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ESD

DECLARATION FOR THE EXPLANATION OF SIGNIFICANT DIFFERENCES

SITE NAME AND LOCATION

New Bedford Harbor Site/Hot Spot Operable Unit
New Bedford, Massachusetts

STATEMENT OF PURPOSE

This decision document sets forth the basis for the determination to issue the attached Explanation of Significant Differences (ESD) for the New Bedford Harbor Site/Hot Spot Operable Unit (the Site) in New Bedford, Massachusetts.

STATUTORY BASIS FOR ISSUANCE OF ESD

Section 117 (c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requires that, if any remedial or enforcement action is taken under Section 106 of CERCLA after adoption of a final remedial action plan, and if such action differs in any significant respects from the final plan (i.e., scope, performance or cost), the United States Environmental Protection Agency (EPA) shall publish an explanation of the significant differences and the reasons such changes were made. Current EPA guidance (OSWER Directive 9355.3-02) further provides that issuance of an ESD is appropriate where the Agency determines the need for changes to the ROD which are significant but which do not fundamentally alter the overall remedy. In the present case, because the required adjustments to the ROD do not fundamentally alter the selected remedy for the Site, this ESD is being issued properly.

In accordance with Section 117(d) of CERCLA, this ESD will become part of the Administrative Record which is available for public review at both the EPA Region I Record Center in Boston, Massachusetts and the New Bedford Public Library in New Bedford, Massachusetts.

DECLARATION

For the foregoing reasons, by my signature below, I approve the issuance of an Explanation of Significant Differences for the New Bedford Harbor Site/Hot Spot Operable Unit in New Bedford, Massachusetts, and the changes stated therein.

April 27, 1992
Date

Julie Belaga
Regional Administrator

EXPLANATION OF SIGNIFICANT DIFFERENCES
NEW BEDFORD HARBOR SITE/HOT SPOT OPERABLE UNIT
NEW BEDFORD, MASSACHUSETTS

I. INTRODUCTION

A. Site Name and Location

Site Name: New Bedford Harbor Site/Hot Spot Operable Unit

Site Location: New Bedford, Massachusetts

B. Lead and Support Agencies

Lead Agency: United States Environmental Protection Agency

Support Agency: Massachusetts Department of Environmental Protection

C. Legal Authority

Section 117 (c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requires that, if any remedial or enforcement action is taken under Section 106 of CERCLA after adoption of a final remedial action plan, and if such action differs in any significant respects from the final plan, the United States Environmental Protection Agency (EPA) shall publish an explanation of the significant differences and the reasons such changes were made. On April 6, 1990 EPA issued an interim remedial action plan in the form of a Record of Decision (the ROD) for the New Bedford Harbor Site/Hot Spot Operable Unit. Since the issuance of the ROD, EPA has evaluated information that has been developed as a part of the remedial design process, has re-evaluated information in the administrative record supporting the issuance of the ROD, and has determined that an adjustment to the remedy described in the ROD is necessary. Accordingly, EPA is issuing this Explanation of Significant Differences (ESD).

In accordance with Section 117 (d) of CERCLA, this ESD will become part of the Administrative Record which is available for public review at both the EPA Region I Record Center in Boston, Massachusetts and the New Bedford Public Library in New Bedford, Massachusetts.

II. SUMMARY OF SITE HISTORY, CONTAMINATION PROBLEMS AND SELECTED REMEDY

A. Site History and Contamination

In 1976, EPA conducted a New England-wide survey for polychlorinated biphenyls (PCBs). During this survey, high levels of PCB contamination were discovered in the marine sediment over a widespread area of New Bedford Harbor. In addition to PCBs, heavy metals (notably cadmium, chromium, copper, and lead) were found in the sediment. The survey and subsequent field studies also revealed that PCB contamination was not limited to sediment. Marine biota were also affected. Concentrations of PCBs in fish and shellfish were found to be in excess of the U.S. Food and Drug Administration (FDA) tolerance limit of 5 parts per million (ppm) for edible tissue. (FDA subsequently reduced the PCB tolerance level to 2 ppm in 1979.) In 1977, the Massachusetts Department of Public Health (DPH) issued a public warning against consumption of shellfish or bottom fish from within the harbor and eastern sections of Buzzard's Bay to protect public health.

