICAL FEASIBILITY EVALUATION

	Performance		Reliability	
Alternative	Effectiveness	Useful Life	Operation and Maintenance Requirements	Possible Failure Modes
3 - Cap, Hydraulic Barrier, Well-Points, POTW, Monitor	Only moderately effective for source control of VOC contaminants from the landfill site.	30 + years	- Maintain cap - Operate/maintain 11± pumps - Quarterly monitoring of groundwater - Monitor discharge to POTW	- Cap failure from lack of maintenance - Zone of influence may not capture adequate VOC contaminants - Must have reliable electric power supply
4 - Cap, Curtain Drain, POTW, Monitor	Should effectively control source of VOC contaminants by maintaining water table depression.	30 + years	- Maintain cap - Operate/maintain 1 pump - Quarterly monitoring of groundwater - Monitor discharge to POTW	- Cap failure from lack of maintenance - Crushing/clogging of drain lines - Needs electric power
5 - Cap, Slurry Wall, Dewatering by Recovery Wells, POTW, Monitor	Most effective source control for area contained by slurry wall. Moderately effective for controlling any VOC contaminants in groundwater outside contained area.	30 + years	- Maintain cap - Operate/maintain 5± pumps - Quarterly monitoring of groundwater - Monitor discharge to POTW	- Cap failure from lack of maintenance - Integrity of slurry wall not guaranteed - Needs electric power
6 - Cap, Slurry Wall, Curtain Drain, POTW, Monitor	Same as for No. 5		Same as for No. 5, except operate and maintain only 1 pump.	Same as for No. 5

(Continued)

TABLE 9
(Continued)

Alternative	Implementability: Constructability Site Conditions	Implementability: Time To Implement	Implementability: Time To See Desired Results
3 - Cap, Hydraulic Barrier, Well-Points, POTW, Monitor	No known site limitations.	6 months	6 months to 1 year
4 - Cap, Curtain Drain, POTW, Monitor	No known site limitations.	6 months	6 months to 1 year
5 - Cap, Slurry Wall, Dewatering by Recovery Wells, POTW, Monitor	Excavation for slurry wall in lower till may be difficult due to hardness and/or boulders.	6 months	6 months to 1 year
6 - Cap, Slurry Wall, Curtain Drain, POTW, Monitor	Same as for No. 5	6 months	6 months to 1 year

Alternative	Safety Considerations: Worker Health and Safety	Safety Considerations: Neighboring Facilities and Communities
3 - Cap, Hydraulic Barrier, Well-Points, POTW, Monitor	Possible exposure to low concentrations of airborne VOC during well installation.	- Low concentrations of VOC discharged to sanitary sewer and POTW
4 - Cap, Curtain Drain, POTW, Monitor	Possible exposure to low concentrations of airborne VOC during drain trench excavation.	- Low concentrations of VOC discharged to sanitary sewer and POTW - Careful excavation required to avoid utilities
5 - Cap, Slurry Wall, Dewatering by Recovery Wells, POTW, Monitor	Possible exposure to low airborne VOC concentrations during slurry wall and recovery well installation.	- Low concentrations of VOC discharged to sanitary sewer and POTW - Careful excavation required to avoid utilities
6 - Cap, Slurry Wall, Curtain Drain, POTW, Monitor	Possible exposure to low airborne VOC concentrations during slurry wall and curtain drain installation.	Same as No. 5

TABLE 10

SUMMARY OF ENVIRONMENTAL FACTORS

Alternative	Beneficial Effects	Adverse Effects
-- No Action	None	- Continued localized degradation of surface water and groundwater quality by VOC contaminants originating within the landfill site.
3 - Cap, Hydraulic Barrier, Well-Points, POTW, Monitor	- Reduces migration of VOC contaminants to shallow groundwater. - Reduces degradation of surface water and shallow groundwater quality.	- Discharge of low concentrations of VOC to POTW.
4 - Cap, Curtain Drain, POTW, Monitor	- Controls source of VOC contaminants by eliminating waste-groundwater contact. - Eliminates further degradation of surface water and shallow groundwater quality.	- Discharge of low concentrations of VOC to POTW.
5 - Cap, Slurry Wall, Dewatering by Recovery Wells, POTW, Monitor	- Contains and controls source of VOC contaminants. - Eliminates further degradation of surface water and groundwater quality.	- Discharge of low concentrations of VOC to POTW.
6 - Cap, Slurry Wall, Curtain Drain POTW, Monitor	Same as No. 5	Same as No. 5

TABLE 11

DETAILED COST ESTIMATE SUMMARY

Item	Alternative No. 3 Cap - Hydraulic Barrier - Well-Points - POTW - Monitor	Alternative No. 4 Cap - Curtain Drain - POTW - Monitor	Alternative No. 5 Cap - Slurry Wall - Dewatering Wells - POTW - Monitor	Alternative No. 6 Cap - Slurry Wall - Curtain Drain - POTW - Monitor
CAPITAL COSTS				
1. Macadam Cap	$ 237,400	$237,400	$ 237,400	$237,400
2. Well-Point System & Piping	44,900 (10 wells)	---	19,000 (4 wells)	--
3. Sump/Pump/Sewer Connection	10,000	10,000	10,000	10,000
4. Curtain Drain System	---	20,000	---	20,000
5. Slurry Wall	---	---	222,300	222,300
Total Construction Cost	$ 292,300	$267,400	$ 488,700	489,700
Engineering (10%)	30,000	27,000	49,000	49,000
Legal/Fiscal (10%)	30,000	27,000	49,000	49,000
Contingency (10%)	30,000	27,000	49,000	49,000
TOTAL CAPITAL COST	$ 382,300	$348,400	$ 635,700	$636,700

