RECORD OF DECISION

Columbus McKinnon

Site No. 915016

Prepared by:

New York State
Department of Environmental Conservation

October 1992

NOV

DECLARATION STATEMENT - RECORD OF DECISION

Site Name and Location:

Columbus McKinnon
Fremont Street
City of Tonawanda, Erie County, New York
Site Identification No. 915016
Classification Code: 2

Statement of Purpose:

This Record of Decision (ROD) sets forth the selected remedial action plan for the Columbus McKinnon 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 the National Oil and Hazardous Substance Pollution Contingency Plan, 40 CFR 300 of 1990 and with Applicable or Relevant and Appropriate Requirements (ARARs) of Federal and State Environmental Statues and would be protective of human health and the environment.

State of Basis:

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation for the Columbus McKinnon site and upon public input to the Proposed Remedial Action Plan (PRAP). A copy of the Record is available at the New York State Department of Environmental Conservation, 270 Michigan Avenue, Buffalo, New York and copies of the Feasibility Study Report and PRAP are available at the Tonawanda City Public Library, 333 Main Street, Tonawanda, New York. A bibliography of those documents included as a part of the Record is contained in the ROD. A

Responsiveness Summary that documents the public's expressed concerns has been included.

Description of the Selected Remedy:

The selected remedial action plan provides for the protection of human health and the environmental by removing the source of contamination and by removing exposure to the contaminants at the site. The basic elements of the selected remedy includes the following:

- Removal of all PCB contaminated soil at or above 10 PPM (parts per million) with off site disposal in a Toxic Substances Control Act/Resource Conservation and Recovery Act (TSCA/RCRA) approved landfill and replacement with clean soil.

- Removal of all surficial soil with PCB level at or above 1 PPM to a minimum of depth of 1 foot below grade and replacement with clean soil.

- Dredging of PCB contaminated sediments from the affected area of the bank and bed of the Ellicott Creek to a PCB "non-detect" level. Dewatering of the sediments and off-site disposal of the dewatered sediments in a TSCA/RCRA approved landfill or by other disposal method approval by the Department. The resulting water will be treated in a treatment plant, to be built at the site, before discharge to the creek.

Declaration:

The selected remedial action will meet State Standards, Criteria and Guidelines (SCGs) and Federal ARARs by removing the source of contamination from the site and from the Ellicott Creek bank and bed. The remedy will satisfy, to the maximum extent practicable, the statutory preference for remedies that employ treatment that reduces toxicity, mobility or volume. This preference will be substantially met by removing the contaminated soil and sediment from the site and from the Ellicott Creek for final disposal in a TSCA/RCRA landfill.

The selected remedial action has been used successfully at other hazardous waste sites. The potential long term environmental and human health threats associated with the site will be permanently removed from that area after the implementation of the remedy.

ANN DE BARBIERI
Deputy Commissioner

October 30, 1992
Date

COLUMBUS MCKINNON

Site No. 915016

Record of Decision

TABLE OF CONTENTS

COLUMBUS MCKINNON

Site No. 915016

Record of Decision

LIST OF APPENDICES

COLUMBUS MCKINNON

Site No. 915016

Record of Decision

LIST OF APPENDICES

Appendix B: List of Tables (Continued)

SECTION 1. SITE LOCATION AND DESCRIPTION

The Columbus McKinnon site is an inactive hazardous waste site located between Ellicott Creek and the Columbus McKinnon plant building on One Freemont Street in the City of Tonawanda, Erie County, New York. Conrail property borders the site to the south and Ellicott Creek borders the site to the west (Figures 1 and 2). The site, including the adjacent affected portions of Conrail property and Ellicott Creek covers an area of approximately 0.75 acres. This area of the City of Tonawanda consists of a mixture of light manufacturing, commercial and residential users. The nearest residential area is on the opposite bank of Ellicott Creek, approximately 125 feet to the west of the site. The topography of the site is relatively flat. Surface runoff from the site is entirely toward Ellicott Creek.

SECTION 2. SITE HISTORY AND PREVIOUS INVESTIGATIONS

A. Site History

Information provided to the NYSDEC by Columbus McKinnon in response to an Interagency Task Force (IATF) survey revealed that the site was used for the disposal of approximately 270,000 gallons of waste cutting oil from the Columbus McKinnon plant from 1930 to 1965. The disposal of waste cutting oil resulted in the contamination of site soil with PCBs, and heavy metals including lead, nickel, chromium and cadmium. Trace levels of volatile organic compounds were also detected. The soil of the adjacent Conrail property was also found contaminated with PCBs and heavy metals. In addition, elevated levels of PCBs were detected in sediment of Ellicott Creek.

B. Previous Investigations

Columbus McKinnon conducted initial site investigations in 1979. These investigations revealed the presence of PCBs and heavy metals in on-site soil at elevated levels. Columbus McKinnon continued to investigate the site intermittently from 1981 to 1986. These additional investigations revealed a widespread area of PCB contaminated soil. In addition to the Columbus McKinnon property, the contaminated area also included soil on the adjacent Conrail property, soil along the bank of Ellicott Creek, and sediment in the bed of Ellicott Creek. The historical analytical data for PCB contamination in both the soil and sediment are shown in Figure 3. Historical soil, groundwater, and sediment data are also summarized in Tables 1-4. Table 4 contains both the historical and recent soil sampling data. These analytical results indicate the following: (1) the highest concentration of PCBs in Ellicott Creek sediment was 366 ppm, (2) soil on Conrail property contained PCBs at a concentration of 427 ppm, and (3) soil near the central area of the site, where waste disposal allegedly occurred, contained PCBs in concentrations up to 2220 ppm. In 1986, Columbus McKinnon installed polyethylene sheeting over the central area of the site to reduce erosion of contaminated soil and its transport to Ellicott Creek by surface water runoff.

In October 1989 Columbus McKinnon signed an Order on Consent with the NYSDEC to (1) conduct a Remedial Investigation and Feasibility Study (RI/FS) and (2) install an Interim Remedial Measure (IRM). The purpose of the IRM was to prevent the mechanical erosion of contaminated soil along the bank of Ellicott Creek, thereby reducing the release of contaminants into the creek. The original conceptual design of the IRM included steel sheet piles along the creek bank. At the time, it was originally envisioned that the sheet piles would remain in place during site remediation and provide the necessary creek bank stabilization. Columbus McKinnon contracted with Malcolm Pirnie, Inc. to conduct the RI/FS and design the IRM. After further consideration, Malcolm Pirnie and Columbus McKinnon concluded that the sheet pile concept was inadequate for its intended purpose because the sheet pile wall would require extensive shoreside support. The presence of supports would in turn interfere with soil and sediment remediation aspects of the final remedy.

This view was presented to NYSDEC, however, it was clear that creek bank stabilization would still be necessary to prevent further erosion. Columbus McKinnon, therefore, proposed an alternative IRM design. This alternative consisted of rip-rap stones laid over geotextile fabric on the slope of Ellicott Creek. The NYSDEC accepted this alternative design in March 1990. Construction of the IRM began in October 1990 and was completed in November of that year. This measure was considered temporary and subject to the final remediation decision.

SECTION 3. CURRENT STATUS

A. Remedial Investigation

During the Remedial Investigation 48 soil borings were completed at both on-site and off-site (Conrail property) locations to augment the historical data base. Seven groundwater monitoring wells were also installed at the site to determine water quality and hydrogeologic characteristics. One well was completed in an upgradient location to determine background water quality, and to enable estimates of the hydraulic gradient across the site. The location of these wells along with shallow groundwater isopotential lines are shown in Figure 4.

1) Soil Investigation

The soil investigation was designed to delineate both the horizontal and vertical extent of contamination. Additional soil borings were not completed in the central area of the site because adequate data were already available. The RI results together with the historical data led to the delineation of three contamination zones: (1) the north area with a maximum PCB concentration of 125 ppm, (2) the central area with a maximum PCB concentration of 2220 ppm, and (3) the south area with a maximum PCB concentration of 427 ppm. These areas are shown in Figure 5. Elevated levels of heavy metals were also detected in the soil in these areas. These metals include lead (16250 ppm maximum), chromium (688 ppm maximum), nickel (2750 ppm maximum) and cadmium (233 ppm maximum). These data are summarized in Table 4. Soil contamination was generally found from a depth of 0 to 2 feet and at some locations up to depth of 8 feet maximum.

2) Groundwater Investigation

The RI groundwater investigation consisted of (1) two rounds of groundwater sampling and analysis, (2) water level monitoring over time, and (3) in-situ hydraulic conductivity testing. The Department conducted a third round of groundwater sampling during December 1991. The first round of groundwater sampling was conducted during May 1990 and revealed the presence of PCBs at concentrations up to 40 ppb. Columbus McKinnon attributed these results to high turbidity of the samples. During the second round of sampling in May 1991, measures were taken to keep the turbidity within the specified limit of <50 NTU. Second round sample results indicated that PCBs were not present above the 0.1 ppb quantification limit. Analytical results obtained on the groundwater samples, and a summary of the field measurements made during sample collection, are given in Table 5. The third round of groundwater samples was collected from both the shallow and intermediate monitoring wells. Care was taken to minimize sample turbidity below 50 NTU. PCBs were detected in monitoring well MW-2S at a concentration of 0.21 ppb. Analytical results obtained on these samples are given in Table 5A.

Water level monitoring data indicate that shallow groundwater flows directly into Ellicott Creek (Figure 4) with an average flow of 404 ft^3/day. The average hydraulic conductivity is 1.22 feet/day (4.3×10^{-4} cm/sec).

3) <u>Ellicott Creek Sediments</u>

Six shallow (0 to 6 inches depth) sediment samples were collected during the remedial investigation. The maximum concentration of PCBs was 87 ppm. Analytical results obtained on the sediment samples are given in Table 6. In December 1991, the Department collected two shallow sediment samples from Ellicott Creek near the edge of the IRM rip-rap stones. PCBs were detected in both samples at concentrations of 1.4 and 2.4 ppm. The analytical results obtained on these samples are given in Table 6A.

4) <u>Contaminant Migration</u>

The data collected during the remedial investigation and supplemental Department sampling indicate that contaminants from the site have been migrating into Ellicott Creek. Migration pathways that have been identified at the site include the mechanical erosion of contaminated soil from the creek bank, contaminated groundwater inflow to Ellicott Creek, and stormwater runoff from the site into Ellicott Creek. The loading of contaminants into Ellicott Creek, not accounting for the impact of the Interim Remedial Measure, has been estimated as 2.2 kg/year of PCBs, 21.4 kg/year of lead, 10 kg/year of nickel, 4.2 kg/year of chromium, and 0.34 kg/year of cadmium. These estimates have been prepared by Columbus McKinnon to demonstrate the order of magnitude of contaminant flux. An empirical model, which included such factors as rainfall intensity, duration, and assumed concentration of PCBs in the creek bank, was utilized to make these estimates. These estimates, however, did not include the sampling results from the first round of groundwater sampling or the third round of groundwater sampling conducted by the Department. These results show that contamination would be entering Ellicott Creek through groundwater transport, and suggests that the actual contaminant loading could be significantly higher. Contamination also could be entering Ellicott Creek from the release of contaminated sediment, another factor that has not been included in the loading estimates.

B. Baseline Risk Assessments

The risk assessments completed for the Columbus McKinnon site included a Baseline Health Risk Assessment, and a Baseline Environmental Risk Assessment. The baseline health risk assessment consisted of four elements: (1) Hazard Identification, (2) Exposure Assessment, (3) Toxicity Assessment, and (4) Risk Characterization. The baseline environmental risk assessment consisted of three elements: (1) Aquatic Risks associated with surface water quality, (2) Aquatic Risks associated with sediment pore water, and (3) Ecological Risks to fish eating contaminated aquatic organisms.

The baseline health risk assessment indicates that the greatest risk posed by the site is a potential cancer risk through dermal contact. The incremental cancer risk from PCB contaminated soil was estimated to be 5 in ten thousand. The cancer risk associated with ingestion of PCB contaminated soil was estimated to be 4 in one hundred thousand.

The baseline environmental risk assessment indicates risk of chronic toxicity for aquatic organisms exposed to Ellicott Creek sediment contaminated with PCBs. This assessment also indicates that there is a potential for adverse effects on wildlife that consume migratory fish that may have been exposed to PCB contaminated sediment.

SECTION 4. ENFORCEMENT STATUS

Columbus McKinnon is currently in compliance with the terms of the October 1989 Order on Consent. A chronological review of the milestone dates follows:

1 NYSDEC enters into an Order on Consent with Columbus McKinnon on October 2, 1989 for an RI/FS and IRM Creek Bank Stabilization.

2. Columbus McKinnon submits work plan for IRM in October 1989.

3. Columbus McKinnon submits work plan for RI/FS in November 1989.

4. NYSDEC approves RI/FS and IRM work plans in March 1990.

5. IRM initiated in October 1990.

6. IRM completed in November 1990.

7. On December 4, 1990 NYSDEC grants an extension until December 31 for RI submittal.

8. On December 27, 1990 NYSDEC grants a ten-day extension for RI submittal.

9. On January 10, 1991 NYSDEC grants an extension until January 31 for RI submittal.

10. RI report submitted in January 1991.

11. Report certifying IRM completion submitted in January 1991.

12. NYSDEC approves IRM report in February 1991.

13. An addendum to the RI/FS work plan concerning a second round of groundwater sampling submitted to NYSDEC in March 1991.

14. RI/FS work plan addendum approved by NYSDEC in April 1991.

15. NYSDEC gives conditional approval of RI report in June 1991.

16. NYSDEC gives final approval of RI report in September 1991.

17. Draft FS report submitted in September 1991.

18. Revised FS report submitted in December 1991.

19. Final Revised FS report submitted on April 19, 1992.

20. FS report approved by NYSDEC on May 8, 1992.

SECTION 5. GOALS FOR THE REMEDIAL ACTION

A. Remedial Action Objectives

The goals for the remedial program are media specific. These goals have been developed to be protective of human health and the environment for all exposure pathways, and to comply with applicable or relevant and appropriate requirements (ARARs). The Remedial Investigation report concluded that the primary exposure pathways, which may result in significant human health risks, are ingestion and dermal contact with PCB contaminated soil. Consumption of fish caught in Ellicott Creek and the periodic use of the creek for recreational purposes (e.g., swimming) also may result in some human health risk. Environmental exposure to PCB contaminated sediment in the creek may result in chronic toxicity for aquatic organisms and their predators.

The following remedial action objectives have been established for the Columbus McKinnon site:

1. Prevent direct human contact with on-site surface soil thereby reducing human health risks.
2. Prevent the transport of contaminated soil from the site into Ellicott Creek via overland runoff.
3. Prevent the erosion and transport of contaminated soil from the creek bank into Ellicott Creek.
4. Prevent the migration of contaminated groundwater from the site by eliminating the source of contamination.
5. Prevent environmental risk to aquatic organisms and other wildlife in Ellicott Creek by eliminating the source of contamination.

B. Compliance with ARARs

Section 121 (d) of CERCLA states that remedial actions comply with applicable or relevant and appropriate federal requirements (ARARs). Comparable considerations on a State level are called Standards, Criteria and Guidelines (SCGs). For this remedial action plan the term ARARs will include SCGs. Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that specifically address a hazardous substance, pollutant, containment, remedial action, location or circumstance at a CERCLA site. Relevant and appropriate requirements are those cleanup standards, standards of control and other substantive environmental protection requirements, criteria or limitations promulgated under Federal or State law, that while not "applicable" to a hazardous substance, pollutant, containment, remedial action, location or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to that particular site.

ARARs will define the cleanup goals when they set an acceptable level with respect to site-specific factors. Cleanup goals for some substances, however, may have to be based on non-promulgated criteria and advisories rather than on ARARs, because ARARs do not exist for those substances or because an ARAR alone would not be sufficiently protective in the given circumstances. To address these situations, those "to be considered" criteria, advisories and guidances (TBCs) are identified where they exist. One such guidance document is "Aquatic Sediment Criteria" that has been developed by the NYSDEC Division of Fish and Wildlife. This guidance has been developed to assist design of remedial activities in many locations. If remedial activities cannot attain these levels, there is a high likelihood of residual natural resource damage subject to recovery by NYSDEC as the State's trustee for Natural Resources Damages. There are three types of ARARs and TBCs: action specific, location specific and chemical specific.

Action specific ARARs set controls or restrictions on particular types of actions related to management of hazardous substances, pollutants or contaminants. Table 7 identifies Federal and New York State action specific ARARs. Under NYCRR Part 373, any contaminated media that exceeds 50 mg/kg of PCBs must be handled and disposed of as a hazardous waste. Since the Columbus McKinnon site contains PCB contaminated soil that exceeds this value, this ARAR would apply.

Location specific ARARs set restrictions on site activities based on the characteristics of the site or immediate environs. These ARARs may restrict activities solely because they occur in special locations. Location specific ARARs are given in Table 8. Four location specific ARARs for the Columbus McKinnon site have been identified and relate to actions occurring within flood plains and protected streams. Part of the Columbus McKinnon site is located within the 100 year flood plain of Ellicott Creek, therefore, the impact of possible creek flooding must be considered in the selection of a remedial action. The no action alternative would not apply because contaminated soil and sediment could be reexposed during flooding events, thereby creating new human health or environmental exposure risks.

