URS

INTERIM REMEDIAL MEASURES
WORK PLAN

FORMER STANLEY TOOLS FACILITY
FOWLERVILLE, MICHIGAN

Prepared for:
JOHNSON CONTROLS, INC.

JOB NUMBER: 20209-016-121
OCTOBER 2000

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URS

October 19, 2000

U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Attention: Mr. Juan Thomas
Corrective Actions Manager

Subject: Interim Remedial Measures Work Plan
Former Stanley Tools Facility
Fowlerville, Michigan

Enclosed please find for your review and comment *Interim Remedial Measures Work Plan* for the former Stanley Tools facility in Fowlerville, Michigan.

URS prepared the work plan on behalf of Johnson Controls, Inc. (JCI) to prevent the discharge of oil to the Red Cedar River as observed during sediment sampling activities in early September. Temporary measures were taken to contain the observed discharge with oil-absorbent booms at the time of sampling, but additional measures are believed necessary to secure the site.

JCI anticipates addressing your comments but is proceeding with contractor selection in order to address this issue without further delay. Please contact Mr. Michael Stoelton of JCI at 734-254-5657 with any comments you may have regarding this plan.

Sincerely,

URS

Dennis P. Connair, C.P.G.
Associate

20209-016-121

Cc: D. Reis, Quarles & Brady
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1.0 INTRODUCTION

On behalf of Johnson Controls, Inc. (JCI), URS has developed this Interim Remedial Measures Work Plan to mitigate oil seepage that is entering the Red Cedar River adjacent to the former Stanley Tools facility in Fowlerville, Michigan (see Figure 1). This Work Plan was prepared in response to a request by the U.S. Environmental Protection Agency (U.S. EPA).

2.0 BACKGROUND

In the course of surveying and sampling sediment for the Phase III RCRA Facility Assessment (RFI) in September 2000, URS identified the presence of an oily discharge to the river at two locations adjacent to the facility.

The first discharge point was identified on September 6, 2000. The discharge point is on the east bank of the river approximately 5 feet upstream from the former wastewater discharge pipes as located on Figure 2. Less than 10 feet of the river bank soil (erosional surface) had a thin horizon 2 to 3 inches above the water level that was darker than the adjacent soil and had a distinct odor of petroleum. Immediately adjacent to the bank, the river water was relatively unmoving and a sheen was present on the water extending 0 to 3 inches from the bank. A soil sample was collected from the seep horizon (RC-22A) for analysis of the Phase III RFI contaminants of concern.

The second discharge was identified on September 7, 2000. The discharge point is a submerged concrete drainage pipe approximately 12 inches in diameter protruding from the east bank of the river approximately 4 inches below the water level. A cross section of the subsurface along the projected pipe trend is presented in Figure 3. The pipe was observed to intermittently release air bubbles with an associated intermittent sheen spot forming on the water surface. A distinct odor of petroleum was observed with the air bubbles. There was no effective means of collecting a sample of the oily discharge without significant dilution from the river water. However, a sample of light non-aqueous phase liquid (LNAPL) was collected July 11, 2000 from monitoring well MW-C1 located close to where the pipe is suspected to have originated.

Based upon known site conditions, it appears that the oil may be seeping into the river and/or riverbank soils as a result of preferential migration along historic subsurface utility (sewer) lines that lead from former oil settling ponds. At the southern location, the oil emanates from a pipe that appears to run from the riverbank to the former location of

SWMU C, a former oil settling pond. At the northern location, the stream bank seepage is observed in an area where a number of historic discharge pipes exit from the bank. These include the suspected discharge pipe from SWMU E, a former oil settling pond, as well as pipes leading from the former wastewater treatment plant area.

The LNAPL from MW-C1 was suspected as kerosene because SWMU C (adjacent to MW-C1) and the other oil settling ponds were also referred to as kerosene settling ponds. Testing verified that the LNAPL is a highly weathered kerosene, but it also tested positive for Polychlorinated Biphenyls (PCBs) (Aroclor 1248) at 630 milligrams per liter (mg/L). Consequently, the oily discharge from the pipe is regarded as a potential source of PCBs to the river. In contrast, the soil sample (SO/RC-22A) collected directly from the first oily discharge location identified only a trace of PCBs 0.0089J milligrams per kilogram (mg/kg) Aroclor 1248)], suggesting that the northern seep is not a significant source of PCBs.

3.0 SCOPE OF WORK

The primary objective of this IRM Work Plan is to mitigate the identified oil seepage, and stabilize the situation until (at least) completion of the RFI. An additional objective of the IRM is to gather additional information regarding the nature and extent of the constituents associated with the seepage, in order to allow for appropriate consideration during the remaining RFI. The following measures will be implemented to achieve these objectives:

- JCI will retain an experienced remediation contractor to access the seepage areas, and install controls to minimize the potential for release of oil or stream bank soil during the IRM,

- Following initial stabilization, the contractor will excavate and remove the historic discharge piping and all visibly oil-impacted soil within 20 feet (horizontal) of the normal high water edge at each location. The contractor will then backfill the excavation, and install a HDPE liner (or similar impermeable, and oil-resistant barrier material) to act as a barrier to future migration.

