



**American Environmental & Construction Services, Inc.**

**SITE-SPECIFIC  
HEALTH AND SAFETY PLAN**

Lake Alice Dam Breach  
Cumming, Forsyth County, Georgia

Prepared for:

NewFields

Prepared by:

**AMERICAN ENVIRONMENTAL & CONSTRUCTION SERVICES, INC.  
(AECS)**

**1170 Tidwell Road, Suite 103  
Alpharetta, GA 30004**

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***Accidents don't happen. Accidents are caused, by unsafe acts or unsafe conditions. Accidents are preventable!***

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## 1.0 INTRODUCTION

This document describes the Health and Safety guidelines to be implemented for site personnel engaged in excavation, grading and heavy equipment operations at the Lake Alice Dam site in Cumming, Georgia. The purpose of this Site-Specific Health and Safety Plan (HASP) is to protect on-site personnel, visitors, and the public from physical harm and potential exposure to unstable conditions during excavation and grading activities.

The procedures and guidelines presented in the HASP are based upon the best information available at the time of the plan's preparation and are intended only for the activities or areas listed under Section 2.0.

This plan must be reviewed and an agreement to comply with its requirements must be signed by all personnel prior to entering the Exclusion and Work Zones or beginning on-site activities. During development of this plan, consideration was given to current safety standards as defined by OSHA 29 CFR 1926. Specifically, the following reference sources have been consulted:

- OSHA Occupational Health and Safety Guidelines

A field change order form will be completed for any modifications to the plan and will be attached to the HASP. These changes will be discussed in the Health and Safety Meetings held each day prior to commencement of work. The modifications will be read and signed by all on-site personnel.

## 2.0 SITE HEALTH AND SAFETY GENERAL INFORMATION

### 2.1 Project Identification:

Office: AECS, Alpharetta, GA

Site Address: Lake Alice  
Cumming, Forsyth County, Georgia

Client: NewFields

Work Location Address: Lake Alice  
Cumming, Forsyth County, Georgia

### 2.2 Site History:

On May 19, 2013, during a rain event, the dam forming Lake Alice was breached by excessive storm water entering the Lake. The breach resulted in sediments being discharged into Little Ridge Creek and Lake Sidney Lanier and the collapse of a portion of Sanders Road.

The Mashburn Family Trust and the City of Cumming are under a Joint Consent Order, issued by the Georgia Environmental Protection Department (GAEPD), for the remediation of the environmental impacts to Little Ridge Creek and Lake Sidney Lanier that resulted from the breach of the Lake Alice dam.

AECS activities on this project will consist of demolishing the remnants of the old dam, grading and spreading excavated soil in order to build a road for drill rigs to access the area and perform a geotechnical survey. It is anticipated that trees will need to be cut using the excavator or by chain saw. Erosion control and stabilization measures including matting, seeding, and application of straw to graded and exposed surfaces will also be conducted.

### 2.3 Scope of Work:

#### **Task 100: Mobilization**

AECS will mobilize to the site with the personnel and equipment necessary to execute the scope-of-work tasks. Personnel will be demobilized or shifted to other required tasks to ensure full utilization of all on-site personnel. AECS will manage this project out of its Alpharetta office.

#### **Task 200: Site Preparation**

AECS will establish work zones and conduct clearing and grubbing operations to provide access to the work site. A PC 200 track mounted excavator and chain saws will be used to remove trees and to cut the trees to manageable lengths to be stacked by a Bobcat.

### **Task 300: Bench Sidewalls**

The existing sidewalls of the dam will be benched back to prevent a collapse and provide a safe work environment. Excavated soil will be stockpiled or spread on site.

### **Task 400: Erosion Control**

AECS will install silt fence along the sides of the work area to prevent erosion during excavation.

### **Task 500: Cut Sidewalls**

The sidewalls of the dam will be cut on a 1:1 slope to provide access for drill rigs to perform geotechnical investigations. Excavated soil will be stockpiled or spread on site.

### **Task 600: Access Road**

An access road will be constructed, using excavated soils, into the excavation area to provide access for the geotechnical equipment.

### **Task 700: Site Restoration**

To restore the site, erosion control blankets, seed, and straw will be installed, and the stacked residue from the clearing and grubbing operation will be stabilized and left on site.

### **Task 800: Demobilization**

Following completion of the project, all personnel and equipment will be demobilized back to the Alpharetta office.

The following personnel will be mobilized for the excavation and site preparation work activities at the site:

- Site Supervisor/Field Engineer and H&S Officer
- Equipment Operator (2)
- Technician (1)

Following mobilization of personnel and equipment to the site, the following activities will take place prior to the start of excavation and site preparation activities:

- Orientation of on-site field personnel to familiarize them with the site history, site layout, work plan, and health and safety requirements.
- Establishment of Work and Exclusion Zones.
- Establishment of staging area for equipment and supplies.

