Prepared for:

Anniston Calhoun County
Fort McClellan Joint Powers Authority
Anniston, Alabama

and

Matrix Environmental Services, LLC
Anniston, Alabama

FINAL (100%)
POST-CLOSURE CARE PLAN

LANDFILL CLOSURE
LANDFILL 3 AND
FILL AREA NORTHWEST OF REILLY AIRFIELD
McCLELLAN, ANNISTON, ALABAMA

Prepared by:

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Project Number: GR3762

February 2007

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1. PROJECT DESCRIPTION

1.1 Introduction

This Post-Closure Care (PCC) Plan was prepared by GeoSyntec Consultants (GeoSyntec) on behalf of Anniston-Calhoun County Fort McClellan Development Joint Powers Authority (JPA) and is submitted in accordance with the guidelines set forth by Alabama Department of Environmental Management (ADEM). More specifically, this PCC addresses post-remedial management, including inspection and maintenance of the landfill cover systems for Landfill 3 (LF3) and Fill Area Northwest of Reilly Airfield (FANWR) at the former Fort McClellan Military Reservation (McClellan) site in Anniston, Alabama. Post-remedial management is required in order to maintain compliance with Cleanup Agreement AL4210020562 between ADEM and the JPA.

1.2 Responsible Project Contact

The responsible project contacts for the Site are:

Primary
Julie A. Carver, P.E.
Matrix Environmental Services, L.L.C.
1601 Blake Street
Suite 200
Denver, CO 80202

(303) 572-0200

Alternate
Miki Mahan Schneider
Anniston Calhoun County
Fort McClellan Development
Joint Powers Authority
180 Headquarters Dr.
Anniston, AL 36205
(256) 236-2011

1.3 Site Background

McClellan is located in the foothills of the Appalachian Mountains of northeastern Alabama, near the cities of Anniston and Weaver in Calhoun County approximately 60 miles northeast of Birmingham, 75 miles northwest of Auburn, and 95 miles west of

Atlanta, Georgia. Between 1917 and 1999, the US government and US Army utilized McClellan as a training base for various purposes. In September 1999, McClellan was closed under Base Realignment and Closure. As part of the Environmental Services Cooperative Agreement with the US Army, the JPA has agreed to complete environmental remediation efforts necessary at LF3 and FANWR. In addition, the JPA has also entered into Cleanup Agreement AL4210020562 (dated September 2003) with the Alabama Department of Environmental Management (ADEM).

LF3, Parcel 80(6), is located in the northwestern corner of McClellan and is approximately 23 acres in size. The landfill is bounded by the Anniston-Jacksonville Highway (Route 21) to the west, Gobbler Road to the east, wooded areas and the boundary of McClellan to the north, and wetlands and Cave Creek to the south.

The FANWR is also located in the northwestern corner of McClellan, adjacent to the former Reilly Airfield and west-southwest of Reilly Lake and is approximately eight acres in size. Adjacent to the estimated eastern boundary of the fill area is an escarpment. The northeastern boundary of the FANWR is adjacent to a number of streams and forested wetlands that form the headwaters of Reilly Lake.

Both LF3 and FANWR were operated by the US Army and closed prior to the existence of any Federal or state environmental regulations governing landfills. Neither LF3 nor the FANWR were closed with an engineered cap or cover system. To comply with the substantive intent of federal and state environmental regulations for historical (i.e., legacy) landfills, an engineered cover will be employed at both locations. This remedy will include the placement of a low-permeability cover soil designed to minimize future direct exposure to wastes which were disposed of at each location, promote and manage surface water drainage while controlling erosion, minimize leaching of contaminants to groundwater by limiting infiltration, and function with routine maintenance requirements typical of a cover system.

The cap system for LF3 and FANWR consists of the following components (from top to bottom):

- 6 inch thick (minimum) topsoil layer, vegetated with permanent grass; and

- 18 inch thick (minimum) of compacted soil barrier (1×10^{-5} cm/sec).

The LF3 Final Cover System area has a relatively rectangular footprint approximately 23 acres. The FANWR Final Cover System area has a triangular footprint approximately 8 acres. Figures 3 and 4 show the locations of the closure areas.

1.4 Design and Construction Plans

Copies of the design drawings titled "Landfill Cover Systems, LF3 and FANWR, McClellan, Anniston, Alabama" prepared by GeoSyntec and dated February 2007 are presented in Appendix B of the Final Design Report. These drawings provide details of the closure areas to be inspected and maintained.