Chemical specific ARARs are usually health or risk based numerical values or methodologies that when applied to site specific conditions, result in the establishment of numerical values. These values establish an acceptable concentration of a chemical that may be found in, or discharged to, the ambient environment. Chemical specific ARARs for this site are applicable, or relevant and appropriate, to surface water and groundwater while chemical specific TBCs for this site are pertinent to soil and sediment. The chemical specific ARARs and TBCs identified in the feasibility study are given in Table 9; however, there are others that will affect site remediation and will be covered in the following paragraphs.

The human health risks associated with the Columbus McKinnon site were evaluated as part of the Remedial Investigation and are found in the health risk assessment (RA) section of that report. The baseline risk assessment, discussed above, addresses the potential impacts on human health and the environment from contaminated soil and sediment at the site.

Risks and remedial objectives for site soil are based on estimated dermal and ingestion exposure routes for nearby residents and on-site employees. The remedial objectives for Ellicott Creek sediment are based on estimated ingestion exposure and bioconcentration in aquatic organisms. The results of the risk characterization at the Columbus McKinnon site indicate that PCB contaminated soil poses unacceptable long term human health risks for both the ingestion and dermal contact exposure routes. Further remedial action is necessary to reduce this risk to acceptable levels. Lead was determined to pose a slight toxicity concern for site soil, but not for surface water and sediment. Based on these health risk evaluations, PCBs are considered the primary contaminants of greatest concern. Chemical specific ARARs and TBCs have been established for PCBs at the Columbus McKinnon site and are discussed below.

1) Sediment: The cleanup goal for sediment is based on PCB bioconcentrations in benthic (bottom dwelling) organisms. The technique used to predict the potential impact of contaminated sediment on these organisms utilizes an empirical model known as partitioning. This model has been used to calculate theoretical concentrations of PCBs in the sediment interstitial (pore) water. For most sediment the concentrations of PCBs should not exceed 20 ppb, however, this level is lower than the practical quantification limit for sediment that can be obtained during chemical analyses. The cleanup goal for sediment, therefore, will be the removal of all PCB contaminated sediment associated with the disposal activities at the site.

2) Soil: The cleanup goal for shallow surface soil (<12" depth) is based on the potential ingestion of PCBs. The New York State Department of Health has determined (based on Federal EPA Guidance) that PCBs at levels lower than 1 ppm in surface soil will be protective of human health. The cleanup goal for contaminated soil at depths greater than 12 inches is based on the potential groundwater impact. An approach similar to the partitioning methodology used for sediment has established a PCB cleanup goal of 10 ppm. Compliance with this cleanup goal will reduce the risk of groundwater contamination, thereby reducing the flux of contaminants into Ellicott Creek. Heavy metals are also present at the site, but are generally found at depths where PCBs are detected. Removal of the PCB contaminated soil will also remove the heavy metals, therefore, a metals cleanup goal is not required.

While the 10 ppm cleanup goal is adequate for contaminated site soil, it is not adequate for contaminated creek bank soil because adequate protection of Ellicott Creek will not be provided. Creek bank stabilization, therefore, will be required in those areas where complete removal of contaminated soil is not possible, and will remain permanently to serve as an erosion barrier.

The cleanup goals specified above are protective of human health by direct contact and ingestion, are protective of both groundwater and surface water standards, and are also protective of aquatic organisms. In addition, these cleanup goals are consistent with those established for sites with similar contaminants. The selected remedial action will meet Federal and New York State ARARs by removing the contaminated soil and sediment from the site. Groundwater remediation is not proposed because the source of contamination will be removed.

SECTION 6. DESCRIPTION AND EVALUATION OF REMEDIAL ALTERNATIVES

Appropriate remedial alternatives were developed that would be applicable to three main areas of concern: (1) on-site soil, (2) creek bank soil, and (3) creek sediment. Each alternative was evaluated for compliance with Federal and State ARARs, protection of human health and the environment, and cost effectiveness.

A preliminary screening of the remedial alternatives identified 16 alternatives for on-site soil, 5 alternatives for creek bank soil, and 7 alternatives for creek sediment. These alternatives are summarized in Table 10. Of those alternatives receiving preliminary evaluation, 10 alternatives for on-site soil, and 4 alternatives for creek bank soil and creek sediment were carried through for detailed evaluation. These alternatives are described below:

A. Remedial Alternatives for On-Site Soil

1. No Action Alternative: This alternative would not use any active remedial technology. Instead, the existing fence and polyethylene sheeting currently covering the central area of the site would be maintained. Present worth of the O&M cost would be $74,000. This alternative, however, would not reduce the toxicity and volume of the contaminants at the site, and would not accomplish the remediation goals previously stated.

2. Institutional Controls: This alternative would include instituting deed restrictions to limit future uses of the site, extending the existing fence to the south area, and installing additional warning signs, etc. No remedial technology would be utilized with this alternative. Present worth of the capital and O&M cost would be $90,000. This alternative, however, would not reduce the toxicity and volume of the contaminants at the site, and would not accomplish the remediation goals previously stated.

3. Topsoil Cover: Under this alternative, a 12 inch layer of topsoil would be placed over the entire site. Although this alternative would reduce the risk of direct exposure, it would not cause any reduction in toxicity or volume of the contaminants at the site, nor would it prevent the flow of contaminated groundwater from entering Ellicott Creek. In addition, this

alternative would not comply with all ARARs. Present worth cost would be $238,000.

4. Gravel Cover: This alternative is identical to alternative number 3 except that a gravel cover would replace the topsoil cover. Present worth cost would be $228,000.

5. Asphalt Cover: This alternative would consist of a single layer of geotextile fabric underlying a 6 inch stone base, a 4 inch asphalt binder course, and a 2 inch asphalt top course. Similar to the topsoil or gravel cover alternatives, this alternative would reduce the risk of direct exposure, but would not cause any reduction in the toxicity or volume of the contaminants at the site. As with alternatives 3 and 4, this alternative would not prevent the flow of contaminated groundwater from entering Ellicott Creek. Present worth cost would be $288,000.

6. Synthetic Membrane/Soil Cover: This alternative would consist of a 30-40 mil HDPE ($K<10^{-12}$ cm/sec) synthetic membrane underlying a soil cover. This alternative would greatly reduce infiltration of precipitation thereby reducing the contact of precipitation water with contaminated soil. Similar to the soil cover, gravel cover and asphalt cover alternatives, there would be no reduction in the toxicity or volume of the contaminants at the site. Present worth cost would be $305,000.

7. Partial (Unstabilized) Excavation without Sheet Piling with (a) Off-Site Incineration or (b) Off-Site Disposal: Under this alternative contaminated soil would be removed from an excavation having 2:1 side slopes (Figure 6). The slopes are necessary to maintain enough soil near the buildings and creek bank for structural support. There are two disposal options available with this alternative: (1) off-site incineration and (2) off-site disposal in a TSCA/RCRA approved landfill. Containment of the remaining contaminated soil by either the synthetic membrane/soil cover alternative or the asphalt cover alternative would be implemented. With this alternative, approximately 35% of the contaminated soil above the 10 ppm cleanup goal would remain on-site; therefore, this alternative would not provide the necessary degree of groundwater protection. Present worth cost of this alternative would be $6.2 million with off-site incineration or $1.7 million with off-site disposal in a TSCA/RCRA approved landfill.

8. Excavation of "Principal Threat" Soils with (a) Off-Site Incineration or (b) Off-Site Disposal: Principal threat was defined by Columbus McKinnon as soil exceeding a PCB concentration of 500 ppm. Under this alternative, 313 cubic yards of contaminated soil would be excavated with either off-site incineration or off-site disposal. Contaminated soil not excavated under this alternative (approximately 78%) would be contained by any of the previously described containment alternatives. Since large volumes of the contaminated soil would be left in place, this alternative would not provide the necessary degree of groundwater protection. Present worth cost of this alternative would be $1.4 million with off-site incineration or $594,000 with off-site disposal in a TSCA/RCRA approved landfill.

9. Total Excavation with Sheet Piling with (a) Off-Site Incineration or (b) Off-Site Disposal: Under this alternative sheet piling would be installed at the top of the creek bank to provide structural support to the area during excavation while a 2:1 side slope would be provided for excavation near the building foundation. Isolated pockets of PCB contaminated soil within the soil wedge at the building foundation above concentrations of 10 ppm would be removed using either caisson borings (see alternative 10 for a discussion of this technique) or other stabilization process to achieve the cleanup goal. All soil contaminated with PCBs at or above 10 ppm would be excavated, containerized in roll-off boxes, removed via a barge mounted crane, transported across Ellicott Creek, and staged at the Columbus McKinnon parking lot prior to off-site disposal or incineration. In addition, all surface soil at the site having PCB concentrations of greater than 1 ppm, would be excavated to a minimum depth of one foot below grade. After all excavation work is complete (including creek bank soil and Ellicott Creek sediment), the entire area would be backfilled with clean soil, graded with topsoil and reseeded. Present worth cost for this alternative is $8.3 million with off-site incineration and $2.3 million with off-site disposal in a TSCA/RCRA approved landfill.

10. Excavation via Close Pack Caisson Borings (Overlapping or Non-Overlapping) with (a) Off-Site Incineration or (b) Off-Site Disposal: Excavation via close pack caisson borings (Figures 7 and 8) involves augering through a series of pre-set hollow casings. The casing serves as a temporary means of stabilization, and is removed following backfilling of the borehole. With this technique a hollow steel casing is driven into the area to be

excavated. A drill rig equipped with a 4 foot caisson auger head bores through the inside of the casing forcing contaminated soil up through the center of the casing and deposits it outside the perimeter of the borehole. Upon completion of the boring to the required depth, the borehole is backfilled with clean soil and the casing is removed. The next boring is completed immediately adjacent to the first and so on. With the non-overlapping method only interstitial material would remain in place. If the borings are completed so that overlapping occurs, the interstitial material also would be removed. At the 10 ppm cleanup level, the non-overlapping method would remove approximately 60% of the contaminated soil, whereas the overlapping method would remove approximately 71% of the contaminated soil. Present worth cost with the overlapping method would be $6.3 million with off-site incineration and $1.8 million with off-site disposal in a TSCA/RCRA approved landfill. The present worth cost with the non-overlapping method would be $6.0 million with off-site incineration and $1.5 million with off-site disposal in a TSCA/RCRA approved landfill.

B. <u>Remedial Alternatives for Creek Bank Soils and Ellicott Creek Sediments</u>

1. <u>No Action Alternative</u>: This alternative would not use any active remedial technology. Instead, the existing IRM would remain in the central area of the site and would be maintained. This alternative is not considered protective of the environment because it would not prevent contaminated creek bank soil and bottom sediment from coming in contact with Ellicott Creek water. In addition, the geotextile fabric under the rip-rap stones is perforated. This fabric was installed to provide temporary erosion control, not to prevent dissolved contaminants and colloidal (very small) particles from passing through it. Also, due to the steep slope of the creek bank, the rip-rap stones are showing signs of slippage, thereby exposing the geotextile fabric. This alternative would not reduce the toxicity or volume of the contaminants at the site, and would not accomplish the remediation goals previously stated. Present worth of the O&M cost for maintaining the IRM for 30 years would be $51,000.

2. <u>Extension of the IRM</u>: Under this alternative the existing IRM would be extended to the north by 110 feet and to the south by 80 feet (Figure 9). The extension of the IRM would further reduce erosion of contaminated soil from the creek bank thereby preventing its movement into Ellicott Creek. This

alternative, however, suffers from the same shortcomings described in the no action alternative. In addition, this alternative would not reduce the toxicity or volume of the contaminants at the site, would not accomplish the remediation goals previously stated, and would not comply with all ARARs. Present worth cost would be $343,000.

3. Containment with Revetment Fabric: This alternative is similar to the existing IRM with the exception that concrete grouted revetment fabric would be placed in lieu of geotextile fabric and rip-rap stones. This alternative, however, would not reduce the toxicity or volume of the contaminants at the site, would not accomplish the remediation goals previously stated, and would not comply with all ARARs. Present worth cost would be $401,000.

4. Excavation of Creek Bank Soils and Dredging of Creek Sediments with (a) Off-Site Incineration or (b) Off-Site Disposal: Under this alternative the existing IRM would be removed to dredge sediment from the creek bed and excavate contaminated creek bank soil. To prevent the introduction and downstream migration of PCB contaminated soil and sediment during the removal of the IRM, a silt curtain or cofferdam would be installed (Figures 9 and 10). Following the removal of the IRM two rows of sheet piling would be installed; one at the top of the bank and the other on the creek bank slope at the water line (Figure 12). Excavation of creek bank soil would then be completed between the two rows of sheet piling. The excavated soil would be containerized in roll-off boxes, removed via a barge mounted crane, transported across Ellicott Creek, and staged at the Columbus McKinnon parking lot prior to off-site disposal or incineration.

Following the excavation of contaminated creek bank soil, a silt curtain would be installed at the perimeter of the proposed dredging area (Figure 12) to prevent the downstream migration of contaminated sediment. After dredging, the sediment would be pumped to a dewatering facility constructed at the site (Figure 13). All water removed from the sediment would be treated in an on-site treatment facility, tested, and if clean, returned to the creek. Based on a preliminary estimate by Malcolm Pirnie, approximately 450 cubic yards of sediment would be removed under this alternative to meet the PCB sediment cleanup goal. The dredged and de-watered sediment would be sent off-site for disposal or incineration. Present worth cost would be $5.8

million with off-site incineration and $2.5 million with off-site disposal in a TSCA/RCRA approved landfill.

To reduce remediation cost, Columbus McKinnon has requested that dredged sediments which would meet the soil cleanup criteria of less than 10 PPM of PCB should remain in the impoundment rather than disposed off site. Columbus McKinnon requests will be evaluated during the design phase whether or not it will meet the Federal and State requirements.

C. Remedial Alternative Costs

The present worth value for each remedial alternative is shown in Table 10. The no action alternative has the lowest present worth value whereas alternatives with incineration options have the highest present worth values.

SECTION 7: SUMMARY OF THE GOVERNMENT'S DECISION

A. Description of the Preferred Alternatives

Based on the evaluations of the various remedial alternatives, the FS Report recommends alternative 9b for remediation of contaminated on-site soil in combination with alternative 4b for remediation of contaminated creek bank soil and creek sediment. The elements of the preferred remedial alternative are summarized as follows:

1. Alternative 9b for the remediation of contaminated on-site soil will include:

   a) Installation of sheet piling at the top of the creek bank and the use of caisson techniques along the building foundation for structural support during the excavation.

   b) Removal of all PCB contaminated soil at or above 10 ppm with off-site disposal in a TSCA/RCRA approved landfill.

   c) Excavation to a minimum depth of 1 foot below grade all surficial soil with PCB concentrations above 1 ppm. The excavation will be backfilled with clean soil followed by a topsoil cover.

2. Alternative 4b for the remediation of contaminated creek bank soil and creek sediment will include:

a) Installation of a temporary silt curtain to preclude the migration of any disturbed sediment particles during removal of the existing IRM and sediment dredging operation.

b) Removal of the existing IRM from the creek bank and bed.

c) Installation of sheet piling on the creek bank at water level.

d) Removal of all contaminated creek bank soil that exceeds a PCB concentration of 10 ppm between the two rows of sheet piling. Soils will be taken off-site for disposal in a TSCA/RCRA approved landfill.

e) Construction of a sediment dewatering facility on-site. Following the excavation of contaminated on-site soil (remedial alternative 9b), the resulting depression will be graded, compacted and lined according to the design criteria of Figure 13.

f) Dredging of PCB contaminated sediment to PCB non-detect concentrations. This sediment will be pumped to the dewatering facility with final deposition in an off-site TSCA/RCRA approved landfill or disposal by other means protective of the environment and acceptable to the Department. The water will be treated, tested, and if clean, will be discharged to Ellicott Creek.

The conceptual design of alternative 9b for the remediation of contaminated on-site soil and alternative 4b for the remediation of contaminated creek bank soil and creek sediment is illustrated in Figures 10 to 13. The sheet piling installed during the implementation of the remedial program will remain permanently and serve as an erosion barrier. The outer sheet piling will form the creek bank at the site.

B. Evaluation of the Preferred Alternative

Other than the preferred alternative, the various alternatives discussed in detail in the Feasibility Study report are not considered adequately protective of human health and the environment. Under those alternatives, unacceptable levels of PCB contaminated soil and sediment would remain on-site and could pose a long term threat to groundwater, surface water, and aquatic life in Ellicott Creek. Leaving contaminated soil in place also would result in deed restrictions on future property use.

The preferred alternative has been evaluated against the following criteria: (1) compliance with ARARs, (2) reduction of toxicity, mobility, and/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. The preferred alternative described above adequately complies with these criteria, although the cost is comparatively higher than other less protective alternatives. The cost of the alternative, however, is comparable to the cost of other site remediations with similar levels of contamination and remediation complexities. Other remediation alternatives fail to meet some of these criteria, such as compliance with ARARs, long term effectiveness and permanence, and overall protection of human health and the environment.

1. Compliance with ARARs: PCB contaminated soil at the Columbus McKinnon site would be removed to a cleanup level of 10 ppm and all PCB contaminated sediment would be removed from Ellicott Creek. The preferred alternative, therefore, complies adequately with chemical specific ARARs.

2. Reduction of Toxicity, Mobility, and/or Volume: The preferred alternative requires that contaminated soil and sediment be disposed of in a TSCA/RCRA approved landfill. There would be no reduction in the toxicity and volume of the contaminants, although the site would be permanently remediated. Mobility would be effectively reduced due to disposal in a properly designed landfill. The incineration of contaminated soil and sediment would reduce toxicity, mobility, and volume, but would substantially increase the overall cost of the remediation.