(Continued)

TABLE 11
(Continued)

Item	Alternative No. 3 Cap - Hydraulic Barrier - Well-Points - POTW - Monitor	Alternative No. 4 Cap - Curtain Drain - POTW - Monitor	Alternative No. 5 Cap - Slurry Wall - Dewatering Wells - POTW - Monitor	Alternative No. 6 Cap - Slurry Wall - Curtain Drain - POTW - Monitor
ANNUAL OPERATION & MAINTENANCE (O&M) COSTS				
1. Maintain/Seal Cap	$ 5,000	$ 5,000	$ 5,000	$ 5,000
2. Quarterly Monitoring	12,000	12,000	12,000	12,000
3. POTW Sewer Use Charge @ $0.0038/gallon	23,000	52,000	18,000	18,000
4. Electric Power	3,000	2,000	2,000	1,000
TOTAL ANNUAL O&M COST	$ 43,000	$ 71,000	$ 37,000	$ 36,000
REPLACEMENT COSTS				
1. 1-inch Wear Coat on Cap Every 5 Yr	$ 40,000	$ 40,000	$ 40,000	$ 40,000
2. Replace Pumps Every 5 Years	16,500 (11 pumps)	1,500 (1 pump)	7,500 (5 pumps)	1,500 (1 pump)
TOTAL 5-YEAR REPLACEMENT COST	$ 56,500	$ 41,500	$ 47,500	$ 41,500
PRESENT WORTH (Formula on Table 8)	$ 875,000	$1,082,000	$1,058,000	$1,040,000

TABLE 6*

SOURCE CONTROL ALTERNATIVES COMPARISON SUMMARY

	Alternative	Cost ($1,000) Capital	Annual O&M	Present Worth	Public Health Concerns	Environmental Concerns	Technical Concerns	Community Response Concerns
--	No Action	--	12	113	Groundwater contamination by VOC	Continued degradation of surface water and shallow groundwater by VOC.	None	Unacceptable
3 -	Cap, Hydraulic Barrier, Well-Points, POTW, Monitor	382	49	932	May not adequately control source of VOC contaminants.	Groundwater quality may not be adequately protected from VOC contamination.	Well point network may not adequately establish hydraulic barrier in highly variable till.	Some resistance
4 -	Cap, Curtain Drain, POTW, Monitor	348	78	1,148	Reduces threat of VOC contamination of shallow groundwater.	Discharge of low concentrations of VOC to POTW.	Uncertain and probably highly variable discharge flow rates.	Probably acceptable
5 -	Cap, Slurry Wall, Dewatering Recovery Wells, POTW, Monitor	635	42	1,043	Reduces threat of VOC contamination of shallow groundwater.	Discharge of low concentrations of VOC to POTW.	Successful installation of slurry wall in hard, dense till.	Probably acceptable
6 -	Cap, Slurry Wall, Curtain Drain, POTW, Monitor	637	42	1,035	Reduces threat of VOC contamination of shallow groundwater.	Discharge of low concentrations of VOC to POTW.	Successful installation of slurry wall in hard, dense till.	Probably acceptable
7 -	Cap, Blast-Enhanced Drainage Zone, Groundwater Recovery Wells, Enhanced Overburden Drainage	794	98	1,792	Reduces threat of VOC contamination of shallow groundwater.	Discharge of low concentrations of of VOC to POTW.	Degree of fracturing from blasting program, dewatering of glacial soils.	Probably acceptable

* Revised from Table 13 of 1986 Feasibility Study Report.
/WM-16K

XEROX WEBSTER LANDFILL SITE

RECORD OF DECISION

APPENDIX A

Remedial Investigation/Feasibility Study
Xerox Webster Landfill Site

Town of Webster, Monroe County, New York
Site Number 8-28-013

Responsiveness Summary

For
Public Meeting
January 19, 1988

PREPARED BY:

New York State
Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233
THOMAS C. JORLING, *Commissioner*

DIVISION OF HAZARDOUS WASTE REMEDIATION
MICHAEL J. O'TOOLE JR., P.E., *Director*

Introduction:

This report summarizes the public comments expressed at the Public Participation Meeting held on January 19, 1989 at the Town of Webster and the responses relative to the Remedial Investigation/Feasibility Study Report for the Xerox Webster Landfill Site. A series of remedial investigations conducted by Xerox between 1979 and 1984 found contamination of the shallow soil in the landfill area, the surface waters adjacent to the landfill, and groundwater under and adjacent to the landfill. Based on these investigations, a feasibility study report was prepared by Woodward-Clyde Consultants under contract with Xerox.

The primary contaminants were found to be volatile organic compounds including 1,1-dichloroethylene, trichloroethylene, 1,1-dichloroethane 1,1,1-trichloroethane and tetrachloroethylene. The highest level of Total Volatile Organics found was just over 50,000 parts per billion in a groundwater monitoring well located along the western boundary of the landfill. Eighty-three monitoring wells have been installed and sampled, some dating back to 1979.