1.5 Report Organization

The remainder of the report is organized as follows:

- Section 2 contains the objectives of the PCC;
- Section 3 describes the inspection program for the Site;
- Section 4 describes the maintenance program;
- Section 5 contains reporting requirements; and
- Section 6 describes the Health and Safety requirements.

2. OBJECTIVES OF THE POST-CLOSURE CARE PROGRAM

2.1 PCC Objectives

The overall objective of the PCC is to verify that the LF3 and the FANWR Final Cover Systems are performing as expected/designed, and to maintain the integrity of the ADEM-approved closure systems. The overall objective will be achieved by regular inspections and maintenance activities. The specific objectives of the PCC are:

- to provide a routine inspection program that allows for assessment of conditions at the Site;
- to provide a maintenance program for the Site that will facilitate the long-term and continual performance of the closure systems; and
- to provide, if necessary, guidance and protocols for the repair and/or restoration of deficiencies in the closure systems, as necessary.
- to provide a standardized procedure for notice to project parties (JPA and ADEM) regarding inspections, the conditions of the Site, and annual reporting;

2.2 PCC Requirements

Per the Cleanup Agreement AL4 210 020 562 between ADEM and the JPA dated September 2003, the following activities, at a minimum, must be addressed in the PCC:

- quarterly inspection of the closure systems;
- inspection of the closure systems following major storms or flooding incidents as soon as practical;
- timely maintenance of the closure systems; and
- submittal of an Annual Closure Systems Report documenting inspection information and any repair work. For inspections conducted following an

incident, inspection information is to be submitted within 45 days of inspection date or following any necessary repair activities.

3. INSPECTION PROGRAM

3.1 Introduction

This section outlines the procedures and protocols to be used during the inspection activities planned as a part of the PCC. The following areas will be inspected as a part of the post-remedial management of the Site:

- LF3, including slopes and plateau of the final cover system; and
- FANWR final cover system.

The locations of these features are shown on Figures 3 and 4. Appendix A contains the forms to be used for on-site inspection of the Site.

3.2 Inspection Intervals

Inspections of the Site will be completed quarterly throughout the duration of the post-remedial management period, but at a frequency of not less than annually. Inspections will be conducted as soon as practical after major storm events, possible flooding events, or other events that may result in damage to the closure systems, but only at such time as the safety and health of inspection personnel can be assured. The JPA reserves the right to petition ADEM for reduced inspection frequency as a part of the five year remedy review.

3.3 Inspection Notification

JPA will provide a minimum of five days notice to ADEM prior to a scheduled inspection. In the event that an unscheduled or emergency inspection is conducted (i.e., after a major storm event), JPA will provide as much notice to ADEM as practical or in the event that notice prior to the inspection is not practical, notice after the inspection as soon as practical.

3.4 Closure Systems

The closure system inspections include the LF3 Final Cover System and the FANWR Final Cover System.

The objective of the closure system inspection is to detect any observable problems or conditions that would prevent the closure systems from continuing to preclude direct contact with the underlying material(s). During these inspections, the closure systems will be visually examined for the following:

- evidence of subsidence or settling;
- evidence of burrowing animals;
- evidence of trespassing or unauthorized use of the LF3 or the FANWR areas;
- presence of any erosion rills;
- condition of vegetation;
- presence of woody plants;
- condition of surface water drainage systems, to include obstructions;
- condition of gravel access roads and parking areas;
- condition of mulch trails; and
- any other irregularities.

Inspections of the closure systems will be performed at intervals outlined in Section 3.2. During inspections, special attention shall be given to slope movement, erosion features (i.e., rills, scarping, or slips), and evidence of burrowing animals, as well as the overall condition of the final cover vegetation.

3.5 Documentation

The information gathered during each inspection will be legibly recorded in an inspection and maintenance checklist (Appendix A). Completed checklists will be compiled into a dedicated Site Inspection and Maintenance Field Book. Data to be included as a part of each checklist entry into this book include the following:

- name and location of project;
- date, time and weather conditions during inspection;
- name(s) of personnel on-site;
- list of facilities/area inspected;
- relevant observations, including those items specified in Section 3.4; and
- photographs of areas of concern/interest.

The form to be used during the site inspection is included in Appendix A, and includes a place for all observations, general comments and a photographic log.

4. MAINTENANCE PROGRAM

4.1 Introduction

This section outlines the requirements, procedures, protocols and schedules of closure system maintenance activities. The purpose of the maintenance activities is to ensure that the closure systems perform as designed.

4.2 Frequency of Maintenance

Routine maintenance will take place throughout the year and at such times as necessary based upon the results of the site inspections. Maintenance to repair the closure systems will be conducted on an as needed basis.