3. Short Term Impacts: There would be some short term impacts associated with the excavation of PCB contaminated soil, the removal of the existing IRM, and during dredging of sediment from Ellicott Creek. Effective measures are available, however, to mitigate potential impacts.

4. Long Term Effectiveness and Permanence: The preferred alternative would be a permanent remedial action for the Columbus McKinnon site. After execution of the preferred alternative, the site would no longer remain a threat to human health and the environment.

5. Implementability: The preferred alternative would be implementable, and would utilize commercially available and reliable technologies.

6. Cost: The estimated capital cost for implementation of the recommended remedial alternative is $2.9 million (Table 12). This cost

represents engineering and construction expenses required to implement all phases of the recommended site remediation. Due to the necessary breakdown of costs by media (i.e., sediment, creek bank, and soil) presented in Table 10, the sum of the individual alternatives incorporated in the preferred alternative is greater than the $2.9 million estimate. The lower cost for the overall recommended remedial approach for the site results from the elimination of overlapping activities and duplicate cost elements from Table 10, such as contractor mobilization fees, cost of construction access road for each remedial activity installation of a silt curtain for both creek bank excavation and sediment dredging and installation of sheet piling for both creek bank and on site soil excavations.

7. Community Acceptance: A public meeting was held on August 27, 1992 to discuss the proposed remedial action plan and answer questions. The public comments period lasted from August 20 to September 21, 1992 (See the Responsiveness Summary in Appendix D). Many of the public concerns focused on the potential impact of the site on nearby areas and potential short term problems (i.e., dust, noise, etc) during the implementation of the remedy. The preferred alternative would remove all problem levels of contaminated soil and sediment, and after its execution, would eliminate the significant threat to human health and the environment, and substantially restore the site to predisposal conditions. Adequate measures are available to prevent any short term risk during the construction period. Based on the public comments, it is concluded that the proposed remedial action plan is acceptable to the community.

8. Overall Protection of Human Health and the Environment: Following execution of the preferred alternative, all contaminated soil and sediment that currently poses a risk to human health and the environment would be removed from the site. This alternative would be a permanent remedial action and would be fully protective of human health and the environment.

APPENDICES

APPENDIX A

FIGURES

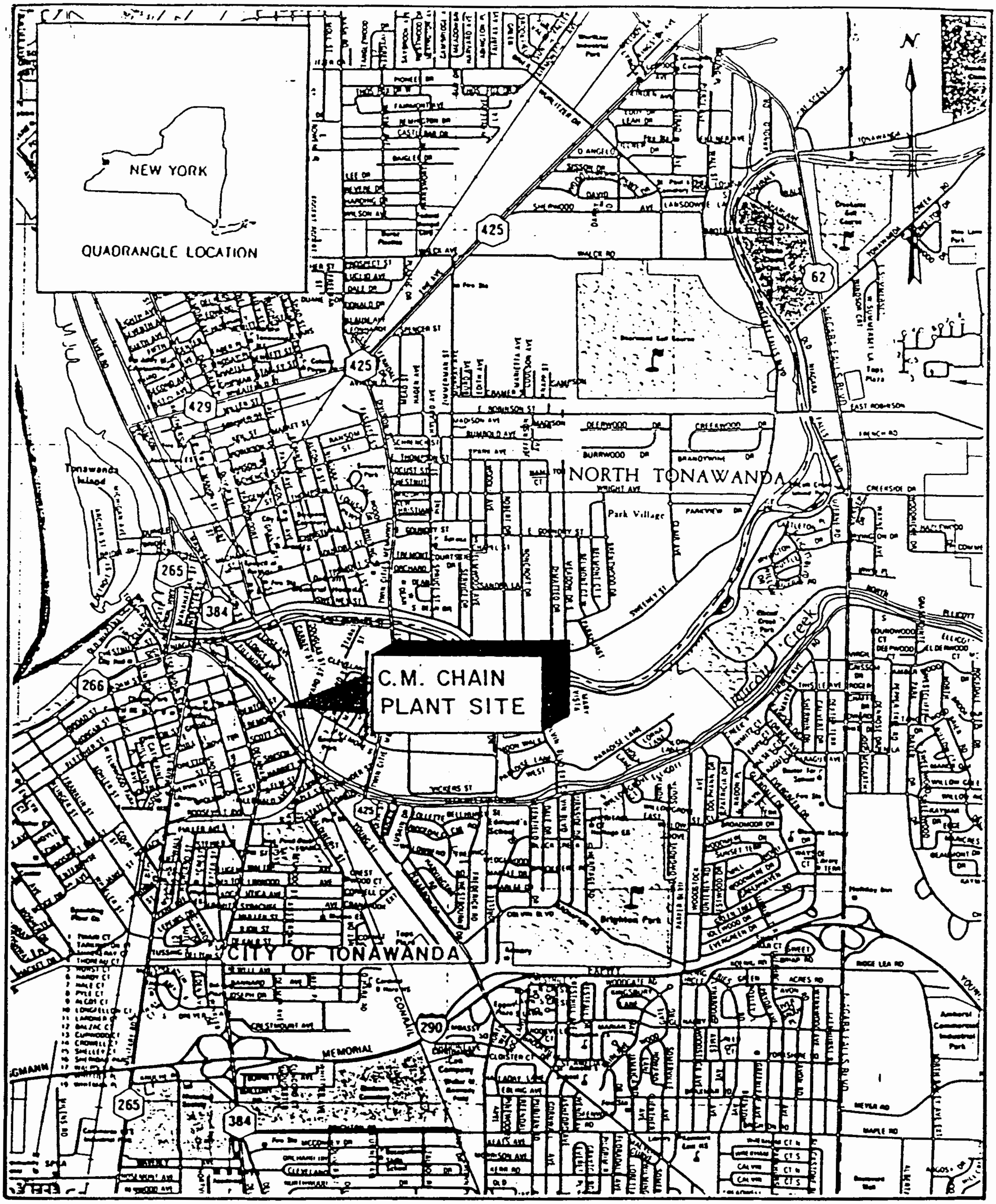


FIGURE 1

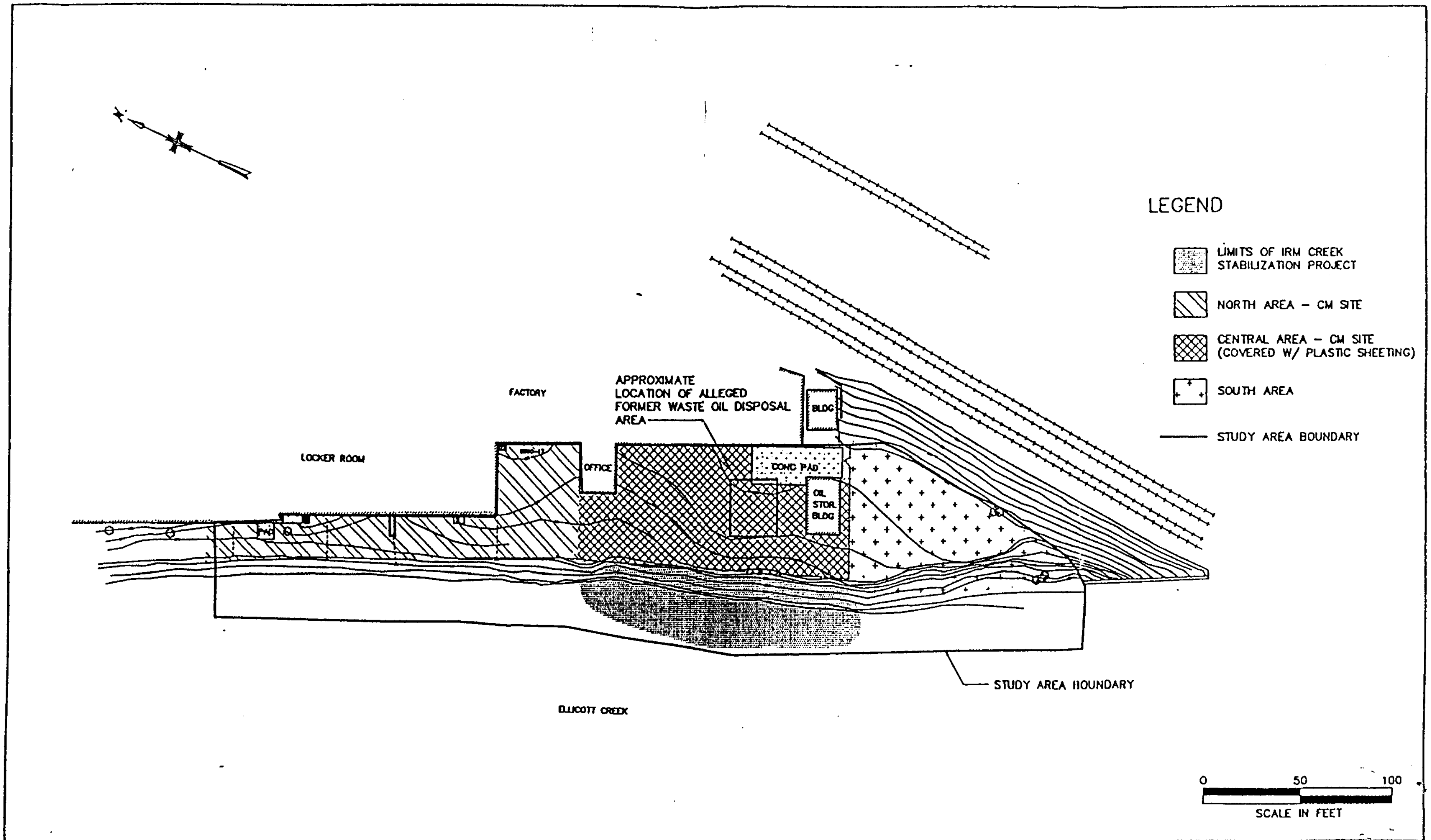
MALCOLM PIRNIE

COL - 01

REMEDIAL INVESTIGATION FEASIBILITY STUDY

LOCATION OF C.M. CHAIN PLANT SITE

COLUMBUS McKINNON CORP. JANUARY 1991



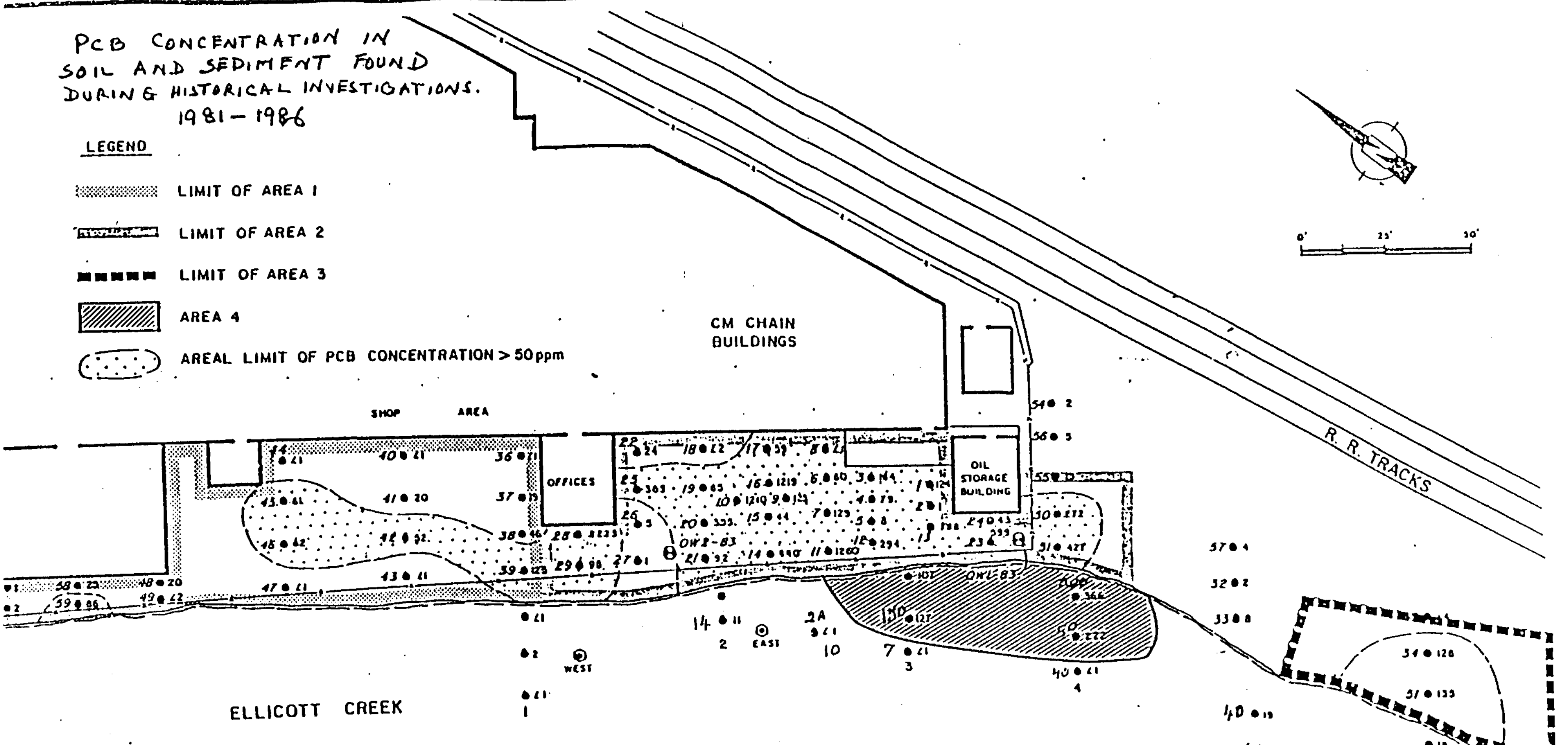
MALCOLM PIRNIE

FIGURE 2

REMEDIAL INVESTIGATION/FEASIBILITY STUDY

PROJECT STUDY AREA

[redacted]



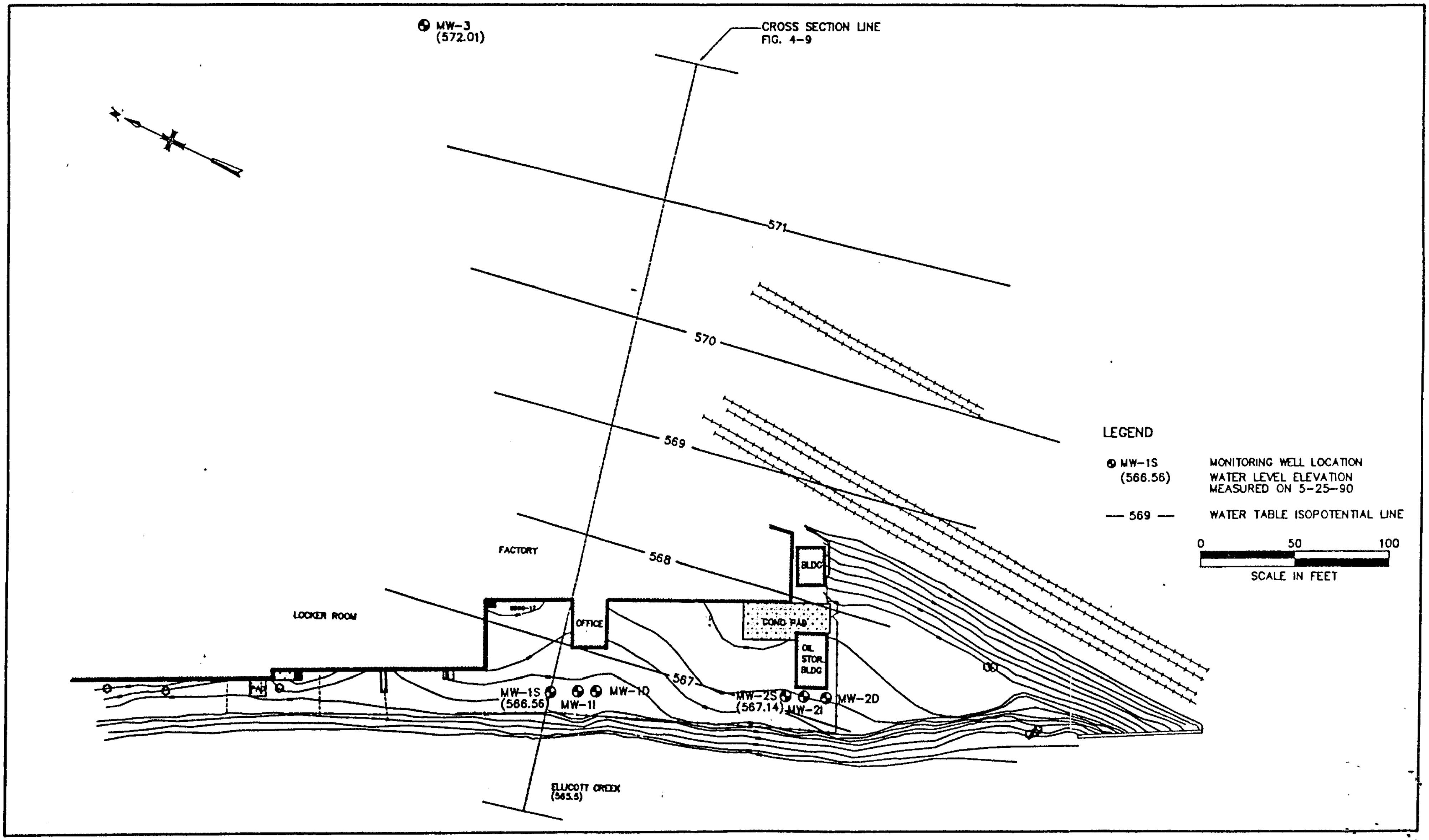
SOIL SAMPLING LOCATION AND PCB CONCENTRATIONS 28 ● 2223
(LOCATION # 28 and 2223 PPM PCB)