In the feasibility study conducted for Xerox, a preliminary screening was made of sixteen general response actions. Those found to be applicable or possibly applicable were no action, containment, pumping, collection, diversion, complete removal, partial removal, on-site treatment, off-site treatment, in-situ treatment, on-site disposal and off-site disposal.

Specific technologies available to implement each of these response actions were evaluated to identify the most appropriate remedial action technologies for incorporation into subsequent, more detailed evaluation of the remedial alternatives. Of the seven alternatives proposed, the preferred Alternative No. 7 consists of a macadam cap to divert surface water and prevent infiltration of precipitation; a blast enhanced bedrock drainage zone to increase the efficiency of the bedrock groundwater collection system; sand filled large diameter boreholes to induce drainage from the soil; recovery wells to remove contaminated groundwater by pumping, discharge to the Town of Webster wastewater treatment plant and periodic monitoring for the duration of the remedial activity.

Question: When was the New York State Department of Environmental Conservation (NYSDEC) notified of the problem? Is this a normal lead time for taking any action on a problem such as this?

Answer: The Department was notified of this problem in January 1980. Whenever NYSDEC receives reports/information about the existence of a hazardous waste site, the NYSDEC will under the Superfund Laws direct the Responsible Party to undertake a Remedial Investigation/Feasibility Study (RI/FS). This study will identify the nature and extent of contamination existing at the site. Depending on the magnitude of the site and the contamination problem, the investigation will be repeated several times at different locations of the site.

The NYSDEC addressed the site as soon as possible, taking into consideration the relative health and environmental risk posed by the site, legal and administrative constraints, and available staff resources. This time frame is typical, but we are reducing these time frames as we gain experience with the superfund program.

Question: Why are there three sites registered in the NYS Registry? How are these three sites are being handled?

Answer: The three sites registered in the NYSDEC registry are considered to be inactive hazardous waste sites.

The three sites are:

1. Xerox Webster Landfill Site - I.D. No. 8-28-013
2. Xerox Salt Road Complex - I.D. No. 8-28-067
3. Xerox Building 209 - I.D. No. 8-28-068

Site 1 is handled by the Division of Hazardous Waste Remediation of the NYSDEC under the Superfund Laws. Sites 2 and 3 are handled by the Division of Hazardous Substances Regulation of the NYSDEC under the Resource Conservation and Recovery Act.

Question: What was NYSDEC's concern over the plan initially selected by Xerox and why was the alternative 7 developed?

Answer: The most significant concern was that the initially recommended alternative 6 would not ensure cleanup of contamination in the bedrock region. Alternative 7 was then developed. Alternative 7 will be effective in remediating both the shallow and bedrock groundwater.

Question: Why is not the slurry wall construction considered in alternative 6 being done in alternative 7?

Answer: The slurry wall construction is a physical barrier to restrict the lateral movement of groundwater flow. In alternative 7, by pumping the groundwater continuously a hydraulic barrier is created which will serve the same purpose as the slurry wall.

Question: How will the program be assessed to ensure that you are getting the desired result with alternative 7?

Answer: By periodically monitoring the site the effectiveness of the preferred alternative can be verified. Periodic monitoring will involve groundwater sampling and detailed site inspection.

Question: What is the design and construction schedule? When will remediation start?

Answer: After the public meeting, NYSDEC will prepare a Responsiveness Summary and a Record of Decision (ROD). After the ROD is signed by the Deputy Commissioner, Xerox will be directed to design and construct the preferred remedial alternative. The design phase will be completed by July 1989 with construction following and completion estimated in early to mid fourth quarter of 1989. Pumping of the groundwater could reasonably match this time frame; so that the remediation program will be in and functioning by the end of the year 1989.

Question: How frequent are the monitoring activities going to be? Will the results be available to the public?

Answer: Following the implementation of the preferred remedial alternative, the site will be monitored. A monitoring plan has been prepared for post closures. The plan addresses monitoring wells to be sampled, frequency of sampling and analyses to be conducted on individual samples. It is anticipated that monitoring will include periodic groundwater sampling, site inspections and detailed site evaluations. The results of the monitoring program shall be made available to the public through the local repository which in this case is the Town of Webster Library.

Question: What if alternative 7 does not meet the expected 20 to 30 gallons per minute? What will be the next alternative?

Answer: The blast enhanced fracture zone and recovery well system in Alternative 7 is designed to capture the contaminated groundwater by creating a hydraulic control in the area. Therefore, the hydraulic control, not the flow rate, will determine the adequacy of the system. During the monitoring program, if it is found that alternative 7 is not producing desired results, NYSDEC will direct Xerox to design and implement a modification to the system already in place or an alternate remedial technology that can be demonstrated successfully.

Question: What kind of treatment will be done before discharging to the Publicly Owned Treatment Works (POTW) of Webster? Do people at POTW know what kind of material they will be handling? Does the POTW have the capacity to handle this flow?

Answer: Yes, the POTW basically knows what levels of contaminants they can handle and the POTW has the required capacity. At the design phase of this project, the NYSDEC, Xerox and the officials from the Town of Webster will meet and discuss in detail the discharge of contaminated groundwater to the POTW. During the meeting it is expected that decisions will be made on the level of contaminants acceptable to the POTW, the kind of flow monitoring and pretreatment that has to be done by Xerox and the associated handling charges of the POTW. Preliminary meetings have taken place and Xerox has contracted with the Town of Webster approval for an engineering study of the treatment plant impact by the original plant designer.

