VIRGINIA POLLUTION ABATEMENT PERMIT APPLICATION
FORM D: MUNICIPAL EFFLUENT AND BIOSOLIDS

PART D-VI: LAND APPLICATION AGREEMENT - BIOSOLIDS AND INDUSTRIAL RESIDUALS

A. This land application agreement is made on 2/12/16 between Stephen Long Saufley, referred to here as "Landowner", and Houff's Feed & Fertilizer, referred to here as the "Permittee". This agreement remains in effect until it is terminated in writing by either party or, with respect to those parcels that are retained by the Landowner in the event of a sale of one or more parcels, until ownership of all parcels changes. If ownership of individual parcels identified in this agreement changes, those parcels for which ownership has changed will no longer be authorized to receive biosolids or industrial residuals under this agreement.

Landowner:

The Landowner is the owner of record of the real property located in Rockingham County, Virginia, which includes the agricultural, silvicultural or reclamation sites identified below in Table 1 and identified on the tax map(s) attached as Exhibit A.

Table 1.: Parcels authorized to receive biosolids, water treatment residuals or other industrial sludges

Tax Parcel ID	Tax Parcel ID	Tax Parcel ID	Tax Parcel ID
152-A-L30B			

☐ Additional parcels containing Land Application Sites are identified on Supplement A (check if applicable)

Check one:
- ✓ The Landowner is the sole owner of the properties identified herein.
- ☐ The Landowner is one of multiple owners of the properties identified herein.

In the event that the Landowner sells or transfers all or part of the property to which biosolids have been applied within 38 months of the latest date of biosolids application, the Landowner shall:

1. Notify the purchaser or transferee of the applicable public access and crop management restrictions no later than the date of the property transfer; and
2. Notify the Permittee of the sale within two weeks following property transfer.

The Landowner has no other agreements for land application on the fields identified herein. The Landowner will notify the Permittee immediately if conditions change such that the fields are no longer available to the Permittee for application or any part of this agreement becomes invalid or the information herein contained becomes incorrect.

The Landowner hereby grants permission to the Permittee to land apply residuals as specified below, on the agricultural sites identified above and in Exhibit A. The Landowner also grants permission for DEQ staff to conduct inspections on the land identified above, before, during or after land application of permitted residuals for the purpose of determining compliance with regulatory requirements applicable to such application.

Class B biosolids	Water treatment residuals	Food processing waste	Other industrial sludges
✓ Yes ☐ No	✓ Yes ☐ No	✓ Yes ☐ No	✓ Yes ☐ No

Stephen Long Saufley — 6711 Saufley Lane, Port Republic, VA 24471
Landowner – Printed Name, Title — Signature — Mailing Address

Permittee:

Houff's Feed & Fertilizer, the Permittee, agrees to apply biosolids and/or industrial residuals on the Landowner's land in the manner authorized by the VPA Permit Regulation and in amounts not to exceed the rates identified in the nutrient management plan prepared for each land application field by a person certified in accordance with §10.1-104.2 of the Code of Virginia.

The Permittee agrees to notify the Landowner or the Landowner's designee of the proposed schedule for land application and specifically prior to any particular application to the Landowner's land. Notice shall include the source of residuals to be applied.

☐ I reviewed the document(s) assigning signatory authority to the person signing for landowner above. I will make a copy of this document(s) available to DEQ for review upon request. (Do not check this box if the landowner signs this agreement)

Timothy J. Grove — 97 Railside Drive, Weyers Cave, VA 24486
Permittee – Authorized Representative Printed Name — Signature — Mailing Address

VIRGINIA POLLUTION ABATEMENT PERMIT APPLICATION: PART D-VI LAND APPLICATION AGREEMENT

Permittee: Houff's Feed & Fertilizer **County or City: Rockingham**

Landowner: Stephen Long Saufley

Landowner Site Management Requirements:

I, the Landowner, I have received a DEQ Biosolids Fact Sheet that includes information regarding regulations governing the land application of biosolids, the components of biosolids and proper handling and land application of biosolids.

I have also been expressly advised by the Permittee that the site management requirements and site access restrictions identified below must be complied with after biosolids have been applied on my property in order to protect public health, and that I am responsible for the implementation of these practices.

I agree to implement the following site management practices at each site under my ownership following the land application of biosolids at the site:

1. Notification Signs: I will not remove any signs posted by the Permittee for the purpose of identifying my field as a biosolids land application site, unless requested by the Permittee, until at least 30 days after land application at that site is completed.

2. Public Access
    a. Public access to land with a high potential for public exposure shall be restricted for at least one year following any application of biosolids.
    b. Public access to land with a low potential for public exposure shall be restricted for at least 30 days following any application of biosolids. No biosolids amended soil shall be excavated or removed from the site during this same period of time unless adequate provisions are made to prevent public exposure to soil, dusts or aerosols;
    c. Turf grown on land where biosolids are applied shall not be harvested for one year after application of biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by DEQ.

3. Crop Restrictions:
    a. Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after the application of biosolids.
    b. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after the application of biosolids when the biosolids remain on the land surface for a time period of four (4) or more months prior to incorporation into the soil,
    c. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months when the biosolids remain on the land surface for a time period of less than four (4) months prior to incorporation.
    d. Other food crops and fiber crops shall not be harvested for 30 days after the application of biosolids;
    e. Feed crops shall not be harvested for 30 days after the application of biosolids (60 days if fed to lactating dairy animals).

4. Livestock Access Restrictions:
    Following biosolids application to pasture or hayland sites:
    a. Meat producing livestock shall not be grazed for 30 days,
    b. Lactating dairy animals shall not be grazed for a minimum of 60 days.
    c. Other animals shall be restricted from grazing for 30 days;

5. Supplemental commercial fertilizer or manure applications will be coordinated with the biosolids and industrial residuals applications such that the total crop needs for nutrients are not exceeded as identified in the nutrient management plan developed by a person certified in accordance with §10.1-104.2 of the Code of Virginia;

6. Tobacco, because it has been shown to accumulate cadmium, should not be grown on the Landowner's land for three years following the application of biosolids or industrial residuals which bear cadmium equal to or exceeding 0.45 pounds/acre (0.5 kilograms/hectare).

Landowner's Signature 2/12/16 Date

Site: BELLVIEW
Owner: Steve Saufley
Operator: Steve Saufley

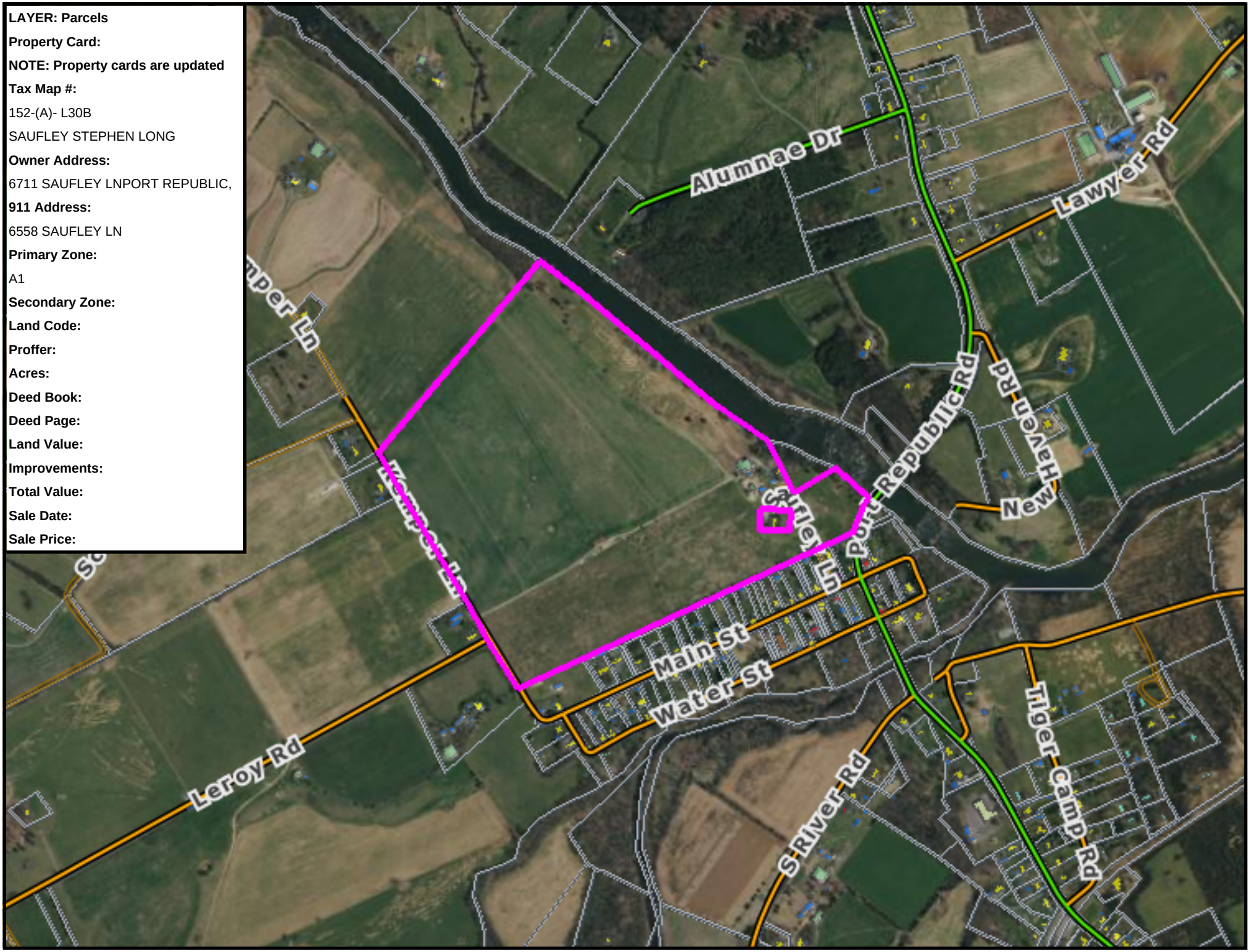
Tax Map

N
W E
S

0 750 1,500 3,000 Feet

TaxParcels042008
BELLVIEW Fields

Houff's FEED & FERTILIZER


LAYER: Parcels
Property Card:
NOTE: Property cards are updated
Tax Map #:
152-(A)- L30B
SAUFLEY STEPHEN LONG
Owner Address:
6711 SAUFLEY LNPORT REPUBLIC,
911 Address:
6558 SAUFLEY LN
Primary Zone:
A1
Secondary Zone:
Land Code:
Proffer:
Acres:
Deed Book:
Deed Page:
Land Value:
Improvements:
Total Value:
Sale Date:
Sale Price:
Alumnae Dr
Lawyer Rd
Port Republic Rd
Haven Rd
New
Saufley Ln
Main St
Water St
Leroy Rd
S River Rd
Tiger Camp Rd

