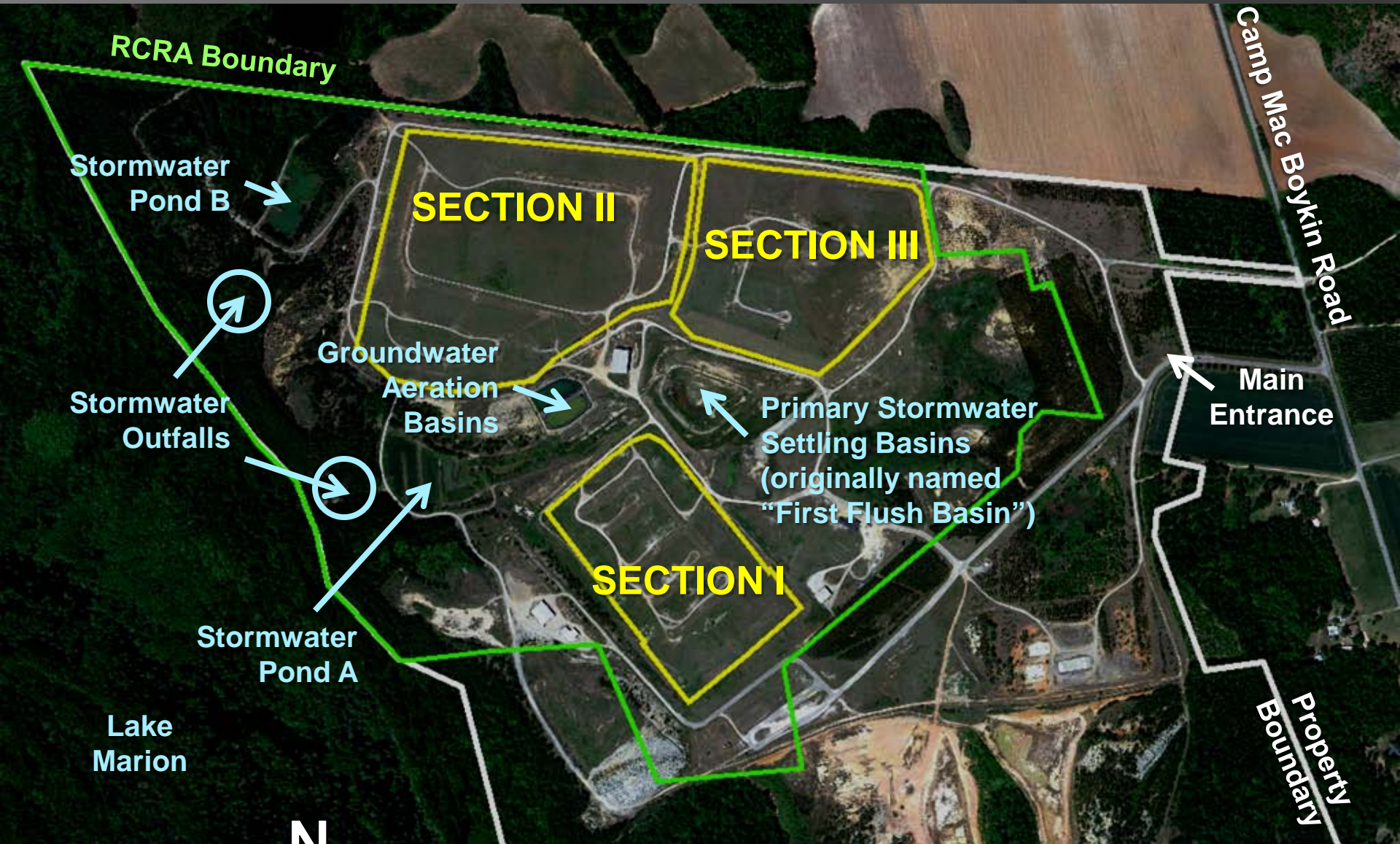


# Agenda for Tonight

- Presentation on the Hazardous Waste Permit
- Question and Answer Session?
- Presentation on the draft Air Permit
- Question and Answer Session
- Public Hearing for Comments on the Draft Air Permit (on the Record)