SEDIMENT LOCATION AND PCB CONCENTRATIONS 200 ● 366
CAT Row 4, 1st location close to the Bank PCB 200 PPM (DOH. LAB.) 366 PPM (Columbus McKinnon Lab)

Historical Data
PCB Contamination

FIGURE 3

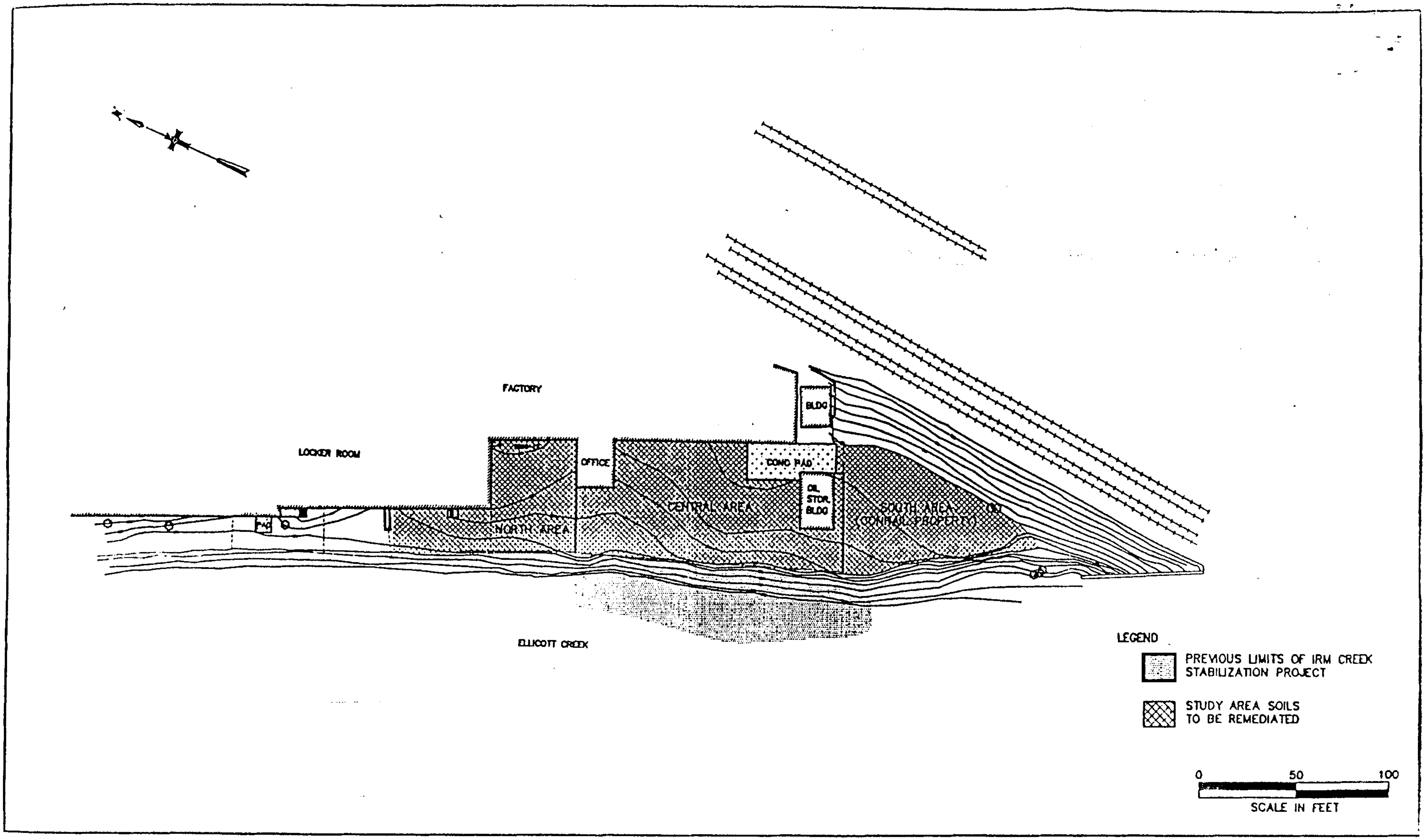
RA



MALCOLM PIRNIE

FIGURE 4

WATER TABLE ISOPOTENTIAL MAP
FOR 5-25-90



MALCOLM PIRNIE

FIGURE 5

LIMITS OF STUDY AREA
SOIL REMEDIATION

COL-01-F42

COLUMBUS McKINNON CORPORATION

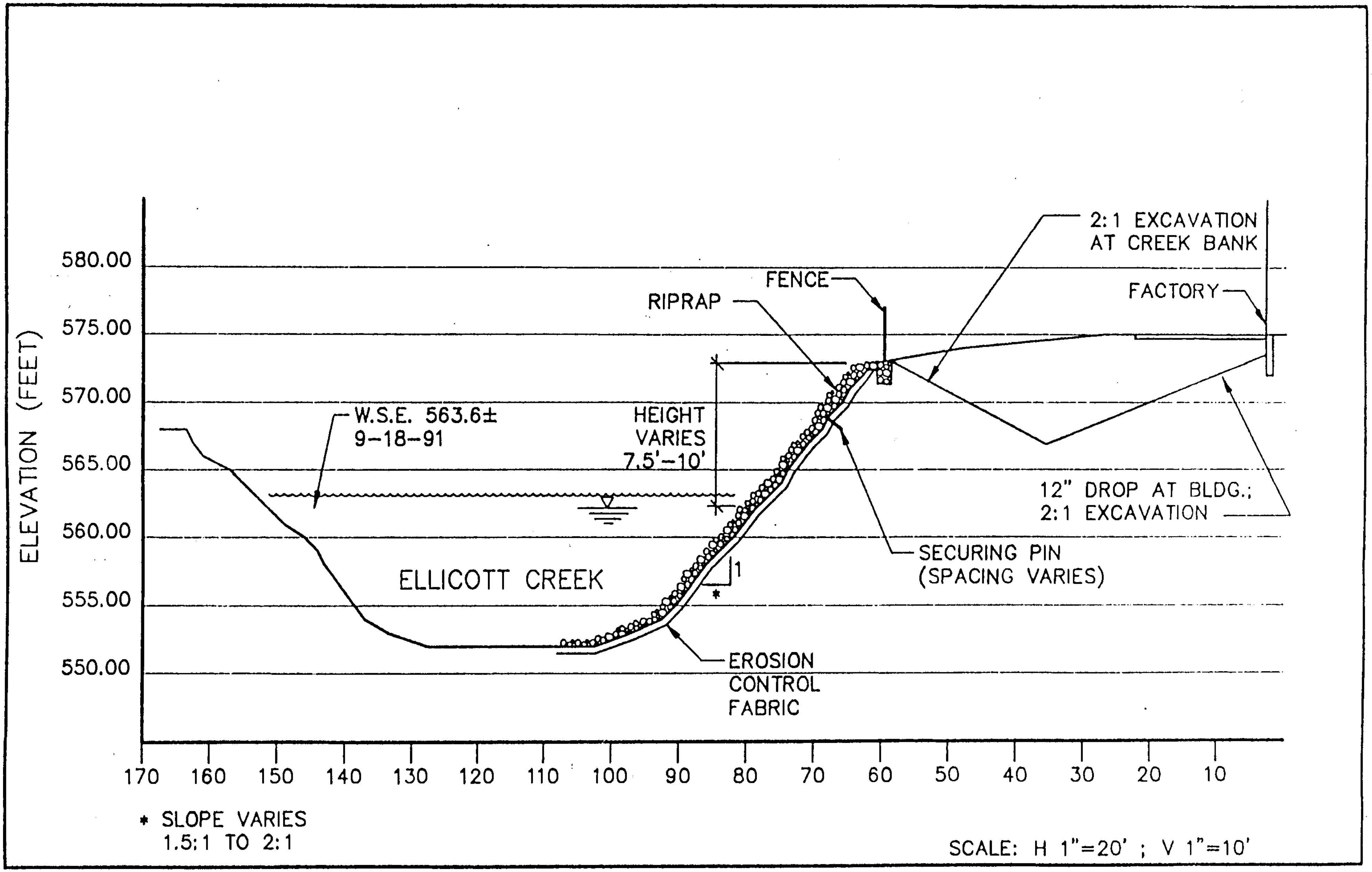


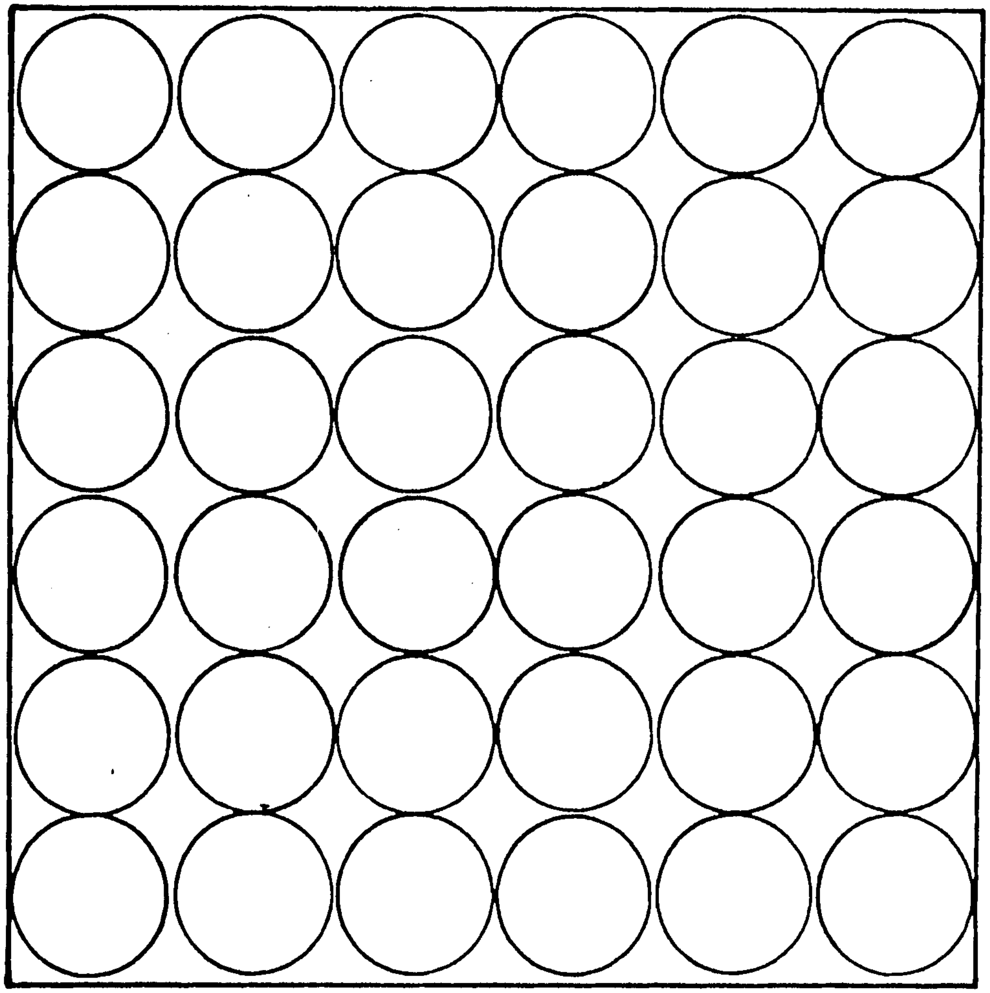
FIGURE 6

MALCOLM PIRNIE

COL-01-309

TONAWANDA FACILITY
PROFILE OF UNSTABILIZED EXCAVATION
(NO SHEET PILING) OF SITE SOILS

COLUMBUS McKINNON CORP. NOVEMBER 1991



MALCOLM PIRNIE

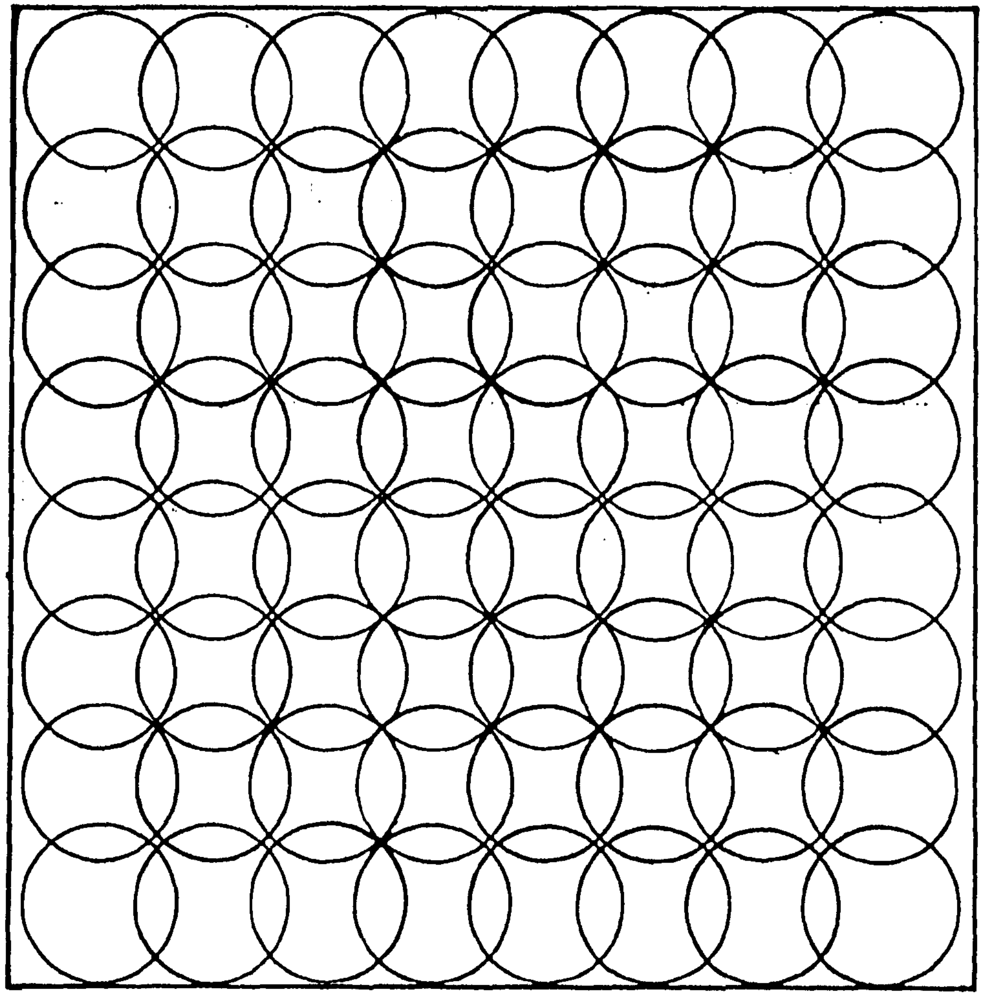
COL - 01

FIGURE 7

ENGINEERING FEASIBILITY STUDY
CLOSE PACK, NONOVERLAPPING CAISSON BORING PATTERN

COLUMBUS McKINNON CORP.
TONAWANDA FACILITY

NOVEMBER 1991



MALCOLM PIRNIE

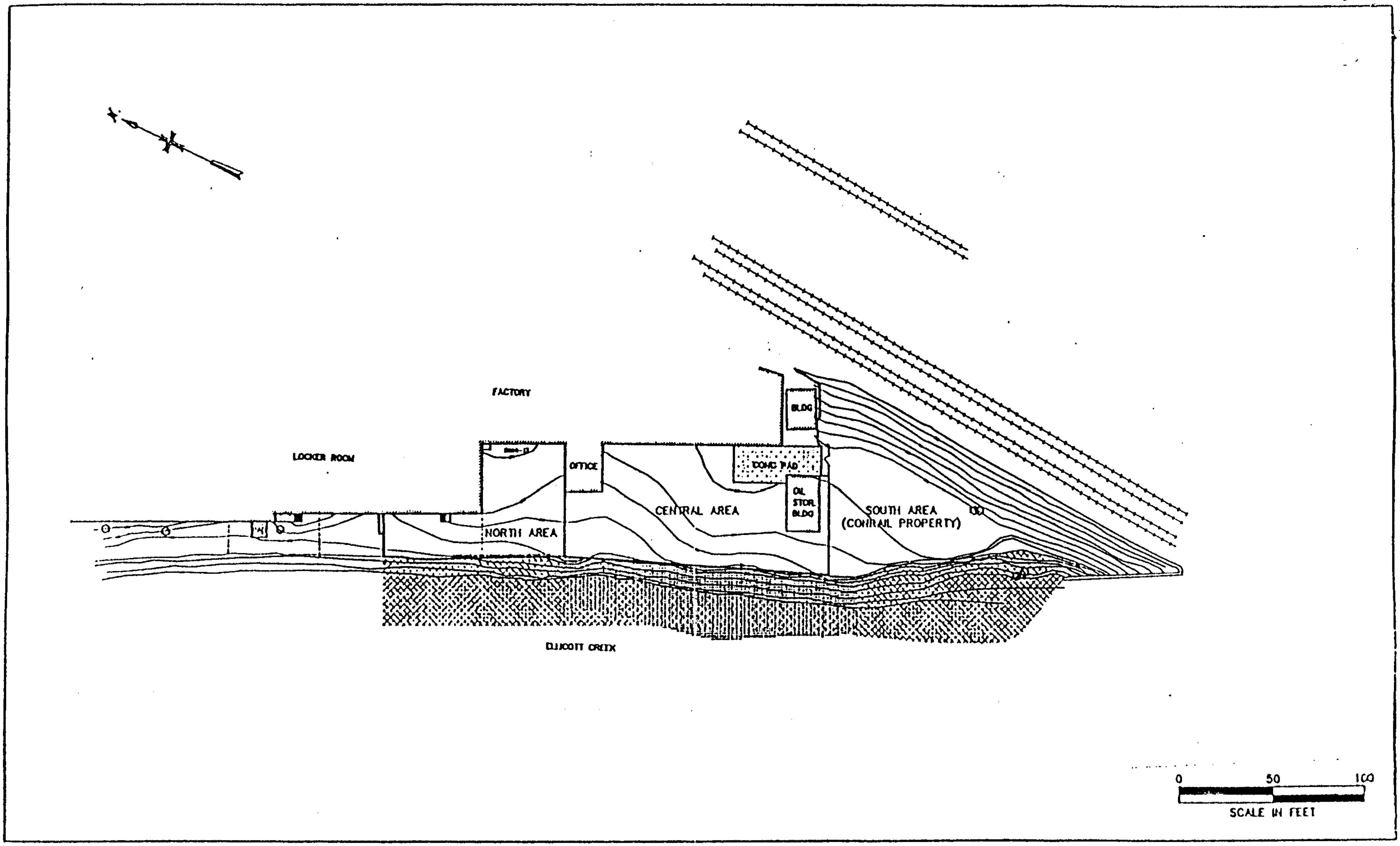
COL - 01

FIGURE 8

ENGINEERING FEASIBILITY STUDY
CLOSE PACK, OVERLAPPING
CAISSON BORING PATTERN

COLUMBUS McKINNON CORP.
TONAWANDA FACILITY

NOVEMBER 1991

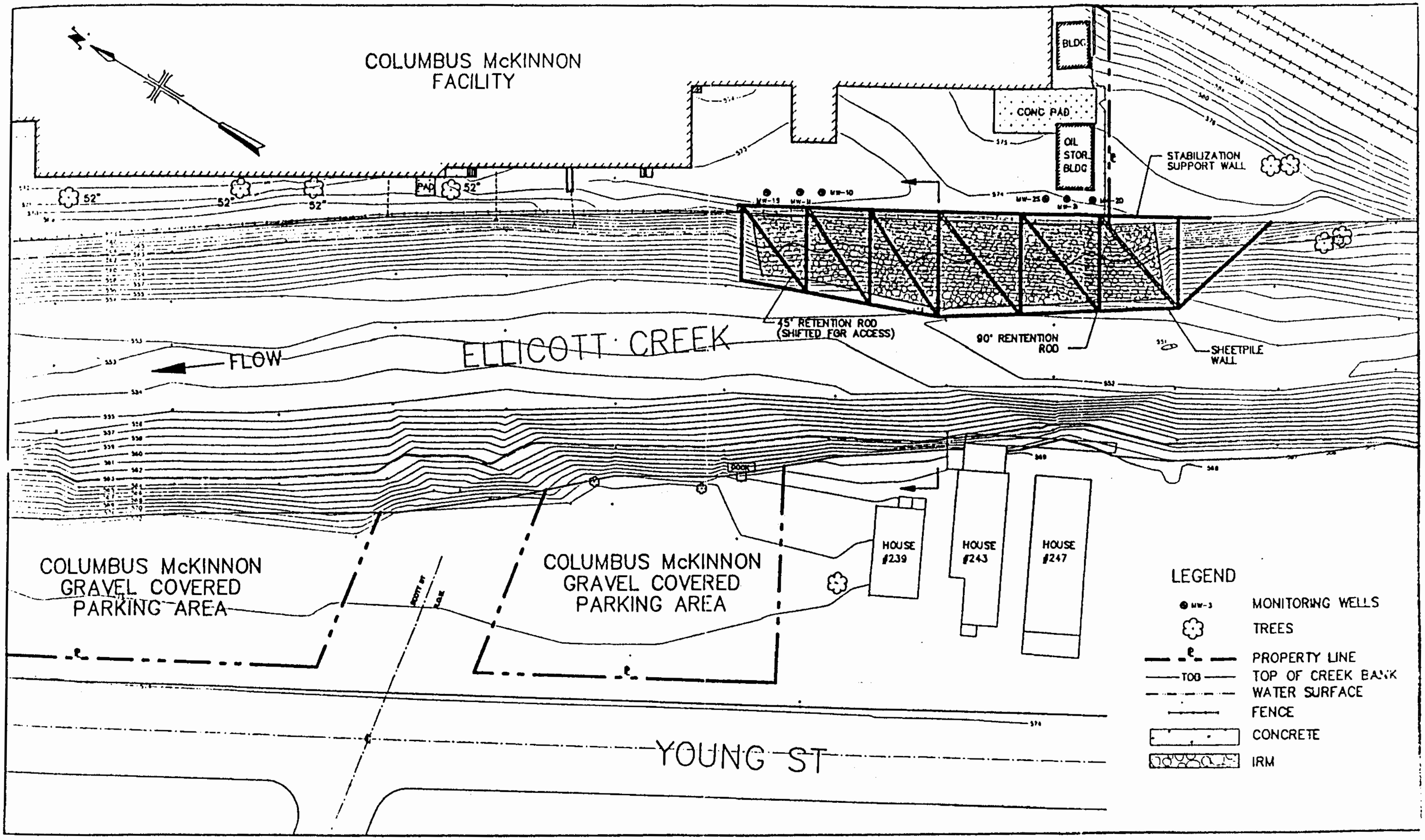