GENERAL LOCATION MAP
Belle View Farm

Houff's FEED & FERTILIZER

Projection : Universal Transverse Mercator
Datum : WGS Datum (1984)
Zone Number : 17
Hemisphere : North

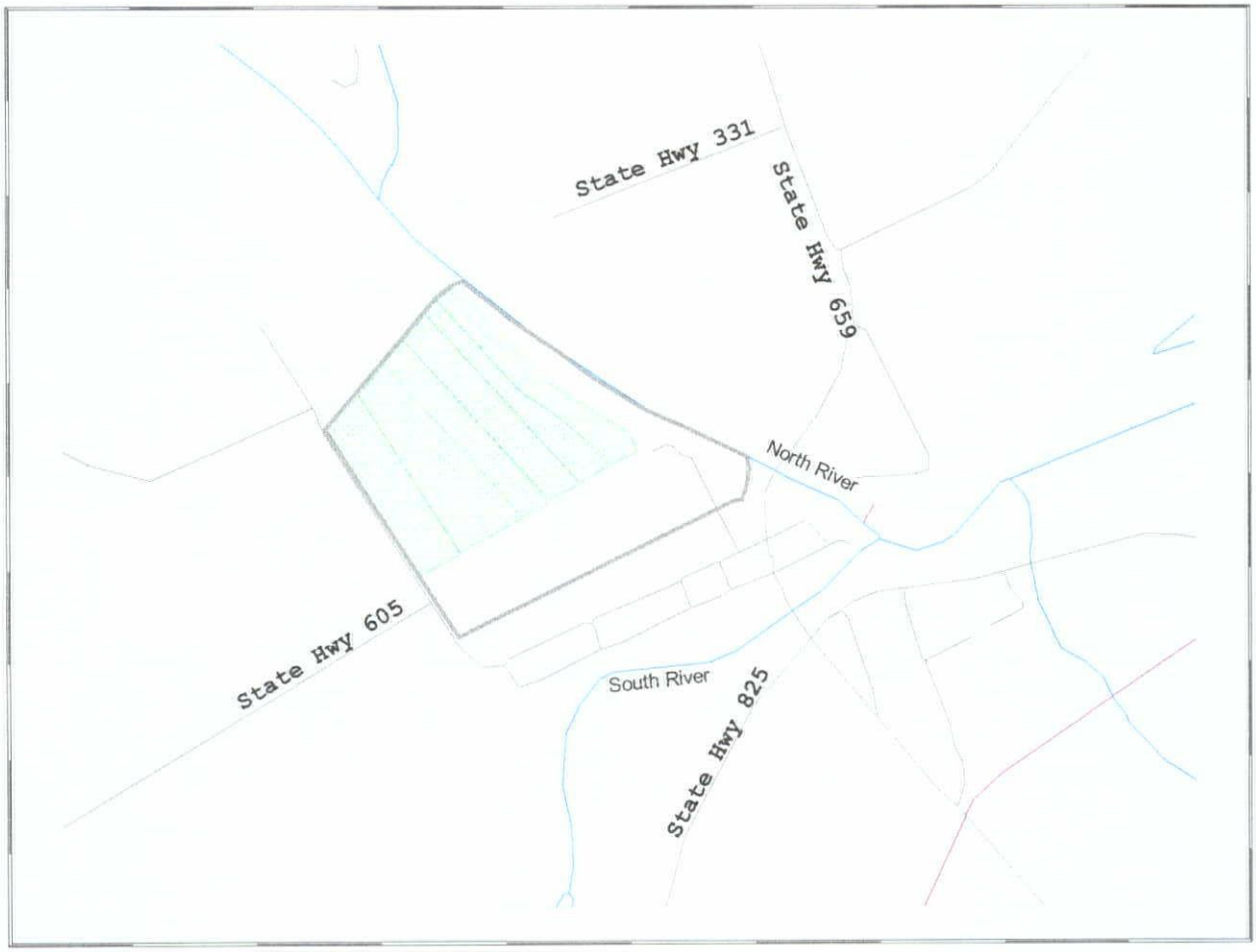
Scale 1 : 59262
10000 ft

N
W
E
S

THE VISION SYSTEM

EXHIBIT A - LOCATION MAP
Site BELLVIEW

Belle View Farm
Stephen L. Saufley, Landowner
Steve Saufley, Operator



LEGEND

- Property line
- Road
- River/watercourse
- Railroad
- Field

Houff's FEED & FERTILIZER

Projection : Universal Transverse Mercator
Datum : WGS Datum (1984)
Zone Number : 17
Hemisphere : North

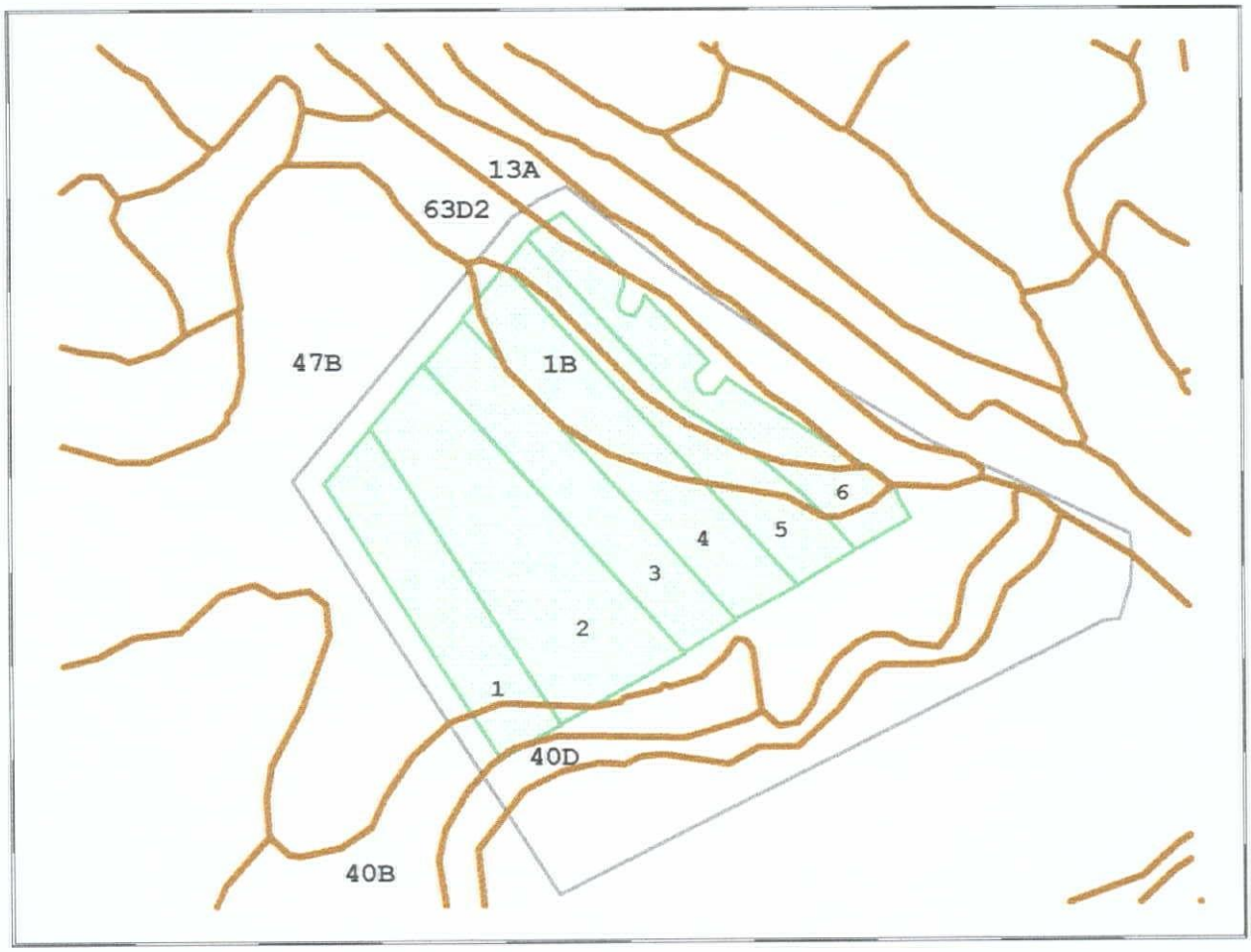
Scale 1 : 19230
1000 ft

N
W
E
S

THE VISION SYSTEM

EXHIBIT B - SOILS MAP
Site BELLVIEW

Belle View Farm
Stephen Saufley, Landowner
Steve Saufley, Operator



LEGEND

Property line

Field

Soils boundary

Large numbers designate soil series.
small numbers designate field.

Houff's FEED & FERTILIZER

Projection : Universal Transverse Mercator
Datum : WGS Datum (1984)
Zone Number : 17
Hemisphere : North