4.3 Regular Maintenance Procedures

4.3.1 Closure Systems

Erosion rills on the closure systems will be repaired by packing straw mulch into the void areas. This will prevent further erosion and allow the cap vegetation to take root in the area, stabilizing the rill. If rills reach 4 to 6 inches in depth, additional soil material will be added and the area will be re-compacted, re-seeded, fertilized and mulched. Materials equivalent to those already in place will be used.

Depressions caused by erosion, settlement, or subsidence that can hold water will be repaired by placing additional soil in the depression and re-seeding as soon as possible. Materials equivalent to those already in place will be used.

Mowing will be completed at least twice each year across the LF3 and FANWR closure systems to inhibit the establishment of large woody plants on the cap systems.

The Site will be fertilized with a high-quality agricultural fertilizer, applied at the rates suggested by the manufacturer, to the LF3 and FANWR closure systems, as necessary.

4.4 Additional Maintenance Activities

Problems detected during the routine inspections of the closure systems may require repair not included with regular maintenance activities. These additional maintenance activities may contain the following:

- repair of animal burrows - animal burrows will be filled following inspection and seeded to prevent creation of erosion rills;
- replacement of crushed stone on various trails – crushed stone will be added to maintain coverage of the trails;
- replacement of aggregate on access roads and parking areas – additional aggregate will be placed as needed to avoid exposed subbase or potholes;
- repair or restoration of vegetated surfaces – areas will be reseeded and mulched as needed;
- cleaning of culverts and surface water drainage structures – debris and/or sediment will be removed as necessary;
- sediment removal from detention pond – pond will be cleaned of excess sediment when accumulation reaches markers or 1 ft above the floor of the detention pond;
- closure penetrations – penetrations through the closure system will be repaired by locally reconstructing a compacted low-permeability soil layer and vegetative layer similar to the surrounding cover.

4.5 Long Term Maintenance Program

The inspection and maintenance program will be performed as described above for a minimum of five years. If the cover systems have stabilized, an abbreviated inspection and maintenance program will be presented to ADEM for approval. The cover system shall be considered stabilized when no significant erosion, settlement, or subsidence

areas have been observed within two consecutive calendar years. The abbreviated inspection and maintenance program will consist of semiannual mowing with observation of maintenance condition. If maintenance conditions are observed, a detailed inspection of the area will be performed and documented as described in Section 3 through SubSection 4.4.

4.6 Documentation

Maintenance activities which are completed will be documented in the Site Inspection and Maintenance Forms. Information included on these forms will include the following:

- name and location of project;
- date, time and weather conditions during site visit;
- names of personnel on-site;
- activities completed; and
- other relevant information.

The forms used to document maintenance activities at the site are included in Appendix A, and includes a place for general comments and a photographic log.

5. REPORTING

ADEM requires the submission of: (1) an Annual Closure System Report and (2) inspection information within 45 days of inspections or maintenance that follows an incident (i.e., "Incident Inspection Report").

5.1 Annual Closure System Report

The Annual Closure System Report will include at a minimum:

- a description of the Site, Site location, historical site background, and responsible project parties;
- a narrative summary of inspections conducted at the Site over the past year;
- a narrative summary of maintenance conducted at the Site over the past year;
- a narrative summary detailing resolution of outstanding inspection or maintenance issues from the prior year, or in the event that resolution has not been reached, a descriptive summary of the outstanding issues and "go forward" strategy;
- a narrative summary detailing unresolved inspection and maintenance issues from the current year that will carry over to the following year;
- copies of the Inspection and Maintenance Forms;
- copies of Incident Inspection Reports over the past year;
- a description of any planned inspections or maintenance activities for the upcoming year; and
- recommendations for modifications to this PCC, if necessary.

The Annual Closure System Report will be submitted to the ADEM within 90 calendar days of the end of the calendar year covered by the Annual Closure System Report.

