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COMPLETION REPORT OPERABLE UNIT 2 (OU 2) MCCOY ANNEX LANDFILL NTC
ORLANDO FL
11/30/2000
SOUTH CAROLINA RESEARCH AUTHORITY ENVIRONMENTAL ENTERPRISE GROUP

COMPLETION REPORT
OPERABLE UNIT-2, McCOY ANNEX LANDFILL
Naval Training Center
Orlando, Florida

Prepared for:

DEPARTMENT of the NAVY
Southern Division
Naval Facilities Engineering Command
Charleston, South Carolina



Prepared by:

South Carolina Research Authority
ENVIRONMENTAL ENTERPRISE GROUP
1899 NORTH HOBSON AVE.
NORTH CHARLESTON, SC 29405-2106

COMPLETION REPORT
Operable Unit-2
McCoy Annex Landfill
Naval Training Center
Orlando, Florida

Engineering Branch Head:

Todd M. Daily

Date:

11/30/00

Prepared By:

Jerry L Lewis

Date:

11/30/00

Environmental Enterprise Group

SOUTH CAROLINA RESEARCH AUTHORITY

Environmental Enterprise Group

**1899 NORTH HOBSON AVENUE
NORTH CHARLESTON, SC 29405**



**COMPLETION REPORT
OU-2 McCoy Annex Landfill**

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ABBREVIATIONS, ACRONYMS, and SYMBOLS

CLEAN	Comprehensive Long-term Environmental Action Navy
EEG	Environmental Enterprise Group
EPA	Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
MOA	Memorandum of Agreement
NTC	Naval Training Center
OPT	Orlando Partnering Team
OU	Operable Unit
PAH	Poly Aromatic Hydrocarbons
RPM	Remediation Project Manager
SCRA	South Carolina Research Authority



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1. INTRODUCTION

1.1 Introduction

South Carolina Research Authority (SCRA)-Environmental Enterprise Group (EEG) was tasked to install a 2 foot soil cover over the former landfill located south of the McCoy Annex Golf Course, designated as Operable Unit-2 (OU-2), at the Naval Training Center (NTC) Orlando, Florida. The Navy provided 81,200 cubic yards of soil cover as described in the Memorandum of Agreement (MOA) between the Navy and the City of Orlando dated 9 December 1997. This project was to be accomplished in accordance with *Remedial Work Plan for the McCoy Annex Landfill Cover at Naval Training Center, Orlando, Florida, Rev.1, April 1999* provided by Bechtel Environmental, Inc (Bechtel).

1.2 Site Description

The McCoy Annex encompasses 877 acres and is located 8 miles south of the Training Center Main Base and west of Orlando International Airport. The former landfill site occupies approximately 99 acres at the south end of the annex and has a cover of varying depths (Figure 1 of Appendix A). It underlies a large portion of the golf course and most of the wooded area to the south. The landfill has not been used since 1978 but recent sampling evolutions have shown evidence of PAH soil contamination.

1.3 Objective

The objective of this remedial action was to place an additional 2 foot of soil cover over approximately 25 acres of the former landfill where the existing cover was thin. This remedial action would reduce migration of the contaminant due to rainfall and eliminate surface soil exposure.

EEG was also requested by the Navy Remediation Program Manager (RPM) to repair approximately 10,000 square foot of sod that had been previously installed by another contractor on Holes # 7 and #5 of the golf course.



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2. WORK PLAN IMPLEMENTATION

2.1 Erosion and Sediment Control

The Navy CLEAN contractor delineated the site and clear-cut merchantable timber from approximately 30 acres. This encompassed the proposed 25 acre cover site while allowing for perimeter access and staging. Prior to the start of brush clearing or soil placement, temporary erosion and sediment control devices were installed to prevent runoff into the adjacent wetlands and drainage system. Commercially fabricated silt fence was installed around the entire perimeter of the site. A stone construction entrance was installed at the point of egress to ensure soil and mud from the site was not transported onto the state road. These control devices were installed in accordance with the *Storm Water Pollution Prevention Plan For Naval Training Center Orlando, McCoy Annex Landfill*, dated April 1999 and provided by Bechtel.

2.2 Depth Measuring Stakes

Depth measuring stakes were used to visually verify that 2 foot of soil was spread over the entire site. The stakes were placed at approximate 100 foot intervals. Each stake had two elevation marking lines, one at the existing ground surface and one at the proposed ground surface level after the additional 2 foot of soil cover. The stakes were removed after final grading of the site.

