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NSTC GREAT LAKES, IL
5090.3a

WORKPLAN FOR DEMOLITION OF AUXILIARY STRUCTURES AND REMOVAL OF BURIED FUEL AND WATER PIPING ALONG WITH REMOVAL OF DRAWAGEVAY PIPING FIRE FIGHTING TRAINING UNIT SITE 44 NS GREAT LAKES IL

4/1/1997

NTC GREAT LAKES

411

Fire Fighting Training Unit - Site #4

WORKPLAN

Navy Public Works Center (PWC) Cognizant Tasks

Demolition of Auxiliary Structures
and
Removal of Buried Fuel and Water Piping

along with

REMOVAL OF DRAINAGEWAY PIPING

In Cooperation With:
Beling Consultants
Contract No. N68950-95-D-9021

Prepared By:
Naval Training Center - Great Lakes
Environmental Department, Code 900
2703 Sheridan Road, Suite 120, Building 1A
Great Lakes, Illinois 60088

~~November 1996~~
APRIL 1997

Table of Contents

1. Background

The Fire Fighting Training Unit (FFTU) was utilized by seamen recruits from World War II up till its closure in 1989. At this site, an eight (8) acre area, fire fighting exercises were performed to simulate various scenarios of fire and damage control within naval operations. THE FFTU is located on the Naval Training Center - Great Lakes, Illinois adjacent to the Willow Glen Golf Course, southwest side, along Buckley Road (Rte 137). Figures 1 and 2 provide vicinity and site maps for the project.

During operation, burn pans and compartment buildings were supplied with fuel to run training fires. Support tanks, piping, and distribution equipment along with fuels, water, and extinguishing chemicals were utilized for the training exercises. As a result, the site is contaminated with combustion and petroleum products. Leaking underground storage tanks and piping have heightened the site contamination.

The site has been designated as a CERCLA site and is governed by Illinois State and Federal regulations for cleanup. Restoration is planned using a joint venture between the PWC - Great Lakes, Illinois, Beling Consultants - Moline, Illinois. Demolition and asbestos abatement of the compartment buildings and administrative - boiler tower building (Buildings 3304 A-F) along with removal of underground storage ~~sumps and tanks and hazardous material removal/remediation~~ will be handled by ~~future~~ contracts. The designated Contractor's for this future work and time of occurrence has yet to be determined.

2. Introduction

PWC - Great Lakes, Illinois has been tasked with the following objectives in support of this project in order of occurrence:

* Removal and Disposal of Aboveground Metal Structures
* Removal and Disposal of Gravel, Asphalt and Concrete
* Trenching of Underground Piping (~~oil/gas distribution and water distribution~~)
* Removal and Disposal of Underground Piping
* ~~Backfill of Bioremediation Mixture~~

The remainder of this report will provide specific details on the what is involved with and how to go about performing the objectives above. ~~An in-house job plan will be written and utilized by support personnel and tradespeople to perform the job. Provided in Appendix I is a copy of this job plan.~~

~~All work stated above, except bioremediation backfill, must be accomplished prior to start of work by Beling Consultants. These two parties will be~~ responsible for establishing a site specific treatability study, a site sampling plan, performing all field sampling, ~~obtaining and installing all bioremediation equipment, direction and guidance of backfill mixture, and performing monitoring and maintenance of the system till complete~~. All work will be performed in phases in order to work around delays brought about by weather or other work center priorities.

PWC - Great Lakes Environmental Department (Code 900) will be pursuing contract options to perform the demolition/asbestos abatement of the compartment buildings and administrative/boiler tower building along with removal of ~~any~~ underground/storage tanks. This work will occur concurrently with all other tasking and will be implemented alongside of other field work. ~~There are no impacts foreseen by performing these two phases concurrently.~~

~~There is an existing Roofing Contractor located within the project site boundaries. They are anticipated to be completed with their work within the month of October. Upon completion, all their equipment, supplies, and storage facilities are to be cleared from the project site~~. Preliminary site clearing and ~~grubbing~~, along with surface structure demolition and disposal, and the ~~majority of the~~ gravel, ~~asphalt, and concrete removal~~ and disposal tasks ~~will not be affected and are cleared to proceed. Final gravel,~~ asphalt, and ~~concrete~~ removal ~~and disposal, along~~ with excavation and sampling will require the ~~Roofing Contractor~~ to have their area cleared.

3. Site Health And Safety And Decontamination

Site contamination along with regulating State and Federal regulations require the training and certifications of site personnel in the area of Hazardous Worker Protection and site specific indoctrination and training.

PWC - Great Lakes Safety Office (Code 09K/126), Environmental Department (Code 900), along with a Industrial Hygiene Division (NH-064) from the Naval Hospital, will be the responsible for monitoring and enforcing all occupational safety and health and training issues. These duties include, but are not limited to worker protection, air monitoring, personal and equipment decontamination.

A site health and safety plan has been written specifically for the welfare of the PWC - Great Lakes site personnel only. This plan provides all required details and guidance on the health and safety regulations for all work PWC - Great Lakes personnel. Provided in Appendix II is a copy of this plan. An overall Site Health and Safety Plan was written by Beling Consultants and covers all incidents and occurrences for the project from start-up to completion for all other personnel. The Beling plan has been approved by the State and was utilized in the development of the PWC - Great Lakes plan. Provided below in Table 1 is a point-of-contact listing and emergency phone numbers.

Table 1 - Point-of-Contacts and Emergency Personnel

Name	Employer	Position	Phone #	Comments
Terry Aide	PWC - GL	Env Engr	688-5996	Envr Mgmt
JP Messier	PWC - GL	Env Engr	688-2796	Envr Mgmt
Jenny Ross	EFA - MW	Rem Prj Mgr	688-5998	Alternate EEIC
Ed Bickel	NTC - GL	Engr Tech	688-4295	Site Technical
Bob Walleck	PWC - GL	Safety Officer	688-4919	Safety Compliance
Jim Walker	NAVHOSP	Ind. Hygenist	688-6712	OSHA Compliance
Kelly Devereaux	PWC - GL	Oper Mgr	688-2628	Haz Waste Disposal
Molly Arp	Beling	Proj Mgr	(309)757-9800	Design Cons
Phil Ramos	Beling	Proj Supv	(312)986-0390	Field Cons
Fire/Police	NTC - GL	Emergency	688-3333	Medical
Fred Gust	PWC - GL	Operations	688-3362	Transportation
Mike Uqolini	PWC - GL	P&E	688-5396	Maintenance

Decontamination procedures are required for personnel and equipment. Decontamination will cover petroleum constituents and hazardous contaminants known to be present at the site. Primary emphasis is placed on the awareness that residual flammable materials may be present on-site and precautions shall be taken to prevent potential fire or explosion. Dust will be minimized utilizing an appropriate wetting technique. Site guidance on implementation and usage will be given as conditions warrant.

Personal and perimeter exposure monitoring and air sampling will be conducted as determined and directed by the Industrial Hygiene Division (NH-064) from the Great Lakes Naval Hospital and PWC Great Lakes Site Safety Officer. Based upon air monitoring, increasing, maintaining, or decreasing the level of personnel protective equipment will be determined by the Site Industrial Hygienist and Site Safety Officer, only. An appropriate device is to be used to monitor the worker's breathing zone and work zones. A combustible gas indicator (CGI) equipped with an oxygen alarm may also be used to monitor for the presence of combustible gases.

There are three (3) work zones to be established on the project site. These are the Exclusion Zone (area of contamination - entry requires Level D personal protective equipment), Contamination Reduction Zone (is where personal and equipment decontamination takes place), and Support Zone (clean and outlying areas).

All site personnel shall minimize the need for any extensive decontamination procedures. All decon is to take place in the Contamination Reduction Zone. No eating, drinking, or smoking is to occur in the Exclusion nor in the Contamination Reduction Zone. Anticipated levels of protection for site operations is designated next to the phase of work being accomplished as delineated in this workplan.

A Level C/D means Level C with potential to be downgraded to level D. Standard work clothing is defined as Level E (i.e., uniform, hard-hat, steel toed shoes, and ear and eye protection). Standard hygiene practices of clothing changing and washing is needed.

A Level D decon procedure is provided below:

1. Washing boots, waders, or other non-disposable protective equipment (i.e., hard hat, safety glasses/goggles, etc.) suspected of being contaminated using soap solution followed by potable or distalled water rinse.

2. Removal and disposal of coveralls.

3. Removal and disposal of disposable boots.

4. Removal and disposal of gloves.

5. Wash hands and face.

A Level C decon procedure is provided below:

1. Washing boots, waders, or other non-disposable protective equipment (i.e., hard hat, safety glasses/goggles, etc.) suspected of being contaminated using soap solution followed by potable or distalled water rinse.

2. Removal and disposal of boot covers and waders if worn.

3. Removal and disposal of coveralls.

4. Removal and disposal of gloves.

5. Removal, cleaning, and stroage of respiratory equipment.

6. Removal and disposal of inner gloves.

7. Wash hands and face.

Level B decon includes all that of Level C with the inclusion of cleaning of the self-contained breathing apparatus (SCBA) in the initial stages.

All equipment (i.e., backhoe, hand tools, etc.) will be decontaminated on-site in an area as designated by the Site Safety Officer and Site Technical Advisor. Decontamination procedures will include a brush and wip down followed by a scrub with a sop solution and a rinse with potable or distilled water.

All decontamination materials and wastes shall be contained and disposed of properly. It is the responsibility of PWC - Great Lakes Safety Office, Site Supervisor, Work Leader, and the worker themselves to ensure that all required guidelines and protocol for health and safety are followed.

4. Schedule

Provided in Appendix III is a schedule for the project which shows all tasking, order of occurrence, timelines, duration of tasks, and manpower and equipment needs.

5. Mobilization And Set-Up

The Site Supervisor and/or Work Leader is to mobilize all necessary equipment, supplies, and storage facilities to perform the required work. Depending on the work being accomplished at the site, that day, specific equipment (i.e. a backhoe, dump truck, roll-offs, etc.) may be brought in on a scheduled and as-need basis.

Provided in Table 2 are the manpower requirements (includes equipment and supplies) for each task being accomplished. Site staging area for the equipment and supplies will be determined between the Site Supervisor/Work Leader and Environmental Engineer-in-Charge (EEIC).

Table 2 - Manpower and Equipment Requirments

Task	Equipment	Labor	Comments
Planning	---	2-Envr Engrs 1-Envr Tech 1-P&E	Workplan, Site Health and Safety Plan, Job Plan, Material Procurement, Production Control
Mobilize	Work Van Various Heavy Equipment	1-Site Supv/ 1-Work Leader 2-Laborers	
Set-Up	Hand Tools Power Tools	1-Site Supv/ 1-Work Leader 2-Laborers	
Decon	Hand Tools Power Tools	1-Site Supv/ 1-Work Leader 1-Laborer	Level D Decon Type Area.
Erosion Control	Hand Tools Power Tools	1-Envr Tech/Engr 1-Site Supv/ 1-Work Leader	Roadways Construction Fence Silt Fence Installation
Clear & Grub	Roll-Offs Bobcat	1-Site Supv/ 1-Work Leader	Chip and Shred for Reuse as Landscaping Material.
Grid Site	---	2-Envr Engrs 1-Envr Tech	
Surface Demo	Backhoe Roll-Offs Hand Tools Power Tools	1-Site Supv/ 1-Work Leader 4-Laborers 1-Envr Tech	All Metals To Be Recycled Through DRMO or by a private Contractor.
Concrete Removal	Backhoe Roll-Offs Hand Tools Power Tools	1-Site Supv/ 1-Work Leader 4-Laborers 1-Envr Tech	All Concrete to be Recycled Through a Private Contractor.

Table 2 - Manpower and Equipment Requirments			
Task	**Equipment**	**Labor**	**Comments**
Gravel Removal	Backhoe Roll-Offs Hand Tools Power Tools	1-Site Supv/ 1-Work Leader 4-Laborers 1-Envr Tech	All Gravel to be Recycled Through a Private Contractor.
Asphalt Removal	Backhoe Roll-Offs Hand Tools Power Tools	1-Site Supv/ 1-Work Leader 4-Laborers 1-Envr Tech	All Asphalt to be Recycled Through a Private Contractor.
Trench Layout	---	1-Site Supv/ 1-Work Leader	Beling Consultants to Assist.
Trench Excavation	Backhoe Hand Tools Power Tools	1-Site Supv/ 1-Work Leader 4-Laborers 1-Envr Tech	Excavated Soil to be Left Alongside Trench and covered with 6-mil Poly.

Prior to any work on the project site, all utilities which feed or cross the project area are to be located, locked and tagged out. Any utility service which cannot be locked and tagged out for the project duration must be clearly marked and scheduled for lockout and tagout upon the need to work in its area. All utilities must be clearly marked above ground for identification purposes. Temporary utility services (water and portable sanitary facilities) must be arranged and scheduled for to support the project.

Proper caution/warning signs will be used and placed in areas throughout the site to control work zone safety and maintain awareness of site hazards. Specific work zones that require increased security (within the perimeter fencing) should be cordined-off with orange plastic fencing to secure. Caution taping may also be used throughout the site to enlighten site hazards to workers.

Erosion control (stormwater pollution prevention) for the site has been developed by Beling Consultants. Details, installation instructions, and maps are provided by Appendix IV and Figures 3 and 4. Accomplishment of the silt fence installation and approval by PWC Great Lakes Environmental Department, is required prior to commencement of any below surface demolition and/or excavation activities on the project site. Above surface demolition work does not warrant installation of silt fencing.

6. Clearing and Grubbing (Level D PPE)

All vegetation and brush is to be cleared, collected, and disposed of. Shredding and chipping of the collected yard waste is encouraged for ease in disposal or possible reuse as landscaping material for the Base and/or Navy Family Housing residents.

All waste is to be hauled off-site and maintained at a designated storage/holding area. This area will be determined by the Site Supervisor/Work Leader and/or EEIC at a future date.

7. Site Landmarking and Gridding (Level E PPE)

A landmark is to be established at the project site to serve as a reference point for any future site measurements and locating of previously existing equipment, structures, and areas.

Utilizing the site landmark, the entire project is to be layed-out using a grid/scale system. Proper field to paper scaling should be used to allow for full project scope on a 1-inch to 50 feet drawing.

PWC - Great Lakes Environmental Department will perform all site landmarking and grid layout. A final site and grid layout will be included in this workplan as Figure 5.

8. Surface Structure Demolition and Disposal (Level C/D PPE)

Prior to demolition of the burn pan closest to the FFTU classroom building, it is to have residual water pumped out and the interior triple-rinsed down with a soap solution and repumped. Code 900 - Environmental Department will perform this work. All waste pumped out of this burn pan will be handled by a contracted hazardous waste hauler.

