Comprehensive Nutrient Management Plan (CNMP)
(Version 3, 8/17/2016 Format)

The Comprehensive Nutrient Management Plan (CNMP) is an important part of the conservation management system (CMS) for your Animal Feeding Operation (AFO). This CNMP documents the planning decisions and operation and maintenance information for the AFO.

Farm/Facility:	Clint Workman Hog Farm Adkinson Road South Fulton, TN 38257 731-335-0440
Owner/Operator:	Clint Workman
Plan Period:	Oct 2020 - Sep 2025

Certified Comprehensive Nutrient Management Plan (CNMP) Planner

As a Certified Comprehensive Nutrient Management Plan (CNMP) Planner, I certify that I have reviewed the *Comprehensive Nutrient Management Plan* and that the elements of the document are technically compatible, reasonable and can be implemented.

Signature: ______________________________ Date: ______________
Name: J.T. Workman IV
Title: Workman Consulting LLC TSP Certification Credentials: TSP 10-6884

Conservation District (Optional)

As a Conservation District employee, I have reviewed the *Comprehensive Nutrient Management Plan* and concur that the plan meets the District's conservation goals.

Signature: ______________________________ Date: ______________
Name:
Title:

Owner/Operator

As the owner/operator of this CNMP, I, as the decision maker, have been involved in the planning process and agree that the items/practices listed in each element of the CNMP are needed. I understand that I am responsible for keeping all necessary records associated with implementation of this CNMP. It is my intention to implement/accomplish this CNMP in a timely manner as described in the plan.

Signature: ______________________________ Date: ______________
Name: Clint Workman

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Section 1. Farmstead (Production Area)

1.1. Maps of Existing and Planned Farmstead Conservation Practices


30' Farm Boundary
Burial Site
N
W
E
S
0
125
250
375
500
Scale in Feet

1.2. Farmstead Conservation Practices -- Record of Decisions

Heavy Use Area Protection (561)

Barn(s)	Planned amount (No.)	Month	Year	Amount Applied	Date
1	1.0	10	2020	1	
2	1.0	10	2020	1	
Composter	1	10	2020	1	
Total	3.0				

Protect heavily used areas by providing soil protection with vegetation, surfacing material or mechanical structures.

Access Road (560)

Road(s)	Planned amount (No.)	Month	Year	Amount Applied	Date
1	1.0	10	2020	1	
Total	1.0				

A travel lane will be constructed according to NRCS plans and specifications to provide access for proper operation, maintenance, and management of this farm. Maintenance: This practice will be maintained for the 10 year life span of the practice.

Composting Facility (317)

Create composting facility to properly dispose of dead hogs. Compost will need to be tested for nutrient levels. See Practice Standard 317.

Field(s)	Planned amount (No.)	Month	Year	Amount Applied	Date
1	1.0	10	2020	1	
Total	1.0				

All dead pigs must be immediately put in the compost facility and covered with a carbon matter. Suggested carbon matter is sawdust.

All NRCS conservation practices shall be installed, operated and maintained according to NRCS conservation practice standards and associated technical specifications.

UT Extension

W256

Composting Small Ruminants in Tennessee

Ricky C. Skillington, Central Region Goat Specialist

Producers of small ruminants have long been plagued with the issue of how to dispose of dead production animals, as well as afterbirth and stillborn animals. Traditionally, small ruminant producers in Tennessee have limited land areas that they use for this livestock enterprise. Many times, the available land is already in use for pastures and other production parts of the enterprise. Often, this land is totally unsuited for other enterprises. To protect the health of both ruminant herds and farm personnel; avoid air, soil and water contamination; and avoid problems with both agricultural and non-agricultural neighbors, the producer must use both biologically and environmentally safe methods of dead animal disposal.

In many cases, composting is the only viable avenue that these producers have to dispose of dead animals. Composting is a planned and managed process that promotes aerobic degradation of organic matter. The action of Thermophilic aerobic bacteria converts nitrogen-rich (dead animals) and carboniferous (straw, sawdust, etc.) materials into humic acids, bacterial biomass and organic residue. During the process, heat, carbon dioxide and water are generated as by-products. The resulting product is free from harmful pathogens, is nutrient-rich and can be used as fertilizer.

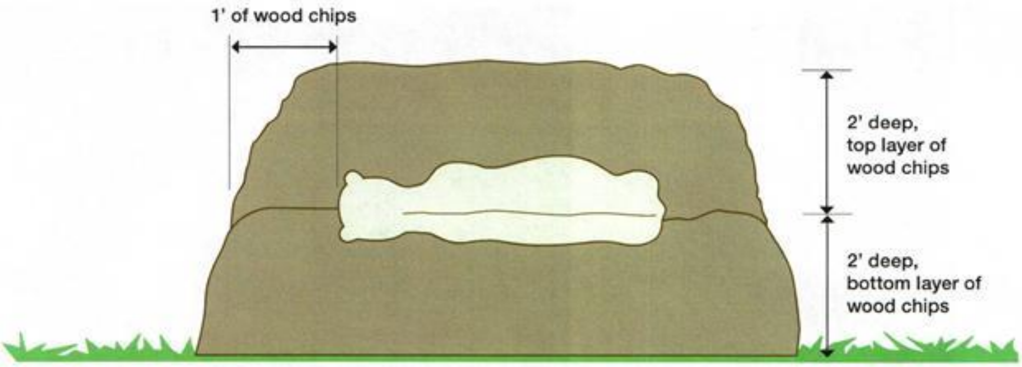
In composting, the material mix is very important. A proper balance of carbon and nitrogen is required to have a clean, efficient composting unit. When the balance is correct, along with adequate levels of air and water, the composting process results in nearly complete disposal of dead ruminants with little odor and run-off.

Producers need to understand that wool will not compost. Recently, I dug into a compost pile that was more than 20 years old and found wool that had been buried for more than 10 years that was still intact. It did show some water damage, but the composting had not destroyed the wool. Hair, on the other hand, seems to compost well.

Producers can use straw, decomposing hay, spoiled silage or even manure to compost small ruminants, but sawdust or wood chips seem to be best. A combination of waste forages as a base with sawdust or wood chips as the cover material seems to have served well in other areas of composting.

A simple system that has worked in similar operations consists of a bin with a concrete bottom and wood sides. The boards on the sides should have ½- to ¾-inch gaps between the boards to insure proper airflow. Bins should be located close to a water source, but not in direct contact with the herd or flock. Having a water source close will allow additional moisture to be added as needed to insure that the 50-60 percent moisture level in maintained during the composting process.

Some producers have found that a roof or cover is advantageous when composting during periods of excessive rainfall. While it is not necessary to have such a bin, a container of some type is helpful to control the amount of carbon-based materials used in the composting. A single bin of 8 to 10 square feet should be adequate for a flock or herd of 25 to 30 head. This is extremely important because of the limited amount of sawdust available in most areas. Producers can contact tree-trimming services and ask to have chips from their chipper unloaded. This



will provide a ready source of carbon for composting, but will require the producer to have a place to store the chips. The chips do not have to be stored under shelter, but need to be in an area that is accessible in all types of weather.

For a composter to work at its best, the carbon-to-nitrogen ratio should be 30:1 (30 parts carbon to 1 part nitrogen). The carbon source is very important in allowing air penetration and holding moisture in the pile. While wood chips tend to dry out more quickly than sawdust, chips are much better in allowing needed oxygen flow into the compost area. To encourage bacterial growth and rapid composting, the mixture must be 50-60 percent moisture. If a handful feels moist, but no water can be squeezed from it, the mixture is probably okay. Another positive for the wood chips is that they tend to absorb odor and retain good "structure" for long periods of time. This means that they allow air to naturally pass into and filter out of the covered carcass.

In static pile composting, the following steps need to be carried out. First, spread a layer of 2 feet of carbon. If not using a bin, this layer should be on a slight slope that is downhill from property lines, water sources or sink holes. Next, the material to be composted should be placed squarely on the center of the base material with all sides and extremities at least 1 foot away from the edge. (Closer proximately to sides of a bin is acceptable. If composting is done without a bin, the full 1 foot from the side is recommended). The third step should be covering the carcass with the carbon source at least 2 feet deep. Research has shown that a 120-pound carcass will require about 12 cubic feet of sawdust or wood chips. It is important to remember that the cover material should be mounded to prevent rain from collecting on the pile. Producers may want to purchase a 3-foot composting thermometer to use in monitoring the pile. These are very handy to make sure that the pile is heating up properly. When the temperature remains above 130 degrees F for three consecutive days, disease-causing pathogens within the pile will be destroyed. In most cases, vermin will not disturb the composting pile, but it may be necessary, if using the bin method, to place a barrier across the front of the bin.

In most cases of active composting, the carcass will be transformed into a substance that can be used as a fertilizer. Turning the pile occasionally will speed up the degradation, but is not required if the compost pile has been constructed correctly. Once the bin or compost pile has been started, the process works well and is low in cost, has little odor, does not promote the growth of flies or other annoying insects and is environmentally friendly.

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1.4. Animal Inventory

Animal Group	Type or Production Phase	Number of Animals[a]	Average Weight (lbs)	Confinement Period	Manure Collected (%)[b]	Manure Storage
Pigs 1	Wean-to-finish pig	2,600	140	Jan Early - Dec Late	100	Barn 1
Pigs 2	Wean-to-finish pig	2,600	140	Jan Early - Dec Late	100	Barn 2

a. The average number of animals present in the production facility at any one time.
b. If manure collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or the production facility is unoccupied one or more times during the confinement period.

Average weight comes from top weight 270 + beginning weight of 10 = 280 / 2= 140. This facility will have approximately 2 turns a year.

1.5. Manure Storage Information

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Annual Manure Collected	Maximum Days of Storage
Barn 1	In-house storage pit	1,092,596 gal	720,000 gal	554
Barn 2	In-house storage pit	1,092,596 gal	720,000 gal	554

Manure production comes from this farm records. Production from this site shows plenty of space to hold one year's worth of manure. It is also suggested that 2 foot freeboard is maintained in pit. These pits will have dimensions of 195.58' L x 99.58' W x 8' D 0.5 Freeboard (In Feet). The 6 inch freeboard is maximum it is suggested that at two feet of freeboard remaining that Mr. Workman make plans to start pumping.

1.6. Planned Manure Exports

Month-Year	Manure Source	Amount	Receiving Operation	Location

(None)

1.7. Planned Manure Imports

Month-Year	Manure's Animal Type	Amount	Originating Operation	Location

(None)

1.8. Planned Internal Transfers of Manure

Month-Year	Manure Source	Amount	Manure Destination

(None)

1.9. Brief Description of or Additional Information about Animal Feeding Operation (Optional)

General Description of Operation

Clint Workman Hog Farm is owned and operated by Clint Workman. Clint Workman Farms with David Clark his Father-in-law. This hog farm is two buildings of 2,600 head each and these buildings are a wean to finish operation contracted through Tosh Farms. Tosh farms will provide the feed management and deliver feed when needed. All manure will be stored in an under floor pit and applied to fields. Richland Creek is 2,700 feet away. Dead animals are composted.

Sampling, Calibration and Other Statements

- Manure sampling frequency
  Manure will be sampled each time it is applied and sent to an accredited lab.

- Soil testing frequency
  All fields in this document shall be tested every 3 to 4 years by an accredited lab.

- Equipment calibration method and frequency
  Application Equipment will be calibrated each time manure is applied.
- Clean water diversion
  No clean water will enter pit. It is sealed off from outside water.

- Measures to prevent direct contact of animals with water
- All animals will remain inside above the under floor pit.

Natural Resource Concerns

If checked, the indicated resource concerns have been identified and have been addressed in this plan.

Soil Quality Concerns

	Soil Quality Concern	*Activities to Address Concern*
	Ephemeral Gully Erosion	
X	Gully Erosion	Some fields have waterways placed to protect from gully erosion.
	Sheet and Rill Erosion	
	Stream/Ditchbank Erosion	
	Wind Erosion	

Water Quality Concerns

	Water Quality Concern	*Activities to Address Concern*
X	Facility Wastewater Runoff	Wastewater remains in underground pit.
X	Manure Runoff (Field Application)	All Fields in Plan
X	Manure Runoff (From Facilities)	Manure is underground sealed pit.
	Nutrients in Groundwater	
	Nutrients in Surface Water	
	Silage Leachate	
	Excessive Soil Test Phosphorus	
	Tile-Drained Fields	

Other Concerns Addressed

	Other Concern	*Activities to Address Concern*
	Acres Available for Manure Application	

	Other Concern	*Activities to Address Concern*
	Aesthetics	
X	Maximize Nutrient Utilization	Manure applied on 2-Year P basis and Nitrogen is added as needed. Manure can be applied fall or spring prior to Corn planting. If manure is moved to prior to wheat adjustements need to be made to nutrient balance.
	Minimize Nutrient Costs	
X	Neighbor Relations	Manure applications are setback 300 feet from houses.
	Profitability	
X	Regulations	All setbacks will be used.
	Soil Compaction	
X	Time Available for Manure Application	Manure will be applied in spring just prior to planting.
X	Odors	Manure will be injected to cut down on odors.
	Air Quality	
X	Biosecurity	

Normal Animal Mortality Management

To decrease non-point source pollution of surface and ground water resources, reduce the impact of odors that result from improperly handled animal mortality, and decrease the likelihood of the spread of disease or other pathogens, approved handling and utilization methods shall be implemented in the handling of normal mortality losses. If on-farm storage or handling of animal mortality is done, NRCS Standard 316, Animal Mortality Facility, will be followed for proper management of dead animals.

Plan for Proper Animal Mortality Management

The following narrative describes how normal animal mortality will be managed in a manner that protects surface and ground water quality.

Workman Farms has built a concrete compost building with a roof. The farm will use a carbon matter such as sawdust to cover dead pigs. The farm will provide some form of a fence to keep animals out. The composter will be turned bi-annually or more often if necessary. If compost is land applied a sample will be taken sent to an accredited lab and then applied according to NRCS Code 590 and shown in records. However, this facility is not expected to generate enough dead animals to need to land apply because death should stay below 3%. Other facilities with Tosh Farms have built composters of the same size and they have not needed to land apply during the first permit period.

Emergency Response Plan

In Case of an Emergency Storage Facility Spill, Leak or Failure

Implement the following first containment steps:

a. Stop all other activities to address the spill.
b. Stop the flow. For example, use skid loader or tractor with blade to contain or divert spill or leak.
c. Call for help and excavator if needed.
d. Complete the clean-up and repair the necessary components.
e. Assess the extent of the emergency and request additional help if needed.

In Case of an Emergency Spill, Leak or Failure during Transport or Land Application

Implement the following first containment steps:

a. Stop all other activities to address the spill and stop the flow.
b. Call for help if needed.
c. If the spill posed a hazard to local traffic, call for local traffic control assistance and clear the road and roadside of spilled material.
d. Contain the spill or runoff from entering surface waters using straw bales, saw dust, soil or other appropriate materials.
e. If flow is coming from a tile, plug the tile with a tile plug immediately.
f. Assess the extent of the emergency and request additional help if needed.

Emergency Contacts

Department / Agency	Phone Number
Fire	911
Rescue services	911
State veterinarian	615-837-5183
Sheriff or local police	911

Nearest available excavation equipment/supplies for responding to emergency

Equipment Type	Contact Person	Phone Number
Track hoe and Dozer	Charlie Reams	731 446 0287

Contacts to be made by the owner or operator within 24 hours

Organization	Phone Number
EPA Emergency Spill Hotline	1-800-424-8802
County Health Department	731-885-8722
Other State Emergency Agency	1-888-891-8332 TDEC's Water Pollution Control

Be prepared to provide the following information:

a. Your name and contact information.
b. Farm location (driving directions) and other pertinent information.
c. Description of emergency.
d. Estimate of the amounts, area covered, and distance traveled.
e. Whether manure has reached surface waters or major field drains.
f. Whether there is any obvious damage: employee injury, fish kill, or property damage.
g. Current status of containment efforts.

Biosecurity Measures

Biosecurity is critical to protecting livestock and poultry operations. Visitors must contact and check in with the producer before visiting the operation or entering any production or storage facility.

The following narrative describes how animal veterinary wastes (including medical equipment, empty containers, sharps and expired medications) will be managed at the operation.

Medicine will be disposed to as directed on label. Needles and other sharps will be put in to a sharps container. If any medicine is left it shall remain in the control rooms or in a building that is protected from outside environment and stored according to label.

Chemical Handling

If checked, the indicated measures will be taken to prevent chemicals and other contaminants from contaminating process waste water or storm water storage and treatment systems.

	This is not a regulatory-agency permitted facility. This section does not apply.

	Measure
X	All chemicals are stored in proper containers. Expired chemicals and empty containers are properly disposed of in accordance with state and federal regulations. Pesticides and associated refuse are disposed of in accordance with the FIFRA label.
X	Chemical storage areas are self-contained with no drains or other pathways that will allow spilled chemicals to exit the storage area.
X	Chemical storage areas are covered to prevent chemical contact with rain or snow.
X	Emergency procedures and equipment are in place to contain and clean up chemical spills.

	Measure
X	Chemical handling and equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.
X	All chemicals are custom applied and no chemicals are stored at the operation. Equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.

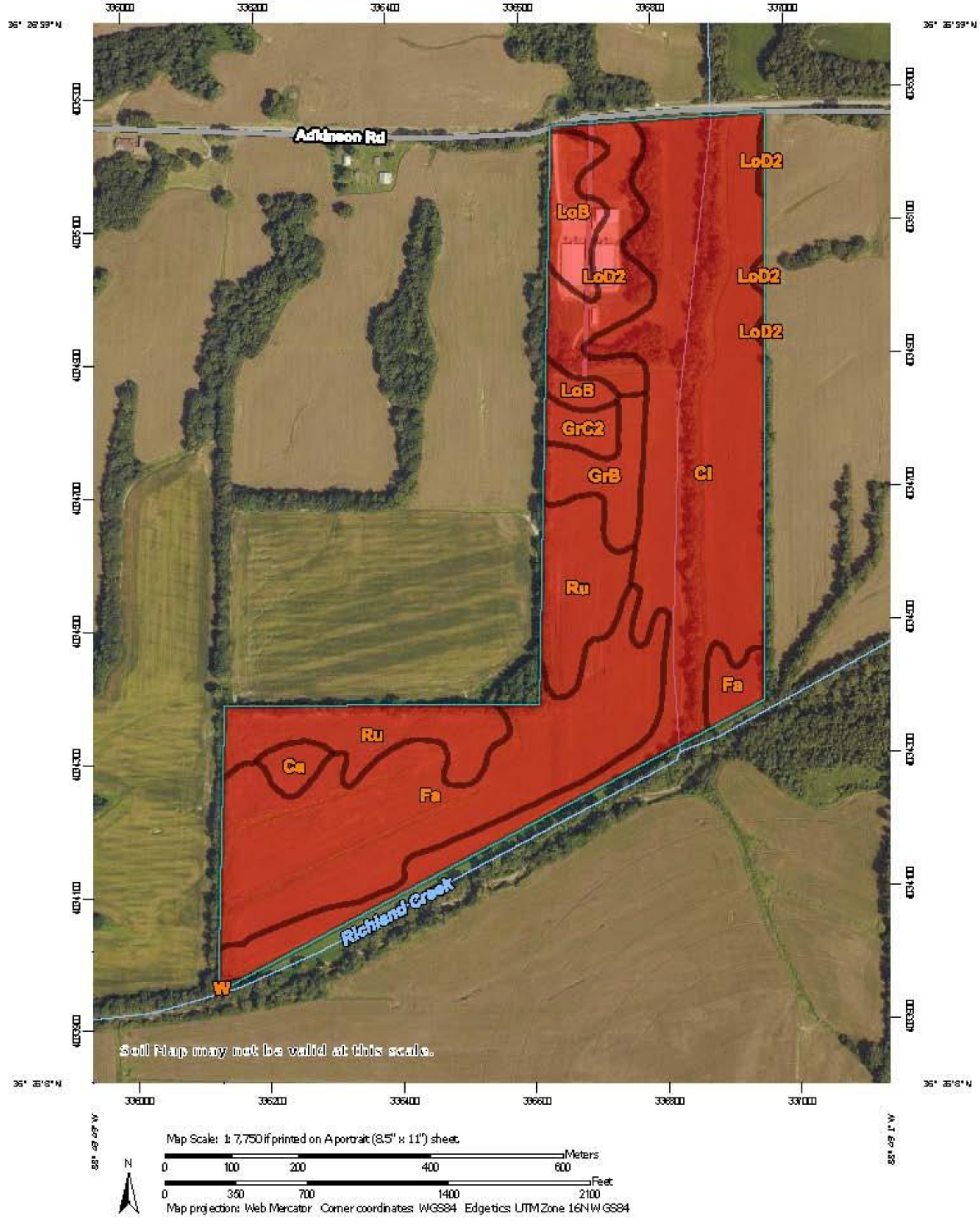
Catastrophic Animal Mortality Management

Refer to NRCS standards, or state guidance, regarding appropriate catastrophic animal mortality handling methods.

Plan for Catastrophic Animal Mortality Management

The following narrative describes how catastrophic animal mortality will be managed in a manner that protects surface and ground water quality. All national, state and local laws, regulations and guidelines that protect soil, water, air, plants, animals and human health must be followed.

Catastrophic Event, Large Animal Mortality, Burial—Obion County, Tennessee



USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

10/20/2020
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MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very severely limited
- Severely limited
- Somewhat limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very severely limited
- Severely limited
- Somewhat limited
- Slightly limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very severely limited
- Severely limited
- Somewhat limited
- Slightly limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Obion County, Tennessee
Survey Area Data: Version 15, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 21, 2019—Sep 4, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Catastrophic Event, Large Animal Mortality, Burial

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Ca	Calloway silt loam	Very severely limited	Calloway (100%)	Wetness (1.00)	1.4	1.3%
Cl	Collins silt loam	Very severely limited	Collins (100%)	Wetness (1.00)	45.6	39.7%
Fa	Falaya silt loam, 0 to 2 percent slopes, occasionally flooded, brief duration	Very severely limited	Falaya (90%)	Wetness (1.00)	31.9	27.7%
				Flooding (0.50)		
				Water gathering surface (0.33)		
			Waverly (5%)	Wetness (1.00)		
				Flooding (0.50)		
				Water gathering surface (0.33)		
GrB	Grenada silt loam, 2 to 5 percent slopes	Very severely limited	Grenada (100%)	Wetness (1.00)	4.5	3.9%
GrC2	Grenada silt loam, 5 to 8 percent slopes, eroded	Very severely limited	Grenada (100%)	Wetness (1.00)	1.9	1.6%
				Slope (0.16)		
LoB	Loring silt loam, 2 to 5 percent slopes	Very severely limited	Loring (100%)	Wetness (1.00)	5.2	4.5%
				Water gathering surface (0.40)		
LoD2	Loring silt loam, 8 to 12 percent slopes, eroded	Very severely limited	Loring (100%)	Wetness (1.00)	9.1	7.9%
				Slope (0.84)		
Ru	Routon-Bonn silt loam complex	Very severely limited	Routon (60%)	Wetness (1.00)	15.4	13.4%
			Bonn (40%)	Wetness (1.00)		
W	Water	Not rated	Water (100%)		0.1	0.0%
Totals for Area of Interest					**115.0**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very severely limited	115.0	100.0%
Null or Not Rated	0.1	0.0%
Totals for Area of Interest	**115.0**	**100.0%**

Description

"Catastrophic Event, Large Animal Mortality, Burial", is a method of disposing of deceased animals as a result of a large scale natural disaster such as a hurricane. The animals are disposed of by placing the carcasses in successive layers in an excavated and sloped pit. The carcasses are spread, compacted, and covered daily with a thin layer of soil that is excavated from the pit. When the pit is full, a final cover of soil material at least 2 feet thick is placed over the burial pit.

Soils are rated based on their limitation for burial of large animals following a catastrophic event. Catastrophic events include, but are not limited to, hurricanes, wildfires, flooding, and tornados. Limitations for burial of large animals during a catastrophic event are based primarily on contamination of groundwater, trafficability of excavation equipment, site selection, and site reclamation.

While some general observations may be made, onsite evaluation is required before the final site is selected. Improper site selection, design, or installation may cause contamination of ground water, seepage, and contamination of stream systems from surface drainage or floodwater. Potential contamination may be reduced or eliminated by installing systems designed to overcome or reduce the effects of the limiting soil property. The rating is for soils in their present condition and does not consider present land use.

Ratings are based on properties and qualities to the depth normally observed during soil mapping (approximately 6 or 7 feet). However, because pits may be as deep as 15 feet or more, geologic investigations are needed to determine the potential for pollution of ground water as well as to determine the design needed. These investigations, which are generally arranged by the pit developer, include the examination of stratification, rock formations, and geologic conditions that might lead to the conducting of leachates to aquifers, wells, watercourses, and other water sources. The presence of hard, nonrippable bedrock, bedrock crevices, or highly permeable strata in or immediately underlying the proposed pit bottom is undesirable because of the difficulty in excavation and the potential contamination of underground water.

Properties that influence the risk of contamination of groundwater, ease of excavation, trafficability, and revegetation are major considerations. Soils that flood or have a water table within the depth of excavation present a potential contamination hazard and are difficult to excavate. Slope is an important consideration because it affects the work involved in road construction, the performance of the roads, and the control of surface water around the pit. It may also cause difficulty in constructing pits for which the pit bottom must be kept level and oriented to follow the contour.

The ease with which the pit is dug and with which a soil can be used as daily and final covers is based largely on texture and consistence of the soil. The texture and consistence of a soil determine the degree of workability of the soil both when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and difficult to place as a uniformly thick cover over a layer of carcasses. The uppermost part of the final cover should be soil material that is favorable for the growth of plants. It should not contain excess sodium or salt and should not be too acid. In comparison with other horizons, the A horizon in most soils has the best workability and the highest content of organic matter. Thus, for a Large Animal Disposal, Burial operation it may be desirable to stockpile the surface layer for use in the final blanketing of the filled pit area.

Numerical ratings indicate the severity of the individual limitations. The ratings are shown in decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses.

Not limited (rating index equals 0) - The limitation for large animal disposal during a catastrophic event is insignificant. This soil is able to support standard excavation equipment, the soil has minimal contamination of groundwater, and soil reclamation using conventional processes is possible. Not limited soils have features that are very favorable for the specified use. Very good performance and very low maintenance can be expected of a properly designed and installed system.

Slightly limited (rating index greater than 0 but less than 0.30) - The limitation for large animal disposal during a catastrophic event is slightly limited. There are one or more soil properties that pose a slight limitation for contamination of groundwater, site reclamation, or excavation equipment. Slightly limited indicates the soil have features that are favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Good performance and low maintenance can be expected.

Somewhat limited (greater than 0.30 but less than 0.80) - The limitation for large animal disposal during a catastrophic event is somewhat limited. There are more than one soil properties that pose a limitation for contamination of groundwater, site reclamation, or excavation equipment. Any corrective measures taken to overcome these limitations are considered economical however, special care must be taken to overcome limitations. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected.

Severely limited (greater than 0.80 but less than 0.99) - The limitation for large animal disposal during a catastrophic event is severely limited. There are many soil properties that pose a limitation for contamination of groundwater, site reclamation, or excavation equipment. Additionally, corrective measures will be needed to overcome these limitations. Corrective measures taken may be costly to overcome limitations that pose a severely limited rating. Severely limited indicates that the soil has features that are unfavorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation however, it is costly to do so. Poor performance and high maintenance can be expected.

Very severely limited (rating index equals 1.0) - The limitation for large animal disposal during a catastrophic event is severely limited. There are one or more soil properties that pose a very severe limitation for contamination of groundwater, site reclamation, or excavation equipment. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Very poor performance and very high maintenance can be expected.

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

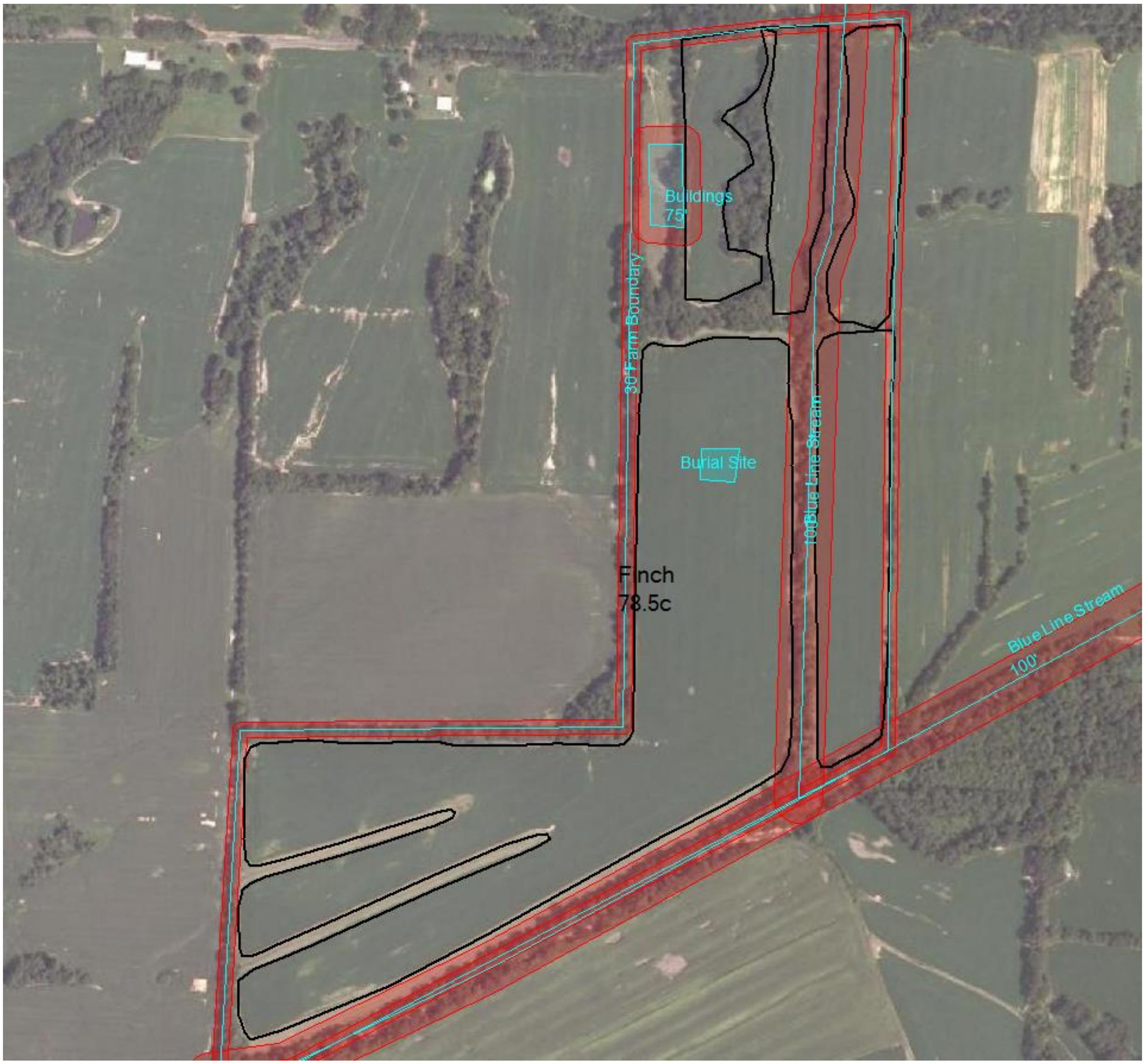
Component Percent Cutoff: None Specified

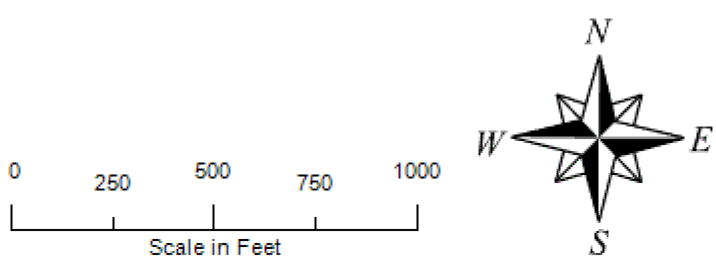
Tie-break Rule: Higher

Section 2. Crop and Pasture (Land Treatment)

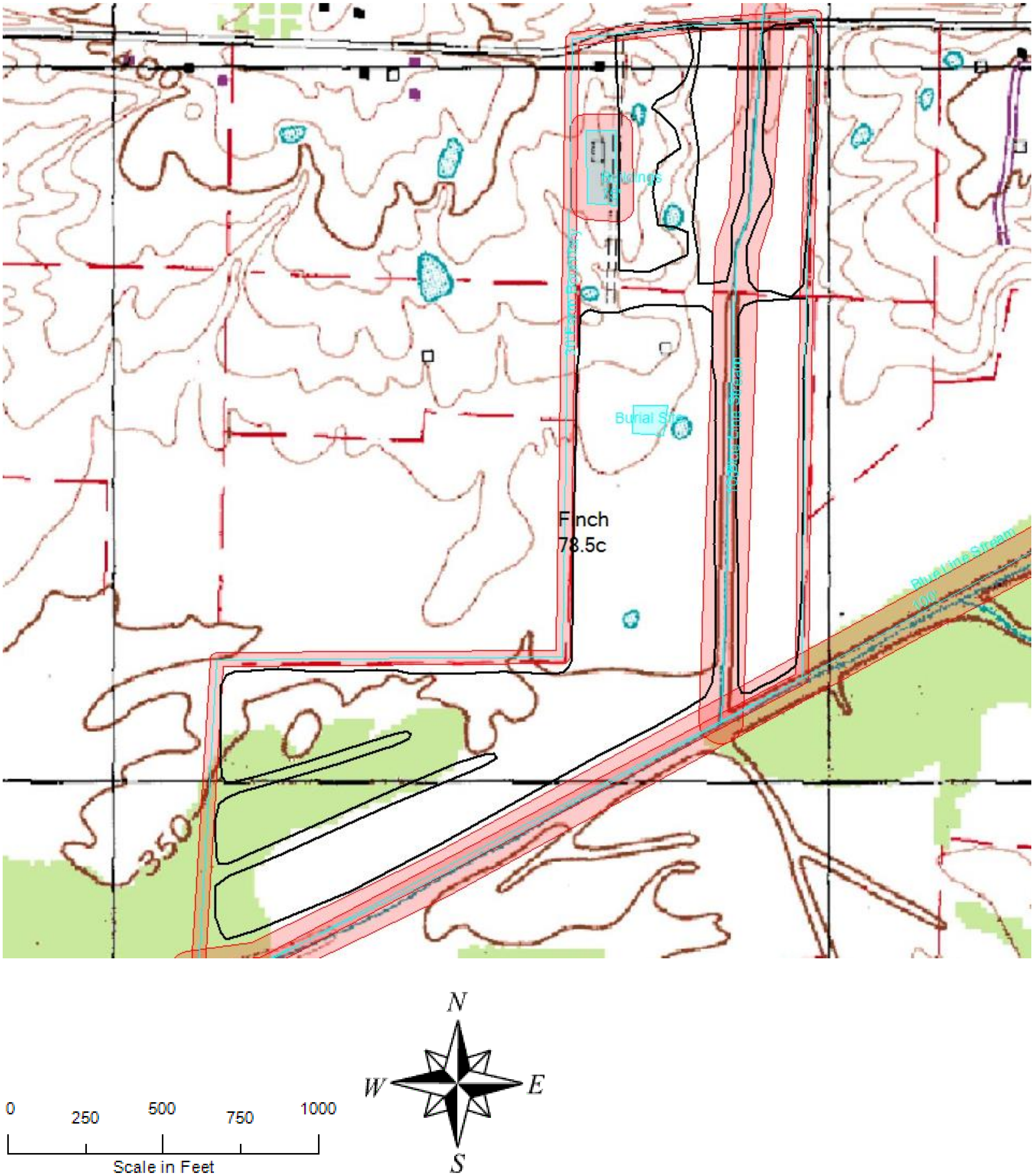
2.1. Maps of Fields, Soils, Application Setbacks, Existing and Planned Crop and Pasture Conservation Practices

Fields with Spreadable Acres

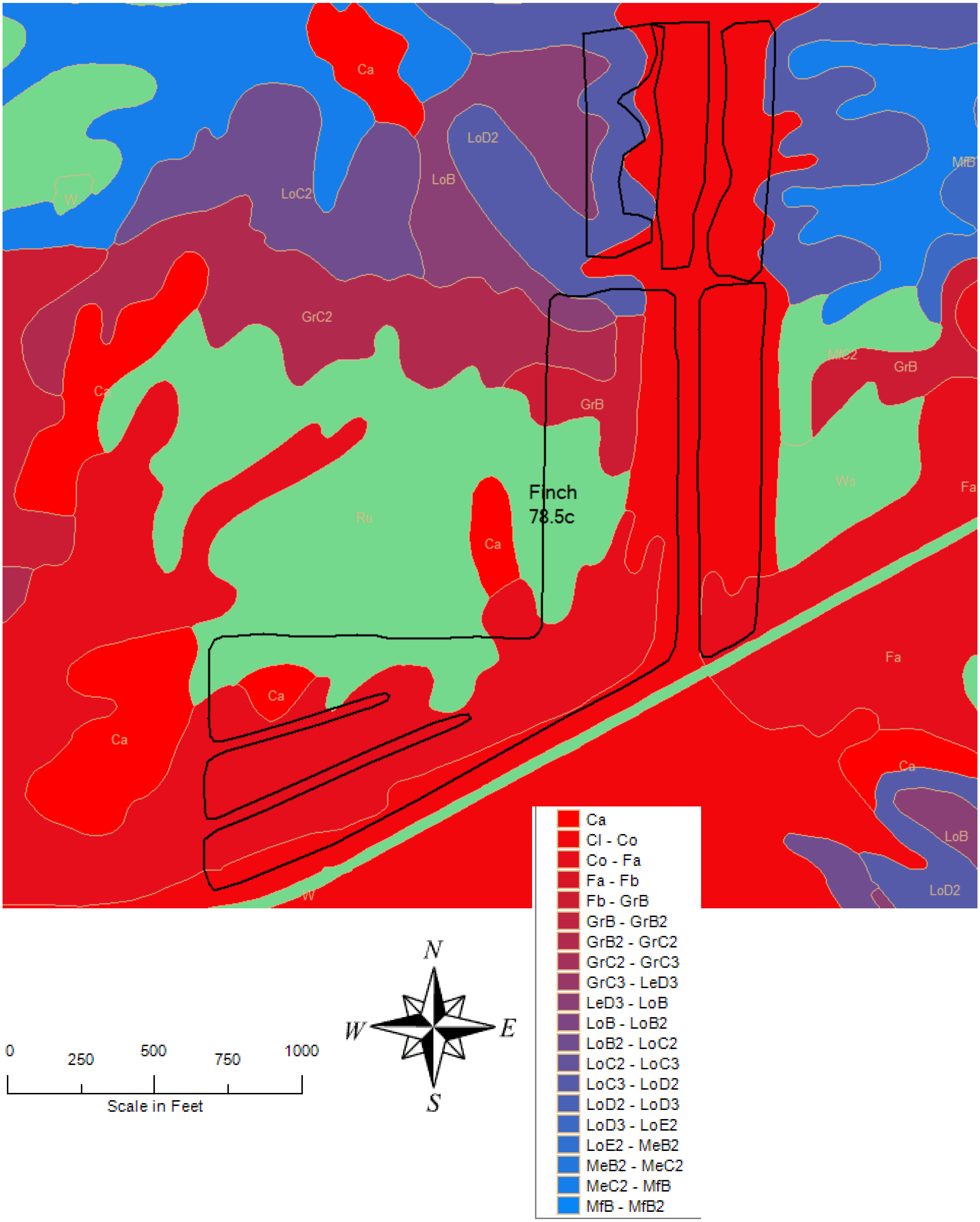




Topo Map

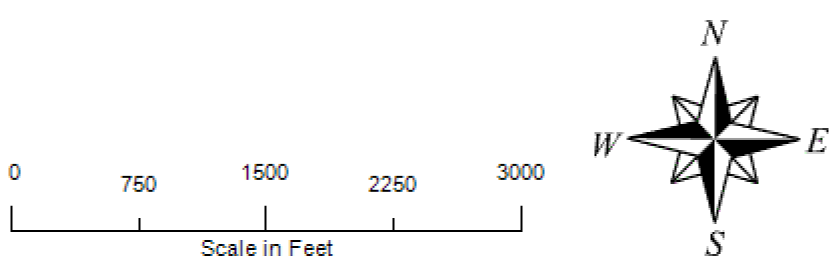

Finch
78.5c
350
Burial Site
Bluff Line Stream
100'
N
W
E
S
0
250
500
750
1000
Scale in Feet