## 2.4 Hazard Assessment and Regulatory Status

### a. Hazards Anticipated:

Toxic Chemical Levels	<input type="checkbox"/> Physio-chemical	<input checked="" type="checkbox"/> Construction Type
<input type="checkbox"/> >TLV-TWA	<input type="checkbox"/> Bio-hazards	<input checked="" type="checkbox"/> Industrial Type
<input type="checkbox"/> >TLV-STEL	<input type="checkbox"/> Radiation	<input type="checkbox"/> Nuclear Industry
<input type="checkbox"/> >IDLH	<input checked="" type="checkbox"/> Physical	

### b. Site Regulatory Status:

CERCLA/SARA	RCRA	OSHA	NCR	Other Fed Agency
<input type="checkbox"/> USEPA	<input type="checkbox"/> USEPA	<input type="checkbox"/> 1910	<input type="checkbox"/> 10CFR20	<input type="checkbox"/> DOE
<input type="checkbox"/> State	<input type="checkbox"/> State	<input checked="" type="checkbox"/> 1926		<input checked="" type="checkbox"/> DOD (USACE)
<input type="checkbox"/> NPL Site		<input checked="" type="checkbox"/> State		

### c. Standard Plan to be Used: *Based on the Hazard Assessment and Regulatory Status, determine the Standard HASP(s) applicable to this project. Indicate below which Standard HASP will be used and append the appropriate pages of this Form and Standard Plan.*

Industrial Hygiene     Hazardous Material     Construction     NCR/DOE

## 2.5 Review and Approval Documentation

### a. Reviewed by:

1. Site Supervisor/Field Engineer	and H&S Officer	Date:
2. HS Plan Administrator (HSPA)		Date:
3. Heavy Equipment Operator		Date:
4. Heavy Equipment Operator		Date:
5. Technician		Date:

### b. Project Start Date: June 16, 2014

### c. Project End Date (approximate): June 27, 2014

### d. Key Personnel:

Site Supervisor/Field Engineer and H&S Officer: Rodger Daniel 404-386-5502  
(cell) 770-754-6440 (office)  
Equipment Operator: Ron Dempsey 865-617-9238  
Equipment Operator: David Silvers 770-826-0600  
Technician: Mario Carreno 404-437-1048

## **2.6 Roles and Responsibilities**

### **Site Supervisor/Field Engineer and Health & Safety Officer (SHSO)**

The Site Supervisor/Field Engineer and Health & Safety Officer is responsible for and has authority to direct all operations on a specific project and for health and safety performance in the field. The Site Supervisor/Field Engineer and Health & Safety Officer can temporarily halt work at any time if, in his opinion, it is necessary to protect the health and well being of site workers or the general public. The Site Supervisor/Field Engineer and Health & Safety Officer is responsible for managing project health and safety in the same manner as any other aspect of the project. He has ultimate responsibility for health and safety on the project site and must provide the management support and allocate the necessary resources to permit each person on the project site to perform his or her job safely.

The Site Supervisor/Field Engineer and Health & Safety Officer has the following specific responsibilities and authorities:

- Ensure that the project is performed in a manner consistent with this HASP and with the AECS Health and Safety Program.
- Ensure that the HASP is prepared and approved by appropriate parties.
- Ensure that adequate resources are allocated to fully implement the HASP.
- Require compliance with the HASP by all personnel.
- Direct site activities in accordance with this HASP.
- Be aware of and comply with all applicable federal, state and local occupational health and safety regulatory requirements.
- Verify that all permits, supporting documentation, and clearances for a given task are in place prior to commencement of work on that task.
- Inform field personnel of the activities to be performed each day.
- Provide technical advice during routine operations and emergencies.
- Handle field emergency response situations that may arise.
- Correct unsafe acts and conditions.
- Participate in pre-job and daily safety meetings.

Safety forms to be completed are included in Appendix A.

### **AECS Health and Safety Plan Administrator (HSPA)**

The AECS Health and Safety Plan Administrator is responsible for implementing an effective health and safety program and has the requisite authority to implement the procedures set forth in the AECS Health and Safety Manual, including the authority to temporarily halt work on a project if necessary to protect employees' safety or health. The HSPA's primary duties are to serve as a resource to assist every AECS employee and to advise management on health and safety issues. The HSPA may delegate certain duties to

the SHSO or to other AECS safety personnel but has ultimate responsibility for the following:

- Overseeing the employee medical surveillance program and interacting with examining physicians as required.
- Investigating site histories, performing site characterizations, and assessing site/task specific hazards.
- Developing or assessing task specific procedures and health and safety requirements for the site and the HASP.
- Performing periodic site inspections/audits.
- Following to resolution all deficiencies noted during site inspections.
- Resolving any conflicts that may arise during preparation of the site specific HASP.

### **Heavy Equipment Operators and Technicians**

All site personnel share responsibility for health and safety. Specific responsibilities include:

- Being familiar with the provisions of the HASP and conducting all work in accordance with it.
- Participating in the daily safety meetings.
- Taking immediate corrective action when encountering an unsafe act or unsafe condition.
- Promptly reporting all incidents and potential health and safety related problems encountered.