The first phase of actual project remediation is surface structure demolition and disposal. All supply and drain piping that is disconnected from any of the surfaces and/or structures is to be capped and crimped to preclude intrusion of surface water and rainfall. All aboveground piping and fixtures are to be removed through a mechanical means, only. ***No torch cutting is allowed.*** Pay special attention to possible free product when demolishing the oil/water separator units. Provided below in Table 3 is a listing of all surface structures, quantity, site grid map location(s), and a description.

Table 3 - Surface Structure Removal and Disposal

Item	Qty	Grid No.	Description
Burn Pits	6		Circular concrete/metal with attached piping/valves
Christmas Tree Enclosure w/Roof	1		Entire structure with concrete slab
Christmas Tree	3		Concrete slab and metal walls
Control Tower	5		Metal ladder, platform, piping, valves
Drying Rack	1		36 feet long pipe structure, near south burn area
Water stations/Sum	6		Water cannon/hose, railing and concrete sump
Water Stations	2		Water cannon/hose
Steel Rods	15		Near christmas tree enclosure, south burn area
Moveable Ramp	1		Wood and pipe, near sumps
Scrap Metal Bands	1		Near 3rd compartment, most northerly is 1st
Metal Cart	1		North burn area
Smothering Pit	1		Concrete substructure with manhole
Separator Pit	1		Concrete substructure with metal cover
Duplex Oil/Water Separator	1		Entire unit, support equipment, and structure
Scrap Metal Pip	1		Vicinity of the former sludge pit
1500 Gallon Overfill Tank	1		Concrete subsurface structure with 3 manholes
Loop Control Valves/Pipes	4		10 feet of loop pipe
Fill Box	1		Concrete box with pipes and metal lid
Gate Valves	24		Located at each burn station
Metal Vessel	1		Near decant ponds

Upon demolition of all components and structures, proper care must be exercised to ensure that all liquids are drained and emptied into a suitable container for disposal. Any accidental spills of free product should be quickly absorbed and recovered using suitable methods.

Demolition of the duplex oil/water separator will require blocking off and capping of piping and connections to subsurface sumps. Actual removal of the subsurface sumps/tanks will be performed along with all other UST/AST tanks within the project boundary.

All metal from the surface demolition is to be contained in appropriately sized roll-off containers. The Defense Reutilization and Marketing Orginization (DRMO) or local contrcated disposal Contractor will be utilized for processing all the scrap metal. Scheduling of roll-off drop-off and pick-up will be arranged with DRMO and/or PWC Environmental Department in the near future.

9. Gravel, Asphalt, and Concrete Removal/Disposal (Level C/D PPE)

Any concrete pad, enclosure, or support structure that is located or contingent to a surface structure previously demolited and disposed off will need to be removed from its existing site and placed in a concrete holding area on the project site. This area is to belocated on the north side of the site in a marked concrete holding area. This holding area can be seen on Figure 2. All concrete should be broken down into a suitable size for disposal (approximately 500 pound chunks). and free of any debris.

Upon removal of all concrete from the project site surface, all gravel that is existing on the surface must be scrapped-off. The gravel is to be stockpiled, free of any debris, on the north side of the project side in a marked holding area for gravel. This holding area can be seen on Figure 2.

Upon removal of all gravel from the project site surface, the asphalt layer must be dug up. The asphalt is to be stockpiled on the north side of the project site in a marked holding area for asphalt. All asphalt should be broken down into a suitable size for disposal (approximately 500 pound chunks). Ensure that minimal soil is included with the removed asphalt and is free of any debris. This holding area can be seen on Figure 2.

A local Contractor(s), who is/are yet to be determined, will be performing disposal of all the collected concrete, gravel, and asphalt. Specific scheduling and pickup and disposal requirements will be determined in the near future upon contractual agreement.

10. Piping Trench Layout (Level C/D PPE)

Prior to any excavation and trenching for subsurface water and fuel piping, the grid map developed at the start of the project and the Beling site maps are to be utilized to layout the suspected areas and piping run locations. utilize piping disconnected from the surface structures, along with magnetometer surveying to assist in locating the remaining piping locations. All piping excavation are to start on the north side of the project and work south. Additional guidance and instructions will be provided by Beling Consultants and Technical Assistance from PWC - Great Lakes Environmental Department at the project site.

11. Trench Excavation, Piping Removal/Disposal (Level C/D PPE)

Suspected piping locations should be excavated slowly taking care not to rupture any of the lines (water, fuel, or drain) or possible cutting into underground storage tanks or underground sumps. The width of the trenching will be approximately three (3) feet. The depth will range from two (2) to four (4) feet approximately. Once a piping run is unearthed, it should be used as guidance for excavating the remaining runs from it. All excavated soil is to be stockpiled adjacent to the trenching and covered with six (6) mil plastic sheeting. The soil is to remain in this state until bioremediation backfilling can be conducted in the future.

Unearthed piping (***ONLY FUEL AND WATER PIPING***) is to be cut in place, any held liquid drained into a suitable disposal container, capped and crimped, and removed from the trench. All cutting is to be accomplished by a mechanical means, only. ***There is to be no torch cutting performed.*** Spills are to be immediately recovered by using absorbent pads and other required response materials. Contain and dispose of the used spill materials properly. All removed piping is to be placed in the roll-off containers supplied by DRMO. The scrap metal is to be recycled by DRMO.

Care is to be taken during excavation to minimize disturbance of any drain tile and piping. Hand augers and/or probing rods will be utilized to confirm the presence of drain tiles in areas where they are believed to intersect or parallel the fuel and water piping to be removed. Any drain tile overlying fuel and water piping is to be left in place. Underlying fuel and water piping is to be cut, drained, capped/crimped and pulled out from beneath the drain tile. Vitreous and cast iron drain tile, if damaged, is required to be repaired.

SPILL RESPONSE for DAMAGED/RUPTURED DRAINAGE PIPING

If a drainage pipe is encountered and accidentally ruptured, the site health and safety level may need to be immediately upgraded. All work is to stop and the Environmental Department and the Safety Office is re-evaluate the situation and respond and direct as needed (i.e., appropriate ppe level and work pratcices). Qualified hazardous workers/spill responders are to perform proper spill containment and cleanup utilizing appropriate means and methods. A minimal and residual amount of liquid is anticipated to be held within any of the drain piping. PWC - Great Lakes, qualified hazardous workers, are to expose the broken section of pipe at the nearest joints and insert dissimilar connections to accommodate insertion of the PVC joint. Work may continue as planned after piping repairs.

12. Bioremediation (Level C/D PPE)

An innovative technology is slated to be utilized on this project. A biopile will be established using the contaminated trenching and excavated soil. This will be fed a nutrient mixture and provided with sufficient oxygen to support degradation of the petroleum contamination. Any contaminated groundwater will be treated in-situ through an undetermined technology while also supporting moisture content for the biopiles.

The bioremediation effort will be jointly developed, implemented, and maintained between the efforts of Navy Public Works Center - Great Lakes, Engineering Field Activity - Midwest, and Beling Consultants. Bioremediation details and procedures will be provided by plans and drawings developed by Beling Consultants.

Revisions to the existing PWC - Great Lakes job plan, Appendix I, will be incorporated through revisions to this document. PWC - Great Lakes assistance in the bioremediation phase will be determined upon agreement of the treatability design.

13. Future Plans and Actions

Asbestos abatement and demolition of the four (4) compartment buildings, gas chamber, and the administrative and boiler tower building will be handled contractually through PWC - Great Lakes and EFA - Midwest. Expected contract specifications and awards to be from Winter 1996 through Spring 1996.

Removal of all underground and aboveground storage tanks and sumps will also be handled contractually. Expected contract specifications and awards to be Summer 1996, pending bioremediation completion and tank and sump locating.

Final site closure is to include removal and cleanup of all hazardous drain piping and tile along with any hazardously contaminated soil and groundwater. This phase will also be handled contractually and will require further sampling, risk assessment, and treatability and remediation options.

Unknown to their disposition and remediation are the two (2) decant ponds near to the duplex oil/water separator and the also the perimeter ditch itself. Sampling and studies will be needed to appropriately address contaminates and methods of cleanup.

Appendix I

PWC Job Plan

To Be Developed By Code 500/700

Appendix II

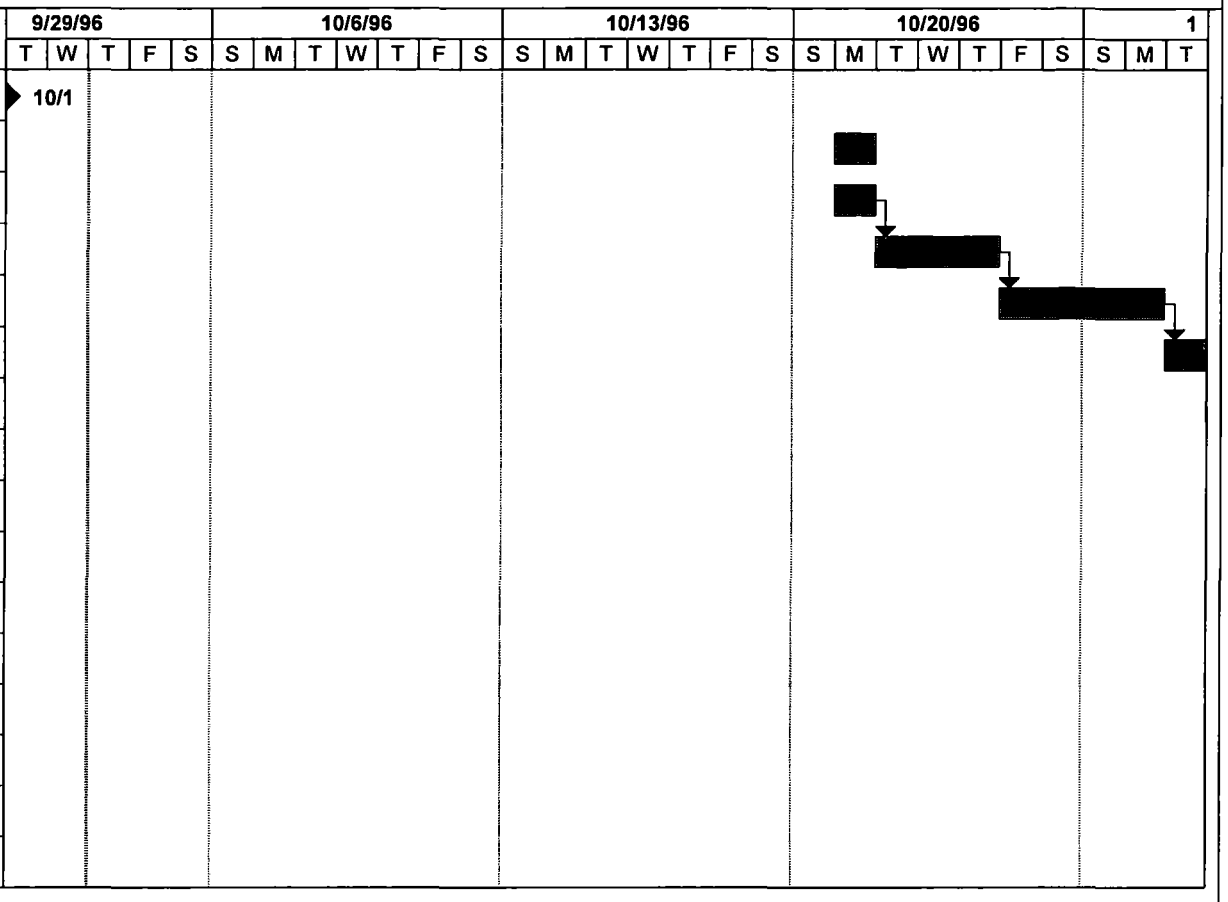
Site Health and Safety Plan

Appendix III

Schedule

FFTU REMEDIATION

ID	Task Name	Duration	Start	Finish
1	Planning	10d	Tue 10/1/96	Mon 10/14/96
2	Mobilize	1d	Mon 10/21/96	Mon 10/21/96
3	Set-Up	1d	Mon 10/21/96	Mon 10/21/96
4	Erosion Control	3d	Tue 10/22/96	Thu 10/24/96
5	Clear & Grub	2d	Fri 10/25/96	Mon 10/28/96
6	Grid Site	1d	Tue 10/29/96	Tue 10/29/96
7	Surface Demo	5d	Wed 10/30/96	Tue 11/5/96
8	Concrete Removal	2d	Wed 11/6/96	Thu 11/7/96
9	Gravel Removal	2d	Fri 11/8/96	Mon 11/11/96
10	Asphalt Removal	3d	Tue 11/12/96	Thu 11/14/96
11	Trench Layout	1d	Fri 11/15/96	Fri 11/15/96
12	Trench Excavation	10d	Mon 11/18/96	Fri 11/29/96
13	Bioremediation	180d	Mon 12/9/96	Fri 8/15/97
14	Asbestos/Demo of Bldgs	10d	Mon 1/13/97	Fri 1/24/97
15	UST/AST Removal	10d	Mon 5/19/97	Fri 5/30/97
16	Hazardous Remediation	30d	Mon 8/25/97	Fri 10/3/97



Project:
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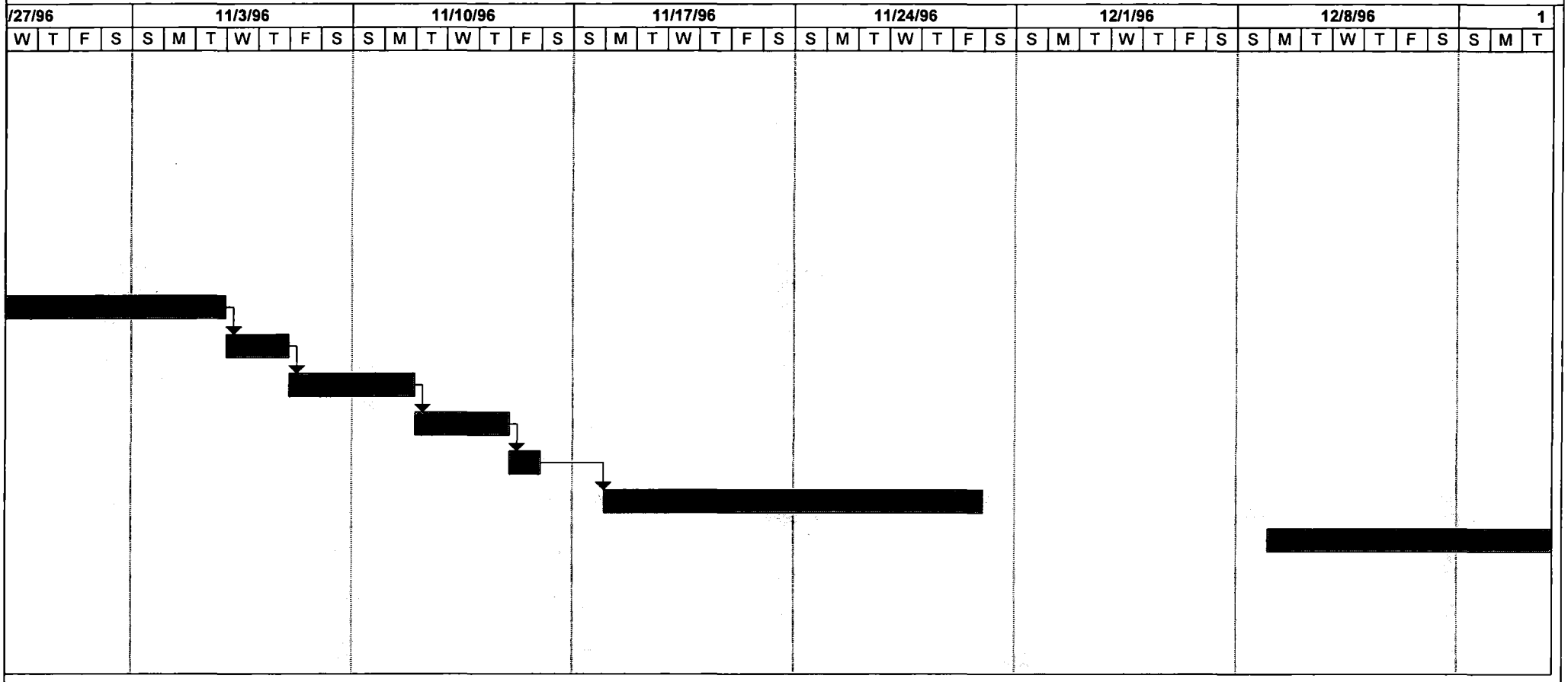
Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

