

WASTE UTILIZATION PLAN

10/17/97

WASTE UTILIZATION PLAN
FOR SWINE OPERATION

Producer: Chris Casteen

Location:

Address: 622 Cedar Fork Rd.
Beulaville, NC 28518

Telephone:

Type Operation: Wean to Feeder

Number of Animals: 5200
(Design Capacity)

Storage Structure: Anaerobic Waste Treatment Lagoon

Application Method: Irrigation

The waste from your animal facility must be land applied at a specified rate to prevent pollution of surface water and/or groundwater. The plant nutrients in the animal waste should be used to reduce the amount of commercial fertilizer required for the crops in the fields where the waste is to be applied. This waste utilization plan uses nitrogen as the limiting nutrient. Waste should be analyzed before each application cycle and annual soil tests are strongly encouraged so that all plant nutrients can be balanced for realistic yields of the crops to be grown.

Several factors are important in implementing your waste utilization plan in order to maximize the fertilizer value of the waste and to ensure that it is applied in an environmentally safe manner:

1. Always apply waste based on the needs of the crop to be grown and the nutrient content of the waste. Do not apply more nitrogen than the crop can utilize.
2. Soil types are important as they have different infiltration rates, leaching potentials cation exchange capacities, and available water holding capacities
3. Wind conditions should also be considered to avoid drift and downwind odor problems.

This plan is based on the waste application method shown above. If you choose to change methods in the future, you need to revise this plan. Nutrient levels for different application methods are not the same.

The estimated acre needed to apply the animal waste is based on typical nutrient content for this type of facility. Actual acreage requirements may be more or less and should be

Tract #	Field #	Soil Type	Crop code App Method	Real. Yield	Lbs. N Per Ac ^{1/}	Comm N Per ac.	Acres	Lbs. AW N Utilized	Month Of Application
172	P-1	AuB	BH I	5.5	275		3.65	1003.75	Mar1-Sep30
172	P-2	AuB	BH I	5.5	275		3.18	874.50	Mar1-Sep30
172	P-3	AuB	BH I	5.5	275		2.40	660.00	Mar1-Sep30
172	P-4	AuB	BH I	5.5	275		3.51	965.25	Mar1-Sep30
172	P-5	AuB	BH I	5.5	275		1.38	379.50	Mar1-Sep30
172	P-6	AuB	BH I	5.5	275		3.58	984.50	Mar1-Sep30
172	P-7	AuB	BH I	5.5	275		1.31	360.25	Mar1-Sep30
							19.01	5227.75	

WASTE UTILIZATION PLAN FOR SWINE OPERATION

Table 2: ACRES WITH AGREEMENT OR LONG TERM LEASE

Tract #	Field #	Soil Type	Crop Code App Method	Real Yield	Lbs. N Per AC ^{2/}	Comm N Per acre	Acres	Lbs. AW N Utilized	Month of Application
Total in Table 2									
Total in Table 1							19.01	5227.75	
Total							19.01	5227.75	
Amount N Produced								2496	
Surplus or Deficit								-2731.75	

^{1/} This PAN is from animal waste only. If nutrients from other sources such as commercial fertilizer are applied, they must be accounted for. Total N must be based on the crop realistic yield expectation (RYE).

NOTE: The applicator is cautioned that P and K may be over applied while meeting the N requirements. Beginning in 1996, the Coastal Zone Management Act will require farmers in some eastern counties of North Carolina to have a nutrient management plan that addresses all nutrients. This waste utilization plan only addresses Nitrogen.

Acres shown in the preceding table(s) are considered to be the usable acres excluding required buffers, filter strips along ditches, odd areas unable to be irrigated, and perimeter areas not receiving full application rates due to equipment limitations. Actual total acres in the fields listed may, and most likely will be, more than the acres shown in the tables.