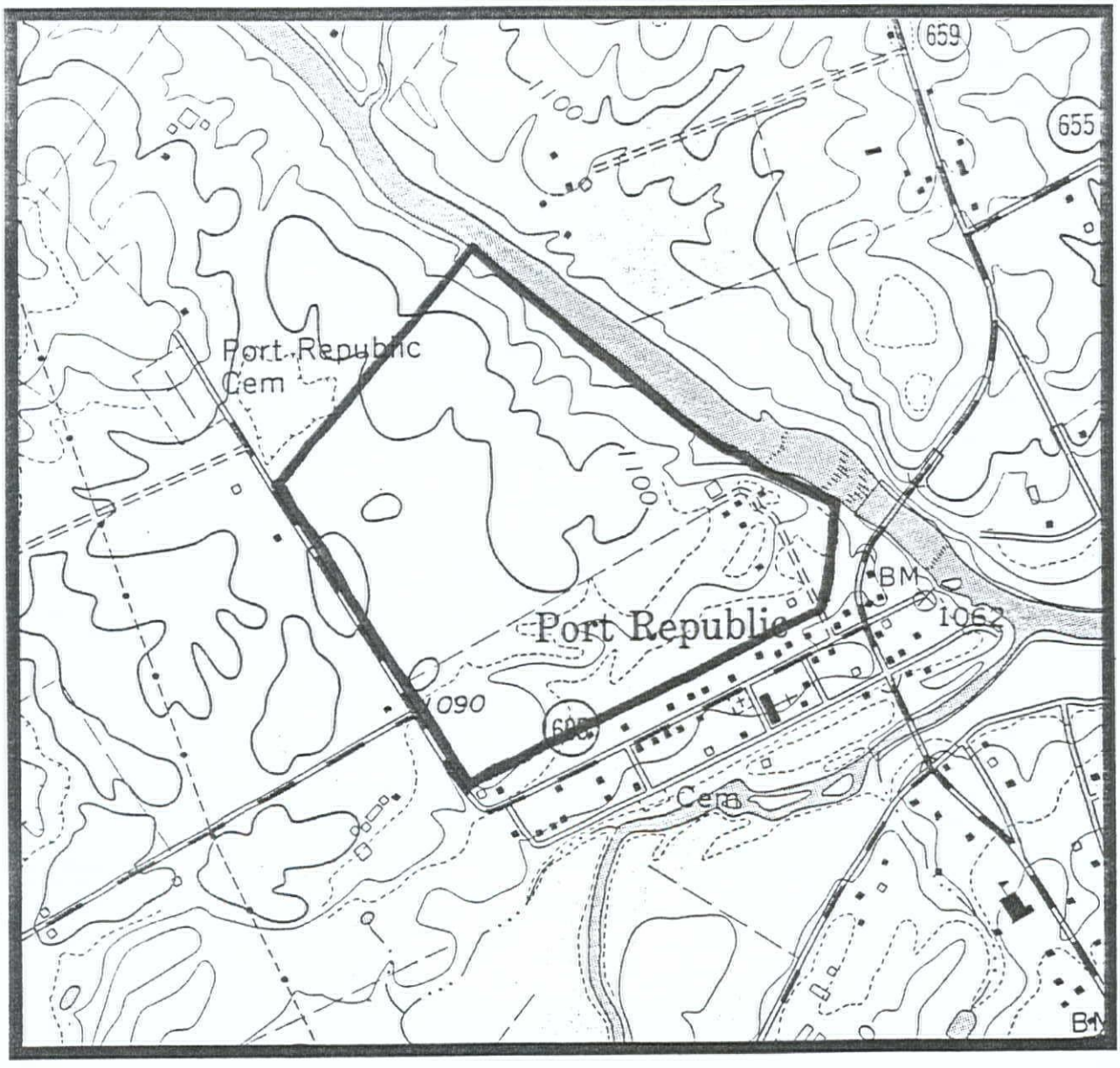
Scale 1 : 9636
1000 ft

N W E S

THE VISION SYSTEM

EXHIBIT C - TOPOGRAPHIC MAP
Site BELLVIEW

Belle View Farm
Stephen L. Saufley, Landowner
Steve Saufley, Operator



Houff's
FEED & FERTILIZER

N

Site: BELLVIEW
Owner: Steve Saufley
Operator: Steve Saufley

Site Map

Houff's
FEED & FERTILIZER

NUTRIENT MANAGEMENT PLAN IDENTIFICATION

Operator
Steve Saufley
6711 Saufley Lane
Port Republic, VA 24471

Integrator:*None*

Farm Coordinates
Easting: 690200, Northing: 4240300, zone: 17

Watershed Summary
watershed: PS31
county: Rockingham

Nutrient Management Planner
Tim Grove
Houff's Feed & Fertilizer
97 Railside Drive
Weyers Cave, VA 24486

Certification Code: 273

Acreage Use Summary
Total Acreage in this plan: 167.7

Cropland:	0.
Hayland:	167.7
Pasture:	0.
Specialty:	0.

Livestock Summary

Beef Cattle	0
Dairy Cattle	0
Poultry	0
Swine	0
Other	0

Manure Production Balance

	Imported	Produced	Exported	Used	Net
kgals	0.	0.	0.	0.	0.
tons	0.	0.	0.	0.	0.

Plan written 07/01/2009
Valid until 07/01/2012

Signature: _____ 10/1/10
Planner **date**

BELLVIEW-GROAH-NORVELL Narrative

Steve Saufley operates Belle View Farm, a hay and beef cattle operation near Port Republic, Virginia. This farm includes HFF permit sites BELLVIEW, GROAH and NORVELL. Hay fields receive more than one cutting per year, whereas Hay/Pasture fields receive one cutting and then are pastured. Crop nutrient needs are met with biosolids, poultry litter and supplemental commercial fertilizer.

Nitrogen needs for hay fields are adjusted to reflect total allowable PAN for all cuttings in a single year. In order to remain available for annual applications of biosolids, do not exceed 50% of nitrogen needs with combination of all sources of PAN, excluding residual nitrogen from previous years' applications. Splitting desired annual rate (50% of allowed) into two applications - one per cutting - is suggested for optimum nitrogen use efficiency. Consult your nutrient management planner before exceeding these rates.

Split potash recommendations greater than 100 lbs into multiple applications of 100 lbs or less.

Nutrient Management Plan Special Conditions for Nutrient Management Plans Developed for Biosolids Applications

July 2008

The following management practices will be utilized for <u>operations using biosolids</u>:

1. Soil samples for biosolid application fields will be analyzed at least once every three (3) years for pH, phosphorus, potassium, calcium, and magnesium in order to maximize the efficient utilization of nutrients. A representative soil sample of each field representing an area up to approximately twenty acres will be comprised of cores randomly sampled throughout the field. Soil sampling core depth will be from 0-4 inches for land that has not been tilled within the past three years, or 0-6 inches for land that has been tilled within the past three years. Soil pH will be maintained at approximate agronomic levels to promote optimum crop growth and nutrient utilization.

2. Application rates for alkaline stabilized biosolids shall be restricted in accordance with a lime requirements test determined by commercial or state soil testing laboratories listed in #3 below. Calcium carbonate equivalent loadings shall not exceed rates exected to attain soil pH values in the plow layer above 6.5 for soils located in the coastal plain and above 6.8 for soils located in other areas of the state.

3. Soil test analysis will be performed by one of the laboratories listed below. Soil phosphorus levels must be determined using the Mehlich I or Mehlich III procedure:
   - A&L Agricultural Laboratories
   - Brookside Laboratories
   - Waters Agricultural Laboratories
   - Spectrum Analytical Laboratories
   - Virginia Tech Soil Testing Lab

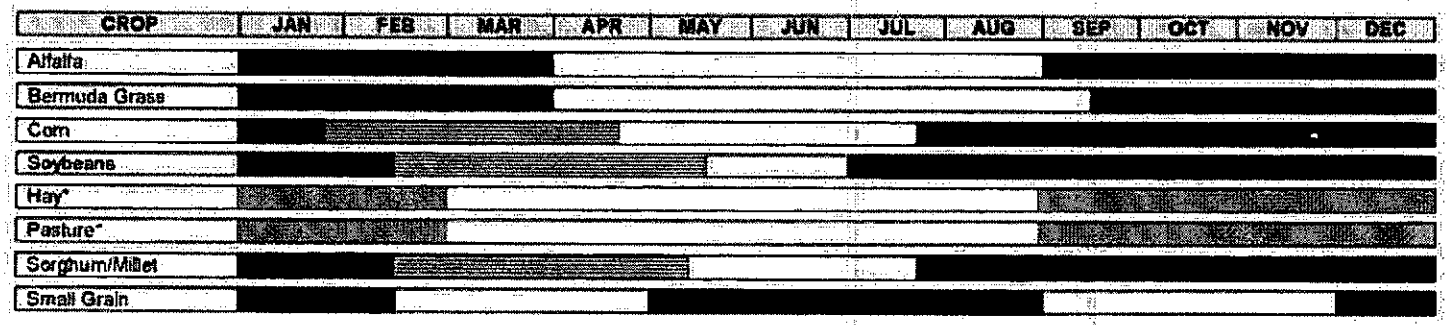
4. The actual biosolids application rates shall be based on he annual average sludge quality. Theaverage sludge quality shall established from the results of approved analytical testing of composite samples obtained during the most recent 12 months of monitoring. For proposed treatment works rates may be initially based on the biosolids characteristic produced by similar generating facilities. At a minimum, representative biosolids samples will be analyzed at the frequency and for the parameters specified in the VPA or VPDES Permit. These include but are not limited to: total nitrogen or total Kjeldahl nitrogen, ammonia-nitrogen, total phosphorus, total potassium, calcium carbonate equivalency, and and percent solids. Biosolids analysis results will be used to determine actual application rates that do not exceed the nitrogen, phosphorus, and lime application rates specified in the nutrient management plan.

5. All crops will be planted and harvested in a timely manner using commercially acceptable management practices.

6. Make biosolids applications at or near planting or to existing actively growing crops to assure that nutrients are properly utilized. Utilize the spreading schedule contained in the nutrient management plan to determine appropriate biosolids application times and rates. Additional commercial fertilizer applications (especially nitrogen) should be made as a split application separate from the biosolids application, either as a sidedress or topdress application.

7. Biosolids Spreading Schedule.

BIOSOLIDS SPREADING SCHEDULE



Note * Late fall and winter biosolids applications may be made to a trap crop only if applications are in accordance with 4VAC5-15; Cool season grasses only, Fescue and or Orchardgrass

Spread liquid or dewatered biosolids at the rates and times specified in the nutrient management plan.

Do not spread liquid or dewatered biosolids during these shaded time periods.

Applications during these time periods shall comply with the following:

- Biosolids applications will not be made earlier than 30 days prior to planting on environmentally sensitive sites.
- On fields <u>not listed as environmentally sensitive</u>:
  - Applications of dewatered anaerobically digested or dewatered lime stabilized biosolids will not occur more than 90 days prior to spring planting on fields having (i) slopes less than 7% throughout the application area or (ii) having at least 60% uniform ground cover from crop residue.
  - Liquid biosolids applications will not occur more than 60 days prior to spring planting.

Biosolids applications should be avoided whenever possible during this period (late fall-winter). Fields must have greater than 60% uniform five cover with plant height greater than three (3) inches. Applications made to cool season grass hay and pasture, if applied after 9/1 of any year until 3/1 of the following year, shall not exceed ½ of the total nitrogen rate

As stipulated in 4VAC5-15, applications of sewage sludge to environmentally sensitive sites shall fully comply with these timing requirements immediately. Implementation of these timing requirements on nonenvironmentally sensitive sites shall be required for swage sludge applications on January 1, 2009, and thereafter.

8. For permanent hay or pasture, an adequate stand of hay and/or pasture crop species will be established prior to land application of biosolids. Commercially acceptable stands of the listed species will be maintained and other weeds and grasses controlled. All hay crops will be harvested in a timely and regular manner, removed from fields, and utilized for a suitable purpose.

9. Biosolids will be applied to application sites in a uniform manner.

10. **Do not spread biosolids within the following setback areas or as specified in the permit:**

Minimum distances to Land Application Area			
Adjacent Features	Surface Application (ft)[1]	Incorporation (ft)	Winter (ft)[2]
Occupied Dwellings	200	200	200
Water Supply wells and springs	100	100	100
Property Lines	100	50	100
Perennial streams and other surface waters except intermittent streams	50	35	100
Intermittent streams/drainage ditches	25	25	50
All improved roadways	10	5	10
Rock outcrops	25	25	25
Limestone rock outcrops and sinkholes	25	25	25
Agricultural drainage ditches with slopes equal to or less than 2.0%	10	5	10

Notes:
(1) Not plowed or disked to incorporate within 48 hours
(2) Application occurs on average site slope greater than 7.0% during the time between November 16 of one year and March 15 of the following year
In cases where more than one buffer distance is involved, only the single most restrictive distance shall be used.