FFTU REMEDIATION



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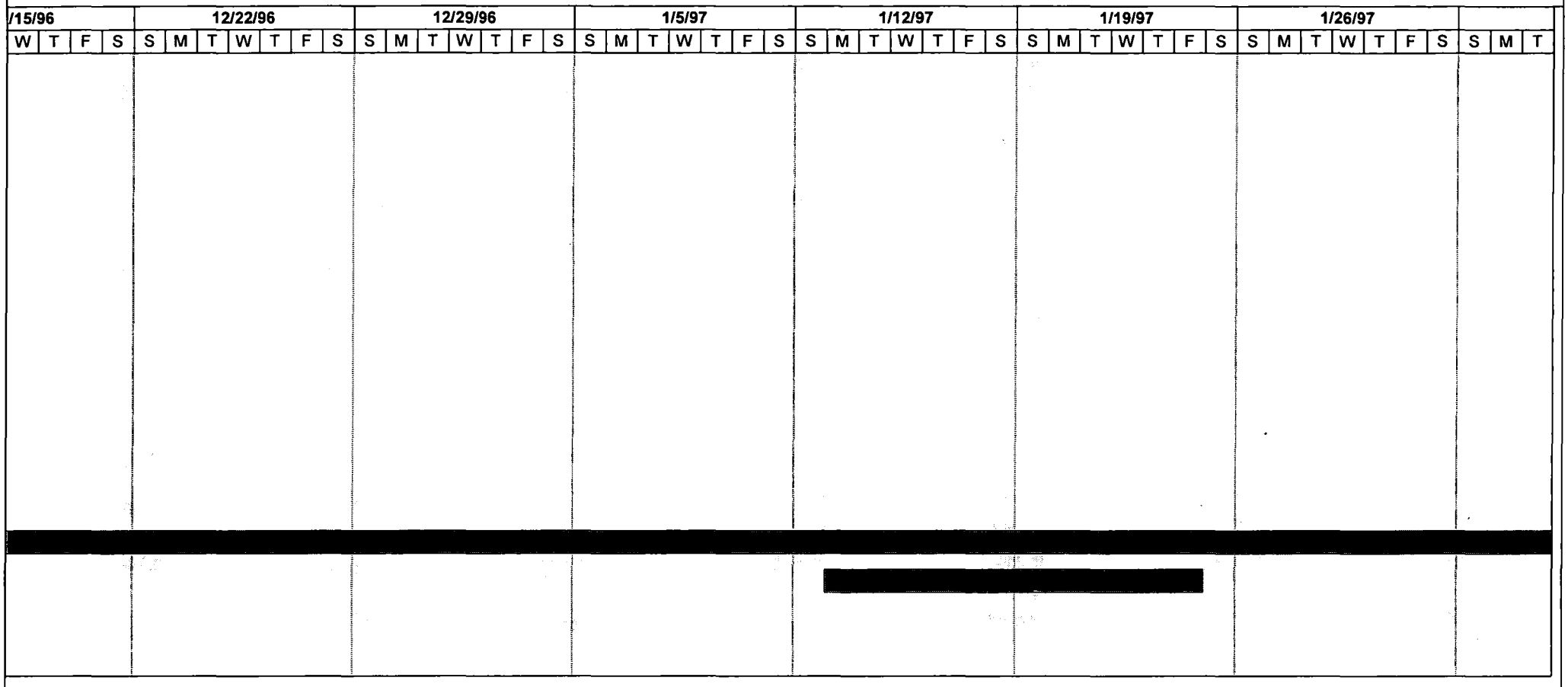

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Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

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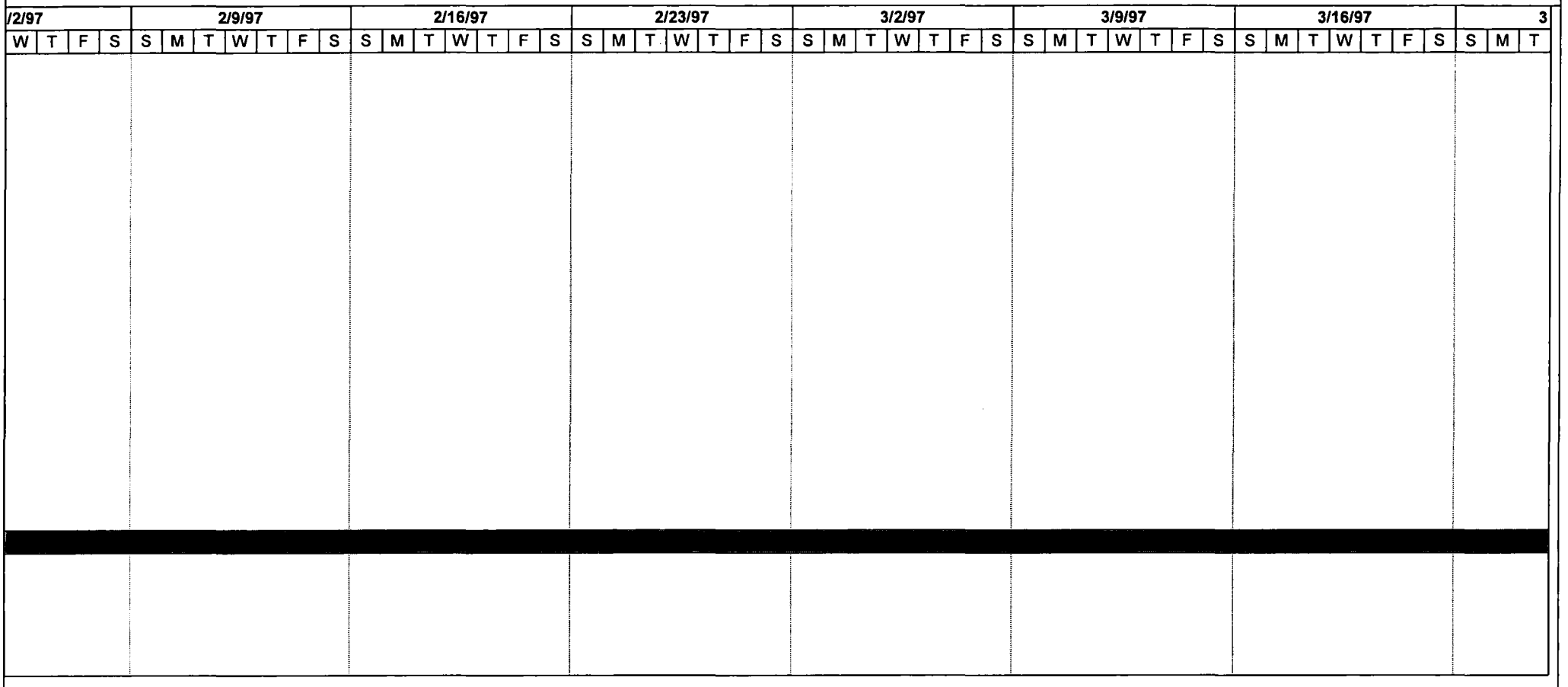

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Task
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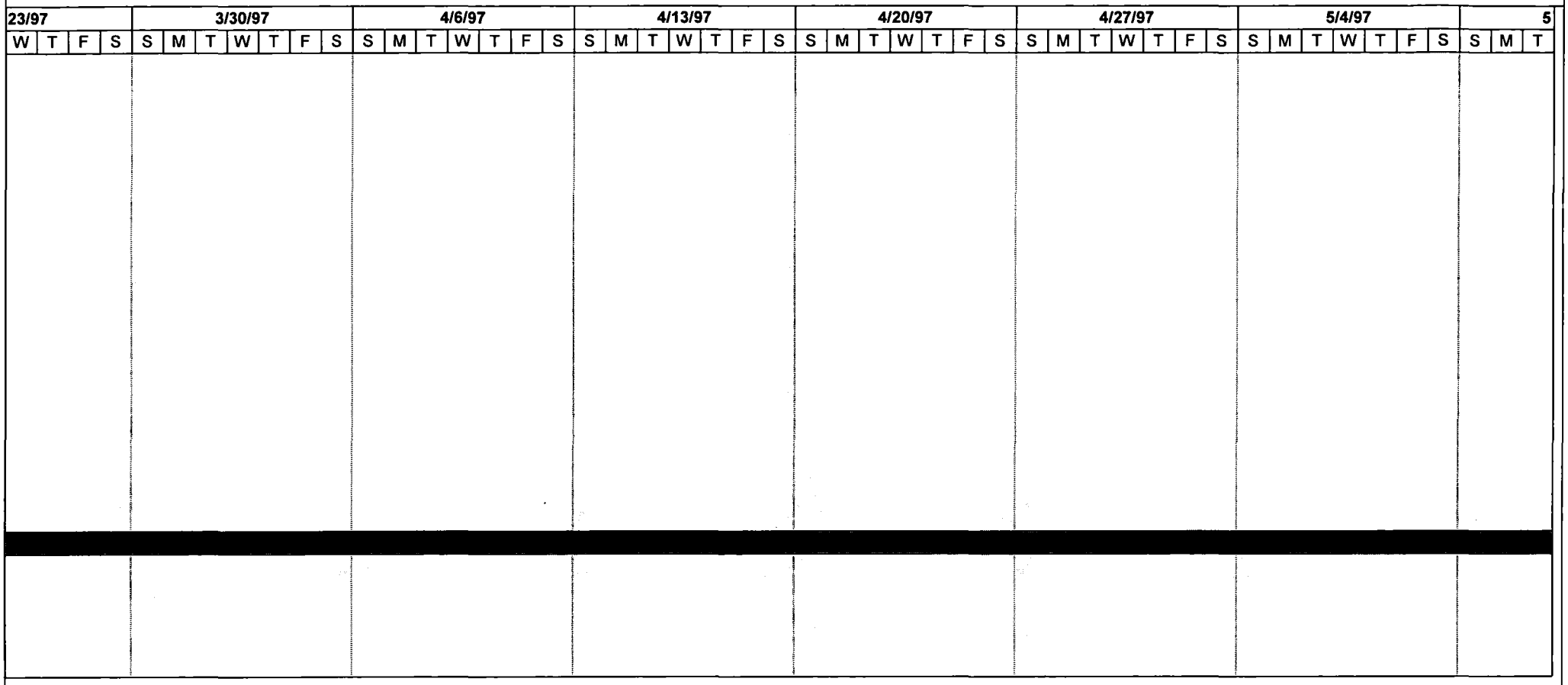

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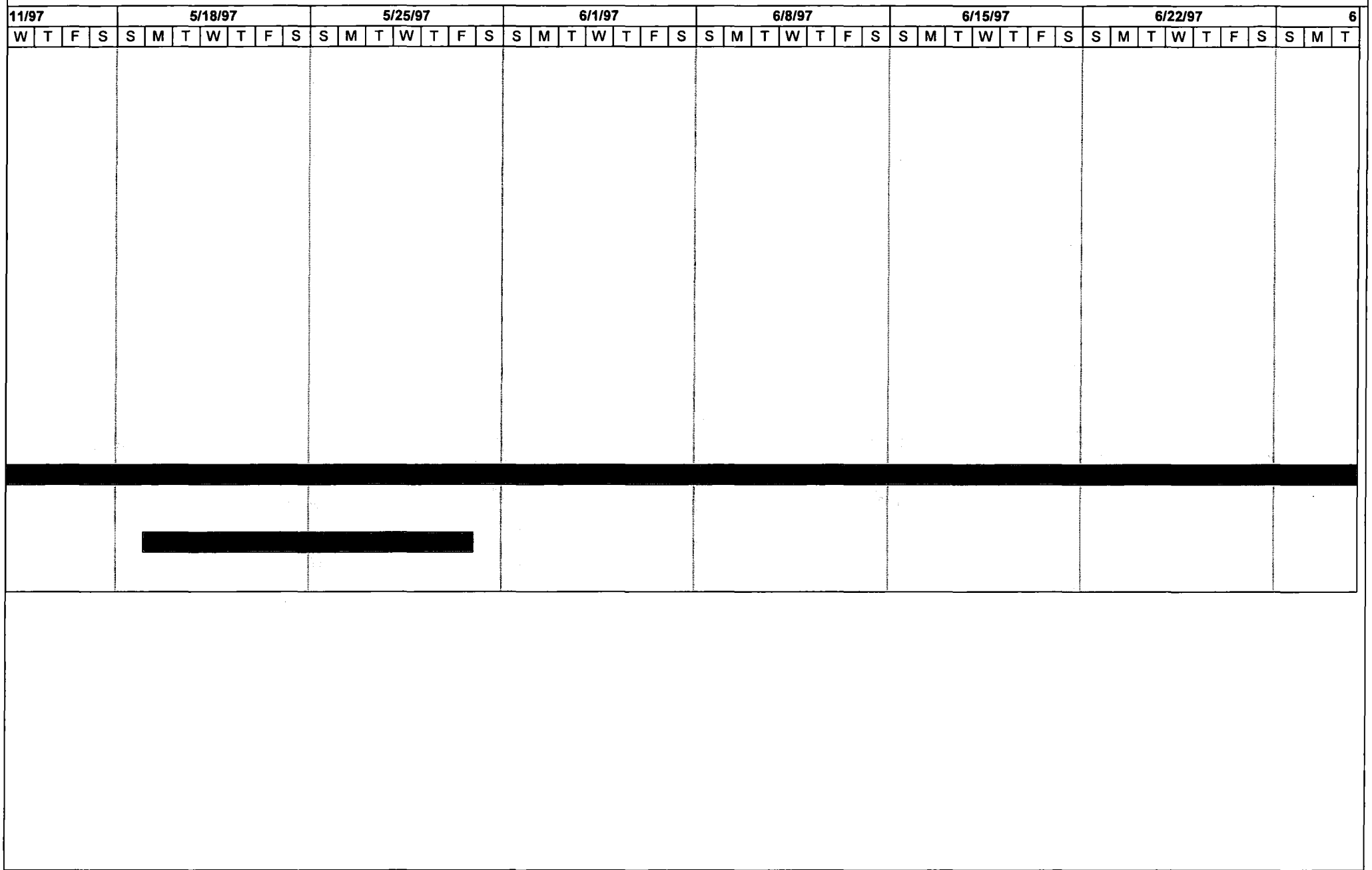