Soils Map

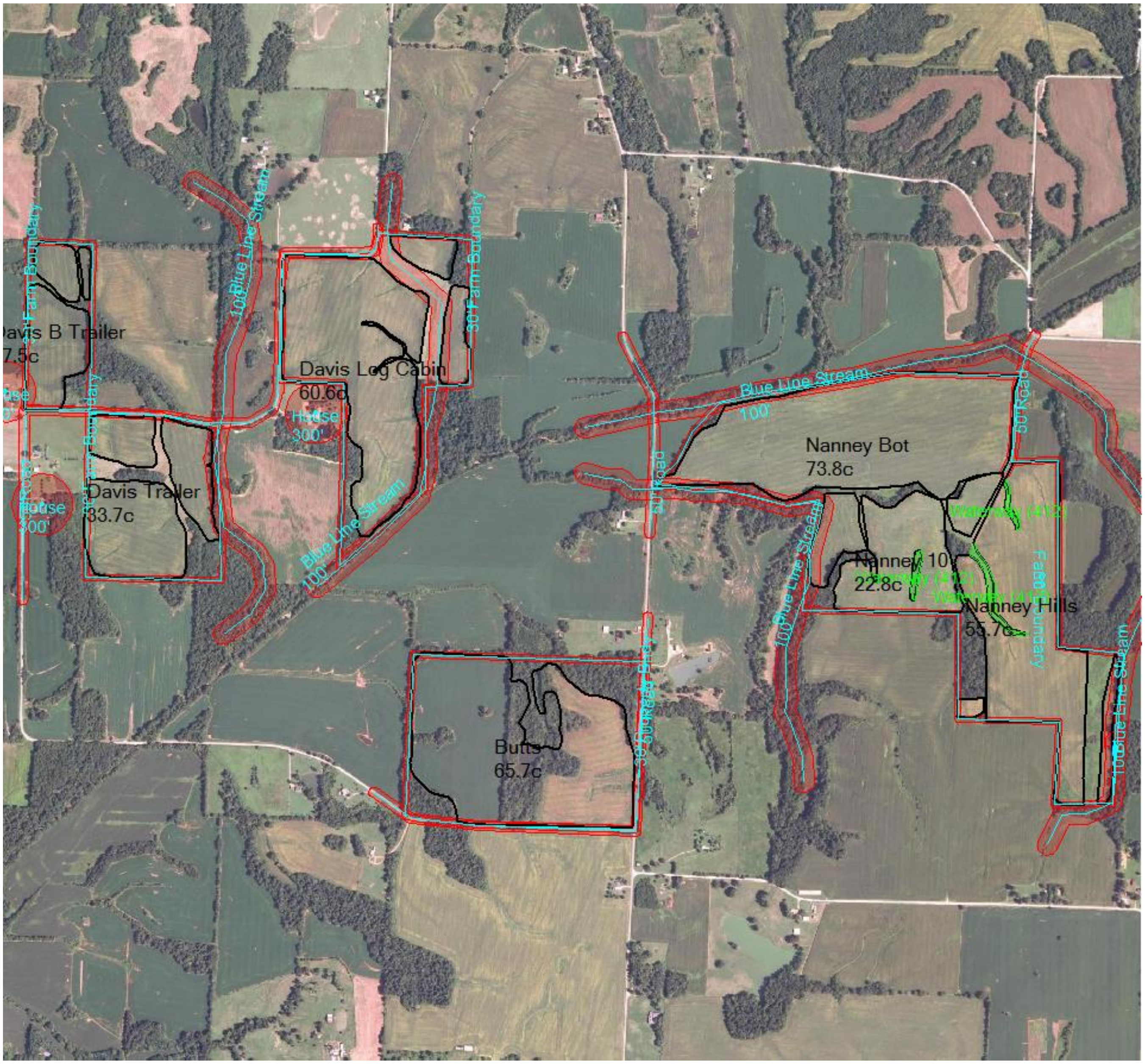


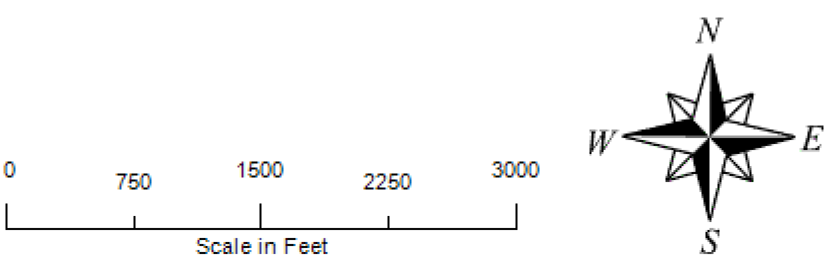
Ca
LoD2
LoB
LoC2
W
MfB
GrC2
GrB
MfC2
GrB
Finch
78.5c
Ru
Ca
Ws
Fa
Ca
Fa
Ca
Ca
LoB
LoD2
W
Ca
Cl - Co
Co - Fa
Fa - Fb
Fb - GrB
GrB - GrB2
GrB2 - GrC2
GrC2 - GrC3
GrC3 - LeD3
LeD3 - LoB
LoB - LoB2
LoB2 - LoC2
LoC2 - LoC3
LoC3 - LoD2
LoD2 - LoD3
LoD3 - LoE2
LoE2 - MeB2
MeB2 - MeC2
MeC2 - MfB
MfB - MfB2
N
W
E
S
0
250
500
750
1000
Scale in Feet

Fields with Acres Labeled

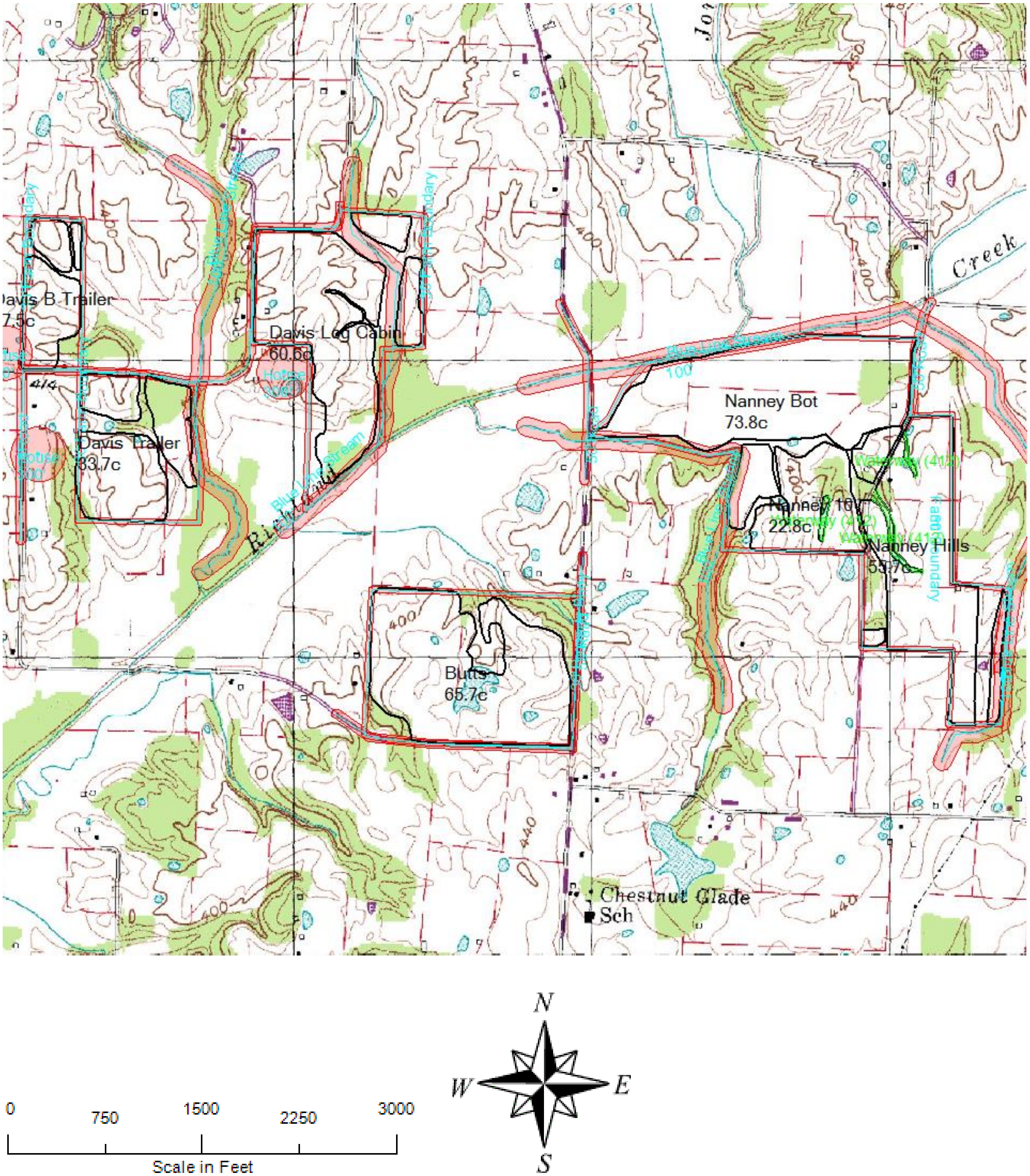


Fields with Spreadable Acres

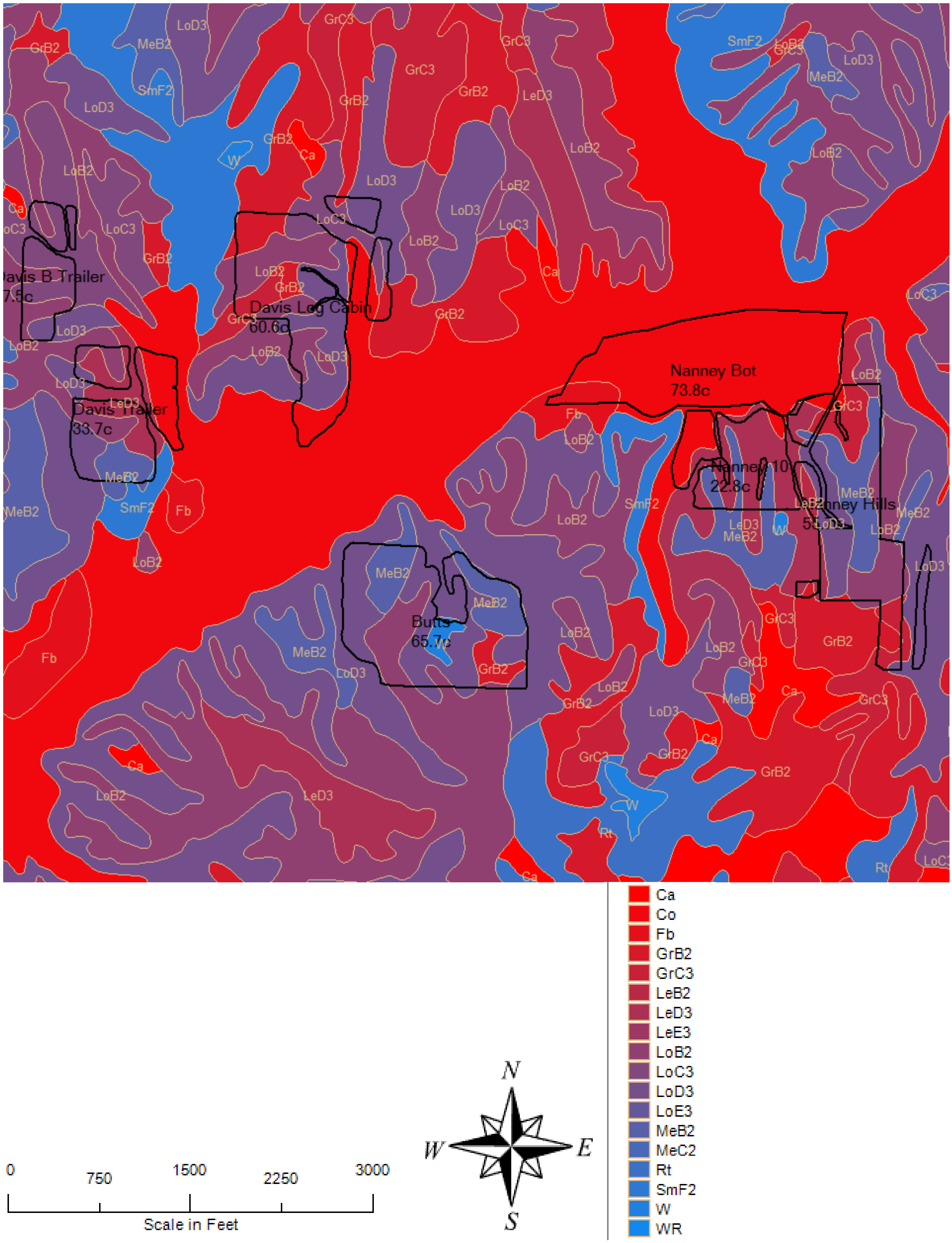




Topo Map

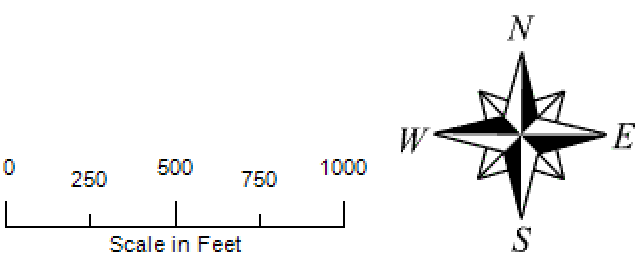

Davis B Trailer
7.5c
Davis Log Cabin
60.6c
Davis Trailer
33.7c
Nanney Bot
73.8c
Nanney 16
22.8c
Nanney Hills
55.7c
Butts
65.7c
Creek
Chestnut Glade
Sch
0
750
1500
2250
3000
Scale in Feet
N
W
E
S

Soils Map

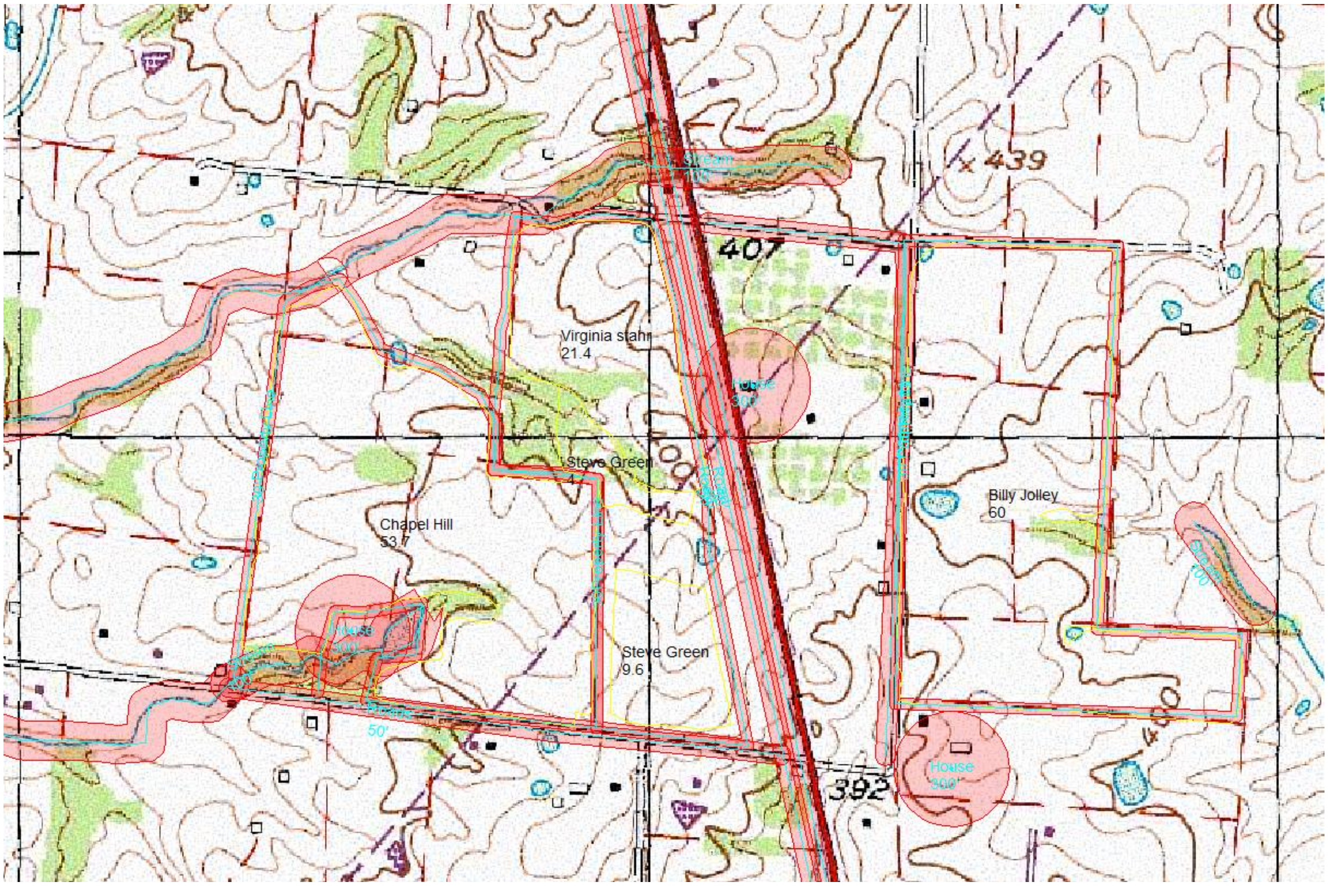


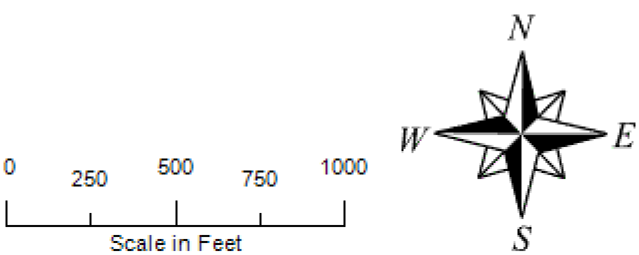
Davis B Trailer
7.5c
Davis Log Cabin
60.6c
Davis Trailer
33.7c
Nanney Bot
73.8c
Nanney 10
22.8c
Nanney Hills
Butts
65.7c
Ca
Co
Fb
GrB2
GrC3
LeB2
LeD3
LeE3
LoB2
LoC3
LoD3
LoE3
MeB2
MeC2
Rt
SmF2
W
WR
0
750
1500
2250
3000
Scale in Feet
N
W
E
S


Stream
100'
Virginia stahr
21.4
House
300'
Steve Green
4
Chapel Hill
53.7
Steve Green
9.6
Billy Jolley
60
Roads
50'
30' Property Line

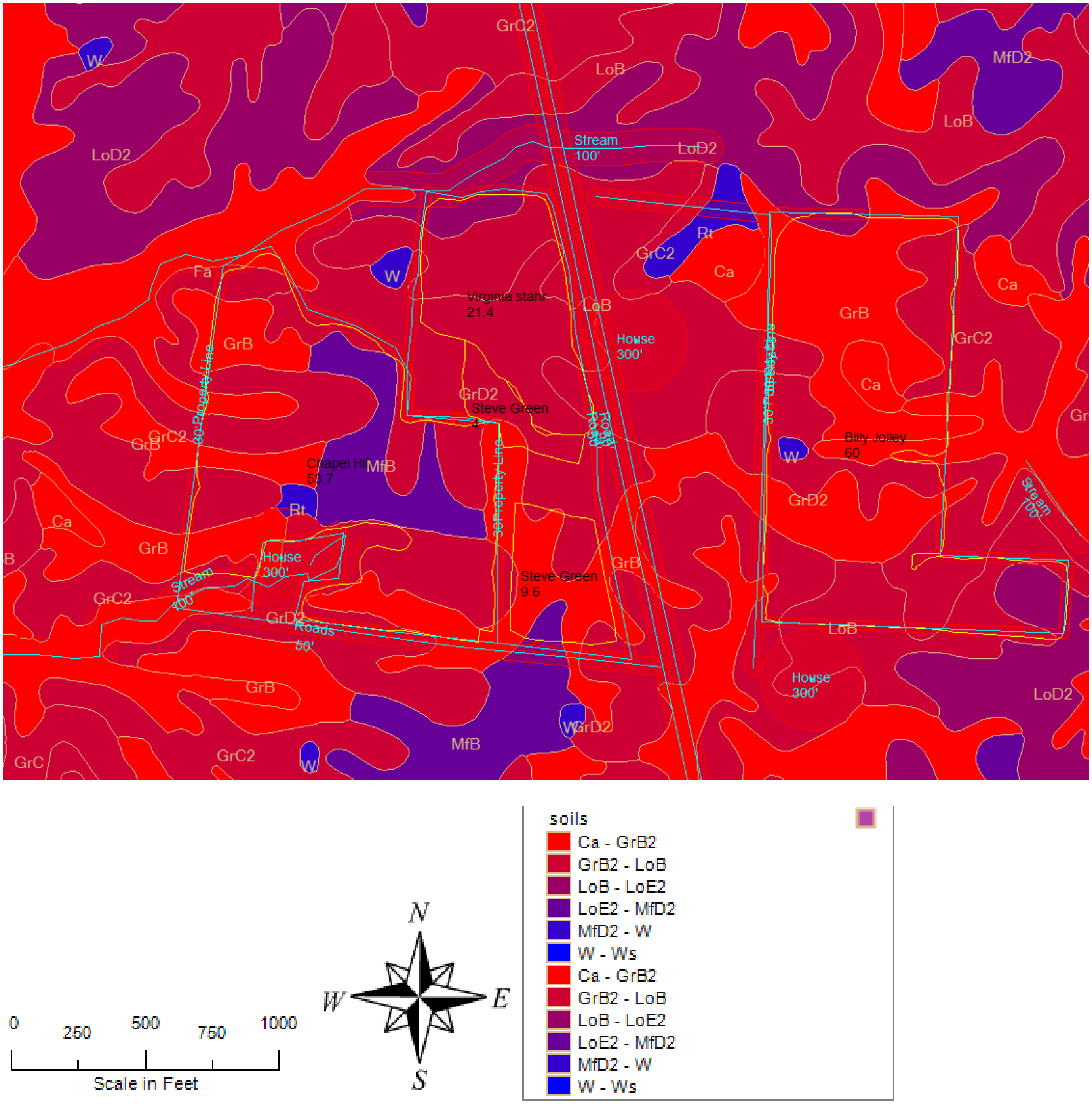

0
250
500
750
1000
Scale in Feet
N
W
E
S

Topo Map

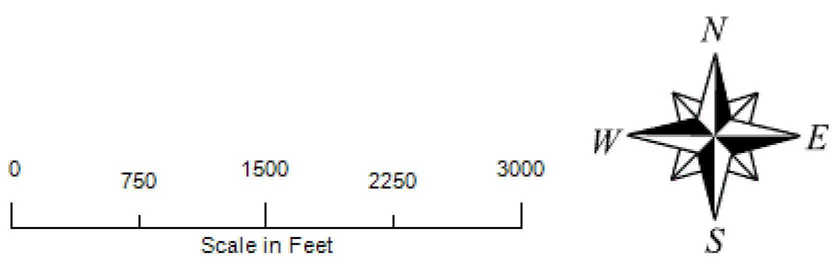

x 439
407
Virginia stahr
21.4
Steve Green
Billy Jolley
60
Chapel Hill
53.7
Steve Green
9.6
392
House
300'


0
250
500
750
1000
Scale in Feet
N
W
E
S

Soils Map

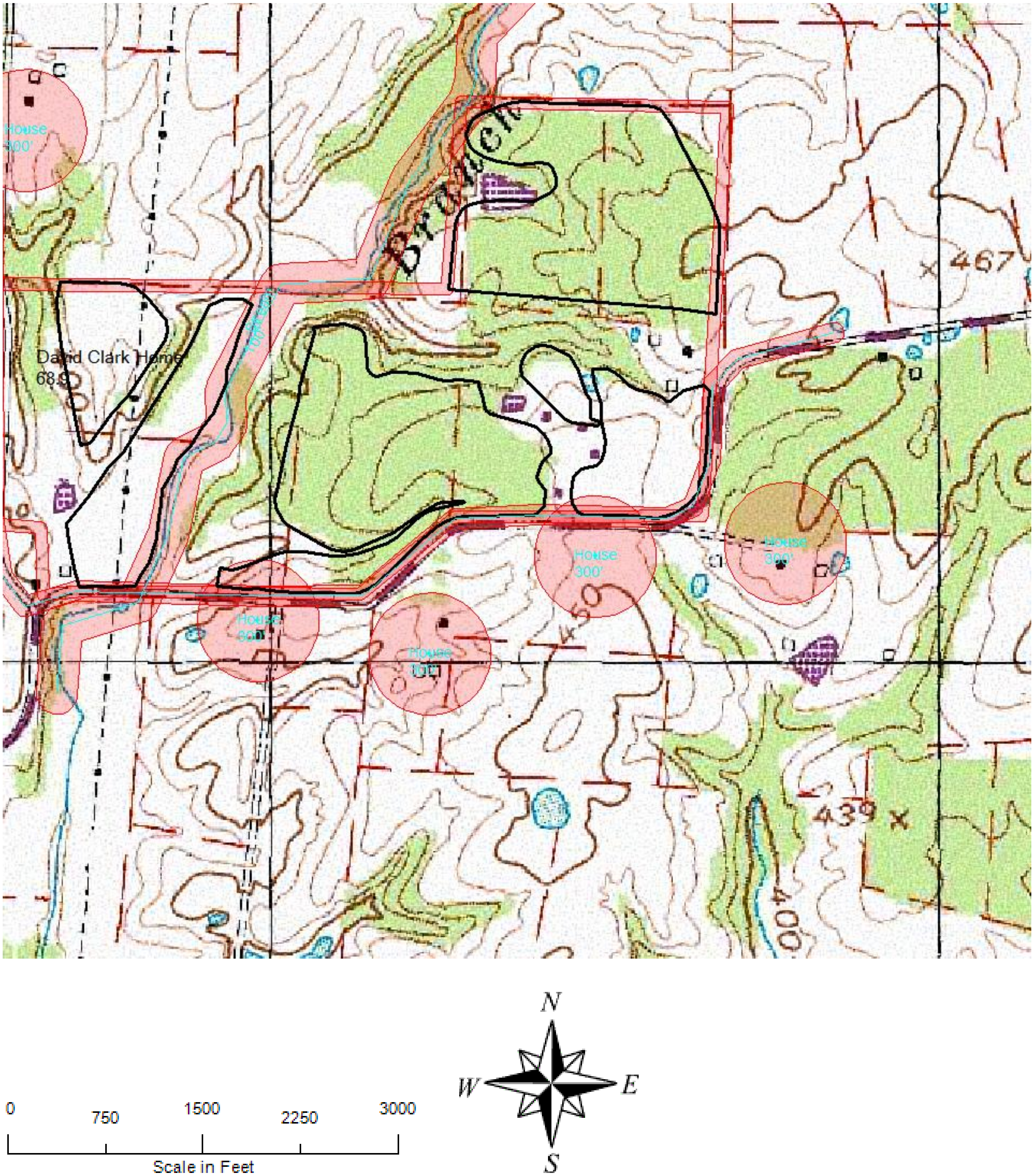

GrC2
LoB
MfD2
W
LoD2
Stream
100'
Fa
Rt
Ca
GrB
Virginia stahr
21.4
House
300'
GrD2
Steve Green
4
Road
50'
Billy Jolley
60
30' Property Line
MfB
53.7
Steve Green
9.6
Roads
50'
GrC
soils
Ca - GrB2
GrB2 - LoB
LoB - LoE2
LoE2 - MfD2
MfD2 - W
W - Ws
Ca - GrB2
GrB2 - LoB
LoB - LoE2
LoE2 - MfD2
MfD2 - W
W - Ws
N
W
E
S
0
250
500
750
1000
Scale in Feet

Fields with Acres Labeled

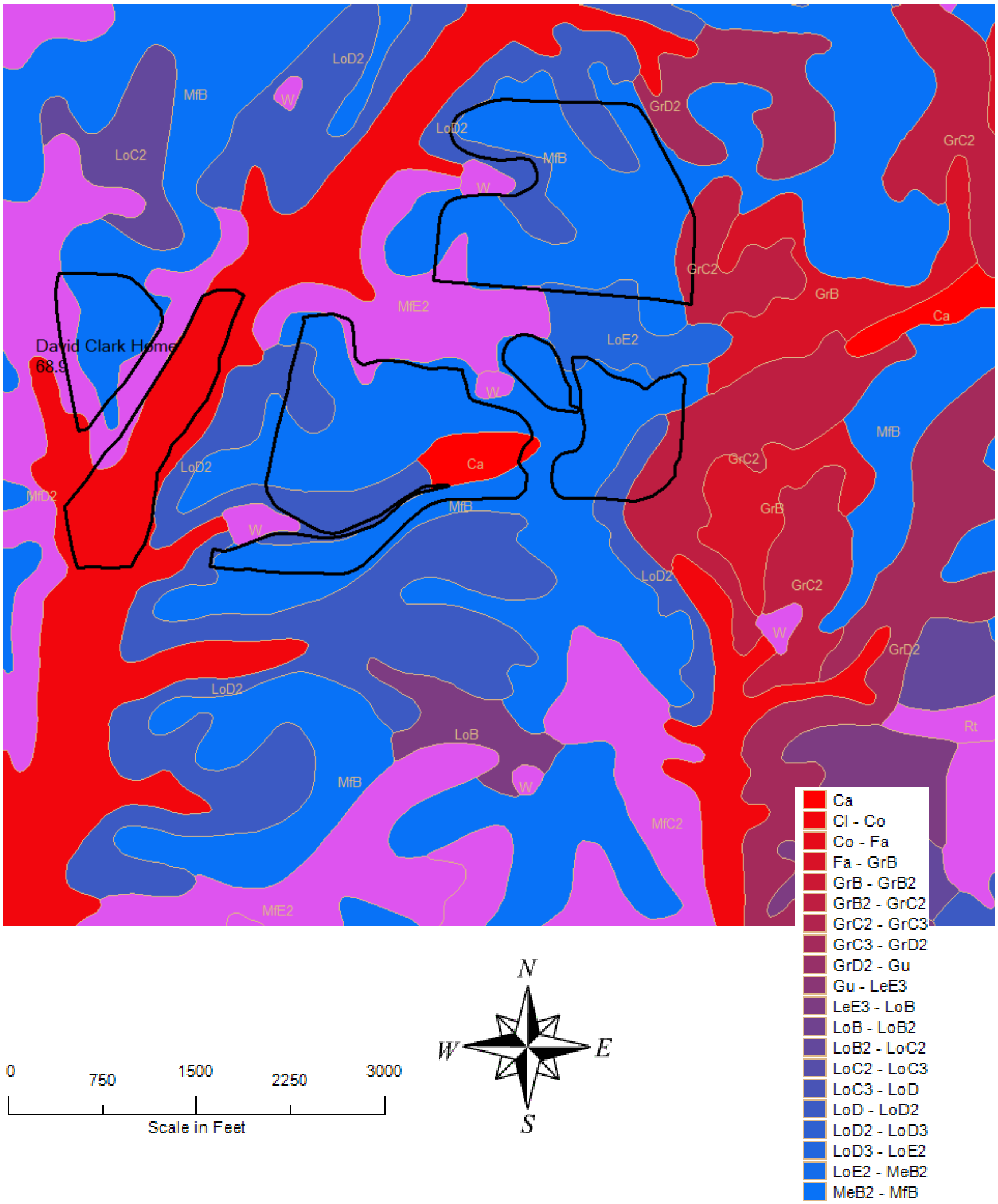


Fields with Spreadable Acres

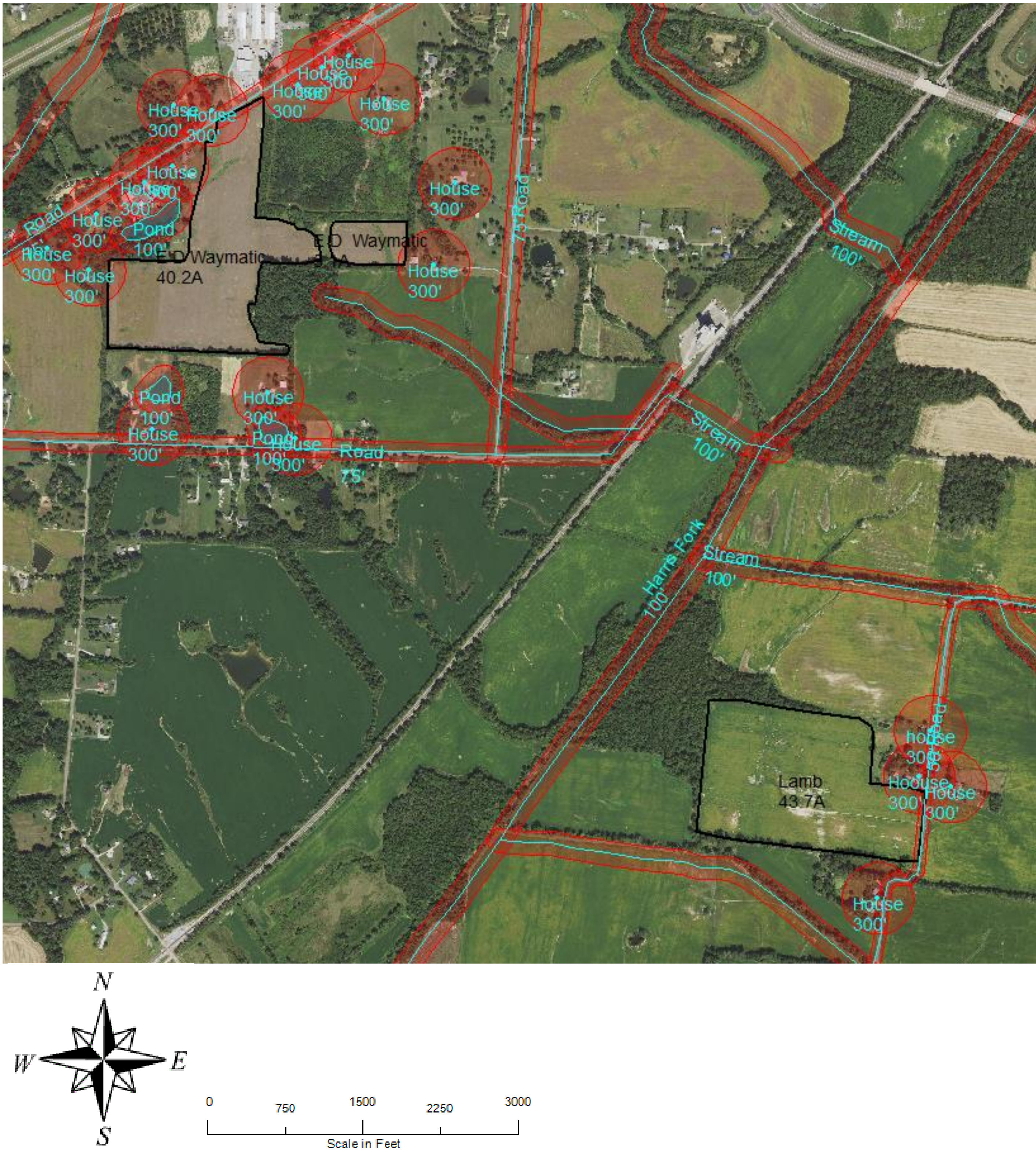
Topo Map


Branch
467
David Clark Home
House
300'
439
400
0
750
1500
2250
3000
Scale in Feet
N
W
E
S