2.3 Soil Cover Installation

Prior to receiving and spreading soil, the site was bush hogged. The Navy supplied a total of 81,200 cubic yards of cover material from two sources through the redevelopment contractor, Nodarse & Associates, Inc. The covered area is shown as Figure 2 of Appendix A.

The initial 20,157 cubic yards of soil came from the Main Base Golf Course. The volume was obtained by using weight tickets provided by a certified scale and a conversion factor of 1.4 tons per cubic yard, as agreed upon in the MOA. The



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transported soil had levels of arsenic that were below the industrial standard. Usage of this soil as cover for the McCoy Annex landfill was agreed upon by the Orlando Partnering Team (OPT) as described in Addendum 1 of the MOA. The OPT includes representatives from the Navy, Florida Department of Environmental Protection (FDEP) and United States Environmental Protection Agency (EPA) Region IV. The soil was spread at approximately 6 inches in depth over the entire site.

An additional 66,367 cubic yards of soil was delivered to the site from a local source, B&B Pit #104. The Navy and the City of Orlando previously agreed upon this pit as a source of soil, as described in Addendum 5 of the MOA, after satisfactory soil samples were obtained. The estimated average volume of a truck from the pit was calculated to be 16.8 cubic yards. This was based on the average weight of the Main Base soil, 23.5 tons per truckload, divided by the 1.4 tons per cubic yard conversion factor. Correspondence between the Navy and the NTC Orlando Partners relating to the calculated volume is available in Appendix D. This soil was spread approximately 18 inches in depth over the entire site.

EEG provided Nodarse & Associates, Inc personnel with a copy of all weight tickets for the soil from the Main Base golf course and load tickets for the soil from the pit.

2.4 Site Restoration

After spreading the soil cover, the site was final graded to allow for proper drainage and minimize ponding. Seed, fertilizer and mulch were applied mechanically at a rate of 10 pounds per 1,000 square foot, using a mixture that was compatible with the golf course. The perimeter silt fence will be left intact until the turf has been established.

2.5 Gopher Tortoise Relocation

The Florida Natural Areas Inventory (FNAI) identified a gopher tortoise burrow present at the site. The gopher tortoise is a protected species in the state of Florida. Steve Rich, a local permitted environmental consultant from the company - A Natural Balance, was



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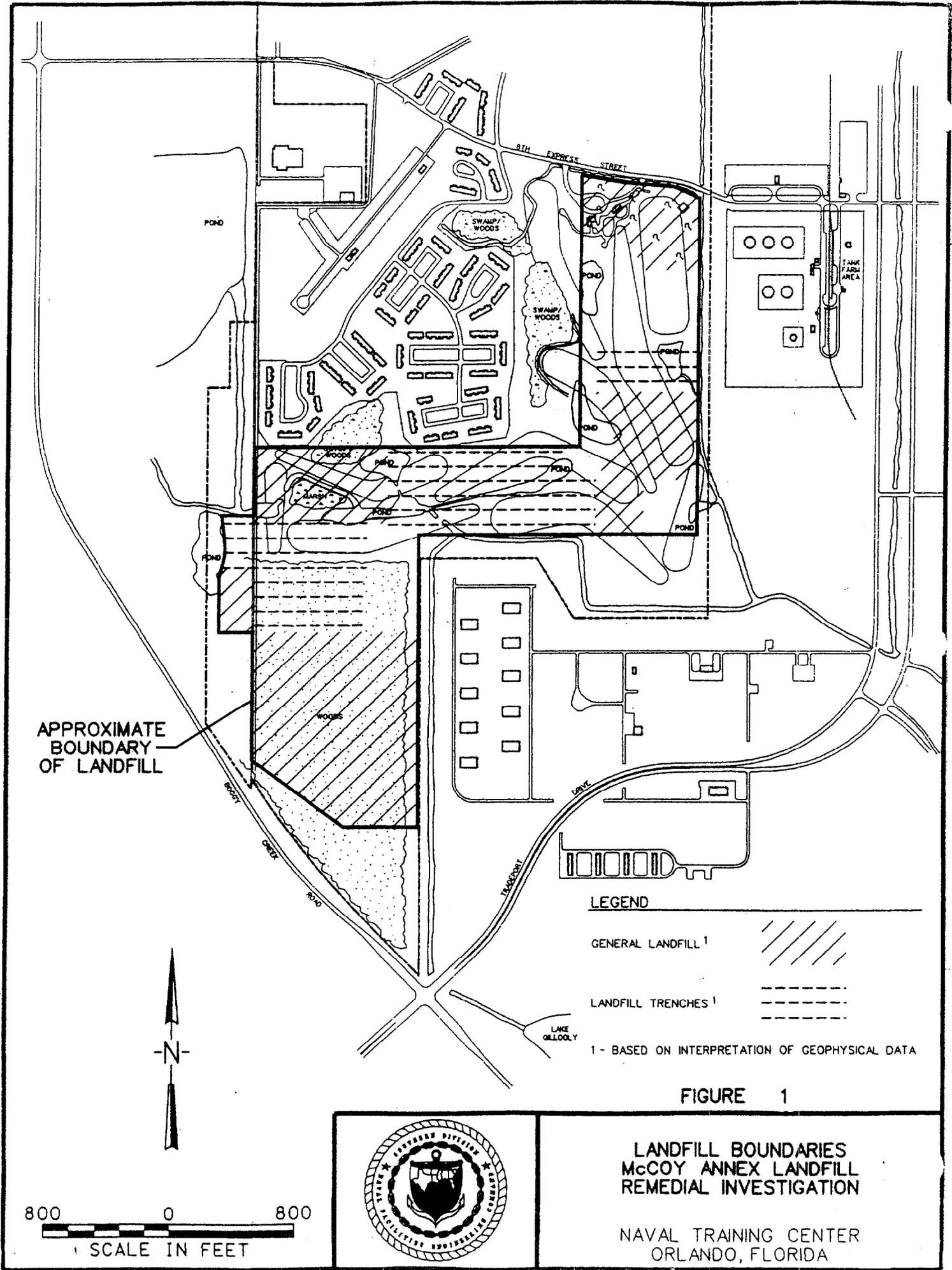
hired to obtain the applicable permits from the Florida Game and Freshwater Fish Commission to relocate the tortoise. A 50 foot perimeter around the burrow was left undisturbed until the permit was in place. Upon receipt of the permit, the tortoise was relocated at the Reedy Creek Mitigation Bank in Polk County. A copy of the relocation permit is provided in Appendix B.