### 3.0 HEALTH AND SAFETY EVALUATION

#### 3.1 Hazard Assessment

#### 3.2 Biological Hazards of Concern

<u>No.</u>	<u>Hazard</u>	<u>Y/N</u>	<u>Task # *</u>	<u>Location/ Source (K/S)**</u>	<u>Route of Exposure (I,G,C,D)***</u>	<u>Team Member Allergic?</u>	<u>Immunization Required</u>
1.	Poisonous Plants	Y	100-300	K	C, D	N	N
2.	Insects	Y	100-300	K	C, D	N	N
3.	Snakes, Reptiles	Y	100-300	S	C, D	N	N
4.	Animals	N					
5.	Sewage	N	100-300	S	C,D	N	N
6.	Etiological Agents	N					

\* List all task #s which would involve potential exposure to these hazards.

\*\* K = Known, S= Suspected

\*\*\* I=Inhalation, G=Ingestion, C=Contact, D=Direct Penetration (Bite, Injection, Open Wound or Sore)

#### 3.3 Physical Hazards of Concern

<u>Hazard Type</u>	<u>Hazard (Y/N)</u>	<u>Precautions</u>
1. Noise	Y	All heavy equipment operators and anyone within 3 feet of heavy equipment operation shall be required to use hearing protection.
2. Heat - Ambient Air	Y	When the temperature exceeds 70 degrees Fahrenheit and personnel are wearing protective clothing, a heat stress program shall be implemented (Appendix C).
3. Cold - Ambient Air	N	When operating in extreme cold, all personnel will wear appropriate cold weather gear in thermal layers, will be provided a warm rest area and hot liquids.
4. Rain	Y	Same as 3, with appropriate rain gear.
5. Snow	N	Same as 3, with appropriate precautions against slipping. Operations may be suspended if visibility or slippery surfaces and equipment become a hazard.
6. Electric Storms	Y	All work will cease and all personnel will exit the hot zone during electrical storms.
7. Confined Space Entry	N	Follow the Confined Space Entry Program.

8. "Hot Work"	N	Follow the "Hot Work" SOP.
9. Heavy Manual Lifting/ Moving	Y	Personnel will be instructed on proper lifting techniques.
10. Rough Terrain	Y	Extra caution pertaining to slips, trips, and falls.
11. Housekeeping	Y	Every job will be left clean and orderly at the end of the day. A neat work area also reduces the chances of accidents and fires.
12. Structural Integrity	N	Do not enter the Grist Mill structure being dismantled.
13. Neighborhood	Y	
14. Remote Area	N	
15. Compressed Gases	N	Maintain eye protection when in vicinity and watch for lines.
16. Diving	N	
17. Using Boats	N	
18. Working Over Water	N	
19. Traffic	Y	
20. Explosives	N	
21. Heavy Equipment Operation	Y	The number of ground personnel working around heavy equipment will be minimized. A spotter will be assigned to the operating equipment.
22. Lifting Equipment Operation	Y	Wear hard hats at all times; never walk under suspended loads; use only approved slings; use a properly rated piece of equipment for the load being lifted; use outriggers if part of the equipment; lift at proper angle.
23. Working at Elevation	N	
24. Using Ladders	N	Tie off if over 4 feet.
25. Using Scaffolds	N	
26. Excavating/Trenching	Y	Follow Excavation SOP (Appendix B).
27. Materials Handling	N	Use proper protective equipment when handling materials; hard hats, safety glasses and steel toed boots are mandatory on the job site.

28. Hazardous Material Storage	N	
Flammable Liquids/gasses	N	
Oxidizers	N	
Corrosives	N	
29. Fire Prevention	Y	See Fire Prevention Plan.
30. Fire Extinguishers Required	Y	Fire extinguishers will be available on site.
31. Demolition	N	Use extreme caution; ensure proper inerting; ensure all flammable liquids have been removed.
32. Utilities	Y	Ensure all utilities have been located and tagged prior to digging.
33. Electrical	Y	Ensure all high voltage and other electrical devices have been disconnected and tagged out. Use only trained electricians for electrical work.
34. Welding/Cutting/Burning	N	Follow AECS Hot Work SOP (Attached)
35. Hand Tools	Y	All employees are required to wear gloves when working with hand tools.
36. Power Hand Tools	Y	Use caution, eye and hand protection, and ensure that all safety devices are operational. Only trained personnel may use power tools.
37. High Pressure Water	Y	Employees will be instructed on the proper techniques and hazards associated with high pressure washers.
38. Site Security	Y	Work only during daylight and make sure that there is more than one person on site at all times. Site is fenced.
39. Fall Protection	Y	An exclusion zone will be set up around the excavation areas with metal posts and caution tape. A support zone will be set up with water, first aid kit and will contain copy of HASP.
40. Decontamination	N	Standard decon procedures will be followed. Exclusion zone and decon zone will be established.