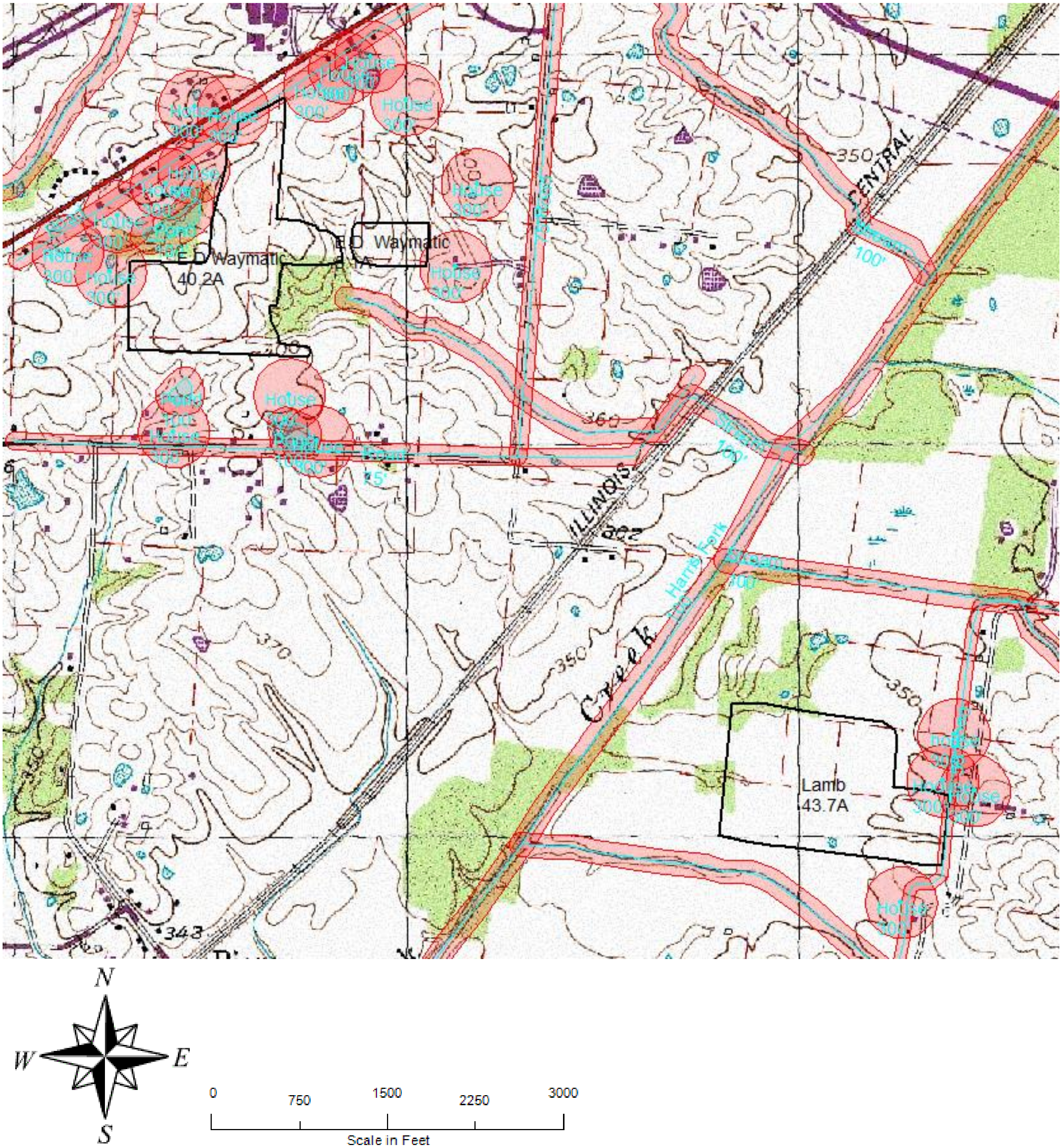
Soil Map



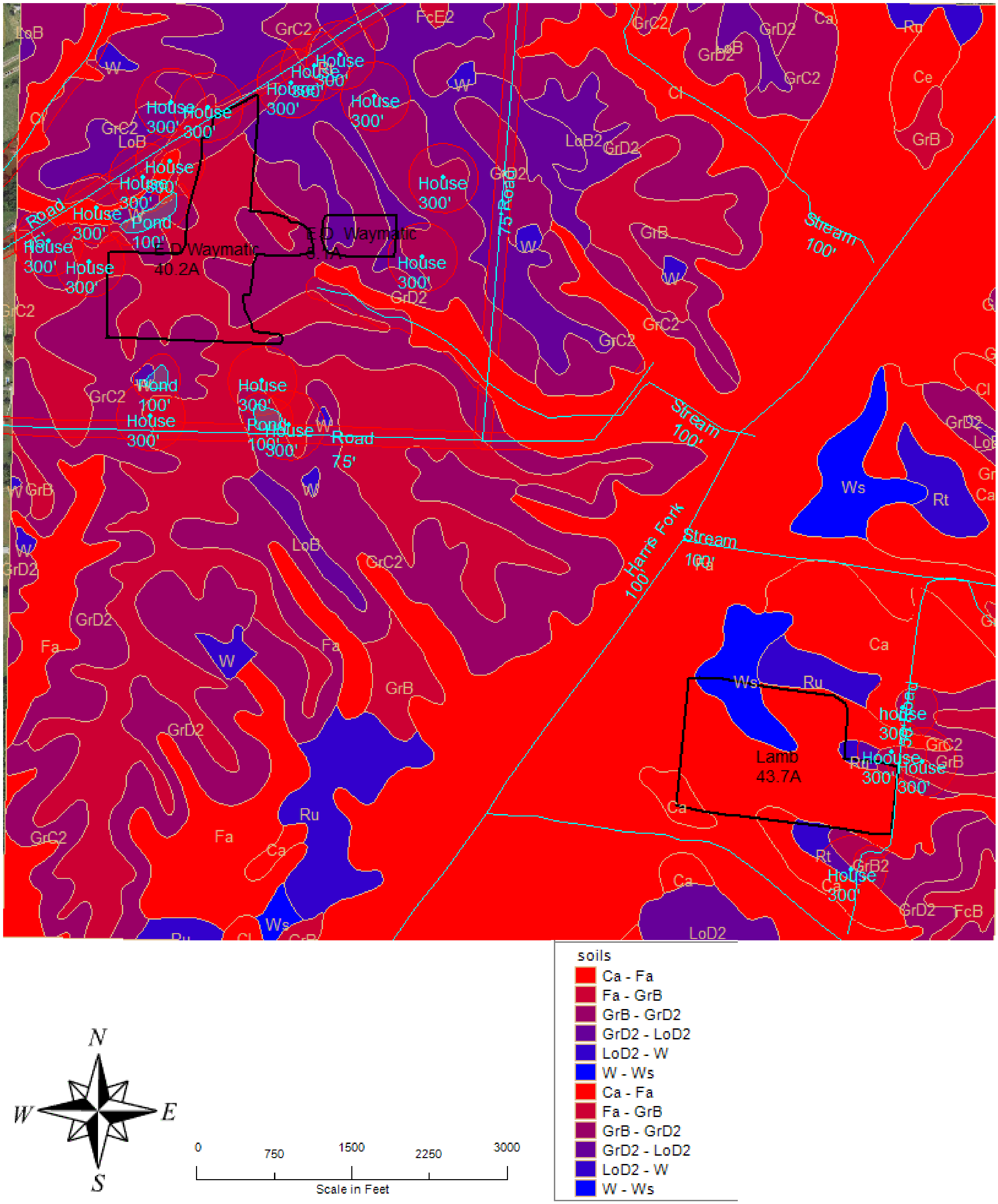
LoD2
MfB
W
LoC2
LoD2
MfB
W
GrD2
GrC2
GrC2
GrB
Ca
MfE2
LoE2
David Clark Home
68.9
W
LoD2
Ca
MfD2
GrC2
MfB
W
MfB
GrB
LoD2
GrC2
W
GrD2
LoD2
LoB
Rt
MfB
W
MfC2
MfE2
Ca
Cl - Co
Co - Fa
Fa - GrB
GrB - GrB2
GrB2 - GrC2
GrC2 - GrC3
GrC3 - GrD2
GrD2 - Gu
Gu - LeE3
LeE3 - LoB
LoB - LoB2
LoB2 - LoC2
LoC2 - LoC3
LoC3 - LoD
LoD - LoD2
LoD2 - LoD3
LoD3 - LoE2
LoE2 - MeB2
MeB2 - MfB
0
750
1500
2250
3000
Scale in Feet
N
W
E
S

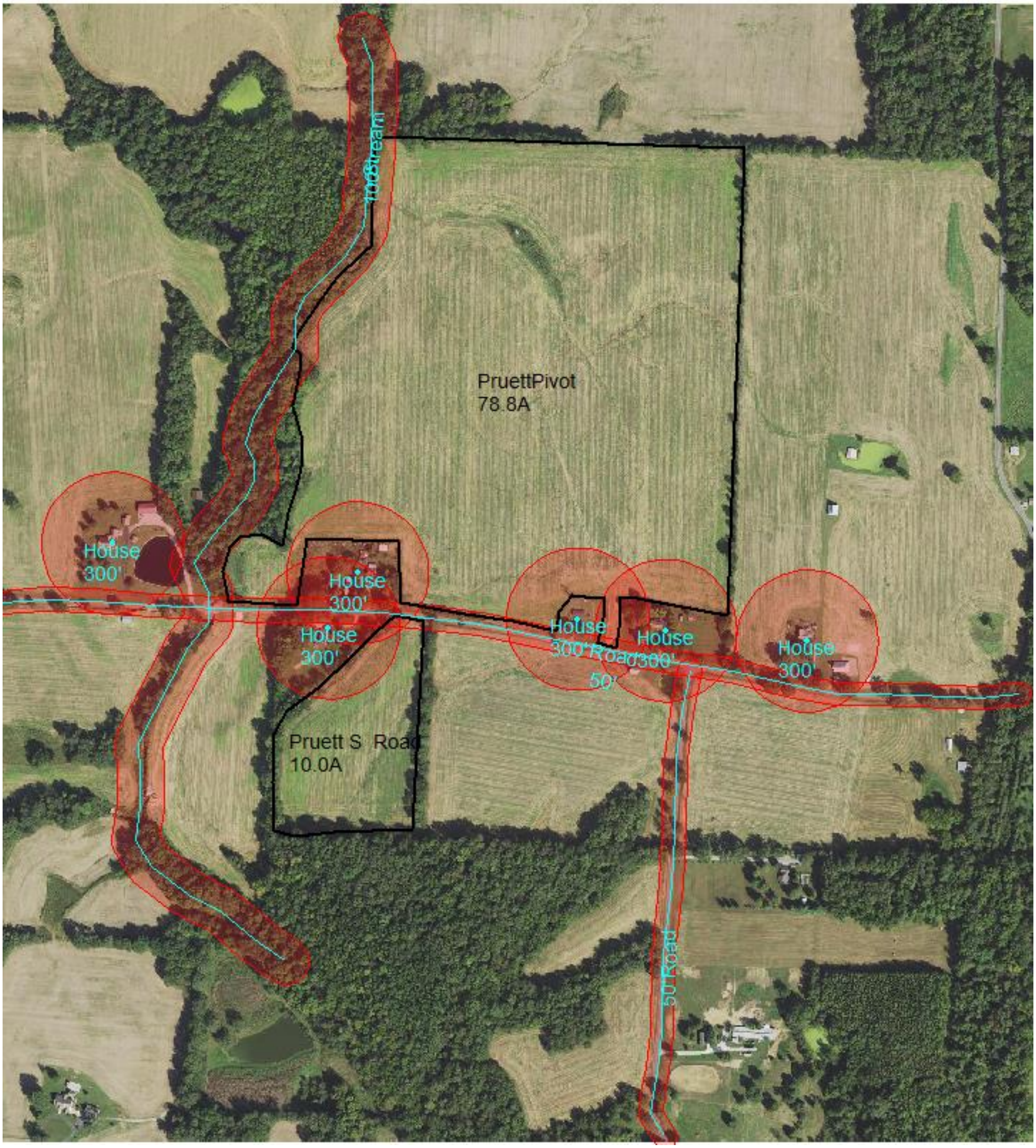


E D Waymatic
40.2A
Lamb
43.7A
House
300'
Pond
100'
Road
75'
Stream
100'
Harris Fork
N
W
E
S
0
750
1500
2250
3000
Scale in Feet

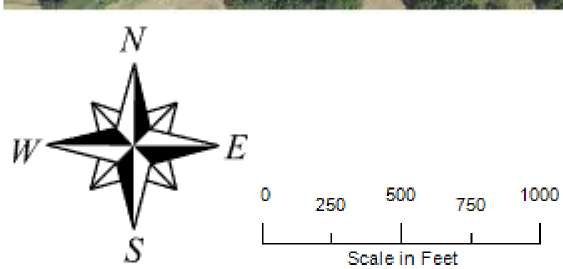


E.D. Waymatic
40.2A
E.D. Waymatic
Lamb
43.7A
House
300'
Stream
100'
Road
Harris Fork
Creek
ILLINOIS
CENTRAL
350
360
370
343
N
W
E
S
0
750
1500
2250
3000
Scale in Feet

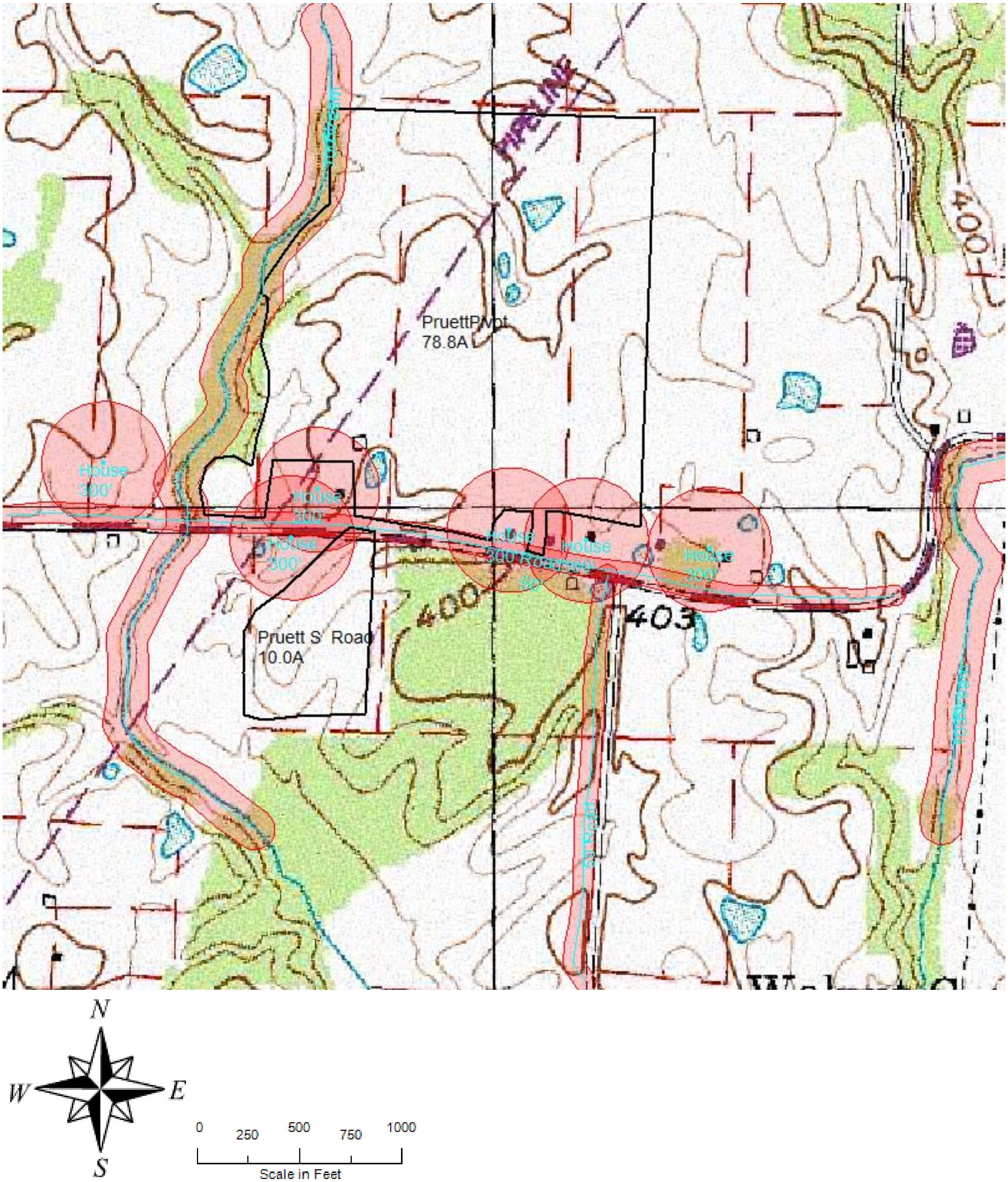

E D Waymatic
40.2A
E D Waymatic
Lamb
43.7A
Harris Fork
100'
Road
75'
soils
Ca - Fa
Fa - GrB
GrB - GrD2
GrD2 - LoD2
LoD2 - W
W - Ws
Ca - Fa
Fa - GrB
GrB - GrD2
GrD2 - LoD2
LoD2 - W
W - Ws
N
W
E
S
0
750
1500
2250
3000
Scale in Feet



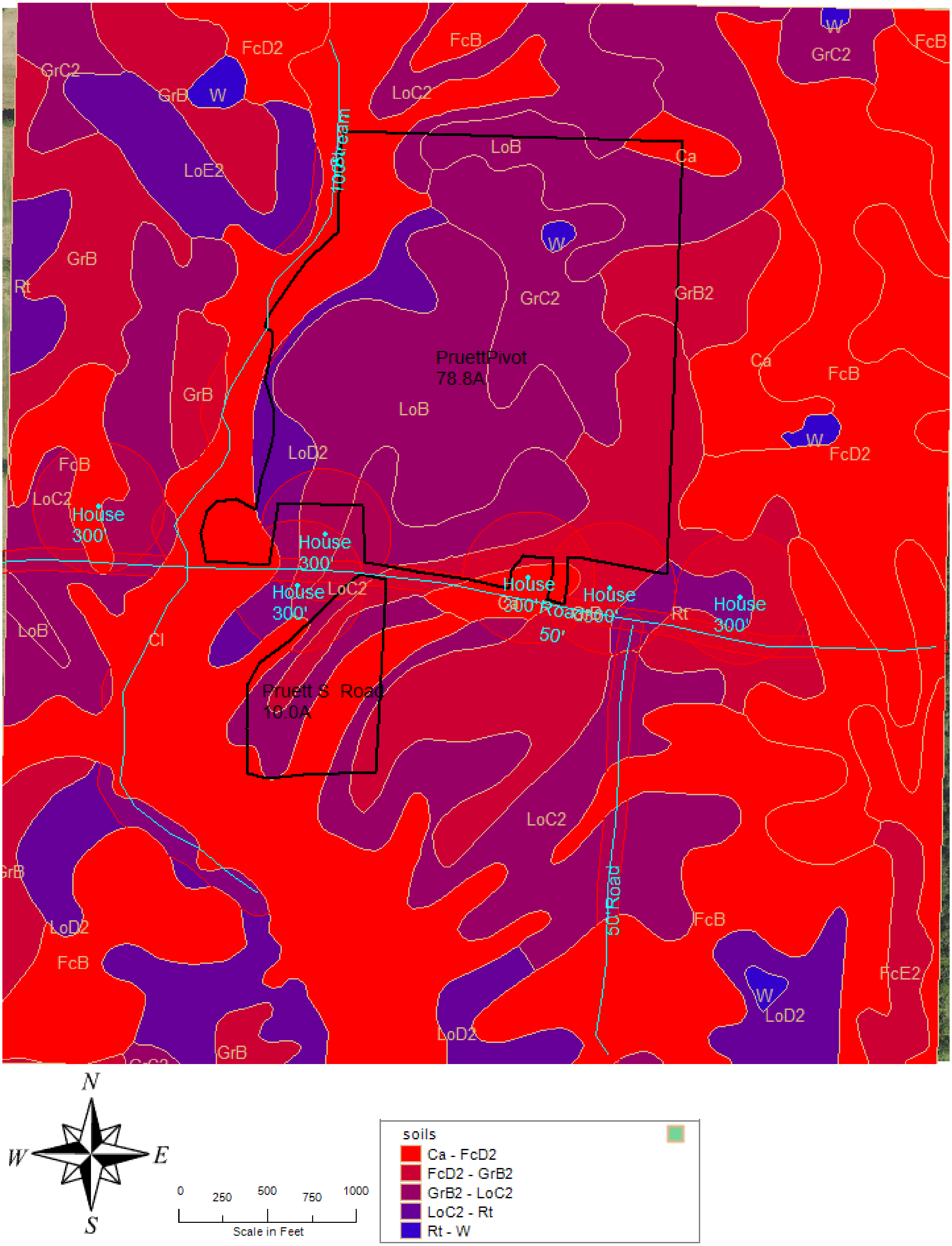
PruettPivot
78.8A
Pruett S Road
10.0A
House
300'
Road
50'



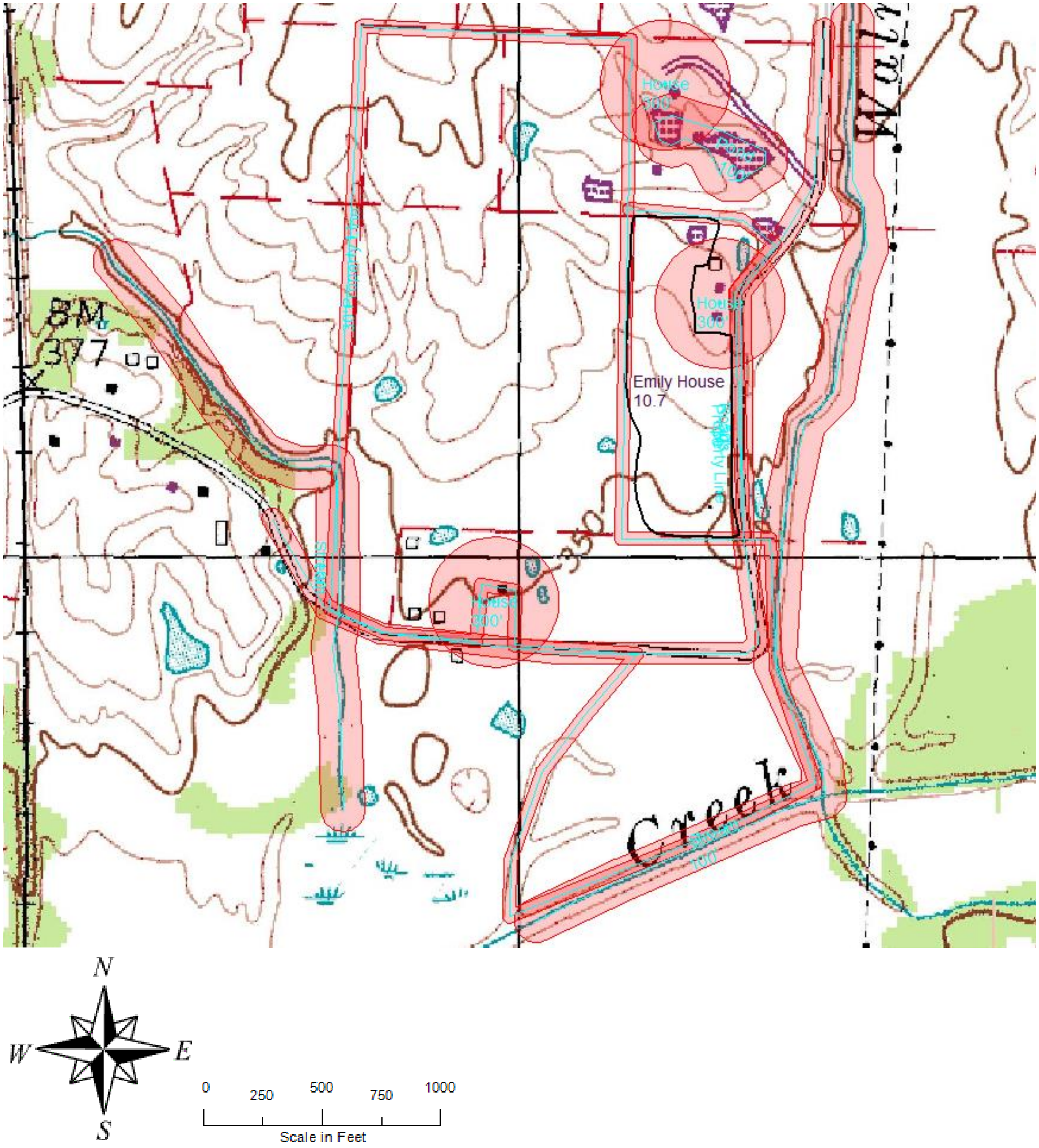
N
W
E
S
0
250
500
750
1000
Scale in Feet

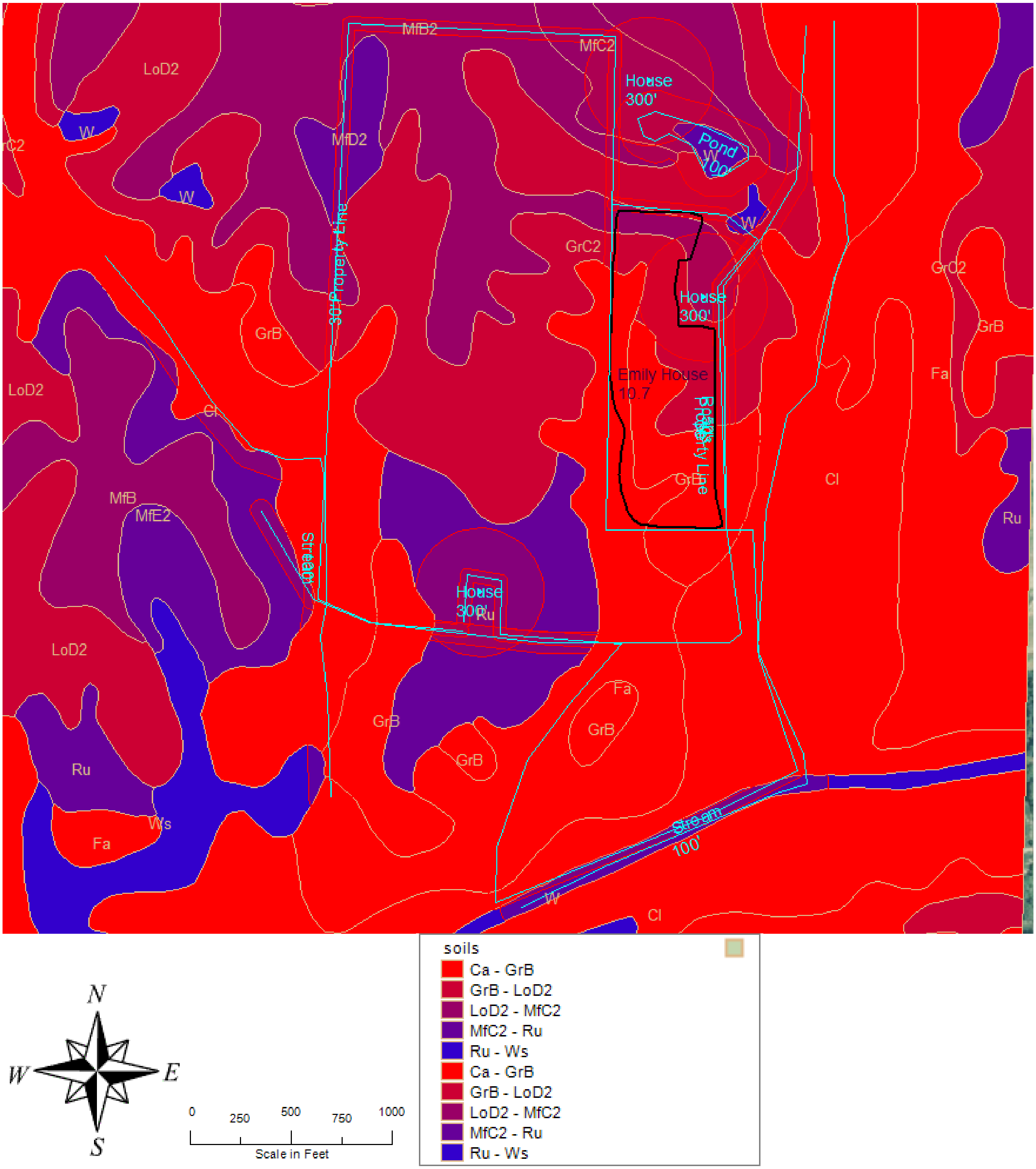


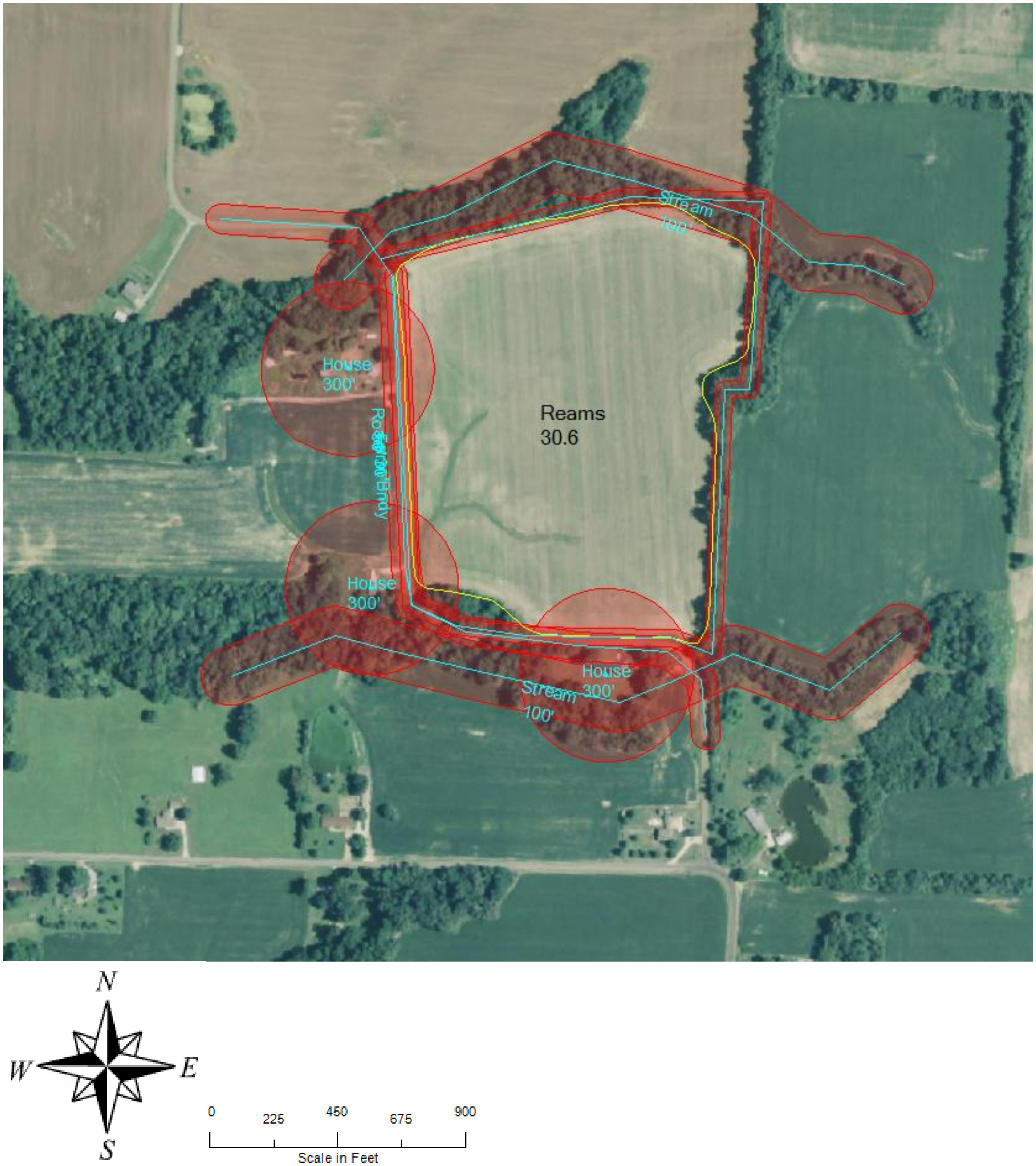
PruettPivot
78.8A
Pruett S Road
10.0A
House
300'
PIPELINE
400
403
N
W
E
S
0
250
500
750
1000
Scale in Feet

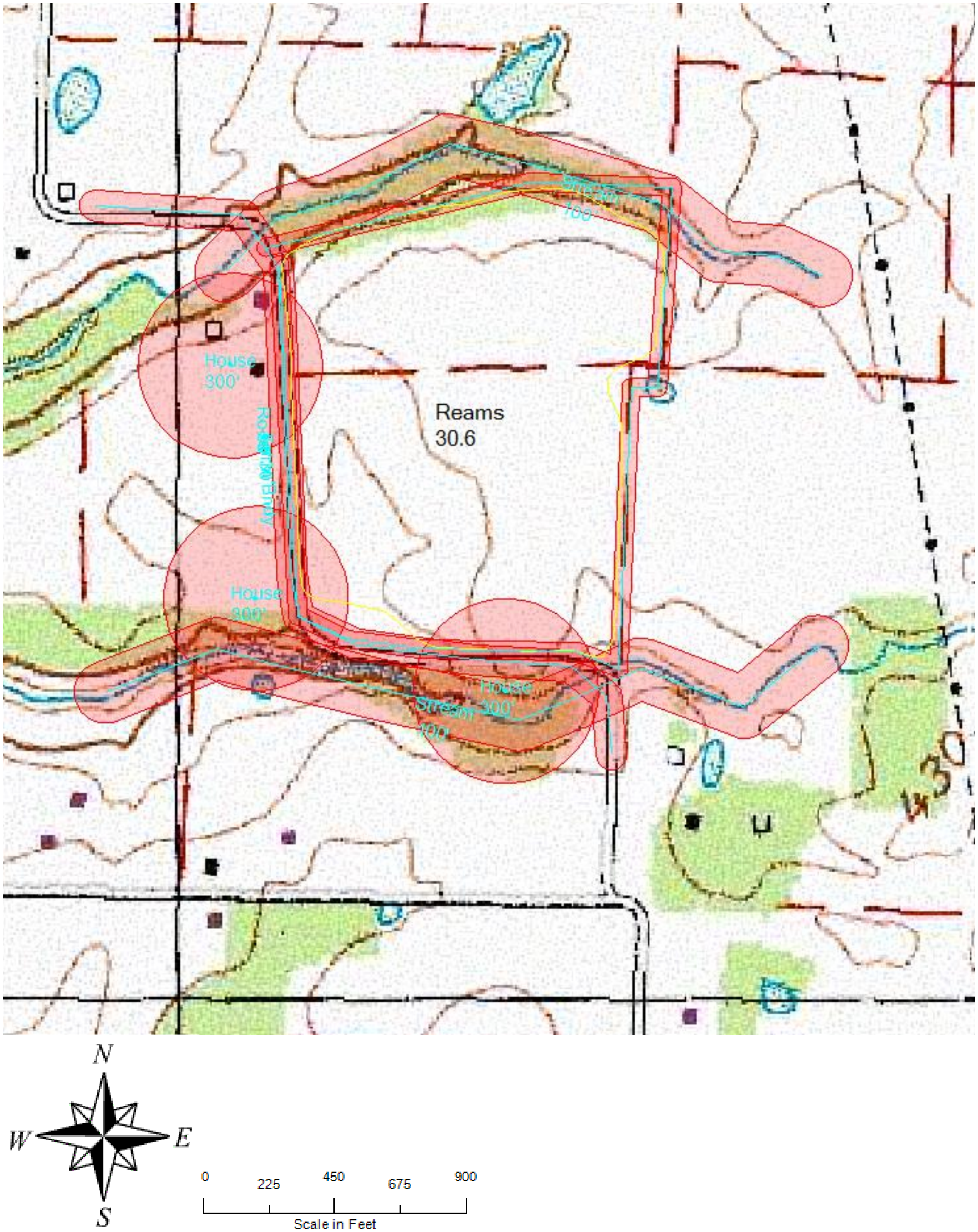

PruettPivot
78.8A
Pruett S Road
10.0A
House
300'
100'Stream
50' Road
FcD2
FcB
GrC2
GrB
W
LoC2
LoE2
LoB
Ca
GrB2
Rt
LoD2
Cl
FcE2
N
W
E
S
0
250
500
750
1000
Scale in Feet
soils
Ca - FcD2
FcD2 - GrB2
GrB2 - LoC2
LoC2 - Rt
Rt - W


House
300'
Pond
100'
30' Property Line
House
300'
Emily House
10.7
Property Line
Stream
House
300'
Stream
100'
N
W
E
S
0
250
500
750
1000
Scale in Feet

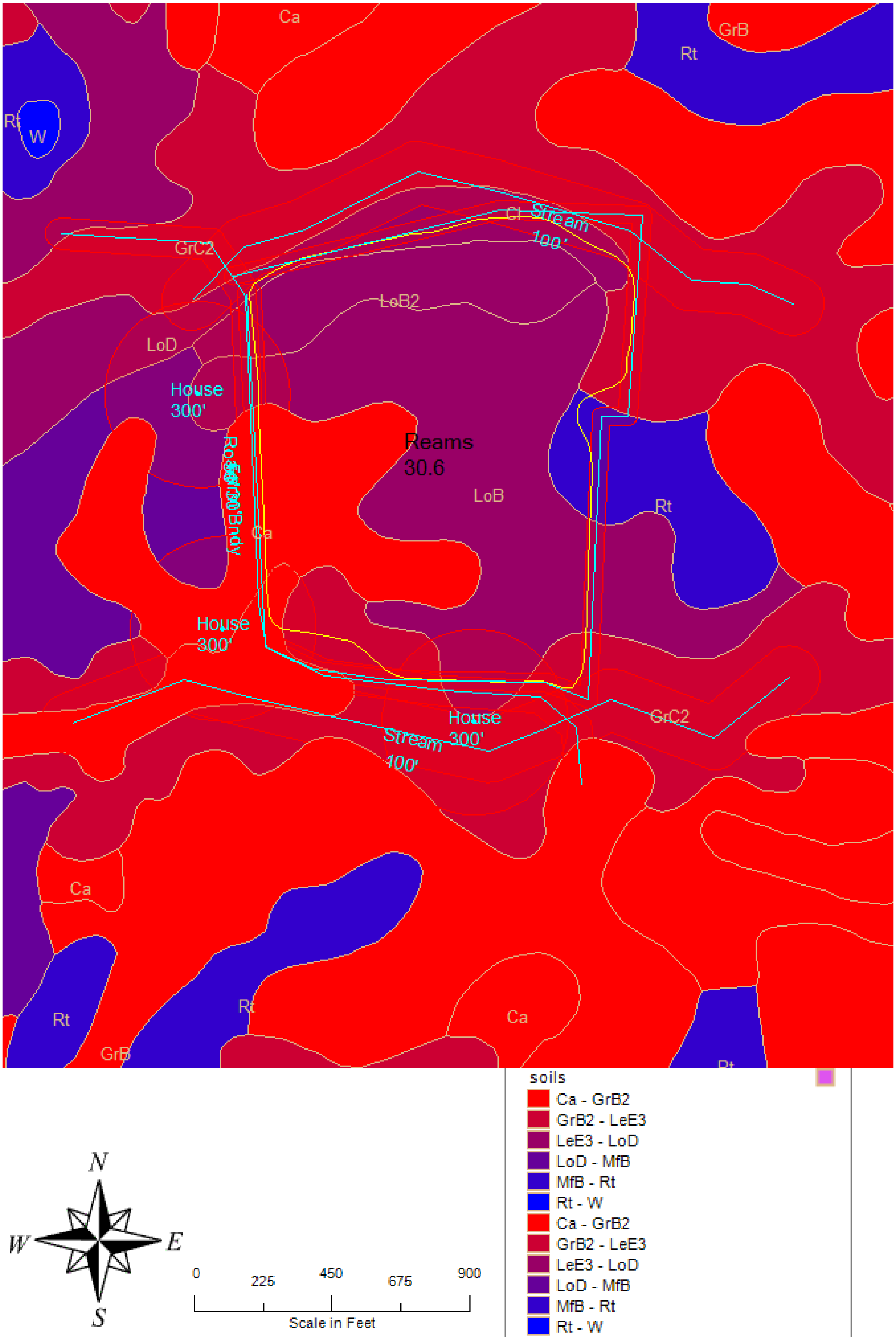

House
300'
700'
House
300'
Emily House
10.7
Property Line
House
300'
Creek
BM
377
350
N
W
E
S
0
250
500
750
1000
Scale in Feet


MfB2
MfC2
House
300'
Pond
100'
LoD2
W
MfD2
30' Property Line
GrC2
GrB
Emily House
10.7
Property Line
Cl
MfB
MfE2
Stream
Ru
Fa
Ws
soils
Ca - GrB
GrB - LoD2
LoD2 - MfC2
MfC2 - Ru
Ru - Ws
Ca - GrB
GrB - LoD2
LoD2 - MfC2
MfC2 - Ru
Ru - Ws
N
W
E
S
0
250
500
750
1000
Scale in Feet


Stream
100'
House
300'
Reams
30.6
House
300'
House
300'
Stream
100'
N
W
E
S
0
225
450
675
900
Scale in Feet



Reams
30.6
House
300'
House
300'
House
300'
Stream
100'
Stream
100'
N
W
E
S
0
225
450
675
900
Scale in Feet


Ca
GrB
Rt
W
GrC2
Stream
100'
LoB2
LoD
House
300'
Reams
30.6
LoB
Ca
House
300'
House
300'
Stream
100'
GrC2
Ca
Rt
Rt
GrB
Ca
soils
Ca - GrB2
GrB2 - LeE3
LeE3 - LoD
LoD - MfB
MfB - Rt
Rt - W
Ca - GrB2
GrB2 - LeE3
LeE3 - LoD
LoD - MfB
MfB - Rt
Rt - W
N
W
E
S
0
225
450
675
900
Scale in Feet

2.2. Crop and Pasture Conservation Practices -- Record of Decisions

Conservation Crop Rotation (328)

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
Nanney Bot	73.3			Already Applied	
Nanney 10 yr	23.8			Already Applied	
Nanney Hills	62.3			Already Applied	
Davis Log	65.7			Already Applied	
Davis Trailer	36.5			Already Applied	
Davis B Trailer	19.5			Already Applied	
Butts Tn	68.5			Already Applied	
Emily House	13.9			Already Applied	
Pruett Pivot	78.8			Already Applied	
Pruett S o Road	10			Already Applied	
Reams	34.9			Already Applied	
David Clark Hom	76			Already Applied	
Finch	88.7			Already Applied	
Chapel Hill	58.8			Already Applied	
Billy Jolley	65.3			Already Applied	
Lamb	43.7			Already Applied	
E D Waymatic	45.3			Already Applied	
Virginia Stahr	21.4			Already Applied	
Steve Green	4.1			Already Applied	
TOTAL	**890.5**			Already Applied	

Grow crops in a planned rotation for biodiversity and to provide adequate amounts of organic material for erosion reduction, nutrient balance and sustained soil organic matter.
These fields are in a Corn Winter wheat and Soybeans rotation.