2.6 Golf Course Sod Repair

EEG was requested by the Navy RPM to repair two areas of recently placed sod on the McCoy Annex golf course. The areas were uneven and had severe erosion problems due to runoff into the adjacent waterways. Proposed site work sequence and type of sod was discussed and approved by Andrew Potter, Golf Course Manager, prior to start of site work. Site work at Hole #4 included: initial scraping and grading of eroded area; spreading of fill material as needed to bring the area up to grade and prevent future erosion; and placement of approximately 4,000 square foot of Bermuda 419 sod. Site work at Hole #7 included: initial scraping and grading of eroded area; spreading of fill material as needed to bring the area up to grade and prevent future erosion; the removal of 5 dead trees which posed a potential hazard to golfers; the placement of bahia sod in an area approximately 45 x 90 foot; and hydroseeding of the out of bounds area adjacent to the pond to prevent further erosion. At completion of site work, the course agronomist and course manager approved finished product.

APPENDIX A

SITE FIGURES

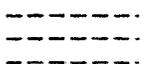


LEGEND

GENERAL LANDFILL ¹



LANDFILL TRENCHES ¹

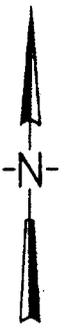
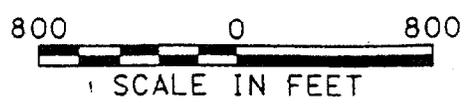
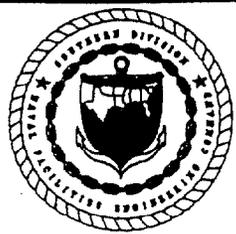