- Once these initial stabilization measures have been implemented, the contractor will advance a series of test pits landward of the seepage areas to define the lateral extent of the subsurface oil. Once the extent of oil is defined, the need for additional remediation will be evaluated. If conditions suggest that additional IRM is appropriate, JCI will submit a supplemental IRM work plan for EPA review and approval.

Additional information regarding these activities is presented below.

3.1 CONTRACTOR SELECTION

The initial IRM task will be identification and contracting with an experienced remediation contractor. In an effort to expedite the IRM, JCI is currently in the process of soliciting proposals for implementation of the IRM as defined in this Work Plan. Once the work plan has been reviewed and approved by U.S. EPA, JCI will request updated bid proposals (incorporating any agreed-upon changes or clarifications) from one or more of the preferred contractors and seek to execute a contract for implementation of the IRM.

3.2 SITE PREPARATION

The initial IRM construction activities will consist of development of a project-specific Health & Safety Plan, and performance of a utility clearance survey. Once the Contractor's Health & Safety Plan is complete, work within the potential remediation zone can commence.

The initial work activities will consist of delineation of the work areas, and installation of sediment and erosion controls along the stream bank adjacent to the proposed IRM activities. Due to the proximity of the work area to the riverbank, the contractor will be restricted to working in areas immediately landward and within 15 feet north and south, of the defined IRM work zones, as depicted in Figure 4. These work zones will be identified in the field (and marked with lathe and ribbon, or similar engineer-approved materials) and a silt fence will be installed along the shoreline along the entire limit of the work area, as shown in Figure 4. An inflatable rubber plug (or engineer-approved equivalent) will also be installed within the end of each discharge pipe in order to minimize the potential for releases through the piping during construction.

Once the work limits and erosion protection have been approved by the oversight official, clearing of vegetation from within the work area may commence. The contractor will be permitted to remove cut bank vegetation within the work area, but not along other portions of the stream bank. It is anticipated that clearing will be performed by stripping the ground surface using typical earthmoving equipment (e.g., a backhoe), and that the removed vegetation will be stockpiled on-site in an area landward of the work pile. In the event that oil-impacted soil and/or vegetation is observed, this method of clearing will be stopped and vegetation from those portions of the work area will be removed by cutting the vegetation above the ground surface using a weed whacker, chain-saw, or similar landscaping equipment.

3.3 OIL-IMPACTED SOIL REMOVAL

Once the surface vegetation has been removed, the contractor will begin to remove the oil-impacted soil and historic discharge piping. This will be performed following a sequential series of activities, as depicted in Figure 5.

In order to minimize the potential for a release to the river, the initial excavation will begin approximately 5 feet landward of the river's edge. The contractor will remove soil from the surface of the site, and place it directly into a roll-off box or semi-trailer. The excavation will proceed downward to the water table, and up to approximately 1 foot below the water table if possible. The contractor will continuously observe the removed soil and the excavation sidewall for the presence of oil. Soil that does not exhibit visible evidence of oil-saturation will be placed in separate roll-off boxes from those that exhibit potential oil impact. Sections of historic discharge pipe that are located within the excavation areas will be removed, and any free oil will be removed from the pipeline. The upstream ends of the piping will be plugged with concrete.

Once a container has been filled, it will be covered and moved to a separate staging area at the site or at an appropriately licensed waste storage or transfer facility (all containers leaving the site will be managed as though they contain a RCRA and TSCA waste, until such time that testing indicates otherwise). Each filled container will subsequently be sampled for waste disposal characterization purposes and labeled with the accumulation date. Once the characterization data is received, it will be reviewed to determine the characteristics of the waste (for management and disposal purposes) and the container label will be updated. JCI will then arrange for appropriate management of the container and off-site disposal of the contents, in accordance with relevant and appropriate waste management regulations and land disposal restrictions (e.g., solid waste, RCRA, TSCA, etc.).

3.4 BACKFILL AND BARRIER CONSTRUCTION

Once the soil and piping have been removed from the IRM work area (within 10 feet of the normal river's edge), samples will be obtained from the base and sidewalls of the excavation in order to characterize the constituent concentration beyond the excavation areas. A sample will be collected for each 2,500 square feet of exposed surface (base, south wall, north wall, etc.). The soils will be analyzed for volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), PCBs and RCRA metals in

accordance with the sampling, analytical, quality assurance, and data management protocols established in the Phase II RFI Work Plan (Task 3) and Task 4 Quality Assurance and Quality Control Plan (amended December 3, 1999). Once the samples have been collected, the excavation will be backfilled using clean fill (natural soil fill, without waste or commercial by-products) obtained from an off-site borrow source. The backfill will be managed using construction equipment that has not contacted impacted materials, or that has been decontaminated following such use.