#### 4.0 EMERGENCY INFORMATION:

Police Department:	Phone: <b>911</b>
Fire Department:	Phone: <b>911</b>
Ambulance:	Phone: <b>911</b>
<b>Hospital Name: Northside Hospital</b>	Phone: <b>770-844-3200</b>
Is Hospital capable of handling emergencies involving hazardous materials? NA	
Is life flight service available through hospital? NA	
If a secondary hospital is required for serious accidents, which hospital is used (give name, telephone number, and address)? NA	

**Directions to the Primary Hospital from the site (map of the Hospital Route in Appendix E):**

**Go south on Sanders Road toward Mable Lake Road. Take the first right onto Buford Dam Road. Take the first left onto Market Place Blvd. (which becomes Ronald Reagan Blvd.) Turn right onto Northside Forsyth Drive. Northside Hospital is on the right.**

**\*\*\*\* HOSPITAL ROUTE MAP LOCATED IN APPENDIX E\*\*\*\*\***

## **5.0 SITE PERSONNEL TRAINING AND CERTIFICATION**

### **5.1 Training**

All personnel, including visitors, entering the work and exclusion zones must have proper construction site attire, including hard hat, steel-toed boots, safety vest and safety glasses and be knowledgeable about heavy equipment use and safety.

### **5.2 Visitors**

All visitors to the Lake Alice work site will be required to read and verify compliance with the HASP by signing the HASP Acknowledgment Form found in this section prior to entering the work or exclusion zones. In addition, visitors will be expected to comply with OSHA requirements applicable to this site as set forth in 29 CFR 1926. All non-AECS visitors will be expected to provide their own protective equipment, e.g., steel-toed shoes/boots, hard hats, etc.

### **5.3 Training and Briefing Topics**

The following topics will be covered at the initial site operational and safety orientation meeting and at the daily safety meetings:

- a. Site layout
- b. Operational plan
- c. Work to be accomplished that day
- d. Site characterization and analysis
- e. Physical hazards and appropriate controls pertinent to that day's activities or to the project
- f. Site control
- g. Engineering controls and work practices
- h. Sanitation



**APPENDIX A**  
**SAFETY FORMS**

## DAILY SAFETY MEETING

Date: \_\_\_\_\_ Job Name: \_\_\_\_\_

1. Work to be completed:  
\_\_\_\_\_  
\_\_\_\_\_

2. Hazards Associated with this work:  
\_\_\_\_\_  
\_\_\_\_\_

3. Hazard control measures to be implemented:  
\_\_\_\_\_  
\_\_\_\_\_

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### SAFETY TOPICS PRESENTED

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### ATTENDEES

Instructor: \_\_\_\_\_

Signature: \_\_\_\_\_

Print

Sign

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# OSHA's Form 301

## Injury and Illness Incident Report

**Attention:** This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.



**U.S. Department of Labor**  
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

This *Injury and Illness Incident Report* is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the *Log of Work-Related Injuries and Illnesses* and the accompanying *Summary*, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

Completed by \_\_\_\_\_

Title \_\_\_\_\_

Phone (\_\_\_\_) \_\_\_\_\_ -- \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

### Information about the employee

1) Full name \_\_\_\_\_

2) Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

3) Date of birth \_\_\_\_/\_\_\_\_/\_\_\_\_

4) Date hired \_\_\_\_/\_\_\_\_/\_\_\_\_

5)  Male

Female

### Information about the physician or other health care professional

6) Name of physician or other health care professional \_\_\_\_\_

7) If treatment was given away from the worksite, where was it given?

Facility \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

8) Was employee treated in an emergency room?

Yes

No

9) Was employee hospitalized overnight as an in-patient?

Yes

No

### Information about the case

10) Case number from the Log \_\_\_\_\_ (Transfer the case number from the Log after you record the case.)

11) Date of injury or illness \_\_\_\_/\_\_\_\_/\_\_\_\_

12) Time employee began work \_\_\_\_\_ AM / PM

13) Time of event \_\_\_\_\_ AM / PM  Check if time cannot be determined

14) **What was the employee doing just before the incident occurred?** Describe the activity, as well as the tools, equipment, or material the employee was using. Be specific. *Examples:* "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."

15) **What happened?** Tell us how the injury occurred. *Examples:* "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."

16) **What was the injury or illness?** Tell us the part of the body that was affected and how it was affected; be more specific than "hurt," "pain," or "sore." *Examples:* "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."

17) **What object or substance directly harmed the employee?** *Examples:* "concrete floor"; "chlorine"; "radial arm saw." *If this question does not apply to the incident, leave it blank.*

18) **If the employee died, when did death occur?** Date of death \_\_\_\_/\_\_\_\_/\_\_\_\_

**APPENDIX B**  
**EXCAVATION SAFETY**

## Excavation Safety

### 1.0 PURPOSE

To establish safe operating procedures for the conduct of excavations.

### 2.0 SCOPE

The excavation Safety SOP applies to all excavations which AECS employees and its subcontractors must enter and all excavations which AECS creates to which the public or other employer's employees may be exposed.

### 3.0 DEFINITIONS

*Competent Person* - one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees and has the authorization to take prompt corrective action to eliminate them.

*Cross-brace* - horizontal member of shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.

*Excavation* - any man-made cut, cavity, trench, or depression in the earth's surface, formed by earth removal.

*Face* - vertical or inclined earth surfaces formed as a result of excavation work.

*Registered Professional Engineer (PE)* - for the purposes of this SOP, a registered engineer is an individual who is registered in any state as a professional engineer. A PE's review and approval is required for designs of "manufactured protective systems" and "tabulated data".

*Shoring* - a structure that supports the sides of an excavation and is designed to prevent cave-ins.