5.2 Incident Inspection Reports

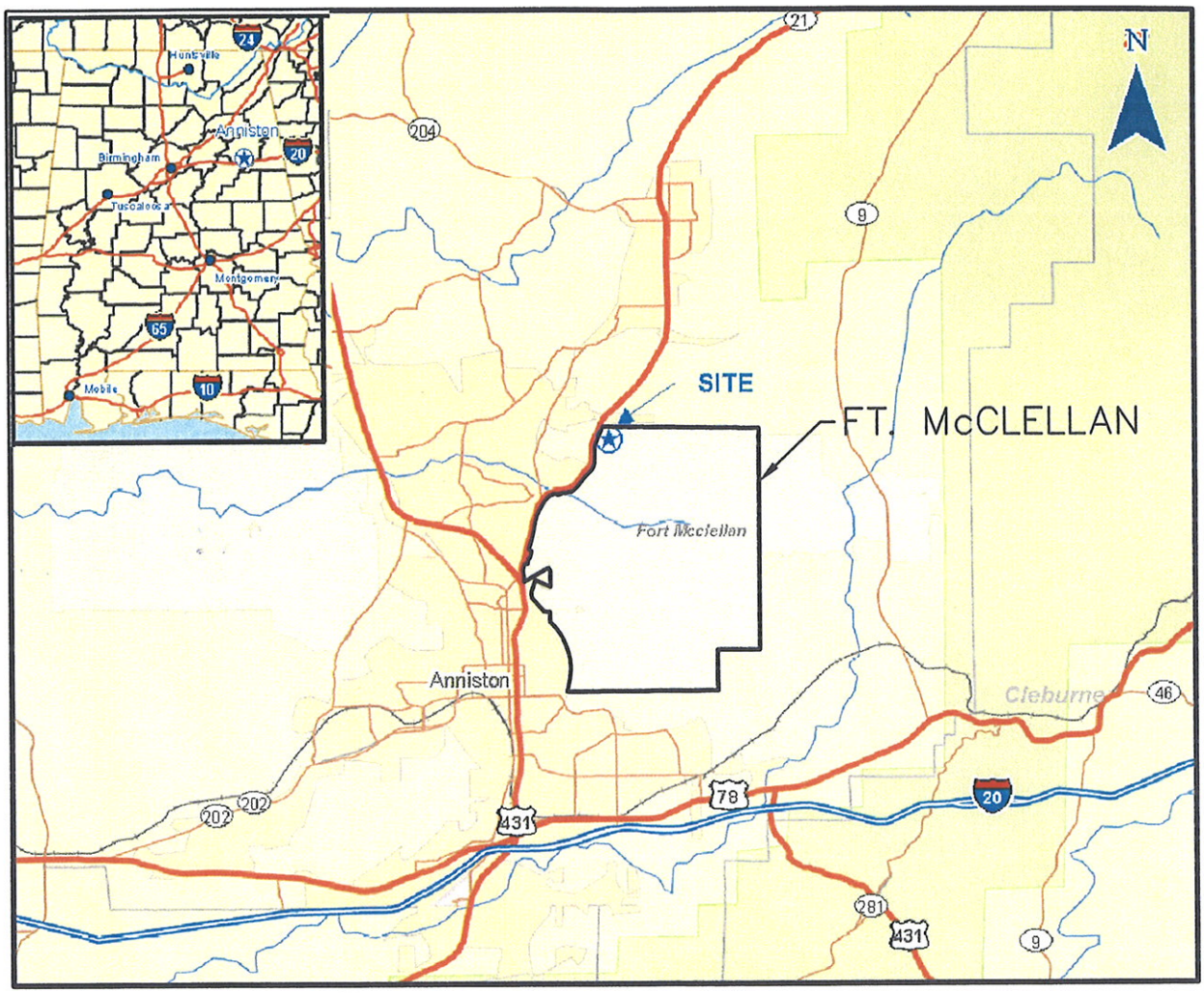
For inspections following an incident, JPA will submit inspection information within 45 days of the inspection date. In the event that an inspection reveals that repair work must be conducted at the Site, the Inspection Report, inclusive of documentation of the repair work will be submitted to the ADEM within 30 days of completion of the repair.

6. HEALTH AND SAFETY

A Health and Safety Plan (HASP) has been developed for use during site visits, inspections, and/or maintenance. The document is titled *"Final Master Health and Safety Plan, McClellan, Anniston, Alabama,"* prepared by Matrix Environmental Services, L.L.C. of Denver, Colorado and dated July 2005. This HASP is intended to provide guidance to employees and site visitors during activities conducted on Site. The HASP will be reviewed and signed by all personnel visiting the site. The HASP will be reviewed and amended as necessary for any site specific activities conducted at the Site not specifically addressed in the HASP.