Nutrient Management (590)

Soil amendments, animal waste, and lime will be applied according to soil test recommendations. When applying animal waste, recommended buffer widths shall be observed. Refer to Practice Standard 590.

Tract/Field	Planned amount (Ac)	Month	Year	Amount Applied	Date
Nanney Bot	73.3			Already Applied	
Nanney 10 yr	23.8			Already Applied	
Nanney Hills	62.3			Already Applied	
Davis Log	65.7			Already Applied	
Davis Trailer	36.5			Already Applied	
Davis B Trailer	19.5			Already Applied	
Butts Tn	68.5			Already Applied	

Emily House	13.9			Already Applied	
Pruett Pivot	78.8			Already Applied	
Pruett S o Road	10			Already Applied	
Reams	34.9			Already Applied	
David Clark Hom	76			Already Applied	
Finch	88.7			Already Applied	
Chapel Hill	58.8			Already Applied	
Billy Jolley	65.3			Already Applied	
Lamb	43.7			Already Applied	
E D Waymatic	45.3			Already Applied	
Virginia Stahr	21.4			Already Applied	
Steve Green	4.1			Already Applied	
TOTAL	**890.5**			Already Applied	

Manage the amount, form, placement and timing of plant nutrient application. See the enclosed "Nutrient Management" element of the CNMP for the proper application rates, timing, and methods of application to provide needed crop nutrients and to minimize the movement of nutrients to ground and surface water.
Manure needs to be tested each time an application occurs by an accredited lab if manure test varies from this document, make adjustments to future application rates and to the nutrient budget.

All NRCS conservation practices shall be installed, operated and maintained according to NRCS conservation practice standards and associated technical specifications.

2.3. Crop and Pasture Conservation Practices – Implementation Requirements

– Implementation Requirements

United States Department of Agriculture
Natural Resources Conservation Service

TN 328 - Conservation Crop Rotation Implementation Requirements

Producer: ______________________________ **Project or Contract:** ____________________

Location: ______________________________ **County:** ____________________

Farm Name: ______________________________ **Tract Number:** ____________________

Practice Location Map

(showing detailed aerial view of where practice is to be installed on farm/site, showing all major components, stationing, relative location to any landmarks, and survey benchmarks)

Index

____ Cover Sheet

____ Specifications

____ RUSLE2 or WEPS Printouts

____ Operation & Maintenance

Utility Safety / One-Call System Information

Description of work:

____

Designed By: ___________________________ **ESJAA Level:** ________ **Date:** _________

Clear Form

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TN-NRCS December 2017

TN 328 - Conservation Crop Rotation
Implementation Requirements

The Practice Purpose(s):

__ Reduce erosion from wind and water.

__ Improve soil health.

__ Manage the balance of plant nutrients.

__ Supply nitrogen through biological nitrogen fixation to reduce energy use

__ Manage plant pests (weeds, insects, and diseases).

__ Conserve water.

__ Provide feed for domestic livestock.

__ Provide annual crops for bioenergy feedstocks.

__ Provide food and cover for wildlife, including pollinator forage, cover, and nesting.

Complete the following table displaying the crop rotation design - or, attach a RUSLE2 or WEPS printout that shows rotation sequence by field.

___ Printouts Attached

Field (s)	*Acres*	*Purpose(s) #'s From Above*	*Crops to be grown*	*Length each crop grown in the rotation*	*Crop Sequence*	*Total Length of Rotation (years)*

TN 328 - Conservation Crop Rotation
Implementation Requirements

If tillage is used, specify time and type of primary tillage for each crop - OR, attach a RUSLE2 or WEPS printout that shows rotation sequence by field.

___ Printouts Attached

Field (s)	*Type of Primary Tillage* (for this crop)	*Time of Primary Tillage*

OPERATION AND MAINTENANCE

__ Rotations shall provide for acceptable substitute crops in case of crop failure or shift in planting intentions for weather-related or economic reasons. Acceptable substitutes are crops having similar properties that will accomplish the purpose of the original crop.

		Planned Crop Substitutions	
Field (s)	*Planned Crops*	*Substitute Crop*	*Additional Criteria (e.g. may need a cover crop)*

__ Evaluate the rotation and the crop sequence to determine if the planned system is meeting the planned purposes.

NRCS Review Only

CERTIFICATION OF PRACTICE

__ Each management unit must have gone through the rotation before practice can be certified.

Certified By: ______________________________ **ESJAA Level:** ________________ **Date:** __________

United States Department of Agriculture
Natural Resources Conservation Service

TN 590 - Nutrient Management Implementation Requirement

Producer: ______________________ **Project or Contract:** ____________________

Location: ______________________ **County:** ____________________

Farm Name: ______________________ **Tract Number:** ____________________

Attach or provide location of:

____ **Conservation Plan Map:** Aerial map(s) clearly showing the field/site location.

____ **Approved Precision Variable Rate Prescription Maps** (if applicable)

____ **P Index Rating**

____ **Nitrogen Leaching Index Rating**

Description of work:

Producer Signature: ________________________________ **Date:** __________

Designed By: ____________________ **ESJAA Level:** __________ **Date:** __________

Clear Form

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TN NRCS
May 2019

Nutrient Management – Specifications Sheet

Landowner____ Field number___________

Purpose (check all that apply)

☐ Budget and supply nutrients for plant production	☐ Utilize manure/organic material as a nutrient source
☐ Minimize agricultural nonpoint source pollution (water quality)	☐ Maintain or improve soil condition
☐ Minimize air quality concerns (odors, particulates, NOx)	

Table 1 Field Conditions and Recommendations

Crop sequence/rotation (circle current crop)	Expected yield

Current soil test levels (ppm or lb/ac)

N	P	K	pH	S.O.M.%	EC

Recommended nutrients/amendments to meet expected yield

N	P_2O_5	K_2O	Lime	Other	Other

Table 2 Nutrient Sources

Credits	N	P_2O_5	K_2O
		Pounds per acre	
1. Nitrogen credits from previous legume crop			
2. Residual from long-term manure application			
3. Irrigation water			
4. Other (e.g., atmospheric deposition, biosolids, organic by-products)			
5. **Total credits**	0	0	0

Plant available nutrients applied to field		N		P_2O_5		K_2O	
(Circle column that is landowner's decision)		Trial A	Trial B	Trial A	Trial B	Trial A	Trial B
6. Credits (from row 5, above)							
7. Fertilizer	Starter						
	Other						
8. Manure/organic material							
9. **Subtotal (sum of lines 6, 7, and 8)**		0	0	0	0	0	0
10. **Nutrients recommended (from table 1)**							
11. **Nutrient status (subtract line 10 from line 9)**							

If line 11 is a negative number, this the amount of additional nutrients needed to meet the crop recommendation.

If line 11 is a positive number, this is the amount by which the available nutrients exceed the crop requirements.

Nutrient Management Specifications

Amount to be applied (lb/ac)	**N**		**P_2O_5**		**K_2O**	

Method, form, and timing of application

TN 590 - Nutrient Management
Implementation Requirements

Operation and Maintenance

1. Conduct periodic plans reviews. At a minimum, plans must be reviewed and revised, as needed, with each soil test cycle, changes in manure volume or analysis, crops, or crop management.

2. Fields receiving animal manures and/or biosolids must be monitored for accumulation of heavy metals and phosphorus in accordance with the University of Tennessee and State law.

3. Calibrate application equipment.

4. Records are to be maintained for 5 years and include:

   i. soil, plant tissue, water, manure, and organic by-product analyses resulting in recommendation for nutrient applications;

   ii. quantities, analyses and sources of nutrients applied;

   iii. date, and method(s) of nutrient applications, source of nutrients, and rates of application;

   iv. weather conditions and soil moisture at the time of application; lapsed time to manure incorporation; rainfall or irrigation event;

   v. crops planted, planting and harvest dates, yields, nutrient analyses of harvested biomass, and crop residues removed; and,

   vi. dates of plan review, name of reviewer, and recommended changes.

   vii. all enhanced efficiency fertilizer products used.

5. Additional records for precision/variable rate sites must include:

   i. maps identifying the variable application source, timing, amount, and placements of all plant nutrients applied; and,

   ii. GPS-based yield maps for crops where yield can be digitally collected.

Equipment Calibration Dates:												
Field No.	Acres Applied	Crop	Planting Date(s)	Application Date(s)	Manure Source	Manure Application Rate (lbs/ton OR lbs/ac-in OR lbs/1000 gals)	Inorganic Fertilizers Applied (lbs/ac)			Inorganic Fertilizer Source	Method of Application	Harvest Date(s) and Yield(s)
							N	P_2O_5	K_2O			

CERTIFICATION OF PRACTICE

☐ Soil, plant tissue, water, manure, and organic by-product analysis resulting in recommendations for nutrient application.

☐ Copy of the nutrient application records (commercial and manure) and As-Applied variable rate maps, if applicable, that are maintained by the client.

☐ Weather conditions and soil moisture at the time of application; lapsed time to manure incorporation; rainfall or irrigation event.

☐ Photos documenting crop health (optional).

Practice performed, to the extent shown above, meets practice standards and specifications.

Certified By: ____________________________ **ESJAA Level:** ___________________ **Date:** ____________

2.4. Predicted Soil Erosion

Average water, wind, irrigation, gully and ephemeral erosion estimates

Field	Predominant Soil Type	T Factor (t/ac/yr)	Slope (%)	Water (Sheet and Rill) (t/ac/yr)	Wind (t/ac/yr)	Irrigation Erosion Controlled (y/n)	Gully Erosion Controlled (y/n)	Ephemeral Erosion Controlled (y/n)
Nanney Bot	Co (Collins SIL)	5	1.0	1.0				
Nanney 10 Yr	LeC3 (Lexington SIL)	5	6.5	1.7				
Nanney Hills	LeC3 (Lexington SIL)	5	6.5	1.7				
Davis Log	LoB2 (Loring SIL)	4	3.5	1.1				
Davis Trailer	LeC3 (Lexington SIL)	5	6.5	2.4				
Davis B Trailer (C)	LoC3 (Loring SIL)	2	6.5	2.6				
Butts Tn	LoD3 (Loring SIL)	3	10.0	5.2				
Emily House	GrB2 (Grenada SIL)	4	3.5	2.2				
Pruett Pivot	LoB (Loring SIL)	4	3.5	2.8				
Pruett S o Road	LoC2 (Loring SIL)	3	6.5	4.3				
Reams	LoB2 (Loring SIL)	4	3.5	2.8				
David Clark Hom	MeB2 (Memphis SIL)	5	3.5	1.0				
Finch	LoD3 (Loring SIL)	3	10.0	5.1				
Chapel Hill	GrD2 (Grenada SIL)	4	10.0	5.0				
Billy Jolley	GrB (Grenada SIL)	4	3.5	2.2				
Lamb	Fa (Falaya SIL)	5	1.0	0.8				
E D Waymatic	GrD2 (Grenada SIL)	4	10.0	2.6				
Virginia stahr	GrD2 (Grenada SIL)	4	10.0	5.0				
Steve Green	GrD2 (Grenada SIL)	4	10.0	6.4				

Crop period sheet and rill erosion estimates

Field	Crop Year	Primary Crop	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Crop Period Soil Loss (t/ac)
Nanney Bot	2021	Soybean	9/16/2020	10/15/2021	0.8
	2022	Corn grain	10/16/2021	9/15/2022	1.1
	2023	Soybean	9/16/2022	10/15/2023	0.8
	2024	Corn grain	10/16/2023	9/15/2024	1.1

Field	Crop Year	Primary Crop	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Crop Period Soil Loss (t/ac)
	2025	Soybean	9/16/2024	10/15/2025	0.8
Nanney 10 Yr	2021	Soybean	9/16/2020	10/15/2021	1.6
	2022	Corn grain	10/16/2021	9/15/2022	2.0
	2023	Soybean	9/16/2022	10/15/2023	1.6
	2024	Corn grain	10/16/2023	9/15/2024	2.0
	2025	Soybean	9/16/2024	10/15/2025	1.6
Nanney Hills	2021	Soybean	9/16/2020	10/15/2021	1.6
	2022	Corn grain	10/16/2021	9/15/2022	2.0
	2023	Soybean	9/16/2022	10/15/2023	1.6
	2024	Corn grain	10/16/2023	9/15/2024	2.0
	2025	Soybean	9/16/2024	10/15/2025	1.6
Davis Log	2021	Soybean	9/16/2020	10/15/2021	1.1
	2022	Corn grain	10/16/2021	9/15/2022	1.3
	2023	Soybean	9/16/2022	10/15/2023	1.1
	2024	Corn grain	10/16/2023	9/15/2024	1.3
	2025	Soybean	9/16/2024	10/15/2025	1.1
Davis Trailer	2021	Soybean	9/16/2020	10/15/2021	2.1
	2022	Corn grain	10/16/2021	9/15/2022	2.2
	2023	Soybean	9/16/2022	10/15/2023	1.8
	2024	Corn grain	10/16/2023	9/15/2024	3.5
	2025	Soybean	9/16/2024	10/15/2025	2.8
Davis B Trailer (C)	2021	Soybean	9/16/2020	10/15/2021	2.1
	2022	Corn grain	10/16/2021	10/15/2021	0.0
	2023	Soybean	10/16/2021	9/15/2022	2.3
	2024	Corn grain	9/16/2022	10/15/2023	2.8
	2025	Soybean	10/16/2023	10/15/2023	0.0
Butts Tn	2021	Corn grain	10/16/2020	9/15/2021	4.7
	2022	Soybean	9/16/2021	10/15/2022	3.3
	2023	Corn grain	10/16/2022	9/15/2023	6.0
	2024	Soybean	9/16/2023	10/15/2024	4.5

Field	Crop Year	Primary Crop	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Crop Period Soil Loss (t/ac)
	2025	Corn grain	10/16/2024	9/15/2025	7.1
Emily House	2021	Soybean	9/16/2020	10/15/2021	1.5
	2022	Corn grain	10/16/2021	9/15/2022	2.6
	2023	Soybean	9/16/2022	10/15/2023	2.0
	2024	Corn grain	10/16/2023	9/15/2024	3.1
	2025	Soybean	9/16/2024	10/15/2025	2.2
Pruett Pivot	2021	Corn grain	10/16/2020	9/15/2021	3.2
	2022	Soybean	9/16/2021	10/15/2022	2.2
	2023	Corn grain	10/16/2022	9/15/2023	3.2
	2024	Soybean	9/16/2023	10/15/2024	2.2
	2025	Corn grain	10/16/2024	9/15/2025	3.2
Pruett S o Road	2021	Corn grain	10/16/2020	9/15/2021	4.9
	2022	Soybean	9/16/2021	10/15/2022	3.4
	2023	Corn grain	10/16/2022	9/15/2023	4.9
	2024	Soybean	9/16/2023	10/15/2024	3.4
	2025	Corn grain	10/16/2024	9/15/2025	4.9
Reams	2021	Corn grain	10/16/2020	9/15/2021	3.2
	2022	Soybean	9/16/2021	10/15/2022	2.2
	2023	Corn grain	10/16/2022	9/15/2023	3.2
	2024	Soybean	9/16/2023	10/15/2024	2.2
	2025	Corn grain	10/16/2024	9/15/2025	3.2
David Clark Hom	2021	Soybean	9/16/2020	10/15/2021	1.0
	2022	Corn grain	10/16/2021	9/15/2022	1.2
	2023	Soybean	9/16/2022	10/15/2023	1.0
	2024	Corn grain	10/16/2023	9/15/2024	1.2
	2025	Soybean	9/16/2024	10/15/2025	1.0
Finch	2021	Soybean	9/16/2020	10/15/2021	3.3
	2022	Corn grain	10/16/2021	9/15/2022	6.0
	2023	Soybean	9/16/2022	10/15/2023	4.5
	2024	Corn grain	10/16/2023	9/15/2024	7.1

Field	Crop Year	Primary Crop	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Crop Period Soil Loss (t/ac)
	2025	Soybean	9/16/2024	10/15/2025	4.9
Chapel Hill	2021	Soybean	9/16/2020	10/15/2021	3.2
	2022	Corn grain	10/16/2021	9/15/2022	5.9
	2023	Soybean	9/16/2022	10/15/2023	4.4
	2024	Corn grain	10/16/2023	9/15/2024	7.0
	2025	Soybean	9/16/2024	10/15/2025	4.8
Billy Jolley	2021	Soybean	9/16/2020	10/15/2021	1.4
	2022	Corn grain	10/16/2021	9/15/2022	2.6
	2023	Soybean	9/16/2022	10/15/2023	2.0
	2024	Corn grain	10/16/2023	9/15/2024	3.0
	2025	Soybean	9/16/2024	10/15/2025	2.2
Lamb	2021	Corn grain	10/16/2020	9/15/2021	0.9
	2022	Soybean	9/16/2021	10/15/2022	0.6
	2023	Corn grain	10/16/2022	9/15/2023	0.9
	2024	Soybean	9/16/2023	10/15/2024	0.6
	2025	Corn grain	10/16/2024	9/15/2025	0.9
E D Waymatic	2021	Soybean	9/16/2020	10/15/2021	2.4
	2022	Corn grain	10/16/2021	9/15/2022	2.9
	2023	Soybean	9/16/2022	10/15/2023	2.4
	2024	Corn grain	10/16/2023	9/15/2024	2.9
	2025	Soybean	9/16/2024	10/15/2025	2.4
Virginia stahr	2021	Soybean	9/16/2020	10/15/2021	3.2
	2022	Corn grain	10/16/2021	9/15/2022	5.9
	2023	Soybean	9/16/2022	10/15/2023	4.4
	2024	Corn grain	10/16/2023	9/15/2024	7.0
	2025	Soybean	9/16/2024	10/15/2025	4.8
Steve Green	2021	Corn grain	10/16/2020	9/15/2021	7.3
	2022	Soybean	9/16/2021	10/15/2022	5.0
	2023	Corn grain	10/16/2022	9/15/2023	7.3
	2024	Soybean	9/16/2023	10/15/2024	5.0

Field	Crop Year	Primary Crop	Starting Date (mm/dd/yyyy)	Ending Date (mm/dd/yyyy)	Crop Period Soil Loss (t/ac)
	2025	Corn grain	10/16/2024	9/15/2025	7.3

Section 3. Nutrient Management Plan (590)

3.1. Nitrogen and Phosphorus Risk Analyses

Tennessee Phosphorus Index

Field	Crop Year	Site Total	Management Total	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
Nanney Bot	2021	11	4	22	44	Low
Nanney Bot	2022	11	4	22	44	Low
Nanney Bot	2023	11	4	22	44	Low
Nanney Bot	2024	11	4	22	44	Low
Nanney Bot	2025	11	4	22	44	Low
Nanney 10 Yr	2021	11	20	11	220	Medium
Nanney 10 Yr	2022	11	24	11	264	Medium
Nanney 10 Yr	2023	11	20	11	220	Medium
Nanney 10 Yr	2024	11	24	11	264	Medium
Nanney 10 Yr	2025	11	20	11	220	Medium
Nanney Hills	2021	11	4	22	44	Low
Nanney Hills	2022	11	4	22	44	Low
Nanney Hills	2023	11	4	22	44	Low
Nanney Hills	2024	11	4	22	44	Low
Nanney Hills	2025	11	4	22	44	Low
Davis Log	2021	12	17	12	204	Medium
Davis Log	2022	12	17	12	204	Medium
Davis Log	2023	12	17	12	204	Medium
Davis Log	2024	12	17	12	204	Medium
Davis Log	2025	12	17	12	204	Medium
Davis Trailer	2021	12	17	12	204	Medium
Davis Trailer	2022	12	17	12	204	Medium
Davis Trailer	2023	12	17	12	204	Medium
Davis Trailer	2024	11	12	11	132	Low
Davis Trailer	2025	12	16	12	192	Medium
Davis B Trailer (C)	2021	14	20	14	280	High

Field	Crop Year	Site Total	Management Total	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
Davis B Trailer (C)	2022	11	12	11	132	Low
Davis B Trailer (C)	2023	12	20	12	240	Medium
Davis B Trailer (C)	2024	12	24	12	288	High
Davis B Trailer (C)	2025	11	20	11	220	Medium
Butts Tn	2021	14	4	28	56	Low
Butts Tn	2022	14	4	28	56	Low
Butts Tn	2023	17	13	34	221	Medium
Butts Tn	2024	14	4	28	56	Low
Butts Tn	2025	17	13	34	221	Medium
Emily House	2021	12	4	24	48	Low
Emily House	2022	12	13	24	156	Medium
Emily House	2023	12	4	24	48	Low
Emily House	2024	12	13	24	156	Medium
Emily House	2025	12	4	24	48	Low
Pruett Pivot	2021	12	13	24	156	Medium
Pruett Pivot	2022	12	4	24	48	Low
Pruett Pivot	2023	12	13	24	156	Medium
Pruett Pivot	2024	12	4	24	48	Low
Pruett Pivot	2025	12	13	24	156	Medium
Pruett S o Road	2021	14	12	14	168	Medium
Pruett S o Road	2022	14	16	14	224	Medium
Pruett S o Road	2023	14	12	14	168	Medium
Pruett S o Road	2024	14	16	14	224	Medium
Pruett S o Road	2025	14	12	14	168	Medium
Reams	2021	12	13	24	156	Medium
Reams	2022	12	4	24	48	Low
Reams	2023	12	13	24	156	Medium
Reams	2024	12	4	24	48	Low
Reams	2025	12	13	24	156	Medium
David Clark Hom	2021	11	4	22	44	Low
David Clark Hom	2022	11	4	22	44	Low

Field	Crop Year	Site Total	Management Total	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
David Clark Hom	2023	11	4	22	44	Low
David Clark Hom	2024	11	4	22	44	Low
David Clark Hom	2025	11	4	22	44	Low
Finch	2021	14	4	28	56	Low
Finch	2022	17	13	34	221	Medium
Finch	2023	14	4	28	56	Low
Finch	2024	17	13	34	221	Medium
Finch	2025	14	4	28	56	Low
Chapel Hill	2021	14	17	14	238	Medium
Chapel Hill	2022	17	12	17	204	Medium
Chapel Hill	2023	14	16	14	224	Medium
Chapel Hill	2024	17	12	17	204	Medium
Chapel Hill	2025	14	16	14	224	Medium
Billy Jolley	2021	12	4	24	48	Low
Billy Jolley	2022	12	13	24	156	Medium
Billy Jolley	2023	12	4	24	48	Low
Billy Jolley	2024	12	13	24	156	Medium
Billy Jolley	2025	12	4	24	48	Low
Lamb	2021	11	13	22	143	Medium
Lamb	2022	11	4	22	44	Low
Lamb	2023	11	13	22	143	Medium
Lamb	2024	11	4	22	44	Low
Lamb	2025	11	13	22	143	Medium
E D Waymatic	2021	14	17	14	238	Medium
E D Waymatic	2022	14	3	14	42	Low
E D Waymatic	2023	14	17	14	238	Medium
E D Waymatic	2024	14	3	14	42	Low
E D Waymatic	2025	14	17	14	238	Medium
Virginia stahr	2021	14	17	14	238	Medium
Virginia stahr	2022	17	12	17	204	Medium
Virginia stahr	2023	14	16	14	224	Medium

Field	Crop Year	Site Total	Management Total	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
Virginia stahr	2024	17	9	17	153	Medium
Virginia stahr	2025	14	17	14	238	Medium
Steve Green	2021	17	13	34	221	Medium
Steve Green	2022	17	4	34	68	Low
Steve Green	2023	17	13	34	221	Medium
Steve Green	2024	17	4	34	68	Low
Steve Green	2025	17	13	34	221	Medium

3.2. Manure Application Setback Distances

Setback Requirements: Class I CAFO

Feature	Setback Criteria	Setback Distance (Feet)
Streams	Applied upgradient, no permanent or insufficient vegetated setback	100
Streams	New operation, near high quality stream	60
Surface waters	Applied upgradient, no permanent or insufficient vegetated setback	100
Open tile line inlet structures	Applied upgradient, no permanent or insufficient vegetated setback	100
Sinkholes	Applied upgradient, no permanent or insufficient vegetated setback	100
Agricultural well heads	Applied upgradient, no permanent or insufficient vegetated setback	100
Other conduits to surface waters	Applied upgradient, no permanent or insufficient vegetated setback	100
Potable well, public or private	Application down-gradient of feature	150
Potable well, public or private	Application upgradient of feature	300

Source: TN DEQ Rule 1200-4-5-.14(17)(d) (http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf)

Setback Requirements: NRCS Standard

Feature	Setback Criteria	Setback Distance (Feet)
Well	Application upgradient of feature	300
Well	Application down-gradient of feature	150
Waterbody	Predominant slope <5% with good vegetation	30
Waterbody	Predominant slope >8%	100
Waterbody	Poor vegetation	100
Public road	All applications	50
Dwelling (other than producer)	All applications	300
Public use area	All applications	300
Property line	Application upgradient of feature	30

Source: Nutrient Management Standard 590 (http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc)

3.3. Soil Test Data

Field	Test Year	OM (%)	P Test Used	P	K	Mg	Ca	Units	Soil pH	Buffer pH	CEC (meq/ 100g)
Nanney Bot	2019	1.4	Mehlich-3 ICP	70	278			lbs/ac			
Nanney 10 Yr	2019	2.4	Mehlich-3 ICP	25	276			lbs/ac			
Nanney Hills	2019	2.0	Mehlich-3 ICP	76	473			lbs/ac			
Davis Log	2019	1.9	Mehlich-3 ICP	44	328			lbs/ac			
Davis Trailer	2019	1.8	Mehlich-3 ICP	43	360			lbs/ac			
Davis B Trailer (C)	2019	1.9	Mehlich-3 ICP	28	263			lbs/ac			
Butts Tn	2019	2.0	Mehlich-3 ICP	102	471			lbs/ac			
Emily House	2020	2.8	Mehlich-3 ICP	62	182			lbs/ac			
Pruett Pivot	2020	2.9	Mehlich-3 ICP	69	346			lbs/ac			
Pruett S o Road	2020	2.2	Mehlich-3 ICP	44	138			lbs/ac			
Reams	2019	2.0	Mehlich-3 ICP	94	400			lbs/ac			
David Clark Hom	2017	1.9	Mehlich-3 ICP	126	570			lbs/ac			
Finch	2017	1.8	Mehlich-3 ICP	146	523			lbs/ac			
Chapel Hill	2018	2.1	Mehlich-3 ICP	59	251			lbs/ac			
Billy Jolley	2017	2.0	Mehlich-3 ICP	96	380			lbs/ac			
Lamb	2019	1.6	Mehlich-3 ICP	66	183			lbs/ac			
E D Waymatic	2019	1.8	Mehlich-3 ICP	37	224			lbs/ac			
Virginia stahr	2018	1.9	Mehlich-3 ICP	51	237			lbs/ac			
Steve Green	2018	2.3	Mehlich-3 ICP	81	261			lbs/ac			

3.4. Manure Nutrient Analyses

Manure Source	Dry Matter (%)	Total N	NH_4-N	Total P_2O_5	Total K_2O	Avail. P_2O_5	Avail. K_2O	Units	Analysis Source and Date	Alum Treatment Rate (lbs/1000 sq.ft.)
Barn 1		39.0	34.8	14.1	30.2	14.1	30.2	lbs/1000 gal	Clint Workman	
Barn 2		39.0	34.8	14.1	30.2	14.1	30.2	lbs/1000 gal	Clint Workman	

a. Entered analysis may be the average of several individual analyses.
b. Tennessee assumes that 100% of manure phosphorus and 100% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Tennessee, see "Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94 (http://wastemgmt.ag.utk.edu/Pubs/PB1510.pdf).

3.5. Planned Crops and Fertilizer Recommendations

Field	Crop Year	Planned Crop	Yield Goal (per ac)	N Rec (lbs/ac)	P_2O_5 Rec (lbs/ac)	K_2O Rec (lbs/ac)	N Removed (lbs/ac)	P_2O_5 Removed (lbs/ac)	K_2O Removed (lbs/ac)	Custom Fert. Rec. Source
Nanney Bot	2021	Soybean	60.0 bu	0	0	0	240	48	84	
Nanney Bot	2022	Corn grain	175.0 bu	160	0	0	131	77	51	
Nanney Bot	2023	Soybean	60.0 bu	0	0	0	240	48	84	
Nanney Bot	2024	Corn grain	175.0 bu	160	0	0	131	77	51	
Nanney Bot	2025	Soybean	60.0 bu	0	0	0	240	48	84	
Nanney 10 Yr	2021	Small grain[a]	55.0 bu	75	80	0	72	28	19	
Nanney 10 Yr	2021	Soybean	60.0 bu	0	10	0	240	48	84	
Nanney 10 Yr	2022	Corn grain	175.0 bu	160	140	0	131	77	51	
Nanney 10 Yr	2023	Small grain[a]	55.0 bu	90	80	0	72	28	19	
Nanney 10 Yr	2023	Soybean	60.0 bu	0	10	0	240	48	84	
Nanney 10 Yr	2024	Corn grain	175.0 bu	160	140	0	131	77	51	
Nanney 10 Yr	2025	Small grain[a]	55.0 bu	90	80	0	72	28	19	
Nanney 10 Yr	2025	Soybean	60.0 bu	0	10	0	240	48	84	
Nanney Hills	2021	Small grain[a]	55.0 bu	75	0	0	72	28	19	
Nanney Hills	2021	Soybean	60.0 bu	0	0	0	240	48	84	
Nanney Hills	2022	Corn grain	175.0 bu	160	0	0	131	77	51	
Nanney Hills	2023	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Nanney Hills	2023	Soybean	60.0 bu	0	0	0	240	48	84	
Nanney Hills	2024	Corn grain	175.0 bu	160	0	0	131	77	51	
Nanney Hills	2025	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Nanney Hills	2025	Soybean	60.0 bu	0	0	0	240	48	84	
Davis Log	2021	Small grain[a]	55.0 bu	75	40	0	72	28	19	
Davis Log	2021	Soybean	60.0 bu	0	20	0	240	48	84	
Davis Log	2022	Corn grain	175.0 bu	160	70	0	131	77	51	
Davis Log	2023	Small grain[a]	55.0 bu	90	40	0	72	28	19	
Davis Log	2023	Soybean	60.0 bu	0	20	0	240	48	84	
Davis Log	2024	Corn grain	175.0 bu	160	70	0	131	77	51	
Davis Log	2025	Small grain[a]	55.0 bu	90	40	0	72	28	19	
Davis Log	2025	Soybean	60.0 bu	0	20	0	240	48	84	

Field	Crop Year	Planned Crop	Yield Goal (per ac)	N Rec (lbs/ac)	P_2O_5 Rec (lbs/ac)	K_2O Rec (lbs/ac)	N Removed (lbs/ac)	P_2O_5 Removed (lbs/ac)	K_2O Removed (lbs/ac)	Custom Fert. Rec. Source
Davis Trailer	2021	Small grain[a]	55.0 bu	75	40	0	72	28	19	
Davis Trailer	2021	Soybean	60.0 bu	0	20	0	240	48	84	
Davis Trailer	2022	Corn grain	175.0 bu	160	70	0	131	77	51	
Davis Trailer	2023	Small grain[a]	55.0 bu	90	40	0	72	28	19	
Davis Trailer	2023	Soybean	60.0 bu	0	20	0	240	48	84	
Davis Trailer	2024	Corn grain	175.0 bu	160	70	0	131	77	51	
Davis Trailer	2025	Small grain[a]	55.0 bu	90	40	0	72	28	19	
Davis Trailer	2025	Soybean	60.0 bu	0	20	0	240	48	84	
Davis B Trailer (C)	2021	Small grain[a]	55.0 bu	75	80	0	72	28	19	
Davis B Trailer (C)	2021	Soybean	60.0 bu	0	10	0	240	48	84	
Davis B Trailer (C)	2022	Small grain cover[a]		0	0	0	0	0	0	
Davis B Trailer (C)	2022	Corn grain	175.0 bu	180	140	0	131	77	51	
Davis B Trailer (C)	2023	Small grain[a]	55.0 bu	90	80	0	72	28	19	
Davis B Trailer (C)	2023	Soybean	60.0 bu	0	10	0	240	48	84	
Davis B Trailer (C)	2024	Small grain cover[a]		0	0	0	0	0	0	
Davis B Trailer (C)	2024	Corn grain	175.0 bu	180	140	0	131	77	51	
Davis B Trailer (C)	2025	Small grain[a]	55.0 bu	90	80	0	72	28	19	
Davis B Trailer (C)	2025	Soybean	60.0 bu	0	10	0	240	48	84	
Butts Tn	2021	Corn grain	175.0 bu	160	0	0	131	77	51	
Butts Tn	2022	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Butts Tn	2022	Soybean	60.0 bu	0	0	0	240	48	84	
Butts Tn	2023	Corn grain	175.0 bu	160	0	0	131	77	51	
Butts Tn	2024	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Butts Tn	2024	Soybean	60.0 bu	0	0	0	240	48	84	
Butts Tn	2025	Corn grain	175.0 bu	160	0	0	131	77	51	
Emily House	2021	Small grain[a]	55.0 bu	75	0	20	72	28	19	
Emily House	2021	Soybean	60.0 bu	0	0	40	240	48	84	
Emily House	2022	Corn grain	175.0 bu	160	0	70	131	77	51	
Emily House	2023	Small grain[a]	55.0 bu	90	0	20	72	28	19	
Emily House	2023	Soybean	60.0 bu	0	0	40	240	48	84	

Field	Crop Year	Planned Crop	Yield Goal (per ac)	N Rec (lbs/ac)	P_2O_5 Rec (lbs/ac)	K_2O Rec (lbs/ac)	N Removed (lbs/ac)	P_2O_5 Removed (lbs/ac)	K_2O Removed (lbs/ac)	Custom Fert. Rec. Source
Emily House	2024	Corn grain	175.0 bu	160	0	70	131	77	51	
Emily House	2025	Small grain[a]	55.0 bu	90	0	20	72	28	19	
Emily House	2025	Soybean	60.0 bu	0	0	40	240	48	84	
Pruett Pivot	2021	Corn grain	175.0 bu	160	0	0	131	77	51	
Pruett Pivot	2022	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Pruett Pivot	2022	Soybean	60.0 bu	0	0	0	240	48	84	
Pruett Pivot	2023	Corn grain	175.0 bu	160	0	0	131	77	51	
Pruett Pivot	2024	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Pruett Pivot	2024	Soybean	60.0 bu	0	0	0	240	48	84	
Pruett Pivot	2025	Corn grain	175.0 bu	160	0	0	131	77	51	
Pruett S o Road	2021	Corn grain	175.0 bu	160	70	70	131	77	51	
Pruett S o Road	2022	Small grain[a]	55.0 bu	90	40	20	72	28	19	
Pruett S o Road	2022	Soybean	60.0 bu	0	20	40	240	48	84	
Pruett S o Road	2023	Corn grain	175.0 bu	160	70	70	131	77	51	
Pruett S o Road	2024	Small grain[a]	55.0 bu	90	40	20	72	28	19	
Pruett S o Road	2024	Soybean	60.0 bu	0	20	40	240	48	84	
Pruett S o Road	2025	Corn grain	175.0 bu	160	70	70	131	77	51	
Reams	2021	Corn grain	175.0 bu	160	0	0	131	77	51	
Reams	2022	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Reams	2022	Soybean	60.0 bu	0	0	0	240	48	84	
Reams	2023	Corn grain	175.0 bu	160	0	0	131	77	51	
Reams	2024	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Reams	2024	Soybean	60.0 bu	0	0	0	240	48	84	
Reams	2025	Corn grain	175.0 bu	160	0	0	131	77	51	
David Clark Hom	2021	Small grain[a]	55.0 bu	75	0	0	72	28	19	
David Clark Hom	2021	Soybean	60.0 bu	0	0	0	240	48	84	
David Clark Hom	2022	Corn grain	175.0 bu	160	0	0	131	77	51	
David Clark Hom	2023	Small grain[a]	55.0 bu	90	0	0	72	28	19	
David Clark Hom	2023	Soybean	60.0 bu	0	0	0	240	48	84	
David Clark Hom	2024	Corn grain	175.0 bu	160	0	0	131	77	51	

Field	Crop Year	Planned Crop	Yield Goal (per ac)	N Rec (lbs/ac)	P_2O_5 Rec (lbs/ac)	K_2O Rec (lbs/ac)	N Removed (lbs/ac)	P_2O_5 Removed (lbs/ac)	K_2O Removed (lbs/ac)	Custom Fert. Rec. Source
David Clark Hom	2025	Small grain[a]	55.0 bu	90	0	0	72	28	19	
David Clark Hom	2025	Soybean	60.0 bu	0	0	0	240	48	84	
Finch	2021	Small grain[a]	55.0 bu	75	0	0	72	28	19	
Finch	2021	Soybean	60.0 bu	0	0	0	240	48	84	
Finch	2022	Corn grain	175.0 bu	160	0	0	131	77	51	
Finch	2023	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Finch	2023	Soybean	60.0 bu	0	0	0	240	48	84	
Finch	2024	Corn grain	175.0 bu	160	0	0	131	77	51	
Finch	2025	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Finch	2025	Soybean	60.0 bu	0	0	0	240	48	84	
Chapel Hill	2021	Small grain[a]	55.0 bu	75	40	0	72	28	19	
Chapel Hill	2021	Soybean	60.0 bu	0	20	0	240	48	84	
Chapel Hill	2022	Corn grain	175.0 bu	160	70	0	131	77	51	
Chapel Hill	2023	Small grain[a]	55.0 bu	90	40	0	72	28	19	
Chapel Hill	2023	Soybean	60.0 bu	0	20	0	240	48	84	
Chapel Hill	2024	Corn grain	175.0 bu	160	70	0	131	77	51	
Chapel Hill	2025	Small grain[a]	55.0 bu	90	40	0	72	28	19	
Chapel Hill	2025	Soybean	60.0 bu	0	20	0	240	48	84	
Billy Jolley	2021	Small grain[a]	55.0 bu	75	0	0	72	28	19	
Billy Jolley	2021	Soybean	60.0 bu	0	0	0	240	48	84	
Billy Jolley	2022	Corn grain	175.0 bu	160	0	0	131	77	51	
Billy Jolley	2023	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Billy Jolley	2023	Soybean	60.0 bu	0	0	0	240	48	84	
Billy Jolley	2024	Corn grain	175.0 bu	160	0	0	131	77	51	
Billy Jolley	2025	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Billy Jolley	2025	Soybean	60.0 bu	0	0	0	240	48	84	
Lamb	2021	Corn grain	175.0 bu	160	0	70	131	77	51	
Lamb	2022	Small grain[a]	55.0 bu	90	0	20	72	28	19	
Lamb	2022	Soybean	60.0 bu	0	0	40	240	48	84	
Lamb	2023	Corn grain	175.0 bu	160	0	70	131	77	51	

Field	Crop Year	Planned Crop	Yield Goal (per ac)	N Rec (lbs/ac)	P_2O_5 Rec (lbs/ac)	K_2O Rec (lbs/ac)	N Removed (lbs/ac)	P_2O_5 Removed (lbs/ac)	K_2O Removed (lbs/ac)	Custom Fert. Rec. Source
Lamb	2024	Small grain[a]	55.0 bu	90	0	20	72	28	19	
Lamb	2024	Soybean	60.0 bu	0	0	40	240	48	84	
Lamb	2025	Corn grain	175.0 bu	160	0	70	131	77	51	
E D Waymatic	2021	Small grain[a]	55.0 bu	75	40	0	72	28	19	
E D Waymatic	2021	Soybean	60.0 bu	0	20	0	240	48	84	
E D Waymatic	2022	Corn grain	175.0 bu	160	70	0	131	77	51	
E D Waymatic	2023	Small grain[a]	55.0 bu	90	40	0	72	28	19	
E D Waymatic	2023	Soybean	60.0 bu	0	20	0	240	48	84	
E D Waymatic	2024	Corn grain	175.0 bu	160	70	0	131	77	51	
E D Waymatic	2025	Small grain[a]	55.0 bu	90	40	0	72	28	19	
E D Waymatic	2025	Soybean	60.0 bu	0	20	0	240	48	84	
Virginia stahr	2021	Small grain[a]	55.0 bu	75	40	0	72	28	19	
Virginia stahr	2021	Soybean	60.0 bu	0	20	0	240	48	84	
Virginia stahr	2022	Corn grain	175.0 bu	160	70	0	131	77	51	
Virginia stahr	2023	Small grain[a]	55.0 bu	90	40	0	72	28	19	
Virginia stahr	2023	Soybean	60.0 bu	0	20	0	240	48	84	
Virginia stahr	2024	Corn grain	175.0 bu	160	70	0	131	77	51	
Virginia stahr	2025	Small grain[a]	55.0 bu	90	40	0	72	28	19	
Virginia stahr	2025	Soybean	60.0 bu	0	20	0	240	48	84	
Steve Green	2021	Corn grain	175.0 bu	160	0	0	131	77	51	
Steve Green	2022	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Steve Green	2022	Soybean	60.0 bu	0	0	0	240	48	84	
Steve Green	2023	Corn grain	175.0 bu	160	0	0	131	77	51	
Steve Green	2024	Small grain[a]	55.0 bu	90	0	0	72	28	19	
Steve Green	2024	Soybean	60.0 bu	0	0	0	240	48	84	
Steve Green	2025	Corn grain	175.0 bu	160	0	0	131	77	51	

a. Unharvested cover crop or first crop in double-crop system.
b. Custom fertilizer recommendation.