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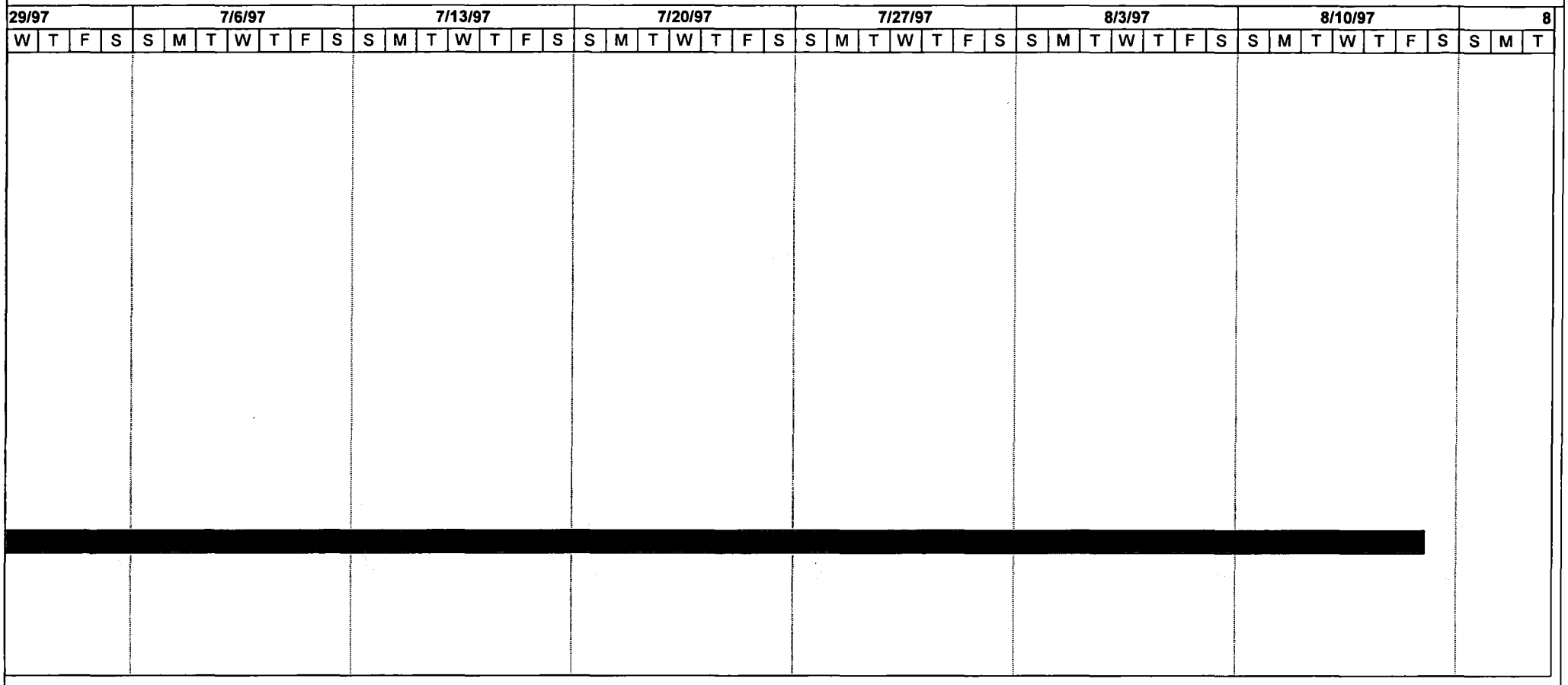

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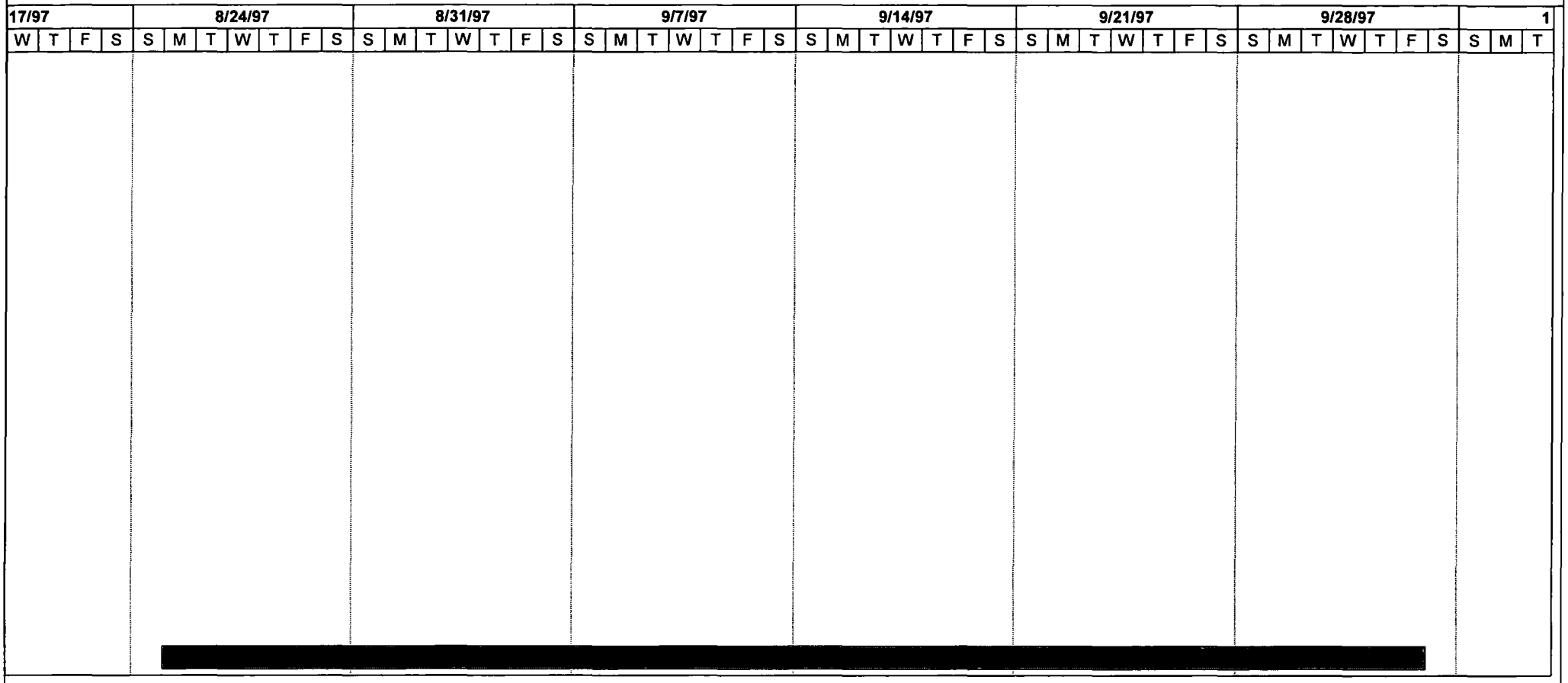

Project:
Date: Thu 10/3/96

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

Appendix IV

Stormwater Pollution Prevention

BELING CONSULTANTS

Professional Engineering and Environmental Services

July 31, 1996

Department of Navy
Engineering Field Activity, Midwest
Building 1-A, Code 920
2703 Sheridan Road, Suite #120
Great Lakes, Illinois 60088-5600

Attn: Mr. Michael Hanson, P.E., Environmental Engineer

SUBJECT: STORM WATER POLLUTION PREVENTION PLAN (SWP3)
FFTU SITE RESTORATION
GREAT LAKES NAVAL TRAINING CENTER
OUR FILE: 29646-B-15,879-28-1

Dear Mr. Hanson:

Please review the enclosed document and drawings, both of which comprise the "Storm Water Pollution Prevention Plan" (SWP3) for the Fire Fighting Training Unit (FFTU) located at the Great Lakes Naval Base in Great Lakes, Illinois. This SWP3 (document with drawings) is submitted in accordance with our contract dated May 1, 1996, Number N68950-95-D-9021.

The SWP3 plan has been developed in accordance with provisions of the Federal Clean Water Act and appropriate State & County regulations and guidance. The sources of information regarding the size and location of subsurface drainageways and associated items include:

- U.S. Naval Training Station "Piping Plan" - Drawing No.286,490, dated December 21, 1943.
- Department of the Navy District Public Works Office "Proposed Golf Course Grading Plan" - Drawing No.648.19, date unknown.
- Site visit.

The locations of subsurface features have not been field verified. Based upon the information above, a conscientious effort has been made to plan for contingencies and to minimize the potential for problems due to stormwater and erosion. However, this plan may need to be revised as the remediation program progresses.

This finalized document should be kept on site and referred to by the PWC and its subcontractors. The original should be retained in the Navy files of the Engineer in Charge.

Sincerely,

BELING CONSULTANTS, INC.

Molly E. Arp, Geologist, CHMM
Manager - Environmental Compliance

enc
kjy
cc: Tony Andrews, Engineer in Charge
FFTU Restoration Project
H.Mayer, M.K.Flenker - Beling Consultants
File #29646 - chrono

FIRE FIGHTING TRAINING UNIT (FFTU)

STORM WATER POLLUTION PREVENTION PLAN

GREAT LAKES NAVAL BASE
GREAT LAKES, ILLINOIS

July 31, 1996

Prepared by:

BELING CONSULTANTS

TABLE OF CONTENTS PAGE

INTRODUCTION

This Storm Water Pollution Prevention Plan (SWP3) has been developed in accordance with provisions of the Federal Clean Water Act and in accordance with appropriate State and County regulations and guidance. This Plan provides guidance to the Navy regarding erosion control and pollution prevention. The Engineer in Charge for the Navy will provide direction regarding contingencies and incidents not specifically addressed in the Plan.

This Plan pertains to industrial/remediation activity necessary to remediate the Fire Fighting Training Unit (FFTU) site. The Naval Training Center, Great Lakes, Illinois is the owner of the FFTU site.

This SWP3 consists of a written plan document and a set of plans titled "Storm Water Pollution Prevention Plan for the FFTU Site Remediation Project", dated July 31, 1996. The set of plans includes a cover sheet and two drawings. The Engineer in charge will be responsible for maintaining the "official" copy of this Plan, including document and drawings, which will remain at the project site at all times and will be made available to the public and/or governmental agencies upon request. This "official" plan will be kept current; it will be amended whenever there is a change in construction plans which has a significant effect on the potential for the discharge of pollutants to the "Waters of the State" which has not otherwise been addressed in the Plan, or if the SWP3 proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified within the Plan.

The Navy Public Works Center (PWC) will be performing work at the site and is responsible for implementing this Plan as directed by the Engineer in Charge, and for providing stormwater control during the transition of remediation phases and contractors.

EMERGENCY TELEPHONE NUMBERS

Following are the names and telephone numbers of key personel to be contacted in case of an emergency:

Tony Andrews	Navy Engineer in Charge	(847)-657-1158
Ed Bickel	Navy NTC-ENC/Engineer Technician	(847)-688-4295
Michael A. Hanson	Navy EFA-MW/Environ. Engineer	(847)-688-5997
Kelly Devereaux	Navy Sr. Environmental Coordinator	(847)-688-2628
Molly Arp	Beling Consultants/Project Manager	(309)-757-9800
Medical Emergency	Fire/Police	(847)-688-3333

DESCRIPTION OF SITE ACTIVITIES

The objective of this overall project is to remediate the FFTU site to a condition appropriate for future use as a golf course. The cleanup objectives, yet to be established by IEPA and USEPA, will determine when final seeding and closure activities can take place.

The major soil disturbing activities will include: excavation of trenches for pipe removal, excavation of underground storage tanks, removal of paving, as directed, removal of concrete demolition debris; maintaining stabilized pathways for vehicle and equipment access; perimeter ditch relocation if necessary, and preparation for final seeding.

This overall remediation project is to be implemented in phases with activities such as:

- trenching, removal of fuel lines, underground storage tanks (USTs), water supply piping;
- additional trenching, removal of subsurface drainageway piping;
- additional excavation as necessary;
- stockpiling scrap metal;
- stockpiling recyclable paving;
- stockpiling soil;
- stockpiling of materials and wastes to be disposed off site;
- remediation of soil and/or groundwater.

This SWP3 is to be reviewed and implemented by PWC and Navy contractors and subcontractors involved with the disturbances of soil and/or the stockpiling of materials at the site.

The following erosion control measures are planned for the anticipated activities; the anticipated sequence of activities is subject to change:

1) Maintain stabilized construction entrance (as necessary);
2) Install silt and construction fencing;
3) Place 6 mm. plastic sheeting and roll-off boxes in stockpile areas for use as needed;
4) Drain fuel pipes and tanks;
5) Remove paving in areas to be disturbed by initial activities;
6) Remove fuel and water supply piping;
7) Remove underground storage tanks;
8) Remove aboveground structures;
9) Remedial investigation;
10) Reroute perimeter ditch (if required by regulatory agencies);
11) Remove subsurface drainageway piping;
12) Remove pavement as directed;
13) Drain and fill lagoons with suitable backfill;
14) Perform remediation excavation; potentially construct bioremediation structures on-site;
15) Final grade denuded areas;
16) Seed disturbed areas with permanent seed mixture;
17) Remove erosion control structures after soil-disturbing activities have been completed and uniform cover has been established (when 80% of the area has stabilized or has vegetative cover).

Runoff Coefficient: The estimated runoff coefficient of the project site after remediation activities are complete is expected to be below 0.35 (dimensionless). This coefficient was derived from Table 4-103a (Chapter 4 "Hydraulics") located in the Illinois Department of Transportation's "Drainage Manual" and is provided herein pursuant to SWP3 guidance. The quality of the soil after remediation should support the growth of grass.

Site Area: The site is approximately 8.5 acres, of which approximately 90% will be disturbed by remediation activities. During remediation activities, the surface area, previously 80% impermeable, will probably be restored to a seeded, permeable surface.