As a result of the widespread PCB contamination and the accumulation of PCBs in marine biota, the Massachusetts Department of Public Health established three fishing closure areas in New Bedford Harbor in September 1979. These closures remain in effect. Area I is closed to all fishing, including finfish, shellfish, and lobsters. Area II is closed to the taking of lobsters and bottom-feeding finfish, such as eels, flounder, scup, and tautog. Area III is closed to lobstering only. Closure of the New Bedford Harbor and upper Buzzards Bay area to lobstering has resulted in the loss of approximately 18,000 acres of productive lobstering ground.

In the course of developing Feasibility Studies (FS) for the Site, EPA divided the Site into three geographical study areas: the Hot Spot Area, the Acushnet River Estuary, and the Lower Harbor and Upper Buzzards Bay (Figure 1). The Hot Spot is an area of approximately five acres located along the western bank of the Acushnet River Estuary, directly adjacent to an electrical capacitor manufacturing facility, the Aerovox facility. EPA has defined the Hot Spot as those areas where the sediment PCB concentration is 4,000 parts per million (ppm) or greater. PCB concentrations in this area range from 4,000 ppm to over 200,000 ppm. Contamination at levels of 4,000 ppm and greater are found at depths up to four feet, but for the most part, within the top two feet. In addition to PCBs, heavy metals (notably cadmium, chromium, copper, and lead) are found in the

sediment. The remedial volume for this area is approximately 10,000 cubic yards of sediment, and it contains approximately 48 percent of the total PCB mass in sediment from the estuary portion of the Site, and approximately 45 percent of the total PCB mass in sediment from the entire Site.

Remedial Studies

Numerous investigations have been conducted over the last decade to physically characterize the New Bedford Harbor Site, to determine the extent of PCB and metals contamination, and to assess the fate and transport of these contaminants. The major studies are summarized below. Other investigations, which were used as reference material for these studies, have been made publicly available in the Administrative Record.

Remedial Action Master Plan (1983)

The results of studies completed through early 1983 were compiled into a Remedial Action Master Plan (RAMP) for the site in May 1983. This assessment included an area-wide air monitoring program; a sediment PCB profile for the Estuary and the Harbor; biota sampling for the Estuary, Harbor and Bay; and a study of the contamination within the New Bedford sewer system. The plan included recommendations for studies to further define the nature and extent of contamination.

Acushnet River Estuary FS (1984)

The results and recommendations of the RAMP led to a Feasibility Study (FS) for the 200-acre estuary area north of the Coggeshall Street Bridge. Four of the five remedial options presented in this FS involved dredging of the contaminated sediments. During the public comment period, concerns were raised surrounding the ability to dredge the contaminated sediments without causing additional impacts, both short-and long-term. As a result, the remedy selection process was extended until studies could be completed to address these concerns.

Engineering Feasibility Study (1989)

To answer questions regarding the potential impacts of dredging the contaminated sediment, the Corps of Engineers was asked to complete a dredging and disposal study. This Engineering Feasibility Study (EFS) was conducted by the Corps' Waterways Experiment Station. The EFS consisted of bench and field scale experiments to address sediment and contaminant releases during dredging, efficacy of shoreline and aquatic disposal locations, leachate production from

disposal facilities, and physical/chemical sediment profiles.

Pilot Dredging and Disposal Study (1989)

The Pilot Dredging and Disposal study, an outgrowth of the EFS, was a field test of three dredges and two disposal techniques for 9,000 cubic yards of sediment from the Estuary. The focus of this study was an attempt to verify whether the dredging and disposal techniques could be implemented without causing releases that could adversely impact public health or the environment. Additionally, the study was used to determine the optimal operating parameters for the dredging equipment and to develop monitoring programs to detect and evaluate contaminant releases.

Hot Spot Feasibility Study (1989)

The Hot Spot Feasibility Study was completed for the Hot Spot Area of the Site. The response objectives and a summary of the alternatives evaluated are provided in the Hot Spot ROD.

Overall Feasibility Study (1990)

This feasibility study was designed to combine the previous studies described above and to develop remedial alternatives to address contamination in the estuary and lower harbor/bay areas of the New Bedford Site. This study was released in August 1990.

B. Summary of the Selected Remedy

The selected remedial action for the Hot Spot operable unit is the first of two operable units planned for the New Bedford Harbor Superfund Site. The Hot Spot operable unit consists of source control measures, which will also control the continuing migration of contaminants from the Hot Spot to other portions of the Site. The major components of the Hot Spot remedial measures include:

Dredging. Approximately 10,000 cubic yards of contaminated sediments will be removed using a cutterhead dredge. Dredging will occur in the Hot Spot Area at depths of up to four feet to remove sediments with PCB concentrations of 4,000 ppm or greater. Various control options will be used to minimize and control sediment resuspension.