# Pinewood Site



# Pinewood Aerials Since 2005



© 2012 Google

Google earth

Imagery Date: 4/18/2011 1994

33°41'25.95" N 80°31'07.67" W, elev. 132 ft

Eye alt 5082 ft

# September 2011 Meeting

- ⦿ Presented information on improvements made at Pinewood
- ⦿ Discussed need for leachate treatment, options we evaluated, and planned system
- ⦿ Feedback we received from the community:
  - Look at ways to reduce releases from the proposed evaporator
  - Conserve the financial resources for long-term care
  - Sample private wells located next to the Site
  - Air Monitoring

# Private Well Sampling

- Private water wells both north and south of the site were sampled in October 2011 at the request of home owners.
- Samples were analyzed for volatile organics, semi-volatile organics, and metals.
- Results were compared to Federal and State drinking water standards.
- Results showed impact from the Site to private wells.

# Planned Leachate Treatment System

- The original planned treatment system was pH adjustment, filtration, evaporation of filtered leachate, and off-site solids disposal
- Draft Air Permit is for a minor source (less than 25 tons per year from the entire site, including the landfill and tank farms)
- DHEC and Kestrel decided to look at ways to treat leachate prior to evaporation

# Enhanced Leachate Treatment Options

- Performed a Treatability Study to evaluate options to treat leachate prior to the evaporator with goal of reducing the air emissions
- Results indicate adding oxidation process (treating the volatile organics in leachate) removes greater than 50% of emissions estimated in the draft Air Permit

# Treated and Untreated Leachate



**Raw Leachate  
(untreated)**

**Leachate Treated with  
Fenton's Reagent  
(before filtration)**



# Leachate After Oxidation Treatment and Filtering (to evaporator)



# Onsite Leachate Treatment System

- ◎ System will consist of:
  - pH adjustment
  - Addition of a filtration aid
  - Oxidation treatment to treat (destroy) volatiles
  - Filter press to remove solids
  - Evaporation of the liquid (like boiling water)
  - Solids from both the filtration and evaporator will be collected and disposed at a permitted off-site disposal facility (currently a facility in Texas).