3.6. Planned Nutrient Applications (Manure-spreadable Area)

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (lbs/ac)	Avail P_2O_5 (lbs/ac)	Avail K_2O (lbs/ac)
Nanney Bot	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal		2,668 gal	68.4	160	0	0
Nanney Bot	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal		2,668 gal	68.4	160	0	0
Nanney 10 Yr	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	195 lbs		4,446 lbs	22.8	35	90	0
Nanney 10 Yr	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	12 gal		274 gal	22.8	42	0	0
Nanney 10 Yr	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	26 gal		593 gal	22.8	107	0	0
Nanney 10 Yr	Apr 2022	Corn grain	18-46-0	Surface broadcast	1-yr P	304 lbs		6,931 lbs	22.8	55	140	0
Nanney 10 Yr	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	195 lbs		4,446 lbs	22.8	35	90	0
Nanney 10 Yr	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	16 gal		365 gal	22.8	57	0	0
Nanney 10 Yr	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	26 gal		593 gal	22.8	107	0	0
Nanney 10 Yr	Apr 2024	Corn grain	18-46-0	Surface broadcast	1-yr P	304 lbs		6,931 lbs	22.8	55	140	0
Nanney 10 Yr	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	195 lbs		4,446 lbs	22.8	35	90	0
Nanney 10 Yr	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	16 gal		365 gal	22.8	57	0	0
Nanney Hills	Feb 2021	Small grain	32-0-0	Surface band	1-yr N	22 gal		1,225 gal	55.7	78	0	0
Nanney Hills	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal		2,172 gal	55.7	160	0	0
Nanney Hills	Feb 2023	Small grain	32-0-0	Surface band	1-yr N	26 gal		1,448 gal	55.7	92	0	0
Nanney Hills	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal		2,172 gal	55.7	160	0	0
Nanney Hills	Feb 2025	Small grain	32-0-0	Surface band	1-yr N	26 gal		1,448 gal	55.7	92	0	0
Davis Log	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs		7,878 lbs	60.6	23	60	0
Davis Log	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	15 gal		909 gal	60.6	53	0	0
Davis Log	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	33 gal		2,000 gal	60.6	135	0	0
Davis Log	Apr 2022	Corn grain	18-46-0	Surface broadcast	1-yr P	152 lbs		9,211 lbs	60.6	27	70	0
Davis Log	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs		7,878 lbs	60.6	23	60	0
Davis Log	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	19 gal		1,151 gal	60.6	67	0	0
Davis Log	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	33 gal		2,000 gal	60.6	135	0	0
Davis Log	Apr 2024	Corn grain	18-46-0	Surface broadcast	1-yr P	152 lbs		9,211 lbs	60.6	27	70	0
Davis Log	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs		7,878 lbs	60.6	23	60	0
Davis Log	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	19 gal		1,151 gal	60.6	67	0	0
Davis Trailer	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs		4,381 lbs	33.7	23	60	0
Davis Trailer	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	15 gal		506 gal	33.7	53	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (lbs/ac)	Avail P_2O_5 (lbs/ac)	Avail K_2O (lbs/ac)
Davis Trailer	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	33 gal		1,112 gal	33.7	135	0	0
Davis Trailer	Apr 2022	Corn grain	18-46-0	Surface broadcast	1-yr P	152 lbs		5,122 lbs	33.7	27	70	0
Davis Trailer	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs		4,381 lbs	33.7	23	60	0
Davis Trailer	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	19 gal		640 gal	33.7	67	0	0
Davis Trailer	Mar 2024	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	26.6 loads	199,500 gal	33.8	161	83	178
Davis Trailer	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	102 lbs		3,437 lbs	33.7	18	47	0
Davis Trailer	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	20 gal		674 gal	33.7	71	0	0
Davis B Trailer (C)	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	195 lbs		3,413 lbs	17.5	35	90	0
Davis B Trailer (C)	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	12 gal		210 gal	17.5	42	0	0
Davis B Trailer (C)	Mar 2022	Corn grain	Barn 2	Kuhn	2-yr P	6,600 gal	15.5 loads	116,250 gal	17.6	180	93	199
Davis B Trailer (C)	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	195 lbs		3,413 lbs	17.5	35	90	0
Davis B Trailer (C)	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	15 gal		263 gal	17.5	53	0	0
Davis B Trailer (C)	Mar 2024	Corn grain	Barn 1	Kuhn	2-yr P	6,600 gal	15.5 loads	116,250 gal	17.6	180	93	199
Davis B Trailer (C)	Apr 2024	Corn grain	18-46-0	Surface broadcast	Supp. P	100 lbs		1,750 lbs	17.5	18	46	0
Davis B Trailer (C)	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	195 lbs		3,413 lbs	17.5	35	90	0
Davis B Trailer (C)	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	15 gal		263 gal	17.5	53	0	0
Butts Tn	Apr 2021	Corn grain	82-0-0	Inject	1-yr N	39 gal		2,562 gal	65.7	160	0	0
Butts Tn	Feb 2022	Small grain	32-0-0	Surface band	1-yr N	26 gal		1,708 gal	65.7	92	0	0
Butts Tn	Mar 2023	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	51.7 loads	387,750 gal	65.7	161	83	178
Butts Tn	Feb 2024	Small grain	32-0-0	Surface band	1-yr N	25 gal		1,642 gal	65.7	88	0	0
Butts Tn	Mar 2025	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	51.7 loads	387,750 gal	65.7	161	83	178
Emily House	Feb 2021	Small grain	32-0-0	Surface band	1-yr N	22 gal		235 gal	10.7	78	0	0
Emily House	Mar 2022	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	1.2 loads	9,000 gal	1.5	161	83	178
Emily House	Mar 2022	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	7.2 loads	54,000 gal	9.2	161	83	178
Emily House	Feb 2023	Small grain	32-0-0	Surface band	1-yr N	25 gal		267 gal	10.7	88	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (lbs/ac)	Avail P_2O_5 (lbs/ac)	Avail K_2O (lbs/ac)
Emily House	Mar 2024	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	8.5 loads	63,750 gal	10.8	161	83	178
Emily House	Feb 2025	Small grain	32-0-0	Surface band	1-yr N	25 gal		267 gal	10.7	88	0	0
Pruett Pivot	Mar 2021	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	55 loads	412,500 gal	69.9	161	83	178
Pruett Pivot	Feb 2022	Small grain	32-0-0	Surface band	1-yr N	25 gal		1,745 gal	69.8	88	0	0
Pruett Pivot	Mar 2023	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	55 loads	412,500 gal	69.9	161	83	178
Pruett Pivot	Feb 2024	Small grain	32-0-0	Surface band	1-yr N	25 gal		1,745 gal	69.8	88	0	0
Pruett Pivot	Mar 2025	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	44.3 loads	332,250 gal	56.3	161	83	178
Pruett Pivot	Mar 2025	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	10.7 loads	80,250 gal	13.6	161	83	178
Pruett S o Road	Mar 2021	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	6.9 loads	51,750 gal	8.8	161	83	178
Pruett S o Road	Oct 2021	Small grain	18-46-0	Surface broadcast	1-yr P	100 lbs		870 lbs	8.7	18	46	0
Pruett S o Road	Feb 2022	Small grain	32-0-0	Surface band	Supp. N	20 gal		174 gal	8.7	71	0	0
Pruett S o Road	Mar 2023	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	6.9 loads	51,750 gal	8.8	161	83	178
Pruett S o Road	Oct 2023	Small grain	18-46-0	Surface broadcast	1-yr P	100 lbs		870 lbs	8.7	18	46	0
Pruett S o Road	Feb 2024	Small grain	32-0-0	Surface band	Supp. N	20 gal		174 gal	8.7	71	0	0
Pruett S o Road	Mar 2025	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	6.9 loads	51,750 gal	8.8	161	83	178
Reams	Mar 2021	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	24.1 loads	180,750 gal	30.6	161	83	178
Reams	Feb 2022	Small grain	32-0-0	Surface band	1-yr N	25 gal		765 gal	30.6	88	0	0
Reams	Mar 2023	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	24.1 loads	180,750 gal	30.6	161	83	178
Reams	Feb 2024	Small grain	32-0-0	Surface band	1-yr N	25 gal		765 gal	30.6	88	0	0
Reams	Mar 2025	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	24.1 loads	180,750 gal	30.6	161	83	178
David Clark Hom	Feb 2021	Small grain	32-0-0	Surface band	1-yr N	22 gal		1,516 gal	68.9	78	0	0
David Clark Hom	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal		2,687 gal	68.9	160	0	0
David Clark Hom	Feb 2023	Small grain	32-0-0	Surface band	1-yr N	26 gal		1,791 gal	68.9	92	0	0
David Clark Hom	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal		2,687 gal	68.9	160	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (lbs/ac)	Avail P_2O_5 (lbs/ac)	Avail K_2O (lbs/ac)
David Clark Hom	Feb 2025	Small grain	32-0-0	Surface band	1-yr N	26 gal		1,791 gal	68.9	92	0	0
Finch	Feb 2021	Small grain	32-0-0	Surface band	1-yr N	22 gal		1,727 gal	78.5	78	0	0
Finch	Mar 2022	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	61.8 loads	463,500 gal	78.6	161	83	178
Finch	Feb 2023	Small grain	32-0-0	Surface band	1-yr N	25 gal		1,963 gal	78.5	88	0	0
Finch	Mar 2024	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	61.8 loads	463,500 gal	78.6	161	83	178
Finch	Feb 2025	Small grain	32-0-0	Surface band	1-yr N	25 gal		1,963 gal	78.5	88	0	0
Chapel Hill	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs		6,942 lbs	53.4	23	60	0
Chapel Hill	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	15 gal		801 gal	53.4	53	0	0
Chapel Hill	Mar 2022	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	42.1 loads	315,750 gal	53.5	161	83	178
Chapel Hill	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	102 lbs		5,447 lbs	53.4	18	47	0
Chapel Hill	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	20 gal		1,068 gal	53.4	71	0	0
Chapel Hill	Mar 2024	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	42.1 loads	315,750 gal	53.5	161	83	178
Chapel Hill	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	102 lbs		5,447 lbs	53.4	18	47	0
Chapel Hill	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	20 gal		1,068 gal	53.4	71	0	0
Billy Jolley	Feb 2021	Small grain	32-0-0	Surface band	1-yr N	22 gal		1,320 gal	60.0	78	0	0
Billy Jolley	Mar 2022	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	47.2 loads	354,000 gal	60.0	161	83	178
Billy Jolley	Feb 2023	Small grain	32-0-0	Surface band	1-yr N	25 gal		1,500 gal	60.0	88	0	0
Billy Jolley	Mar 2024	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	47.2 loads	354,000 gal	60.0	161	83	178
Billy Jolley	Feb 2025	Small grain	32-0-0	Surface band	1-yr N	25 gal		1,500 gal	60.0	88	0	0
Lamb	Mar 2021	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	2.7 loads	20,250 gal	3.4	161	83	178
Lamb	Mar 2021	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	30.3 loads	227,250 gal	38.5	161	83	178
Lamb	Feb 2022	Small grain	32-0-0	Surface band	1-yr N	25 gal		1,048 gal	41.9	88	0	0
Lamb	Mar 2023	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	33 loads	247,500 gal	41.9	161	83	178
Lamb	Feb 2024	Small grain	32-0-0	Surface band	1-yr N	25 gal		1,048 gal	41.9	88	0	0
Lamb	Mar 2025	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	33 loads	247,500 gal	41.9	161	83	178
E D Waymatic	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs		5,564 lbs	42.8	23	60	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Loads, Speed or Time	Total Amount Applied	Acres Cov.	Avail N (lbs/ac)	Avail P_2O_5 (lbs/ac)	Avail K_2O (lbs/ac)
E D Waymatic	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	15 gal		642 gal	42.8	53	0	0
E D Waymatic	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal		1,669 gal	42.8	160	0	0
E D Waymatic	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs		5,564 lbs	42.8	23	60	0
E D Waymatic	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	19 gal		813 gal	42.8	67	0	0
E D Waymatic	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal		1,669 gal	42.8	160	0	0
E D Waymatic	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs		5,564 lbs	42.8	23	60	0
E D Waymatic	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	19 gal		813 gal	42.8	67	0	0
Virginia stahr	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs		2,678 lbs	20.6	23	60	0
Virginia stahr	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	15 gal		309 gal	20.6	53	0	0
Virginia stahr	Mar 2022	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	16.3 loads	122,250 gal	20.7	161	83	178
Virginia stahr	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	102 lbs		2,101 lbs	20.6	18	47	0
Virginia stahr	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	20 gal		412 gal	20.6	71	0	0
Virginia stahr	Mar 2024	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	1.5 loads	11,250 gal	1.9	161	83	178
Virginia stahr	Mar 2024	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	8.2 loads	61,500 gal	10.4	161	83	178
Virginia stahr	Apr 2024	Corn grain	82-0-0	Inject	Supp. N	16 gal		330 gal	20.6	66	0	0
Virginia stahr	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs		2,678 lbs	20.6	23	60	0
Virginia stahr	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	19 gal		391 gal	20.6	67	0	0
Steve Green	Mar 2021	Corn grain	Barn 1	Kuhn	2-yr P	5,900 gal	3.1 loads	23,250 gal	3.9	161	83	178
Steve Green	Feb 2022	Small grain	32-0-0	Surface band	1-yr N	25 gal		98 gal	3.9	88	0	0
Steve Green	Mar 2023	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	3.1 loads	23,250 gal	3.9	161	83	178
Steve Green	Feb 2024	Small grain	32-0-0	Surface band	1-yr N	25 gal		98 gal	3.9	88	0	0
Steve Green	Mar 2025	Corn grain	Barn 2	Kuhn	2-yr P	5,900 gal	3.1 loads	23,250 gal	3.9	161	83	178

Planned Nutrient Applications (Non-manure-spreadable Area)

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (lbs/ac)	Avail P_2O_5 (lbs/ac)	Avail K_2O (lbs/ac)
Nanney Bot	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal	191 gal	4.9	160	0	0
Nanney Bot	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal	191 gal	4.9	160	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (lbs/ac)	Avail P_2O_5 (lbs/ac)	Avail K_2O (lbs/ac)
Nanney 10 Yr	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	195 lbs	195 lbs	1.0	35	90	0
Nanney 10 Yr	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	12 gal	12 gal	1.0	42	0	0
Nanney 10 Yr	Apr 2022	Corn grain	18-46-0	Surface broadcast	1-yr P	304 lbs	304 lbs	1.0	55	140	0
Nanney 10 Yr	Apr 2022	Corn grain	82-0-0	Inject	Supp. N	26 gal	26 gal	1.0	107	0	0
Nanney 10 Yr	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	195 lbs	195 lbs	1.0	35	90	0
Nanney 10 Yr	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	16 gal	16 gal	1.0	57	0	0
Nanney 10 Yr	Apr 2024	Corn grain	18-46-0	Surface broadcast	1-yr P	304 lbs	304 lbs	1.0	55	140	0
Nanney 10 Yr	Apr 2024	Corn grain	82-0-0	Inject	Supp. N	26 gal	26 gal	1.0	107	0	0
Nanney 10 Yr	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	195 lbs	195 lbs	1.0	35	90	0
Nanney 10 Yr	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	16 gal	16 gal	1.0	57	0	0
Nanney Hills	Feb 2021	Small grain	32-0-0	Surface band	1-yr N	22 gal	145 gal	6.6	78	0	0
Nanney Hills	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal	257 gal	6.6	160	0	0
Nanney Hills	Feb 2023	Small grain	32-0-0	Surface band	1-yr N	26 gal	172 gal	6.6	92	0	0
Nanney Hills	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal	257 gal	6.6	160	0	0
Nanney Hills	Feb 2025	Small grain	32-0-0	Surface band	1-yr N	26 gal	172 gal	6.6	92	0	0
Davis Log	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs	663 lbs	5.1	23	60	0
Davis Log	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	15 gal	76 gal	5.1	53	0	0
Davis Log	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	33 gal	168 gal	5.1	135	0	0
Davis Log	Apr 2022	Corn grain	18-46-0	Surface broadcast	1-yr P	152 lbs	775 lbs	5.1	27	70	0
Davis Log	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs	663 lbs	5.1	23	60	0
Davis Log	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	19 gal	97 gal	5.1	67	0	0
Davis Log	Apr 2024	Corn grain	18-46-0	Surface broadcast	1-yr P	152 lbs	775 lbs	5.1	27	70	0
Davis Log	Apr 2024	Corn grain	82-0-0	Inject	Supp. N	33 gal	168 gal	5.1	135	0	0
Davis Log	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs	663 lbs	5.1	23	60	0
Davis Log	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	19 gal	97 gal	5.1	67	0	0
Davis Trailer	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs	364 lbs	2.8	23	60	0
Davis Trailer	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	15 gal	42 gal	2.8	53	0	0
Davis Trailer	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	33 gal	92 gal	2.8	135	0	0
Davis Trailer	Apr 2022	Corn grain	18-46-0	Surface broadcast	1-yr P	152 lbs	426 lbs	2.8	27	70	0
Davis Trailer	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs	364 lbs	2.8	23	60	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (lbs/ac)	Avail P_2O_5 (lbs/ac)	Avail K_2O (lbs/ac)
Davis Trailer	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	19 gal	53 gal	2.8	67	0	0
Davis Trailer	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal	109 gal	2.8	160	0	0
Davis Trailer	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	102 lbs	286 lbs	2.8	18	47	0
Davis Trailer	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	20 gal	56 gal	2.8	71	0	0
Davis B Trailer (C)	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	195 lbs	390 lbs	2.0	35	90	0
Davis B Trailer (C)	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	12 gal	24 gal	2.0	42	0	0
Davis B Trailer (C)	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	44 gal	88 gal	2.0	180	0	0
Davis B Trailer (C)	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	195 lbs	390 lbs	2.0	35	90	0
Davis B Trailer (C)	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	15 gal	30 gal	2.0	53	0	0
Davis B Trailer (C)	Apr 2024	Corn grain	18-46-0	Surface broadcast	1-yr P	100 lbs	200 lbs	2.0	18	46	0
Davis B Trailer (C)	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	195 lbs	390 lbs	2.0	35	90	0
Davis B Trailer (C)	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	15 gal	30 gal	2.0	53	0	0
Butts Tn	Apr 2021	Corn grain	82-0-0	Inject	1-yr N	39 gal	109 gal	2.8	160	0	0
Butts Tn	Feb 2022	Small grain	32-0-0	Surface band	1-yr N	26 gal	73 gal	2.8	92	0	0
Butts Tn	Apr 2023	Corn grain	82-0-0	Inject	1-yr N	39 gal	109 gal	2.8	160	0	0
Butts Tn	Feb 2024	Small grain	32-0-0	Surface band	1-yr N	25 gal	70 gal	2.8	88	0	0
Butts Tn	Apr 2025	Corn grain	82-0-0	Inject	1-yr N	39 gal	109 gal	2.8	160	0	0
Emily House	Feb 2021	Small grain	32-0-0	Surface band	1-yr N	22 gal	70 gal	3.2	78	0	0
Emily House	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal	125 gal	3.2	160	0	0
Emily House	Feb 2023	Small grain	32-0-0	Surface band	1-yr N	25 gal	80 gal	3.2	88	0	0
Emily House	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal	125 gal	3.2	160	0	0
Emily House	Feb 2025	Small grain	32-0-0	Surface band	1-yr N	25 gal	80 gal	3.2	88	0	0
Pruett Pivot	Apr 2021	Corn grain	82-0-0	Inject	1-yr N	39 gal	351 gal	9.0	160	0	0
Pruett Pivot	Feb 2022	Small grain	32-0-0	Surface band	1-yr N	25 gal	225 gal	9.0	88	0	0
Pruett Pivot	Apr 2023	Corn grain	82-0-0	Inject	1-yr N	39 gal	351 gal	9.0	160	0	0
Pruett Pivot	Feb 2024	Small grain	32-0-0	Surface band	1-yr N	25 gal	225 gal	9.0	88	0	0
Pruett Pivot	Apr 2025	Corn grain	82-0-0	Inject	1-yr N	39 gal	351 gal	9.0	160	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (lbs/ac)	Avail P_2O_5 (lbs/ac)	Avail K_2O (lbs/ac)
Pruett S o Road	Apr 2021	Corn grain	82-0-0	Inject	1-yr N	39 gal	51 gal	1.3	160	0	0
Pruett S o Road	Oct 2021	Small grain	18-46-0	Surface broadcast	1-yr P	100 lbs	130 lbs	1.3	18	46	0
Pruett S o Road	Feb 2022	Small grain	32-0-0	Surface band	Supp. N	20 gal	26 gal	1.3	71	0	0
Pruett S o Road	Apr 2023	Corn grain	82-0-0	Inject	1-yr N	39 gal	51 gal	1.3	160	0	0
Pruett S o Road	Oct 2023	Small grain	18-46-0	Surface broadcast	1-yr P	100 lbs	130 lbs	1.3	18	46	0
Pruett S o Road	Feb 2024	Small grain	32-0-0	Surface band	Supp. N	20 gal	26 gal	1.3	71	0	0
Pruett S o Road	Apr 2025	Corn grain	82-0-0	Inject	1-yr N	39 gal	51 gal	1.3	160	0	0
Reams	Apr 2021	Corn grain	82-0-0	Inject	1-yr N	39 gal	168 gal	4.3	160	0	0
Reams	Feb 2022	Small grain	32-0-0	Surface band	1-yr N	25 gal	108 gal	4.3	88	0	0
Reams	Apr 2023	Corn grain	82-0-0	Inject	1-yr N	39 gal	168 gal	4.3	160	0	0
Reams	Feb 2024	Small grain	32-0-0	Surface band	1-yr N	25 gal	108 gal	4.3	88	0	0
Reams	Apr 2025	Corn grain	82-0-0	Inject	1-yr N	39 gal	168 gal	4.3	160	0	0
David Clark Hom	Feb 2021	Small grain	32-0-0	Surface band	1-yr N	22 gal	156 gal	7.1	78	0	0
David Clark Hom	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal	277 gal	7.1	160	0	0
David Clark Hom	Feb 2023	Small grain	32-0-0	Surface band	1-yr N	26 gal	185 gal	7.1	92	0	0
David Clark Hom	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal	277 gal	7.1	160	0	0
David Clark Hom	Feb 2025	Small grain	32-0-0	Surface band	1-yr N	26 gal	185 gal	7.1	92	0	0
Finch	Feb 2021	Small grain	32-0-0	Surface band	1-yr N	22 gal	224 gal	10.2	78	0	0
Finch	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal	398 gal	10.2	160	0	0
Finch	Feb 2023	Small grain	32-0-0	Surface band	1-yr N	25 gal	255 gal	10.2	88	0	0
Finch	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal	398 gal	10.2	160	0	0
Finch	Feb 2025	Small grain	32-0-0	Surface band	1-yr N	25 gal	255 gal	10.2	88	0	0
Chapel Hill	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs	702 lbs	5.4	23	60	0
Chapel Hill	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	15 gal	81 gal	5.4	53	0	0
Chapel Hill	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal	211 gal	5.4	160	0	0
Chapel Hill	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	102 lbs	551 lbs	5.4	18	47	0
Chapel Hill	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	20 gal	108 gal	5.4	71	0	0
Chapel Hill	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal	211 gal	5.4	160	0	0
Chapel Hill	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	102 lbs	551 lbs	5.4	18	47	0
Chapel Hill	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	20 gal	108 gal	5.4	71	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (lbs/ac)	Avail P_2O_5 (lbs/ac)	Avail K_2O (lbs/ac)
Billy Jolley	Feb 2021	Small grain	32-0-0	Surface band	1-yr N	22 gal	117 gal	5.3	78	0	0
Billy Jolley	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal	207 gal	5.3	160	0	0
Billy Jolley	Feb 2023	Small grain	32-0-0	Surface band	1-yr N	25 gal	133 gal	5.3	88	0	0
Billy Jolley	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal	207 gal	5.3	160	0	0
Billy Jolley	Feb 2025	Small grain	32-0-0	Surface band	1-yr N	25 gal	133 gal	5.3	88	0	0
Lamb	Apr 2021	Corn grain	82-0-0	Inject	1-yr N	39 gal	70 gal	1.8	160	0	0
Lamb	Feb 2022	Small grain	32-0-0	Surface band	1-yr N	25 gal	45 gal	1.8	88	0	0
Lamb	Apr 2023	Corn grain	82-0-0	Inject	1-yr N	39 gal	70 gal	1.8	160	0	0
Lamb	Feb 2024	Small grain	32-0-0	Surface band	1-yr N	25 gal	45 gal	1.8	88	0	0
Lamb	Apr 2025	Corn grain	82-0-0	Inject	1-yr N	39 gal	70 gal	1.8	160	0	0
E D Waymatic	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs	325 lbs	2.5	23	60	0
E D Waymatic	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	15 gal	38 gal	2.5	53	0	0
E D Waymatic	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal	98 gal	2.5	160	0	0
E D Waymatic	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs	325 lbs	2.5	23	60	0
E D Waymatic	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	19 gal	48 gal	2.5	67	0	0
E D Waymatic	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	39 gal	98 gal	2.5	160	0	0
E D Waymatic	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs	325 lbs	2.5	23	60	0
E D Waymatic	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	19 gal	48 gal	2.5	67	0	0
Virginia stahr	Oct 2020	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs	104 lbs	0.8	23	60	0
Virginia stahr	Feb 2021	Small grain	32-0-0	Surface band	Supp. N	15 gal	12 gal	0.8	53	0	0
Virginia stahr	Apr 2022	Corn grain	82-0-0	Inject	1-yr N	39 gal	31 gal	0.8	160	0	0
Virginia stahr	Oct 2022	Small grain	18-46-0	Surface broadcast	1-yr P	102 lbs	82 lbs	0.8	18	47	0
Virginia stahr	Feb 2023	Small grain	32-0-0	Surface band	Supp. N	20 gal	16 gal	0.8	71	0	0
Virginia stahr	Apr 2024	Corn grain	82-0-0	Inject	1-yr N	16 gal	13 gal	0.8	66	0	0
Virginia stahr	Oct 2024	Small grain	18-46-0	Surface broadcast	1-yr P	130 lbs	104 lbs	0.8	23	60	0
Virginia stahr	Feb 2025	Small grain	32-0-0	Surface band	Supp. N	19 gal	15 gal	0.8	67	0	0
Steve Green	Apr 2021	Corn grain	82-0-0	Inject	1-yr N	39 gal	8 gal	0.2	160	0	0
Steve Green	Feb 2022	Small grain	32-0-0	Surface band	1-yr N	25 gal	5 gal	0.2	88	0	0
Steve Green	Apr 2023	Corn grain	82-0-0	Inject	1-yr N	39 gal	8 gal	0.2	160	0	0
Steve Green	Feb 2024	Small grain	32-0-0	Surface band	1-yr N	25 gal	5 gal	0.2	88	0	0

Field	App. Month	Target Crop	Nutrient Source	Application Method	Rate Basis	Rate/Acre	Total Amount Applied	Acres Cov.	Avail N (lbs/ac)	Avail P_2O_5 (lbs/ac)	Avail K_2O (lbs/ac)
Steve Green	Apr 2025	Corn grain	82-0-0	Inject	1-yr N	39 gal	8 gal	0.2	160	0	0

3.7. Field Nutrient Balance (Manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
2021	Nanney Bot	68.4	Soybean	60	0	0	0	0	0	0	0	0	0	-48	-84
2022	Nanney Bot	68.4	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2023	Nanney Bot	68.4	Soybean	60	0	0	0	0	0	0	0	0	0	-48	-84
2024	Nanney Bot	68.4	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2025	Nanney Bot	68.4	Soybean	60	0	0	0	0	0	0	0	0	0	-48	-84
Total	**Nanney Bot**				**320**	**0**	**0**	**320**	**0**	**0**					
2021	Nanney 10 Yr	22.8	Small grain	55	75	80	0								
2021	Nanney 10 Yr	22.8	Soybean	60	0	10	0	77	90	0	2	0	0	14	-103
2022	Nanney 10 Yr	22.8	Corn grain	175	160	140	0	162	140	0	2	0	0	77	-51
2023	Nanney 10 Yr	22.8	Small grain	55	90	80	0								
2023	Nanney 10 Yr	22.8	Soybean	60	0	10	0	92	90	0	2	0	0	91	-103
2024	Nanney 10 Yr	22.8	Corn grain	175	160	140	0	162	140	0	2	0	0	154	-51
2025	Nanney 10 Yr	22.8	Small grain	55	90	80	0								
2025	Nanney 10 Yr	22.8	Soybean	60	0	10	0	92	90	0	2	0	0	168	-103
Total	**Nanney 10 Yr**				**575**	**550**	**0**	**585**	**550**	**0**					
2021	Nanney Hills	55.7	Small grain	55	75	0	0								
2021	Nanney Hills	55.7	Soybean	60	0	0	0	78	0	0	3	0	0	-76	-103
2022	Nanney Hills	55.7	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2023	Nanney Hills	55.7	Small grain	55	90	0	0								
2023	Nanney Hills	55.7	Soybean	60	0	0	0	92	0	0	2	0	0	-76	-103
2024	Nanney Hills	55.7	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2025	Nanney Hills	55.7	Small grain	55	90	0	0								
2025	Nanney Hills	55.7	Soybean	60	0	0	0	92	0	0	2	0	0	-76	-103
Total	**Nanney Hills**				**575**	**0**	**0**	**582**	**0**	**0**					
2021	Davis Log	60.6	Small grain	55	75	40	0								
2021	Davis Log	60.6	Soybean	60	0	20	0	76	60	0	1	0	0	-16	-103
2022	Davis Log	60.6	Corn grain	175	160	70	0	162	70	0	2	0	0	-7	-51
2023	Davis Log	60.6	Small grain	55	90	40	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
2023	Davis Log	60.6	Soybean	60	0	20	0	90	60	0	0	0	0	-16	-103
2024	Davis Log	60.6	Corn grain	175	160	70	0	162	70	0	2	0	0	-7	-51
2025	Davis Log	60.6	Small grain	55	90	40	0								
2025	Davis Log	60.6	Soybean	60	0	20	0	90	60	0	0	0	0	-16	-103
Total	**Davis Log**				**575**	**320**	**0**	**580**	**320**	**0**					
2021	Davis Trailer	33.7	Small grain	55	75	40	0								
2021	Davis Trailer	33.7	Soybean	60	0	20	0	76	60	0	1	0	0	-16	-103
2022	Davis Trailer	33.7	Corn grain	175	160	70	0	162	70	0	2	0	0	-7	-51
2023	Davis Trailer	33.7	Small grain	55	90	40	0								
2023	Davis Trailer	33.7	Soybean	60	0	20	0	90	60	0	0	0	0	-16	-103
2024	Davis Trailer	33.7	Corn grain	175	160	70	0	161	83	179	1	13	179	6	128
2025	Davis Trailer	33.7	Small grain	55	90	40	0								
2025	Davis Trailer	33.7	Soybean	60	0	20	0	89	47	0	2[g]	0	179	-23	25
Total	**Davis Trailer**				**575**	**320**	**0**	**578**	**320**	**179**					
2021	Davis B Trailer (C)	17.5	Small grain	55	75	80	0								
2021	Davis B Trailer (C)	17.5	Soybean	60	0	10	0	77	90	0	2	0	0	14	-103
2022	Davis B Trailer (C)	17.5	Small grain cover		0	0	0								
2022	Davis B Trailer (C)	17.5	Corn grain	175	180	140	0	181	94	200	1	-46	200	31	149
2023	Davis B Trailer (C)	17.5	Small grain	55	90	80	0								
2023	Davis B Trailer (C)	17.5	Soybean	60	0	10	0	88	90	0	1[g]	0	200	45	46
2024	Davis B Trailer (C)	17.5	Small grain cover		0	0	0								
2024	Davis B Trailer (C)	17.5	Corn grain	175	180	140	0	199	140	200	20[g]	0	400	108	195
2025	Davis B Trailer (C)	17.5	Small grain	55	90	80	0								
2025	Davis B Trailer (C)	17.5	Soybean	60	0	10	0	88	90	0	1[g]	0	400	122	92
Total	**Davis B Trailer (C)**				**615**	**550**	**0**	**633**	**504**	**400**					
2021	Butts Tn	65.7	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2022	Butts Tn	65.7	Small grain	55	90	0	0								
2022	Butts Tn	65.7	Soybean	60	0	0	0	92	0	0	2	0	0	-76	-103
2023	Butts Tn	65.7	Corn grain	175	160	0	0	161	83	178	1	83	178	6	127
2024	Butts Tn	65.7	Small grain	55	90	0	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
2024	Butts Tn	65.7	Soybean	60	0	0	0	88	0	0	1[g]	83	178	-70	24
2025	Butts Tn	65.7	Corn grain	175	160	0	0	161	83	178	2[g]	166	356	6	151
Total	**Butts Tn**				**660**	**0**	**0**	**662**	**166**	**356**					
2021	Emily House	10.7	Small grain	55	75	0	20								
2021	Emily House	10.7	Soybean	60	0	0	40	78	0	0	3	0	-60	-76	-103
2022	Emily House	10.7	Corn grain	175	160	0	70	161	83	178	1	83	108	6	127
2023	Emily House	10.7	Small grain	55	90	0	20								
2023	Emily House	10.7	Soybean	60	0	0	40	88	0	0	1[g]	83	48	-70	24
2024	Emily House	10.7	Corn grain	175	160	0	70	163	84	180	4[g]	167	158	7	153
2025	Emily House	10.7	Small grain	55	90	0	20								
2025	Emily House	10.7	Soybean	60	0	0	40	88	0	0	1[g]	167	98	-69	50
Total	**Emily House**				**575**	**0**	**320**	**578**	**167**	**358**					
2021	Pruett Pivot	69.8	Corn grain	175	160	0	0	161	83	178	1	83	178	6	127
2022	Pruett Pivot	69.8	Small grain	55	90	0	0								
2022	Pruett Pivot	69.8	Soybean	60	0	0	0	88	0	0	1[g]	83	178	-70	24
2023	Pruett Pivot	69.8	Corn grain	175	160	0	0	161	83	178	2[g]	166	356	6	151
2024	Pruett Pivot	69.8	Small grain	55	90	0	0								
2024	Pruett Pivot	69.8	Soybean	60	0	0	0	88	0	0	1[g]	166	356	-70	48
2025	Pruett Pivot	69.8	Corn grain	175	160	0	0	161	83	178	2[g]	249	534	6	175
Total	**Pruett Pivot**				**660**	**0**	**0**	**659**	**249**	**534**					
2021	Pruett S o Road	8.7	Corn grain	175	160	70	70	163	84	180	3	14	110	7	129
2022	Pruett S o Road	8.7	Small grain	55	90	40	20								
2022	Pruett S o Road	8.7	Soybean	60	0	20	40	89	46	0	2[g]	0	50	-23	26
2023	Pruett S o Road	8.7	Corn grain	175	160	70	70	163	84	180	4[g]	14	160	7	155
2024	Pruett S o Road	8.7	Small grain	55	90	40	20								
2024	Pruett S o Road	8.7	Soybean	60	0	20	40	89	46	0	2[g]	0	100	-23	52
2025	Pruett S o Road	8.7	Corn grain	175	160	70	70	163	84	180	4[g]	14	210	7	181
Total	**Pruett S o Road**				**660**	**330**	**330**	**667**	**344**	**540**					
2021	Reams	30.6	Corn grain	175	160	0	0	161	83	178	1	83	178	6	127