FIGURES

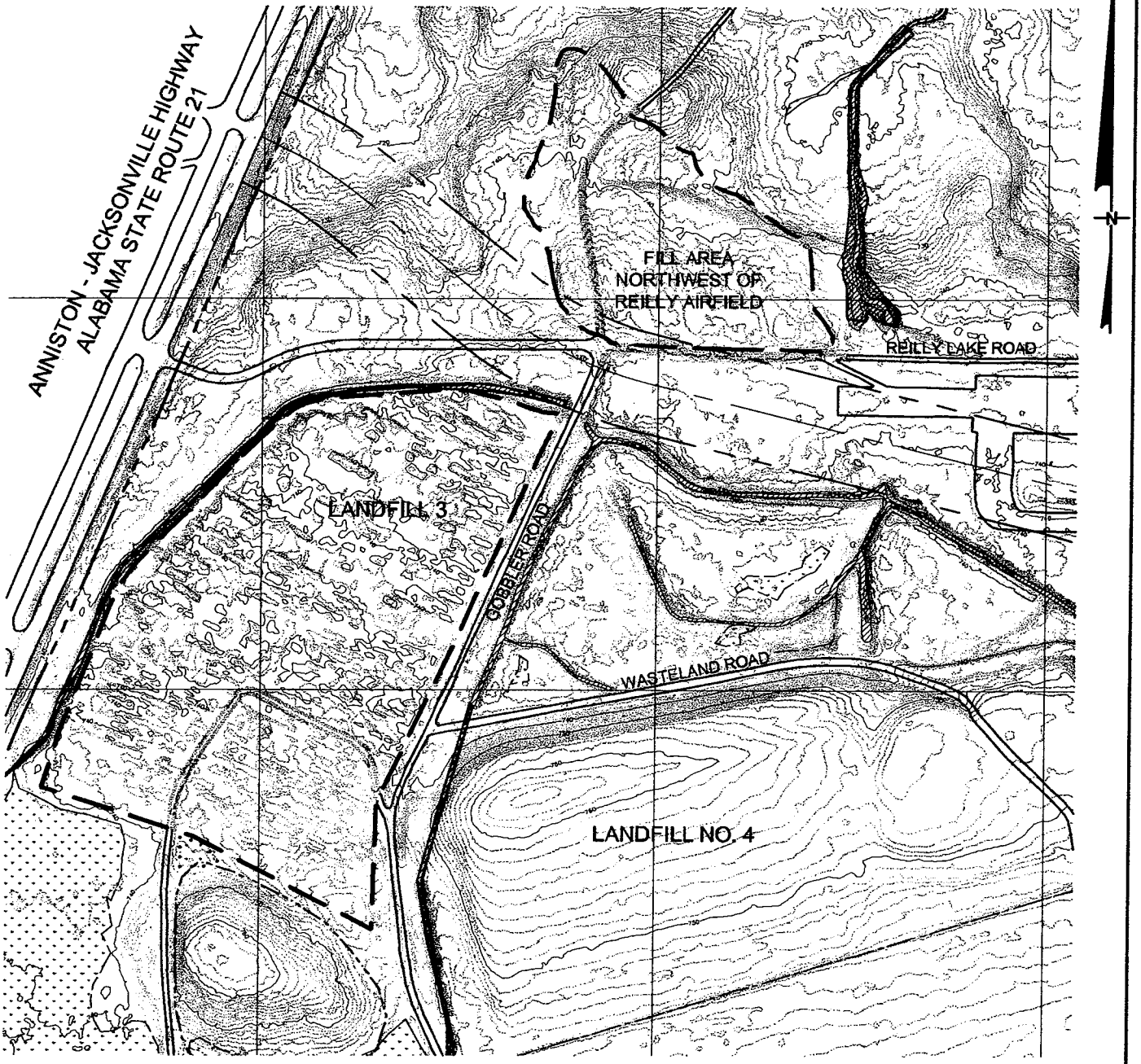
SITE LOCATION



SOURCE: ESR1 STREETMAP USA 2005

GeoSyntec Consultants KENNESAW, GA	DATE: FEBRUARY 2007	SCALE:	N.T.S.
	PROJECT NO. GR3762	FILE NO.	3762F009
	DOCUMENT NO. GA060501	FIGURE NO.	1

SITE PLAN



LEGEND

- 730 — EXISTING GROUND ELEVATION (FEET)
- EXISTING ROAD
- LANDFILL/FILL AREA PERIMETER LIMIT
- RIGHT-OF-WAY LIMIT
- INDUSTRIAL ACCESS ROAD CENTERLINE
- JURISDICTIONAL WETLAND (SURVEYED BOUNDARY)
- JURISDICTIONAL WETLAND (PRELIMINARY SURVEYED BOUNDARY)
- JURISDICTIONAL WATERS OF THE UNITED STATES