11. Field Management Practices and Restrictions:

- Biosolids application shall not be made during times when the seasonal high water table of the soil is within 18 inches of the ground surface.

- Biosolids may only be appliced to snow-covered ground if the snow cover does not exceed one inch and the snow and biosolids are immediately incorporated within 24 hours of application.

- Liquid sludges (above 85.5% moisture content) shall not be applied to frozen ground. Dry or dewatered sludges may be applied to frozen ground only if the field has: slopes not greater than 5.0%, 60% uniform ground cover from crop residue or an existing actively growing crop such as a small grain or fescue with exposed plant height of three inches or more, a minimum of a 200-foot vegetated or adequate crop residue buffer between the application area and all surface water courses, and soils characterized by USDA as "well drained".

- Waste shall not be applied in areas subject to concentrated flow generated by runoff

from storm events such that it would discharge into sinkholes in the area.

- To avoid runoff from application fields, do not spread biosolids on soils that are saturated. If overland flow of liquid biosolids which could reach buffer areas is observed, reduce the application rate immediately to prevent runoff.

- The application rate of all application equipment shall be routinely measured as described in an approved sludge management plan and every effort shall be made to ensure uniform application of biosolids within sites in accordance with approved maximum design loading rates.

- Liquid sludges shall not be applied at rates exceeding 14,000 gallons per acre, per application. Sufficient drying times shall be allowed between subsequent applications.

- Application vehicles should be suitable for use on agricultural land. Pasture and hay fields should be grazed or clipped to a height of approximately four and siz inches, respectively, prior to biosolids application unless the biosolids can be uniformly applied so as not to mat down the vegetative cover so that the site vegetation can be clipped to a height of aproximately four inches within one week of the biosolids application. If application methods do not result in a uniform distribution of biosolids, additional operational methods shall be employed following application such as dragging with a pasture harrow, followed by clipping if required, to achieve a uniform distribution of the applied biosolids.

12. Nutrient management plans that contain fields in which row crops will be grown will be revised at least once every three (3) years. Nutrient management plans that contain only hay or pasture fields will be revised at least once every five (5) years. Any such plan revisions will be submitted to DCR and the farm operator within two weeks of the revision per 4VACS-15-100 C.

13. Biosolids applications on CRP or CREP lands must be pre-approved by NRCS and an appropriate conservation plan and NMP must be in place prior to application.

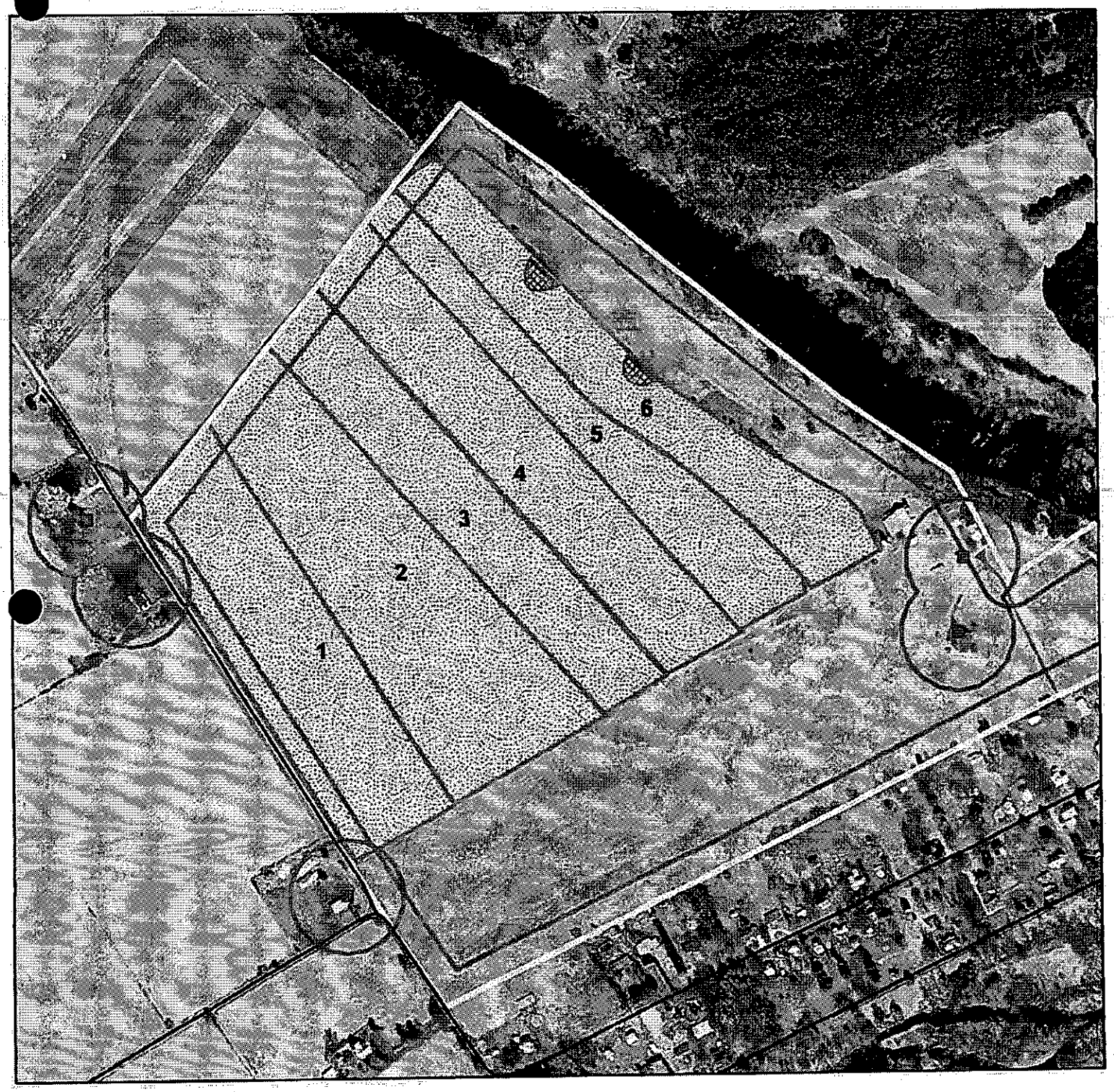
14. This nutrient management plan should be amended or modified by the certified planner who developed the initial plan if:

    - additional imported manure, biosolids, or industrial waste that was not identified in the existing plan is applied to fields under the control of the operator;
    - available land area for the utilization of biosolids decreases below the level necessary to utilize biosolids in the plan;
    - cropping systems, rotations, tillage, or fields are changed where phosphorus will be applied at levels greater than crop nutrient needs based on soil analysis; or
    - actual biosolids nutrient applications are significantly more or less than the original planned applications, such that any needed supplemental nutrient applications (from any source) would need to be amended to achieve the appropriate loading rate and yield goals.

15. Any requirements of a permit issued by DEQ, which are more restrictive, supercede these Special Conditions.

Site: BELLVIEW
Owner: Steve Saufley
Operator: Steve Saufley

BELLVIEW



N
W E
S

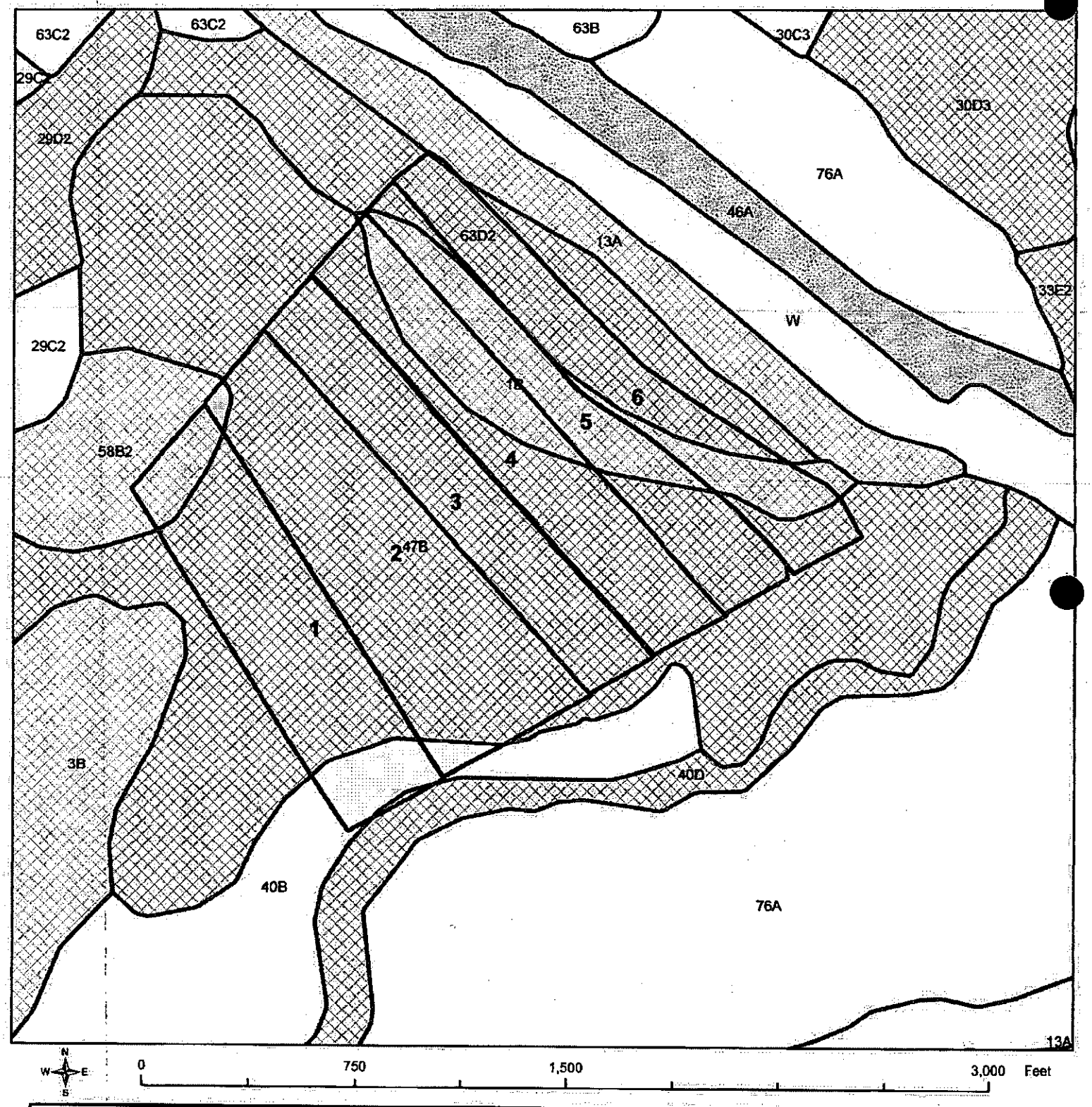
0 750 1,500 3,000 Feet

BELLVIEW Steep Land
BELLVIEW Houses (200 ft buffer)
BELLVIEW Roads (10 ft buffer)
BELLVIEW Property Line
BELLVIEW Fields