Question: What are all the short-term risks involved? What is a worst case scenario if we get exposed to the volatiles because of the short-term risks?

Answer: The preferred alternative will result in a small increase in short-term risks. Workers involved in its implementation will have the potential for increased exposure to chemical contaminants at the site. The community may also be exposed to increased risks due to exposure to air-borne contaminants. But these short-term risks will be minimized to a great extent with the development of a dedicated site-specific health and safety plan.

As per the Health and Safety Plan, the area in the vicinity of the landfill and blast enhanced fracture zone, and downwind areas as necessary will be monitored for volatiles during construction. It is extremely unlikely, given the contaminant levels, that any significant releases will occur. However, Contingency plans will be made a part of the plan to take care of any emergency situations or releases. It is anticipated that by taking all the basic precautions that any volatile organic compounds released will be reduced to insignificant or non-detectable levels at the Xerox property boundary.

Question: Where is the selenium waste going to be?

Answer: The selenium waste will stay at the landfill. There is no proven technology to treat metal wastes. By implementing the preferred alternative, the mobility of the metal wastes vertically and horizontally shall be reduced.

Question: Is any surface water from ponds and creeks being monitored for its quality?

Answer: Surface water samples were collected during the previous investigations and at present it is being monitored under the New York State Pollution Discharge Elimination System on a monthly basis.

Question: Are any contaminants migrating to the Irondequoit River?

Answer: No. Not from the landfill.

Question: Are there any aquifers which the contaminants from the site will affect because of the blasting of the bedrock?

Answer: The blasting of the bedrock with appropriate explosives will be done only in a very limited and confined area adjacent to the landfill site. Once the continuous pumping of the groundwater from the two recovery wells starts, the contaminated groundwater will flow towards the blast enhanced zoned and be recovered. This will restrict the contaminated groundwater from flowing off the site. Based on the geological studies conducted around the site, it is clear that a "groundwater divide" exists between the Irondequoit Bay and the landfill site which means that the contaminants will not affect that aquifer.

Question: What is the possibility of contaminants leaching into the public water system that crosses the property at many places?

Answer: Under any circumstances, it is highly improbable for the contaminants from the landfill to leach into the public water system. Even if there is a leak in the system, the water will rush out of the pipe with high pressure and the water will carry the contaminants out to the ground surface rather than letting the contaminants into the system.

Question: What happens if this contaminated groundwater has already passed beyond reach by the time the action has been implemented?

Answer: Based on the available permeability data and the results of the groundwater modelling, it is evident that the groundwater is moving slowly at a very low gradient. So there is sufficient time to catch the contaminated groundwater plume and treat it by implementing the preferred remedial alternative.

Question: What effect will the pumping of the groundwater have on existing wells within a three to five mile radius?

Answer: It is estimated that groundwater will be pumped out of the blasted trench at the rate of 20 to 30 gallons per minute. Based on the computer modelling of groundwater flow, it is evaluated that this pumping will not have any adverse effect on the groundwater flow beyond the property of the Xerox Corporation.

Question: Have the barrels been removed from the site that were in the trenches? Reports from the NYS Registry says that suspected quantity of 55 gallon drums is one thousand and eight thousand. Is that correct?

Answer: Based on the historical information, no drums were buried in the trenches. The geophysical survey conducted at the site did not reveal any indication of buried drums in the trenches.

Regarding the NYSDEC's report on the description of inactive hazardous waste sites in New York State, the 55 gallon drums mentioned in this report refers to the quantity of the wastes that were emptied from the drums into the trenches. It is not physically possible to place this number of drums in five trenches measuring approximately 4 feet wide, 4 feet deep and 300 feet long.

Question: Could there be an inclusion of cyanide wastes or cleaning wastes in any of these trenches during the disposal? Did you really dig into these trenches or did you get these results from the groundwater?

Answer: According to discussions with Xerox personnel involved with waste disposal activities at the landfill, no cyanide wastes were disposed of at the site. No specific wastes were disposed of which would be classified as cleaning wastes, other than solvents. A polishing rouge was disposed of at the landfill, but this would not contain cyanide. Explorations have been advanced into the wastes within the landfill, although no samples were specifically analyzed for cyanide. Groundwater samples from on-site monitoring wells have been analyzed for cyanide, and it has not been detected.

Question: Why not remove the contaminants to a secure landfill which has a clay bottom which will prevent the contaminants from moving?

Answer: By doing this, the problem is merely transferred to another location. This is not an acceptable solution for this problem. As such, the trenches in the Xerox Webster Landfill Site are covered with clay on all sides where selenium wastes are dumped. These selenium wastes were also encapsulated in six inches of clay. This as well as the macadam cap will greatly restrict the movement of leachate to the groundwater.

Question: Is Xerox still using dumps and will there be problems in the future also?

Answer: No, Xerox no longer operates any dumps at the Webster facility. Xerox has developed their own environmental guidelines and related activities to considerably minimize the generation of waste. The wastes that are generated are being disposed of at an off-site incinerator or an off-site secured landfill under a permit from the NYSDEC.

Question: How about Xerox publishing a newsletter every six months detailing all the problems and mail it to citizens living nearby?