The backfill will be placed on the surface of the excavation in approximately 12-inch lifts, and be lightly compacted using the tires or treads of the construction equipment. The initial lifts placed at or below the water table will likely be comprised of granular material, since it is not practical to place fine-grained material under these situations. The remainder of the fill will consist of either coarse or fine-grained materials, depending upon weather conditions and local material availability.

Because the replacement fill will include granular materials, it will not necessarily serve as an effective barrier against future subsurface migration. As such, a separate barrier will be installed on the landward edge of the fill to serve this purpose.

URS recommends that the subsurface barrier be constructed by placement of a 60-mil HDPE liner extending across the construction zone, and at least 2 feet below the seasonal low water table. The surface of the barrier should extend at least 2 feet above the estimated seasonal high water table. Based upon water level monitoring performed in Well MW-J4, URS estimates that the water table on the east bank of the Red Cedar River ranges between approximately 880 and 883 feet above mean sea level (msl). Based upon this information, the barrier should be installed from elevation 878 to 884 msl.

Once the barrier is installed, an approximately 2-foot thick protective cover (sand or other finer-grained material) should be installed over the liner and the remainder of the excavation can be backfilled. The uppermost 2 feet of the cover soil should be a reasonable fine-grained material, capable of supporting vegetative growth. The resulting ground surface should be final graded, and seeded to promote vegetative growth during the next growing season. The final surface should be heavily mulched, and provided with supplemental erosion protection (silt fencing) as needed to inhibit erosion through the coming winter period.

3.5 SUPPLEMENTAL DELINEATION

Following completion of the riverside soil removal and barrier construction, additional investigations will be performed to assess the lateral extent of oil contamination between the seepage areas and the suspected sources (SWMUs C and E). This will be accomplished by digging a series of small (approximately 1 foot wide by 5 feet deep) test pits using a small backhoe. The test pits will be dug until oil-containing soil or the water table is encountered whichever occurs first. Conditions in the sidewall of the boring will be logged, and the boring will be backfilled using the removed materials. The completed boring locations will be marked with a wooden stake, and the locations of the test pits will subsequently be measured with respect to a site-specific grid coordinate system. Supplemental soil samples will also be obtained within the identified limits of the oil-containing soil to further characterize the materials for future assessment. Two additional samples, one from within and one from above the oil-saturated zone) will be collected for each 5,000 square feet of impacted area. The soils will be analyzed for VOCs, PAHs, PCBs and RCRA metals in accordance with the sampling, analytical, quality assurance, and data management protocols established in the Phase II RFI Work Plan (Task 3) and Task 4 Quality Assurance and Quality Control Plan (amended December 3, 1999).

3.6 POTENTIAL ADDITIONAL MEASURES

If conditions are encountered during the supplemental site investigation that suggest additional IRM is appropriate, JCI will submit a supplemental IRM work plan for EPA review and approval.

4.0 CONSTRUCTION QUALITY ASSURANCE

In order to assure that the IRM activities are performed as specified in this plan, all IRM construction and supplemental investigation activities will be performed by an independent quality assurance observer working under the direction and supervision of a professional engineer familiar with hazardous waste facility construction documentation requirements. Following completion of landfill enhancement construction activities, a certification report will be prepared to describe the completed construction and assess compliance with the approved construction quality assurance plans. The professional engineer responsible for quality assurance oversight, as well as a qualified representative from JCI will certify that the report is true, complete, and accurate.

5.0 SCHEDULE

URS believes that these IRM activities can be completed within approximately 10 to 12 weeks following Work Plan approval by U.S. EPA, barring delays resulting from inclement weather or high water conditions. The schedule is as follows:

Action	Schedule
Solicitation of Remediation Proposals	On-going
Award of Remediation Contract	Two weeks Following Work Plan Approval
Mobilization On Site	Two weeks Following Contract Award
Access Controls, Stabilization and Limited Material Removal/Backfill	One week[1]
Supplemental Site Investigation	One week
Supplemental Remediation, if needed	Two weeks, if needed
Reporting	Four weeks

[1] Does not include time associated with temporary staging of roll-off boxes for waste characterization prior to off-site disposal. This activity is anticipated to take 4 to 6 weeks.