APPLICATION OF WASTE BY IRRIGATION

The irrigation application rate should not exceed the intake rate of the soil at the time of irrigation such that runoff or ponding occurs. This rate is limited by initial soil moisture content, soil structure, soil texture, water droplet size, and organic solids. The application amount should not exceed the available water holding capacity of the soil at the time of irrigation nor should the PAN applied exceed the nitrogen needs of the crop. The amounts shown in the table below are maximums if the soil is dry and conditions are at the optimum for soil intake.

WASTE UTILIZATION PLAN FOR SWINE OPERATION

It is the responsibility of the producer and the land application system designer to ensure that the application system is designed, installed, and operated properly to avoid any runoff of waste from the land applied to. Failure to observe the maximum recommended rates and amounts of nitrogen shown in the tables may make this plan invalid.

Table 3: APPLICATION OF WASTE BY IRRIGATION PARAMETERS

Tract #	Field #	Soil Type	Crop Code	Application (In/Hr.)	Application Amount (In.)
172	1	AuB	BP	.5	1.0
172	2	AuB	BP	.5	1.0
172	3	AuB	BP	.5	1.0
172	~1	AuB	SG	.5	1.0
172	~2	AuB	SG	.5	1.0
172	~3	AuB	SG	.5	1.0

This is the maximum application amount allowed for the soil assuming the amount of nitrogen allowed for the crop is not over applied. In many situations, the application amount shown cannot be applied because of the nitrogen limitation. The maximum application amount shown can only be applied under optimum soil conditions.

Your facility is designed for 180 days of temporary storage and the temporary storage must be removed on the average of once every 6 months. In no instance should the volume of the waste stored in your structure be within the 25-year - 24 hour storm storage or one foot of freeboard except in the event of the 25 year - 24 hour storm.

Roy Lee Brown 11-27-07

David R. Long
11/27/01

WASTE UTILIZATION PLAN FOR SWINE OPERATION

It is the responsibility of the producer and waste applicator to ensure that the spreader and/or irrigation equipment is operated properly to apply the correct rates to the acres shown in Tables 1 and 2. Failure to apply the correct rates or nitrogen shown in the tables may make this plan invalid.

If assistance is needed, call your technical specialist after you receive the waste analysis report for assistance in determining the amount of waste per acre and the proper application rate prior to applying waste.

SLUDGE APPLICATION:

The waste utilization plan must contain provisions for periodic land application of sludge at agronomic rates. The sludge will be nutrient rich and will require precautionary measures to prevent over application of nutrients or other elements. Your production facility will produce approximately 395.2 pounds of PAN per year in the sludge.

If you remove the sludge every 5 years, you will have approximately 1976 pounds of PAN to utilize. Assuming you apply this PAN to corn at the rate of 125 pounds of nitrogen per acre, you will need 15.9 acres of land. Please be aware that these are only estimates of the PAN and land needed. Actual requirements could vary by 25% or more depending on your sludge analysis, soil types, crops, realistic yields, and application methods.

REQUIRED SPECIFICATIONS

1. Animal waste shall not reach surface waters of the state by runoff, drift, manmade conveyances, direct application, or direct discharge during operation or land application. Any discharge of waste, which reaches surface water, is prohibited by state law. Illegal discharges are subject to assessment of civil penalties of \$10,000 per day by the Division of Water Quality for each day the discharge continues.
2. There must be documentation in the design folder that the producer either owns or has an agreement for use of adequate land on which to properly apply the waste. If the producer does not own adequate land to properly dispose of waste, he/she shall provide a copy of an agreement with a landowner that is within a reasonable proximity, allowing the producer the use of the land for waste application. It is the responsibility of the owner of the facility to secure an update of the Waste Utilization Plan when there is a change in the operation, increase in the number of animals, method of utilization, or available land.
3. Animal waste shall be applied to meet, but not exceed, the nitrogen needs for realistic

WASTE UTILIZATION PLAN FOR SWINE OPERATION

crop yields based on soil type, available moisture, historical data, climatic conditions, and level of management, unless there are regulations that restrict the rate of application for other nutrients.