Houff's FEED & FERTILIZER

Site: BELLVIEW
Owner: Steve Saufley
Operator: Steve Saufley

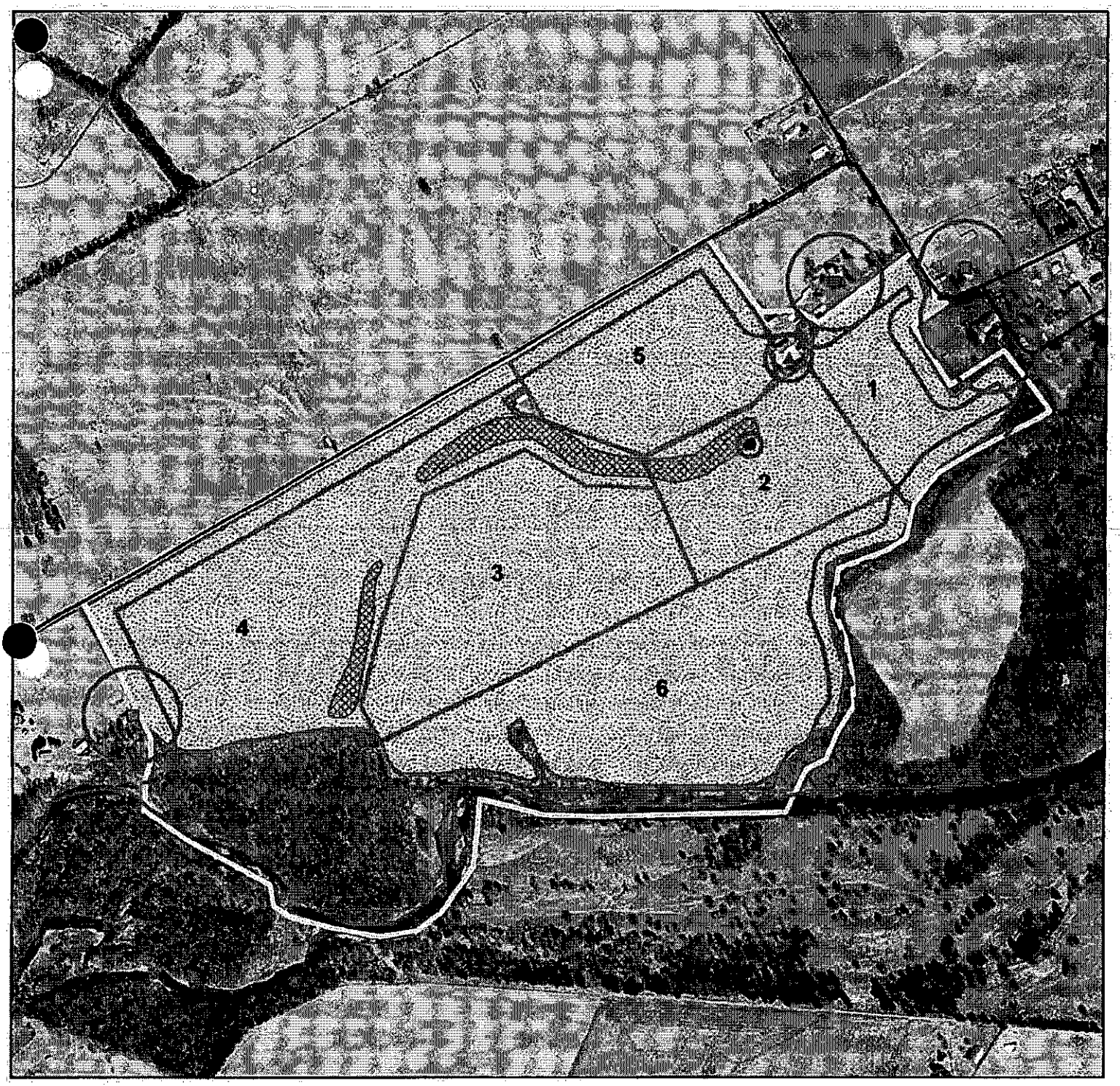
Soils Map



Houff's FEED & FERTILIZER

Site: GROAH
Owner: William Groah
Operator: Steve Saufley

Site Map



N
W E
S

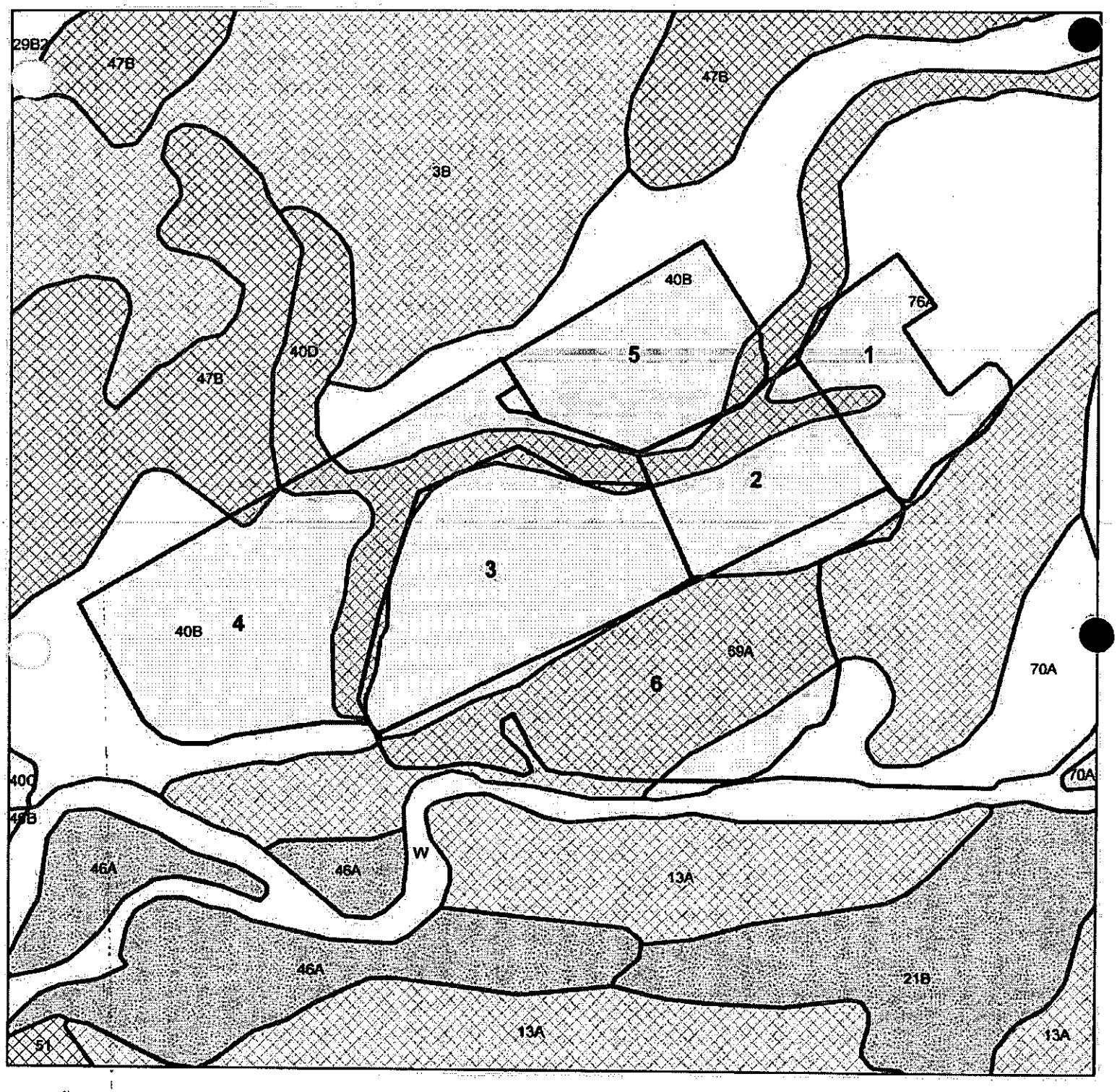
0 1,000 2,000 4,000

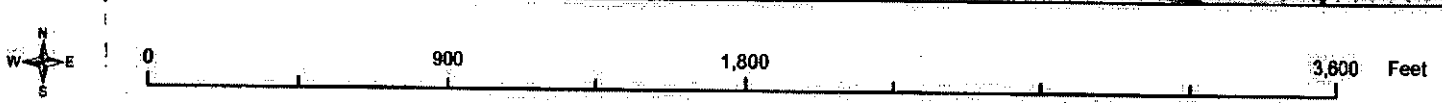
- GROAH Wells (100 ft buffer)
- GROAH Houses (200 ft buffer)
- GROAH Rocks (50 ft buffer)
- GROAH Roads (25 ft buffer)
- GROAH Property Lines (100 ft buffer)
- GROAH Steep Land
- GROAH Fields
- GROAH Streams (50 ft buffer)
- GROAH Intermittent Streams (25 ft buffer)