*Sheeting* - vertical members of a shoring system that are in contact with and retain the earth in position and in turn are supported by other members of the shoring system.

*Shielding* - a structure that is able to withstand the forces imposed on it by a cave-in and protect employees within the structure. Shields can be designed to be portable and moved along as work progresses or they can be designed as permanently in place. Trench boxes are common shielding devices.

*Upright* - vertical members of a shoring system placed in contact with the earth and usually positioned so that individual members do not touch each other. Uprights placed so that individual members are closely spaced, in contact with each other or are interconnected are called sheeting.

*Wales* - horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or the earth.

#### 4.0 RESPONSIBILITIES

In addition to the responsibilities outlined in the AECS Health and Safety Manual and the Site Specific Health and Safety Plan, excavation work imparts these additional responsibilities:

*Project Manager* - responsible for directing excavation activities in accordance with this SOP, providing necessary resources, and obtaining necessary permits, utility clearances, and approvals.

*Site Health and Safety Officer* - is the designated *competent person* on an AECS work site, responsible for daily inspections of excavation work and having employees removed from excavations which are unsafe. In the absence of the SHSO, the Project Manager will serve in this capacity or will designate another person qualified to serve as the *competent person*.

*Health and Safety Organization* - provide training necessary for the development of *competent persons* and measure the conformance to and effectiveness of this SOP by making periodic inspections of excavation work.

#### 5.0 PROCEDURES

5.1 Hazard recognition - Accident types which result from improper excavation work include *trapped in a cave-in, falls to a different level, struck by objects falling into an excavation, contact with underground utilities, and exposure to hazardous materials and atmospheres.*

##### 5.2 Hazard Controls -

5.2.1 Training - All AECS field employees (project managers, site supervisors, foremen, site safety and health officers, equipment operators, and technicians) will receive a course of instruction in excavation safety which will enable them to recognize unsafe excavations and the control measures necessary to make an excavation safe for entry and safe to work around.

5.2.2 Sloping - Protection of employees in excavations greater than or equal to five feet in depth may be accomplished by sloping the faces of an excavation in accordance with one of the following four options:

Default Slope 1.5:1 (H:V) - Simple excavations (no vertical sided lower portion) twenty feet or less may be sloped at an angle of 1.5:1. Excavations 20 feet deep or less with vertical sided lower portions will be shielded to a height at least 18 inches



above the top of the vertical sides.

Sloping Based on Soil Type - Excavations may be sloped in accordance with soil classifications. Type A soils - 3/4:1, Type B soils - 1:1, and Type C soils - 1.5:1. Special considerations apply to layered soil deposits. Soil classifications must be made using at least one visual and one manual soil classification method. Criteria for each soil type and a description of soil classification methods are described in Appendix A of OSHA's excavation standard and is available from the AECS Health and Safety Administrator.

Alternative Soil Classification and Sloping Systems - Alternative soil classification and sloping systems may be developed. They must be approved by the AECS Health and Safety Administrator and a PE.

Site Specific Sloping and Benching Systems - Site specific benching and sloping designs may be developed in lieu of the alternatives listed above. the designs must be approved by the AECS Health and Safety Administrator and a PE.

5.2.3 Shoring and Shielding - protection of employees in excavations greater than or equal to five feet in depth may be accomplished by shoring or shielding techniques. Shoring systems are designed to prevent cave-ins and shielding systems are designed to protect people within an excavation should a failure occur. Options for the protection of employees in excavations are:

- Systems (timber shoring or aluminum hydraulic shoring) designed in accordance with Appendices A, C, and D of 29 CFR 1926, Part P for excavations less than or equal to 20 feet deep. (No PE approval required).
- Aluminum hydraulic shoring used in accordance with manufacturer's instructions.
- Trench boxes used in accordance with manufacturer's instructions.
- Other systems approved by the AECS Health and Safety Administrator and a PE.

5.2.4 Utility Surveys - The location of utilities will be determined prior to the start of an excavation. Utility companies and owners will be advised of excavation activities and asked to locate underground utilities in the vicinity of the excavation.

5.2.5 Access and Egress - Stairways, ladders, or ramps will be placed so as to require no more than 25 feet of lateral travel for employees for egress.

5.2.6 Fall Protection - Employees will be protected against materials falling into an excavation in which they are working and protected from falling into excavations.

- Employees will not be allowed to work underneath loads handled by lifting or excavating equipment.
- Employees must maintain a safe distance from trucks being loaded with soil to avoid being struck by spillage.
- When equipment is required to approach the edge of an excavation and the operator

does not have a clear, unobstructed view of the excavation edge, a warning system such as barricades, hand signals, or stop logs will be used. When possible, the grade of the equipment's approach should be away from the excavation.

- Employees will be protected from loose rock and soil rolling into the excavation by scaling or barricades. Excavated soils and other materials will be staged no closer than 2 feet from the edge of an excavation. All excavations are hard hat areas.

5.2.7 Stability of Adjacent Structures - When the stability of a structure adjacent to an excavation is endangered, shoring, bracing, or underpinning will be used to ensure the stability of the structure for the protection of employees. Excavations below the level of the base or footing of a structure which may pose a hazard to employees is permitted only when:

- A support system is provided for the safety of employees;
- A PE has approved the determination that the structure is far enough away from the excavation to be unaffected; or
- A PE approves the determination that the excavation work does not pose a hazard to employees.