Answer: Xerox will consider this suggestion. Xerox prefers a verbal presentation as required. One such meeting has already been held for nearby citizens at the Webster Ridgecrest School on February 6, 1989. This method of communication was decided after Xerox management evaluated various means of communication as of early February 1989.

NOTE: During the public meeting several questions were asked about the Salt Road Complex and other sites at the Xerox Corporation regarding possible contamination problems. These sites and the related remedial actions are handled by the Division of Hazardous Substances Regulation of the NYSDEC under the Resource Conservation and Recovery Act. If anyone would like to have detailed information on these sites, please write to:

Paul R. Counterman, P.E.
Bureau Director
Bureau of Hazardous Waste Facility Permitting
Division of Hazardous Substances Regulation
Room 228
50 Wolf Road
Albany, NY 12233

S. Hammond / Fite

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233 -7010

Thomas C. Jorling
Commissioner

MAY 31 1988

Mr. James C. MacKenzie
Director
Corporate Environmental Health and Safety
Xerox Corporation
Xerox Square, Building 317
Joseph C. Wilson Center for Technology
Webster, New York 14580

Dear Mr. MacKenzie:

RE: Addendum to Feasibility Study Report
Xerox Webster Landfill - I.D. #828013

The New York State Department of Environmental Conservation (NYSDEC) has completed review of your Addendum to the Feasibility Study Report on the inactive landfill at your Webster facility. We find the Addendum to be generally acceptable and we concur with the selection of Alternative 7 as the remedial plan. We do have several technical comments, which are enclosed. Please incorporate your responses to these comments directly into the final Addendum. Upon approval, the Addendum will be appended to the Consent Agreement as the Approved Remedial Program.

After execution of the Consent Agreement, the next step in the approval process for the selected remedial plan will be public review and agency coordination. We will be setting up a study-document depository for use by the public, issuing a public notice, distributing documents to government agencies and officials for review and comment, and holding a public meeting. In connection with this required public participation program, I will need four (4) copies of the 1986 Feasibility Study Report and final Addendum. I will also need four (4) copies of the final Addendum for internal Departmental use and two (2) copies to be attached to the Consent Agreement.

We will initiate the public participation process upon approval of the final Addendum and execution of the Consent Agreement. We will notify you of approval of the final Addendum immediately upon receipt, provided that it adequately addresses the concerns raised by our comments. Should you need to discuss any of our comments please call me at 518-457-5637.

Sincerely,

John B. Swartwout

John B. Swartwout, P.E.
Project Manager
Bureau of Eastern Remedial Action
Division of Hazardous Waste
Remediation

Enclosure
cc: D. Darragh, Saperston and Day, P.C.
J. Gould, Region 9
J. Krajewski, Region 9
F. Shattuck, Region 8

JBS:mm
bcc: S. Hammond
D. Radtke, BHWFP
D. Weiss, DOH
J. Swartwout
J. Slack

NYSDEC COMMENTS
ADDENDUM TO FEASIBILITY STUDY REPORT
XEROX INACTIVE LANDFILL SITE, WEBSTER, NEW YORK

1. Table 2 is missing from the report.

2. Table 13 of the 1986 Feasibility Study Report should be updated to include Alternative 7 and should be included in the Addendum.

3. One performance objective of the remedial program should be stated as "establishing hydraulic control over the entire vertical and horizontal extent of groundwater in the bedrock and overburden which contravenes groundwater standards." The monitoring program must be capable of measuring the effectiveness of the remedial program in meeting this performance objective.

4. Monitoring Well B-17 is downgradient of the landfill and has been shown to be contaminated, yet Figure 3 does not indicate that groundwater at that location will be captured by the selected remedial plan. This situation needs to be specifically addressed in the Addendum.

5. An Appendix must be added to the Addendum to provide a complete database of groundwater, surface water, and soil analytical results. This should include dates of sampling, compounds analyzed for and detection limits used, concentration of each compound detected in each sample, and a comparison with applicable water quality standards or guidance values.

6. A preliminary estimate of the level of TVO's expected to be present in recovered groundwater should be included in the Addendum. A discussion on the form of pretreatment which would be consistent with those levels should also be included. Use of a molecular sieve would be preferable to the Department to the use of an air stripper.

7. The discussion of operation and maintenance requirements and costs on Page 29 of the 1986 Feasibility Study Report should be expanded to include Alternative 7 and should be included in the Addendum.

J. Slack

JBS:mm
bcc: S. Hammond
D. Radtke, BHWFP
D. Weiss, DOH
J. Swartwout
J. Slack

AUG 17 1988

John S,
Congratulations
Jon

Mr. Ronald E. Hess
Project Manager
Environmental Engineering Department
Xerox Corporation
Joseph C. Wilson Center for Technology
Webster, New York 14580

Dear Mr. Hess:

RE: Revised Addendum to Feasibility Study Report
Xerox Webster Landfill - I.D. #828013

This is to acknowledge receipt of the subject Addendum. I have reviewed this document and it satisfactorily addresses the comments transmitted to Xerox in my May 31, 1988 letter. Accordingly, the Revised Addendum to the Feasibility Study Report is approved.

I will forward two copies of the approved Addendum to JoAnn Gould of our Division of Environmental Enforcement for attachment to the Consent Agreement. After execution of the Consent Agreement, the next step in the approval process for the selected remedial plan will be public review and agency coordination. We will be setting up a study document repository for use by the public, issuing a public notice, distributing documents to government agencies and public officials for review and comment, and holding a public meeting. In connection with this required public participation program, I will need four (4) copies of the 1986 Feasibility Study Report.