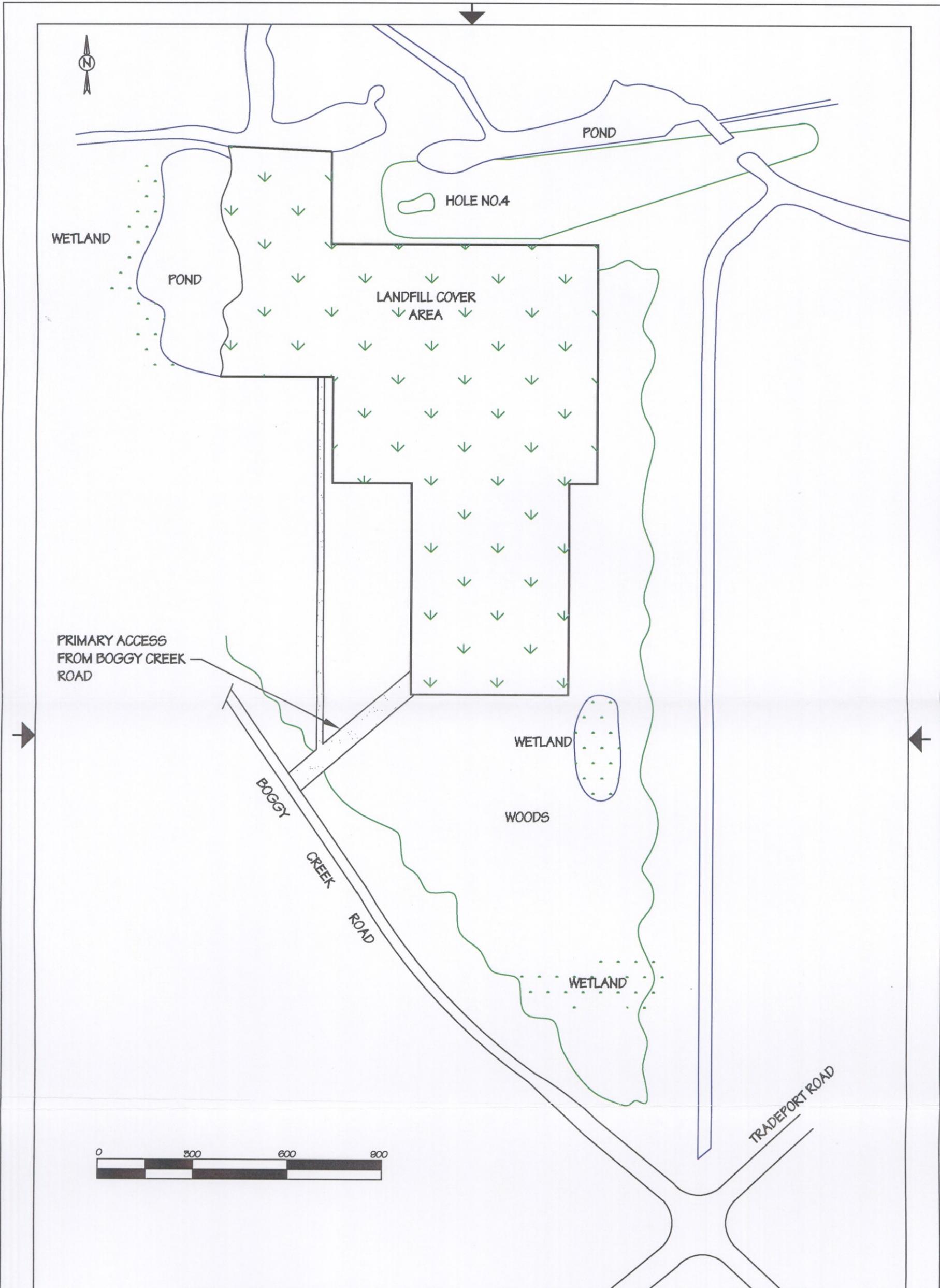
¹ - BASED ON INTERPRETATION OF GEOPHYSICAL DATA

FIGURE 1

**LANDFILL BOUNDARIES
McCOY ANNEX LANDFILL
REMEDIAL INVESTIGATION**

NAVAL TRAINING CENTER
ORLANDO, FLORIDA





McCOY ANNEX LANDFILL COVER
ORLANDO, FLORIDA

SIZE	FORM NO.	DWG NO.	McCOY FIGURE 2	REV -
SCALE	GRAPHIC	PREPARER	T.L. GUNTER	SHEET 1 OF 1

APPENDIX B

TORTOISE RELOCATION PERMIT

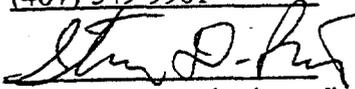
PERMIT

Issued Under Authority of the Wildlife Code of the State of Florida
(Title 68A, Florida Administrative Code) by the

STATE OF FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
Division of Wildlife, 620 South Meridian Street, Tallahassee, FL 32399-1600, 850/488-3831

Permit No. WR00440 Issuance Date 14 September 2000 Expiration Date 16 December 2000
Permit Type Tortoise Relocation Specific Rule Authority 68A-25.002; 68A-27.002
Permittee Steven Rich Affiliation A Natural Balance
Phone no. (407) 349-9901 P.O. Box 499
Geneva, FL 32732

Signature



*Signature indicates acceptance and understanding of the provisions/conditions listed below. Please return a signed copy to this office.