# Typical Filter Press



# Typical Evaporator



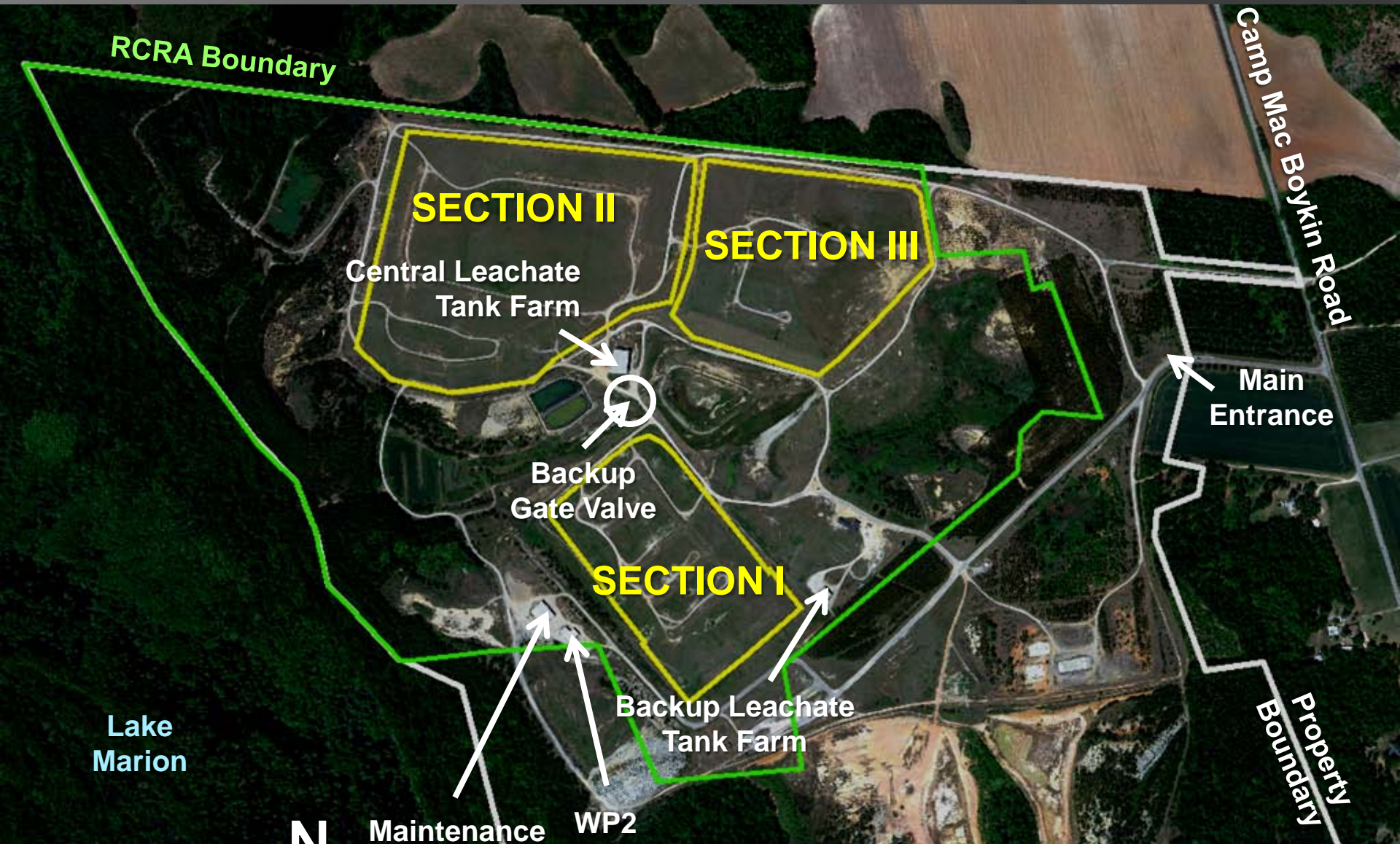
# Typical Slurry Dryer



# Leachate Management Timeline

- DuPont stopped receiving waste from non-DuPont facilities March 31, 2012
- Currently storing leachate onsite until the Treatment System is built
  - Projected storage schedule:
    - Central Tank Farm – until mid July
    - Backup Tank Farm – thru end of August
    - Frac Tank Storage in WP2 Storage Building – until startup in early November