TABLE 1

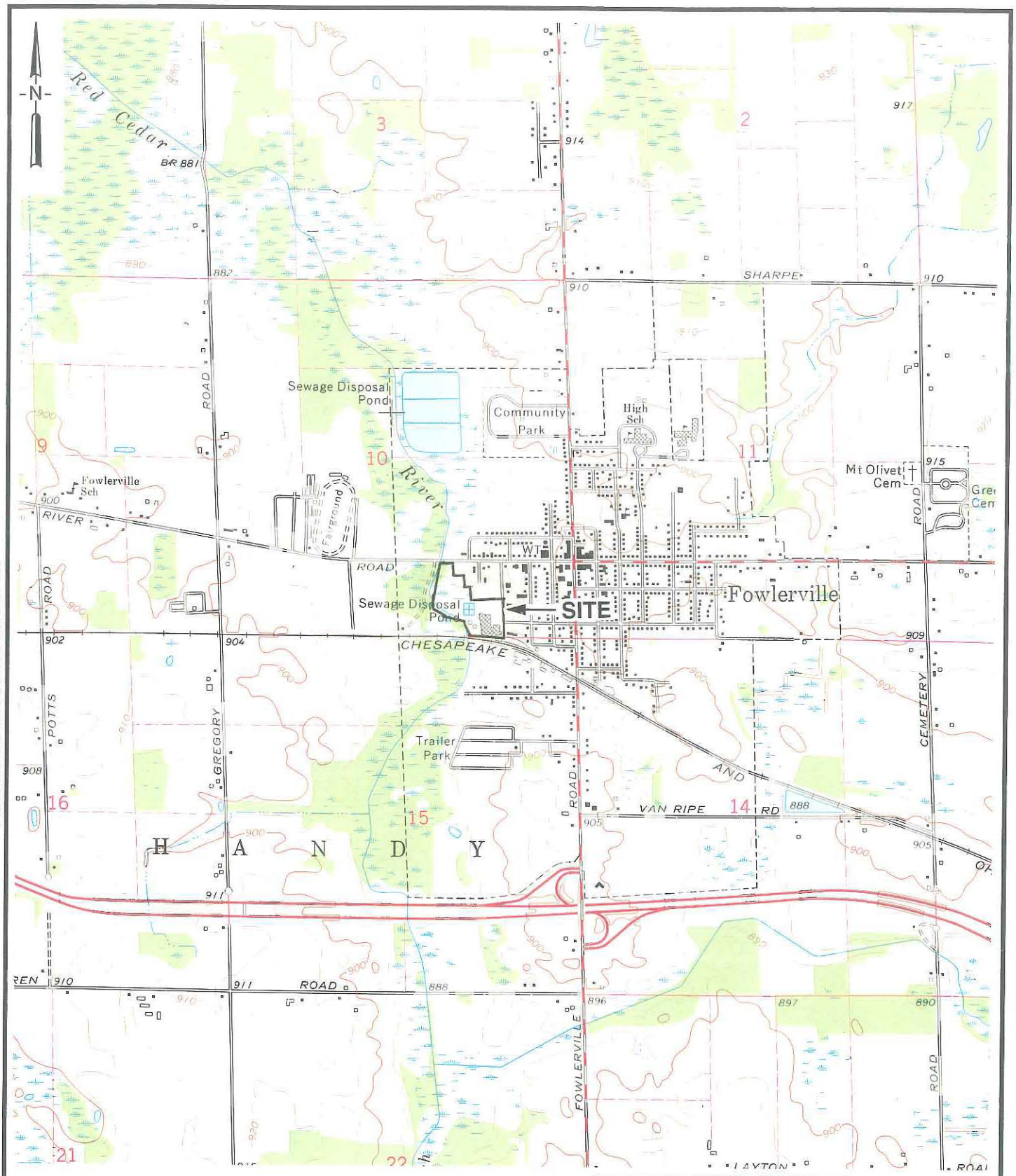
COST ESTIMATE
INTERIM REMEDIAL MEASURES

FORMER STANLEY TOOLS FACILITY
FOWLERVILLE, MICHIGAN

Item	Quantity	Unit Cost	Unit	Extended Cost	Comment
Bidding Assistance	1	$10,000	lump sum	$10,000	
Mobilization/Site Preparation	1	$5,000	lump sum	$5,000	
Excavate Soil and Load into Trucks/Roll-off Boxes	104	$10	cubic yard	$1,000	
Transportation and Land Disposal of Solid Waste	130	$75	ton	$10,000	Assume that 75 percent of total is solid waste.
Transportation and Land Disposal of Hazardous/TSCA Waste	45	$200	ton	$9,000	Assume that 25 percent of total is hazardous waste.
Backfill with Imported Soil	104	$20	cubic yard	$2,000	
Install Barrier System	1	$5,000	lump sum	$5,000	
Test Pit Investigation/Sample Testing	1	$5,000	lump sum	$5,000	Assumes up to 4 samples tested for VOCs, PAHs, PCBs, and RCRA Metals
Decontamination/Site Restoration	1	$10,000	lump sum	$10,000	
			Subtotal =	$60,000	
Water Collection/Treatment Allowance (non-hazardous)	20000	$1	gallons	$20,000	
Allowance for Land Disposal of All Soil as Hazardous/TSCA Waste	130	$125	ton	$16,000	
	Estimated Total, including Allowances =			$100,000	

Assumptions:
URS assumes that soil weighs 125 pounds per cubic foot, or 1.7 tons per cubic yard.
URS assumes that soil above the groundwater table/oil smear zone will be non-hazardous.
Extended costs are rounded to nearest $1,000. Subtotal and Total costs are rounded to nearest $10,000.