We will initiate the public participation process upon execution of the Consent Agreement and receipt of the necessary copies of the 1986 report. We look forward to working closely with you during the public review period and the following remedial design.

Sincerely,

John B. Swartwout

John B. Swartwout, P.E.
Project Manager
Bureau of Eastern Remedial Action
Division of Hazardous Waste
Remediation

cc: D. Darragh, Saperston and Day, P.C.
J. Gould, Region 9
J. Krajewski, Region 9
F. Shattuck, Region 8

January 28, 1988

Daniel Darragh, Esq.
Hodgson, Russ, Andrews, Woods & Goodyear
1800 One M & T Plaza
Buffalo, New York 14203

Re: Xerox Inactive Hazardous Waste Disposal Site
I. D. #828013 - File #B8-0052-84-10

Dear Mr. Darragh:

Enclosed herewith is my re-draft of your proposed Consent Agreement for the implementation of a remedial program at the above-referenced site. For your convenience I have underlined the changes and inserted brackets to denote deletions from your December, 1987, draft.

In response to your letter of December 24, 1987, summarizing the discussions at our meeting on December 23rd, we have noted the following omissions or discrepancies:

- We understood Woodward-Clyde to state that, they have decided to move the slurry wall northward to include Well W-3, in conformance with a previous Department comment.

- Representatives of Xerox agreed to consider the use of air strippers for pre-treatment of leachate prior to its discharge to the sanitary sewer.

- It was our understanding that Xerox would require two months for submittal of proposed revisions to the feasibility study, not merely written responses to the Department. It was agreed that the Department would review and comment upon the proposed revisions prior to their incorporation in a complete Revised Feasibility Study.

Please advise me immediately if the items set forth above do not conform with your understandings.

After you have had the opportunity to review the enclosed draft of the Consent Agreement, please call me to arrange a meeting for further discussions in this regard. Despite our recognition that field work is unlikely to proceed until the

1989 construction season, it is in our mutual best interest to finalize the Remedial Program and the Consent Agreement for its implementation, as soon as possible.

Very truly yours,

Jo Ann E. Gould
Senior Attorney
Division of Environmental Enforcement

JEG:jab

cc: John Swartwout
Eastern Remedial Bureau - DEC, Albany

Michael Sosnow
DEC, Region 8

ATTORNEYS AT LAW
1800 ONE M & T PLAZA
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305-764-2440

2000 GLADES ROAD, SUITE 400
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305-394-0500

ARNOLD T. OLENA
VICTOR T. FUZAK
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H. KENNETH SCHROEDER, JR.
WILLIAM H. GARDNER
JOHN C. BARBER, JR.
JAMES M. WADSWORTH
STEPHEN M. NEWMAN
RICHARD A. GOETZ
HARRY G. MEYER
JEROME D. SCHAD
DIANNE BENNETT
JAMES W. GRESENS
KARL W. KRISTOFF
DANIEL R. SHARPE
PAMELA DAVIS HEILMAN
ALLEN H. BEROZA
DAVID ROWALSKI
STEVEN D. SCHNEIDER
DAVID A. FARMELO
COLLETTE C. GOODMAN
TODD M. JOSEPH
PAUL I. PERLMAN
ANNE SMITH SIMET
KENNETH F. BARONE
TERRY C. BURTON
CRAIG M. INDYKE
EDWARD C. NORTHWOOD
TIMOTHY P. JOHNSON
MARY S. KLEIN
MELISSA M. MAY

DONALD C. LUBICK
RICHARD E. HEATH
GORDON A. MACLEOD
ROBERT M. WALKER
CHARLES J. MAHN
CLARENCE OBLETZ
ANTHONY L. DUTTON
DAVID E. HALL
ROBERT B. CONKLIN
PAUL R. COMEAU
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LANCE J. MADDEN
RICHARD F. CAMPBELL
DANIEL M. DARRAGH
ROBERT W. KELLER
WARD B. MINKLE
JOHN P. AMERSHADIAN
F. WILLIAM GRAY, III
DIANE J. MCMAHON
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ROBERT B. FLEMING, JR.
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GARY M. SCHOBER
CHARLES T. BARKER*
JERROLD S. BROWN
KENNETH P. FRIEDMAN
PETER A. MUTH
SUSAN J. EGLOFF
WILLIAM C. MORAN
RICK W. KENNEDY
LOUIS A. NAUGLE

COUNSEL
LAURENCE R. GOODYEAR
JOHN E. DICKINSON
EDWIN D. TILTON

*ADMITTED IN FLORIDA ONLY

December 24, 1987

Jo Ann E. Gould, Esq.
Senior Attorney
Division of Environmental Enforcement
NYS DEC
600 Delaware Avenue
Buffalo, New York 14202-1073

Dear Ms. Gould:

Re: Xerox Inactive Hazardous Waste Site
I. D. No. 82-80-13 Webster, New York
Your File No. B8-0052-84-10
Our File No. 04164.0011

This will briefly summarize and confirm the various topics discussed at our December 23, 1987 meeting.