# Pinewood Site



Lake Marion

**SECTION II**  
Central Leachate Tank Farm

**SECTION III**

Backup Gate Valve

**SECTION I**

Backup Leachate Tank Farm

Main Entrance

Property Boundary

Camp Mac Boykin Road



Maintenance Building

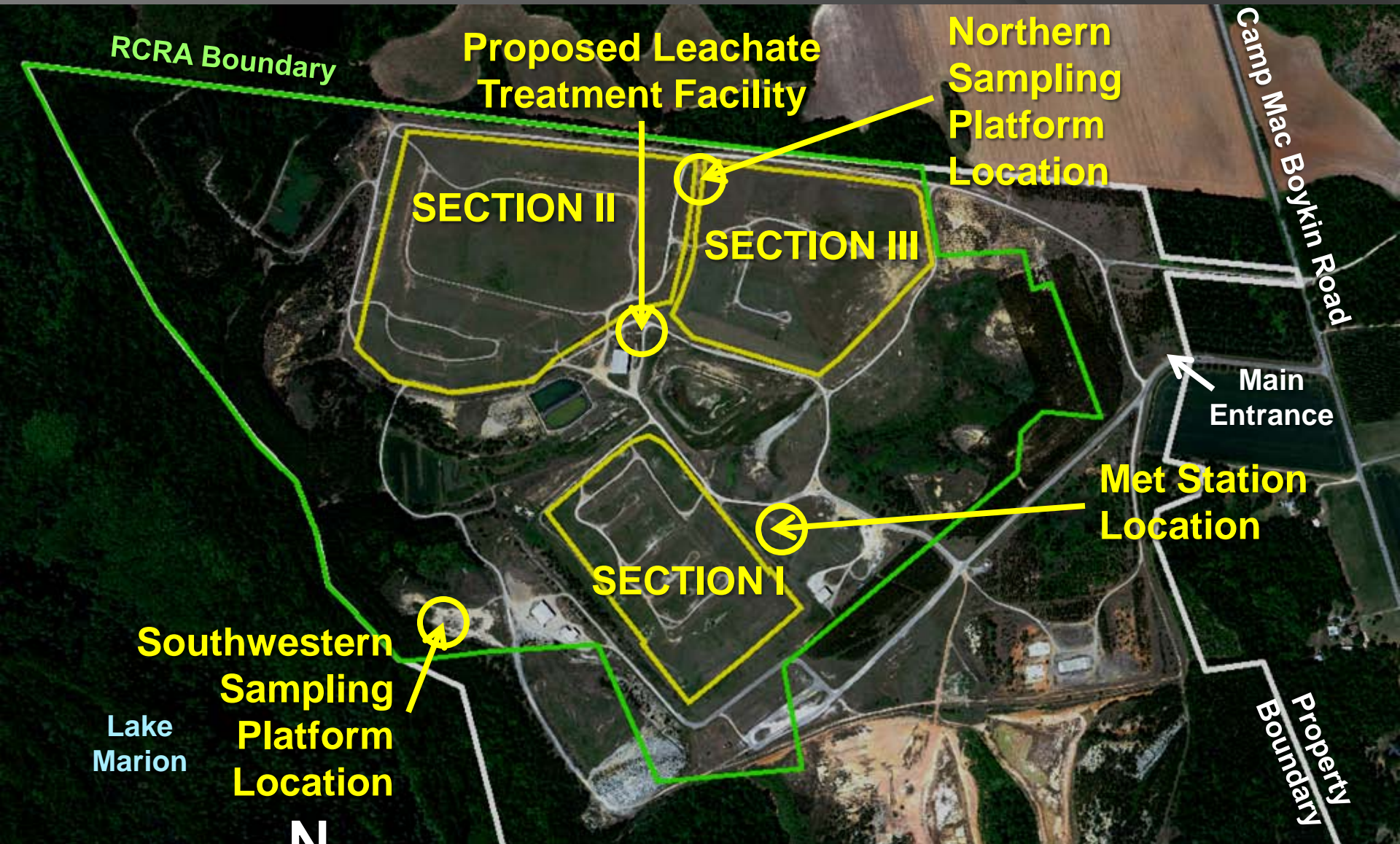
WP2 Containment Building

# Financial Considerations

- On-site leachate storage until treatment system is operating is projected to save between \$500,000 to \$1.5 million per year compared to off-site leachate disposal in Texas



# Pinewood Site



# Hazardous Waste Permit Changes

- ⦿ Modification of Hazardous Waste Permit delayed until fall 2012 – allows for final equipment and operating parameters
- ⦿ Add Leachate Treatment Equipment
- ⦿ Update
  - Contingency plan
  - Inspection Schedules
  - Groundwater monitoring program changes

# Contacts:

## Hazardous Waste Permit:

Richard Haynes  
2600 Bull Street, BLWM  
Columbia, SC 29201  
(803) 896-4070  
haynesra@dhec.sc.gov

Keith Lane  
105 Magnolia Street / PO Box 1628  
Sumter, SC 29151  
(803) 778-1531  
lanehk@dhec.sc.gov

## Air Permit:

Liz Basil  
2600 Bull Street, BAQ  
Columbia, SC 29201  
(803) 898-4126  
basilej@dhec.sc.gov

**For more information:**

**<http://www.scdhec.gov/Pinewood>**

# What is Leachate?

- **Leachate:** Water that collects contaminants as it migrates through waste in a landfill
- Typically, greater than 95% water & less than 5% contaminants (in solids and dissolved, combined)
  - Of the total contaminants in leachate, greater than 95% are in solids and less than 5% are dissolved in water
- Contains solid particles the size of sand, silt, and clay grains
- Leachate is not contaminated groundwater

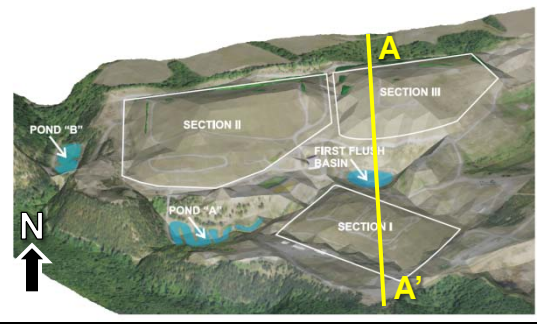
# Leachate Collection System

- **Leachate Collection System:** A system that manages leachate by collecting, transporting via piping, storing leachate for further management