5.2.8 Daily Inspections - A competent person will conduct daily inspections of all excavations, adjacent areas, and protective systems for evidence of a situation that could result in possible cave-ins, failure of a protective system, and hazardous atmospheres. Inspections will be conducted prior to the start of work in and around the excavation and as required throughout a shift. Inspections will be made after every rainstorm and any other incident which could potentially decrease the degree of safety with which the excavation may be entered. When a condition is discovered during an inspection which could result in a possible cave-in, protective system failure, or development of a hazardous atmosphere, exposed employees will be removed from the hazardous area until the problem is corrected.

5.2.9 Application of HAZWOPER SOPs - Excavations conducted on AECS sites covered under OSHA's Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) are subject to AECS' HAZWOPER SOPs located in the AECS Health and Safety Manual for Hazardous Waste Site Activities.

5.2.10 Application of Confined Space Entry SOP - Excavations which may pose hazards associated with confined space entry (e.g., hazardous atmospheres) will be subject to the AECS Standard Operating Procedure for Confined Space Entry.

6.0 REFERENCE : 29 CFR 1926 Subpart P

**APPENDIX C**

**HEAT STRESS MONITORING PROCEDURES**



## Heat Stress Management

### 1.0 Introduction

Stress can contribute significantly to accidents or harm workers in other ways.

The term "stress" denotes the physical (gravity, mechanical force, heat, cold, pathogens, injury) and psychological (fear, anxiety, crises, joy) forces that are experienced by individuals.

The body's response to stress occurs in three stages:

- a. Alarm Reaction - The body recognizes the stress and the pituitary-adreno-cortical system responds by increasing the heart rate and blood sugar level, decreasing digestive activity and dilating the pupils.
- b. Adaptive Stage - The body repairs the effect of stimulation and stress symptoms disappear.
- c. Exhaustion Stage - The body can no longer adapt to stress and the individual may develop emotional disturbances and cardiovascular and renal diseases.

The most common types of stress that affect field personnel are heat stress and cold stress. Heat and cold stress can be the most serious hazards an employee encounters at hazardous waste sites.

### 2.0 Heat Stress

Heat stress usually is a result of protective clothing decreasing natural body ventilation, although it may occur at any time work is being performed at elevated temperatures.

If the body's physiological processes fail to maintain a normal body temperature because of excessive heat, a number of physical reactions can occur ranging from mild (such as fatigue, irritability, anxiety, and decreased concentration, dexterity, or movement) to fatal. Because heat stress is one of the most common and potentially serious illnesses at hazardous waste sites, regular monitoring and other preventative measures are vital.

Site workers must learn to recognize and treat various forms of heat stress.

### 2.1 Preventive Measures

The best approach is preventative heat stress management. In general:



- a. Have workers drink 16 ounces of water before beginning work, such as in the morning or after lunch. Provide disposable, four ounce cups and water that is maintained at 50 to 60°F. Urge workers to drink one to two gallons per day. Provide cool, preferably air-conditioned, area for rest breaks. Discourage the use of alcohol in non working hours and discourage the intake of coffee during working hours. Monitor for signs of heat stress.
- b. Acclimate workers to site work conditions by slowly increasing workloads.
- c. Provide cooling devices to aid natural body ventilation. The devices, however, add weight, and their use should be balanced against worker efficiency. An example of a cooling aid is long cotton underwear which acts as a wick to help absorb moisture and protect the skin from direct contact with heat-absorbing protective clothing.
- d. Install mobile showers and/or hose-down facilities to reduce body temperature and cool protective clothing.
- e. In hot weather, conduct field activities in the early morning or evening.
- f. Ensure that adequate shelter is available to protect personnel against heat, as well as cold rain, snow, etc., which can decrease physical efficiency and increase the probability of both heat and cold stress. If possible, set up the command post in the shade.
- g. In hot weather, rotate shifts of workers wearing impervious clothing.
- h. Good hygienic standards must be maintained by frequent changes of clothing and showering. Clothing should be permitted to dry during rest periods. Persons who notice skin problems should immediately consult medical personnel.

## 2.2 Heat Stroke

Heat stroke is an acute and dangerous reaction to heat stress caused by a failure of the heat regulating mechanisms of the body. The individual's temperature control system that causes sweating stops working correctly. Body temperature rises so high that brain damage and death will result if the person is not cooled quickly.

- a. Symptoms - Red, hot dry skin, although person may have been sweating earlier. Nausea, dizziness, confusion, extremely high body temperature, rapid respiratory and pulse rate, unconsciousness, or coma.

- b. Treatment - Cool the victim quickly. If the body temperature is not brought down fast, permanent brain damage or death will result. Soak the victim in cool, but not cold, water; sponge the body with cool water; or pour water on the body to reduce the temperature to a safe level (102°F). Observe the victim and obtain medical help. Do not give coffee, tea, or alcoholic beverages.