We discussed Xerox's concern for the delineation of the inactive landfill site boundary in relation to the RCRA storage facility (Building 343) and the potential confusion that could result from the overlap of the separate regulatory requirements under the agency's inactive site remediation and RCRA programs. You indicated that the physical location of the landfill and storage facility boundaries would have no impact on the applicable regulatory programs and that, in any event, the regulatory policies under both programs as applied to the landfill, would be the same. You also indicated that the RCRA storage facility can remain in place during and after completion of the remedial work at the landfill. You indicated that, since Xerox filed a Part A application for the entire Webster site, the landfill would be subject to corrective action under RCRA because it is located within the site boundaries.

We agreed that we would attempt to draft some language to be added to the consent order to reflect this understanding. Perhaps that can be accomplished by indicating that any RCRA corrective action for the landfill will be deemed satisfied by performance of

the selected remedial alternative set out in the Feasibility Study. (I assume you are not proposing a RCRA § 3008h order for the landfill because that would require EPA involvement).

The Department's technical comments on the FS prepared by Woodward-Clyde were as follows:

(1) The remedial alternative does not adequately address existing bedrock contamination. Xerox agreed to prepare a proposal to respond to this comment, including a statement of the basis for any further work proposed.

(2) The contaminant levels in MW-SP7 are high and the Department believes there is a need to further investigate/determine the extent of contamination in this area and whether there is waste outside the location of the proposed slurry wall. The remedial program may need to be revised based upon the additional information developed. Xerox agreed to address this concern.

(3) The monitoring program needs to be defined in greater detail. In addition, the Department indicated that the monitoring program outside of the monitoring zone could be phased out after five years. During that five-year period, semi-annual analyses would be required in the first two years and annual analyses during the last three years. Xerox agreed to address these comments.

(4) The FS must recognize that the final engineering design for the remedial program is subject to Department approval. Xerox has already acknowledged that such is the case under the terms of the draft consent agreement.

(5) The analytical program must specify that the analytical methods used will conform to the hazardous substances list (HSL) and that the contract lab protocols (CLP) will apply. Xerox agreed to address this comment.

(6) The Department indicated that "representative leachate" should be HSL characterized before there can be a final decision on how to

treat/dispose of the leachate. Xerox agreed to respond to this comment.

(7) The Department of Health has review input with regard to the FS. Xerox would appreciate any DOH comments as soon as possible.

(8) The Department requested more current groundwater data. Xerox agreed to submit the available 1987 data.

Xerox advised you that a written response to these comments should be submitted in approximately two months. That response will be limited to the comments noted. Once there is technical agreement, consideration will be given to revising the FS. Xerox's response will also include a review of the continued applicability of the recommended remedial alternative.

We also discussed some of the Department's comments on the recent Xerox prepared draft of the proposed consent agreement. You indicated that you would send me a revised draft and then we can discuss your comments further.

If this does not accurately set forth the discussion at the meeting, please let me know as soon as possible.

Very truly yours,

Daniel M. Darragh

DMD:rf

STATE OF NEW YORK
DEPARTMENT OF HEALTH
Corning Tower The Governor Nelson A. Rockefeller Empire State Plaza Albany, New York 12237

David Axelrod, M.D.
Commissioner

March 21, 1989

Mr. Vivek Nattanmai
Assistant Sanitary Engineer
NYS Department of Environmental Conservation
Bureau of Western Remedial Investigation
50 Wolf Road
Albany, New York 12233

RE: Xerox Landfill
(T) Webster, Monroe County
ID No. 828013

Dear Mr. Nattanmai:

Thank you for your letter of March 8, 1989 in response to Mr. Amento's comments concerning the Revised Addendum to the Feasibility Study Report for the above referenced site. Please allow me to restate some of Mr. Amento's initial comments in order to reinforce their importance to this project:

1. A detailed plan for the gradual five year phase-out of groundwater monitoring wells located outside the specified landfill monitoring zone must be provided for review and approval. This plan must include the criteria used to determine that a given well will no longer be monitored and a contingency that deals with continued groundwater monitoring should contaminants remain in groundwater outside the specified monitoring zone after five years. My concern for long-term monitoring is to ensure that contaminant migration in groundwater has ceased and that there will be no impact to private well users located north of the site.

2. A site-specific Health and Safety Plan (H&SP) must be submitted for review and approval prior to implementation of the preferred remedial alternative. Strict adherence to an approved H&SP is necessary to ensure that there will be minimal risk of exposure to contaminants during field work for the community.

3. The Town of Webster Publicly Owned Treatment Works (POTW) indicated it would be capable of handling the discharge of volatile organic compounds from this site. However, a provision should be included in the agreement between Xerox and the POTW that calls for Xerox to pretreat their waste stream if the POTW is not capable of handling the Xerox discharge.

The preferred remedial alternative should reduce exposure concerns by capping contaminated soil and by collecting contaminated groundwater from both the bedrock and overburden aquifers for treatment. With the

assurance that the above issues will be addressed so that potential contaminant exposure is minimized, the Department of Health can support the preferred remedial alternative. When DEC issues their record of decision for the preferred alternative at this site, please send me a copy of the decision for review.

If you have any questions, please call me at 458-6306.