# Contingency Planning

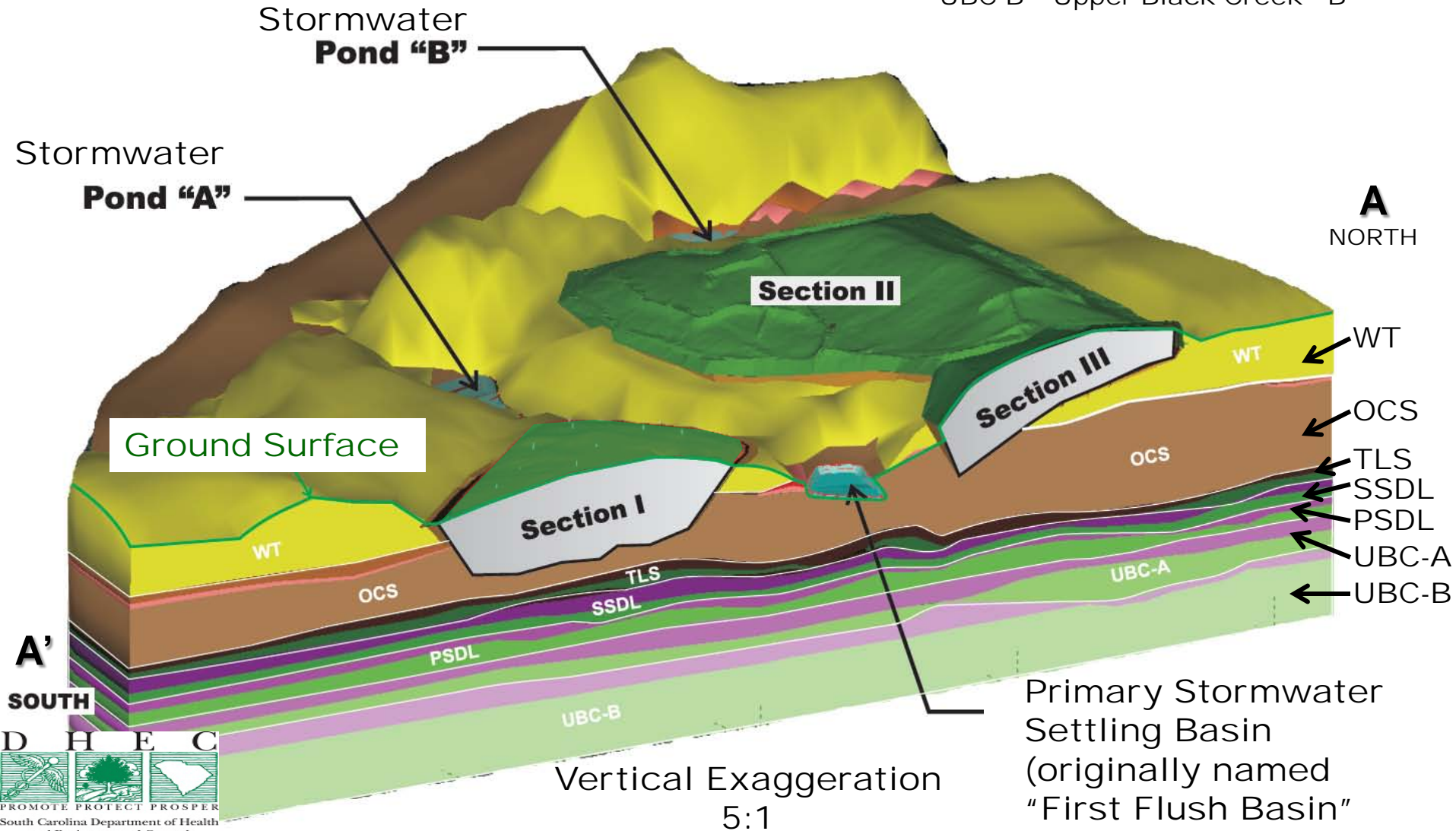
- ⦿ Scanning all waste manifests and other generator records – permanent electronic record
- ⦿ Development of database – will enter data from each manifest into a database of everyone who disposed of waste at Pinewood
- ⦿ Development of a Contingency Plan
  - Steps to take identify Potential Responsible Parties (PRPs)
  - Notification of PRPs
  - Legal Case