Receiving Water: The site will continue to drain into a tributary of Skokie Ditch which is approximately 250 feet from the site.

Pollutants: The substances believed to pose a potential threat to waters of the State consist of:

- silt or dust generated from demolition/remediation activities;
- residual petroleum product in trenches, on piping, in tanks;
- residual solvents not confirmed to have been present.

If hazardous constituents are identified, appropriate waste segregation, containment, and runoff control procedures are to be implemented by the Contractor.

CONTROLS:

The following are the minimum controls to be used to implement this Plan. The types of controls and locations indicated in this plan will be applied to additional locations as indicated during excavation and remediation activities. Additional erosion control measures (locations and types), and/or modifications of current control systems will be taken as conditions warrant.

Stabilization Controls Practices:

Temporary Stabilization: Where construction activity temporarily ceases for 21 days or more during field activities, soil stockpiles and disturbed portions of the site will be stabilized with "temporary" seed and mulch no later than 14 days from the last construction activity in that area. The "temporary" seed will be Perennial Ryegrass applied at the rate of 50 pounds per acre, and Spring Oats at the rate of 64 pounds per acre (or equivalent as approved by the Engineer in Charge). After seeding, each area will be mulched with 2 tons of straw per acre. If "temporary" seeding will not be effective in controlling erosion of the stockpiles, than a mulch such as grass, hay, woodchips, wood fibers, straw or gravel may be placed in the areas. All vegetative mulch will be generally free of weeds; all mulch generally free of debris. Disposal of temporary stabilization materials will be performed under the direction of the Engineer in Charge.

Permanent Stabilization: Disturbed portions of the site where construction activity permanently ceases should be stabilized with permanent seed no later than 14 days after the last construction activity. Areas to receive permanent seeding will have topsoil of a minimum depth of six (6) inches. The topsoil may consist partially of soil previously excavated. Topsoil will be free of cinder, clods, rocks, sticks, roots, slag, trash and other extraneous materials larger than 1 inch in diameter. PH of topsoil material will be between 6.0 and 7.5. Any irregularities in the surface resulting from topsoiling or other operations will be corrected in order to prevent the formation of depressions of water pockets. Topsoil will not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

The permanent seeding will be in accordance with applicable portions of Section 250 of the Illinois Department of Transportation "Standard Specifications for Road and Bridge Construction", adopted July 1, 1994. The seed mixture to be used will conform to the requirements of Section 250 for Seeding, Class 1; ground agricultural lime and fertilizer will also be used in accordance with Section 250. Mulch will be used on all permanently seeded areas and be in accordance with applicable portions of Section 251, specifically - Method 1.

The term "Engineer" as used in the Illinois Department of Transportation "Standard Specifications for Road and Bridge Construction", adopted July 1, 1994, as well as in the "Supplemental Specifications and Recurring Special Provisions", adopted February 1, 1996, is to be interpreted as the Engineer in Charge.

Roadways: Roadways will be protected from sediment tracking by maintaining a stabilized aggregate surface at the ingress/egress point as necessary; one that will prevent tracking of mud and dirt onto the public roadways. The stabilized aggregate surface will be a minimum of 70 feet long between the construction site and the public roadway, and consist of a 6" depth of compacted aggregate meeting one of the following Illinois Department of Transportation's gradations: CA-1, CA-2, CA-3, or CA-4. Dump trucks hauling material to and from the construction site will be covered with a tarpaulin.

Structural Control Practices:

Silt Fence: The fencing will be constructed downslope from the disturbed areas to filter sediment from the surface drainage leaving the site before entering the drainage ditch. Catchbasins, drains, and inlets to remain after each phase of remediation and which are downstream from construction activities, will have a silt fence placed on the upstream side of them to intercept sediment (see detail on sheet 2 of 2, of the drawings). This procedure will help prevent sediment from entering the subsurface drainageways.

Sediment will be removed when it has reached one-fourth the height of the fence. Placement or disposal of the sediment will be determined by the Engineer in Charge based on analytical data or knowledge of material.

Construction Fence: A construction fence will be provided on the "project side" of the perimeter ditch (wetland) wherever silt fences are not required (as indicated on sheet 2 of 2) in order to prevent disturbance by construction activities.

Earth Berm: The existing earth berm that separates the perimeter ditch from the project site will not be disturbed. This berm will help aid in preventing sediment from entering the drainage ditch.

Plastic Sheeting and Roll-Off Boxes: These are to be used to minimize the contamination of stormwater from the stockpiled materials, when necessary. Fuel piping will be stockpiled in the roll-off boxes and covered with plastic sheeting to prevent exposure to precipitation. Roll-off boxes will be structurally sound, and void of holes (including punctures and rust-throughs).

Plastic Sheeting: Placed under and over stockpiled material (as appropriate) including contaminated soil from trenches/excavations, and steel/cast iron piping.

Storm Water Management:

Storm water drainage from the project site is expected to be minimal due to the relatively flat topography of the site and the time of year (late summer, and fall). The site will be graded to flow uniformly to the west (as it presently does) and eliminate areas where ponding occurs. The surface drainage from the site will continue to drain toward the Skokie Ditch. When remediation is complete, the site will be seeded.

Subsurface drainageway piping, and other piping, that is partially removed during the initial phases of the remediation processes will be capped.

Other Controls:

The Environmental Protection Plan will be implemented in addition to this Plan.

Control measures must be maintained throughout the project as required. PWC is responsible for maintaining all controls in good and effective operating conditions. Silt fences and inlet protection (including catch basin & drain protection) will need to be cleaned and replaced/repaired as necessary to ensure effectiveness, as well as to eliminate flooding of the project site, or adjacent areas.

Schedule of Implementation:

1) Silt fence will be installed and maintained around catch basins, inlets, and drains before the initiation of trenching and stockpiling activities.
2) No area will be disturbed until it is necessary for construction to proceed.
3) Disturbed areas will be covered or stabilized as soon as possible. Temporary materials will be removed prior to site closure.

INSPECTION AND MAINTENANCE OF SWP3:

PWC Environmental will be responsible to ensure that control measures are effective in minimizing run-off from disturbed areas and to perform an inspection of the construction site and control measures at least once every seven calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater (or equivalent snowfall).

Each inspection must include, but not be limited to:

1) Disturbed areas and areas used for storage of materials that are exposed to precipitation must be inspected for evidence of, or the potential for, pollutants entering the drainage system. Control measures identified in this plan must be observed to ensure that they are operating correctly and that they are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the project site must be inspected for evidence of offsite sediment tracking.

2) Based on the results of the inspection, response actions must include a combination of Controls implemented as appropriate as soon as practicable after such inspection. Such responses must be documented and attached to the Plan within 14 calendar days following the inspection.

3) A report summarizing the response action must include the scope of the inspection, names(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWP3, and actions taken to correct measures as indicated in the above item 2 and the person(s) responsible for performing corrections. The report will be signed by the inspector and submitted to the Engineer in Charge. A copy of all reports and

   changes to the SWP3 should be retained and kept on file for a minimum of 3 years from the date of the inspection.

4) If an "incident of non-compliance" becomes apparent, the inspector will complete and submit within 5 days an "Incidence of Noncompliance" (ION) report (form is attached) to the Engineer in Charge. Failure to prevent contamination from posing a threat via stormwater runoff would require the completion of the ION. Specific information for ION form includes: the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. The

Engineer in Charge will review and comment on the completed form, sign the form, and submit it to:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section
2200 Churchill Road
Post Office Box 19276
Springfield, Illinois 62794-9276

Maintenance/Inspection Procedures:

The following minimal inspection and maintenance practices will be used and expanded as necessary to maintain erosion and sediment controls:

- Control measures will be inspected at least once a week and within 24 hours of any rainstorm event of 0.5 inches or greater (or equivalent snowstorm),
- Control measures will be maintained in good working order; if repair or replacement is necessary, it will be initiated within 24 hours of report.
- Sediment along silt fences will be checked and removed when it has reached one-fourth the height of the fence.
- Silt fences protecting inlets, catch basins, and drains will be cleaned and replaced/repaired as necessary after each incident of precipitation.
- Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- The existing earth berm that surrounds the eastern and northern edge of the project site will be inspected and repaired as necessary; any sediment that gathers at the base of the berm will be removed when it becomes one third the height of the berm. The sediment, if any, will be removed at the end of the project.
- The temporary and permanent seeding will be inspected for bare spots, washouts, and healthy growth. Bare spots, and washouts will be repaired.
- A maintenance inspection report will be made after each inspection in accordance with the above stated procedures.

- Pay costs of all damages for failure to maintain slope protection and controls indicated in this Plan.

IMPLEMENTATION OF SWP3:

Records of Construction Activities:

Minimum information to be included:

Dates when excavation activities occur in a particular area
Dates when demolition activities occur in a particular area
Dates when construction activities cease in an area, temporarily or permanently
Dates when stabilization measures are initiated on the site
Dates when project is complete
Date when Notice of Termination (NOT) form is submitted to Illinois EPA (NOT form available from EPA)

Modifications to SWP3:

Modifications to the Plan must be approved by the Engineer in Charge prior to implementation.

REFERENCES FOR CONTROLS:

Additional information regarding requirements and references for stormwater controls include:

References:

1) Standards and Specifications for Soil Erosion and Sediment Control, published by Illinois Environmental Protection Agency, latest edition.

2) Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control, published by Soil Conservation Service, latest edition.

3) Standard Specifications for Road and Bridge Construction, Adopted July 1, 1994, published by Illinois Department of Transportation and Supplemental Specifications and Recurring Special Provisions, Adopted February 1, 1996.

4) American Society for Testing and Materials, ASTM:

A. ASTM D751: Methods of Testing Coated Fabrics.
B. ASTM D1682: Test Methods for Breaking Load and Elongation of Textile Fabrics.
C. ASTM D3786: Test Method for Hydraulic Bursting Strength of Knitted Goods and Non-Woven Fabrics - Diaphragm Bursting Strength Testing Method.
D. ASTM G26: Practice for Operating Light-Exposure Apparatus (Xenon-Arc Type) With and Without Water for Exposure of Non-Metallic Materials.

PRODUCTS AVAILABLE FOR SWP3:

1. Silt Fence:

A) Silt Fence Fabric:

Fabric Properties	Min. Acceptable Value	Test Method
Grab Tensile Strength (lbs)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682
Mullen Burst Strength (PSI)	190	ASTM D3786
Puncture Strength (lbs)	40	ASTM D751 (modified)
Equivalent Opening Size	40-80	US Std Sieve CW-02215
Ultraviolet Radiation Stability (%)	90	ASTM-G-26

B) Fence Posts (For Field-Fabricated Units):
   1. Minimum Length: 36 inches long.
   2. Wood Posts: Sound quality hardwood with minimum cross sectional area of 3.0 square inches.
   3. Steel Posts: Standard T and U section weighing minimum 1 lb./lin. ft.

C) Wire Fencing (For Field-Fabricated Units): Minimum 14-1/2 gauge with maximum 6 inch mesh opening.

D) Prefabricated units may be used in lieu of above method providing unit is installed in accordance with manufacturer's instructions and has been approved by Engineer in Charge.

E) A shop drawing for the silt fence will be submitted to the Engineer in Charge. Information provided will include: 6" x 6" sample of fabric and manufacturer's specifications.

ATTACHMENT #2

GENERAL GUIDANCE - LAND GRADING AND FILLING

ATTACHMENT #3

CERTIFICATION

GENERAL GUIDANCE - LAND GRADING AND FILLING:

The PWC will fulfill the following:

A. General: Protect all graded or disturbed areas during remediation activities in accordance with SWP3 until they are adequately stabilized.

B. Standards: Control will be constructed, applied, and maintained in accordance with this Plan and the "Standards and Specifications for Soil Erosion and Sediment Control", (ILL. EPA) and "Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control",(SCS), latest editions.

C. Construction:

1. Provide topsoil and borrow material as necessary to complete finished grading of all disturbed areas.
2. Fill Areas: Cleared, grubbed, and stripped of vegetation, roots or other objectionable material.
3. Compaction:
   a) Compact all fill materials as required to reduce erosion, slippage, settlement, subsidence or other related problems.
   b) Compact fill intended to support buildings, structures and conduits in accordance with local requirements or codes.
4. Place and compact all fill in accordance with Article 205.06 of the Illinois Department of Transportation's "Standard Specifications for Road and Bridge Construction, Adopted July 1, 1994".
5. Do not place fill on frozen foundation.
6. Topsoil will not be placed until the area to be covered has been shaped and cleaned of debris. All irregularities or depressions in the surface due to weathering or other causes will be filled or smoothed out before topsoil is placed. Areas to receive topsoil will be scarified to a minimum 3-inch depth prior to placement of topsoil.
7. Permanently stabilize all graded areas immediately following finished grading.
8. The final grade (after placement of topsoil) will match into existing grade that was undisturbed and will provide for positive drainage which is void of depressions that allow for "standing" water.

Certification:

Field management personnel working for contractors and subcontractors at the project site will sign the following certification prior to providing services which disturb soil, modify drainage patterns of may provide a source of contamination exposed to stormwater at the project site.

"I certify under penalty of law that I understand the terms and conditions of the General National Pollutant Discharge Elimination System (NPDES) permit (ILR100000) that authorizes the storm water discharges associated with industrial activity for the construction site identified as part of this certification."