### 2.3 Heat Exhaustion

Heat exhaustion is a state of very definite weakness or exhaustion caused by the loss of fluids from the body. This condition is much less dangerous than heat stroke, but it nonetheless must be treated.

- a. Symptoms - Pale, clammy moist skin, profuse perspiration and extreme weakness. Body temperature is normal, pulse is weak and rapid, breathing is shallow. The person may have a headache, may vomit, and may be dizzy.
- b. Treatment - Remove the person to a cool, air-conditioned place, loosen clothing, place in a head-low position, and provide bed rest. Consult a physician, especially in severe cases. The normal thirst mechanism is not sensitive enough to ensure body fluid replacement. Have the patient drink one to two cups of water immediately and every 20 minutes thereafter until symptoms subside. Total water consumption should be about one to two gallons per day.

### 2.4 Heat Cramps

Heat cramps are caused by perspiration that is not balanced by adequate fluid intake. Heat cramps are often the first sign of a condition that can lead to heat stroke.

- a. Symptoms - Acute painful spasms of voluntary muscles: e.g., abdomen and extremities.
- b. Treatment - Remove the victim to a cool area and loosen clothing. Have the patient drink one to two cups of water immediately and every 20 minutes thereafter until the symptoms subside. Total water consumption should be one to two gallons per day. Consult your physician.

### 2.5 Heat Rash

Heat rash is caused by continuous exposure to heat and humid air and is aggravated by chafing cloths. The condition decreases the ability to tolerate heat.

- a. Symptoms - Mild red rash, especially in areas of body in contact with protective gear.



- b. Treatment - Decrease the amount of time in protective gear and provide powder to help absorb moisture and decrease chafing.

## 2.6 Heat Stress Monitoring and Work Cycle Management

For strenuous field activities that are part of on-going work activities in hot weather, the following procedures shall be used to monitor the body's physiological response to heat and to manage the work cycle, even if workers are not wearing impervious clothing. These procedures are to be instituted when ambient temperatures exceed 70°F.

- a. Measure Heart Rate f(HR) - The heart rate should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by 33%, while the length of the rest period stays the same. If the pulse rate still exceeds 110 beats per minute at the beginning of the next rest period, the following work cycle should be further shortened by 33%. The procedure is continued until the rate is maintained below 110 beats per minute.
- b. Measure Body Temperature - Body temperature should be measured orally by a clinical thermometer as early as possible in the resting period. Oral temperature (OT) at the beginning of the rest period should not exceed 99.6°F, if it does, the next work period should be shortened by 33% while the length of the rest period stays the same. If the OT exceeds 99.6°F at the beginning of the next period, the following work cycle should be further shortened by 33%. The procedure is continued until the body temperature is maintained below 99.6°F.
- c. Manage Work/Rest Schedule - The following work/rest schedule shall be used as a guideline:

<u>Adjusted Temperature (°F)</u>	<u>Active Work Time Using Level B/C Protective Gear</u>
75 or less	50
80	40
85	30
90	20
95	10
100	0

Calculate the adjusted temperature:

$$T(\text{adjusted}) = T(\text{actual}) + (13 \times \text{fraction sunshine})$$

Measure the air temperature with a standard thermometer. Estimate the fraction of sunshine by judging what percent the sun is out: 100% sunshine = no cloud cover = 1.0, 50% sunshine = 50% cloud cover = 0.5, and 0% sunshine = full cloud cover = 0.0.

Reduce or increase the work cycle according to the guidelines under heart rate and body temperature.

**APPENDIX D**  
**CHAINSAW SAFETY**

## Chain Saw Safety (as Provided by OSHA)

Operating a chain saw is inherently hazardous. Potential injuries can be minimized by using proper personal protective equipment and safe operating procedures.

### Before Starting a Chain Saw

- Check controls, chain tension, and all bolts and handles to ensure that they are functioning properly and that they are adjusted according to the manufacturer's instructions.
- Make sure that the chain is always sharp and the lubrication reservoir is full.
- Start the saw on the ground or on another firm support. Drop starting is never allowed.
- Start the saw at least 10 feet from the fueling area, with the chain's brake engaged.

### Fueling a Chain Saw

- Use approved containers for transporting fuel to the saw.
- Dispense fuel at least 10 feet away from any sources of ignition when performing construction activities. **No smoking during fueling.**
- Use a funnel or a flexible hose when pouring fuel into the saw.
- Never attempt to fuel a running or HOT saw.

### Chain Saw Safety

- Clear away dirt, debris, small tree limbs and rocks from the saw's chain path. Look for nails, spikes or other metal in the tree before cutting.
- Shut off the saw or engage its chain brake when carrying the saw on rough or uneven terrain.
- Keep your hands on the saw's handles, and maintain secure footing while operating the saw.
- Proper personal protective equipment must be worn when operating the saw, which includes hand, foot, leg, eye, face, hearing and head protection.
- Do not wear loose-fitting clothing.
- Be careful that the trunk or tree limbs will not bind against the saw.
- Watch for branches under tension, they may spring out when cut.
- Gasoline-powered chain saws must be equipped with a protective device that minimizes chain saw kickback.
- Be cautious of saw kick-back. To avoid kick-back, do not saw with the tip. If equipped, keep tip guard in place.