Transportation and Dewatering. The dredged sediments will be transported to the Pilot Study cove area by a floating hydraulic pipeline, where the sediments will be dewatered.

Effluent produced during the dewatering process will be treated to reduce PCBs and heavy metals using best available control technology prior to discharging the treated water back into the Harbor.

Incineration. The dewatered sediments will be incinerated in a transportable incinerator that will be sited at the Pilot Study cove area. The extremely high temperatures achieved by the incinerator will result in 99.9999% destruction of PCBs. Exhaust gases will be passed through air pollution control devices before being released into the atmosphere to ensure that appropriate health-based air quality requirements are met.

Stabilization. Following incineration, the Toxicity Characteristic Leaching Procedure (TCLP), a leaching test, will be performed on the ash to determine if it exhibits the characteristic of toxicity and is, therefore, considered a hazardous waste under the Resource Conservation and Recovery Act (RCRA). If the TCLP test reveals that the ash is a RCRA hazardous waste, the ash will be solidified such that metals no longer leach from the ash at concentrations that exceed the standards set forth for determining the toxicity of a material.

During remedial activities, (solidified) ash will be temporarily stored in an area adjacent to the existing Confined Disposal Facility (CDF), a containment structure built on the New Bedford Harbor shoreline during previous site studies.

Sediment removal and incineration will provide significant progress toward long-term protection of public health and the environment. Incineration is a proven technology that permanently destroys PCBs and is readily implementable for this volume of material. The selected remedy will permanently reduce the mobility, toxicity and volume of PCBs in the Hot Spot and will also reduce the amount of PCBs and heavy metals affecting the remainder of the Harbor. Short-term protection will be achieved by engineering controls to limit the emission of contaminants during excavation and treatment.

This interim action will comply with levels or standards of control equivalent to legally applicable or relevant and appropriate standards, requirements, criteria, or limitations (ARARs) specific to this action, including but not limited to, operation of the incinerator. However, this interim action will not attain certain levels or standards of control that might be ARARs. This interim remedial action is only part of a total remedial action that will attain ARARs when completed.

III. DESCRIPTION OF SIGNIFICANT DIFFERENCES

The Hot Spot ROD states that upon completion of the remedial activities, the ash (solidified if necessary) will be temporarily stored in the secondary cell of the CDF. The ROD goes on to state that the ultimate disposition of this material will be addressed in the second operable unit for the Site. The Agency has decided to issue this ESD now in order to address the final disposition of this treated material as part of the Hot Spot remedial action.

In the ROD, EPA indicated that the treated material would be stored in the CDF. EPA has since decided that the material should be disposed of there permanently. Several factors support this.

In August 1990, EPA released an FS for the remainder of the site. This FS examines disposal of treated and untreated material in CDFs, and determined that CDFs are a viable disposal alternative based on the Corps of Engineers EFS and Pilot Study. During remedial design, the design team examined locations that the ash might be disposed of permanently. In light of CERCLA's preference for on-site remedies, disposal of the ash in the CDF was examined in detail. The CDF is being lined to hold the highly contaminated Hot Spot sediment prior to treatment. This liner will be left in place for the ash disposal, and the CDF will then be closed in accordance with the hazardous waste regulations to ensure protectiveness, including the installation of an impermeable, multi-layer cover.

To ensure protectiveness, the CDF will be closed in accordance with the RCRA Hazardous Waste Regulations for landfills (310 CMR 30.620). The closure will consist of a bottom liner, an impermeable cover and a leachate monitoring/collection system.

Bottom Liner

The bottom liner will include a flexible membrane liner with a permeability that will not exceed 1×10^{-7} cm/sec. The liner will hold the dredged sediments prior to treatment and then the ash after incineration. The bottom liner is being installed primarily to contain the highly contaminated Hot Spot sediment as it is pumped from the dredge into the CDF prior to treatment in the incinerator. Since the liner is being installed for this phase of the treatment process, EPA has decided that it is appropriate to leave the liner in place once all of the contaminated sediment has been removed for treatment. Therefore, the liner will remain in place when the ash is placed in the CDF for final disposal.

Detailed design plans for the bottom liner have been completed and are included as part of the site upgrade work (Phase I of the Hot Spot remediation) being managed by the U.S. Army Corps of Engineers/New England Division (USACE-NED). The site upgrade contract was awarded to Webster Engineering of Dorchester, MA, in November, 1991.