FIGURES



0 2000 4000

SCALE IN FEET

Quadrangle Location

BASE MAP SOURCE: USGS 7 1/2 minute topographic quadrangle map: Fowlerville, Michigan 1973.

Johnson Controls, Inc.

FORMERLY STANLEY TOOLS FACILITY
FOWLERVILLE, MICHIGAN

FIGURE 1
SITE VICINITY MAP

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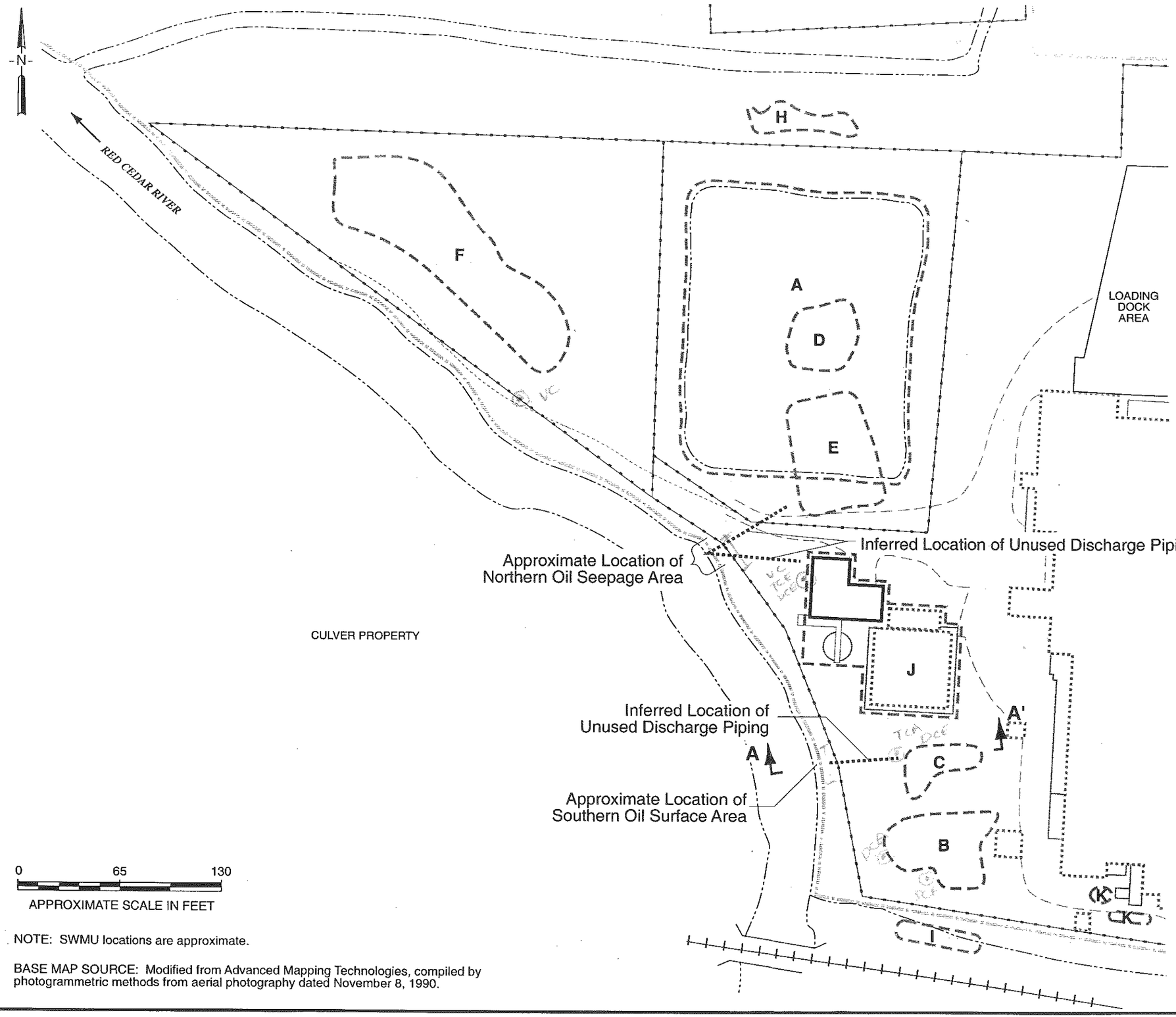

LEGEND:

- FACILITY BOUNDARY
- FENCELINE
- ROADWAY
- PATHWAY
- RAILROAD TRACK
- FORMER BUILDING
- SURFACE WATER BODY
- SOLID WASTE MANAGEMENT UNIT BOUNDARY
- A A' CROSS SECTION LOCATOR
- A AREA OF CLOSED RCRA SURFACE IMP OUNDMENTS
- B ORIGINAL EFFLUENT POND
- C FORMER SETTLING POND
- D FORMER SETTLING POND
- E FORMER SETTLING POND
- F AREA OF UNTREATED SLUDGE DISPOSAL
- G AREA OF CHEMFIXED SLUDGE DISPOSAL
- H CHEMFIXED SLUDGE SPILL*
- I DRAINAGE DITCH*
- J WASTE WATER TREATMENT PLANT
- K FORMER TANKS A AND B AREA
- L FORMER TANK C AREA

* The spill and the ditch are not necessarily solid waste management units, but were areas to be investigated.