MALCOLM PIRNIE

FIGURE 9

CREEK BED SEDIMENTS TO BE REMEDIATED

COLUMBUS McKINNON CORPORATION



MALCOLM PIRNIE

FIGURE 10

TONAWANDA FACILITY

PLAN VIEW OF SHEETPILE COFFERDAM FOR REMOVAL OF IRM

COLUMBUS McKINNON

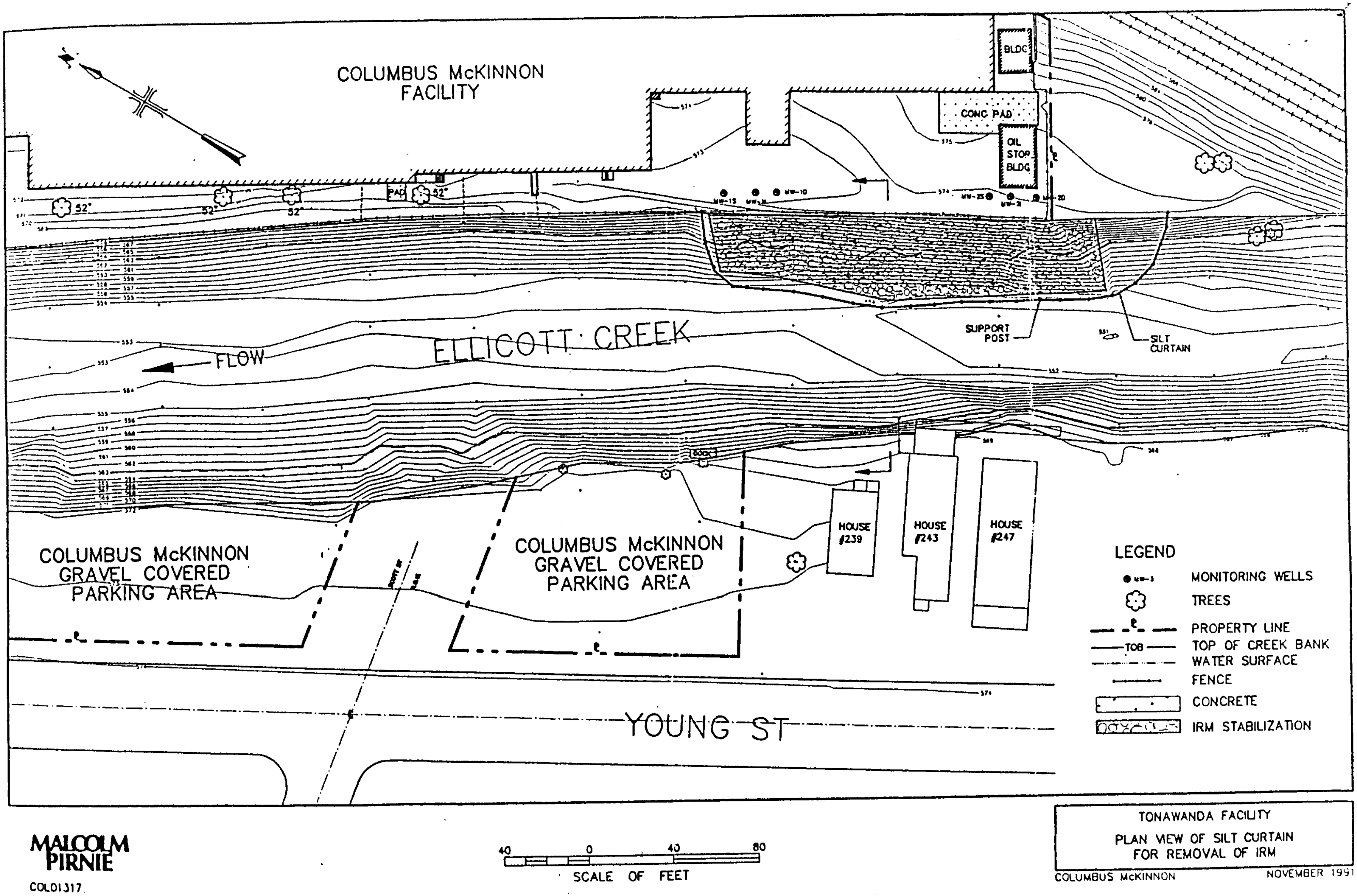
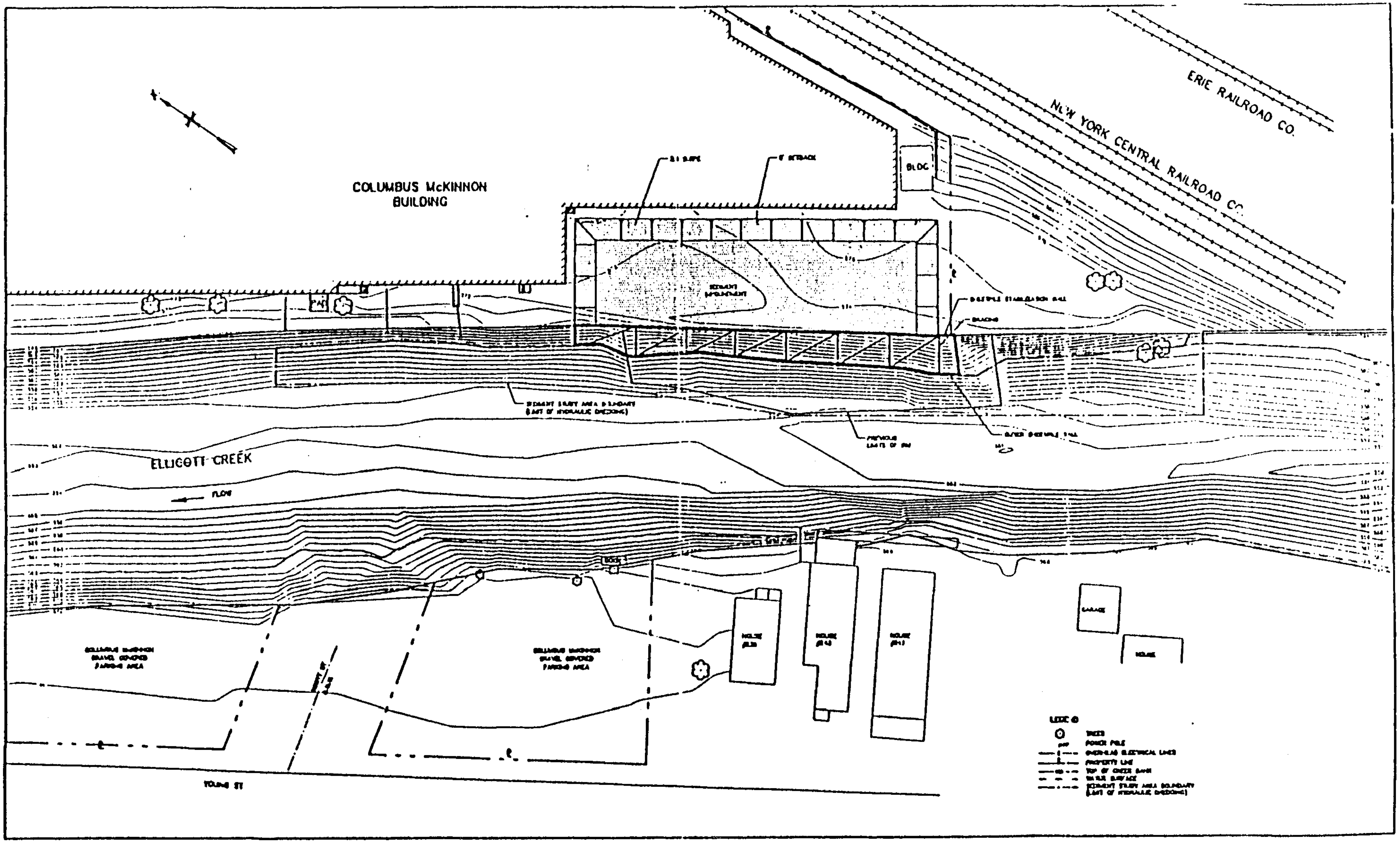

COLUMBUS McKINNON FACILITY
BLDG
CONC PAD
OIL STOR BLDG
PAD
52"
MW-15
MW-10
MW-25
MW-20
ELLICOTT CREEK
FLOW
SUPPORT POST
SILT CURTAIN
DOCK
HOUSE #239
HOUSE #243
HOUSE #247
COLUMBUS McKINNON GRAVEL COVERED PARKING AREA
COLUMBUS McKINNON GRAVEL COVERED PARKING AREA
YOUNG ST
LEGEND
MONITORING WELLS
TREES
PROPERTY LINE
TOP OF CREEK BANK
WATER SURFACE
FENCE
CONCRETE
IRM STABILIZATION
MALCOLM PIRNIE
COL01317
40 0 40 80
SCALE OF FEET
TONAWANDA FACILITY
PLAN VIEW OF SILT CURTAIN FOR REMOVAL OF IRM
COLUMBUS McKINNON
NOVEMBER 1991

FIGURE 11

[redacted]



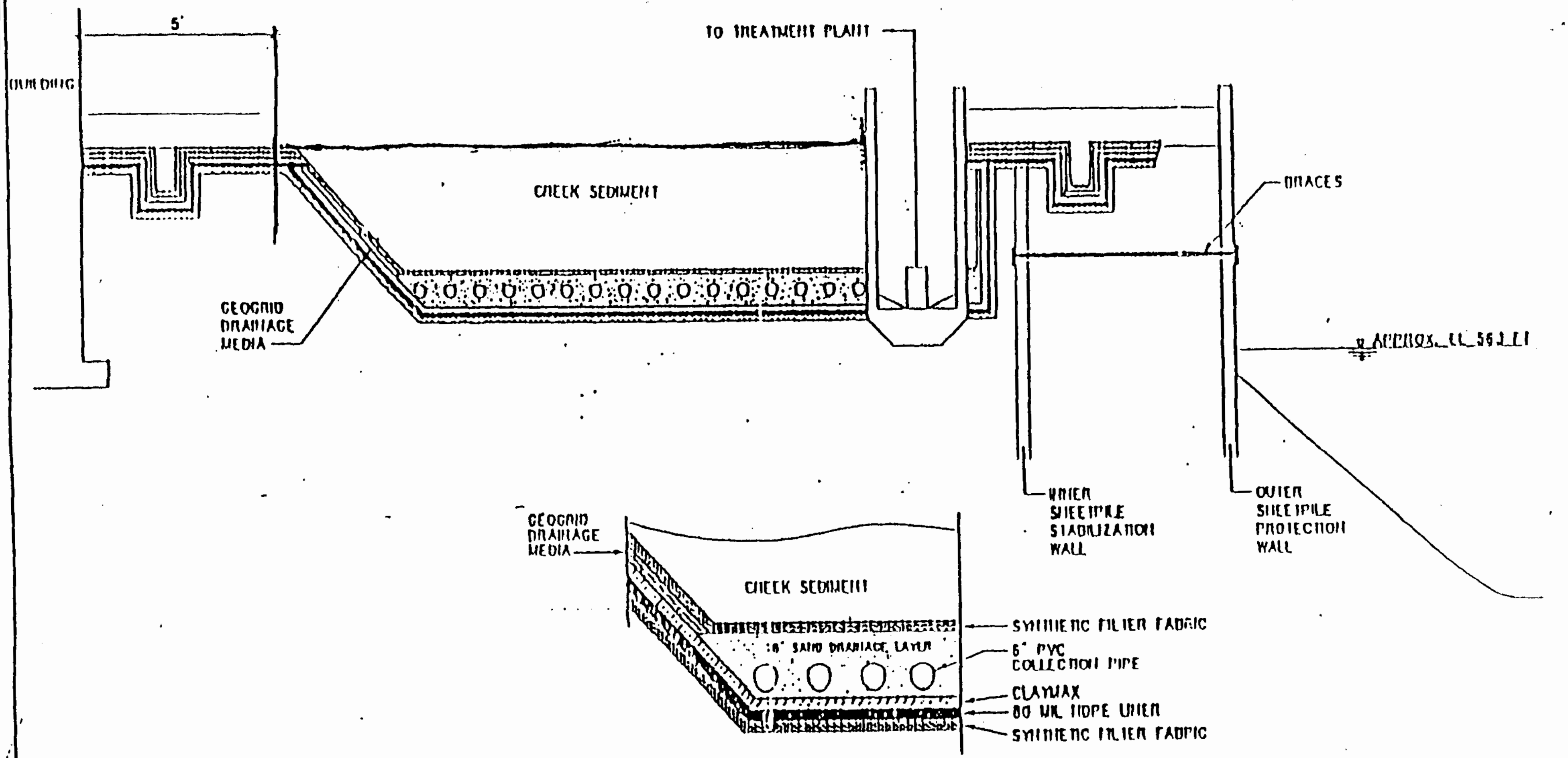
MALCOLM PIRNIE

COL01320

View of Impoundment for
De-watering of Sediments

FIGURE 12

[redacted]



De-watering facility for Sediments

MALCOLM PIRNIE

FIGURE 13

APPENDIX B

TABLES

MALCOLM PIRNIE

TABLE 1

COLUMBUS McKINNON CORP.