Cover System

The cover for the CDF is being designed to attain the final cover closure requirements for hazardous waste landfills (310 CMR 30.633). The cover system will include a bedding layer, an impermeable flexible membrane liner (with a drainage layer) and finally, a two-foot-thick soil/ vegetative cover layer. See Figures 2 and 3 for conceptual design drawings.

Leachate Monitoring/Collection

Although the cover system will minimize the generation of leachate, the impermeable bottom liner in the CDF may collect a small amount of water from condensation and other sources. Consequently, a leachate monitoring/collection system will be incorporated into the design.

The system will be simple and will consist of perforated pipes radiating from a central manhole to collect leachate. The system will act passively and can be periodically inspected to determine if any leachate has accumulated. Should significant quantities of water collect over time, the manhole can act as a sump to allow the leachate to be removed.

EPA believes that closure of this CDF should occur as a part of the ongoing design and plans and specifications for the Hot Spot remediation. By including it in this phase of site remediation (Phase II of the Hot Spot), the CDF will be closed as soon as all sediment is treated and placed in the CDF for disposal.

The addition of the closure and capping of the CDF, including installation of a leachate monitoring/collection system, adds approximately $1.8 million to the cost of the Hot Spot remedy. See Table 1 for the cost estimate breakdown.

IV. SUPPORT AGENCY COMMENTS

By letter dated October 4, 1991, EPA provided the Department of Environmental Protection with an opportunity to review and comment on the ESD. See Attachment 1 for the State's comment letter.

V. STATUTORY DETERMINATIONS

Considering the adjustment to the selected remedy set forth in the Hot Spot ROD, EPA believes that the remedy remains protective of human health and the environment, complies with all Federal and State requirements that are applicable or relevant and appropriate to this remedial action and is cost effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this site.

VI. PUBLIC PARTICIPATION

In accordance with Section 117(d) of CERCLA, this ESD will become part of the Administrative Record which is available for public review at both the EPA Region I Record Center in Boston, Massachusetts and the New Bedford Public Library in New Bedford, Massachusetts.

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FIGURE 1 - SITE LOCATION MAP