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
2022	Reams	30.6	Small grain	55	90	0	0								
2022	Reams	30.6	Soybean	60	0	0	0	88	0	0	1[g]	83	178	-70	24
2023	Reams	30.6	Corn grain	175	160	0	0	161	83	178	2[g]	166	356	6	151
2024	Reams	30.6	Small grain	55	90	0	0								
2024	Reams	30.6	Soybean	60	0	0	0	88	0	0	1[g]	166	356	-70	48
2025	Reams	30.6	Corn grain	175	160	0	0	161	83	178	2[g]	249	534	6	175
Total	**Reams**				**660**	**0**	**0**	**659**	**249**	**534**					
2021	David Clark Hom	68.9	Small grain	55	75	0	0								
2021	David Clark Hom	68.9	Soybean	60	0	0	0	78	0	0	3	0	0	-76	-103
2022	David Clark Hom	68.9	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2023	David Clark Hom	68.9	Small grain	55	90	0	0								
2023	David Clark Hom	68.9	Soybean	60	0	0	0	92	0	0	2	0	0	-76	-103
2024	David Clark Hom	68.9	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2025	David Clark Hom	68.9	Small grain	55	90	0	0								
2025	David Clark Hom	68.9	Soybean	60	0	0	0	92	0	0	2	0	0	-76	-103
Total	**David Clark Hom**				**575**	**0**	**0**	**582**	**0**	**0**					
2021	Finch	78.5	Small grain	55	75	0	0								
2021	Finch	78.5	Soybean	60	0	0	0	78	0	0	3	0	0	-76	-103
2022	Finch	78.5	Corn grain	175	160	0	0	161	83	178	1	83	178	6	127
2023	Finch	78.5	Small grain	55	90	0	0								
2023	Finch	78.5	Soybean	60	0	0	0	88	0	0	1[g]	83	178	-70	24
2024	Finch	78.5	Corn grain	175	160	0	0	161	83	178	2[g]	166	356	6	151
2025	Finch	78.5	Small grain	55	90	0	0								
2025	Finch	78.5	Soybean	60	0	0	0	88	0	0	1[g]	166	356	-70	48
Total	**Finch**				**575**	**0**	**0**	**576**	**166**	**356**					
2021	Chapel Hill	53.4	Small grain	55	75	40	0								
2021	Chapel Hill	53.4	Soybean	60	0	20	0	76	60	0	1	0	0	-16	-103
2022	Chapel Hill	53.4	Corn grain	175	160	70	0	161	83	178	1	13	178	6	127
2023	Chapel Hill	53.4	Small grain	55	90	40	0								
2023	Chapel Hill	53.4	Soybean	60	0	20	0	89	47	0	2[g]	0	178	-23	24

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
2024	Chapel Hill	53.4	Corn grain	175	160	70	0	161	83	178	2[g]	13	356	6	151
2025	Chapel Hill	53.4	Small grain	55	90	40	0								
2025	Chapel Hill	53.4	Soybean	60	0	20	0	89	47	0	2[g]	0	356	-23	48
Total	**Chapel Hill**				**575**	**320**	**0**	**576**	**320**	**356**					
2021	Billy Jolley	60.0	Small grain	55	75	0	0								
2021	Billy Jolley	60.0	Soybean	60	0	0	0	78	0	0	3	0	0	-76	-103
2022	Billy Jolley	60.0	Corn grain	175	160	0	0	161	83	178	1	83	178	6	127
2023	Billy Jolley	60.0	Small grain	55	90	0	0								
2023	Billy Jolley	60.0	Soybean	60	0	0	0	88	0	0	1[g]	83	178	-70	24
2024	Billy Jolley	60.0	Corn grain	175	160	0	0	161	83	178	2[g]	166	356	6	151
2025	Billy Jolley	60.0	Small grain	55	90	0	0								
2025	Billy Jolley	60.0	Soybean	60	0	0	0	88	0	0	1[g]	166	356	-70	48
Total	**Billy Jolley**				**575**	**0**	**0**	**576**	**166**	**356**					
2021	Lamb	41.9	Corn grain	175	160	0	70	161	83	178	1	83	108	6	127
2022	Lamb	41.9	Small grain	55	90	0	20								
2022	Lamb	41.9	Soybean	60	0	0	40	88	0	0	1[g]	83	48	-70	24
2023	Lamb	41.9	Corn grain	175	160	0	70	161	83	178	2[g]	166	156	6	151
2024	Lamb	41.9	Small grain	55	90	0	20								
2024	Lamb	41.9	Soybean	60	0	0	40	88	0	0	1[g]	166	96	-70	48
2025	Lamb	41.9	Corn grain	175	160	0	70	161	83	178	2[g]	249	204	6	175
Total	**Lamb**				**660**	**0**	**330**	**659**	**249**	**534**					
2021	E D Waymatic	42.8	Small grain	55	75	40	0								
2021	E D Waymatic	42.8	Soybean	60	0	20	0	76	60	0	1	0	0	-16	-103
2022	E D Waymatic	42.8	Corn grain	175	160	70	0	160	0	0	0	-70	0	-77	-51
2023	E D Waymatic	42.8	Small grain	55	90	40	0								
2023	E D Waymatic	42.8	Soybean	60	0	20	0	90	60	0	0	0	0	-16	-103
2024	E D Waymatic	42.8	Corn grain	175	160	70	0	160	0	0	0	-70	0	-77	-51
2025	E D Waymatic	42.8	Small grain	55	90	40	0								
2025	E D Waymatic	42.8	Soybean	60	0	20	0	90	60	0	0	0	0	-16	-103

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
Total	**E D Waymatic**				**575**	**320**	**0**	**576**	**180**	**0**					
2021	Virginia stahr	20.6	Small grain	55	75	40	0								
2021	Virginia stahr	20.6	Soybean	60	0	20	0	76	60	0	1	0	0	-16	-103
2022	Virginia stahr	20.6	Corn grain	175	160	70	0	162	83	179	2	13	179	6	128
2023	Virginia stahr	20.6	Small grain	55	90	40	0								
2023	Virginia stahr	20.6	Soybean	60	0	20	0	89	47	0	2[g]	0	179	-23	25
2024	Virginia stahr	20.6	Corn grain	175	160	70	0	162	50	106	3[g]	-20	285	-27	80
2025	Virginia stahr	20.6	Small grain	55	90	40	0								
2025	Virginia stahr	20.6	Soybean	60	0	20	0	90	60	0	2[g]	0	285	-16	-23
Total	**Virginia stahr**				**575**	**320**	**0**	**579**	**300**	**285**					
2021	Steve Green	3.9	Corn grain	175	160	0	0	161	83	178	1	83	178	6	127
2022	Steve Green	3.9	Small grain	55	90	0	0								
2022	Steve Green	3.9	Soybean	60	0	0	0	88	0	0	1[g]	83	178	-70	24
2023	Steve Green	3.9	Corn grain	175	160	0	0	161	83	178	2[g]	166	356	6	151
2024	Steve Green	3.9	Small grain	55	90	0	0								
2024	Steve Green	3.9	Soybean	60	0	0	0	88	0	0	1[g]	166	356	-70	48
2025	Steve Green	3.9	Corn grain	175	160	0	0	161	83	178	2[g]	249	534	6	175
Total	**Steve Green**				**660**	**0**	**0**	**659**	**249**	**534**					

Field Nutrient Balance (Non-manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
2021	Nanney Bot	4.9	Soybean	60	0	0	0	0	0	0	0	0	0	-48	-84
2022	Nanney Bot	4.9	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2023	Nanney Bot	4.9	Soybean	60	0	0	0	0	0	0	0	0	0	-48	-84
2024	Nanney Bot	4.9	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2025	Nanney Bot	4.9	Soybean	60	0	0	0	0	0	0	0	0	0	-48	-84
Total	**Nanney Bot**				**320**	**0**	**0**	**320**	**0**	**0**					
2021	Nanney 10 Yr	1.0	Small grain	55	75	80	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
2021	Nanney 10 Yr	1.0	Soybean	60	0	10	0	77	90	0	2	0	0	14	-103
2022	Nanney 10 Yr	1.0	Corn grain	175	160	140	0	162	140	0	2	0	0	77	-51
2023	Nanney 10 Yr	1.0	Small grain	55	90	80	0								
2023	Nanney 10 Yr	1.0	Soybean	60	0	10	0	92	90	0	2	0	0	91	-103
2024	Nanney 10 Yr	1.0	Corn grain	175	160	140	0	162	140	0	2	0	0	154	-51
2025	Nanney 10 Yr	1.0	Small grain	55	90	80	0								
2025	Nanney 10 Yr	1.0	Soybean	60	0	10	0	92	90	0	2	0	0	168	-103
Total	**Nanney 10 Yr**				**575**	**550**	**0**	**585**	**550**	**0**					
2021	Nanney Hills	6.6	Small grain	55	75	0	0								
2021	Nanney Hills	6.6	Soybean	60	0	0	0	78	0	0	3	0	0	-76	-103
2022	Nanney Hills	6.6	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2023	Nanney Hills	6.6	Small grain	55	90	0	0								
2023	Nanney Hills	6.6	Soybean	60	0	0	0	92	0	0	2	0	0	-76	-103
2024	Nanney Hills	6.6	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2025	Nanney Hills	6.6	Small grain	55	90	0	0								
2025	Nanney Hills	6.6	Soybean	60	0	0	0	92	0	0	2	0	0	-76	-103
Total	**Nanney Hills**				**575**	**0**	**0**	**582**	**0**	**0**					
2021	Davis Log	5.1	Small grain	55	75	40	0								
2021	Davis Log	5.1	Soybean	60	0	20	0	76	60	0	1	0	0	-16	-103
2022	Davis Log	5.1	Corn grain	175	160	70	0	162	70	0	2	0	0	-7	-51
2023	Davis Log	5.1	Small grain	55	90	40	0								
2023	Davis Log	5.1	Soybean	60	0	20	0	90	60	0	0	0	0	-16	-103
2024	Davis Log	5.1	Corn grain	175	160	70	0	162	70	0	2	0	0	-7	-51
2025	Davis Log	5.1	Small grain	55	90	40	0								
2025	Davis Log	5.1	Soybean	60	0	20	0	90	60	0	0	0	0	-16	-103
Total	**Davis Log**				**575**	**320**	**0**	**580**	**320**	**0**					
2021	Davis Trailer	2.8	Small grain	55	75	40	0								
2021	Davis Trailer	2.8	Soybean	60	0	20	0	76	60	0	1	0	0	-16	-103
2022	Davis Trailer	2.8	Corn grain	175	160	70	0	162	70	0	2	0	0	-7	-51
2023	Davis Trailer	2.8	Small grain	55	90	40	0								

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
2023	Davis Trailer	2.8	Soybean	60	0	20	0	90	60	0	0	0	0	-16	-103
2024	Davis Trailer	2.8	Corn grain	175	160	70	0	160	0	0	0	-70	0	-77	-51
2025	Davis Trailer	2.8	Small grain	55	90	40	0								
2025	Davis Trailer	2.8	Soybean	60	0	20	0	89	47	0	-1	-13	0	-29	-103
Total	**Davis Trailer**				**575**	**320**	**0**	**577**	**237**	**0**					
2021	Davis B Trailer (C)	2.0	Small grain	55	75	80	0								
2021	Davis B Trailer (C)	2.0	Soybean	60	0	10	0	77	90	0	2	0	0	14	-103
2022	Davis B Trailer (C)	2.0	Small grain cover		0	0	0								
2022	Davis B Trailer (C)	2.0	Corn grain	175	180	140	0	180	0	0	0	-140	0	-63	-51
2023	Davis B Trailer (C)	2.0	Small grain	55	90	80	0								
2023	Davis B Trailer (C)	2.0	Soybean	60	0	10	0	88	90	0	-2	0	0	14	-103
2024	Davis B Trailer (C)	2.0	Small grain cover		0	0	0								
2024	Davis B Trailer (C)	2.0	Corn grain	175	180	140	0	18	46	0	-162	-94	0	-17	-51
2025	Davis B Trailer (C)	2.0	Small grain	55	90	80	0								
2025	Davis B Trailer (C)	2.0	Soybean	60	0	10	0	88	90	0	-2	0	0	14	-103
Total	**Davis B Trailer (C)**				**615**	**550**	**0**	**451**	**316**	**0**					
2021	Butts Tn	2.8	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2022	Butts Tn	2.8	Small grain	55	90	0	0								
2022	Butts Tn	2.8	Soybean	60	0	0	0	92	0	0	2	0	0	-76	-103
2023	Butts Tn	2.8	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2024	Butts Tn	2.8	Small grain	55	90	0	0								
2024	Butts Tn	2.8	Soybean	60	0	0	0	88	0	0	-2	0	0	-76	-103
2025	Butts Tn	2.8	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
Total	**Butts Tn**				**660**	**0**	**0**	**660**	**0**	**0**					
2021	Emily House	3.2	Small grain	55	75	0	20								
2021	Emily House	3.2	Soybean	60	0	0	40	78	0	0	3	0	-60	-76	-103
2022	Emily House	3.2	Corn grain	175	160	0	70	160	0	0	0	0	-70	-77	-51
2023	Emily House	3.2	Small grain	55	90	0	20								
2023	Emily House	3.2	Soybean	60	0	0	40	88	0	0	-2	0	-60	-76	-103
2024	Emily House	3.2	Corn grain	175	160	0	70	160	0	0	0	0	-70	-77	-51

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
2025	Emily House	3.2	Small grain	55	90	0	20								
2025	Emily House	3.2	Soybean	60	0	0	40	88	0	0	-2	0	-60	-76	-103
Total	**Emily House**				**575**	**0**	**320**	**574**	**0**	**0**					
2021	Pruett Pivot	9.0	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2022	Pruett Pivot	9.0	Small grain	55	90	0	0								
2022	Pruett Pivot	9.0	Soybean	60	0	0	0	88	0	0	-2	0	0	-76	-103
2023	Pruett Pivot	9.0	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2024	Pruett Pivot	9.0	Small grain	55	90	0	0								
2024	Pruett Pivot	9.0	Soybean	60	0	0	0	88	0	0	-2	0	0	-76	-103
2025	Pruett Pivot	9.0	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
Total	**Pruett Pivot**				**660**	**0**	**0**	**656**	**0**	**0**					
2021	Pruett S o Road	1.3	Corn grain	175	160	70	70	160	0	0	0	-70	-70	-77	-51
2022	Pruett S o Road	1.3	Small grain	55	90	40	20								
2022	Pruett S o Road	1.3	Soybean	60	0	20	40	89	46	0	-1	-14	-60	-30	-103
2023	Pruett S o Road	1.3	Corn grain	175	160	70	70	160	0	0	0	-70	-70	-77	-51
2024	Pruett S o Road	1.3	Small grain	55	90	40	20								
2024	Pruett S o Road	1.3	Soybean	60	0	20	40	89	46	0	-1	-14	-60	-30	-103
2025	Pruett S o Road	1.3	Corn grain	175	160	70	70	160	0	0	0	-70	-70	-77	-51
Total	**Pruett S o Road**				**660**	**330**	**330**	**658**	**92**	**0**					
2021	Reams	4.3	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2022	Reams	4.3	Small grain	55	90	0	0								
2022	Reams	4.3	Soybean	60	0	0	0	88	0	0	-2	0	0	-76	-103
2023	Reams	4.3	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2024	Reams	4.3	Small grain	55	90	0	0								
2024	Reams	4.3	Soybean	60	0	0	0	88	0	0	-2	0	0	-76	-103
2025	Reams	4.3	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
Total	**Reams**				**660**	**0**	**0**	**656**	**0**	**0**					
2021	David Clark Hom	7.1	Small grain	55	75	0	0								
2021	David Clark Hom	7.1	Soybean	60	0	0	0	78	0	0	3	0	0	-76	-103

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
2022	David Clark Hom	7.1	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2023	David Clark Hom	7.1	Small grain	55	90	0	0								
2023	David Clark Hom	7.1	Soybean	60	0	0	0	92	0	0	2	0	0	-76	-103
2024	David Clark Hom	7.1	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2025	David Clark Hom	7.1	Small grain	55	90	0	0								
2025	David Clark Hom	7.1	Soybean	60	0	0	0	92	0	0	2	0	0	-76	-103
Total	**David Clark Hom**				**575**	**0**	**0**	**582**	**0**	**0**					
2021	Finch	10.2	Small grain	55	75	0	0								
2021	Finch	10.2	Soybean	60	0	0	0	78	0	0	3	0	0	-76	-103
2022	Finch	10.2	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2023	Finch	10.2	Small grain	55	90	0	0								
2023	Finch	10.2	Soybean	60	0	0	0	88	0	0	-2	0	0	-76	-103
2024	Finch	10.2	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2025	Finch	10.2	Small grain	55	90	0	0								
2025	Finch	10.2	Soybean	60	0	0	0	88	0	0	-2	0	0	-76	-103
Total	**Finch**				**575**	**0**	**0**	**574**	**0**	**0**					
2021	Chapel Hill	5.4	Small grain	55	75	40	0								
2021	Chapel Hill	5.4	Soybean	60	0	20	0	76	60	0	1	0	0	-16	-103
2022	Chapel Hill	5.4	Corn grain	175	160	70	0	160	0	0	0	-70	0	-77	-51
2023	Chapel Hill	5.4	Small grain	55	90	40	0								
2023	Chapel Hill	5.4	Soybean	60	0	20	0	89	47	0	-1	-13	0	-29	-103
2024	Chapel Hill	5.4	Corn grain	175	160	70	0	160	0	0	0	-70	0	-77	-51
2025	Chapel Hill	5.4	Small grain	55	90	40	0								
2025	Chapel Hill	5.4	Soybean	60	0	20	0	89	47	0	-1	-13	0	-29	-103
Total	**Chapel Hill**				**575**	**320**	**0**	**574**	**154**	**0**					
2021	Billy Jolley	5.3	Small grain	55	75	0	0								
2021	Billy Jolley	5.3	Soybean	60	0	0	0	78	0	0	3	0	0	-76	-103
2022	Billy Jolley	5.3	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2023	Billy Jolley	5.3	Small grain	55	90	0	0								
2023	Billy Jolley	5.3	Soybean	60	0	0	0	88	0	0	-2	0	0	-76	-103

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
2024	Billy Jolley	5.3	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2025	Billy Jolley	5.3	Small grain	55	90	0	0								
2025	Billy Jolley	5.3	Soybean	60	0	0	0	88	0	0	-2	0	0	-76	-103
Total	**Billy Jolley**				**575**	**0**	**0**	**574**	**0**	**0**					
2021	Lamb	1.8	Corn grain	175	160	0	70	160	0	0	0	0	-70	-77	-51
2022	Lamb	1.8	Small grain	55	90	0	20								
2022	Lamb	1.8	Soybean	60	0	0	40	88	0	0	-2	0	-60	-76	-103
2023	Lamb	1.8	Corn grain	175	160	0	70	160	0	0	0	0	-70	-77	-51
2024	Lamb	1.8	Small grain	55	90	0	20								
2024	Lamb	1.8	Soybean	60	0	0	40	88	0	0	-2	0	-60	-76	-103
2025	Lamb	1.8	Corn grain	175	160	0	70	160	0	0	0	0	-70	-77	-51
Total	**Lamb**				**660**	**0**	**330**	**656**	**0**	**0**					
2021	E D Waymatic	2.5	Small grain	55	75	40	0								
2021	E D Waymatic	2.5	Soybean	60	0	20	0	76	60	0	1	0	0	-16	-103
2022	E D Waymatic	2.5	Corn grain	175	160	70	0	160	0	0	0	-70	0	-77	-51
2023	E D Waymatic	2.5	Small grain	55	90	40	0								
2023	E D Waymatic	2.5	Soybean	60	0	20	0	90	60	0	0	0	0	-16	-103
2024	E D Waymatic	2.5	Corn grain	175	160	70	0	160	0	0	0	-70	0	-77	-51
2025	E D Waymatic	2.5	Small grain	55	90	40	0								
2025	E D Waymatic	2.5	Soybean	60	0	20	0	90	60	0	0	0	0	-16	-103
Total	**E D Waymatic**				**575**	**320**	**0**	**576**	**180**	**0**					
2021	Virginia stahr	0.8	Small grain	55	75	40	0								
2021	Virginia stahr	0.8	Soybean	60	0	20	0	76	60	0	1	0	0	-16	-103
2022	Virginia stahr	0.8	Corn grain	175	160	70	0	160	0	0	0	-70	0	-77	-51
2023	Virginia stahr	0.8	Small grain	55	90	40	0								
2023	Virginia stahr	0.8	Soybean	60	0	20	0	89	47	0	-1	-13	0	-29	-103
2024	Virginia stahr	0.8	Corn grain	175	160	70	0	66	0	0	-94	-70	0	-77	-51
2025	Virginia stahr	0.8	Small grain	55	90	40	0								
2025	Virginia stahr	0.8	Soybean	60	0	20	0	90	60	0	0	0	0	-16	-103

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[a]			Nutrients Applied[b]			Balance After Recs[c]			Balance After Removal[d]	
		ac		per ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	N lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac	P_2O_5 lbs/ac	K_2O lbs/ac
Total	**Virginia stahr**				**575**	**320**	**0**	**481**	**167**	**0**					
2021	Steve Green	0.2	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2022	Steve Green	0.2	Small grain	55	90	0	0								
2022	Steve Green	0.2	Soybean	60	0	0	0	88	0	0	-2	0	0	-76	-103
2023	Steve Green	0.2	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
2024	Steve Green	0.2	Small grain	55	90	0	0								
2024	Steve Green	0.2	Soybean	60	0	0	0	88	0	0	-2	0	0	-76	-103
2025	Steve Green	0.2	Corn grain	175	160	0	0	160	0	0	0	0	0	-77	-51
Total	**Steve Green**				**660**	**0**	**0**	**656**	**0**	**0**					

[a] Fertilizer Recs are the crop fertilizer recommendations. The N rec accounts for any N credit from previous legume crop.

[b] Nutrients Applied are the nutrients expected to be available to the crop from that year's manure applications plus nutrients from that year's commercial fertilizer applications and nitrates from irrigation water. With a double-crop year, the total nutrients applied for both crops and the year's balances are listed on the second crop's line.

[c] For N, Nutrients Applied minus Fertilizer Recs for indicated crop year. Also includes amount of residual N expected to become available that year from prior years' manure applications. For P_2O_5 and K_2O, Nutrients Applied minus Fertilizer Recs *through* the indicated crop year, with positive balances carried forward to subsequent years. Negative values indicate a potential need to apply additional nutrients.

[d] Nutrients Applied minus amount removed by harvested portion of crop through the indicated year. Positive balances are carried forward to subsequent years.

[e] Custom fertilizer recommendation.

[f] Legume crop is assumed to utilize some or all of the supplied N.

[g] Includes residual N expected to become available that year from prior years' manure applications.

3.8. Manure Inventory Annual Summary (Optional)

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Trans-ferred In	Total Applied	Total Exported	Total Trans-ferred Out	On Hand at End of Period	Units
Barn 1	Oct '20 - Sep '21	100,000	720,000	0	0	456,000	0	0	364,000	gal
Barn 2	Oct '20 - Sep '21	100,000	720,000	0	0	459,750	0	0	360,250	gal
All Sources	**Oct '20 - Sep '21**	**200,000**	**1,440,000**	**0**	**0**	**915,750**	**0**	**0**	**724,250**	**gal**
Barn 1	Oct '21 - Sep '22	364,000	720,000	0	0	723,750	0	0	360,250	gal
Barn 2	Oct '21 - Sep '22	360,250	720,000	0	0	711,000	0	0	369,250	gal
All Sources	**Oct '21 - Sep '22**	**724,250**	**1,440,000**	**0**	**0**	**1,434,750**	**0**	**0**	**729,500**	**gal**
Barn 1	Oct '22 - Sep '23	360,250	720,000	0	0	645,000	0	0	435,250	gal
Barn 2	Oct '22 - Sep '23	369,250	720,000	0	0	658,500	0	0	430,750	gal
All Sources	**Oct '22 - Sep '23**	**729,500**	**1,440,000**	**0**	**0**	**1,303,500**	**0**	**0**	**866,000**	**gal**
Barn 1	Oct '23 - Sep '24	435,250	720,000	0	0	795,000	0	0	360,250	gal
Barn 2	Oct '23 - Sep '24	430,750	720,000	0	0	790,500	0	0	360,250	gal
All Sources	**Oct '23 - Sep '24**	**866,000**	**1,440,000**	**0**	**0**	**1,585,500**	**0**	**0**	**720,500**	**gal**
Barn 1	Oct '24 - Sep '25	360,250	720,000	0	0	720,000	0	0	360,250	gal
Barn 2	Oct '24 - Sep '25	360,250	720,000	0	0	583,500	0	0	496,750	gal
All Sources	**Oct '24 - Sep '25**	**720,500**	**1,440,000**	**0**	**0**	**1,303,500**	**0**	**0**	**857,000**	**gal**

3.9. Fertilizer Material Annual Summary (Optional)

Product Analysis	Plan Period	Product Needed Oct - Dec	Product Needed Jan - Sep	Total Product Needed	Units
18-46-0	Oct '20 - Sep '21	38,044	0	38,044	lbs
32-0-0	Oct '20 - Sep '21	0	10,672	10,672	gal
82-0-0	Oct '20 - Sep '21	0	3,320	3,320	gal
18-46-0	Oct '21 - Sep '22	1,000	22,769	23,769	lbs
32-0-0	Oct '21 - Sep '22	0	6,019	6,019	gal
82-0-0	Oct '21 - Sep '22	0	15,071	15,071	gal
18-46-0	Oct '22 - Sep '23	35,799	0	35,799	lbs
32-0-0	Oct '22 - Sep '23	0	12,873	12,873	gal
82-0-0	Oct '22 - Sep '23	0	757	757	gal
18-46-0	Oct '23 - Sep '24	1,000	19,171	20,171	lbs
32-0-0	Oct '23 - Sep '24	0	5,950	5,950	gal
82-0-0	Oct '23 - Sep '24	0	14,199	14,199	gal
18-46-0	Oct '24 - Sep '25	35,376	0	35,376	lbs
32-0-0	Oct '24 - Sep '25	0	12,888	12,888	gal
82-0-0	Oct '24 - Sep '25	0	757	757	gal

3.10. Plan Nutrient Balance (Manure-spreadable Area)

	N (lbs)	P_2O_5 (lbs)	K_2O (lbs)
Total Manure Nutrients on Hand at Start of Plan[a]	7,800	2,820	6,040
Total Manure Nutrients Collected[b]	280,800	101,520	217,440
Total Manure Nutrients Imported[c]	0	0	0
Total Manure Nutrients Exported[d]	0	0	0
Total Manure Nutrients Gained/Lost in Transfer[e]	0	0	0
Total Manure Nutrients on Hand at End of Plan[f]	33,423	12,084	25,881
Total Manure Nutrients Applied[g]	254,962	92,017	197,322
Available Manure Nutrients Applied (Utilized by plan's crops)[h]	181,745	90,692	170,244
Available Manure Nutrients Applied (Not utilized by plan's crops)[i]	1,150	1,325	27,078
Commercial Fertilizer Nutrients Applied (Utilized by plan's crops)[j]	294,030	65,617	0
Commercial Fertilizer Nutrients Applied (Not utilized by plan's crops)[k]	0	0	0
Available Nutrients Applied (Manure and fertilizer; utilized by plan's crops)[l]	475,775	156,309	170,244
Nutrient Utilization Potential[m]	1,003,454	324,672	322,690
Nutrient Balance of Spreadable Acres[n p]	-527,679	-168,363	-152,446
Average Nutrient Balance per Spreadable Acre per Year[o p]	-130	-41	-37

a. Total manure nutrients present in storage at the beginning of the plan.
b. Total manure nutrients collected on the farm.
c. Total manure nutrients imported onto the farm.
d. Total manure nutrients exported from the farm to an external operation.
e. Net change in total manure nutrients due to transfers between storage units with differing analyses.
f. Total manure nutrients present in storage at the end of plan.
g. Total nutrients present in land-applied manure. These values do not account for losses due to rate, timing, and method of application.
h. Manure nutrients applied and available to crops in the plan. These values are based on the total manure nutrients applied after accounting for nutrient losses due to rate, timing, and method of application. Nutrients which will not be utilized by crops in the plan are excluded from these values.
i. Manure nutrients applied that will be utilized by crops outside the plan. This usually results from Fall nutrient applications at the end of the plan intended for crops in subsequent years.
j. Nutrients applied as commercial fertilizers and nitrates contained in irrigation water. Nutrients that will not be utilized by crops in the plan are excluded from these values.
k. Nutrients applied as commercial fertilizer which will be utilized by crops outside the plan.
l. Sum of available manure nutrients applied and commercial fertilizer nutrients applied.
m. Nutrient utilization potential of crops grown. For N the value is based on the N recommendation for non-legume crops and N uptake or other state-imposed limit for N application rates for legumes. P_2O_5 and K_2O values are based on fertilizer recommendations or crop removal (whichever is greater).
n. Available nutrients applied minus crop nutrient utilization potential. Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
o. Average per acre-year nutrient balance. Values are calculated by dividing nutrient balance of spreadable acres by the number of spreadable acres in the plan and by the length of the plan in years. Negative values indicate additional nutrient utilization potential and positive values indicate over-application.

p. Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. For example, plans that include legume crops often will not utilize the full N utilization potential for legume crops if manure can be applied to non-legume crops that require N for optimum yield. Positive values for P_2O_5 and/or K_2O do not necessarily indicate that the plan was developed improperly. For example, producers may be allowed to apply N-based application rates of manure to fields with low soil test P values or fields with a low potential P-loss risk based on the risk assessment tool used by the state. Negative values for P_2O_5 and K_2O indicate that planned applications to some fields are less than crop removal rates or fertilizer recommendations.

Plan Nutrient Balance (Non-manure-spreadable Area)

	N (lbs)	P_2O_5 (lbs)	K_2O (lbs)

	N (lbs)	P_2O_5 (lbs)	K_2O (lbs)
Commercial Fertilizer Nutrients Applied[a]	44,000	5,012	0
Nutrient Utilization Potential[b]	44,352	7,391	2,047
Nutrient Balance of Non-spreadable Acres[c e]	-352	-2,379	-2,047
Average Nutrient Balance per Non-spreadable Acre per Year[d e]	-1	-6	-5

a. Nutrients applied as commercial fertilizers and nitrates contained in irrigation water.
b. Nutrient utilization potential of crops grown based on crop fertilizer recommendations.
c. Commercial fertilizer nutrients applied minus crop nutrient utilization potential. Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
d. Average per acre-year nutrient balance. Values are calculated by dividing nutrient balance of non-spreadable acres by number of non-spreadable acres in plan and by the length of the plan in years. Negative values indicate additional nutrient utilization potential and positive values indicate over-application.

e. Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. Positive values for P_2O_5 and/or K_2O do not necessarily indicate that the plan was developed improperly. For example, multiple year applications may have been planned during the final plan year(s) and these nutrients will not be utilized by crops in the current plan. Negative values for P_2O_5 and K_2O indicate that applications to some fields may have been delayed to allow the producer to apply the nutrients in accordance with their fertilization schedule.

Closure Plan

In the event that Swine production at this location ceases, the following will be done within 360 days:

- All manure in all animal use areas will be removed and spread on the farm or spread elsewhere according to my current Nutrient Management Plan.

- The most current manure analysis will be provided to anyone removing manure from the farm.

- Any dead pigs on the farm will be disposed of at the time of closure according to methods outlined in my current Nutrient Management Plan and or allowable by Tennessee Law.

- Any manure which is land applied will be done so according to the rates discussed in my most recent Nutrient Management Plan.

The following will be completed within a reasonable period as allowable by law using Tennessee Natural Resources Conservation Service (NRCS) Standard Code 360- Closure of Waste Impoundments:

- Any manure storage facility (lagoon) located on the swine farm will be properly decommissioned.

- Any manure currently in storage at the time of closure will be removed and spread on the farm or spread elsewhere according to my current Nutrient Management Plan.

- The lagoon will be breached and backfilled and or converted to freshwater storage according to NRCS standards.

____

Date: _________________________

Record Keeping

This section includes a list of key records that Workman Farms will keep in order to document and verify implementation of the procedures in this CNMP. Records shall be kept for a minimum of 5 years, or for the length of the contract, rotation, or permit, whichever is longer, for each field where manure is applied.

These general records include but are not limited to:

1. Soil Test Results
2. Weather and soil conditions 24 hours prior to, during and 24 hours application of manure, chemicals and pesticides.
3. Type, quantities, and sources of all nutrients generated and collected
4. Type, quantities, and sources of all nutrients applied to each field
5. Dates of manure applications
6. Inspection Reports
7. Operation and Maintenance records of conservation practices and equipment
8. Restricted pesticides used to meet label requirements
9. Equipment Calibration records
10. Crops planted, tillage method and dates planted
11. Crop harvest dates and yield
12. Adjustments to nutrient management plan based on records and changes in farming operations as appropriate
13. Weekly check of volume in pit
14. Annual visual inspection of retention structure (pits), animal holding areas, if applicable and land application areas
15. Records of mortalities and how managed

Declarations to Nutrient Management Plan:

By my signature below, I affirm that I have read, understand, and will comply with the following stipulations from Tennessee's CAFO regulations that apply to my CAFO operation:

1) All animals in confinement are prevented from coming in direct contact with waters of the state.
2) All chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
3) Pesticide-contaminated waters will be prevented from discharging into waste retention structures. Waste from pest control and from facilities used to manage potentially hazardous or toxic chemicals shall be handled and disposed of in a manner that will prevent pollutants from entering waste retention structures or waters of the state.
4) Chemicals, manure/litter, and process wastewater will be managed to prevent spills. Spill clean-up plans will be developed and any equipment needed for spill clean-up will be available to facility personnel.
5) All sampling of soil and manure/litter is conducted according to protocols developed by UT Extension.
6) All records outlined in the permit that I am applying for will be maintained and available on-site.
7) Any confinement buildings, waste/wastewater handling or treatment systems, lagoons, holding ponds, and any other agricultural waste containment/treatment structures constructed or modified after April 13, 2006, are or will be located in accordance with NRCS Conservation Practice Standard 313.
8) A copy of the most recent Nutrient Management Plan will be kept as part of the farm records and will be maintained and implemented as written.
9) If applicable, all waste directed to under floor pits shall be composed entirely of wastewater (i.e. washwater and animal waste).
10) The Tennessee Department of Environment and Conservation Division of Water Resources will be notified of any significant wildlife mortalities near retention ponds or following any land application of animal wastes to fields.
11) All employees involved in work activities that relate to permit compliance will receive regular training on proper operation and maintenance (O&M) of the facility and waste disposal. Training shall include appropriate topics, such as land application of wastes, good housekeeping and material management practices, proper O&M of the facility, record keeping, and spill response and clean up. The periodic scheduled dates for such training shall be identified in the current Nutrient Management Plan.
12) There shall be no land application of nutrients within 24 hours of a precipitation event that may cause runoff. The operator shall not land apply nutrients to frozen, flooded, or saturated soils.

____________________________________ __________________
Signature of CAFO Owner/Operator Date

Operation and Maintenance

Clint Workman is responsible for safe operation and maintenance of the nutrient management plan including all equipment. Operation and maintenance includes the following items:

1. Periodic plan review to determine if adjustments or modifications to the plan are needed. As minimum, plans will be reviewed/revised with each soil test cycle.
2. weekly there will be a visual inspection of pits
3. Calibration of application equipment to ensure uniform distribution of material at planned rates.
4. Documentation of the actual rate at which nutrients were applied. When the actual rates used differ from or exceed the recommended and planned rates, records will indicate the reasons for the differences.
5. Maintaining records to document plan implementation. As applicable, records include
    a. Soil test results and recommendations for nutrient application
    b. Quantities, analysis and sources of nutrients applied
    c. Dates and method of nutrient applications
    d. Crops planted, planting and harvest dates, yields, and residues removed
    e. Results of water, plant and organic byproduct analysis
    f. Dates of review and person performing the review and recommendations
    g. Conservation practices being applied.

Records will be maintained for five years or for a period longer than five years if required by other Federal, state, or local ordinances or program or contract requirements.

The disposal of material generated by the cleaning nutrient application equipment accomplished properly. Excess material should be collected and stored or field applied in an appropriate manner. Excess material should not be applied on areas of high potential risk for runoff and leaching.

The disposal/recycling of nutrient containers should be according to state and local guidelines or regulations.

Pesticides, toxic chemicals, and petroleum products will not be used in areas where leakage could enter the manure storage facility.

Heavy Use Area Protection

The Operation and Maintenance (O&M) plan shall specify that the treatment areas and associated practices will be inspected annually and after significant storm events to identify repair and maintenance needs. The O&M plan shall contain the operational requirements for managing the heavy use area. Planned scraping intervals, replacement of fine material, storage, treatment, and/or utilization methods will also be described. Provisions for re-establishment of vegetated areas will be included. The O&M plan shall detail the level of repairs needed to maintain the effectiveness and useful life of the practice. If using a front-end loader, recommend back dragging the manure/hay to conserve removal of gravel from the surface. Consider using fabricated large equipment tire for scraping surface. The O&M plan shall be provided to, and discussed with, the operator. The O&M plan must complement the Comprehensive Nutrient Management Plan, as necessary.

Composting Facility

An operation and maintenance (O&M) plan shall be developed consistent with the purposes of this standard, its intended life, safety requirements, and the criteria for its design. The O&M plan shall include recipe ingredients and sequence that they are layered and mixed, maximum and minimum temperature for operation, land application rates, moisture level, management of odors, testing, etc. Make adjustments throughout the composting period to ensure proper composting processes. The compost facility should be inspected regularly when the facility is empty. Replace deteriorated wooden materials or hardware. Patch concrete floors and curbs as necessary to assure water tightness. Roof structures should be examined for structural integrity and repaired as needed. Exposed metal components should be inspected for corrosion. Corroded metal should be wire brushed and painted as necessary. Closely monitor temperatures above 165ºF. Take action immediately to cool piles that have reached temperatures above 185ºF. The operation and maintenance plan shall state that composting is a biological process. It requires a combination of art and science for success. Hence, the operation may need to undergo some trial and error in the start-up of a new composting facility.