Houff's FEED & FERTILIZER

Site: GROAH
Owner: William Groah
Operator: Steve Saufley

Soils Map



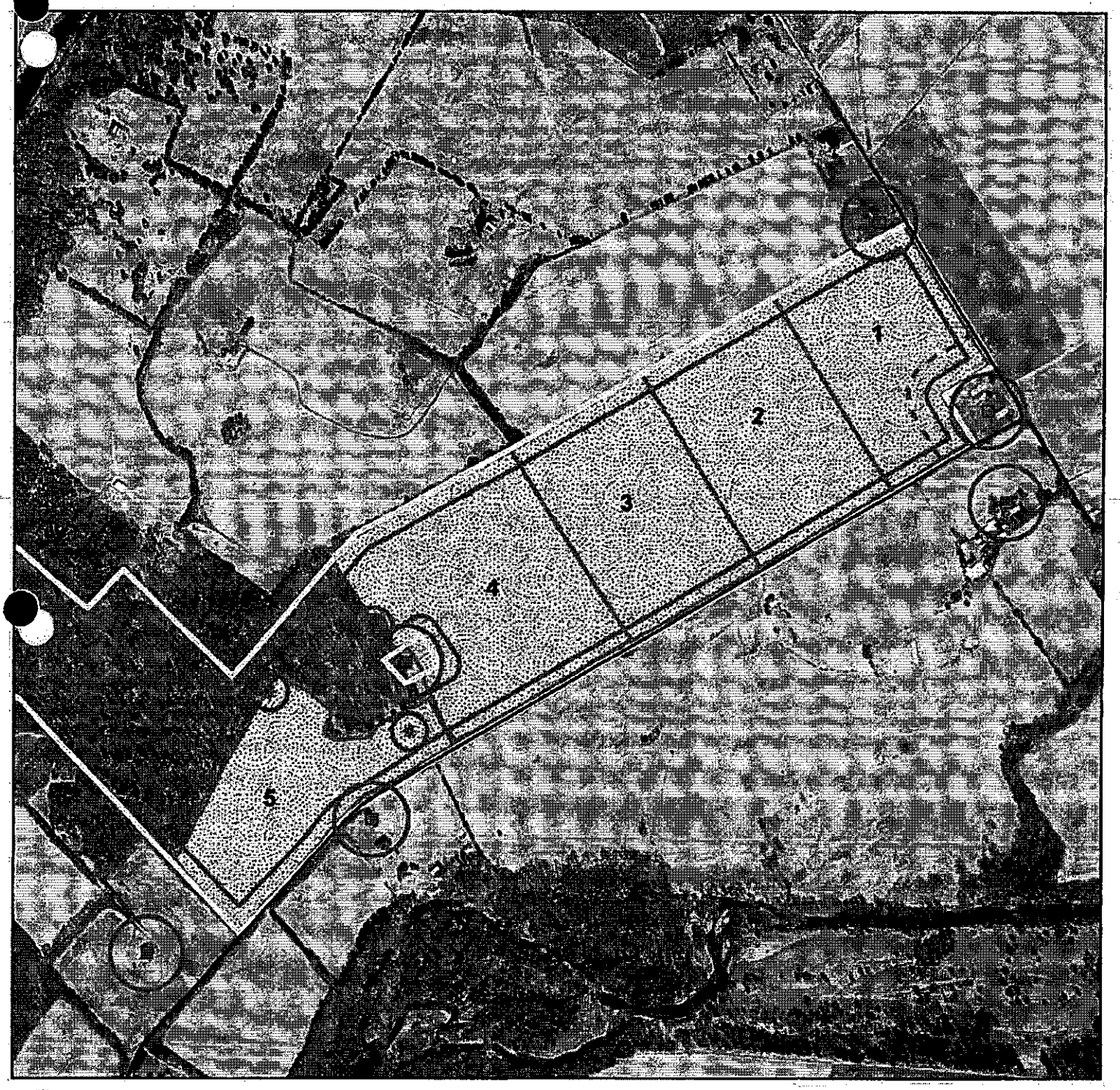


- Rockingham Soils
- GROAH Fields
- Rockingham ES Soils - Leaching
- Rockingham ES Soils - Shallow
- Rockingham ES Soils - Slope
- Rockingham ES Soils - Frequently Flooded
- Rockingham ES Soils - Drainage

Houff's FEED & FERTILIZER

Site: NORVELL
Owner: Betty Jean Norvell
William Groah
Operator: Steve Saufley

Site Map



N
W E
S

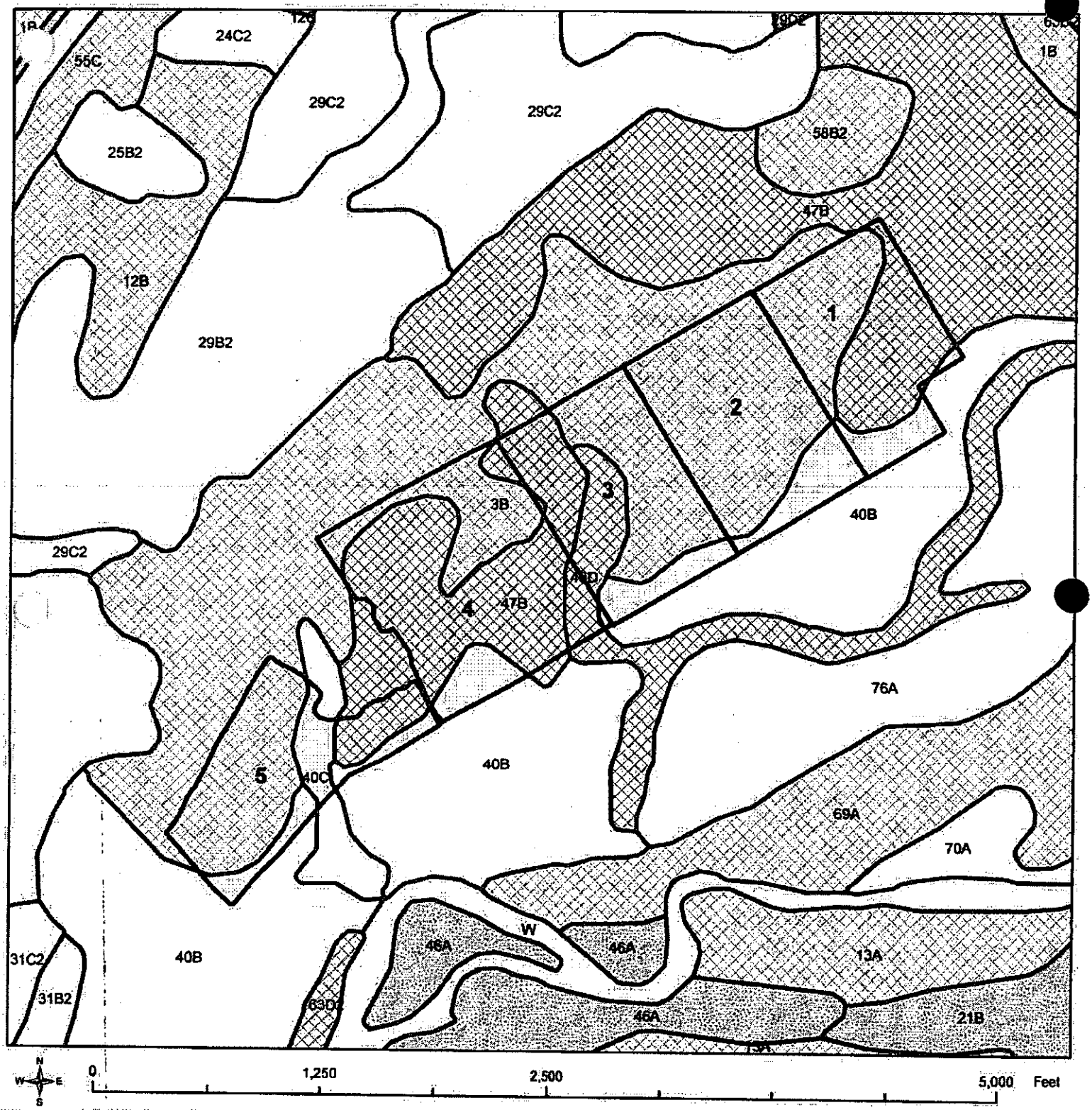
0 1,200 2,400 4,800 Feet

- NORVELL Sinkholes (100 ft buffer)
- NORVELL Houses (200 ft buffer)
- NORVELL Roads (10 ft buffer)
- 200 ft Buffer from John Oakes Property Line
- NORVELL Property Lines (100 ft buffer)
- NORVELL Ponds (50 ft buffer)
- NORVELL Fields

Houff's FEED & FERTILIZER

Site: NORVELL
Owner: Betty Jean Norvell
William Groah
Operator: Steve Saufley

Soils Map



- Rockingham Soils
- NORVELL Fields
- Rockingham ES Soils - Leaching
- Rockingham ES Soils - Shallow
- Rockingham ES Soils - Slope
- Rockingham ES Soils - Frequently Flooded
- Rockingham ES Soils - Drainage

Houff's FEED & FERTILIZER

Nutrient Management Plan Balance Sheet
(Spring, 2009-Summer, 2012)
BELLVIEW-GROAH-NORVELL
Planner: Tim Grove (cert. No. 273)

Tract: BELLVIEW Location: Rockingham
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes
0/1(N)	13/13	2009	Orchardgrass hay mt.	160-0-95	0/0				160-0-95	N/A		
		2010	... ...	160-0-95	0/0	3.8k WHITEW(Sp)	>7	41-36-7	80-(165)-175	N/A	0-0-95(br)	
						6.7k MASS 6(Sp)	>7	12-50-3				
						6.2k ACSA-M(Sp)	>7	27-79-6				
		2011	... ...	160-0-95	0/21				140-(165)-175	N/A	60-0-95(br)	
0/5(N)	9/9	2009	Orchardgrass hay mt.	160-0-95	0/0				160-0-95	N/A		
		2010	... ...	160-0-95	0/0	4.2k WHITEW(Sp)	>7	45-39-8	85-(105)-175	N/A	0-0-95(br)	
						2.8k ACSA-W(Fa)	>7	11-9-1				
						3.5k ACSA-M(Fa)	>7	18-55-4				
		2011	... ...	160-0-95	0/18				140-(105)-175	N/A	60-0-95(br)	
0/6(N)	10/10	2009	Orchardgrass hay mt.	160-0-95	0/0				160-0-95	N/A		
		2010	... ...	160-0-95	0/0	5.k WHITEW(Sp)	>7	54-46-10	80-(105)-175	N/A	0-0-95(br)	
						2.5k ACSA-W(Fa)	>7	10-8-1				
						4.3k MASS 6(Fa)	>7	8-32-2				
						1.2k ACSA-M(Fa)	>7	6-19-1				
		2011	... ...	160-0-95	0/20				140-(105)-175	N/A	60-0-95(br)	

Commercial Application Methods:
br - Broadcast ba - Banded sd - Sidedress

Notes:

Tract: GROAH Location: Rockingham
(N = N based, P = P based, 1S = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes
T11029 F12/2(N)	12/10	2009	Hay/Pasture	120-50-0	0/0	5.3k WHITEW(Su)	>7	57-54-14	65-(5)-(15)	N/A		
		2010	... ...	120-50-0	0/16	5.3k WHITEW(Su)	>7	54-52-8	50-(5)-(25)	N/A		
		2011	... ...	120-50-0	0/31				90-45-(25)	N/A	60-50-0(br)	
T11029 F6/4(N)	31/24	2009	Fescue grass hay mt.	160-40-55	0/9	6.5k HRRSA(Su)	>7	63-153-21	80-(120)-30	N/A	0-0-30(br)	
						0.8k WHITEW(Fa)	>7	7-6-1				
		2010	... ...	160-40-55	0/20	10.4k MASS 6(Sp)	>7	19-77-6	115-(165)-50	N/A	0-0-60(br)	
						1.2k Hershe(Sp)	>7	3-6-0				
		2011	... ...	160-40-55	0/17	1.1k ACSA-W(Sp)	>7	4-3-0	145-(125)-45	N/A	60-0-60(br)	
T11029 F9/5(N)	13/12	2009	Fescue grass hay mt.	160-0-95	0/0	4.7k ACSA-W(Su)	>7	17-28-4	115-(105)-85	N/A	0-0-90(br)	
						13.k MASS(Su)	>7	26-78-6				
		2010	... ...	160-0-95	0/13	6.3k HRRSA (Sp)	>7	64-134-19	85-(240)-70	N/A	0-0-70(br)	
		2011	... ...	160-0-95	0/21				140-(240)-95	N/A	60-0-90(br)	
T11029 F12/6(N)	27/25	2009	Hay/Pasture	120-80-170	0/0	5.5k WHITEW(Su)	>7	60-56-14	60-25-155	N/A	0-25-155(br)	
		2010	... ...	120-100-160	0/17	4.8k WHITEW(Su)	>7	50-48-8	55-50-150	N/A	0-50-150(br)	
		2011	... ...	120-100-160	0/31				90-100-160	N/A	60-100-160(br)	