FIGURE 2 - CONCEPTUAL CAP COVER DESIGN

FIGURE 3 - DETAILED CROSS SECTION

TABLE 1 - COST ESTIMATE

ATTACHMENT 1 - STATE COMMENT LETTER

FIGURE 1
SITE LOCATION MAP

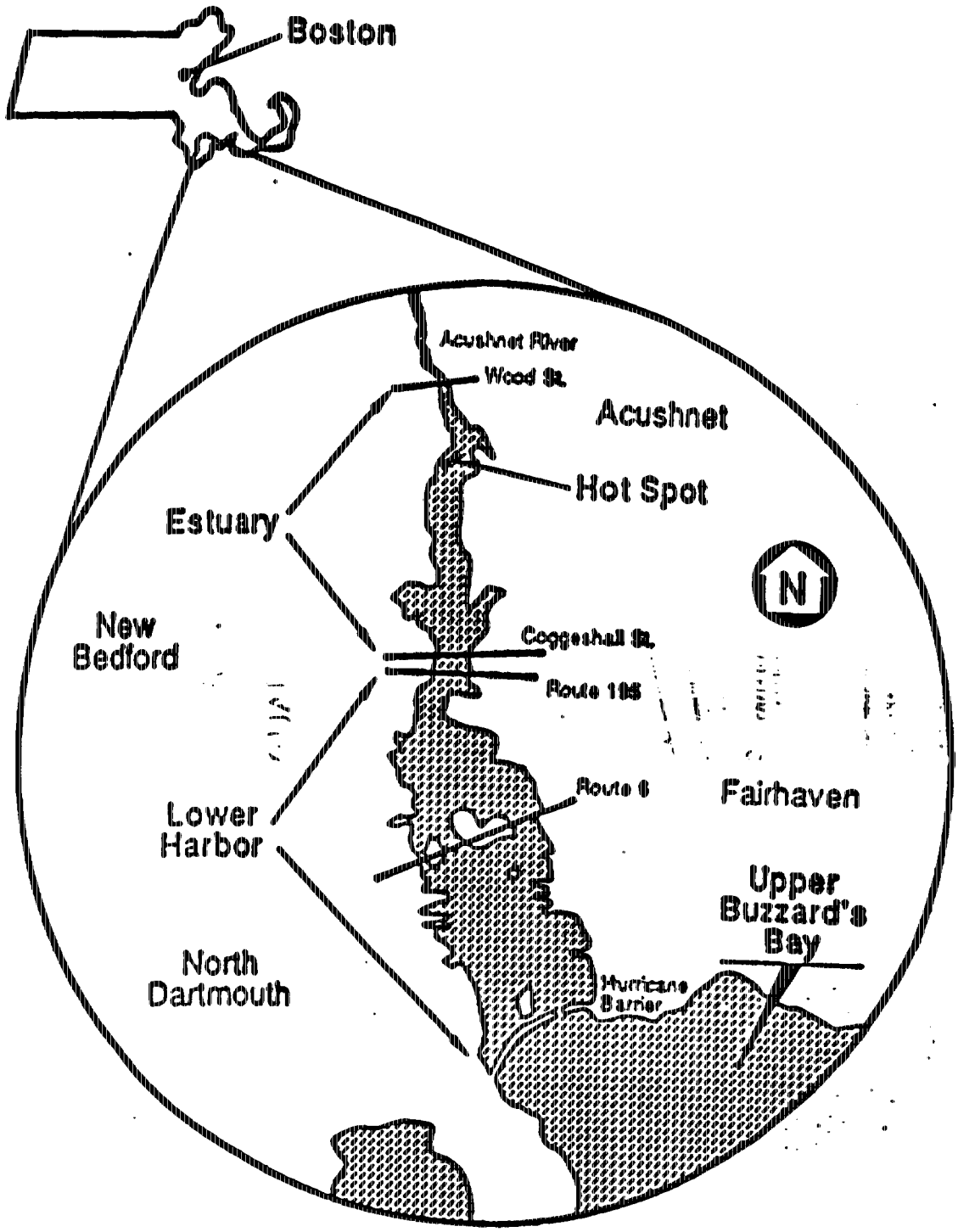

FIGURE 2

CONCEPTUAL CDF COVER DESIGN

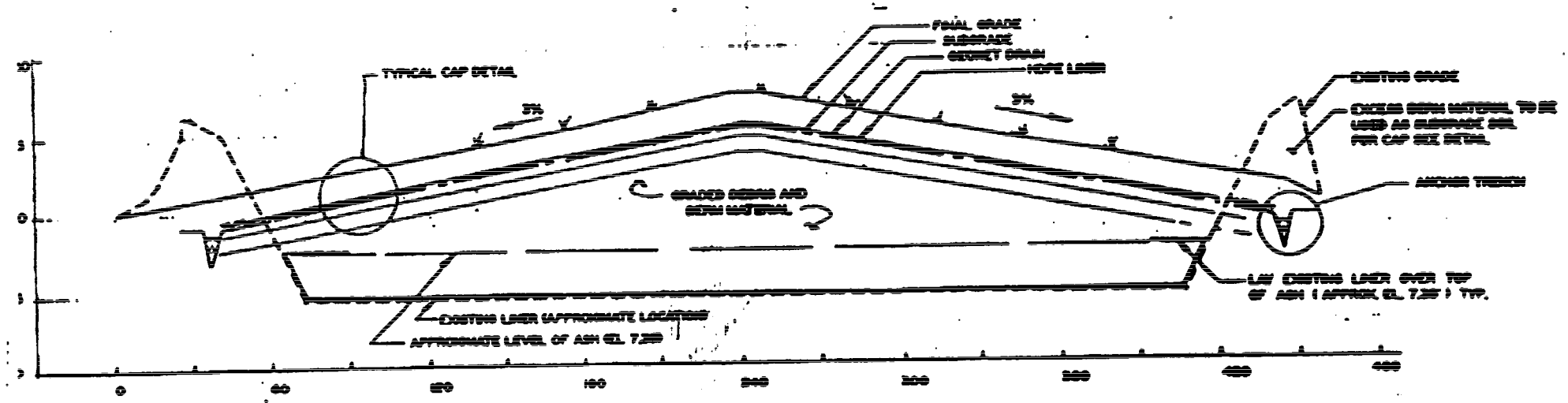

FIGURE 3

CONCEPTUAL CDF COVER DESIGN - DETAILED CROSS SECTION

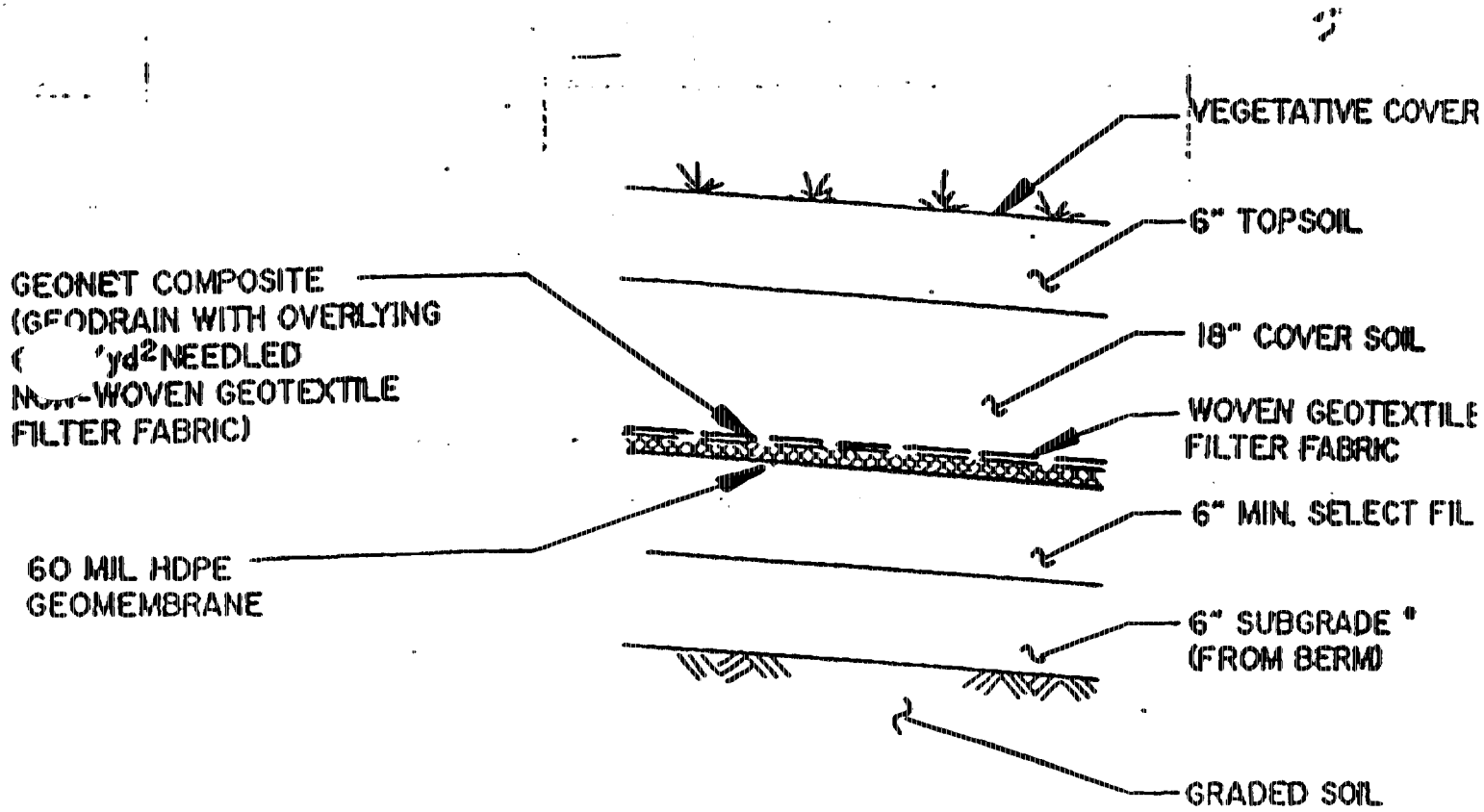

TABLE 1
CDF CAP COSTS

DESCRIPTION	TOTAL COST
Place Debris and Berm Material	$20,304
Liner	$257,005
Cap	$180,198
Cap Piping	$8,188
Manhole	$1,439
Import Fill and compaction	$663,911
Demolition Concrete	$790
Hydroseed	$5,511
Subtotal	$1,147,224
Home Office Expenses (5%)	57,361
Subtotal	1,204,585
Prime Profit (10%)	120,459
Subtotal	1,325,044
Bonds and Insurance (5%)	66,252
TOTAL	$1,391,296
Cost Growth (5%)	$69,565
Subtotal	$1,460,861
Contingency (15%)	$219,129
Subtotal	$1,679,990
SIOH (S&A) (6%)	$100,799
Subtotal	$1,780,789
Engineering and Design (1%)	$17,808
Subtotal	$1,798,597
Quality Assurance (1%)	$17,986
TOTAL COST	$1,816,583