Name__________ Title__________
Company__________
Address__________
Telephone Number__________ Date__________
Responsible For__________

Name__________ Title__________
Company__________
Address__________
Telephone Number__________ Date__________
Responsible For__________

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Responsible For_____

Name_____ Title_____
Company_____
Address_____
Telephone Number_____ Date_____
Responsible For_____

Prepared By:

_____ _____

Meg F. Flenker, LA Date
Beling Consultants

_____ _____

Molly E. Arp, CHMM, Project Manager Date
Beling Consultants

Acknowledged By:

_____ _____

Anthony Andrews, Engineer in Charge Date
NAVFAC Midwest Facilities Activity

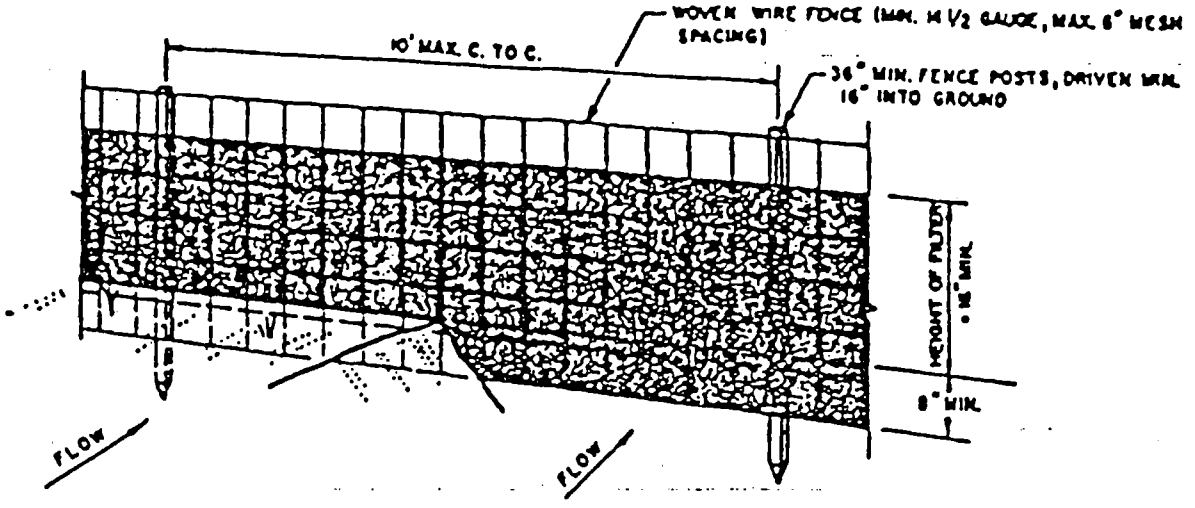
_____ _____

Michael Hanson, P.E. Date
Stormwater Manager

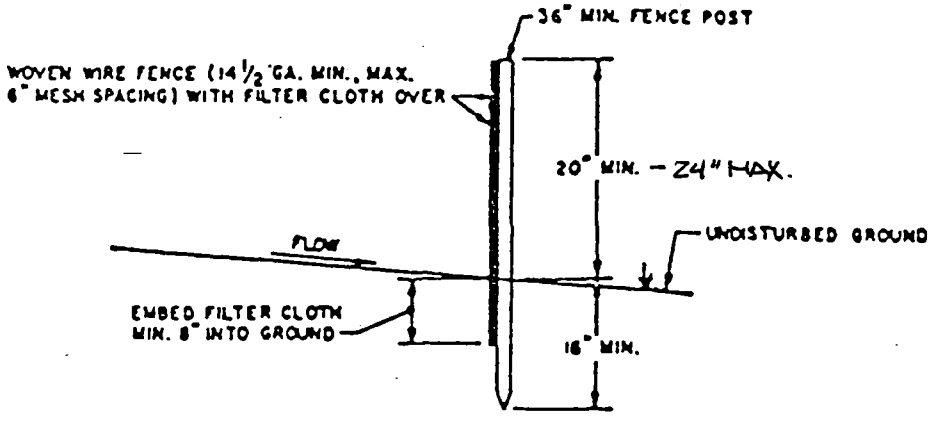
ATTACHMENT #4

SILT FENCE DETAIL

SILT FENCE



PERSPECTIVE VIEW



SECTION

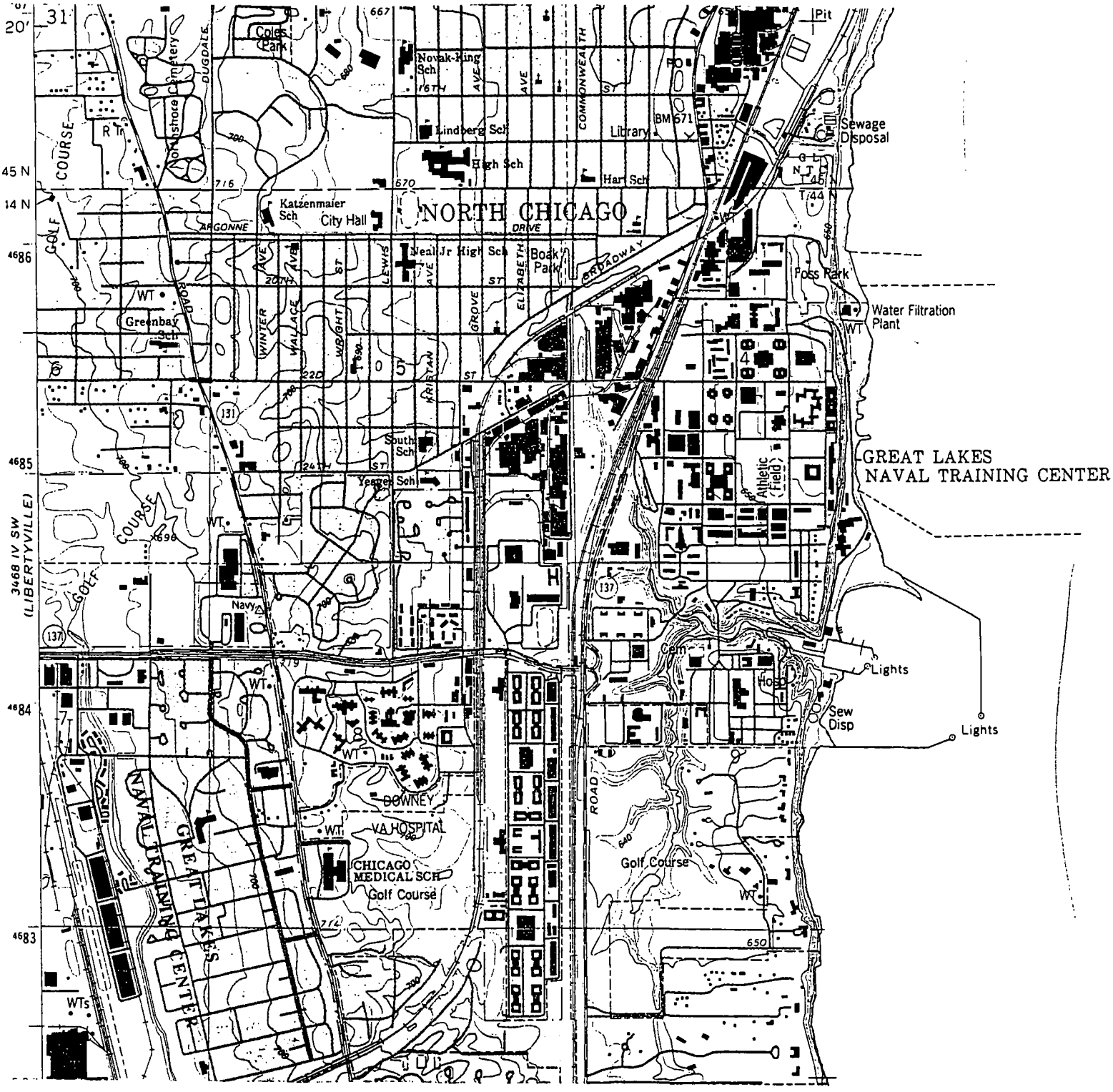
CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

	SILT FENCE	STANDARD DRAWING
		SF-1

ATTACHMENT #5

SITE MAP WITH CONTOURS (USGS MAP)



NOT TO SCALE

PREPARED BY:

BELING CONSULTANTS

Figures - Maps

STORM WATER POLLUTION PREVENTION PLAN

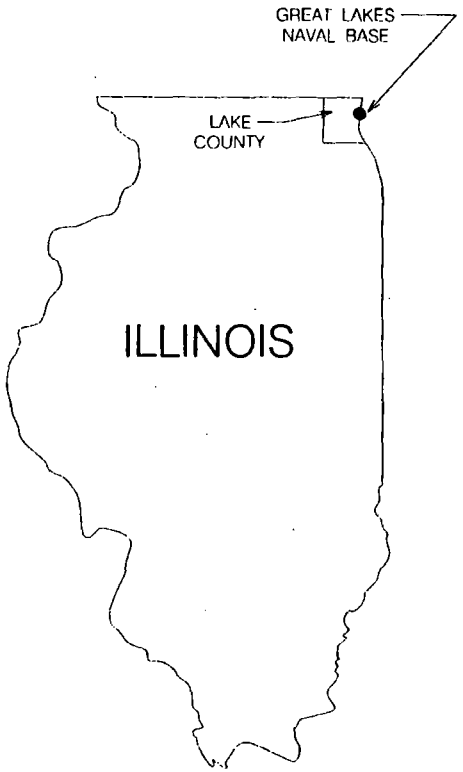
FOR THE

FIRE FIGHTING TRAINING UNIT (FFTU) SITE REMEDIATION PROJECT

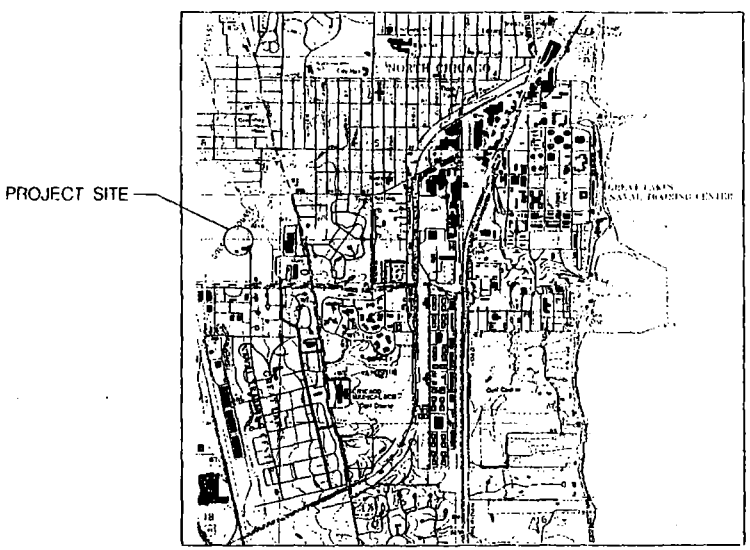
DRAFT

GREAT LAKES NAVAL BASE
GREAT LAKES, ILLINOIS

JULY 31, 1996



KEY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

CALL J.U.L.I.E. BEFORE DIGGING
1-800-892-0123

INDEX OF SHEETS

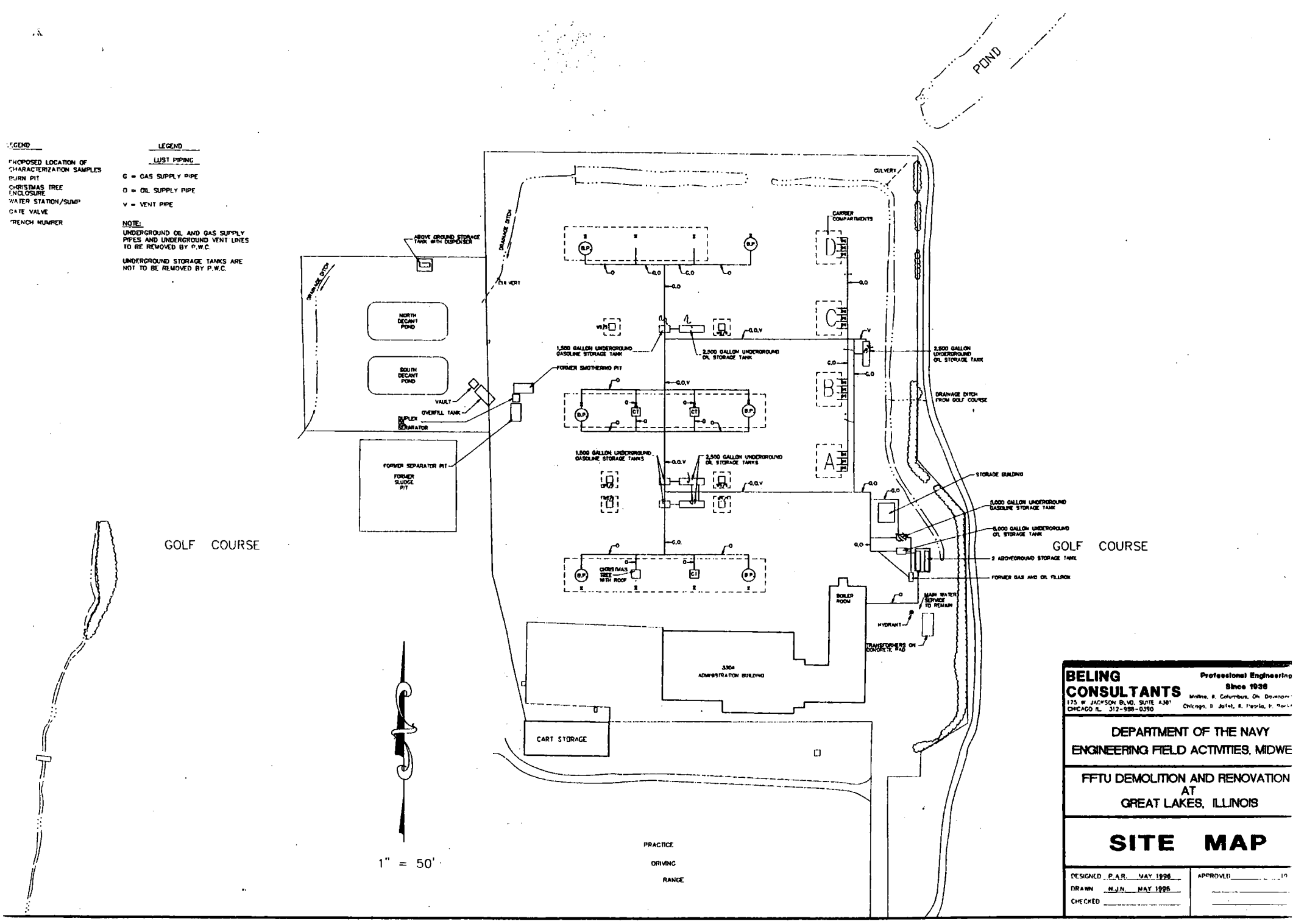
THIS SET OF DRAWINGS IS TO BE USED IN CONJUCTION WITH THE WRITTEN DOCUMENT TITLED: FIRE FIGHTING TRAINING UNIT (FFTU) 'STORM WATER POLLUTION PREVENTION PLAN', DATED JULY 31, 1996. THIS STORM WATER POLLUTION PREVENTION PLAN (SWP3) IS NOT A CONSTRUCTION PLAN, IT IS A GUIDANCE DOCUMENT TO BE UTILIZED BY THE 'CONTRACTOR(S)' PERFORMING CONSTRUCTION, DEMOLITION REMEDIATION ACTIVITIES AT THE SITE.