Commercial Application Methods:
br - Broadcast ba - Banded sd - Sidedress

Notes:

Tract: NORVELL Location: Rockingham
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes
T11029 F2/3(N)	22/22	2009	Hay/Pasture	100-0-0	0/0	4.3k WHITEW(Su)	>7	46-43-11	55-(45)-(10)	N/A		
		2010	... ...	100-0-0	0/13				85-(45)-(10)	N/A	60-0-0(br)	
		2011	... ...	100-0-0	0/13				85-(45)-(10)	N/A	60-0-0(br)	
0/4(N)	31/24	2009	Hay/Pasture	100-50-95	0/0	4.3k WHITEW(Fa)	>7	42-36-8	60-15-85	N/A		
		2010	... ...	100-70-120	0/12				90-85-205	N/A	60-70-120(br)	
		2011	... ...	100-70-120	0/12				90-85-205	N/A	60-70-120(br)	

Commercial Application Methods:
br - Broadcast ba - Banded sd - Sidedress

Notes:

Nutrient Management Plan Balance Sheet
(Spring, 2009-Summer, 2012)
BELLVIEW-GROAH-NORVELL
Planner: Tim Grove (cert. No. 273)

Tract: BELLVIEW Location: Rockingham
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field - CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P vVV rem cred	Commercial N-P-K (lbs/ac)	Notes	
0/1 (N)	13/13	2009	Orchardgrass hay mt.	160-0-95	0/0				160-0-95	N/A			
		2010	... ...	160-0-95	0/0	3.8k WHITEW(Sp) 6.7k MASS 6(Sp) 6.2k ACSA-M(Sp)	>7 >7 >7	41-36-7 12-50-3 27-79-6	80-(165)-175	N/A	0-0-95(br)		
		2011	... ...	160-0-95	0/21				140-(165)-175	N/A	60-0-95(br)		
0/5(N)	9/9	2009	Orchardgrass hay mt.	160-0-95	0/0				160-0-95	N/A			
		2010	... ...	160-0-95	0/0	4.2k WHITEW(Sp) 2.8k ACSA-W(Fa)	>7 >7	45-39-8 11-9-1	105-(50)-180	N/A	0-0-95(br)		
		2011	... ...	160-0-95	0/14				145-(50)-180	N/A	60-0-95(br)		
0/6(N)	10/10	2009	Orchardgrass hay mt.	160-0-95	0/0				160-0-95	N/A			
		2010	... ...	160-0-95	0/0	5.k WHITEW(Sp) 2.5k ACSA-W(Fa)	>7 >7	54-46-10 10-8-1	95-(55)-180	N/A	0-0-95(br)		
		2011	... ...	160-0-95	0/16				145-(55)-180	N/A	60-0-95(br)		

Commercial Application Methods:
br - Broadcast ba - Banded sd - Sidedress

Notes:

Tract: GROAH Location: Rockingham
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT 7 (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem ered	Commercial N-P-K (lbs/ac)	Notes
T11029 F12/2(N)	12/10	2009	Hay/Pasture	120-50-0	0/0	5.3k WHITEW(Su)	>7	57-54-14	65-(5)-(15)	N/A		
		2010	... ...	120-50-0	0/16	5.3k WHITEW(Su)	>7	54-52-8	50-(5)-(25)	N/A		
		2011	... ...	120-50-0	0/31				90-45-(25)	N/A	60-50-0(br)	
T11029 F6/4(N)	31/24	2009	Fescue grass hay mt.	160-40-55	0/9	6.5k HRRSA(Su)	>7	63-153-21	80-(120)-30	N/A	0-0-30(br)	
						0.8kWHITEW(Fa)	>7	7-6-1				
		2010	... ...	160-40-55	0/20	10.4k MASS(Sp)	>7	19-77-5	115-(165)-50	N/A	0-0-60(br)	
						1.2k Hershe(Sp)	>7	3-6-0				
						1.1kACSA-W(Sp)	>7	4-3-0				
		2011	... ...	160-40-55	0/17				145-(125)-45	N/A	60-0-60(br)	
T11029 F9/5(N)	13/12	2009	Fescue grass hay mt.	160-0-95	0/0	4.7k ACSA-W(Su)	>7	17-28-4	115-(105)-85	N/A	0-0-90(br)	
						13.1kMASS(Su)	>7	26-78-6				
		2010	... ...	160-0-95	0/13	6.3k HRRSA (Sp)	>7	64-134-19	85-(240)-70	N/A	0-0-70(br)	
		2011	... ...	160-0-95	0/21				140-(240)-95	N/A	60-0-90(br)	
T11029 F12/6(N)	27/25	2009	Hay/Pasture	120-80-170	0/0	5.5k WHITEW(Su)	>7	60-56-14	60-25-155	N/A	0-25-155(br)	
		2010	... ...	120-100-160	0/17	4.8kWHITEW(Su)	>7	60-48-8	55-50-150	N/A	0-50-150(br)	
		2011	... ...	120-100-160	0/31				90-100-160	N/A	60-100-160(br)	

Commercial Application Methods:
br - Broadcast ba - Banded sd - Sidedress

Notes:

Tract: NORVELL Location: Rockingham
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem i cred	Commercial N-P-K (lbs/ac)	Notes
T11029 F2/3(N)	22/22	2009 2010 2011	Hay/Pasture	100-0-0 100-0-0 100-0-0	0/0 0/13 0/13	4.3k WHITEW(Su)	>7	46-43-11	55-(45)-(10) 85-(45)-(10) 85-(45)-(10)	N/A N/A N/A	 60-0-0(br) 60-0-0(br)	
0/4(N)	31/24	2009 2010 2011	Hay/Pasture	100-50-95 100-70-120 100-70-120	0/0 0/12 0/12	4.3k WHITEW(Fa)	>7	42-36-8	60-15-85 90-85-205 90-85-206	N/A N/A N/A	 60-70-120(br) 60-70-120(br)	

Commercial Application Methods:
br - Broadcast ba - Banded sd - Sidedress

Notes:

Field Productivities for Major Crops

Tract Name	Tract/ Field	Field Name	Acres	Predominant Soil Series	Corn	Small Grain	Alfalfa	Grass Hay *	Environmental Warnings
BELLVIEW	/0	1	13	Monongahela	IVa	IV	Not Suited	IV	
	/0	5*	9	Allegheny	IIIa	II	III	III	Shallow soil
	/0	6*	10	Shenval	IIIa	II	III	III	Shallow soil, High Slope
GROAH	11029/T1 1029	2*	10	Wheeling	Ia	I	I	I	
	11029/T1 1029	4	24	Laidig	IVb	IV	Not Suited	IV	
	11029/T1 1029	5	12	Laidig	IVb	IV	Not Suited	IV	
	11029/T1 1029	6*	25	Tioga	Ia	I	I	I	High Leaching
NORVELL	11029/T1 1029	3*	22	Monongahela	IVa	III	Not Suited	IV	Shallow soil, High Slope
	11029/0	4	24	Monongahela	IVa	IV	Not Suited	IV	

* Do not apply manure or biosolids more than 30 days prior to planting. Apply commercial fertilizer nitrogen to row crops in split spring applicaions.

Yield Range

Field Productivity Group	Corn Grain Bu/Acre	Barley/Intensive Wheat Bu/Acre	Std. Wheat Bu/Acre	Alfalfa Tons/Acre	Grass/Hay Tons/Acre
I	>170	>80	>64	>6	>4.0
II	150-170	70-80	56-64	4-6	3.5-4.0
III	130-150	60-70	48-56	<4	3.0-3.5
IV	100-130	50-60	40-48	NA	<3.0
V	<100	<50	<40	NA	NA

Manure Production Summary

Biosolid Name: HRRSA
Availability: unlimited
Biosolid Type: Anaerobic Digestion
% solid: 2.9
pH: 6.2
%CCE: 0.0
Biosolid Analysis (ppm):
TKN: 103160
NH4-N: 46420
NO3: 21
P2O5: 97508.2
K2O: 13536

Plant Available Nutrients:
Immediate Incorporation:
13.62 lbs N
23.5 lbs P2O5
3.26 lbs K2O
Surface Applied:
9.7 lbs N
23.5 lbs P2O5
3.26 lbs K2O
Residual N:
yr1: 1.37 lbs N
yr2: 1.37 lbs N
yr3: 0.68 lbs N

Biosolid Name: MASS
Availability: unlimited
Biosolid Type: Aerobic Digestion
% solid: 1.3
pH: 6.2
%CCE: 0.0
Biosolid Analysis (ppm):
TKN: 56533
NH4-N: 2891
NO3: 780

P2O5: 54343.99
K2O: 4386

Plant Available Nutrients:

Immediate Incorporation:

2.13 lbs N
5.98 lbs P2O5
0.48 lbs K2O

Surface Applied:

2.02 lbs N
5.98 lbs P2O5
0.48 lbs K2O

Residual N:

yr1: 0.59 lbs N
yr2: 0.59 lbs N
yr3: 0.3 lbs N

Biosolid Name: ACSA-WC
Availability: unlimited
Biosolid Type: Aerobic Digestion
% solid: 1.5
pH: 6.2
%CCE: 0.0
Biosolid Analysis (ppm):

TKN: 94500
NH4-N: 2700
NO3: 89
P2O5: 49693
K2O: 6840

Plant Available Nutrients:

Immediate Incorporation:

3.64 lbs N
6.05 lbs P2O5
0.83 lbs K2O

Surface Applied:

3.53 lbs N
6.05 lbs P2O5
0.83 lbs K2O

Residual N:

yr1: 1.12 lbs N
yr2: 1.12 lbs N
yr3: 0.56 lbs N

Biosolid Name: WHITEWAVE
Availability: unlimited
Biosolid Type: Aerobic Digestion
% solid: 4.7
pH: 6.2
%CCE: 0.0
Biosolid Analysis (ppm):
TKN: 85200
NH4-N: 8700
NO3: 23
P2O5: 25648
K2O: 6600

Plant Available Nutrients:
Immediate Incorporation:
11.95 lbs N
10.1 lbs P2O5
2.6 lbs K2O
Surface Applied:
10.76 lbs N
10.1 lbs P2O5
2.6 lbs K2O
Residual N:
yr1: 3.01 lbs N
yr2: 3.01 lbs N
yr3: 1.51 lbs N