4. Animal waste shall be applied to land eroding less than 5 tons per acre per year. Waste may be applied to land that is eroding at 5 or more tons, but less than 10 tons per acre per year providing grass filter strips are installed where runoff leaves the field. (See FOTG Standard 393 - Filter Strip and Standard 390 - Riparian Forest Buffers.) These filter strips and forest buffers are in addition to "buffers" required by DWQ.
5. Injecting the waste or disking after waste application can reduce odors. Waste should not be applied when there is danger of drift from the irrigation field.
6. When animal waste is to be applied on acres subject to flooding, it will be soil incorporated on conventionally tilled cropland. When applied to conservation-tilled crops or grassland, the waste may be broadcast provided the application does not occur during a season prone to flooding. (See *"Weather and Climate in North Carolina"* for guidance.)
7. Liquid waste shall be applied at rates not to exceed the soil infiltration rate such that runoff does not occur offsite or to surface waters and in a manner which does not cause drift from the site during application. No ponding should occur in order to control conditions conducive to odor and insects and provide uniformity of application.
8. Animal waste shall not be applied to saturated soils, during rainfall events, or when the soil surface is frozen.
9. Animal waste shall be applied on actively growing crops in such a manner that the crop is not covered with waste to a depth that would inhibit growth. The potential for salt damage from animal waste should also be considered.
10. Waste nutrients shall not be applied in fall or winter for spring planted crops on soils with a high potential for leaching. Waste nutrient loading rates on these soils should be held to a minimum and suitable winter cover crop planted to take up released nutrients. Waste shall not be applied more than 30 days prior to planting of the crop or forages breaking dormancy.
11. Any new swine facility sited on or after October 1, 1995 shall comply with the following:
 - The outer perimeter of the land area onto which waste is applied from a lagoon that is a component of a swine farm shall be at least 50 feet from any residential

WASTE UTILIZATION PLAN FOR SWINE OPERATION

property boundary and from any perennial stream or river (other than an irrigation ditch or canal).

- Animal waste other than swine waste from facilities sited on or after October 1, 1995 shall not be applied closer than 25 feet to perennial waters. (See Standard 393 - Filter Strips.)
12. Animal waste shall not be applied closer than 100 feet to wells.
 13. Animal waste shall not be applied closer than 200 feet of dwellings other than those owned by the producer.
 14. Animal waste shall be applied in a manner not to reach other property and public right-of-ways.
 15. Animal waste shall not be discharged into surface waters, drainageways, or wetland(s) by a discharge or by over-spraying. Animal waste may be applied to prior converted cropland provided it has been approved as a land application site by a "technical specialist". Animal waste shall not be applied on grassed waterways that discharge directly into watercourses. On other grassed waterways, waste shall be applied at agronomic rates in a manner that causes no runoff or drift from the site.
 16. Domestic and industrial waste from truck or other washdown facilities, showers, toilets, sinks, etc., shall not be discharged into the animal waste management system.
 17. A protective cover of appropriate vegetation will be established on all disturbed areas (lagoon embankments, berms, pipe runs, etc.). Areas shall be fenced as necessary, to protect vegetation. Vegetation such as trees, shrubs, and other woody species, etc., are limited to areas where considered appropriate. Lagoon areas should be kept mowed and accessible. Berms and structures should be inspected regularly for evidence of erosion, leakage, or discharge.
 18. If animal production at the facility is to be suspended or terminated, the owner is responsible for obtaining and implementing a "closure plan" which will eliminate the possibility of an illegal discharge, pollution and erosion.
 19. Waste handling structures, piping, pumps, reels, etc., should be inspected on a regular basis to prevent breakdowns, leaks, and spills. A regular maintenance checklist should be kept on site.
 20. Animal waste can be used in a rotation that includes vegetables and other crops for

WASTE UTILIZATION PLAN FOR SWINE OPERATION

WASTE UTILIZATION PLAN AGREEMENT

I (We) understand and will follow and implement the specifications and the operation and maintenance procedures established in the approved animal waste utilization plan for the farm named above. I (we) know that any expansion to the existing design capacity of the waste treatment and storage system or construction of new facilities will require a new utilization plan and a new certification to be submitted to the North Carolina Division of Water Quality (NCDWQ) before the new animals are stocked. I (We) also understand that there must be no discharge of animal waste from this system to surface waters of the state from a storm event less severe than the 25 year - 24 hour storm. The approved plan will be filed on-site at the farm office and at the office of the local Soil and Water Conservation District and will be available for review by DWQ upon request. Failure to comply with the Waste Utilization Plan may require any cost share funds to be refunded to their source.