NOTE: SWMU locations are approximate.

BASE MAP SOURCE: Modified from Advanced Mapping Technologies, compiled by photogrammetric methods from aerial photography dated November 8, 1990.

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FORMERLY STANLEY TOOLS FACILITY
FOWLERVILLE, MICHIGAN

FIGURE 2
SITE LAYOUT MAP

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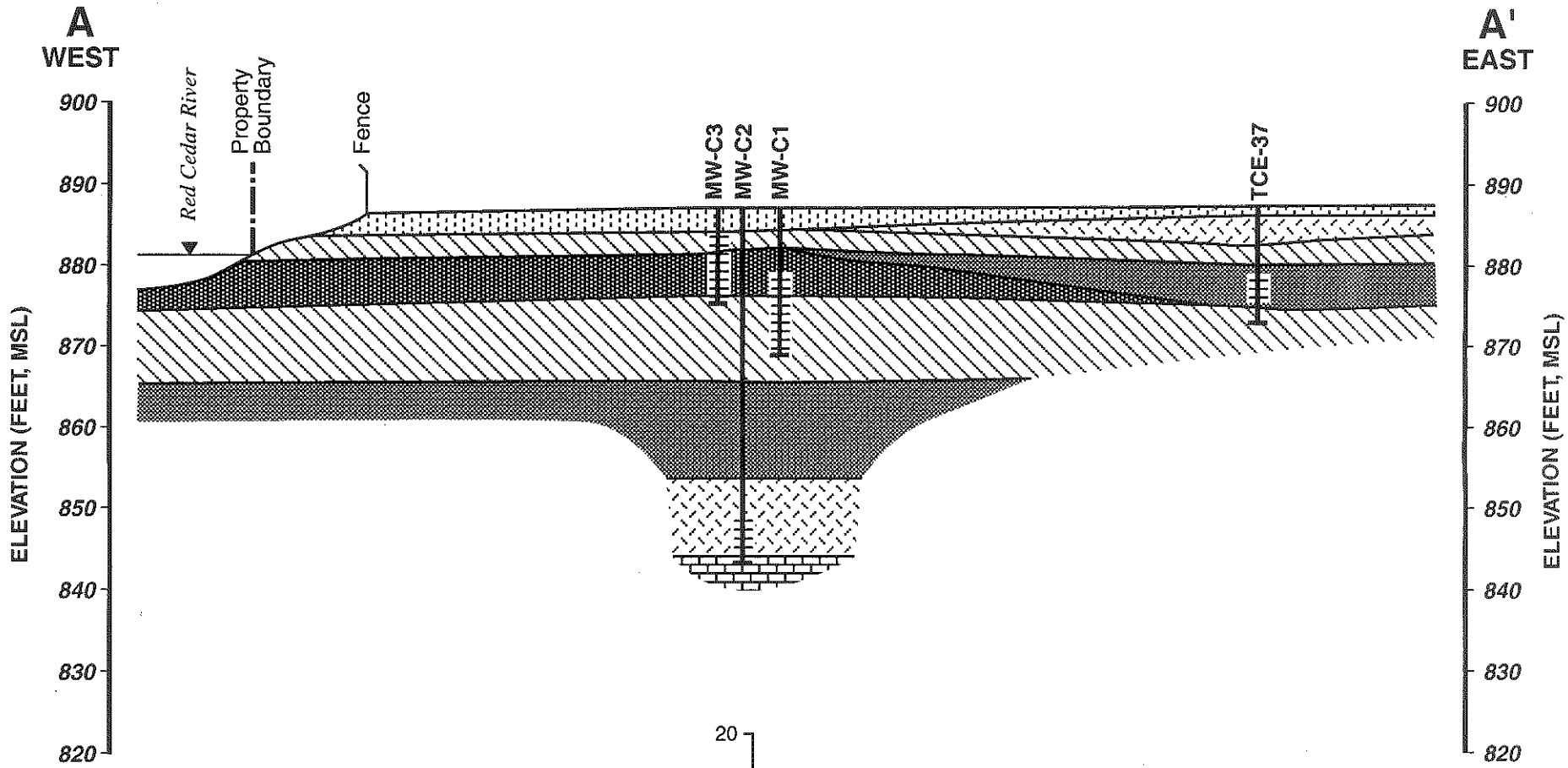