Nutrient Management (590)

The owner/client is responsible for safe operation and maintenance of the nutrient management plan including all equipment. Operation and maintenance addresses the following:

1. Periodic plan review to determine if adjustments or modifications to the plan are needed. As a minimum, plans will be reviewed/revised with each soil test cycle.
2. Protection of fertilizer and organic byproduct storage facilities from weather and accidental leakage or spillage.
3. Calibration of application equipment to ensure uniform distribution of material at planned rates.
4. Documentation of the actual rate at which nutrients were applied. When the actual rates used differ from or exceed the recommended and planned rates, records will indicate the reasons for the differences.
5. Maintaining records to document plan implementation. As applicable, records include:

    soil test results and recommendations for nutrient application,
    quantities, analyses and sources of nutrients applied,
    dates and method of nutrient applications,

crops planted, planting and harvest dates, yields, and residues removed,
results of water, plant, and organic byproduct analyses, and
dates of review and person performing the review, and recommendations.

Records should be maintained for five years or for a period longer than five years if required by other Federal, state, or local ordinances, or program or contract requirements. Workers shall be protected from and avoid unnecessary contact with chemical fertilizers and organic by-products. Protection should include the use of protective clothing when working with plant nutrients. Extra caution must be taken when handling ammonia sources of nutrients, or when dealing with organic wastes stored in unventilated enclosures. The disposal of material generated by the cleaning nutrient application equipment should be accomplished properly. Excess material should be collected and stored or field applied in an appropriate manner. Excess material should not be applied on areas of high potential risk for runoff and leaching. The disposal/recycling of nutrient containers should be according to state and local guidelines or regulations.

Residue and Tillage Management No-Till (329)

Crops grown in the planned cropping sequence will yield adequate residue cover amounts as stated in the conservation plan for the farming operation.

UT Extension
W252

Land-filling Large Animal Mortalities in Tennessee

Shawn Hawkins, Assistant Professor, and Forbes Walker, Associate Professor
Biosystems Engineering and Soil Science

Land-filling can be an inexpensive (≈ $35/ton) and sometimes convenient disposal option for large animal mortalities, particularly if on-farm burial is not feasible. However, an accommodating landfill must be nearby. Most beef and dairy producers and horse owners don't know which landfills accept dead livestock. This publication provides a map (Figure 1) and phone numbers (Table 1) for Tennessee's Class 1 landfills that are allowed to accept dead animals. University of Tennessee Extension faculty contacted these landfills in fall 2010; the symbols in Figure 1 indicate which landfills will likely accept deadstock (many refuse to accept large animal carcasses, probably because of placement and covering regulations or odor concerns). The shaded counties in Figure 1 currently participate in a pickup and landfill disposal service with Appertain Corporation (931-363-8284). Otherwise, the landfills generally don't provide on-farm pickup, so you'll probably have to make arrangements to transport the carcass to the landfill. Call ahead to verify acceptance and follow these simple guidelines:

1. Transport the dead animal to the landfill as soon as possible, preferably within 48 hours.
2. Make sure the animal is completely and securely covered with a tarp during transport.
3. Schedule the carcass delivery early in the morning for discreet offloading.
4. Have a disposable but sturdy rope tied to the carcass for quick offloading.

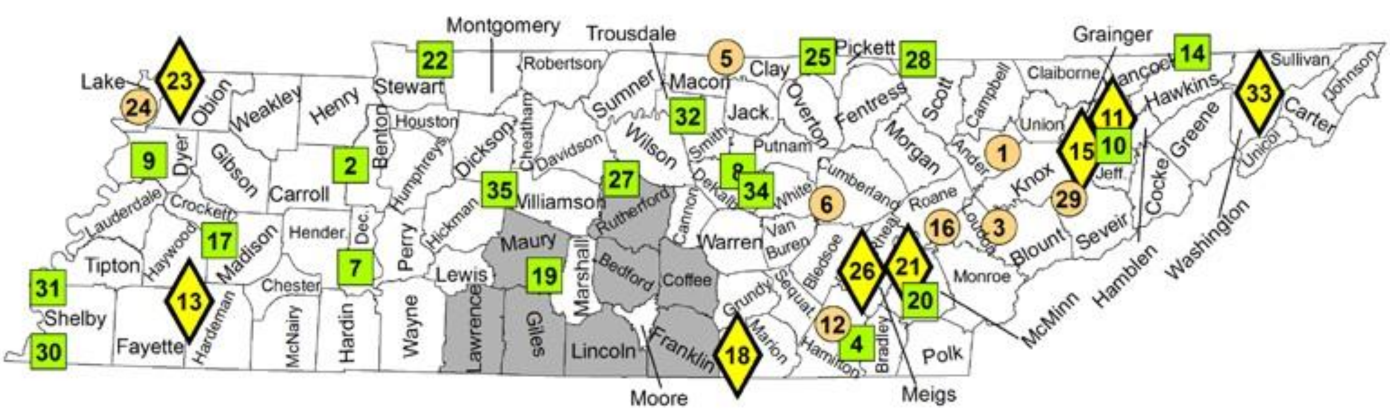


Figure 1. Tennessee's Class I landfills.

Squares, diamonds and circles denote landfills that will readily accept deadstock, those with restrictions (for example, only accepting from in-county farms) and those unlikely to accept deadstock, respectively. The shaded counties participate in a pickup and landfill disposal service with Appertain Corporation. For more detailed information on mortality disposal options, go to: http://wastemgmt.ag.utk.edu/.

Table 1. Contact information for Tennessee's Class 1 landfills

No.	County	Name	Phone Number
1	Anderson	Chestnut Ridge Landfill And Recycling Center	865-457-7810
2	Benton	West Camden Sanitary Landfill	731-584-7734
3	Blount	Alcoa /Maryville/ Blount Co. Class I Landfill	865-995-2892
4	Bradley	Bradley County Class I Landfill	423-476-8118
5	Clay	Upper Cumberland Landfill	931-258-3954
6	Cumberland	Cumberland County Landfill	931-788-6127
7	Decatur	Decatur Landfill	731-549-3567
8	DeKalb	Dekalb County Landfill	931-761-5588
9	Dyer	Dyersburg City Landfill	731-286-0450
10	Hamblen	Morristown Balefill Landfill	423-585-4805
11	Hamblen	Lakeway Sanitation And Recycling, Inc. Landfill	423-581-5655
12	Hamilton	City Of Chattanooga Landfill	423-344-9737
13	Hardeman	Bolivar-Hardeman County Landfill	731-658-6138
14	Hawkins	Carter Valley Landfill	423-357-6777
15	Jefferson	Jefferson County Landfill	865-397-3544
16	Loudon	Loudon County Landfill	865-458-2651
17	Madison	Madison County Development, LLC	901-872-7258
18	Marion	Marion County Landfill	423-942-8011
19	Marshall	Cedar Ridge Landfill, Inc.	931-270-0950
20	McMinn	Mcminn County Landfill	423-745-3244
21	McMinn	Meadow Branch Landfill Inc	423-745-6396
22	Montgomery	Bi-County Snl Balefill	931-648-5751
23	Obion	Northwest Tennessee Disposal Company	731-885-1941
24	Obion	Alan's Industrial Services Inc	731-264-5316
25	Pickett	Pickett County Landfill	931-864-3158
26	Rhea	Rhea County Class I Landfill	423-570-8920
27	Rutherford	BFI Middle Point Landfill	615-896-2075
28	Scott	Volunteer Regional Landfill	423-569-5702
29	Sevier	Sevier Solid Waste Inc.	865-453-5676
30	Shelby	BFI South Shelby Landfill	901-794-8071
31	Shelby	BFI North Shelby Landfill	901-794-3800
32	Smith	Smith County Landfill	615-735-1941
33	Washington	Iris Glen Environmental Center	423-926-8375
34	White	White County Landfill	931-761-7441
35	Williamson	Williamson County Landfill	615-790-0742

THE UNIVERSITY of TENNESSEE

Sampling Farm Fields

Divide fields to be sampled into production areas (of 10 acres or less) based on uniform soil type, fertilization and management history. Sandy or eroded areas, and problem areas of obviously different plant growth responses should also be sampled separately -- provided the area is sufficiently large enough to be treated differently with lime or fertilizer.

From your local county Extension office, obtain a soil sample box for **each** production area, and submit a Soil and Media Test Information Sheet,* for each **ten** production areas.

For each production area that you have identified:

1. Collect a composite soil sample by moving through the area in a zig-zag pattern; sampling at a minimum of 20 locations. This sampling procedure should be random with respect to any existing cropping row. In continuous no-till production fields, be sure to vary distance from the row for each sub-sample collected. In continuous no-till fields or where fertilizer has been banded, increasing the number of sub-samples to 30 or 40 will increase precision of the results.

2. Move surface litter aside. Each sub-sample should be obtained by using a soil tube, trowel or spade. For determination of plant nutrients, take soil samples to a depth of 6 inches. For organic matter determination, sample to the depth of 2 inches.

3. Combine each sub-sample in a clean bucket as you move through the production area. Do not use a galvanized bucket if Zn is to be determined. Thoroughly mix the sub-samples into one composite sample. If the soil is exceptionally wet, you may have to let it air dry on a paper plate before it can be properly mixed (wet soil can also dramatically increase shipping costs and weaken shipping containers). DO NOT use heat to dry a soil sample as heat may change your results.

4. From this composite sample remove enough soil (about a cup) to fill a soil sample box. Adequately mark the box to identify the selected production area location represented by that soil sample and keep this record in a safe place for later referral.

5. For the PSNT soil test, sample to a depth of 12 inches when corn is 6 to 12 inches tall. Height should be measured from the ground to bottom of the whorl (4-6 fully mature leaves present).

6. For container media analysis, medium should be sampled before posting by removing several portions from the mix and blending thoroughly. For established plantings, select 8 to 10 pots that are representative of the medium used. Scrape away the top one-fourth inch of each pot including slow-release fertilizer pellets and discard. Mix samples being careful not to crush any remaining fertilizer pellets. Completely fill **two** soil sample boxes for container media analysis.

Send soil sample(s), Soil and Media Information Sheet(s), and appropriate fees to the Soil, Plant and Pest Center (see address and fee information on the Soil and Media Information Sheet). Fees can also be paid by credit card using the secure UT Institute of Agriculture eMarketplace site. Click here to pay online.

Livestock Waste Management and Conservation

Procedures for Manure and Litter Sampling

(Class I & II – Large and Medium CAFOs)

Tennessee CAFO Factsheet #14

Kristy M. Hill, Extension Dairy Specialist
Animal Science Department

Nutrient composition of manure varies with a number of factors, including animal type, bedding, ration, storage and handling, environmental conditions, field application method, age of manure, timing of sampling and sampling technique. This variability makes book values (or averages) an unreliable source for determining application rates of nitrogen, phosphorus and potassium. Each livestock production operation and manure management system is unique, and an individual farm's manure analysis can vary from average values by 50 percent or more. Testing manure may better indicate how animal management and other factors actually affect nutrient contents and will allow for more accurate calculation of application rates.

The results of a manure analysis are only as reliable as the sample taken. A representative sample is needed to accurately reflect the nutrient content. However, obtaining a representative sample can be a challenge as manure nutrient content is not uniform within storage structures. Mixing and sampling strategies can insure that samples more accurately reflect the type of manure that will be applied.

When to Sample

The ideal time to sample manure is prior to application to ensure that results of the analysis are received in time to adjust nutrient application rates.

However, do not allow long periods of time to pass before application begins, because there can be storage and handling losses over time. Sampling several days to a week prior to application is best. However, a complication of the timing of the sampling is that semi-solid (or slurry) manure should be well agitated before sampling, and in many situations, such as contracting waste application to a third party, agitators or other necessary equipment are not available until application begins. In cases such as this, "pre-sampling" (dipping samples off the top of the storage structure for N and K concentrations) can be used to estimate application rates (See page 4 for more info on pre-sampling).

Building a "bank" of manure analysis over time can be quite useful in the future as long as animal management practices, feed rations or manure storage and handling methods do not drastically change from present methods. If samples do not vary greatly from year to year or are consistent during spring or fall applications, the "bank" averages will help estimate application rates if an analysis cannot be performed prior to application.

Safety Precautions

It is more dangerous and more difficult to sample from liquid storage facilities than dry-manure systems. Proper precautions should be taken to prevent accidents, such as falling into the storage facility or being overcome by manure gases.

1. Have two people present at all times;
2. Never enter confined manure-storage spaces without appropriate safety gear, such as a self-contained breathing apparatus;
3. When agitating a storage pit below a building, be sure to provide adequate ventilation for both humans and animals; and
4. When agitating outdoor pits, monitor activities closely to prevent erosion of berms or destruction of pit liners.

Sample Preparations

1. Check with the laboratory performing the analysis, as most of these labs have plastic bottles available for liquid sample collection or sealable plastic bags for dry samples (freezer bags work well). Additionally, they may have specific sample collection procedures, including holding times, refrigeration and shipping requirements.
2. Do not use glass containers, as expansion of the gases in the sample can cause the container to break.
3. Never use galvanized containers for collection or mixing due to the risk of contamination from metals like zinc in the container.
4. When taking liquid samples from facilities spreading both effluent and solids, the manure should be agitated for two to four hours before taking the sample.
5. Liquid samples can be taken during agitation (after two to four hours have passed) because most agitation equipment is effective 75 to 100 feet away from the equipment.
6. Take multiple samples from the storage facility and mix them together thoroughly in a larger bucket to obtain a representative sample. For liquid or semi-solid samples, use a stirring rod to get the solids spinning in suspension and collect the representative sample while the liquid is still spinning.
7. When taking liquid samples, fill the plastic bottle three-fourths full and leave at least 1 inch of air space to allow for gas expansion.
8. When taking dry samples, squeeze all of the excess air from the sealable plastic bag to allow for gas expansion and place the first bag into a second sealable plastic bag to prevent leaks.
9. Label the plastic bags or bottles prior to sampling with your name, date and sample identification number. Use a waterproof pen.
10. After sampling, place the container(s) in the refrigerator or freezer (preferred) until mailed to the lab. Cooling the samples will reduce microbial activity, chemical reactions and reduce odors.
11. Ship samples early in the week (Monday–Wednesday) using an overnight service. Avoid holidays and weekends.

Sampling Semi-Solid and Liquid Manure from Storage Facilities

Manure with 10 to 20 percent solids is classified as semi-solid manure and can usually be handled as a liquid. Semi-solid manure usually requires the use of chopper pumps to provide thorough agitation before pumping. Liquid manure is manure with less than 10 percent solids and is handled with pumps, pipes, tank wagons or irrigation equipment (if less than 5 percent solids).

If all contents of the entire semi-solid or liquid storage facility will be applied, complete agitation (2-4 hours minimum) is required to accurately sample the manure because in liquid and semi-solid systems, settled solids can contain more than 90 percent of the phosphorus. However, if solids will be purposefully left on the bottom when the storage structure is pumped out, as is sometimes the case with lagoons, then complete agitation during sampling will generate artificially high nutrient values. In this case, agitation of the solids or sludge at the bottom of the lagoon is not needed for nutrient analysis, and premixing the surface liquid in the lagoon is not needed.

Methods of Sampling:

Several different methods may be used to sample liquid or semi-solid manure from storage facilities:

1. Use a plastic sampling cup with a 10- to 12-foot handle to obtain surface water samples (see Figure 1). Collect about a pint of sample from several locations (six to eight) around the perimeter of the storage unit about 6 feet from the bank and 12 inches below the surface. Avoid floating debris or scum. Pour each of the samples into a clean plastic bucket and mix well. Pour representative sample in plastic container for shipping. *(Chastain, 2003)*
2. Throw a small plastic bucket tied to a long rope out towards the middle of the storage unit while holding onto the rope. Begin pulling the bucket back to the bank as soon as it strikes the surface. Make sure the bucket is raised above the surface before it strikes the bank. Pour each sample into a larger plastic bucket, and repeat this procedure at four to six locations evenly spaced around the perimeter of the storage unit. Mix all samples well and pour representative sample into a plastic container for shipping. *(Chastain, 2003)*
3. Samples may also be taken using a probe or a tube. They can be constructed out of a 1½-inch diameter PVC pipe. Cut the PVC pipe a foot longer than the depth of the pit. Run a ¼-inch rod or string through the length of the pipe and attach a plug such as a rubber stopper or rubber ball (see Figure 2). The rod or the string must be longer than the pipe. If using a rod, bend the top over to prevent it from falling out of the pipe. The probe should be slowly inserted into the pit or lagoon with the stopper open, to the full depth of the pit. Pull the string or rod to close the bottom of the pipe and pull the probe out of the pit, being careful not to tip the pipe and dump the sample. Release the sample into a large plastic bucket and repeat the process at least three times around the pit. Mix all samples well and pour a representative sample into a plastic container for shipping. *(Rieck-Hinz, 2003)*

Figure 1.

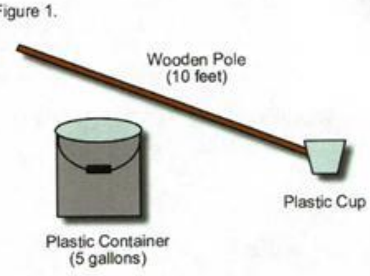
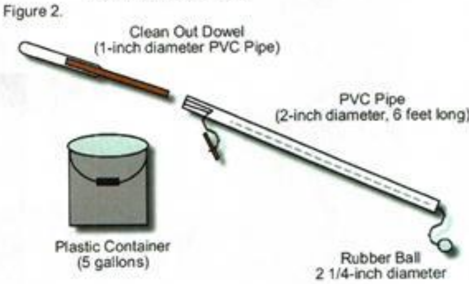


Figure 2.



Sampling Semi-Solid and Liquid Manure during Land Application with Tank Wagons

Settling begins as soon as agitation stops, so samples should be collected as soon as possible after the manure tank wagon is filled, unless the tanker has an agitator. Be sure the port or opening does not have a solids accumulation from prior loads. Collect samples in a plastic bucket from the loading or unloading port or the opening near the bottom of the tank. Stir the sample in the bucket to get the solids in suspension. Remove a ladle full while the liquid is still spinning and pour into the sample bottle. Repeat these steps until the sample bottle is three quarters full.

Sampling Liquid Manure during Land Application with Irrigation Systems

Place plastic buckets randomly at different distances from the sprinkler head in the field to collect the liquid manure that is being applied by an irrigation system. Immediately after manure has been applied, collect manure from the buckets and combine them into one container. Stir the collective sample, remove a ladle full while the liquid is still spinning and pour into the sample bottle.

Pre-Sampling Nitrogen and Potassium from Liquid Manure Systems

If liquid systems cannot be agitated prior to application and a sample is needed to estimate application rates, manure samples can be dipped off the top of the stored liquid manure to analyze for N and K concentrations. Research indicates that the top-dipped liquid represents approximately 90 percent of the N concentration measured in mixed, field-collected samples. Multiply the results of the N concentration from top-dipped samples by 1.1 for a better estimate of N. Dipping a sample from the surface of a liquid storage pit does NOT provide a good estimate of P concentrations in the pit, so use of the P analysis from top-dipped samples is not recommended. Therefore, if application is limited to a P-based application rate, pre-sampling is not recommended. Producers who take these types of samples should remember to take additional samples during application to calculate the actual amount of nutrients applied and use to adjust commercial fertilizer application. *(Rieck-Hinz, 2003)*

Sampling Dry or Solid Manure

Solid manure systems will include fecal matter, urine, bedding and feed. They can vary from one location to another within the same production operation and from season to season. Sampling of dry or solid manure is best done in the field during application, because it will take into account losses that occur during handling and application. Manure is better mixed during application than during storage. Results will not be available in time to adjust application rates; however, sampling will allow producers to adjust any future commercial fertilizer rates and manure application in subsequent years. If a sample must be taken prior to application to estimate application rates, be sure to take samples from various places in the manure pile, stack or litter to obtain a representative sample for analysis. It may even be beneficial to take samples several times during the year because of the variation in bedding content.

Methods of Sampling:

As with liquid or semi-solid systems, many different methods can be used to obtain a representative sample. The method chosen will depend on the type of solid system used on the farm. Sub-samples can be taken with a shovel, pitchfork or soil probe. Regardless of the method of sampling, a composite sample will need to be taken from all of the samples to ensure it represents the entire manure used for application. To obtain a composite sample, place all sub-samples (the more sub-samples, the more accurate the results) in a pile and mix with a shovel by continuously scooping from the outside of the pile to the center of the pile until well mixed. Fill a one-gallon plastic Zip-lock® freezer bag (or the bag provided by the laboratory) one-half full with the composite sample by turning the bag inside out over one hand. With the covered hand, grab representative handfuls of manure and turn the freezer bag right side out over the sample with the free hand. Squeeze out the excess air, close, seal and store sample in another plastic sealable bag in the freezer until mailed. *(Rieck-Hinz, 2003)*

1. *Sampling poultry litter in-house:* Collect 10 to 15 sub-samples from throughout the house to the depth the litter will be removed. Cake litter samples should be taken at the depth of cake removal. The number of samples taken near feeders or waterers should be proportionate to their space occupied in the whole house. *(LPES)*
2. *Sampling stockpiled manure, litter or compost:* Ideally, stockpiled material should be stored under cover on an impervious surface. The exterior of uncovered waste may not accurately represent the majority of the material because rainfall moves water-soluble nutrients down into the pile. If an uncovered stockpile is used over an extended period of time, it should be sampled before each application. Take 10 sub-samples from different locations around the pile at least 18 inches below the surface. *(LPES)*
3. *Sampling from a bedded pack:* It is recommended that samples from a bedded pack be taken during loading. Take at least five sub-samples while loading several spreader loads. *(Peters, 2003)*
4. *Sampling daily hauls:* Place a five-gallon pail under the barn cleaner 4 to 5 times while loading a spreader. *(Peters, 2003)*
5. *Sampling scrape-and-haul feedlots:* Facilities where manure accumulates on paved feedlots and is scraped and hauled to the field daily or several times during the week are referred to as scrape-and-haul feedlots. Sub-samples can be collected by scraping a shovel across approximately 25 feet of the paved feedlot. This process should be repeated 10 or more times, taking care to sample in a direction that slices through the variations of moisture, bedding, depth, age, etc. Avoid excessively wet areas and areas with large amounts of hay or feed. Several composite samples may be needed for this type of facility. *(Rieck-Hinz, 2003)*
6. *Sampling during spreading or land application:* Spread a sheet of plastic or a tarp in the field and drive the tractor and spreader over the top of the plastic to catch the manure from one pass of the spreader. Samples should be collected to represent the first, middle and last part of the storage facility or loads applied and should be correlated as to which loads are applied on each field to track changes in nutrient content throughout the storage facility. *(Rieck-Hinz, 2003)*

References

Peters, John. (ed.) 2003. **Recommended Methods of Manure Analysis**. University of Wisconsin Extension. A3769.

Rieck-Hinz, A., J. Lorimor, T. Richard, and K. Kohl. 2003. **How to Sample Manure for Nutrient Analysis**. Iowa State University Extension. PM1558.

Chastain, J.P. 2003. **Manure Sampling Procedures.** South Carolina Confined Animal Manure Managers Certification Program. Clemson Extension.

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Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development.
University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating.
UT Extension provides equal opportunities in programs and employment.

Soil Test Summary

Clark/Workman

Farm: CW Farms

Field: Butts Tn

Area: 67.58

Sample Date: Oct 28, 2019

Lab Name: Waters KY

SampleID	pH	P	K	B	S	Zn	CEC	KSat	MgSat	CaSat	OM
none	none	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	meq/100g	percent	percent	percent	percent
1	5.8	53	363				13.8	3.4	9.5	66.2	2.2
2	5.4	40	581				9.2	8.0	7.6	57.6	1.5
3	7.1	518	724				19.6	4.7	6.1	80.5	2.0
4	5.9	165	475				10.6	5.7	6.4	68.2	1.7
5	6.7	50	423				18.8	2.9	9.6	74.2	2.2
6	6.7	53	456	0.8	18	8.1	13.8	4.2	8.1	75.5	1.9
7	6.5	41	259				14.8	2.2	8.9	71.7	2.1
8	5.3	32	366				12.6	3.7	9.2	57.9	2.0
9	5.6	85	339				11.1	3.9	10.0	60.2	1.4
10	6.1	68	366				11.6	4.0	8.7	69.4	1.8
11	6.0	216	864				17.3	6.4	9.0	65.4	3.0
12	6.7	67	482				15.5	4.0	9.7	70.3	2.1
13	7.1	49	321	0.5	18	2.2	14.2	2.9	8.8	73.7	2.0
14	5.7	43	584				15.0	5.0	9.2	61.4	2.3
15	5.7	49	464				14.9	4.0	10.6	60.8	2.2
Average:	6.2	102	471	0.7	18	5.2	14.2	4.3	8.8	67.5	2.0

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Soil Test Summary

Clark/Workman

Farm: CW Farms

Field: Chapel Hill

Area: 60.15

Sample Date: Dec 26, 2018

Lab Name: Waters KY

SampleID	pH	P	K	B	S	Zn	CEC	KSat	MgSat	CaSat	OM
none	none	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	meq/100g	percent	percent	percent	percent
1	6.3	37	217				16.2	1.7	11.1	72.4	2.6
2	6.8	111	246				13.0	2.4	7.7	77.6	2.1
3	6.5	53	210				13.6	2.0	9.2	74.0	2.4
4	7.2	137	315				16.2	2.5	6.6	81.0	2.5
5	6.6	44	355				9.7	4.7	6.0	72.8	1.9
6	7.1	43	198				11.0	2.3	7.0	79.7	1.8
7	6.3	57	172				11.8	1.9	8.3	76.4	2.1
8	7.0	44	227	0.7	17	2.0	10.6	2.7	7.4	78.6	1.7
9	6.4	28	259				11.1	3.0	8.0	71.0	2.1
10	6.6	52	263				11.5	2.9	10.3	72.8	2.0
11	6.5	43	301				14.8	2.6	10.4	73.5	2.3
Average:	6.7	59	251	0.7	17	2.0	12.7	2.6	8.4	75.4	2.1

Soil Test Summary

Clark/Workman

Farm: CW Farms

Field: Davis Behind Trailer

Area: 19.88

Sample Date: Oct 28, 2019

Lab Name: Waters KY

SampleID	pH	P	K	B	S	Zn	CEC	KSat	MgSat	CaSat	OM
none	none	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	meq/100g	percent	percent	percent	percent
1	5.6	41	249				13.7	2.3	14.7	64.4	1.8
2	5.7	45	229				12.1	2.4	10.2	63.2	2.0
3	6.2	18	252	0.4	15	1.9	14.5	2.2	12.1	68.5	1.9
4	5.4	17	328				13.6	3.1	12.5	60.4	2.0
5	5.6	20	256				8.8	3.7	8.7	59.6	1.7
Average:	5.7	28	263	0.4	15	1.9	12.5	2.7	11.6	63.2	1.9

WORKMAN CONSULTING

Soil Test Summary

Clark/Workman

Farm: CW Farms

Field: Davis Front of Trailer

Area: 36.78

Sample Date: Oct 28, 2019

Lab Name: Waters KY

SampleID none	pH none	P lbs per acre (st)	K lbs per acre (st)	B lbs per acre (st)	S lbs per acre (st)	Zn lbs per acre (st)	CEC meq/100g	KSat percent	MgSat percent	CaSat percent	OM percent
1	6.6	58	204				14.3	1.8	15.6	68.8	1.9
2	5.6	20	309				14.8	2.7	10.5	59.2	1.6
3	6.0	39	371				10.6	4.4	7.3	68.8	1.8
4	6.0	18	342	0.4	20	2.2	13.5	3.2	11.7	63.9	2.0
5	5.9	43	436				9.6	5.8	8.3	60.3	1.6
6	6.2	22	412				12.4	4.2	9.4	60.1	1.9
7	5.5	78	426				11.3	4.8	9.2	53.5	1.8
8	5.8	67	377				8.7	5.5	8.2	62.7	1.7
Average:	6.0	43	360	0.4	20	2.2	11.9	4.1	10.0	62.2	1.8

WORKMAN CONSULTING

Soil Test Summary

Clark/Workman

Farm: CW Farms

Field: Davis Log Cabin

Area: 67.69

Sample Date: Oct 28, 2019

Lab Name: Waters KY

SampleID	pH	P	K	B	S	Zn	CEC	KSat	MgSat	CaSat	OM
none	none	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	meq/100g	percent	percent	percent	percent
1	5.8	43	367				13.1	3.6	10.8	66.7	2.0
2	6.4	54	418				13.1	4.1	6.5	73.5	2.0
3	5.9	38	362				12.4	3.7	7.8	68.5	2.0
4	6.1	30	345				13.8	3.2	10.0	71.6	1.7
5	5.6	59	434				9.3	5.9	7.5	59.9	1.8
6	5.3	58	404	0.5	32	7.2	10.6	4.9	9.6	54.6	2.0
7	4.9	53	328				12.4	3.4	14.0	49.8	1.9
8	5.3	61	285				12.6	2.9	12.9	55.1	1.8
9	5.5	48	266				12.9	2.6	10.5	61.5	2.3
10	6.8	73	307				12.6	3.1	14.6	68.7	2.1
11	5.6	27	263				9.8	3.4	7.9	63.4	1.4
12	6.1	16	235	0.4	15	1.4	12.8	2.3	10.3	68.1	1.9
13	5.6	51	412				12.6	4.2	9.2	60.8	2.1
14	5.7	30	246				13.5	2.3	11.5	61.9	2.0
15	5.7	17	250				11.9	2.7	10.9	65.7	1.9
Average:	5.8	44	328	0.5	24	4.3	12.2	3.5	10.3	63.3	1.9

WORKMAN CONSULTING

Soil Test Summary

Clark/Workman
Farm: CW Farms
Field: Elisabeth Davis Waymatic
Area: 51.85
Sample Date: Nov 04, 2019
Lab Name: Waters KY

SampleID	pH	P	K	B	S	Zn	CEC	KSat	MgSat	CaSat	OM
none	none	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	meq/100g	percent	percent	percent	percent
1	5.5	40	143				7.8	2.3	6.2	64.4	1.7
2	5.4	38	195				11.1	2.3	11.2	67.2	1.8
3	5.2	27	240				13.6	2.3	18.3	57.6	1.9
4	6.1	15	133				11.1	1.5	8.9	70.3	1.5
5	4.7	100	253	0.5	27	2.2	7.8	4.2	7.7	40.0	1.6
6	5.2	31	234				12.4	2.4	9.4	54.8	1.6
7	5.9	26	297				12.5	3.0	10.6	69.3	1.6
8	6.4	38	267				13.9	2.5	10.3	72.0	1.9
9	5.7	35	264				12.9	2.6	11.7	66.1	2.3
10	5.8	34	232				10.4	2.9	6.9	69.8	1.5
11	6.3	31	197				12.6	2.0	9.2	75.2	1.9
12	5.7	32	236				12.3	2.5	9.5	67.7	1.7
Average:	5.7	37	224	0.5	27	2.2	11.5	2.5	10.0	64.5	1.8

Soil Test Summary

Clark/Workman

Farm: CW Farms

Field: Lamb

Area: 46.79

Sample Date: Jan 11, 2019

Lab Name: Waters KY

SampleID	pH	P	K	B	S	Zn	CEC	KSat	MgSat	CaSat	OM
none	none	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	meq/100g	percent	percent	percent	percent
1	6.4	33	298				12.6	3.0	14.6	60.1	2.6
2	6.3	31	120				12.5	1.2	33.1	40.2	0.9
3	6.1	31	125				9.2	1.7	12.2	64.2	1.3
4	6.5	34	140				12.1	1.5	12.1	69.9	1.6
5	7.0	81	152				12.4	1.6	10.0	75.5	1.6
6	7.5	147	180	1.1	20	6.0	12.4	1.9	13.0	69.0	1.3
7	6.7	65	147				10.1	1.9	8.1	78.1	1.6
8	6.4	94	245				10.6	3.0	10.7	67.5	1.8
9	6.6	92	217				10.6	2.6	9.6	72.8	1.5
10	6.8	54	210				11.9	2.3	11.7	69.2	1.6
Average:	6.6	66	183	1.1	20	6.0	11.4	2.1	13.5	66.7	1.6

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WORKMAN CONSULTING

Soil Test Summary

Clark/Workman
Farm: CW Farms
Field: Nanney 10 yr

Area: 22.90
Sample Date: Oct 28, 2019
Lab Name: Waters KY

SampleID none	pH none	P lbs per acre (st)	K lbs per acre (st)	B lbs per acre (st)	S lbs per acre (st)	Zn lbs per acre (st)	CEC meq/100g	KSat percent	MgSat percent	CaSat percent	OM percent
1	5.9	29	217				14.1	2.0	9.3	62.6	2.3
2	6.1	21	420				15.3	3.5	10.6	69.8	2.8
3	6.0	12	246	0.5	23	2.6	14.1	2.2	11.5	65.9	2.1
4	5.6	21	349				15.7	2.8	11.8	57.0	2.4
5	6.2	40	148				13.0	1.4	7.4	68.8	2.6
Average:	6.0	25	276	0.5	23	2.6	14.4	2.4	10.1	64.8	2.4

Soil Test Summary

Clark/Workman

Farm: CW Farms

Field: Nanney Bottom

Area: 80.89

Sample Date: Oct 28, 2019

Lab Name: Waters KY

WORKMAN CONSULTING

SampleID none	pH none	P lbs per acre (st)	K lbs per acre (st)	B lbs per acre (st)	S lbs per acre (st)	Zn lbs per acre (st)	CEC meq/100g	KSat percent	MgSat percent	CaSat percent	OM percent
1	5.3	89	248				6.3	5.0	5.5	56.9	1.4
2	6.1	118	371				7.5	6.3	6.1	65.3	1.2
3	5.6	123	412				7.2	7.2	6.5	57.7	1.5
4	5.7	130	356				7.4	6.1	6.0	71.0	1.4
5	5.5	82	324				5.9	7.0	6.9	57.9	1.2
6	6.3	46	198				9.5	2.7	8.3	71.5	1.7
7	6.4	54	216	0.5	17	7.4	12.3	2.2	7.4	73.5	1.7
8	5.7	53	219				9.5	2.9	7.9	67.6	1.6
9	6.3	50	160				8.5	2.4	6.1	76.6	1.5
10	6.6	107	354				9.1	4.9	5.5	75.7	1.3
11	5.9	50	340				10.7	4.0	8.0	64.9	1.8
12	5.4	64	291				7.4	5.0	7.8	54.0	1.6
13	5.9	58	164				8.6	2.4	8.1	69.8	1.2
14	5.6	51	304	0.5	26	5.7	10.0	3.9	6.8	64.6	1.2
15	5.6	33	382				7.5	6.4	7.5	58.8	1.1
16	5.9	58	222				12.1	2.3	7.3	66.6	1.4
17	6.2	19	169				8.7	2.5	5.5	72.8	1.0
Average:	5.9	70	278	0.5	22	6.6	8.7	4.3	6.9	66.2	1.4

CONSULTING

Soil Test Summary

Clark/Workman
Farm: CW Farms
Field: Nanney Hills

Area: 67.55
Sample Date: Oct 28, 2019
Lab Name: Waters KY

SampleID	pH	P	K	B	S	Zn	CEC	KSat	MgSat	CaSat	OM
none	none	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	meq/100g	percent	percent	percent	percent
1	5.4	78	597				11.4	6.7	15.1	53.1	1.8
2	5.3	29	236				15.6	1.9	10.6	53.7	2.9
3	6.0	344	839				12.2	8.7	6.2	61.7	1.8
4	5.7	83	465				12.4	4.8	9.0	63.2	2.0
5	6.4	48	702				10.2	8.8	6.2	68.7	2.0
6	5.2	69	374				10.8	4.4	8.7	56.6	1.8
7	5.5	66	606				9.9	7.7	6.7	52.7	1.8
8	6.1	68	535	0.6	17	8.3	10.2	6.7	5.2	63.8	1.9
9	5.5	73	492				12.9	4.9	9.7	63.3	2.6
10	5.4	34	339				13.0	3.3	11.6	59.9	2.4
11	5.6	26	274				12.4	2.8	9.3	61.7	2.0
12	5.6	67	455				8.8	6.6	6.5	59.1	1.6
13	6.2	54	398				12.7	4.0	7.9	71.9	2.0
14	5.9	72	511				8.6	7.6	5.5	63.2	1.6
15	5.8	49	526				9.9	6.7	5.8	58.7	1.6
16	4.8	50	212	0.4	22	3.0	12.6	2.1	11.2	41.7	2.1
Average:	5.7	76	473	0.5	20	5.7	11.5	5.5	8.5	59.6	2.0

Soil Test Summary

Clark/Workman
Farm: CW Farms
Field: Reams

Area: 35.56
Sample Date: Jan 08, 2019
Lab Name: Waters KY

SampleID none	pH none	P lbs per acre (st)	K lbs per acre (st)	B lbs per acre (st)	S lbs per acre (st)	Zn lbs per acre (st)	CEC meq/100g	KSat percent	MgSat percent	CaSat percent	OM percent
1	5.9	33	367				8.9	5.3	7.5	64.7	1.8
2	6.3	53	295				10.3	3.7	8.7	72.1	2.2
3	6.5	81	225				11.0	2.6	6.3	76.6	2.2
4	6.6	91	428	1.1	18	7.4	10.2	5.4	6.6	72.3	1.9
5	6.6	209	581				11.2	6.6	6.3	72.8	1.9
6	6.7	95	504				10.6	6.1	6.3	72.6	1.8
Average:	6.4	94	400	1.1	18	7.4	10.4	5.0	7.0	71.9	2.0

Soil Test Summary

Clark/Workman

Farm: CW Farms

Field: Steve Green

Area: 10.85

Sample Date: Dec 26, 2018

Lab Name: Waters KY

SampleID none	pH none	P lbs per acre (st)	K lbs per acre (st)	B lbs per acre (st)	S lbs per acre (st)	Zn lbs per acre (st)	CEC meq/100g	KSat percent	MgSat percent	CaSat percent	OM percent
1	6.2	58	286				17.1	2.1	13.0	68.5	2.5
2	6.4	66	237	0.5	12	0.6	15.3	2.0	10.6	69.2	2.3
3	5.9	119	259	0.6	15	1.9	13.0	2.6	12.8	63.1	2.1
Average:	6.2	81	261	0.6	14	1.3	15.1	2.2	12.1	66.9	2.3

Soil Test Summary

Clark/Workman
Farm: CW Farms
Field: Virginia Stahr Martin Hwy

Area: 21.67
Sample Date: Dec 26, 2018
Lab Name: Waters KY

SampleID	pH	P	K	B	S	Zn	CEC	KSat	MgSat	CaSat	OM
none	none	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	meq/100g	percent	percent	percent	percent
1	5.4	113	306				11.2	3.5	8.5	63.1	2.0
2	5.6	37	207				9.8	2.7	9.0	59.8	1.7
3	6.1	27	240	0.4	15	0.2	14.6	2.1	11.2	70.3	2.0
4	5.7	48	228				13.7	2.1	11.7	62.8	2.2
5	5.6	32	204				13.8	1.9	11.5	63.4	1.6
Average:	5.7	51	237	0.4	15	0.2	12.6	2.5	10.4	63.9	1.9