SUMMARY OF HISTORIC GROUND WATER MONITORING DATA (ug/l)

DATE	REFERENCE	SAMPLED BY	PARAMETER	* OW 1-83	* OW 2-83	DUPLICATE	FIELD BLANK	COMMENTS
8/15/83	(1)	AES	THO TVHO PCBs	1.7 19 ND	74 3142 ND		ND 3 4 ND	
10/20/83	(1)	AES	TVHO TCE Tetrachloroethene Methylene Chloride	39	1844 56 34 72	2710 58 31 162	15 ND ND ND	
8/27/84	(1)	AES	Vinyl Chloride Trans 1,2-DCE		160 160		ND ND	Tested for 113 organic Organic priority pollutants
1/14/85	(2)	AES	Vinyl Chloride Trans 1,2-DCE		115 100			Sample split with NYSDEC
9/25/85	(3)		TCE Vinyl Chloride 1,1-DCE		120 290 129			No semi volatiles detected

REFERENCES:

(1) "Ground Water and Additional Sampling Program," report prepared by Advanced Environmental Systems, Inc. for Columbus McKinnon Corp. dated December 1983.

(2) "OW-2 Groundwater Sample Split with the DEC," report prepared by Advanced Environmental Systems, Inc. for Columbus McKinnon Corp. dated February 18, 1985.

(3) NYSDEC, December 1985; Letter to Mr. John Dicky from Mr. Peter Beuchi, NYSDEC.

ND = Not Detected.

* = Earth Dimensions, Inc. installed Wells OW 1-83 and OW 2-83 on August 8 and 9, 1983.

TABLE 2

COLUMBUS McKINNON CORP.

HISTORIC CREEK SEDIMENT TOTAL PCB ANALYTICAL RESULTS
(mg/kg)

<table>
<tr><th rowspan="2">Date</th><th rowspan="2">Distance from Bank (ft)</th><th colspan="8">L O C A T I O N</th></tr>
<tr><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th></tr>
<tr><td rowspan="2">10/8/82
(1)</td><td>5</td><td><0.12</td><td></td><td>107</td><td>366</td><td></td><td></td><td></td><td></td></tr>
<tr><td>15</td><td>1.5</td><td>10</td><td>127</td><td>222</td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">10/29/82
(1)</td><td>5</td><td></td><td></td><td></td><td></td><td>18</td><td><0.43</td><td><2.9</td><td><3.3</td></tr>
<tr><td>15</td><td></td><td></td><td></td><td></td><td>10.1</td><td><0.36</td><td><0.26</td><td></td></tr>
<tr><td rowspan="2">7/6/83
(1)</td><td>15</td><td></td><td colspan="2">0.97*</td><td colspan="2">19*</td><td></td><td></td><td></td></tr>
<tr><td>25</td><td>0.29</td><td></td><td>0.33</td><td>0.39</td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">1/16/86
(2)</td><td>15</td><td></td><td colspan="2">8.8 11* 53</td><td colspan="2">60 9.7*</td><td></td><td></td><td></td></tr>
<tr><td>25</td><td></td><td></td><td>2.4</td><td>40</td><td></td><td></td><td></td><td></td></tr>
</table>

NOTES:

* Sample Collected between two locations.

(1) "Groundwater and Additional Sampling Program" report prepared for Columbus McKinnon Corp. by Advanced Environmental Systems, Inc., December 1983.

(2) "Ellicott Creek Surface Sediment, Re-analysis for PCBs" report prepared for Columbus McKinnon Corp. by Advanced Environmental Systems, Inc., July 1986.

TABLE 3

COLUMBUS McKINNON CORP.

HISTORIC PCB CONCENTRATION (mg/Kg) OF "AT DEPTH" CREEK SEDIMENT SAMPLES[1]

SAMPLE LOCATION		3	3	4	4
DISTANCE FROM SHORE (ft)		5	20	7	17
DEPTH OF SAMPLE:					
0 - 0.5 ft below creek bottom	PCB 1260 PCB 1254 PCB 1242	<0.5 0.9 (14)* <0.6	BDL 0.9 BDL	1.0 16 <1.0	BDL 0.1 BDL
0.5 - 1 ft below creek bottom	PCB 1260 PCB 1254 PCB 1242	No Sample	<0.2 4.9 <0.2	No Sample	BDL BDL BDL
1 - 1.5 ft below creek bottom	PCB 1260 PCB 1254 PCB 1242	No Sample	BDL 0.3 BDL	No Sample	BDL BDL BDL
1.5 ft - 2.0 ft below creek bottom	PCB 1260 PCB 1254 PCB 1242	No Sample	BDL 0.02 BDL	No Sample	BDL 0.02 BDL

NOTES:

Analysis performed by Advanced Environmental Systems.

* indates duplicate analysis

(1) This table from "Depth of PCBs at Four Locations in Ellicott Creek," report prepared by Advanced Environmental Systems, Inc. and Conestoga Rovers Associates, dated July 1985.

TABLE 4

COLUMBUS McKINNON CORPORATION

SUMMARY OF SOIL CONTAMINANT CHARACTERIZATION RESULTS FOR NORTH AREA

PARAMETER	DEPTH INTERVAL (FEET)	NUMBER OF OCCURRENCES/ NUMBER OF ANALYSES	ADJUSTED DRY WEIGHT BASIS(6)	
			Concentration Range (ppm)	Average Conc.(4,5) (ppm)
Total PCBs(1,2)	0-2	21/30	0.36 - 125	20
	4-8	9/31	0.32 - 16	1.5
	8-16	2/9	1.8 - 33(3)	4.0 (0.37)
Cadmium	0-2	9/10	0.63 - 7.9	4.0
	4-8	8/31	1.3 - 233(3)	9.5 (2.0)
	8-16	0/10	ND	<0.5
Chromium	0-2	10/10	6.5 - 300(3)	65 (39)
	4-8	31/31	7.7 - 200(3)	32 (20)
	8-16	9/9	7.7 - 35	17
Nickel	0-2	10/10	9.3 - 96	36
	4-8	31/31	6.0 - 417(3)	48 (27)
	8-16	9/9	12 - 38	23
Lead	0-2	10/10	16 - 1200(3)	215 (105)
	4-8	31/31	4.8 - 1100(3)	75 (41)
	8-16	9/9	7.3 - 90(3)	19 (11)

NOTES:

(1) Includes both historic and present RI data
(2) Only Arochlor 1254 detected.
(3) Outlier value
(4) Average computed without outlier value is in parentheses.
(5) Nondetections were averaged at the applicable detection limit and duplicate analyses were averaged prior to computing the North Area Averages.
(6) Historic data was reported on a dry weight basis; present RI data was reported on a wet weight basis and recalculated to a dry weight basis using the methods as described in Section 6.3.1.

MALCOLM PIRNIE

TABLE 4 cont.

COLUMBUS McKINNON CORPORATION

SUMMARY OF SOIL CONTAMINANT CHARACTERIZATION RESULTS FOR CENTRAL AREA

PARAMETER	DEPTH INTERVAL (FEET)	NUMBER OF OCCURRENCES/ NUMBER OF ANALYSES	ADJUSTED DRY WEIGHT BASIS(6)	
			Concentration Range (ppm)	Average Conc.(4,5) (ppm)
Total PCBs(1,2)	0-2	46/46	0.22 - 2220(3)	249 (205)
	2-4	21/21	0.17 - 934	155
	4-8	39/43	0.04 - 153	23
	8-16	3/15	0.30 - 5.0	0.52
Cadmium(1)	0-2	10/12	1.1 - 28	10
	2-4	3/4	5.6 - 31	14
	4-8	14/22	1.4 - 45	7.7
	8-16	3/17	1.0 - 2.3	0.84
Chromium(1)	0-2	12/12	14 - 351	139
	2-4	4/4	29 - 154	101
	4-8	22/22	7.2 - 375	98
	8-16	17/17	4.4 - 18	12
Nickel(1)	0-2	12/12	19 - 1038	310
	2-4	4/4	194 - 614	411
	4-8	22/22	15 - 925	250
	8-16	17/17	11 - 30	20
Lead(1)	0-2	12/12	19 - 6750(3)	1017 (496)
	2-4	4/4	35 - 2638	1357
	4-8	22/22	5.9 - 2250	434
	8-16	16/17	5.2 - 233(3)	24 (11)

NOTES:

(1) Includes both historic and present RI data
(2) Only Arochlor 1254 detected.
(3) Outlier value
(4) Average computed without outlier value is in parentheses.
(5) Nondetections were averaged at the applicable detection limit and duplicate analyses were averaged prior to computing the Central Area Averages.
(6) Historic data was reported on a dry weight basis; present RI data was reported on a wet weight basis and recalculated to a dry weight basis using the methods described in Section 6.3.1.

TABLE 4 cont.

COLUMBUS McKINNON CORPORATION

SUMMARY OF SOIL CONTAMINANT CHARACTERIZATION RESULTS FOR SOUTH AREA

PARAMETER	DEPTH INTERVAL (FEET)	NUMBER OF OCCURRENCES/ NUMBER OF ANALYSES	ADJUSTED DRY WEIGHT BASIS[6]	
			Concentration Range (ppm)	Average Conc.[4,5] (ppm)
Total PCBs[1,2]	0-2	18/21	0.63 - 427[3]	51 (32)
	4-8	7/10	0.45 - 4.8	1.7
	8-16	1/11	ND - 28[3]	2.7 (ND)
Cadmium	0-2	7/7	1.9 - 114	48
	4-8	10/10	0.8 - 45	13
	8-16	1/11	ND - 1.3	0.60
Chromium	0-2	7/7	59 - 688	391
	4-8	10/10	26 - 457	244
	8-16	11/11	11 - 165[3]	30 (16)
Nickel	0-2	7/7	75 - 1250	692
	4-8	10/10	56 - 2750[3]	602 (364)
	8-16	11/11	20 - 1267[3]	136 (23)
Lead	0-2	7/7	313 - 16,250[3]	5020 (3148)
	4-8	10/10	0.6 - 3750	1826
	8-16	11/11	3 - 217[3]	41 - (8.6)

NOTES:

(1) Includes both historic and present RI data

(2) Only Arochlor 1254 detected.

(3) Outlier value

(4) Average computed without outlier value is in parentheses.

(5) Nondetections were averaged at the applicable detection limit and duplicate analyses were averaged prior to computing the South Area Averages.

(6) Historic data was reported on a dry weight basis; present RI data was reported on a wet weight basis and recalculated to a dry weight basis using the methods as described in Section 6.3.1.

TABLE 5
COLUMBUS MCKINNON CORPORATION
TONAWANDA FACILITY
GROUND WATER SAMPLE RESULTS

PARAMETER (1)	MW-1S			MW-1I			MW-2S			MW-2I			MW-3			MW-4*	MW-2I **	
	MAY 1990	MAY 1991		MAY 1990	MAY 1991		MAY 1990	MAY 1991		MAY 1990	MAY 1991		MAY 1990	MAY 1991		MAY 1990	MAY 1991	
	TOTAL	TOTAL	FF	TOTAL	TOTAL	FF	TOTAL	TOTAL	FF	TOTAL	TOTAL	FF	TOTAL	TOTAL	FF	TOTAL	TOTAL	FF
PCBs (ug/l)																		
PCB-1254	2	<1.1	<1.3	<1.0	<1.1	<1.0	40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PCB-1242	<0.5	<0.54	<0.63	<0.5	<0.55	<0.50	<0.5	<0.50	<0.50	0.7	<0.50	<0.50	<0.5	<0.50	<0.50	<0.5	<0.50	<0.50
VOLATILE ORGANICS (ug/l)																		
Methylene Chloride	<1.0	7.9B	-	<1.0	2.3B	-	<1.0	8.6B	-	<1.0	8.6B	-	<1.0	7.4B	-	<1.0	4.1B	-
Chloroethane	<1.0	<5.2	-	<1.0	<5.2	-	3	<5.2	-	<1.0	<5.2	-	<1.0	<5.2	-	<1.0	<5.2	-
1,1-Dichloroethane	<1.0	<0.70	-	<1.0	<0.70	-	3	2J	-	<1.0	<0.70	-	<1.0	<0.70	-	<1.0	<0.70	-
cis-1,2-Dichloroethylene	<1.0	NA	-	<1.0	NA	-	4	NA	-	<1.0	NA	-	<1.0	NA	-	<1.0	NA	-
Tetrachloroethylene	<1.0	1.6B	-	<1.0	0.58B	-	1	8.9J	-	<1.0	1.5B	-	<1.0	0.85B	-	<1.0	0.59B	-
Trichloroethylene	<1.0	<1.2	-	<1.0	<1.2	-	4	12J	-	<1.0	<1.2	-	<1.0	<1.2	-	<1.0	<1.2	-
METALS (ug/l)																		
Cadmium	9	<5.0	<5.0	<1.0	<5.0	<5.0	8	<5.0	<5.0	<1.0	<5.0	<5.0	1	<5.0	<5.0	<1.0	<5.0	<5.0
Chromium	50	14	<10	<5.0	<10	<10	130	<10	<10	<5.0	<10	<10	8	<10	<10	<5.0	<10	<10
Nickel	90	<40	<40	<4.0	<40	<40	410	88	82	<4.0	<40	<40	<4.0	<40	<40	<4.0	<40	<40
Lead	150	22	<3.0	<5.0	<3.0	<3.0	240	<3.0	<3.0	<5.0	<3.0	<3.0	20	<3.0	<3.0	<5.0	<3.0	<3.0

NOTE:

1. Only those parameters are shown for which any value above laboratory detection limits was found.

< - Not detected at a concentration greater than the indicated method detection limit.

NA - Not analyzed

FF- Field Filtered

B- Estimated detection limit due to blank contamination.

J- Estimated value due to limitations identified during the quality control review.

* Field duplicate of MW-1I for MAY 1990.

** Field duplicate of MW-2I for MAY 1991.

TABLE 5 cont.

COLUMBUS McKINNON CORP.

SUMMARY OF FIELD MEASUREMENT DURING GROUND WATER SAMPLING[1]

Parameter	MW-1S		MW-1I		MW-2S		MW-2I		MW-3	
	May '90	May '91	May '90	May '91	May '90	May '91	May '90	May '91	May '90	May '91
pH (units)	7.27	7.41	6.85	7.06	7.06	7.23	6.87	7.54	7.07	7.31
Specific Conductivity (umhos/cm)	565	410	1300	800	1490	700	1275	940	1020	650
Temperature (°C)	11.3	10.2	12.4	11.7	11.6	12.6	12	17.3	9.6	10.1
Turbidity (NTU)	>100	37	50	4.7	>100	33	34	4	>100	15
Visual Appearance	Sheen noted; silty	Color, some floc	Clear	Clear	Silty	Color, some floc	Clear	Clear	Silty	Clear
Water Level (ft below TOR)	6.50	6.75	5.51	6.20	8.41	8.92	8.05	8.62	6.05	6.40
Free Product Level	None	None	None	None	None	None	None	None	None	None

NOTE (1): Sampling conducted May 18, 1990 and May 1-2, 1991.

Table 5A

1G

ORGANOCHLORINE PESTICIDES/PCB'S ANALYSIS DATA SHEET
METHOD 608

SAMPLE NO.: A58511

Lab Name: RECRA ENVIRONMENTAL, INC. Case No.: SH991 SDG No.: 1205

Matrix: Water Date Received: 12/5/91

Sample Vol: 900 ml* Date Extracted: 12/6/91

Column: DB608 #118 Date Analyzed: 12/10/91

Lab Sample ID: SW 5555 Dilution Factor: 1.0

COMPOUND	CONCENTRATION UNITS: ug/l	Q
Aroclor-1016	0.072	U
Aroclor-1221	0.072	U
Aroclor-1232	0.072	U
Aroclor-1242	0.072	U
Aroclor-1248	0.072	U
Aroclor-1254	0.21	
Aroclor-1260	0.072	U

* Final volume is 1.0 ml.