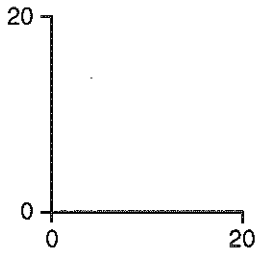

SCALE IN FEET
VERTICAL EXAGGERATION = 1x

LEGEND:

- Organic Silt and Silty Loam
- Inorganic Clay, Sandy Clay, Silty Clay
- Silty Sand, Sand-Silt Mixture
- Poorly-Graded Sand, Little or No FInes
- Well-Graded Sand, Little or No Fines
- Sandstone Bedrock
- MW-C1 Monitoring Well/Temporary Piezometer Location and Number
- Screened Interval

NOTES:

- The depth and thickness of the strata indicated on the subsurface section were obtained by interpolating between test borings. Information on actual conditions exists only at the locations of the test borings and it is possible that the conditions may vary from those indicated.
- For location of cross section, see Figure 2.

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FOWLERVILLE, MICHIGAN

FIGURE 3
GEOLOGIC CROSS SECTION A - A'

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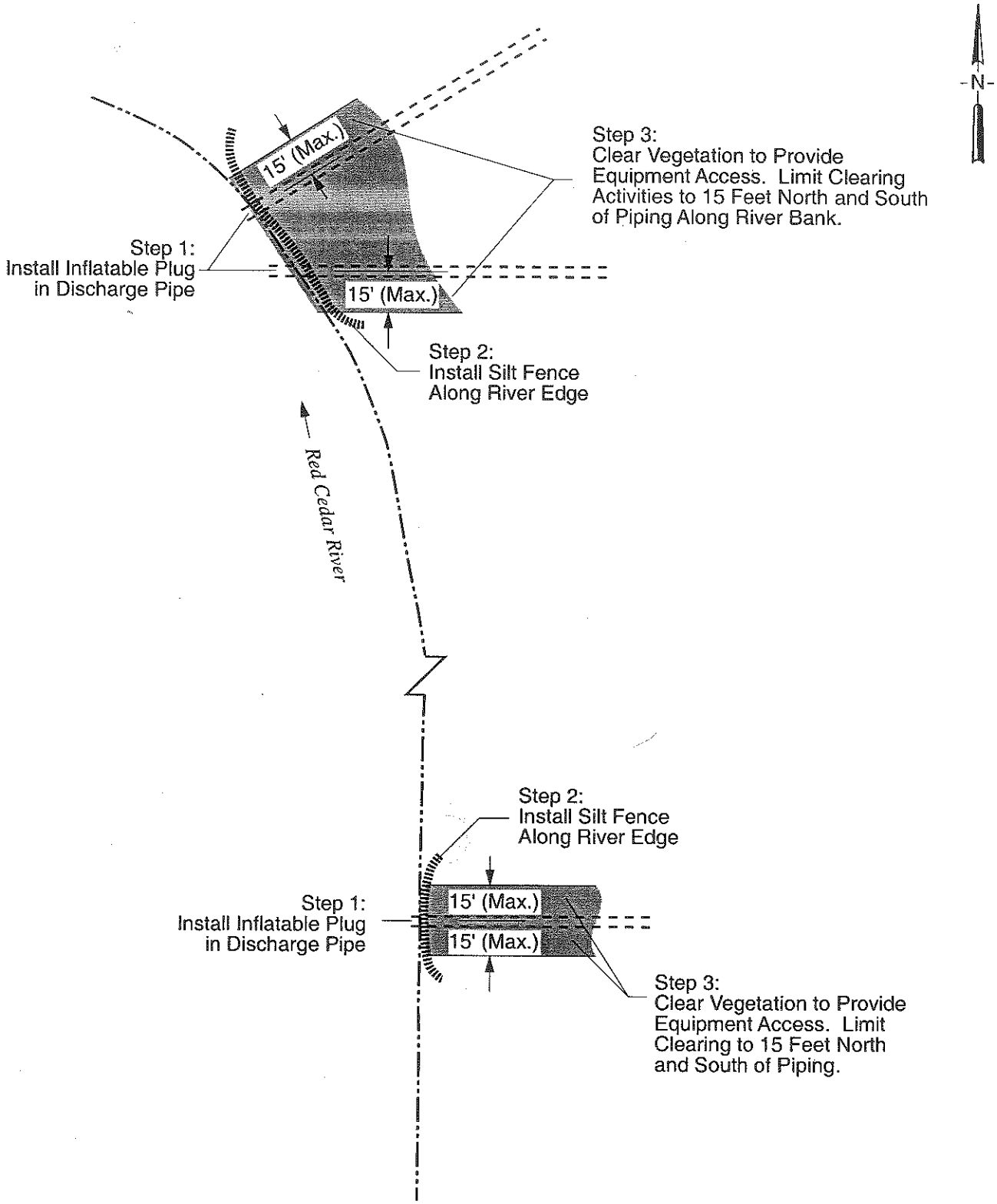