**APPENDIX E**  
**HOSPITAL ROUTE MAP**

Notes



Trip to:

**Northside Hospital**  
**1200 Northside Forsyth Drive**  
Cumming, GA 30041  
(770) 844-3200  
2.31 miles / 5 minutes



**Lake Alice**  
Cumming, GA 30041

Download  
Free App



1. Start out going **south** on **Sanders Rd** toward **Mable Lake Rd**. [Map](#)

**0.5 Mi**

*0.5 Mi Total*



2. Take the 1st **right** onto **Buford Dam Rd**. [Map](#)  
*Buford Dam Rd is 0.2 miles past Timber Lake Trl  
If you reach Grove Park Ln you've gone about 0.3 miles too far*

**0.6 Mi**

*1.1 Mi Total*



3. Take the 1st **left** onto **Market Place Blvd**. [Map](#)

**0.8 Mi**

*1.9 Mi Total*



4. **Market Place Blvd** becomes **Ronald Reagan Blvd**. [Map](#)

**0.2 Mi**

*2.1 Mi Total*



5. Turn **right** onto **Northside Forsyth Dr**. [Map](#)  
*Northside Forsyth Dr is 0.1 miles past GA-20  
If you reach Horseshoe Ct you've gone about 0.1 miles too far*

**0.2 Mi**

*2.3 Mi Total*



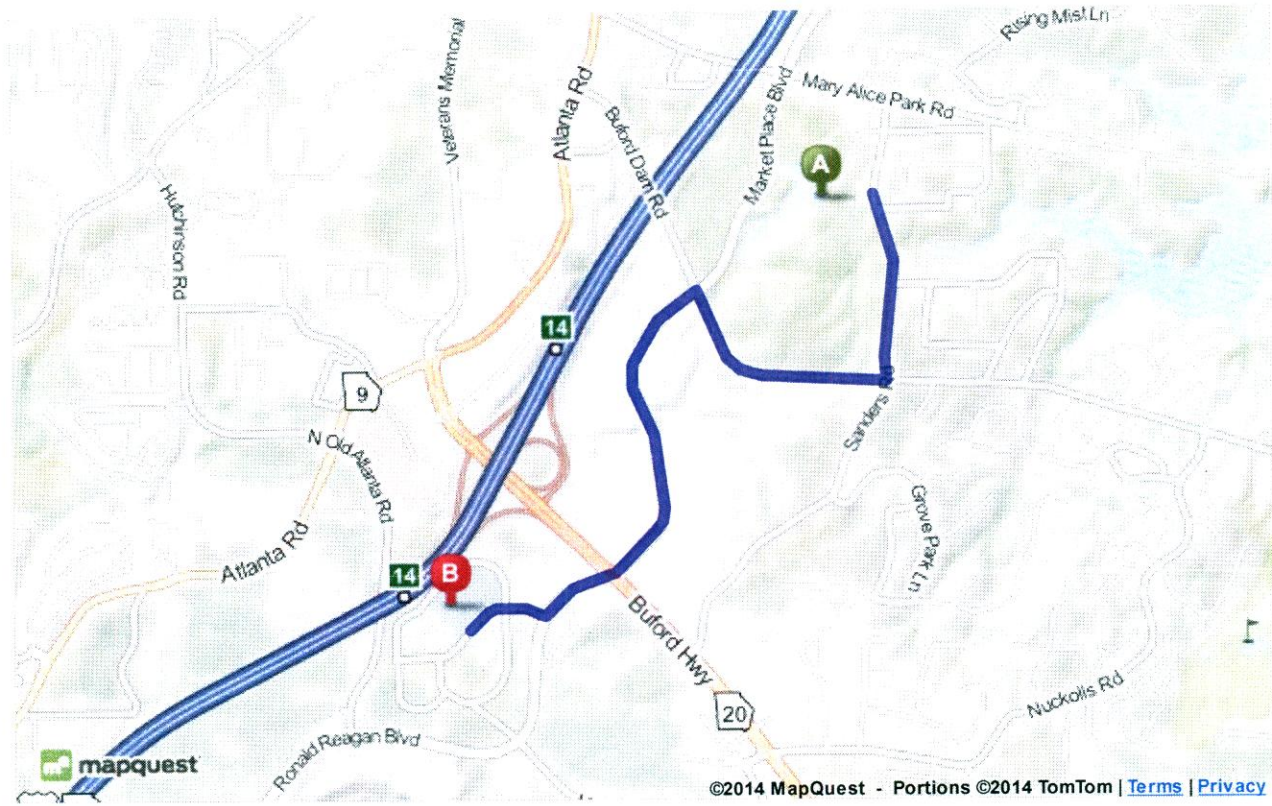
6. **1200 NORTHSIDE FORSYTH DRIVE** is on the **right**. [Map](#)  
*Your destination is 0.1 miles past Howard Farm Dr  
If you reach Northside Blvd you've gone about 0.1 miles too far*



**Northside Hospital**  
[See our Awards and Recognition](#)  
1200 Northside Forsyth Drive, Cumming, GA 30041  
(770) 844-3200



Total Travel Estimate: **2.31 miles - about 5 minutes**



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