TABLE 6

COLUMBUS MCKINNON CORPORATION

TONAWANDA FACILTY

CREEK SEDIMENT SAMPLE RESULTS

PARAMETER	DL(2)	Creek Sediment #1	Creek Sediment #2	Creek Sediment #3	Creek Sediment #4	Creek Sediment #5	Creek Sediment #6
PCB'S (mg/kg) (1)							
PCB-1254	0.16	0.39 (0.83)	0.48 (1.0)	0.25 (0.53)	ND (ND)	41 (87)	2.6 (5.5)
METALS (mg/kg)							
Cadmium	0.5	0.7 (1.5)	0.8 (1.7)	0.8 (1.7)	ND (ND)	1.4 (3.0)	1 (2.1)
Chromium	1.0	12 (26)	9 (19)	14 (30)	6.4 (14)	17 (36)	20 (43)
Nickel	2.0	11 (23)	8.9 (19)	11 (23)	5.3 (11)	26 (55)	17 (36)
Lead	2.5	47 (100)	29 (62)	67 (143)	23 (49)	59 (126)	68 (145)

PARAMETER	DL(2)	Creek Sediment #7	Creek Sediment #8	Creek Sediment #9	Creek Sediment #10	Creek Sediment #11*
PCB'S (mg/kg) (1)						
PCB-1254	0.16	9 (19)	ND (ND)	9.3 (20)	1.5 (3.2)	0.27J (0.57)
METALS (mg/kg)						
Cadmium	0.5	0.6 (1.3)	0.6J (1.3)	2.4 (5.1)	0.7 (1.5)	ND (ND)
Chromium	1.0	16 (34)	11 (23)	23 (49)	19 (40)	9.8 (21)
Nickel	2.0	20 (43)	9 (19)	23 (49)	14 (30)	7.2 (15)
Lead	2.5	130 (277)	38 (81)	50 (106)	77 (164)	34 (72)

NOTE:

1. Arochlor 1254 was the only PCB detected.
2. Analytical Detection Limit

ND - Not detected at a concentration greater than the indicated detection limit.

* Field duplicate of Creek Sediment #8

Concentrations shown in parentheses are the adjusted dry weight concentrations that were calculated according to the procedure described in Section 6.3.3.

Table 6A

New York State Department of Environmental Conservation

MEMORANDUM

TO: Mr. Abul Barkat
FROM: Dr. Frances Yang F.Y.
SUBJECT: PCB's Analysis of Sediment Samples from Columbus McKinnon Site

DATE: December 18, 1991

On December 13, 1991, two sediment samples taken from Ellicott Creek of Columbus McKinnon site, were submitted for PCB's analysis.

USEPA Methods 3550, 3620 and 8080 were used for the analysis, with method detection limit of 0.5 ppm.

Sample Designations:

DEC-47 -- Sample taken at mid-point of Rip-Rap
DEC-48 - Sample taken at upstream end of Rip-Rap

Results:

Sample Designation	% Dry Weight	Aroclor 1254
DEC-47	45%	2.4 PPM
DEC-48	35%	1.4 PPM

vam
cc: Mr. Peter Buechi

Table 7

COLUMBUS McKINNON CORP.
FEASIBILITY STUDY

REMEDIAL ALTERNATIVES AND THEIR POTENTIAL ACTION-SPECIFIC ARARs AND TBCs

Federal ARARs	Description/Requirements	Corresponding NYS ARARs	Containment/ Capping	Creek Bed Stabilization	Excavate/Treat		Dredge/Treat		InSitu Vitrification, (Technology)	Volume Reduce, Soil Wash (Technology)	Incinerate (Technology)
					Off-Site Disposal	On-Site Disposal	Off-Site Disposal	On-Site Disposal			
TSCA 40 CFR 761.75	Chemical Waste Landfill Requirements		RA	N/A	A	RA	A	RA	N/A	N/A	N/A
TSCA 40 CFR 761.120-139	* PCB Spill Cleanup Policy (EPA does consider ARAR)		N/A	N/A	N/A	N/A	N/A	N/A	N/A	TBC	TBC
TSCA 40 CFR 761.60(e)(i)	Alt.Treatment Chemical Waste		N/A	N/A	A	A	A	A	A	A	N/A
TSCA 40 CFR 761.70	* Special Performance Standards for Incineration of PCBs		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A
OSHA 29 CFR 1910	Workers Engaged in Response Actions		A	A	A	A	A	A	A	A	A
RCRA 40 CFR 264.228	Surface Impoundments: Closure & Post-Closure Care	6NYCRR 373-2.11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RCRA 40 CFR 264.258	Waste Piles: Closure & Post-Closure Reqmts	6NYCRR 373-2.12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RCRA 40 CFR 264.301 & 264.310(a)(b)	Landfills: Closure & Post-Closure Care (30 yr)	6NYCRR 373-2.14	RA	N/A	N/A	N/A	N/A	RA	N/A	N/A	N/A
RCRA 40 CFR 264.228(a) & (b)	Closure & Post-Closure Secure Landburial Facility	6NYCRR 373-2.7 & 373-2.14(g)	RA	N/A	N/A	RA	N/A	RA	N/A	N/A	N/A
RCRA 40 CFR 264.117(c)	Use of Property/Post-Closure Requirements	6NYCRR 373-2.7(g)	RA	N/A	N/A	RA	N/A	RA	A	N/A	N/A
RCRA 40 CFR 264.278	* Subsurface Monitoring Rqmts (Land Treatment)	6NYCRR 373-2.14(c); 373-2.6(h)	N/A	N/A	N/A	N/A	N/A	N/A	RA	N/A	N/A
RCRA 40 CFR 264.111	Closure reqmts to Minimize Maintenance & Eng. Controls	6NYCRR 373-2.7(b)	RA	RA	N/A	A	N/A	A	A	N/A	N/A

LEGEND:
N/A Not applicable or relevant and appropriate
A Applicable
RA Relevant and appropriate
TBC To be considered
* Technology-specific

Table 7 cont.

COLUMBUS McKINNON CORP.
FEASIBILITY STUDY

REMEDIAL ALTERNATIVES AND THEIR POTENTIAL ACTION-SPECIFIC ARARs AND TBCs

Federal ARARs	Description/Requirements	Corresponding NYS ARARs	Containment/ Capping	Creek Bed Stabilization	Excavate/Treat		Dredge/Treat		InSitu Vitrification, (Technology)	Volume Reduce, Soil Wash (Technology)	Incinerate (Technology)
					Off-Site Disposal	On-Site Disposal	Off-Site Disposal	On-Site Disposal			
RCRA 40 CFR 264.178 & Tank System .197 & .288 & 258	Closure Reqmts/Decon of all residues/equipment	6NYCRR 373-2.7(e)	N/A	N/A	RA	RA	RA	RA	N/A	RA	N/A
RCRA 40 CFR 264.221 & 251	Des. & Oper. Proc. for Surface Imp & Waste Piles	6NYCRR 373-2.11(b); 2.12(b); 2.14(d)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RCRA 40 CFR 264.373	• Thermal Treatment Requirements	6NYCRR 373-3.16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A
RCRA 40 CFR 268(D)	Land Ban Restrictions & Storage		N/A	N/A	A	RA	A	RA	N/A	N/A	N/A
RCRA 264.340-399 Subpart O)	• Performance Standards for Incinerators	6NYCRR 373-3.15; 6NYCRR 219	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A
RCRA 40 CFR 264.230	Surface Impoundments/ Incompatible Waste Reqmts	6NYCRR 373-2.14(h-m)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RCRA 40 CFR 263	Generator Reqmt for Manifesting Waste for Off-Site Disposal	6NYCRR 373-2.5	N/A	N/A	A	N/A	A	N/A	N/A	N/A	N/A
RCRA 40 CFR 270	Transporter Reqmts for Off-Site Disposal		N/A	N/A	A	N/A	A	N/A	N/A	N/A	N/A
RCRA 40 CFR 264.191-195	Tank Storage Design Reqmts	6NYCRR 373-2.10	N/A	N/A	N/A	N/A	A	A	N/A	A	N/A
RCRA 40 CFR 264.314	Non-containerized Liquid Hazardous Waste May Not be Landfilled		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RCRA 40 CFR 761.70	Incineration of Liquid & Non-Liquid PCBs >50 ppm		N/A	N/A	A	A	A	A	N/A	A	A
RCRA 40 CFR 264.171 & 172	Storage of RCRA Hazardous Waste (Waste Reduction) Lead	6 NYCRR 373-3.9 (Lead & PCB	N/A	N/A	A	A	A	A	N/A	A	A

LEGEND:
N/A Not applicable or relevant and appropriate
A Applicable
RA Relevant and appropriate
TBC To be considered
• Technology-specific

Table 7 cont.

COLUMBUS McKINNON CORP.
FEASIBILITY STUDY

REMEDIAL ALTERNATIVES AND THEIR POTENTIAL ACTION-SPECIFIC ARARs AND TBCs

Federal ARARs	Description/Requirements	Corresponding NYS ARARs	Containment/ Capping	Creek Bed Stabilization	Excavate/Treat		Dredge/Treat		InSitu Vitrification, (Technology)	Volume Reduce, Soil Wash (Technology)	Incinerate (Technology)
					Off-Site Disposal	On-Site Disposal	Off-Site Disposal	On-Site Disposal			
	Chemical Physical & Biological Treatment Requirements	6NYCRR 373-3.17	N/A	N/A	A	A	A	A	A	A	A
33 CFR 320-330, 40 CFR 230 and 33 USACOE 403	Conditions Required Before Dredge & Fill is an Allowable Alternative		N/A	N/A	N/A	N/A	A	A	NA	N/A	N/A
NESHAP 40 CFR 61 and Nat'l Ambient Air Quality Standards	Air Emission Standards	NYS Air Guidelines for Control of Toxins (Air Guide 1)	A	N/A	A	A	N/A	N/A	A	A	A
40 CFR 122.41	Discharge Monitoring Rqmts (Liquid) to Creek	6NYCRR 750-758/ TOG 1.6.1 Temp.Disch. NYS Regional App.	N/A	N/A	N/A	N/A	A	A	N/A	N/A	N/A
40 CFR 125.1	Best Management Practices to Prevent Toxic Release to Surface Water		RA	RA	RA	RA	RA	RA	RA	RA	RA
40 CFR 403.5	Discharge to Local POTW/ Must Comply w/POTW Permit		N/A	N/A	N/A	N/A	A	A	N/A	N/A	N/A
40 CFR 136.1 -	Use Approved Test Methods & QA/QC for Monitoring Effluent		N/A	N/A	N/A	N/A	TBC	TBC	N/A	TBC	TBC
		Toxicity Testing: TOG 1.3.2 Analytical Detectability: TOG BS-W-40	N/A	N/A	N/A	N/A	TBC	TBC	N/A	TBC	TBC
49 CFR 107, 171	DOT Rules for Hazardous Materials Transport		N/A	N/A	A	N/A	A	N/A	N/A	A	N/A

LEGEND
N/A Not applicable or relevant and appropriate
A Applicable
RA Relevant and appropriate
TBC To be considered

* Technology-specific

TABLE 8
COLUMBUS MCKINNON
POTENTIAL LOCATION-SPECIFIC ARARs

Federal/State ARARs	Description/Requirements	
40 CFR 230, 30 USACOE CWA Sec. 404	Prohibit Discharge of Dredge into Wetland 50 CFR 35.1/Wilderness Act 16 USC 1131	N/A
6 NYCRR 662-665, Article 24 Env. Conservation Law Freshwater Wetlands Act	Protection of Freshwater Wetlands	N/A
50 CFR 35.1/Wilderness Act 16 USC 1131	Preserve Wilderness Area (if Classified a Wilderness Area)	N/A
50 CFR 27/16 USC 668	Wildlife Refuge Considerations/Actions	N/A
40 CFR 6.301/16 USC 661 (Fish & Wildness)	Prohibit Channeling or Diversion & Other Stream Modifications, 40 CFR 6.302(e)/ Wild & Scenic Rivers	N/A
40 CFR 6.302(e)/Wild & Scenic Rivers	Avoid Activities that will Affect these Rivers (Niagara River), 16 USC 1451 Coastal Zone Management	N/A
40 CFR 264.18(a)	TSD of Hazardous Waste Prohibited within 200 feet of a Fault	N/A
40 CFR 264.18(b)	Design TSD Facility to Avoid Washout if within 100-yr Flood Plain	RA
40 CFR 6 Appendix A, Fish & Wildlife Act 16 USC 661	Actions within Flood Plain/Lowland/Flat - Minimize Potential Harm	A
36 CFR Part 65 & 800; 16 USC 469 & 470	Action to Recover and Preserve Artifacts at Historic Property	N/A
33 CFR Parts 320-330; 16 USC 661, 50 CFR 200	Action to Conserve Endangered Species or Threatened Species	N/A
6 NYCRR Part 608, Use and Protection of Waters, Water Quality Certification	Disturbance of Protected Streams	A
Clean Water Act Section 404	Fill in Waters in the United States	A
Clean Water Act Section 10, Rivers & Harbors	Excavation in Navigable Waters	A

LEGEND

N/A Not applicable or relevant and appropriate
A Applicable
RA Relevant and appropriate

Table 9

COLUMBUS McKINNON CORP.
FEASIBILITY STUDY

POTENTIAL CHEMICAL-SPECIFIC ARARs AND TBCs

FEDERAL CHEMICAL-SPECIFIC ARARs				NYS CHEMICAL-SPECIFIC ARARs		
Medium		Lead	PCBs		Lead	PCBs
Water	40 CFR 264.94 RCRA MCL	($5.0x10^{-2}$ mg/L) RA	*	6NYCRR 703.5 Ground Water Quality Standards	($2.5x10^{-2}$)mg/L A	($1x10^{-4}$ mg/L) A
	40 CFR 141.50 - 141.51 SDWA MCL	N/A	N/A	10NYCRR 5 MCLs (Dept. of Health Drinking Water	N/A	*
	CWA Water Quality Criteria (Human Health) F&W/F	($5.0x10^{-2}$/mg/L) A	($7.9x10^{-8}$/$7.9x10^{-8}$ mg/L) A	6 NYCRR 750-758 (SPDES)	TBC	TBC
	CWA Ambient Water Quality (Aquatic Life) Acute/Chronic	($8.0x10^{-2}$/$3.2x10^{-3}$ mg/L) A	($2.0x10^{-3}$/$1.4x10^{-5}$ mg/L) A	6NYCRR 701 & 702 Ambient Water Quality Standards	(**) A	(.001 mg/l) A
Soils/Sediments	40 CFR 761 PCB Spill Cleanup Policy	*	(25 ppm) TBC	Soil Cleanup Criteria Draft DEC TAGM 6/91 H_2O/Soil	TBC	TBC (1 ppm)
				NYSDEC Fish and Wildlife Sediment Criteria Document Proposed DEC TAGM (12/89)	N/A	TBC
Air	40 CFR 50 National Ambient Air Quality Std	(3-month avg. 1.5 ug/m^3) A	*	6NYCRR 256 & 257 Ambient Air Quality Stds. (Air Guide 1)	*	*
	40 CFR 61 NESHAPS	*	*	NYS Air Guidelines for Control of Toxins (Air Guide 1)	*	Short-term 0.1 ug/m^3 Annual $4.5x10^{-4}$ ug/m^3

* = Not available
** = The standard for Class B waters is derived by the formula exp. (1.266[hardness] - 4.661)
F&W = Fish & Water Consumption
F = Fish Consumption Only
N/A = Not Applicable
TBC = To Be Considered
DL = Detection Limit

COLUMBUS McKINNON CORP.
FEASIBILITY STUDY

TABLE 10
SUMMARY OF REMEDIAL ALTERNATIVES

Remedial Technology	Description	Cost ($1000s) Capital	Annual O&M[1]	Present Worth
Environmental Medium - Creek Bank				
No Action	Creek bank remains with existing IRM on Central Area bank and portion of South Area bank	0	5	51
Extension of IRM	Creek bank IRM is extended across South Area (80 feet) and North Area (110 feet)	292	4.5	343
Containment w/Revetment Fabric	Concrete-filled revetment fabric placed across entire creek bank	354	4.2	401
Excavation to Water Line Behind Sheetpiling, Off-Site Disposal	Sheeting installed at top of bank and at water line; soils excavated and disposed off-site.	845	-	845
Excavation to Water Line Behind Sheetpiling, Off-Site Incineration	Sheeting installed at top of bank and at water line; soils excavated and incinerated off-site.	2.1M	-	2.1M
Environmental Medium - Study Area Soils				
No Action	Site remains with existing remedial measures: • plastic sheeting over area of highest contamination • access restricted by fencing	0	6.5	74
Institutional Controls	Controls such as fencing, signs, etc. are implemented	13	6.9	90
Topsoil Cover	Site covered with topsoil	153	7.5	238
Gravel Cover	Site covered with crushed gravel	150	6.9	228
Asphalt Cover	Site covered with asphalt	203	7.6	288
Synthetic/Soil Cover System	Site covered with synthetic and soil layers	220	7.6	305
Excavation Without Sheet-piling, Off-Site Incineration of Soils	Excavation of contaminated soils, 2:1 slope maintained at buildings, creek bank and RR embankment. Soils incinerated off-site.	6.1M	-	6.1M
Excavation of "Principal Threat" Soils, Off-site Incineration of Soils	Soils exhibiting PCB concentrations >500 mg/Kg excavated and incinerated off-site	1.3M	7.5	1.4M
Excavation With Sheetpiling, Off-Site Incineration of Soils	Excavation of contaminated soils, sheetpiling stabilization at building foundations, RR embankment, and top of creek bank. Soils incinerated off-site.	8.2M	-	8.2M
Excavation Without Sheetpiling, Off-Site Disposal of Soils	Excavation of contaminated soils, 2:1 slope maintained at buildings, creek bank and RR embankment. Disposal of soils off-site.	1.6M	-	1.6M