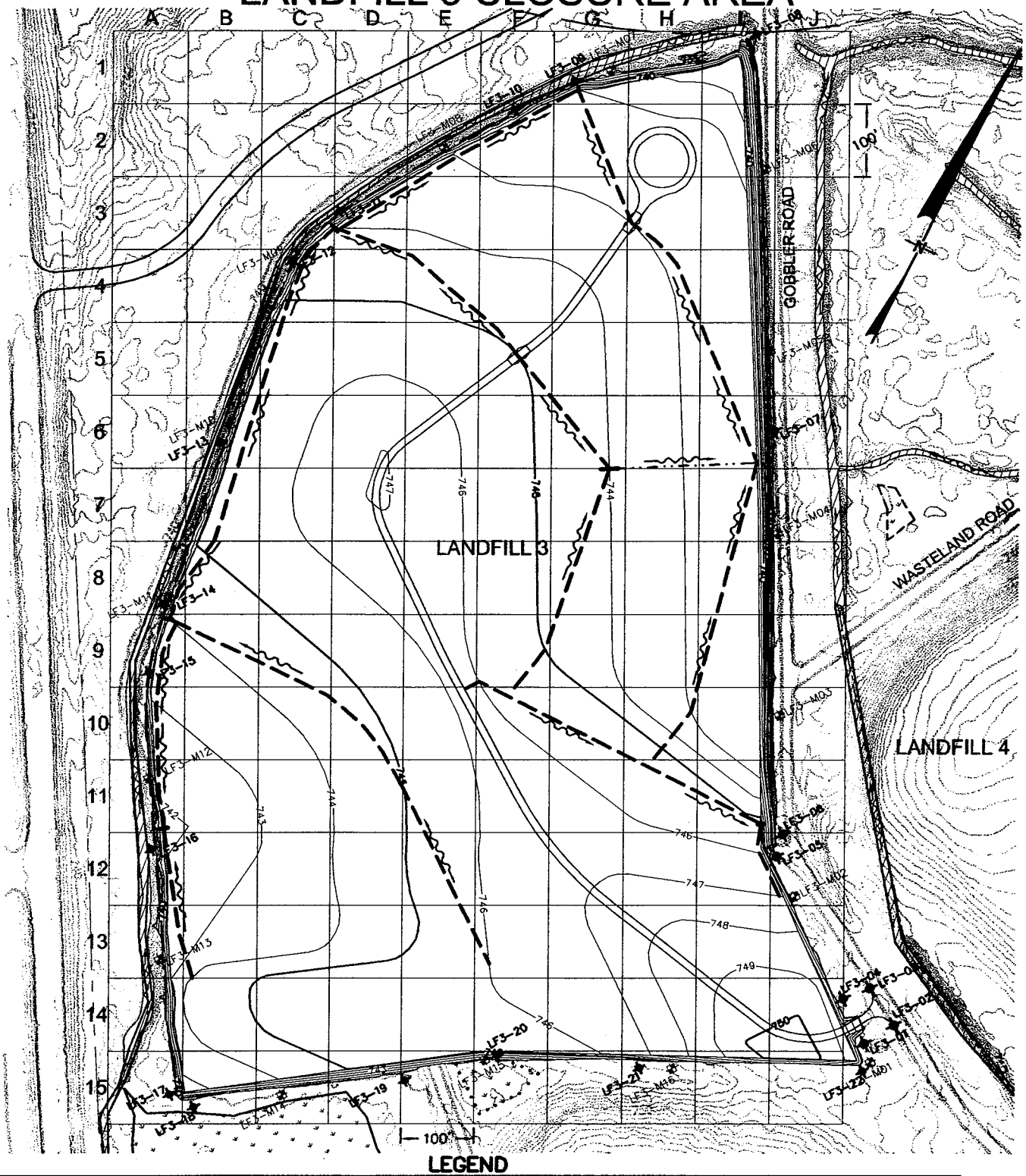
0 400' 800'