WORKMAN CONSULTING

Soil Test Summary

Clark/Workman

Farm: CW Farms

Field: David Clark Home Farm

Area: 76.02

Sample Date: Dec 04, 2017

Lab Name: Waters KY

SampleID	pH	P	K	S	Zn	OM	CEC	B	Mn	KSat	MgSat	CaSat
none	none	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	percent	meq/100g	lbs per acre (st)	lbs per acre (st)	percent	percent	percent
1	7.3	225	542			2.0	15.6			4.5	5.0	82.8
2	6.5	73	433			2.0	13.8			4.0	7.5	76.9
3	6.5	73	762			2.3	15.5			6.3	9.0	71.9
4	7.1	64	493			1.9	13.7			4.6	5.3	81.3
5	5.3	171	639	25	3.1	1.4	8.3	0.5	322	9.9	3.9	52.4
6	5.5	162	473			1.6	8.9			6.8	4.0	57.7
7	4.9	307	603			1.7	6.3			12.2	4.5	38.9
8	7.0	85	336			1.9	13.4			3.2	6.4	78.5
9	6.5	74	506			2.4	14.5			4.5	9.1	72.6
10	6.6	100	648			1.8	14.0			5.9	8.4	71.4
11	6.4	127	907			1.8	11.9			9.8	6.0	67.4
12	7.3	132	471			1.8	10.9			5.5	6.6	76.9
13	7.1	128	694	23	11.1	2.2	17.4	1.2	242	5.1	9.0	76.6
14	6.9	138	432			2.0	14.8			3.7	7.8	77.6
15	6.7	114	698			1.5	9.6			9.3	8.0	70.2
16	6.6	77	515			1.8	13.0			5.0	9.5	73.2
17	6.8	92	533			1.9	12.6			5.4	7.8	74.0
Average:	6.5	126	570	24	7.1	1.9	12.6	0.9	282	6.2	6.9	70.6

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Soil Test Summary

Clark/Workman

Farm: CW Farms

Field: Finch

Area: 87.05

Sample Date: Dec 04, 2017

Lab Name: Waters KY

SampleID	pH	P	K	S	Zn	OM	CEC	B	Mn	KSat	MgSat	CaSat
none	none	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	percent	meq/100g	lbs per acre (st)	lbs per acre (st)	percent	percent	percent
1	4.8	326	717			1.6	7.9			11.7	10.9	46.9
2	5.1	88	508			1.4	7.3			8.9	6.0	57.9
3	5.2	181	501			1.8	9.0			7.2	7.9	58.2
4	5.0	98	527			1.8	10.4			6.5	13.3	41.7
5	4.7	100	394			1.7	6.5			7.7	7.2	42.3
6	4.5	106	740	31	1.8	2.0	11.2	0.4	213	8.4	11.5	30.3
7	5.6	113	487			2.4	14.9			4.2	9.7	64.6
8	6.3	114	392			2.3	11.4			4.4	5.7	75.8
9	5.9	71	465			1.9	10.5			5.6	7.9	67.4
10	5.2	148	579			1.6	9.1			8.1	7.4	58.2
11	5.7	153	616			1.8	12.1			6.5	7.2	66.6
12	5.7	175	348			2.0	11.2			4.0	7.8	66.8
13	5.2	119	506			1.6	11.8			5.5	8.8	61.8
14	5.3	138	329	20	8.2	1.7	10.2	0.6	179	4.1	8.3	60.2
15	5.7	159	539			1.9	12.8			5.4	9.3	57.0
16	5.0	105	593			1.5	8.9			8.5	7.5	52.6
17	5.4	243	790			1.7	10.8			9.4	12.0	56.4
18	6.0	145	472			2.0	12.7			4.8	8.6	67.7
19	5.7	196	430			2.0	12.9			4.3	9.8	67.3
Average:	5.4	146	523	26	5.0	1.8	10.6	0.5	196	6.6	8.8	57.9

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WORKMAN CONSULTING

Soil Test Summary

Clark/Workman

Farm: CW Farms

Field: Billy Jolley

Area: 65.94

Sample Date: Dec 04, 2017

Lab Name: Waters KY

SampleID	pH	P	K	S	Zn	OM	CEC	B	Mn	KSat	MgSat	CaSat
none	none	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	lbs per acre (st)	percent	meq/100g	lbs per acre (st)	lbs per acre (st)	percent	percent	percent
1	6.1	77	322			2.3	9.7			4.2	5.3	69.9
2	6.3	112	429			2.3	10.9			5.0	8.2	72.2
3	5.4	130	464			2.1	11.0			5.4	8.9	63.9
4	5.3	183	421			2.2	10.7			5.0	10.6	58.2
5	5.6	77	368			2.2	14.4			3.3	13.0	61.5
6	5.8	104	401	26	4.7	2.1	14.3	0.5	257	3.6	9.8	67.0
7	5.7	94	344			2.3	14.4			3.1	10.9	63.8
8	5.7	93	328			1.6	11.8			3.6	8.5	64.2
9	6.3	77	397			1.6	12.8			4.0	8.8	71.6
10	5.8	81	431			1.6	13.0			4.2	11.1	66.2
11	6.3	64	276			1.8	10.9			3.2	7.2	71.3
12	6.0	60	375			1.8	11.2			4.3	8.5	69.3
Average:	5.9	96	380	26	4.7	2.0	12.1	0.5	257	4.1	9.2	66.6

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Soil Analysis

Waters Agricultural Laboratories, Inc

2101 Calhoun Rd | Owensboro, KY 42301- | Phone (270) 685-4039

WORKMAN CONSULTING

Customer: 60631

WORKMAN CONSULTING LLC
JT WORKMAN
3385 State Rte 1826
CLINTON, KY 42031

Sample ID: EMILY HSE

Grower: CLINTON WORKMAN
Farm ID: CLINTON WORKMAN
Field ID:
Lab Number: 111899QO
Layer ID:

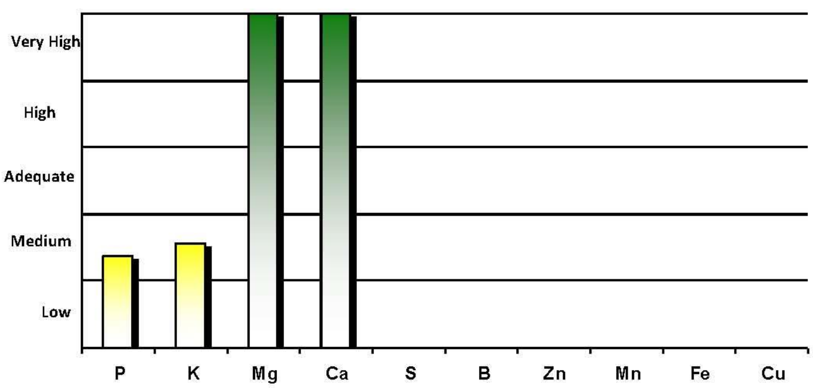
Received: 9/30/2020
Processed: 10/2/2020

Test Method: Mehlich III — **Soil Laboratory Data (lbs/a)** — **Target pH** 6.5

P Phosphorus	K Potassium	Mg Magnesium	Ca Calcium	Soil pH	Buffer pH Adams-Evans	S Sulfur	B Boron	Zn Zinc	Mn Manganese	Fe Iron	Cu Copper
62 M	182 M	469 VH	5672 VH	6.7	7.65						

Al Aluminum	Na Sodium	NO3-N Nitrate-N	NH4 Ammonia	Soluble Salts	Organic Matter	ENR	Mo Molybdenum	Ni Nickel	BiCarbs	
	36	ppm	ppm	mmhos/cm	2.83 %	57	ppm	ppm	meq/L	

Soil Analysis Ratings

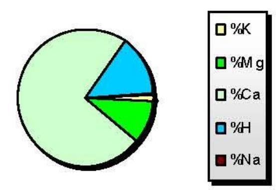


Cation Exchange Capacity: 19.2 meq/100g

Base Saturation

K:	1.2 %	Mg:	10.2 %
Ca:	73.7 %	H:	14.5 %
Na:	0.4 %		

Base Saturation



Crop: NO CROP — **Fertility Recommendations (lbs/a)** — **Yield:**

Lime Tons/Acre	Gypsum Tons/Acre	N Nitrogen	P205 Phosphate	K20 Potash	Mg Magnesium	S Sulfur	B Boron	Zn Zinc	Mn Manganese	Fe Iron	Cu Copper

* = Maintenance Recommendation

Comments

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Soil Analysis

Waters Agricultural Laboratories, Inc
2101 Calhoun Rd | Owensboro, KY 42301- | Phone (270) 685-4039

Customer: 60631

WORKMAN CONSULTING LLC
JT WORKMAN
3385 State Rte 1826
CLINTON, KY 42031

Sample ID: PRUETT PIVOT

Grower: CLINTON WORKMAN
Farm ID: CLINTON WORKMAN
Field ID:
Lab Number: 111900QO
Layer ID:

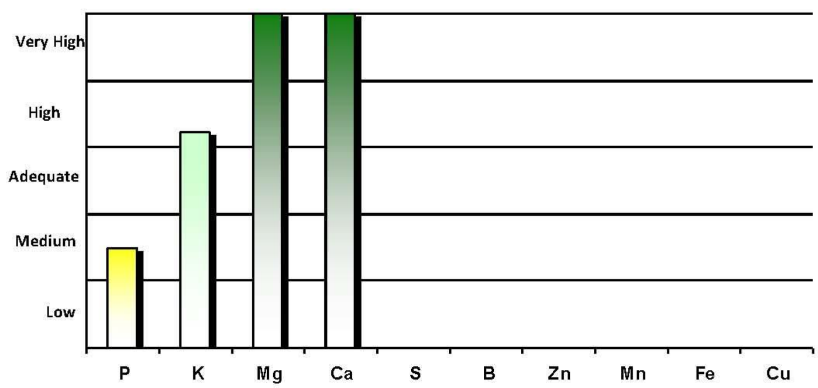
Received: 9/30/2020
Processed: 10/2/2020

Test Method: Mehlich III — **Soil Laboratory Data (lbs/a)** — **Target pH** 6.5

P Phosphorus	K Potassium	Mg Magnesium	Ca Calcium	Soil pH	Buffer pH Adams-Evans	S Sulfur	B Boron	Zn Zinc	Mn Manganese	Fe Iron	Cu Copper
69 M	346 H	523 VH	2883 VH	5.7	7.45						

Al Aluminum	Na Sodium	NO3-N Nitrate-N	NH4 Ammonia	Soluble Salts	Organic Matter	ENR	Mo Molybdenum	Ni Nickel	BiCarbs	
	28	ppm	ppm	mmhos/cm	2.91 %	58	ppm	ppm	meq/L	

Soil Analysis Ratings

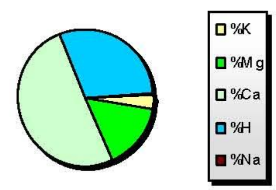


Cation Exchange Capacity: 14.3 meq/100g

Base Saturation

K:	3.1 %	Mg:	15.2 %
Ca:	50.4 %	H:	30.8 %
Na:	0.4 %		

Base Saturation



Crop: NO CROP — **Fertility Recommendations (lbs/a)** — **Yield:**

Lime Tons/Acre	Gypsum Tons/Acre	N Nitrogen	P205 Phosphate	K20 Potash	Mg Magnesium	S Sulfur	B Boron	Zn Zinc	Mn Manganese	Fe Iron	Cu Copper
2.0											

* = Maintenance Recommendation

Comments

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Soil Analysis

Waters Agricultural Laboratories, Inc

2101 Calhoun Rd | Owensboro, KY 42301- | Phone (270) 685-4039

WORKMAN CONSULTING

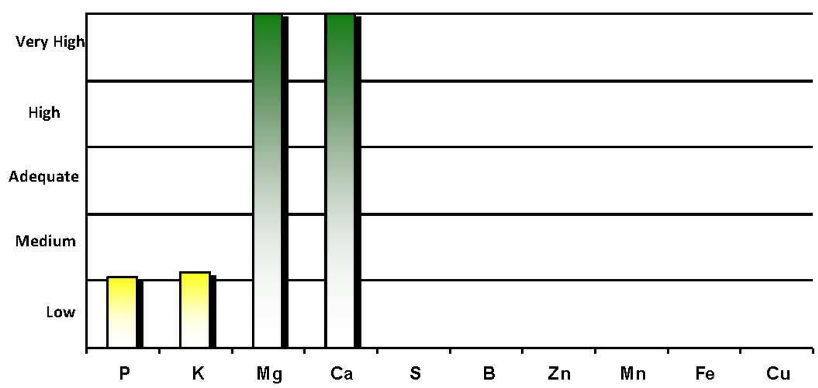
Customer: 60631	Sample ID: PRUETT SOUTH OF ROAD	
WORKMAN CONSULTING LLC	Grower: CLINTON WORKMAN	Received: 9/30/2020
JT WORKMAN	Farm ID: CLINTON WORKMAN	Processed: 10/2/2020
3385 State Rte 1826	Field ID:	
CLINTON, KY 42031	Lab Number: 111901QO	
	Layer ID:	

Test Method: Mehlich III — Soil Laboratory Data (lbs/a) — **Target pH 6.5**

P Phosphorus	K Potassium	Mg Magnesium	Ca Calcium	Soil pH	Buffer pH Adams-Evans	S Sulfur	B Boron	Zn Zinc	Mn Manganese	Fe Iron	Cu Copper
44 M	138 M	442 VH	2701 VH	5.6	7.60						

Al Aluminum	Na Sodium	NO3-N Nitrate-N	NH4 Ammonia	Soluble Salts	Organic Matter	ENR	Mo Molybdenum	Ni Nickel	BiCarbs	
	33	ppm	ppm	mmhos/cm	2.19 %	44	ppm	ppm	meq/L	

Soil Analysis Ratings

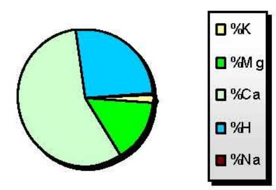


Cation Exchange Capacity	12.0	meq/100g

Base Saturation

K: 1.5 %	Mg: 15.3 %
Ca: 56.1 %	H: 26.6 %
Na: 0.6 %	

Base Saturation



Crop: NO CROP — Fertility Recommendations (lbs/a) — **Yield:**

Lime Tons/Acre	Gypsum Tons/Acre	N Nitrogen	P205 Phosphate	K20 Potash	Mg Magnesium	S Sulfur	B Boron	Zn Zinc	Mn Manganese	Fe Iron	Cu Copper
1.5											

* = Maintenance Recommendation

Comments

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Waters Agricultural Laboratories, Inc.

Liquid Manure/Sludge

Analysis and Application Report

2101 Calhoun Rd. | Highway 81 | Owensboro, KY 42301 | Phone (270)-685-4039

Ship To:
Workman Consulting LLC
3385 State Rte 1826
Clinton, KY 42031-

Grower: Clint Workman

SampleNumber: TN
Lab Number: 11557MS

Date Submitted: 05/19/2020
Report Date: 05/21/2020

Type: Manure Liquid Slurry-Other

Application Method: Broadcast

Test	ppm	lbs. per 1000 gal.	Estimate of Nutrients Available For First Crop- lbs/1000 gal.
Nitrogen - Total	4964.6	41.40	16.56
P2O5 - Total	4937.8	41.18	41.18
K2O - Total	2158.6	18.00	18.00

Moisture	92.81	%

Results Reported On: L=LIQUID BASIS

Remarks:

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Record Keeping Forms (Inspection/Monitoring)

Date	Activity Description	Operator/ Inspector	Activity Data

Field	Crop	Planting Date	Hybrid or Variety	Pop-ulation Planted	Crop Residue (%) (1)	Tillage and Dates	Harvest Date	Yield/ Acre

Manure Application

App. #	Field	Date	Manure Source	Equipment	Days to Incorp.	Rate/A gal or tons	Loads	Total Applied gal or tons	Acres Cov.
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									

App. #	Hauler's Name (1)	Ground Cover % (2)	Soil Condition (3)	Air Temp. (4)	Wind Speed (5)	Wind Dir. (6)	Weath- er (7)	Rain Before (8)	Rain After (9)	Notes/Comments
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

(1) Name or initials of the person who applied the manure.
(2) Percent residue or ground cover at time of application.
(3) Soil condition at time of application: Dry, Firm, Wet, Muddy, Snow-Covered, Frozen.
(4) Air temperature at time of application.
(5) Wind speed at time of application: Calm (0-2 mph), Light (2-5 mph), Breezy (5-15 mph), Windy (>15 mph).
(6) Wind direction at time of application: N, NE, E, SE, S, SW, W, NW.
(7) Weather condition at time of application: Sunny, Partly Cloudy, Cloudy, Rain, Snow.
(8) Amount of rainfall during the 24 hours prior to application.
(9) Amount of rainfall during the 24 hours after application.

Commercial Fertilizer and Irrigation Water Application Records

Field	Date	Analysis (1)	Form Dry or Liquid	Application Method	Material Rate/A lbs or gal	Total Applied lbs or gal	Acres Cov.	Notes/Comments

(1) With commercial fertilizers, enter the analysis in the form of N-P_2O_5-K_2O (examples: anhydrous ammonia is 82-0-0, diammonium phosphate is 18-46-0). With irrigation water, enter the nitrate concentration in ppm.

Manure Exports

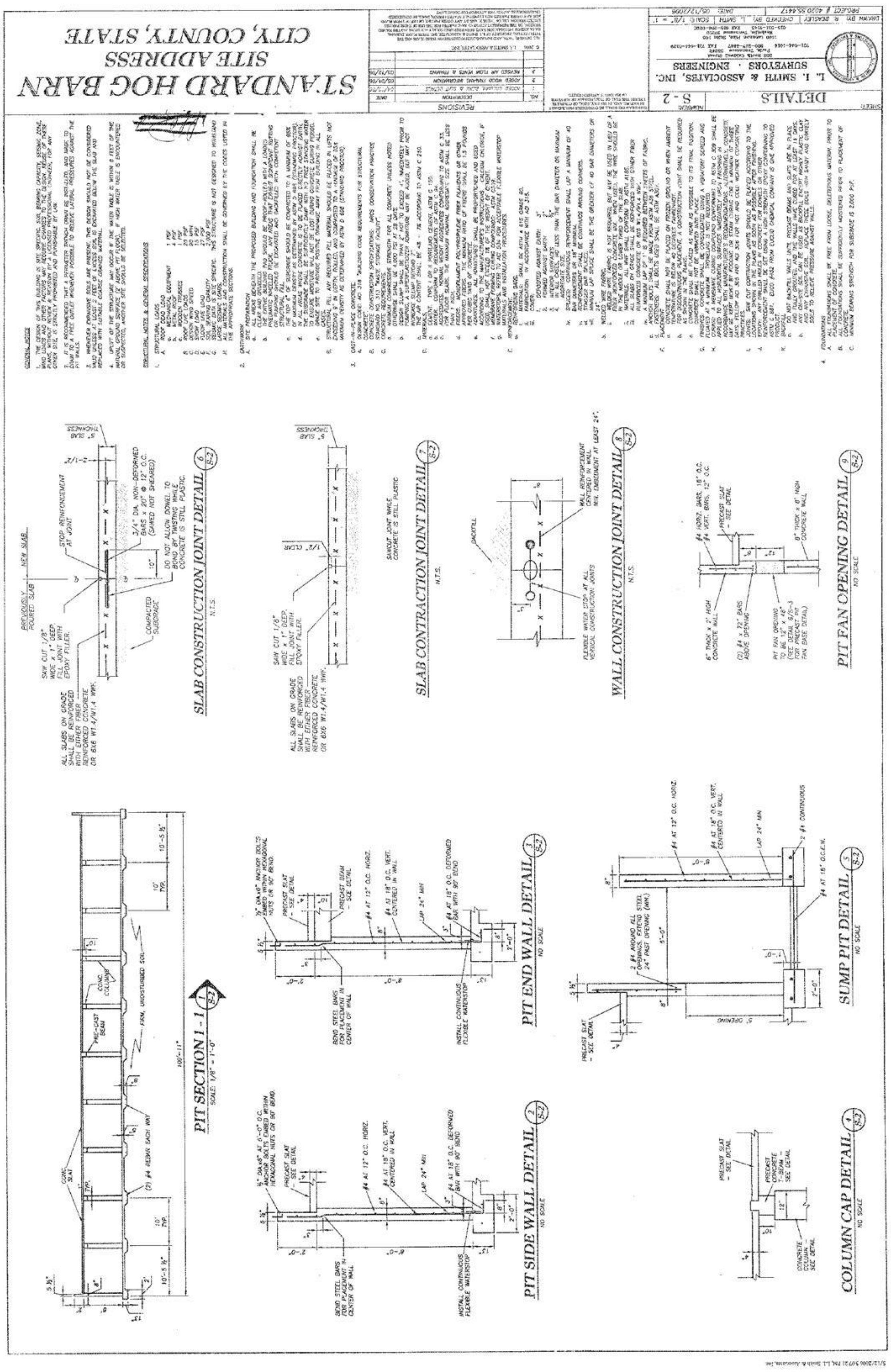
Manure Source	Date	Amount gal or tons	Receiving Operation	Address	Contact	Phone

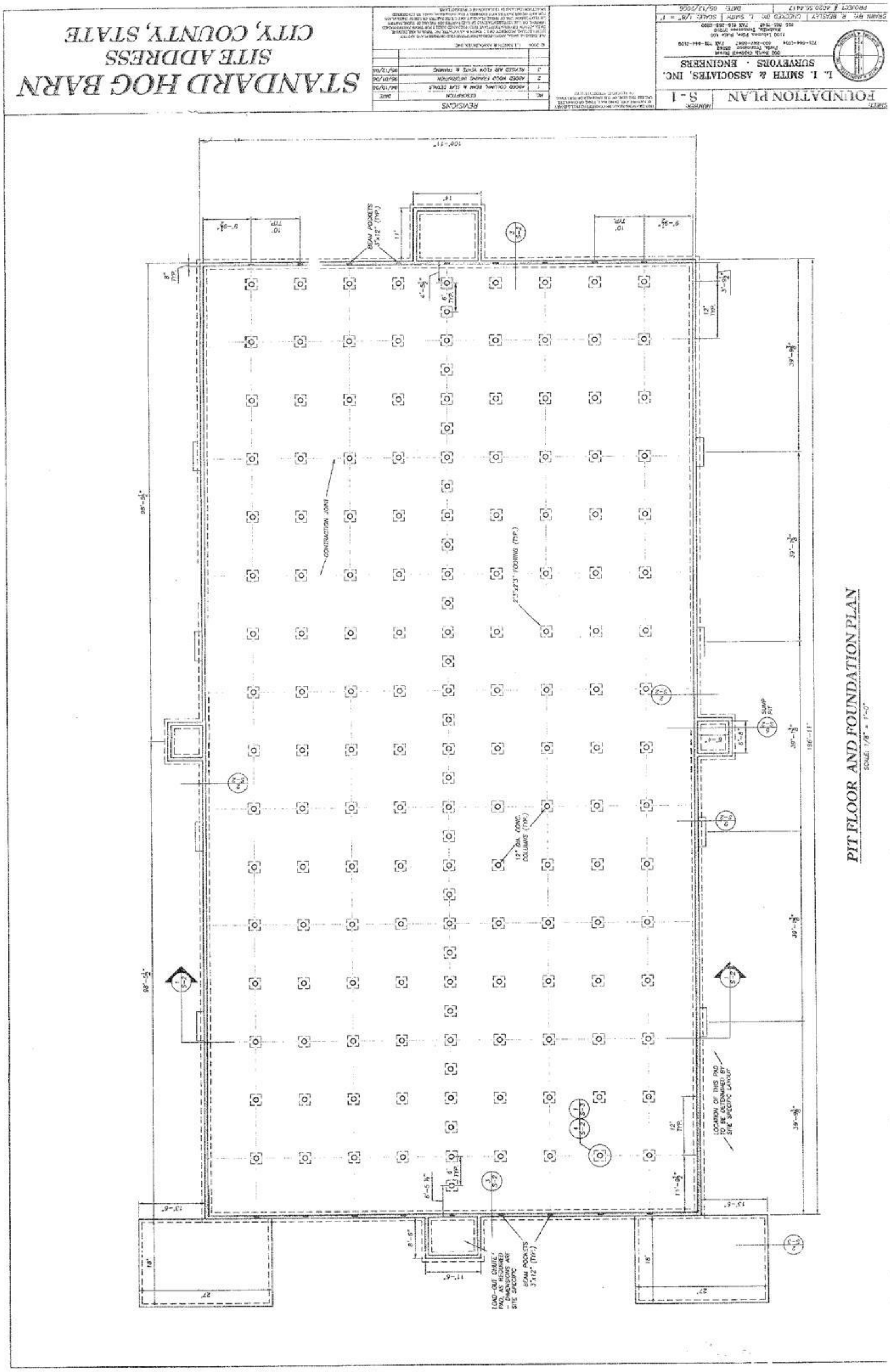
Manure Imports onto the Farm

Manure's Animal Type and Form	Date	Amount gal or tons	Originating Operation	Address	Contact	Phone

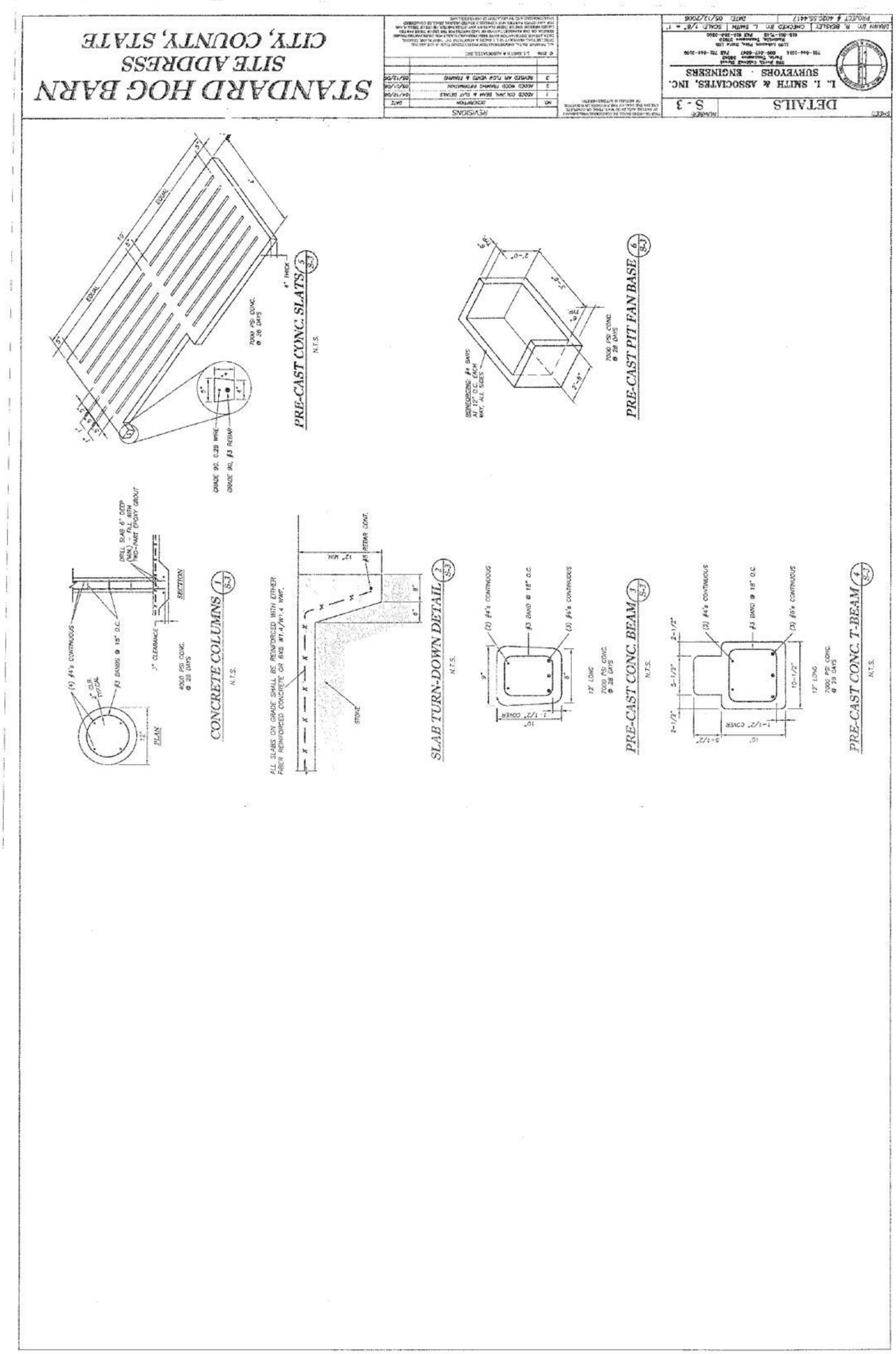
Internal Transfers of Manure

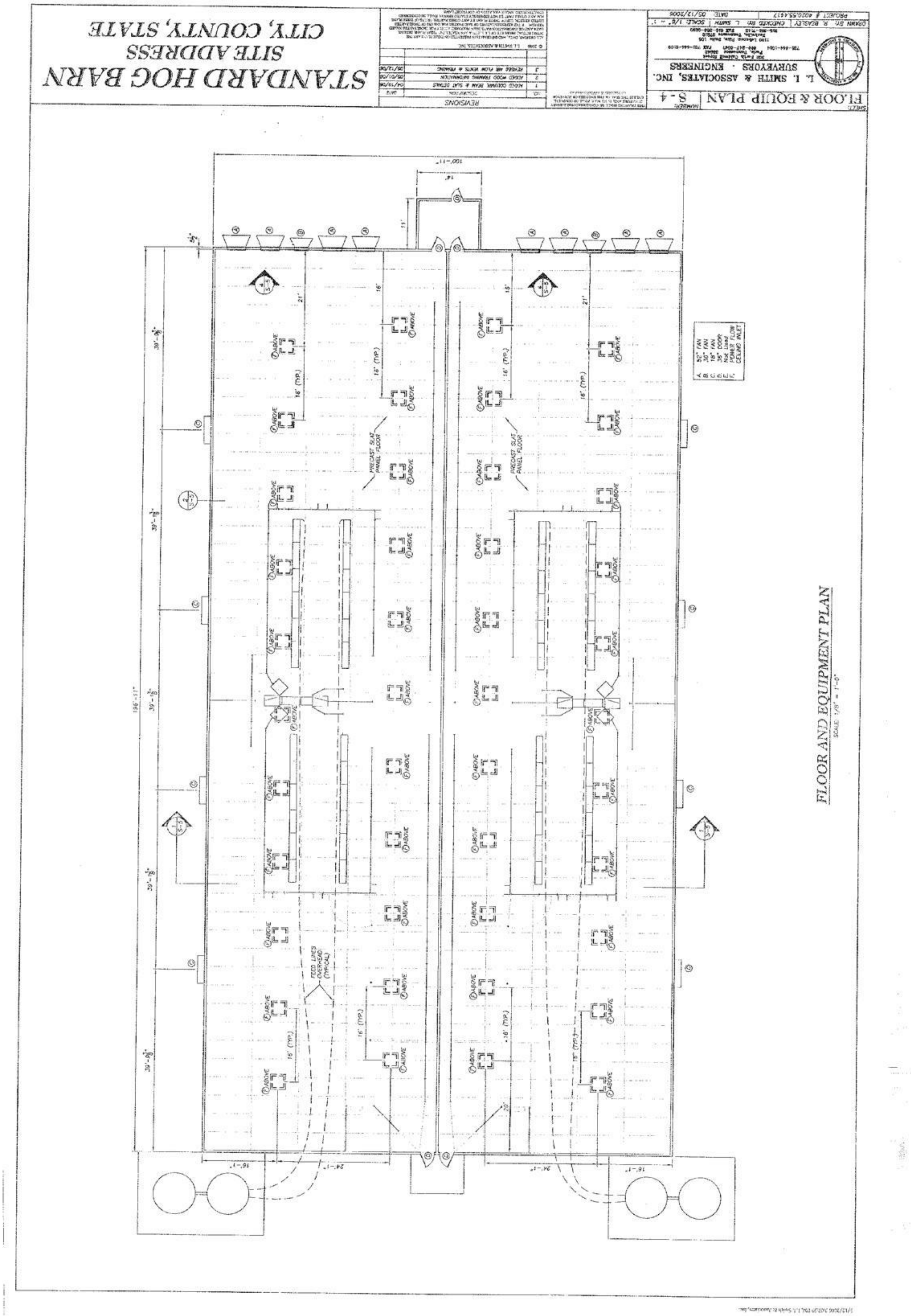
Manure Source	Date	Amount gal or tons	Manure Destination	Purpose of Transfer

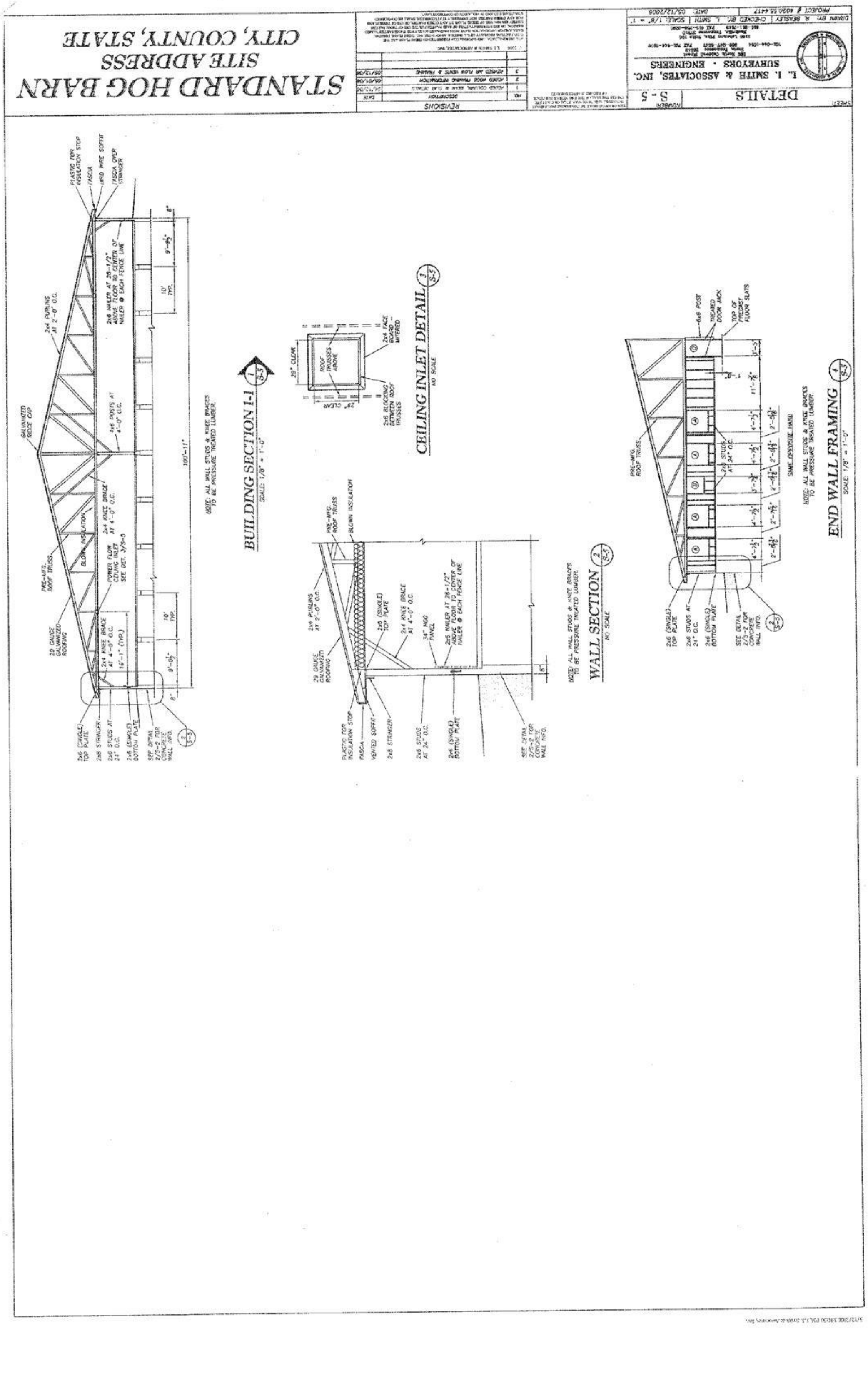

STANDARD HOG BARN
SITE ADDRESS
CITY, COUNTY, STATE
L. I. SMITH & ASSOCIATES, INC.
SURVEYORS · ENGINEERS
DETAILS
S-2
PIT SECTION 1-1
PIT SIDE WALL DETAIL
PIT END WALL DETAIL
COLUMN CAP DETAIL
SUMP PIT DETAIL
SLAB CONSTRUCTION JOINT DETAIL
SLAB CONTRACTION JOINT DETAIL
WALL CONSTRUCTION JOINT DETAIL
PIT FAN OPENING DETAIL



STANDARD HOG BARN
SITE ADDRESS
CITY, COUNTY, STATE
REVISIONS
FOUNDATION PLAN
S-1
L. I. SMITH & ASSOCIATES, INC.
SURVEYORS · ENGINEERS
PIT FLOOR AND FOUNDATION PLAN
SCALE: 1/8" = 1'-0"
CONTRACTION JOINT
12" DIA. CONC. COLUMNS (TYP.)
LOCATION OF THIS PAD TO BE DETERMINED BY SITE SPECIFIC LAYOUT
SUMP PIT


STANDARD HOG BARN
SITE ADDRESS
CITY, COUNTY, STATE
REVISIONS
L. I. SMITH & ASSOCIATES, INC.
SURVEYORS · ENGINEERS
DETAILS
S-3
PRE-CAST CONC. SLATS
PRE-CAST PIT FAN BASE
CONCRETE COLUMNS
SLAB TURN-DOWN DETAIL
PRE-CAST CONC. BEAM
PRE-CAST CONC. T-BEAM
N.T.S.


STANDARD HOG BARN
SITE ADDRESS
CITY, COUNTY, STATE
REVISIONS
L. I. SMITH & ASSOCIATES, INC.
SURVEYORS · ENGINEERS
FLOOR & EQUIP PLAN
S-4
PRECAST SLAT PANEL FLOOR
FEED LINES OVERHEAD (TYPICAL)
FLOOR AND EQUIPMENT PLAN
SCALE: 1/8" = 1'-0"


STANDARD HOG BARN
SITE ADDRESS
CITY, COUNTY, STATE
REVISIONS
DETAILS
S-5
L. I. SMITH & ASSOCIATES, INC.
SURVEYORS · ENGINEERS
BUILDING SECTION 1-1
CEILING INLET DETAIL
WALL SECTION
END WALL FRAMING