Name of Facility Owner (please print): _____

Signature: _____ Date: _____

Name of Manager (if different from owner): _____

Signature: _____ Date: _____

Where owners of animal operations do not have adequate amounts of land to apply the waste, the producer must provide a written agreement whereby another landowner has agreed to land apply or allow land application on his or her land. The attached agreement may be used or some other documentation may be provided.

ADJACENT LANDOWNER AGREEMENT

I, _____, understand that Mr./Mrs. _____ does not have ample land to apply the animal waste produced from his/her animal operation. I agree and give permission for Mr./Mrs. _____ to apply animal waste from his Waste System on _____ acres of my land for the duration of time shown below.

I further understand that this waste contains, nitrogen, phosphorous, potassium, and other nutrient elements and when properly applied should not harm my land or crops. I also understand that the use of this animal waste will reduce my need for commercial fertilizer.

Term of Agreement: _____, 19____ to _____, 20____
(minimum of Ten years on Cost Shared Items)
(See Specification No. 2)

Recipient Landowner (please print): _____

**WASTE UTILIZATION PLAN
FOR SWINE OPERATION**

Signature: _____

Chris Casteen

Date: _____

*5/12/2008***PLAN APPROVAL**

Name of Technical Specialist (please print): Harry Tyson

Affiliation (Agency): _____

Address: _____

Signature: _____

Harry S. Tyson

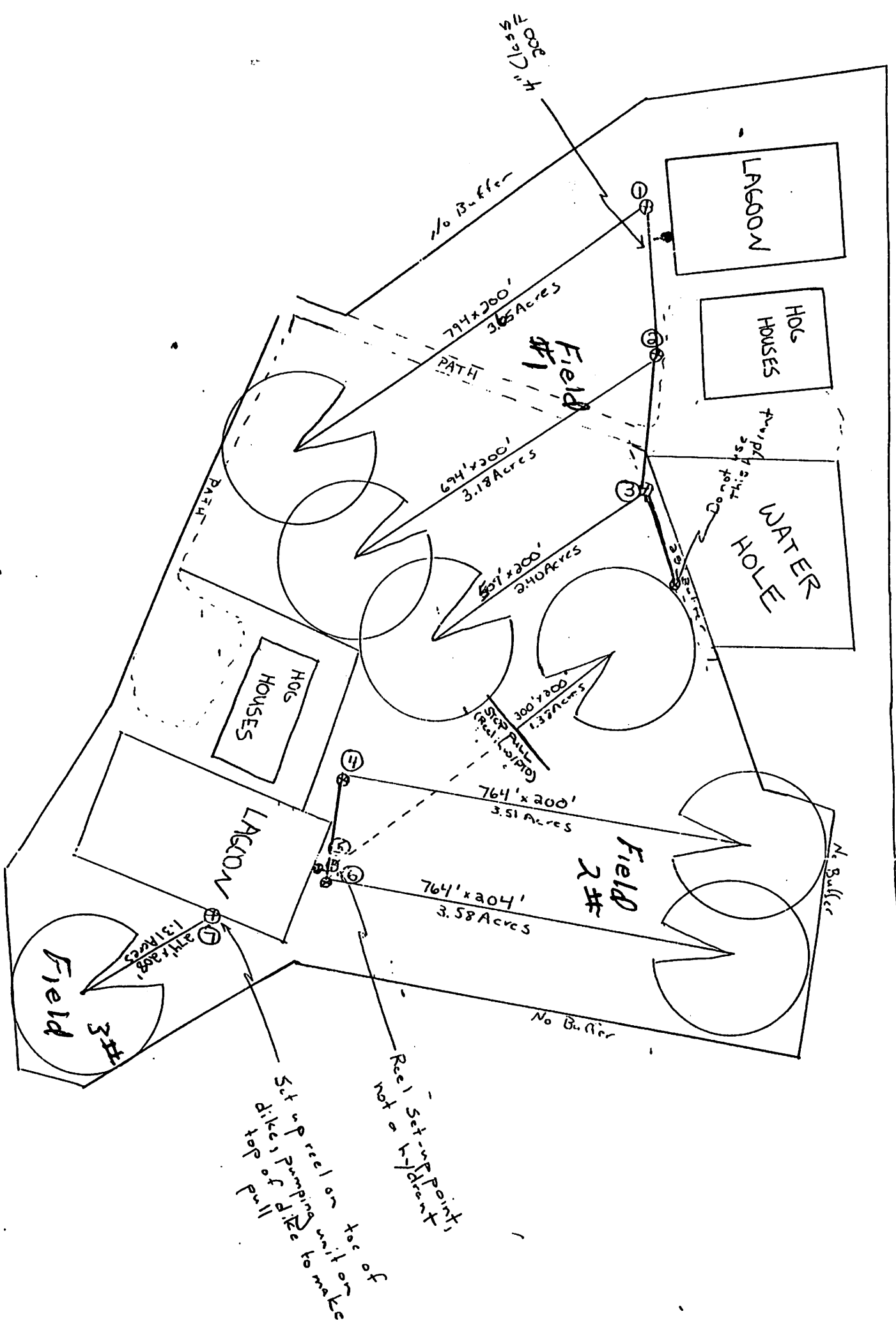
Date: _____

*2/8/2000***SWCD BOARD REVIEW**

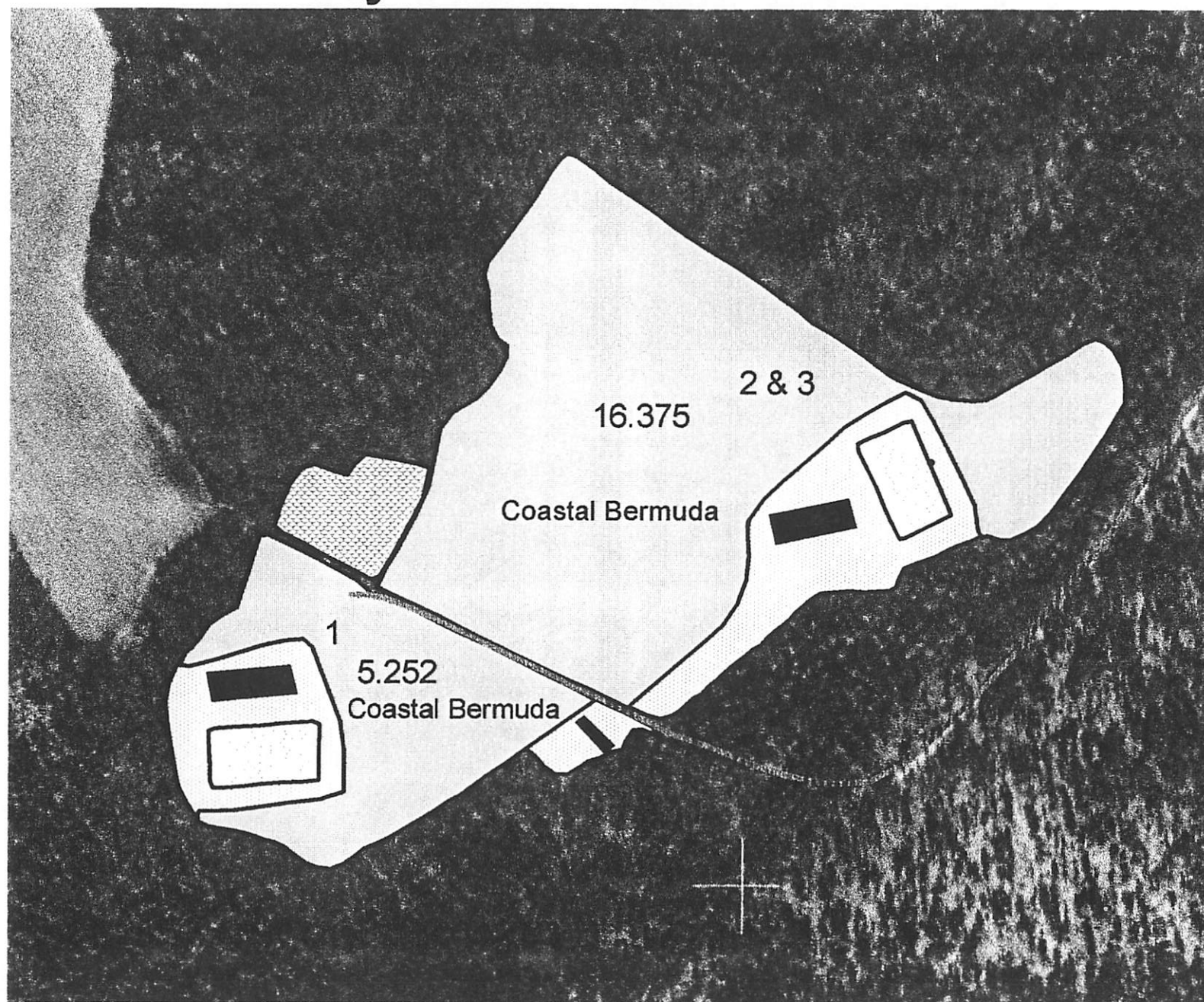
SWCD Representative (please print): _____