Sincerely,

Sandra M. Stanish
Chief, Western Section
Bureau of Environmental Exposure
Investigation

tjl:90750319

cc: Mr. Tramontano
Mr. Weiss
Mr. Amento
Mr. Napier - RRO
Mr. Elliott - MCHD
Mr. Slack - DEC
Mr. Krajewsk - DEC

Monroe County

THOMAS R. FREY
COUNTY EXECUTIVE

JOEL L. NITZKIN, M.D.
DIRECTOR

Department of Health

111 Westfall Road, Caller 632 • Rochester, N.Y. 14692

January 27, 1989

New York State Department of
Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010
Attn: John B. Swartwout, P.E., Project Manager
Bureau of Western Remedial Action
Division of Hazardous Waste Remediation

SUBJECT: Feasibility Study of Xerox Landfill, Webster (T)
NYS Inactive Hazardous Waste Site
ID # 828013

Dear Mr. Swartwout:

Technical staff on the Monroe County Landfill Review Committee have reviewed the following technical reports on the Xerox/Webster inactive hazardous waste site (ID # 828013):

1.) "Feasibility Study Report Inactive Landfill Site Xerox Corporation Webster, New York" prepared by Woodward-Clyde Consultants, dated April 1986.

2.) "Revised Addendum to Feasibility Study Inactive Landfill Site Webster, New York" prepared by Woodward-Clyde Consultants, dated July 1988.

Attached are written comments dated October 24, 1988 from Richard A. Young, Ph.D., consulting geologist to the Monroe County Landfill Review Committee on the revised addendum.

The Monroe County Landfill Review Committee offers the following comments:

1.) We support the selection of Alternative 7 as the preferred alternative for remediation of this site. Alternative 7 consists of a macadam cap, a blast-enhanced drainage zone, four groundwater recovery wells, enhanced overburden drainage, discharge to the Town of Webster POTW, and a groundwater monitoring program.

2.) The Monroe County Landfill Review Committee requests the opportunity to review the final plans for implementation of this alternative. Of particular interest are the Community Health and Safety Plan and the groundwater monitoring program.

3.) The New York State Department of Environmental Conservation should establish standards for the appropriate metals and volatile organics as to the maximum permissible levels for the discharge to the Town of Webster POTW. The final remediation plans must specify the monitoring frequency, parameters and action limits regarding the POTW discharge.

4.) The final remediation plan should provide for an ongoing citizen participation plan to keep local government officials and site neighbors adequately informed on the status of the remediation project.

5.) The monitoring program should include monitoring of surface water drainage in addition to groundwater.

We appreciate the opportunity to review and comment on this proposal. Should you have any questions in this regard please contact Richard Elliott, P.E., Principal Public Health Engineer at (716) 274-6067.

Sincerely,

Joel L. Nitzkin, M.D.

Joel L. Nitzkin, M.D.
Director of Health

JLN:ts
att.
c: Peter Bush, NYSDEC-Region 8
Michael Kahlil, NYSDEC-Region 8
Adrian Stanton, Webster (T) Supervisor
Sandy Stanish, NYSDOH-Albany
James Thompson, Assistant to the Monroe County Executive
Monroe County Landfill Review Committee Members
file

COMMENTS ON: Revised Addendum to Feasibility study
Inactive Landfill Site (Xerox)
Webster, NY

BY: R.A. Young, Geologist RA Young

FOR: Monroe Co. Environmental Mngt. Council

DATE: October 24, 1988

GENERAL COMMENTS:

This addendum essentially recognizes the significance of the fracture permeability of the bedrock zone beneath the overburden and suggests a method to dewater the bedrock, similar to the method being employed at the other nearby Xerox site (blast-enhanced, hydraulic barrier dewatering).

It would appear that this approach deals realistically with the overburden-bedrock groundwater system, although it is not clear whether this system is actually recognized as a single aquifer.

It is also not clear whether appropriate consideration has been given to an analysis of the established bedrock joint sets (directions) as was done by H & A of NY for the adjacent site. A proper understanding of the role of rock joints in the region is not particularly apparent in the earlier (April 1986) feasibility study. Utilization of the geologic configuration of the bedrock joint data for the region should improve the efficiency of the blast-enhanced, hydraulic barrier by taking advantage of the preferred migration of groundwater along the dominant joint directions. If it has not already been done, it would seem appropriate to incorporate the best methodologies from all the existing geologic studies of the adjacent Xerox property to find the most efficient solution or design.

BIBILIOGRAPHY

ADMINISTRATIVE RECORD

FOR THE

REMEDIAL PROGRAM

XEROX WEBSTER LANDFILL SITE
SITE NO. 8-28-013

Prepared by: New York State Department of Environmental Conservation

1. Hydrogeological Investigation - Recra Research, Inc. and Wehran Engineering P.C. - October 1979.

2. Additional borings and groundwater sampling - Recra Research, Inc. and Wehran Engineering P.C. - 1980.

3. Water and Mass Balance Study Report for the Landfill Site - Recra Research, Inc. - March 1982.

4. Geophysical Investigation Report on and Around the Landfill Site - Dunn Geoscience - December 1983.

5. Finalized Water and Mass Balance Report with Some Groundwater Modelling - Recra Research, Inc. - May 1984.

6. Draft Hydrogeologic Assessment Report - O'Brien and Gere - October 1985.

7. Draft Risk Assessment Report - O'Brien and Gere - October 1985.

8. Feasibility Study Report - Woodward-Clyde Consultants - April 1986.

9. Addendum to Feasibility Study Report - Woodward-Clyde Consultants - February 1988.

10. Revised Addendum to Feasibility Study Report - Woodward-Clyde Consultants - July 1988.