NOT TO SCALE

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FORMERLY STANLEY TOOLS FACILITY
FOWLERVILLE, MICHIGAN

FIGURE 4
SITE PREPARATION ACTIVITIES

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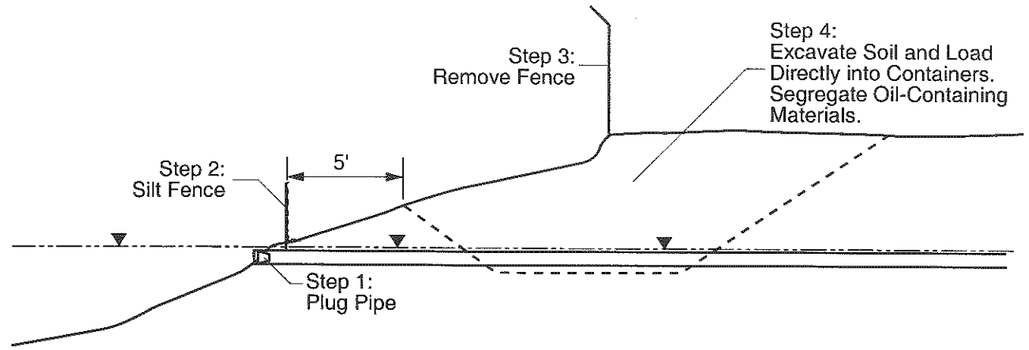
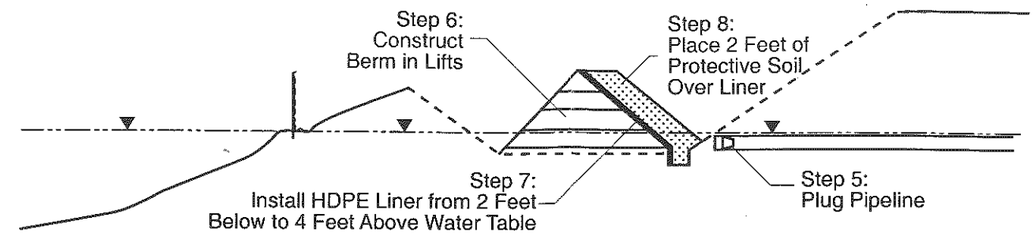
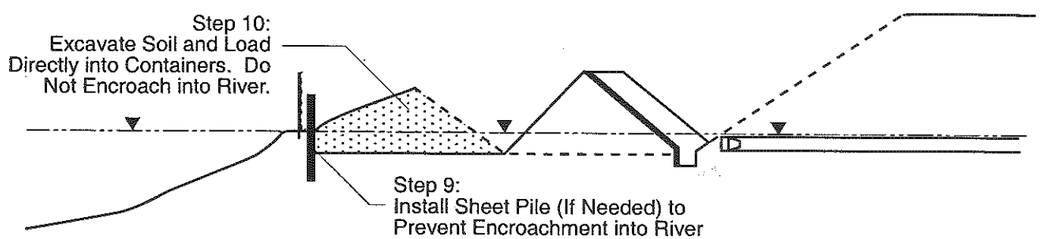


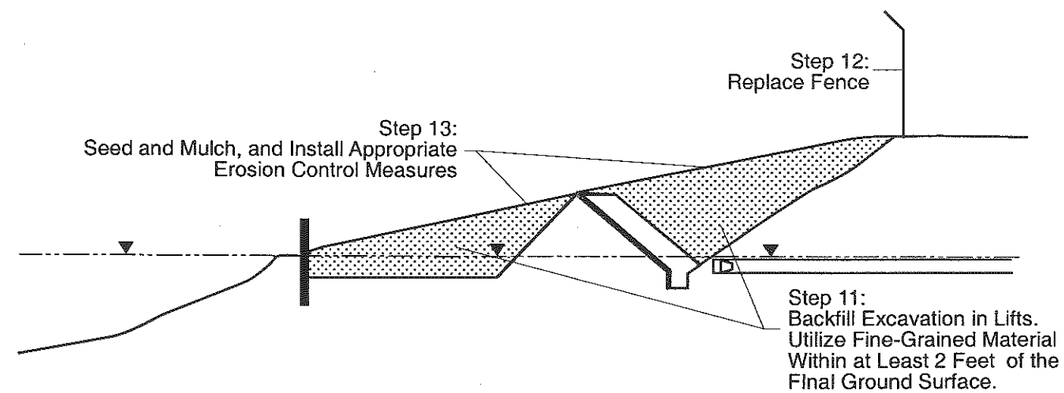
STEPS 1, 2, 3 AND 4



STEPS 5, 6, 7 AND 8



STEPS 9 AND 10



STEPS 11, 12 AND 13

NOT TO SCALE

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FOWLERVILLE, MICHIGAN

FIGURE 5
MATERIAL REMOVAL AND RESTORATION ACTIVITIES

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