Provisions/Conditions:

1. One (1) gopher tortoise (*Gopherus polyphemus*) may be captured by nonharmful means in association with development activities at the McCoy Annex Landfill project site (T24S,R30E,S7&8), in Orange County, relocated to and released at the Reedy Creek Mitigation Bank (T26S,R28E,S31), in Polk County. Any gopher tortoise burrow commensals encountered in the capture operation may likewise be live-captured, relocated and released. However, no more than one indigo snake (*Drymarchon corais couperi*), or 10 each of Florida mice (*Podomys floridanus*) and gopher frogs (*Rana capito*) may be relocated. Should additional specimens of those species or other species listed as endangered, threatened or of special concern, be encountered, the capture operation is to be suspended immediately and this office contacted for instructions.
2. Tortoises shall not be captured/relocated on days for which the overnight low temperature for that day and the two consecutive days thereafter is forecasted by the U.S. National Weather Service to be below 50°F. This 3-day window of milder overnight temperatures is to allow the relocated tortoises to settle into the recipient site. Authorizing the capture/relocation is otherwise predicated and conditioned on the information and assurances provided in the permittee's 9 August 2000 application, the assurances of which are herein incorporated by reference.
3. This permit does not authorize Permittee access to any public or private properties. Any required permission accordingly must be secured from the appropriate landholders prior to undertaking any work on such properties.
4. Captures/relocations may be undertaken only subsequent to all other permits for the project which may be required by local, state and/or federal agencies being issued. This permit is subject to revocation at any time pursuant to Chapter 120, Florida Statutes. It is nontransferable and must be readily available for inspection at all times while engaging in the permitted activities. Other qualified personnel may assist in the permitted activities, but when

PERMIT

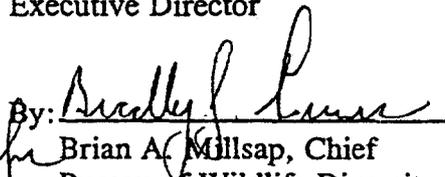
Permit No. WR00440

Provisions/Conditions: Continued

any such assistance is to be provided in the absence of the permittee's direct supervision, those assistants are to be designated by letter of authorization from the permittee to each designee, with this office provided a copy of such letter(s).

5. The Permittee shall notify the Protected Species Permit Coordinator by fax at (850) 921-1847 or by phone at (850) 921-5990 within 24 hours of initiating the tortoise relocation effort.
6. The Permittee by signing this permit, specifically agrees to allow authorized Commission personnel, upon presentation of credentials as may be required by law, access to the donor and recipient sites, at reasonable times, for the purpose of inspecting the capture/relocation activities authorized under this permit.
7. The Permittee shall submit a report detailing the capture/relocation to the Commission's regional contact person, with copies provided to the recipient site landowner and this office, within 30 days of release of the captured/relocated tortoises involved. A report form is attached for use in that regard. Any request for permit renewal or extension shall be submitted at least 30 days prior to the expiration date of this permit.