PREPARED BY:

BELING CONSULTANTS

MOLINE, ILLINOIS

JOB NO. 29646-B-15,879-28-1



BELING CONSULTANTS
Professional Engineering Since 1936
175 W. JACKSON BLVD. SUITE A381
CHICAGO IL. 312-998-0390
Moline, Il. Columbus, Oh. Davenport
Chicago, Il. Joliet, Il. Peoria, Il. Rockford

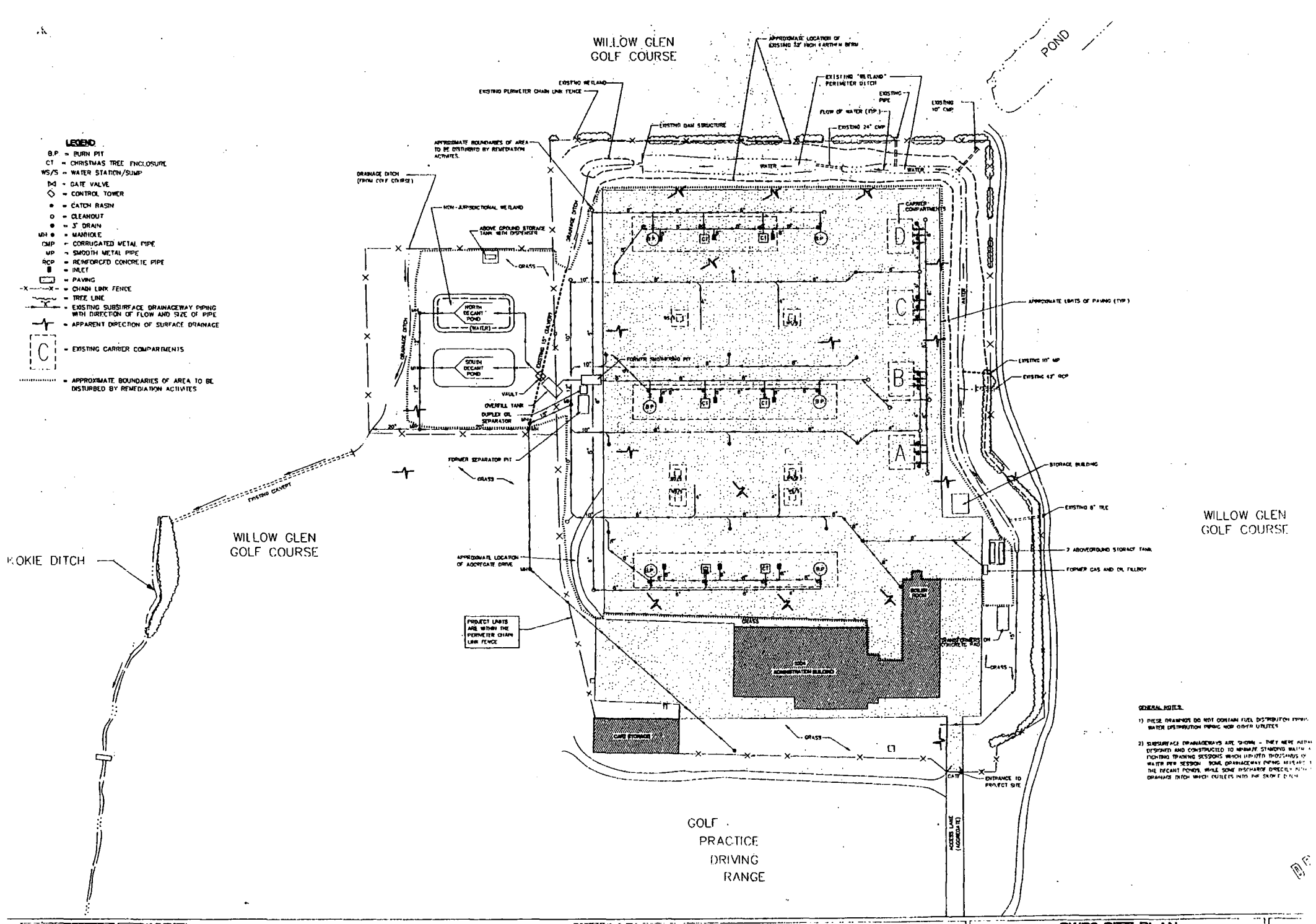
DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITIES, MIDWEST

FFTU DEMOLITION AND RENOVATION
AT
GREAT LAKES, ILLINOIS

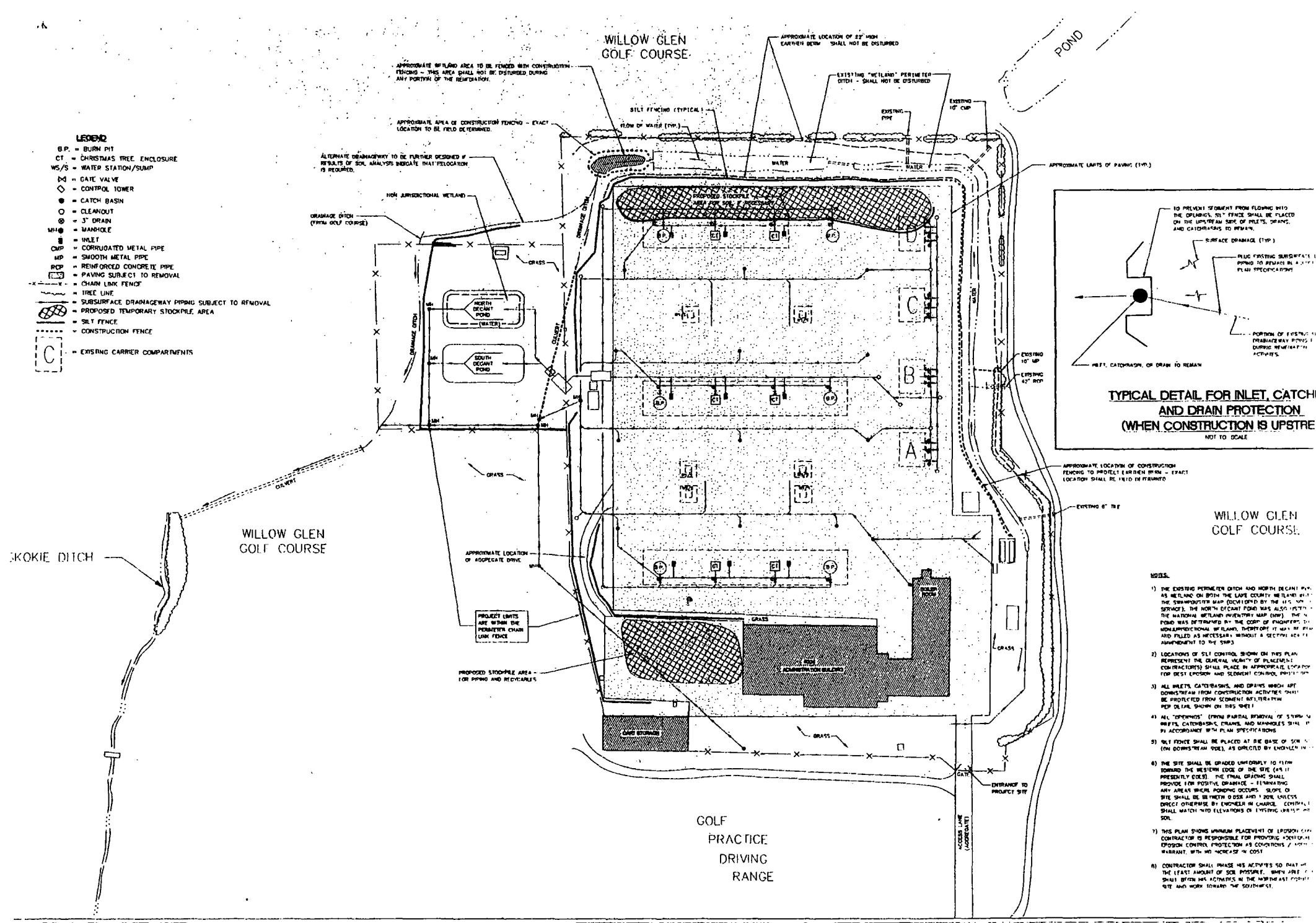
SITE MAP

DESIGNED P.A.R. MAY 1996
DRAWN N.J.N. MAY 1996
CHECKED

APPROVED



REMARKS		DESIGNED: MKF DRAWN: MKF CHECKED: HM/MFA DATE: JULY 31, 1996	BELING CONSULTANTS	Professional Engineering Since 1906 Moline, IL Columbus, Oh. Davenport, Ia Chicago, IL Harmond, In. Joliet, IL Peoria, IL Beloit, WI	N	50 0 25 50 100 GRAPHIC SCALE (IN FEET) 1 inch = 50 ft.	PRELIMINARY FINAL RECORD	SWP3 SITE PLAN FFTU SITE REMEDIATION GREAT LAKES NAVAL TRAINING CENTER	


WILLOW GLEN GOLF COURSE
POND
LEGEND
B.P. = BURN PIT
CT = CHRISTMAS TREE ENCLOSURE
WS/S = WATER STATION/SUMP
= GATE VALVE
= CONTROL TOWER
= CATCH BASIN
= CLEANOUT
= 3" DRAIN
= MANHOLE
= INLET
CMP = CORRUGATED METAL PIPE
MP = SMOOTH METAL PIPE
RCP = REINFORCED CONCRETE PIPE
= PAVING SUBJECT TO REMOVAL
= CHAIN LINK FENCE
= TREE LINE
= SUBSURFACE DRAINAGEWAY PIPING SUBJECT TO REMOVAL
= PROPOSED TEMPORARY STOCKPILE AREA
= SILT FENCE
= CONSTRUCTION FENCE
C = EXISTING CARRIER COMPARTMENTS
APPROXIMATE WETLAND AREA TO BE FENCED WITH CONSTRUCTION FENCING - THIS AREA SHALL NOT BE DISTURBED DURING ANY PORTION OF THE REMEDIATION.
APPROXIMATE LOCATION OF 22' HIGH EARTHEN BERM - SHALL NOT BE DISTURBED
EXISTING "WETLAND" PERIMETER DITCH - SHALL NOT BE DISTURBED
APPROXIMATE AREA OF CONSTRUCTION FENCING - EXACT LOCATION TO BE FIELD DETERMINED.
SILT FENCING (TYPICAL)
FLOW OF WATER (TYP.)
EXISTING PIPE
EXISTING 10" CMP
ALTERNATE DRAINAGEWAY TO BE FURTHER DESIGNED IF RESULTS OF SOIL ANALYSIS INDICATE THAT RELOCATION IS REQUIRED.
APPROXIMATE LIMITS OF PAVING (TYP.)
NON JURISDICTIONAL WETLAND
DRAINAGE DITCH (FROM GOLF COURSE)
PROPOSED STOCKPILE AREA FOR SOIL IF NECESSARY
GRASS
NORTH DECANT POND (WATER)
SOUTH DECANT POND
DRAINAGE DITCH
CULVERT
WATER
EXISTING 10" MP
EXISTING 42" RCP
TO PREVENT SEDIMENT FROM FLOWING INTO THE OPENINGS, SILT FENCE SHALL BE PLACED ON THE UPSTREAM SIDE OF INLETS, DRAINS, AND CATCHBASINS TO REMAIN.
SURFACE DRAINAGE (TYP.)
PLUG EXISTING SUBSURFACE PIPING TO REMAIN IN ACCORDANCE WITH PLAN SPECIFICATIONS
PORTION OF EXISTING SUBSURFACE DRAINAGEWAY PIPING TO BE REMOVED DURING REMEDIATION ACTIVITIES.
INLET, CATCHBASIN, OR DRAIN TO REMAIN
TYPICAL DETAIL FOR INLET, CATCHBASIN AND DRAIN PROTECTION (WHEN CONSTRUCTION IS UPSTREAM)
NOT TO SCALE
APPROXIMATE LOCATION OF CONSTRUCTION FENCING TO PROTECT EARTHEN BERM - EXACT LOCATION SHALL BE FIELD DETERMINED
EXISTING 6" TREE
WILLOW GLEN GOLF COURSE
SKOKIE DITCH
WILLOW GLEN GOLF COURSE
APPROXIMATE LOCATION OF AGGREGATE DRIVE
PROJECT LIMITS ARE WITHIN THE PERIMETER CHAIN LINK FENCE
PROPOSED STOCKPILE AREA FOR PIPING AND RECYCLABLES
BUILDING 1 ADMINISTRATION BUILDING
STORAGE
GRASS
GATE
ENTRANCE TO PROJECT SITE
ACCESS LANE (AGGREGATE)
GOLF PRACTICE DRIVING RANGE
NOTES:
1) THE EXISTING PERIMETER DITCH AND NORTH DECANT POND ARE SHOWN AS WETLAND ON BOTH THE LAKE COUNTY WETLAND INVENTORY MAP, THE SWAMPBUSTER MAP (DEVELOPED BY THE U.S. SOIL CONSERVATION SERVICE), THE NORTH DECANT POND WAS ALSO LISTED AS WETLAND ON THE NATIONAL WETLAND INVENTORY MAP (NWI). THE NORTH DECANT POND WAS DETERMINED BY THE CORP OF ENGINEERS TO BE A NON-JURISDICTIONAL WETLAND, THEREFORE IT MAY BE FILLED AND FILLED AS NECESSARY WITHOUT A SECTION 404 PERMIT AMENDMENT TO THE SWPPP.
2) LOCATIONS OF SILT CONTROL SHOWN ON THIS PLAN REPRESENT THE GENERAL VICINITY OF PLACEMENT. CONTRACTOR(S) SHALL PLACE IN APPROPRIATE LOCATIONS FOR BEST EROSION AND SEDIMENT CONTROL POSSIBLE.
3) ALL INLETS, CATCHBASINS, AND DRAINS WHICH ARE DOWNSTREAM FROM CONSTRUCTION ACTIVITIES SHALL BE PROTECTED FROM SEDIMENT INFILTRATION PER DETAIL SHOWN ON THIS SHEET.
4) ALL "OPENINGS" (FROM PARTIAL REMOVAL OF SYSTEM TO INLETS, CATCHBASINS, DRAINS, AND MANHOLES SHALL BE IN ACCORDANCE WITH PLAN SPECIFICATIONS.
5) SILT FENCE SHALL BE PLACED AT THE BASE OF SOIL (ON DOWNSTREAM SIDE), AS DIRECTED BY ENGINEER IN
6) THE SITE SHALL BE GRADED UNIFORMLY TO FLOW TOWARD THE WESTERN EDGE OF THE SITE (AS IT PRESENTLY DOES). THE FINAL GRADING SHALL PROVIDE FOR POSITIVE DRAINAGE - ELIMINATING ANY AREAS WHERE PONDING OCCURS. SLOPE OF SITE SHALL BE BETWEEN 0.05% AND 1.00% UNLESS DIRECT OTHERWISE BY ENGINEER IN CHARGE. CONTOURS SHALL MATCH INTO ELEVATIONS OF EXISTING GRADES AT SOIL.
7) THIS PLAN SHOWS MINIMUM PLACEMENT OF EROSION CONTROL. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADDITIONAL EROSION CONTROL PROTECTION AS CONDITIONS / WEATHER WARRANT, WITH NO INCREASE IN COST.
8) CONTRACTOR SHALL PHASE HIS ACTIVITIES SO THAT AT THE LEAST AMOUNT OF SOIL POSSIBLE. WHEN ARE SHALL BEGIN HIS ACTIVITIES IN THE NORTHEAST PORTION SITE AND WORK TOWARD THE SOUTHWEST.
REMARKS
DESIGNED: MKF
DRAWN: MKF
CHECKED: HM/MEA
DATE: JULY 31, 1998
BELING CONSULTANTS
Professional Engineering Since 1908
Moline, Il Columbus, Oh Davenport, Ia Chicago, Il Normond, In Joliet, Il Peoria, Il Beloit, Wi
GRAPHIC SCALE (IN FEET) 1 inch = 50
PRELIMINARY
FINAL
RECORD
EROSION CONTROL PLAN
FFTU SITE REMEDIATION
GREAT LAKES NAVAL TRAINING CENTER

LEGEND

- ⊗ = PROPOSED LOCATION OF CHARACTERIZATION SAMPLES
- B.P. = BURN PIT
- CT = CHRISTMAS TREE ENCLOSURE
- WS/S = WATER STATION/SUMP
- ⋈ = GATE VALVE
- TR X = TRENCH NUMBER
- (outline) = AREA TO BE TRENCHED
- ⊠ = LOOP CONTROL VALVE PIPES

NOTE:
UNDERGROUND OIL AND GAS SUPPLY PIPES AND UNDERGROUND VENT LINES TO BE REMOVED BY P.W.C.