Signature: _____

Date: _____



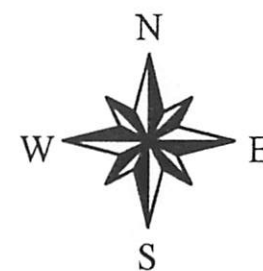
Roy Brown Farm



Legends

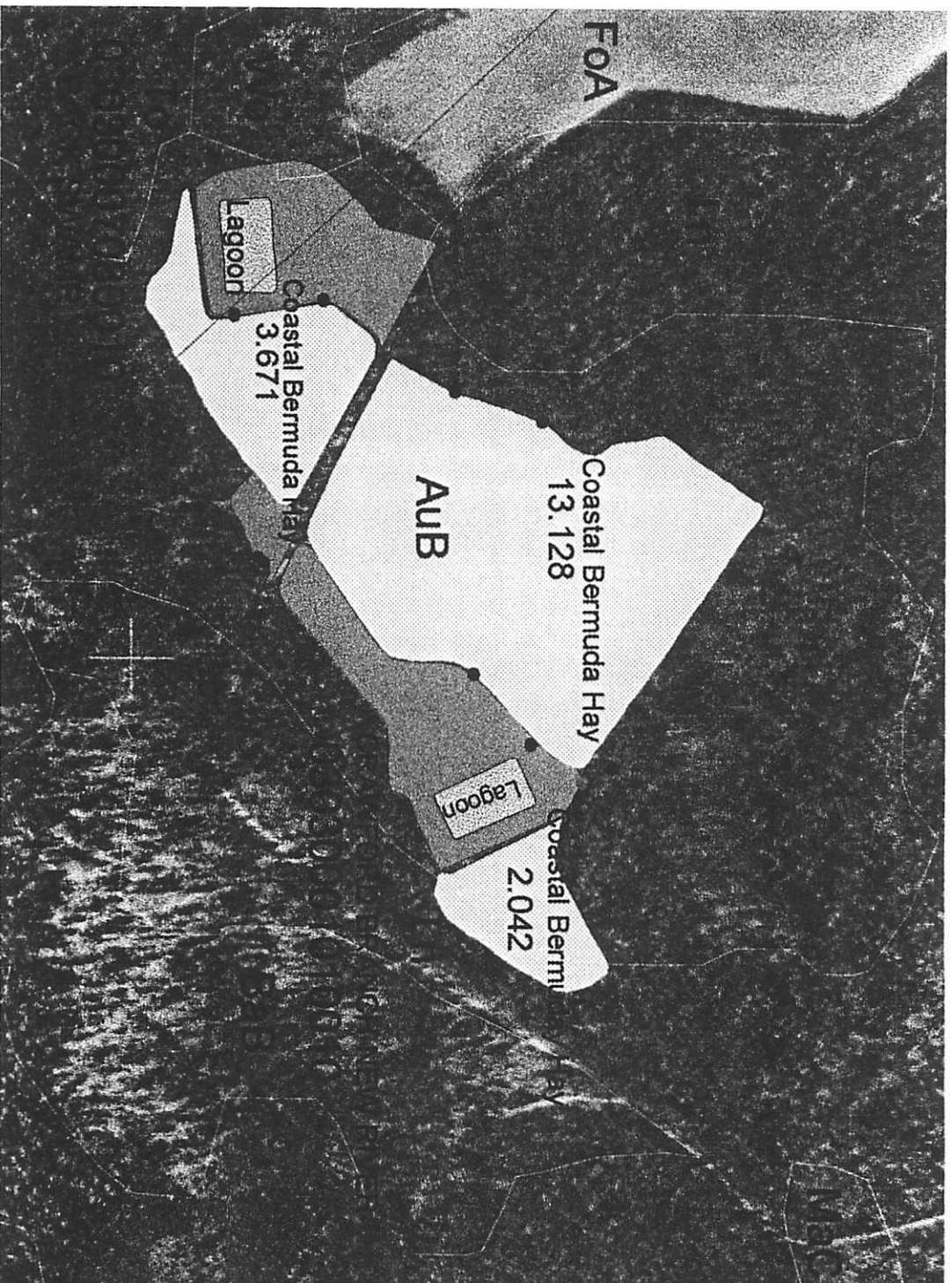
-  Lagoons
-  Farm Pond
-  Farm Road
-  Spray Fields
-  Houses & Office
-  Building Site

Produced by
Bill Norris
Onslow SWCD
Aug. 14, 2001

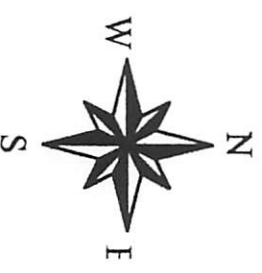


1" = 300'

Roy Brown Farm



- Soils**
- HU Codes
 - Wells
 - Hydrants
 - Lagoons
 - Spray Field
 - Tile Drain
 - Buildings



1" = 400'

Ray Brown

Sprinkler Specs Ag Rain 25A w/ Nelson 100 gun
- 857R nozzle @ 60 psi/gun
- 125 gpm
- 260' diameter

Lane Spacing $\frac{200' (\text{as installed})}{260'} = 76.9\%$

Application Rate $\frac{96.3 \times 12.5}{\pi (.9 \times 130)^2} = \frac{1203.8}{43603} = .28''/\text{hr} \times \frac{360}{3600} = .34''/\text{hr.}$

Travel Speed $\frac{1.605 \times 12.5}{200 \times 1.0} = 1.00'/\text{min}$

Ray Brown
1106 Gregory Fork Rd.
Richlands NC
(704) 304-4811

Date: 8/20/98

[illegible]

³Refer to N. C. Irrigation Guide, Field Office Technical Guide, Section II G. Annual application must not exceed the agronomic rates for the soil and crop used.

Ag Rain 25A w/Wilson 100 gun

[illegible]

2 Show separate entries for each hydrant location in each field.

³Use the following abbreviations for various arc patterns: F (full circle), TQ (three quarters), TT (two thirds), H (half circle), T (one third), Q (one quarter). May also use degrees of arc.