SCALE IN FEET

GeoSyntec Consultants
KENNESAW, GA

DATE:	FEBRUARY 2007	SCALE:	1"=400'
PROJECT NO.	GR3762	FILE NO.	3762F008
DOCUMENT NO.	GA060501	FIGURE NO.	2

LANDFILL 3 CLOSURE AREA



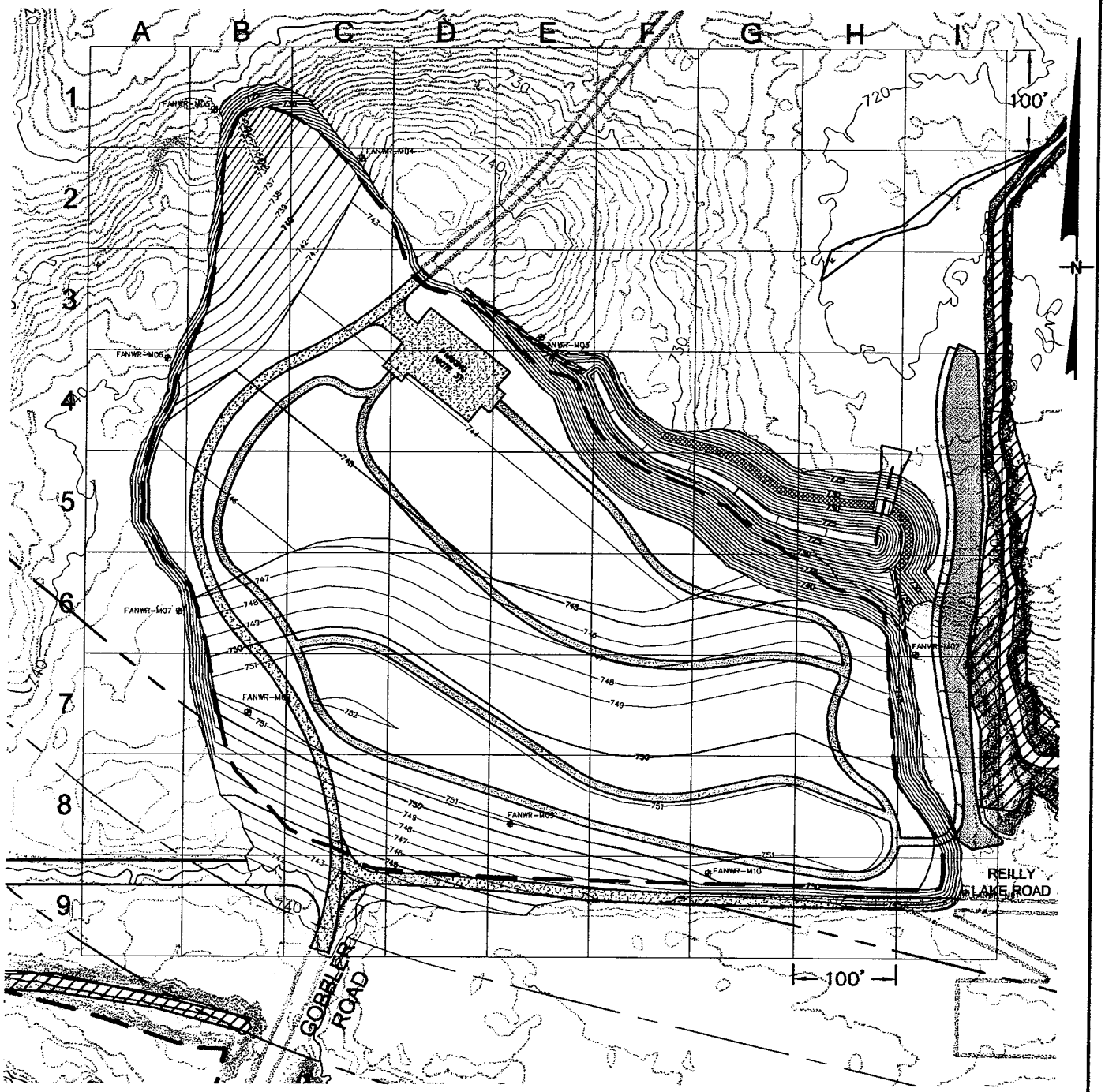
LEGEND

- EXISTING GROUND ELEVATION (FEET)
- 750 FINISHED GRADE ELEVATION (FEET)
- EXISTING ROAD
- RIGHT-OF-WAY LIMIT
- LANDFILL/FILL AREA PERIMETER LIMIT
- INDUSTRIAL ACCESS ROAD CENTERLINE
- JURISDICTIONAL WETLAND (SURVEYED BOUNDARY)
- CENTERLINE OF DOWNCHUTE
- JURISDICTIONAL WETLAND (PRELIMINARY SURVEYED BOUNDARY)
- CENTERLINE OF DIVERSION BERM
- JURISDICTIONAL WATERS OF THE UNITED STATES
- ACCESS ROAD

GeoSyntec Consultants
KENNESAW, GA

DATE:	FEBRUARY 2007	SCALE:	1"=200'
PROJECT NO.	GR3762	FILE NO.	3762F007
DOCUMENT NO.	GA060501	FIGURE NO.	3

FILL AREA NORTHWEST OF REILLY AIRFIELD



LEGEND

730	EXISTING GROUND ELEVATION (FEET)
	EXISTING ROAD
	LANDFILL/FILL AREA PERIMETER LIMIT
750	FINISHED GRADE ELEVATION (FEET)
	RIGHT-OF-WAY LIMIT
	INDUSTRIAL ACCESS ROAD CENTERLINE
	JURISDICTIONAL WETLAND (SURVEYED BOUNDARY)
	JURISDICTIONAL WATERS OF THE UNITED STATES
	WALKING PATH
	GRAVEL ROAD