NOTE: assumes 30-year O&M costs at 8% interest

COLUMBUS McKINNON CORP.
FEASIBILITY STUDY

TABLE 10 (Cont'd)
SUMMARY OF REMEDIAL ALTERNATIVES

Remedial Technology	Description	Cost ($1000s) Capital	Annual O&M[1]	Present Worth
Environmental Medium - Study Area Soils (continued)				
Excavation of "Principal Threat" Soils, Off-site Disposal of Soils	Soils exhibiting PCB concentrations >500 mg/Kg excavated and disposed off-site.	509K	7.6	594K
Excavation With Sheetpiling, Off-Site Disposal of Soils	Excavation of contaminated soils, sheetpiling stabilization at building foundations, RR embankment, and top of creek bank. Disposal of soils off-site.	2.2M	-	2.2M
Environmental Medium - Stream Sediments				
No Action	Sediments remain partially covered by creek bank IRM	-	1.3	14.4
Containment - Synthetic Fabric/Rip-rap	Sediments covered by erosion control fabric stabilized w/riprap	250	9.2	363
Containment - Revetment Fabric	Sediments covered by concrete-filled revetment fabric	138	9.2	242
Remove IRM, Hydraulic Dredge All Study Area Sediments, Off-Site Disposal	Silt curtain installed; IRM removed. Portable cutterhead pumps sediments to on-site impoundment for dewatering; dewatered sediments hauled to secure landfill for disposal.	1.6M	-	1.6M
Remove IRM, Hydraulic Dredge All Study Area Sediments, Off-Site Incineration	Silt curtain installed; IRM removed. Portable cutterhead pumps sediments to on-site impoundment for dewatering; dewatered sediments hauled to off-site incineration facility.	3.6M	-	3.6M
Remove IRM, Hydraulic Dredge All Study Area Sediments, On-Site Disposal in Impoundment	Silt curtain installed; IRM removed. Portable cutterhead pumps sediments to on-site impoundment for dewatering and final containment if found to contain less than 10 mg/kg PCBs	1.4M	-	1.4M
Hydraulic Dredge Study Area sediments around IRM, Off-Site Disposal	Silt curtain installed, portable cutter head pumps sediments around IRM to on-site impoundment for dewatering; de-watered sediments hauled to secure landfill for disposal	2.4M	9.2	2.5M
Hydraulic Dredge Study Area sediments around IRM, Off-Site Incineration	Silt curtain installed, portable cutter head pumps sediments around IRM to on-site imoundment for dewatering; de-watered sediments hauled to off-site incineration facility.	3.5M	9.2	3.6M
Hydraulic Dredge Study Area sediments around IRM, On-Site Disposal in Impoundment	Silt curtain installed; portable cutter head pumps sediments around IRM to on-site impoundment for dewatering and final containment if found to contain less than 10 mg/kg PCBs	1.3M	9.2-	1.4M

NOTE: (1) assumes 30-year O&M costs at 8% interest.

TABLE 11

COLUMBUS MCKINNON

PRELIMINARY COST ESTIMATE OF THE PREFERRED ALTERNATIVE

ITEM/MATERIAL	UNITS	QUANTITY	UNIT COST	ESTIMATED COST
A. CREEK BANK				
Remove IRM Above Water Level	LS	1	$3,000.00	$3,000.00
Silt Curtain	LS	1	$5,000.00	$5,000.00
Stabilize w/ Sheetpiling	LF	710	$400.00	$284,000.00
Temp Facilities/ General Construction	LS	1	$28,000.00	$28,000.00
Access Improvements	LS	1	$6,000.00	$6,000.00
Excavate Contaminated Soils	CY	500	$20.00	$10,000.00
Rent Boxes/Haul/Dispose	CY	500	$400.00	$200,000.00
Barge/Crane/Crew Rental	LS	1	$105,250.00	$105,250.00
Decon Pad Construction	LS	1	$25,000.00	$25,000.00
Remove/Replace Existing Fence	LF	270	$35.00	$9,450.00
Install New Fence	LF	300	$18.00	$5,400.00
Sheetpiling Backfill (Furnish, Haul, Grade)	CY	800	$21.10	$16,880.00
Verification Samples	EA	10	$400.00	$4,000.00
SUBTOTAL				$701,980.00
B. SOIL EXCAVATION				
Physical Soil Testing	LS	1	$10,500.00	$10,500.00
Demolition (Office, Oil Storage, Pad)	LS	1	$10,250.00	$10,250.00
Excavate Contaminated Soils	CY	1445	$20.76	$29,998.20
Rent Boxes/Haul/Dispose	CY	1445	$425.00	$614,125.00
Barge/Crane/Crew Rental	LS	1	$107,880.00	$107,880.00
Roll-Off Box Repair	EA	6	$1,025.00	$6,150.00
Verification Samples	EA	50	$400.00	$20,000.00
Additional Soil Due to Verification Samples	CY	20	$425.00	$8,500.00
SUBTOTAL				$807,403.20
C. CONSTRUCTION IMPOUNDMENT				
Impoundment Backfill (Furnish, Haul, Grade)	CY	1445	$21.63	$31,255.35
Liner/Collection System (Installed)	LS	1	$149,343.00	$149,343.00
Packaged WWTP (Furnish, Install)	LF	1	$139,400.00	$139,400.00
SUBTOTAL				$319,998.35
D. DREDGING				
Remove IRM Below Water Level	LS	1	$46,125.00	$46,125.00
Hydraulic Dredge	LS	1	$199,875.00	$199,875.00
Silt Curtain	LS	1	$10,000.00	$10,000.00
WWTP (Operate, Decommission)	LS	1	$33,415.00	$33,415.00
Rent Boxes/Haul/Dispose	CY	450	$425.00	$191,250.00
Verification Samples	EA	10	$400.00	$4,000.00
SUBTOTAL				$484,665.00

TABLE 11 (CONTINUED)

COLUMBUS MCKINNON

PRELIMINARY COST ESTIMATE OF THE PREFERRED ALTERNATIVE

ITEM/MATERIAL	UNITS	QUANTITY	UNIT COST	ESTIMATED COST
E. BACKFILL/COVER SYSTEM				
Furnish/Haul/Grade	CY	9	$21.63	$194.67
Decommission Decon Pad	LS	1	$4,100.00	$4,100.00
Topsoil (Furnish, Haul, Grade)	CY	590	$31.78	$18,750.20
Seed and Mulch	ACRES	0.37	$2,563.00	$948.31
Synthetic Layers (Installed)	SF	15600	$3.28	$51,168.00
SUBTOTAL				$75,161.18
TOTAL (A+B+C+D+E)				$2,389,207.73
ENGINEERING & CONTINGENCY @ 35% (Not Incl. Disposal)				$484,341.46
PROJECT TOTAL				$2,873,549.19

APPENDIX C

ADMINISTRATIVE RECORD

APPENDIX C - ADMINISTRATIVE RECORD

1. Discussions, Conclusions and Recommendations on Plant Site, February 1983
2. Groundwater and Additional Sampling Program December 1983
3. Calculated Loading to Ellicott Creek, December 1984
4. Ellicott Creek Surface Sediment Analysis Report, February 1988
5. C.M. Chain Site Investigation, July 1986
6. Order on Consent, October 1989
7. Work Plan (Final) for RI/FS, January 1990
8. Interim Remedial Measure (IRM) Plan (Final) May 1990
9. Health & Safety Plan, September 1990
10. IRM Completion Report, December 1990
11. Remedial Investigation (RI) Report (Final), June 1991
12. Feasibility Study Report (Final), June 1992
13. Proposed Remedial Action Plan (PRAP), August 1992

APPENDIX D

RESPONSIVENESS SUMMARY

APPENDIX D - RESPONSIVENESS SUMMARY

The public comment period on the PRAP ran from August 20, 1992 to September 21, 1992. A public meeting was held in August 27, 1992 to discuss the details of the PRAP and to answer questions and to gather comments from the interested citizens. This responsiveness summary addresses the concerns and questions raised at the public meeting. No further comments were received after August 27, 1992.

Q. Are there other contaminants besides PCBs? How does the remedy deal with other contaminants? Is there more of a tendency for other contaminants to migrate from the site? Do the metals move?

A. Other contaminants besides PCB which have been detected at the site are lead, nickel chromium and cadmium. These metals have been found in the soil generally in the same locations where elevated levels of PCBs are present. However, since the proposed remedy will remove the PCB contaminated soil, other contaminants will also be removed. No significant concentrations of metals have been detected in the groundwater. By removing the source of contamination, the remedial program will prevent future contaminant migration from the site.

Q Did you mention earlier that the waste material was used oil? Is the material being removed from the site an oily substance? During remediation will an oily film be created on the water that might float downstream and cause problems for boaters, etc? Will there be a boom or skimming device placed on the surface to stop oil movement?

A. Columbus McKinnon has reported disposing about 270,000 gallons of used cutting oil from its plant operations in a small area at the site. During the historical and remedial investigations, some samples smeared with oil were found in a limited area above groundwater table. Since most of the contaminated soil is above groundwater table, the possibility of any oily film on the groundwater and its movement downstream is minimal. To date, no oily sheen has been noticed in the creek water adjacent to the site. A boom or skimming device will however, be considered if such problem is encountered during the remediation.

Q. Regarding the rest of Columbus McKinnon property, were other areas looked at? If used cutting oils were used for dust control in the past, are there any additional possible areas where this was done? Did you specifically ask Columbus McKinnon if they used oil for dust control anywhere else?

A. During the remedial investigation all areas which could possibly be impacted from the site were looked into including the Conrail property, the northern area of the Columbus McKinnon property and the Ellicott Creek sediments. The data were used to define the extent of contamination. According to information available to the Department, the used cutting oil was not used for dust control by Columbus McKinnon. Columbus McKinnon has no knowledge of the use of oil for dust control.

Q. Are the other parking lots gravelled or paved?

A. The parking lot west of Ellicott Creek is gravelled.

Q. What risks are associated with properties near the plant? No one ever notified nearby residents of this problem. Their realtor never told them. They bought a house right across the street from the Columbus McKinnon parking lot. Is it confirmed that there is no contamination on the other side of the creek? If contamination is going into the creek, how can you tell that it is not getting to the other bank?

A. The nearest residential properties are located across the Ellicott Creek on the opposite bank from the site. The creek is about 115 feet wide from bank to bank along the site. The investigations have indicated that the creek sediments have maximum contamination at the toe of the bank near the site and it gradually decreases to insignificant levels at about 40 feet from the top of the bank toward the center of the creek. The data indicate that the contaminants have not migrated to the opposite bank, and thus residential properties and areas on that bank are not impacted from the site.

Q. Is there any way of testing the soil for these residents to ensure that they are safe?

A. The site investigation determined that contaminants have not migrated beyond the site study area. Therefore, contamination from this site would not be present beyond the areas targetted for remediation in this project.

Q. When the dredging is done, will all equipment be in the parking lot? Will the equipment decrease their property values? What will this do to the residents?

A. It is anticipated that all construction equipment will be removed from the area as soon as there is no further need. Likewise, the dredging equipment will be removed shortly after the end of the dredging operation. All work will be carried out under an approved Health and Safety Plan. No adverse long term impact on the residential properties is anticipated.

Q. Did you test as far downstream as the city garage?

A. Testing of soil and sediments was carried out in a grid pattern until no significant contamination was detected. Therefore, testing up to the city garage was not considered necessary for characterization of the site and for determination of its impact on the offsite.

Q. What are "ambient" PCB levels? Is it one of those chemicals that you should expect to find anywhere?

A. PCBs are not naturally occurring chemicals in the environment. All isomers of PCBs are man-made chemicals. In a purely natural environment, PCBs will not be present.

Q. Please explain how PCBs move once they are introduced into the environment. Would you expect to find PCBs in the creek sediments in other places along the creek.

A. PCBs, once introduced into the environment can move through various means including dust particles, soil erosion, open channel or stream flow, surface stream water flow, etc. PCBs are not very soluble in groundwater, however, they can also move through groundwater in a limited way. It is possible that PCBs may be present in other places along the creek from other identified or unidentified PCB disposal areas.

Q. Has there been sampling of the creek water? Is it correct that you did not expect a lot of movement of PCBs in the groundwater?

A. The creek water was not analyzed considering the low volume of groundwater flow from the site and its very high dilution ratio with creek water. It is true that a large volume of PCB movement to the creek through groundwater was not expected.

Q. What about a wildlife or a fish study? Was any done? Is it correct that all contamination is now covered with geotextile and no bottom feeding fish can reach it or chew on it? Is there any concern that people fishing in Ellicott Creek will catch fish with more PCBs?

A. A fish study was considered during the Remedial Investigation/ Feasibility Study stage. The Remedial Investigation report's baseline environmental risk assessment concluded "PCB contaminated sediments may result in chronic toxicity for aquatic organisms and their predators". However, the remedial work proposed would remove PCBs from the aquatic environment thereby eliminating the risk. Therefore, a fish study was not considered necessary.

Q. What about vegetation in the area? Does vegetation pick up the contamination and will animals, such as deer, get contaminated from eating the plants.

A. The site is fenced which preclude access to wild animals. Also, the site is devoid of any vegetation which would be consumed by animals.

Q. What will be done about dust particles that will be created during the remediation when you are dumping soil into the truck.

A. The contaminated soil will be containerized at the site before loading into the truck. During excavation and other related activities, dust control measures, including watering, will be used to control any potential problem. In accordance with an approved Community Air Monitoring Plan, air monitoring for volatile organic compounds and particulate levels at the perimeter of the site will be conducted during the construction activities. The Plan will include the protocols, actions, and responses required to protect the community in the event of an organic vapor release and/or elevated levels of particulates due to the construction activities.

Q. What was the reason for moving soil across the creek for offsite disposal instead of containerizing it on the site?

A. The construction specifications which will be prepared during the design phase, will provide detailed procedures for containerizing and offsite transport of the excavated materials. It is anticipated that the soil will be containerized at the site before its transport to a staging area on the opposite bank for further transport to a final disposal site.

Q. How long will the actual remediation take?

A. It is expected that field work for the remediation will start during the summer of 1993 and will be completed in 1994.

Q. Who will pay for the remediation? Will the State pay for it or will Columbus McKinnon?

A. After the Record of Decision (ROD) has become final, the department plans to discuss design or remediation with the firm. Therefore, we are optimistic that Columbus McKinnon will implement the remedy and pay the necessary cost of it.

Q. Do you have any idea where the PCB soil will be taken? Are not you just creating another contamination problem somewhere else, sometime in the future, by taking materials offsite?

A. The PRAP requires all contaminated soil to be disposed in a TSCA/RCRA Landfill. There are a number of such facilities in the country. One nearest to the site is at Model City in Niagara County. These landfills are fully secured facilities especially designed for hazardous wastes. They are monitored continuously to preclude any problems.

Q. Is your expectation and goal to have "non-detect" levels of PCBs?

A. The PRAP requires non-detect levels of PCBs in the creek sediments. The requirement for soil is 1 parts per million (1 ppm) to a minimum depth of 1 foot from grade and 10 PPM below that.

Q. Will boat traffic be able to pass the site while remediation is going on? How much disruption of use of the creek should be expected?

A. The creek area which will be remediated extends about 45 feet from the bank. A silt screen will be installed along that alignment. Since the creek is over 115 feet wide, there will be some inconvenience but no disruption of boat traffic is anticipated.

Q. Would you do the remediation during a non-recreational time such as winter or in early summer?

A. This will be considered. However, any such limitation could adversely affect the time schedule for completion of the work. It may not be possible to do all remedial work in the winter or early spring.

Q. What about noise? Do you expect a great noise level from the trucks and equipment? Will there be 24 hour operations, with noise at night?

A. No work is anticipated to be done during the night. During the day time there will be some noise level normal to general construction activity of any site. There will be some noise during the installation of sheet piling for a limited period of time.

Q. Does Columbus McKinnon lease the building out now, and are there businesses operating there? Do those people who are leasing and/or working in the building, know about the site?

A. Columbus McKinnon has informed us that part of the building is currently leased to some businesses. It is our understanding that Columbus McKinnon has informed them of the site status. The contaminated area is, however, not leased and is currently under control of Columbus McKinnon and generally not accessible to tenants.

Q. Regarding transporting the soil away from the site, will the plan include emergency contingencies from the route used to dispose of the soils, all the way to the location of disposal?

A. The transport of the contaminated soil will be done by authorized haulers under the Federal/State protocols. The local authorities will be consulted for routing the transport trucks. Emergency contingencies shall be indicated in the transportation plan.

Q. It would make a lot of residents happy if you would re-build the Fremont Street bridge during the remediation.

A. Rebuilding of the bridge is beyond the scope of the remediation plan.

Q. When you are done with the remediation, will there be another public meeting? Will the residents receive any other notice? Will there be any other mailing?

A. There will be a number of mailings to the residents during this process. A fact sheet will be provided as soon as the ROD is signed. Another one will be provided at the start of the construction work, followed by a few others indicating progress of work and finalization of the program. In addition, if you or your neighbors have questions, you can contact the NYSDEC project manager or Citizen Participation Specialist at our Buffalo office by calling (716) 851-7220.