# 3-D GEOLOGIC CROSS-SECTIONS

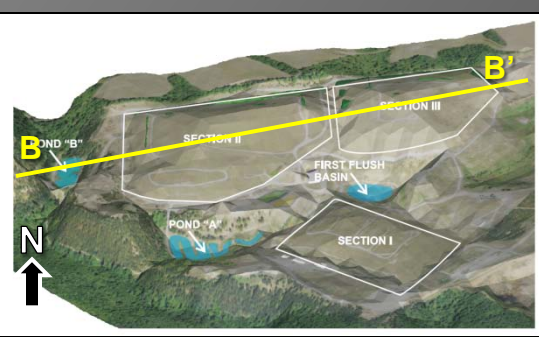


WT - Water Table Unit  
 OCS - Opaline Claystone  
 TLS - Transitional Lang Syne

SSDL - Secondary Sawdust Landing  
 PSDL - Primary Sawdust Landing  
 UBC-A - Upper Black Creek - A  
 UBC-B - Upper Black Creek - B

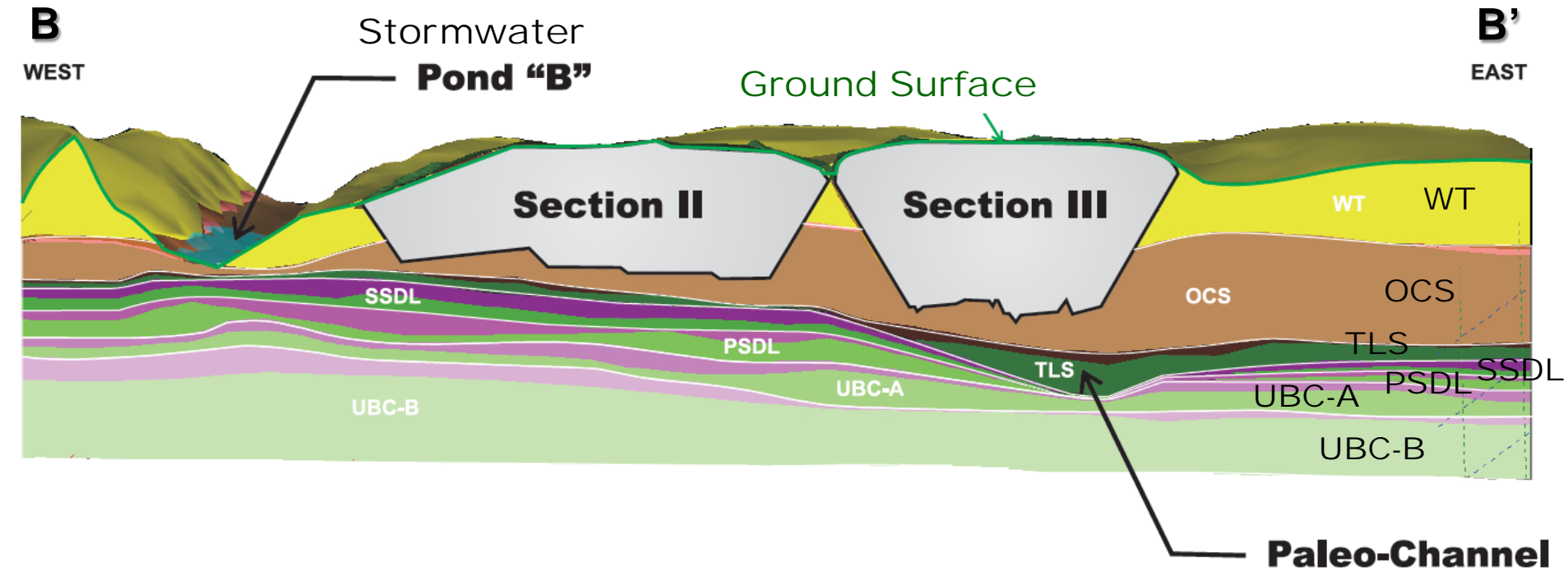


# 3-D GEOLOGIC CROSS-SECTIONS



WT - Water Table Unit  
 OCS - Opaline Claystone  
 TLS - Transitional Lang Syne

SSDL - Secondary Sawdust Landing  
 PSDL - Primary Sawdust Landing  
 UBC-A - Upper Black Creek - A  
 UBC-B - Upper Black Creek - B





# Proposed Leachate Treatment System