GeoSyntec Consultants
KENNESAW, GA

DATE:	FEBRUARY 2007	SCALE:	1"=150'
PROJECT NO.	GR3762	FILE NO.	3762F006
DOCUMENT NO.	GA060501	FIGURE NO.	4

APPENDIX A

INSPECTION AND MAINTENANCE FORMS

ON-SITE INSPECTION AND MAINTENANCE FORM
McCLELLAN SITE
ANNISTON, ALABAMA

Activity Type: **Inspection** ☐ **Maintenance** ☐ **Incident** ☐

Date of Activity: _____

Time of Activity: _____

On-Site Personnel: _____

_____

_____

_____

_____

Weather Conditions: _____

General Comments: _____

_____

_____

Summary/Action Items: _____

_____

_____

ON-SITE INSPECTION AND MAINTENANCE FORM
McCLELLAN SITE
ANNISTON, ALABAMA

LANDFILL 3

Evidence or repair of subsidence, settlement, slippage, or heaving of cap system: _____

_____

_____

Evidence or repair of erosion, rutting, or channeling on cap system: _____

_____

_____

Condition or repair of vegetated surfaces (bare spots, stressed, dead): _____

_____

_____

Evidence of trespassing, vandalism, or damage: _____

_____

_____

Evidence of overflowing, flooding, or inundation: _____

_____

_____

Overall appearance / condition of closure (stability, erosion, inundation, trespassing): _____

_____

_____

Condition or repair of Permanent Markers: _____

_____

Additional Comments: _____

_____

_____

_____

_____

ON-SITE INSPECTION AND MAINTENANCE FORM
McCLELLAN SITE
ANNISTON, ALABAMA

FILL AREA NORTHWEST OF REILLY AIRFIELD

Evidence or repair of subsidence, settlement, slippage, or heaving of cap system: _____

Evidence or repair of erosion, rutting, or channeling on cap system: _____

Condition or repair of vegetated surfaces (bare spots, stressed, dead): _____

Evidence of trespassing, vandalism, or damage: _____

Evidence of overflowing, flooding, or inundation: _____

Overall appearance / condition of closure (stability, erosion, inundation, trespassing): _____

Condition or repair of Permanent Markers: _____

Additional Comments: _____

ON-SITE INSPECTION AND MAINTENANCE FORM
McCLELLAN SITE
ANNISTON, ALABAMA
FANWR
SURFACE WATER/SEDIMENT DETENTION POND

Evidence or repair of subsidence, settlement, or slippage: _____

Evidence or repair of erosion, rutting, or channeling: _____

Condition or repair of vegetated surfaces (bare spots, stressed, dead): _____

Condition of surrounding vegetated surfaces (bare spots, settlement, water ponding): _____

Sediment accumulation or removal (cleanout markers): _____

Outfall structures and emergency spillway (debris, erosion, damage): _____

Evidence of trespassing, vandalism or damage: _____

Additional Comments: _____

ON-SITE INSPECTION AND MAINTENANCE FORM
McCLELLAN SITE
ANNISTON, ALABAMA
FANWR
WALKING TRAILS

Evidence or repair of subsidence, settlement, or heaving: _____

Evidence or repair of erosion, rutting, or washout: _____

Condition or repair of crushed stone on trails: _____

Evidence of trespassing, vandalism, or damage: _____

Additional Comments: _____

ON-SITE INSPECTION AND MAINTENANCE FORM
McCLELLAN SITE
ANNISTON, ALABAMA
LF3 AND FANWR
ACCESS ROADS AND PARKING AREA

Evidence or repair of subsidence, settlement, or heaving: _____

Evidence or repair of erosion, rutting, or washout: _____

Condition or repair of culvert crossing and drainage feature: _____

Evidence of trespassing, vandalism, or damage: _____

Condition or repair of roads (thin gravel, potholes): _____

Additional Comments: _____

ON-SITE INSPECTION AND MAINTENANCE FORM
McCLELLAN SITE
ANNISTON, ALABAMA

PHOTOGRAPHIC LOG

Photograph No.	Date & Time	Description
1		
2		
3		
4		
5		
6		
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9		
10		
11		
12		
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