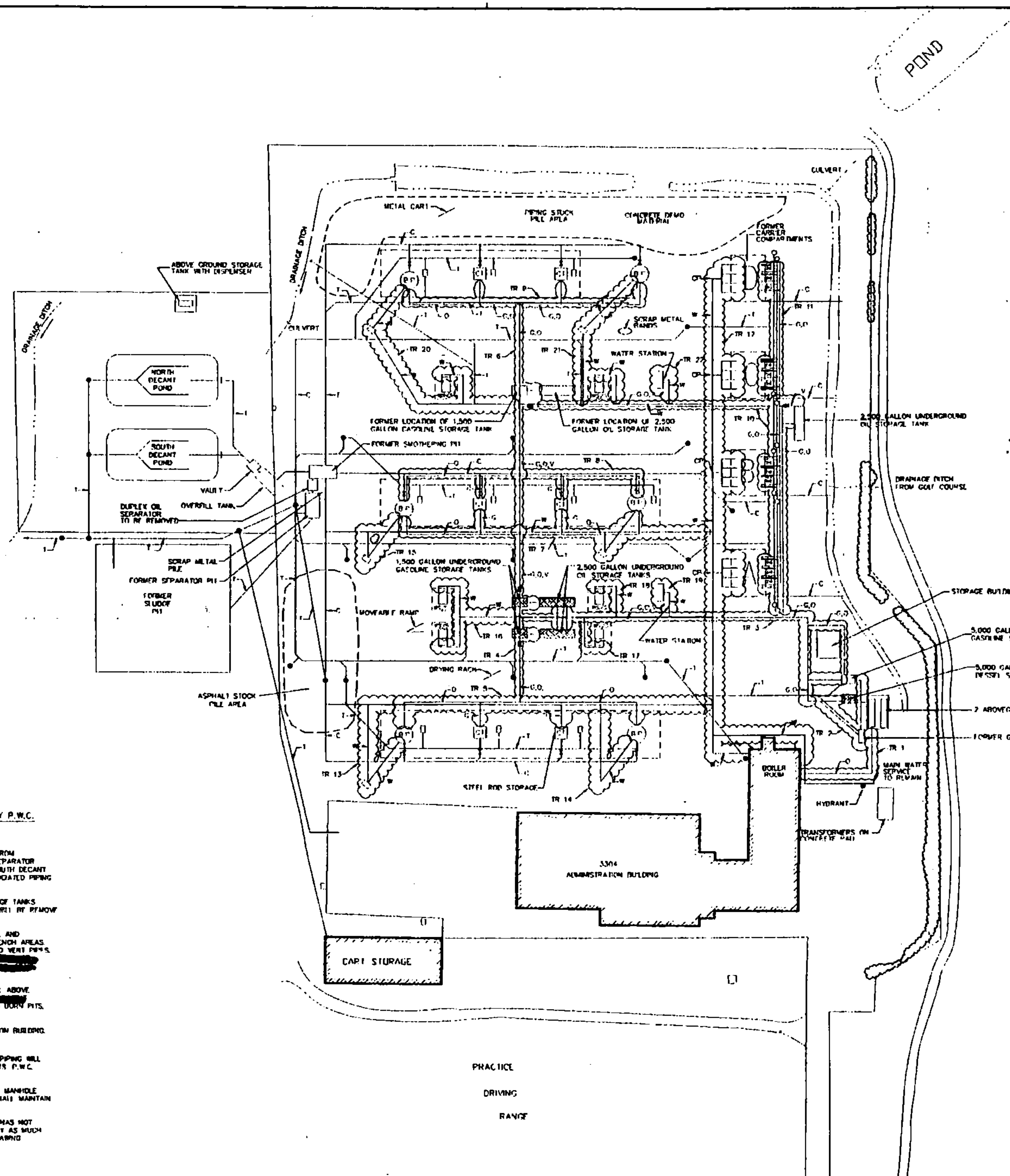
UNDERGROUND STORAGE TANKS ARE NOT TO BE REMOVED BY P.W.C.

LEGEND
NON LUST PIPING AND TREATMENT COMPONENTS

- CP = CONTROL PANEL WITH MULTIPLE CONNECTIONS TO SPRINKLERS
- ◇ CONTROL TOWER
- ● CATCH BASIN
- ○ CLEANOUT
- DF = DRINKING FOUNTAIN
- W = WATER PIPES
- C = CAST IRON DRAIN PIPES
- T = NON-METALLIC CLAY TILE DRIAN PIPES

LEGEND
LUST PIPING

- G = GAS SUPPLY PIPE
- O = OIL SUPPLY PIPE
- V = VENT PIPE



DESCRIPTION OF PIPE TRENCHES
(Lengths are in Linear Feet)

TRENCH	DESCRIPTION	LENGTH OF TRENCH	FUEL OIL PIPES	GAS PIPES	VENT PIPES	WATER PIPES	CAST IRON DRAIN PIPES	TILE DRAIN PIPES
TR 1	Heating Oil	110	110	-	-	110	-	
TR 2	FB Lines	110	110	110	-	-	-	[illegible]
TR 3	Oil & Gas Dist. Original	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-
TR 4	South Burn Area Supply	60	[illegible]	100	-	-	-	
TR 5	South Burn Area Branch	340	340	160	-	[illegible]	-	[illegible]
TR 6	North Burn Area Supply	270	420	[illegible]	-	-	-	-
TR 7	Central Burn Area Branch, Original	410	260	180	-	[illegible]	-	
TR 8	Central Burn Area Branch, Modified	[illegible]	340	180	-	[illegible]	[illegible]	-
TR 9	North Burn Area Branch	[illegible]	[illegible]	180	-	[illegible]	-	
TR 10	Oil & Gas Dist., Modified	[illegible]	[illegible]	[illegible]	[illegible]	170	[illegible]	[illegible]
TR 11	Carrier Comp. C & D Fuel Supply	[illegible]	[illegible]	-	-	-	[illegible]	[illegible]
TR 12	Carrier Comp. Water Supply	600	-	-	-	[illegible]	-	
TR 13	South Burn Area, West Tower	170	-	-	-	[illegible]	-	
TR 14	South Burn Area, East Tower	130	-	-	-	[illegible]	-	
TR 15	Central Burn Area, West Tower	140	-	-	-	[illegible]		
TR 16	Southwest Sump	180	-	-	-	180	-	
TR 17	Southwest Sump	40	-	-	-	[illegible]	-	
TR 18	Central East Sump	80	-	-	-	[illegible]	-	
TR 19	South Water Station	30	-	-	-	[illegible]		
TR 20	Northeast Pump & Tower	290	-	-	-	[illegible]	-	
TR 21	Northeast Sump & Tower	180	-	-	-	[illegible]	-	
TR 22	North Water Station	30	-	-	-	30	-	
TR 23	Treatment Area	1000	-	-	-	-	200	[illegible]
	Estimated Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* Does not include sprinkler system and control panel at each carrier compartment

LEGEND
COMPONENTS TO BE REMOVED BY P.W.C.

NOTES:

1. P.W.C. TO REMOVE CONCRETE AND METAL FROM SMOTHERING PIT, DUPLEX OIL SEPARATOR,SEPARATOR PIT, OVERFILL TANK, VAULT, NORTH AND SOUTH DECANT PONDS FORMER SLUDGE PIT, AND ALL ASSOCIATED PIPING IN THE NOTED TREATMENT AREA.
2. P.W.C. TO LEAVE ALL UNDERGROUND STORAGE TANKS IN PLACE, UNDERGROUND STORAGE TANKS WILL BE REMOVE BY OTHERS.
3. P.W.C. TO EXCAVATE AND EXPOSE GAS, OIL, AND VENT LINES FOR REMOVAL IN INDICATED TRENCH AREAS. CONTRACTOR TO REMOVE ALL GAS, OIL, AND VENT PIPES. [redacted]
4. P.W.C. TO DEMOLISH STORAGE BUILDING, ALL ABOVE GROUND STORAGE TANKS, [redacted] 6 BURN PITS, AND 8 CHRISTMAS TREES
5. CART STORAGE BUILDING AND ADMINISTRATION BUILDING TO REMAINTO REMAIN.
6. NOT ALL PIPING IS TO BE REMOVED. SOME PIPING WILL BE LEFT IN PLACE AND REMOVED BY OTHERS. P.W.C. TO VERIFY PIPE REMOVAL WITH ENGINEER.
7. CULVERT NEAR DECANT POND OUTFALLS AT MANHOLE NEAR FORMER SLUDGE PIT. CONTRACTOR SHALL MAINTAIN DRAINAGE THROUGH THE TREATMENT AREA.
8. EXACT LOCATION OF UNDERGROUND PIPING HAS NOT BEEN VERIFIED. ACTUAL LOCATION MAY VERY AS MUCH AS 15 FEET FROM LOCATION SHOWN ON DRAWING

REV.	DATE	REMARKS

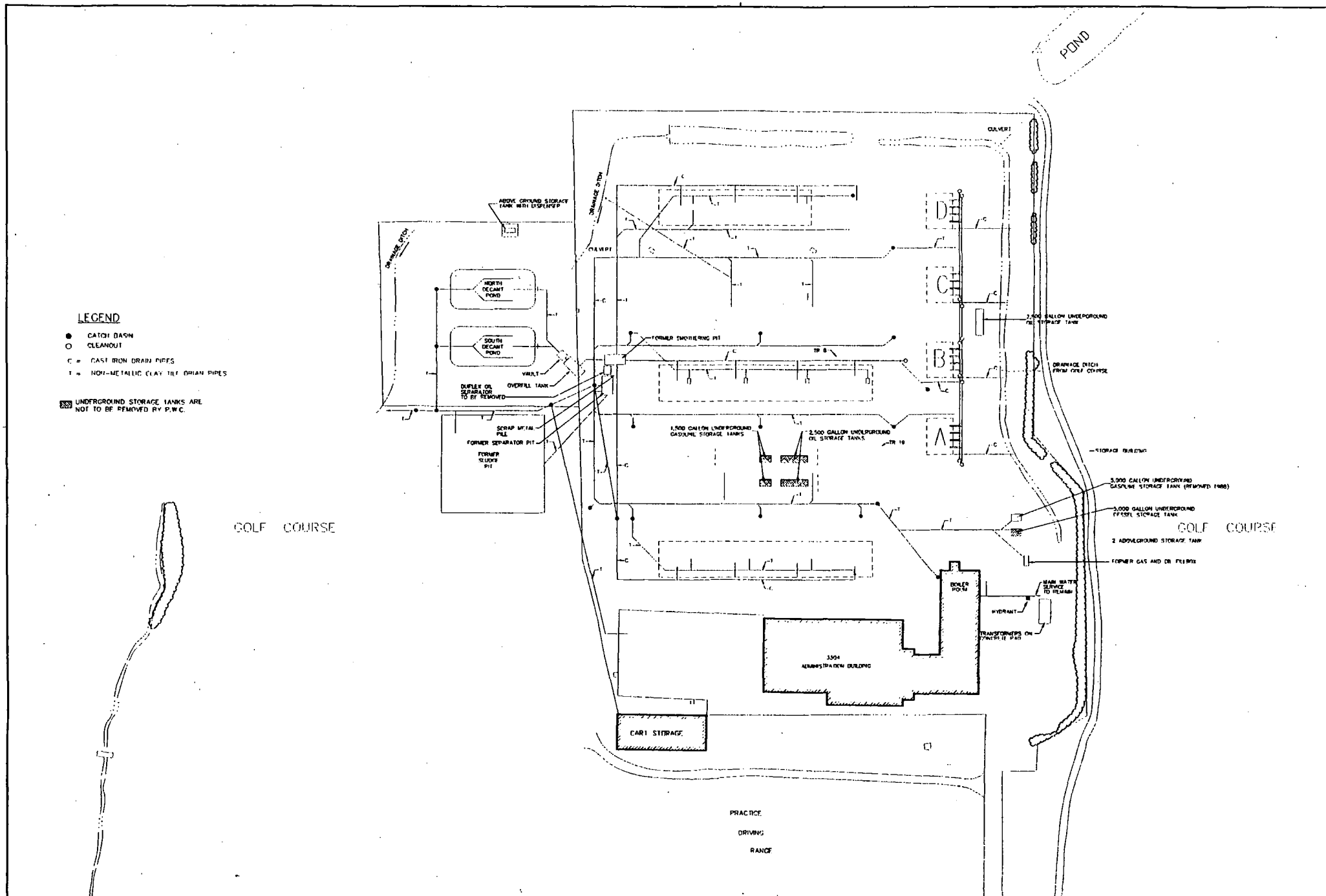
DESIGNED:	NEA
DRAWN:	AAB
CHECKED:	NEA
DATE:	SEP 1996

BELING CONSULTANTS
Professional Engineering
Since 1936
Moline, IL Joliet, IL Chicago, IL Peoria, IL Davenport, IA Detroit, MI Cincinnati, OH Columbus, OH

(IN FEET)
Horizontal 1 inch = 50 ft

PRELIMINARY
FINAL
RECORD

DEMOLTION AND TRENCH EXCAVATION
FFTU WORKPLAN
City of Great Lakes, Illinois



REV.	DATE	REMARKS

DESIGNED	MEA
DRAWN	AAB
CHECKED	MEA
DATE	SEP 1996

BELING CONSULTANTS

Professional Engineering
Since 1936

(IN FEET)
Horizontal 1 inch = 50 ft

PRELIMINARY
FINAL
RECORD

DRAINAGE WAY PIPING

FFTU WORKPLAN
City of Great Lakes, Illinois