Allan L. Egbert, Ph.D.
Executive Director

By: 
Brian A. Millsap, Chief

Bureau of Wildlife Diversity Conservation
Division of Wildlife

W1067/BAM/atw

LIC 6-20

WR00440.per

Attachment

cc: Colonel Robert Edwards

Mr. Brad Hartman

Lt. Col. Robert B. Butler

Major Andy Love

Mr. Mike Abbott

Mr. Tim Breen

APPENDIX C

SITE PHOTOGRAPHS



SITE PRIOR TO START OF WORK



GOPHER TORTOISE BURROW



STONE CONSTRUCTION ENTRANCE



INITIAL SOIL FROM NTC GOLF COURSE



DELIVERY AND SPREADING OF SOIL



VIEW OF SITE FROM GOLF COURSE



SPREADING SOIL FROM PIT 104



TRUCKS FROM PIT 104



FINAL SPREADING



FINAL GRADING OF SITE



HYDROSEEDING SITE AFTER FINAL GRADING



CAPTURED GOPHER TORTOISE FOR RELOCATION



HOLE #4 AT McCOY GOLF COURSE PRIOR TO RESODDING



HOLE #4 AFTER BERMUDA SOD INSTALLATION



HOLE #4 AFTER BERMUDA SOD INSTALLATION



HOLE #7 AT McCOY GOLF COURSE PRIOR TO RESODDING



GRADING HOLE #7 SITE AS PREPARATION FOR SOD



DEAD PINE TREE REMOVAL AT HOLE #7



BAHIA SOD INSTALLED AT HOLE #7



HYDROSEEDED AND BAHIA SODDED AREA AT HOLE #7 COMPLETION

APPENDIX D

CALCULATED VOLUME CORRESPONDENCE



DEPARTMENT OF THE NAVY

SOUTHERN DIVISION

NAVAL FACILITIES ENGINEERING COMMAND

P.O. BOX 180010

2155 EAGLE DRIVE

NORTH CHARLESTON, S.C. 29419-9010

5090

Code 18B7

22 August 2000

Mr. John H. Classe, Jr., P.E.
Director of Planning & Infrastructure
Orlando NTC Partners
Orlando FL

Subj: GOLF COURSE SUPPLEMENTAL SOILS

Dear Mr. Classe:

As requested in your letter of August 18, 2000, B&B Pit No. 104 has been tested and is acceptable as a source for the supplemental soils as agreed to in the addendum to the MOA. Also, the use of a volumetric method of determining the amount of soil delivered is acceptable to the Navy. Based on the average truckload of the soils delivered from the Golf Course of 23.5 tons, and using the 1.4 tons per cubic yard conversion factor agreed to in the MOA, the estimated average volume of a truck is calculated to be 16.8 cubic yards.

If you have any questions, please contact me at (843) 820-5572 in Charleston or (407) 895-6714 in Orlando.

Sincerely,

A handwritten signature in cursive script that reads "Wayne Hansel".

WAYNE HANSEL
BRAC Environmental Coordinator
Environmental Department



August 24, 2000

Mr. Wayne Hansel
BRAC Environmental Coordinator
Environmental Department
Department of the Navy
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, SC 29419-9010

RE: Orlando Naval Training Center – McCoy Annex Dirt Obligation

Dear Wayne:

Based on your letter of August 22, 2000 to Mr. Classe at Orlando NTC Partners regarding the above referenced subject, and the calculations that are attached hereto, we will be delivering a total of 3,687 truckloads (utilizing 18 cubic yard trucks) of "Supplemental Soils" to you at the McCoy Annex from the B&B Pit No.104. Should larger or various sized trucks be utilized to transport this dirt, the total volume of Supplemental Soils to be delivered to the McCoy Annex will be 66,367 cubic yards, which quantity will be verified by the sum of the dirt pit loading tickets.

These quantities are based on the assumption that we have already delivered 28,219.84 tons (20,157.03 cubic yards at 1.4 tons/cubic yard) of Excavated Soil from the Main Base Golf Course to the McCoy Annex Landfill Site, which total weight was provided to us today by Nodarse & Associates, Inc. from the scales set up at the golf course site. David Twedell will provide you with the verification of this total weight.

Should there be any disagreement with the method of calculation used to arrive at these numbers, please let me or David Twedell know as soon as possible.

Sincerely,

ORLANDO NTC PARTNERS


Stacey A. Beyer
Arsenic Remediation Coordinator

Cc: David Twedell
John Classe

CALCULATION OF VOLUME OF SUPPLEMENTAL SOILS TO BE DELIVERED TO McCOY ANNEX LANDFILL SITE TO SATISEY SOIL DELIVERY OBLIGATIONS OF MEMORANDUM OF AGREEMENT AMENDMENTS NO. 1 AND NO. 5 BASED ON VOLUMETRIC MEASURE REQUIREMENTS SPECIFIED IN THE NAVY LETTER DATED AUGUST 22, 2000

Excavated Soils from Main Base Golf Course Based On Total Scale Weight=	28,219.84 Tons
Divided By MOA Amendment No. 1 Conversion Factor Of:	1.4 Tons/CY
Equals Total Quantity of Excavated Soils Delivered to McCoy Annex =	20,157.03 CY
MOA Amendment No. 1 McCoy Annex Minimum Soil Obligation =	82,100 CY
Total Quantity of Excavated Soils Delivered to McCoy Annex (see above) =	(20,157) CY
Equals Remaining Soils To Be Furnished To McCoy Annex Of:	61,943 CY
Times Navy Truckload Volume Conversion Factor For 18CY Truckload Of:	16.8 CY/Truck
Equals The Number of 18CY Truck Truckloads Of Supplemental Soil To Be Furnished To The McCoy Annex:	3,687 Truckloads
Times 18CY Truck Truckload Volume At Dirt Pit (Pit Ticket Amount):	18 CY/Truck
Equals Total Supplemental Soils "Pit Ticket" Volume Of:	66,367 CY