Biosolid Name: WHITEWAVE 11-09
Availability: unlimited
Biosolid Type: Aerobic Digestion
% solid: 5.0
pH: 6.2
%CCE: 0.0
Biosolid Analysis (ppm):
TKN: 74133
NH4-N: 6913

NO3: 20
P2O5: 20227.57
K2O: 4359.6

Plant Available Nutrients:

Immediate Incorporation:

10.85 lbs N
8.42 lbs P2O5
1.81 lbs K2O

Surface Applied:

9.84 lbs N
8.42 lbs P2O5
1.81 lbs K2O

Residual N:

yr1: 2.8 lbs N
yr2: 2.8 lbs N
yr3: 1.4 lbs N

Biosolid Name: WHITEWAVE 3-10
Availability: unlimited
Biosolid Type: Aerobic Digestion
% solid: 5.4
pH: 6.2
%CCE: 0.0
Biosolid Analysis (ppm):

TKN: 73750
NH4-N: 7445
NO3: 21
P2O5: 20426.8
K2O: 4200

Plant Available Nutrients:

Immediate Incorporation:

11.88 lbs N
9.25 lbs P2O5
1.9 lbs K2O

Surface Applied:

10.7 lbs N
9.25 lbs P2O5
1.9 lbs K2O

Residual N:

yr1: 3.0 lbs N
yr2: 3.0 lbs N
yr3: 1.5 lbs N

Farm Summary Report

Plan: **Biosolids Plan Spring, 2009 - Summer, 2012**

Farm Name: **BELLVIEW-GROAH-NORVELL**
Location: Rockingham
Specialist: Tim Grove

Tract Name: **BELLVIEW**
FSA Number:
Location: Rockingham

Field Name: 1
Total Acres: 13.30 Usable Acres: 12.50
FSA Number: 0
Tract: BELLVIEW
Location: Rockingham
Slope Class: B Hydrologic Group: C

Riparian buffer width: 0 ft
Distance to stream: 1000 ft

Conservation Practices:
Pasture (>75% cover)

P-Index Summary
N-based
Phosphorus Limit method: VA P-Index Calulation
P-Index value = 3.23

%slope: 0.0	Slope Len: 0.	R factor: 0.0	K factor: 0.0
T factor: 0.0	P factor: 1.0	Cmax: 0.000	Erosion: 0.37 tons/acre

Soil Test Results:

DATE	PH	P	K	Lab
Sp-2009	6.3	VH(205 P ppm)	M(79 K ppm)	A&L MIII

Soils:

PERCENT	SYMBOL	SOIL SERIES
100	47B	Monongahela

Field Warnings:

Crop Rotation:

PLANTED	YIELD	CROP NAME
2009-Sp	1.0 tons	Orchard grass (hay), maint. - No Till
2010-Sp	1.0 tons	Orchard grass (hay), maint. - No Till
2011-Sp	1.0 tons	Orchard grass (hay), maint. - No Till

Field Name: 5
Total Acres: 8.60 Usable Acres: 8.60
FSA Number: 0
Tract: BELLVIEW
Location: Rockingham
Slope Class: B Hydrologic Group: B

Riparian buffer width: 0 ft
Distance to stream: 0 ft

Conservation Practices:
Pasture (>75% cover)

P-Index Summary
N-based
Phosphorus Limit method: VA P-Index Calulation
P-Index value = 6.85

%slope: 0.0 Slope Len: 0. R factor: 0.0 K factor: 0.0
T factor: 0.0 P factor: 1.0 Cmax: 0.000 Erosion: 0.3 tons/acre

Soil Test Results:

DATE	PH	P	K	Lab

Sp-2009	6.2	VH(279 P ppm)	M(76 K ppm)	A&L Mill

Soils:

PERCENT	SYMBOL	SOIL SERIES
50	1B	Allegheny
50	47B	Monongahela

Field Warnings:
Environmentally Sensitive Soils due to:

Shallow soils less than 41 inches deep likely to be located over fractured or limestone bedrock

Crop Rotation:

PLANTED	YIELD	CROP NAME
2009-Sp	2.3 tons	Orchard grass (hay), maint. - No Till
2010-Sp	2.3 tons	Orchard grass (hay), maint. - No Till
2011-Sp	2.3 tons	Orchard grass (hay), maint. - No Till

Field Name: **6**
Total Acres: 10.20 Usable Acres: 9.70
FSA Number: 0
Tract: BELLVIEW
Location: Rockingham
Slope Class: C Hydrologic Group: B

Riparian buffer width: 0 ft
Distance to stream: 300 ft

Conservation Practices:
Pasture (>75% cover)

P-Index Summary
N-based
Phosphorus Limit method: VA P-Index Calulation
P-Index value = 13.37

%slope: 0.0 Slope Len: 0. R factor: 0.0 K factor: 0.0
T factor: 0.0 P factor: 1.0 Cmax: 0.000 Erosion: 0.96 tons/acre

Soil Test Results:

DATE	PH	P	K	Lab
Sp-2009	6.2	VH(279 P ppm)	M(76 K ppm)	A&L Mill

Soils:

PERCENT	SYMBOL	SOIL SERIES
60	63D2	Shenval
20	1B	Allegheny
20	47B	Monongahela

Field Warnings:
Environmentally Sensitive Soils due to:

Shallow soils less than 41 inches deep likely to be located over fractured or limestone bedrock

Soils with perent slope in excess of 15%

Crop Rotation:

PLANTED	YIELD	CROP NAME
2009-Sp	2.8 tons	Orchard grass (hay), maint. - No Till
2010-Sp	2.8 tons	Orchard grass (hay), maint. - No Till
2011-Sp	2.8 tons	Orchard grass (hay), maint. - No Till

Tract Name: **GROAH**
FSA Number: 11029
Location: Rockingham

Field Name: **2**
Total Acres: 11.60 Usable Acres: 10.30
FSA Number: T11029 F12
Tract: GROAH
Location: Rockingham
Slope Class: A Hydrologic Group: B

Riparian buffer width: 0 ft
Distance to stream: 0 ft

Conservation Practices:
Pasture (>75% cover)

P-Index Summary
N-based
Phosphorus Limit method: Phosphorus Environmental Threshold (PET) method

%slope: 0.0	Slope Len: 0.	R factor: 0.0	K factor: 0.0
T factor: 0.0	P factor: 1.0	Cmax: 0.000	Erosion: 0.0 tons/acre

Soil Test Results:

DATE	PH	P	K	Lab
Sp-2008	5.7	H(75 P ppm)	VH(314 K ppm)	A&L MIII

Soils:

PERCENT	SYMBOL	SOIL SERIES
100	76A	Wheeling

Field Warnings:

Crop Rotation:

PLANTED	YIELD	CROP NAME
2009-Sp	3.0 ton	Hay/Pasture - No Till
2010-Sp	3.0 ton	Hay/Pasture - No Till
2011-Sp	3.0 ton	Hay/Pasture - No Till

Field Name: 4
Total Acres: 31.10 Usable Acres: 24.20
FSA Number: T11029 F6
Tract: GROAH
Location: Rockingham
Slope Class: B Hydrologic Group: C

Riparian buffer width: 0 ft
Distance to stream: 0 ft

Conservation Practices:
Pasture (>75% cover)

P-Index Summary
N-based
Phosphorus Limit method: Phosphorus Environmental Threshold (PET) method

%slope: 0.0	Slope Len: 0.	R factor: 0.0	K factor: 0.0
T factor: 0.0	P factor: 1.0	Cmax: 0.000	Erosion: 0.0 tons/acre

Soil Test Results:

DATE	PH	P	K	Lab
Sp-2008	5.7	H+(111 P ppm)	H(170 K ppm)	A&L MIII

Soils:

PERCENT	SYMBOL	SOIL SERIES
100	40B	Laidig

Field Warnings:

Crop Rotation:

PLANTED	YIELD	CROP NAME
2009-Sp	0.9 tons	Fescue grass (hay), maint. - No Till
2010-Sp	0.9 tons	Fescue grass (hay), maint. - No Till
2011-Sp	0.9 tons	Fescue grass (hay), maint. - No Till

Field Name: 5
Total Acres: 13.10 Usable Acres: 11.50
FSA Number: T11029 F9
Tract: GROAH
Location: Rockingham
Slope Class: B Hydrologic Group: C

Riparian buffer width: 0 ft

Distance to stream: 0 ft

Conservation Practices:
Pasture (>75% cover)

P-Index Summary
N-based
Phosphorus Limit method: VA P-Index Calulation
P-Index value = 7.31

%slope: 0.0	Slope Len: 0.	R factor: 0.0	K factor: 0.0
T factor: 0.0	P factor: 1.0	Cmax: 0.000	Erosion: 0.27 tons/acre

Soil Test Results:

DATE	PH	P	K	Lab
Sp-2009	6.3	VH(205 P ppm)	M(79 K ppm)	A&L Mill

Soils:

PERCENT	SYMBOL	SOIL SERIES
100	40B	Laidig

Field Warnings:

Crop Rotation:

PLANTED	YIELD	CROP NAME
2009-Sp	0.9 tons	Fescue grass (hay), maint. - No Till
2010-Sp	0.9 tons	Fescue grass (hay), maint. - No Till
2011-Sp	0.9 tons	Fescue grass (hay), maint. - No Till

Field Name: 6
Total Acres: 26.90 Usable Acres: 24.90
FSA Number: T11029 F12
Tract: GROAH
Location: Rockingham
Slope Class: A Hydrologic Group: B

Riparian buffer width: 0 ft
Distance to stream: 0 ft

Conservation Practices:
Pasture (>75% cover)

P-Index Summary
N-based
Phosphorus Limit method: Phosphorus Environmental Threshold (PET) method

%slope: 0.0	Slope Len: 0.	R factor: 0.0	K factor: 0.0
T factor: 0.0	P factor: 1.0	Cmax: 0.000	Erosion: 0.1 tons/acre

Soil Test Results:

DATE	PH	P	K		Lab
Su-2009	5.6	L+(20 P ppm)	M+(107 K ppm)	A&L MIII	

Soils:

PERCENT	SYMBOL	SOIL SERIES
100	69A	Tioga

Field Warnings:
Environmentally Sensitive Soils due to:

Soils with potential for leaching based on soil texture or excessive drainage

Crop Rotation:

PLANTED	YIELD	CROP NAME
2009-Sp	3.0 ton	Hay/Pasture - No Till
2010-Sp	3.0 ton	Hay/Pasture - No Till
2011-Sp	3.0 ton	Hay/Pasture - No Till

Tract Name: **NORVELL**
FSA Number: 11029
Location: Rockingham

Field Name: **3**

Total Acres: 22.40 Usable Acres: 22.40
FSA Number: T11029 F2
Tract: NORVELL
Location: Rockingham
Slope Class: B Hydrologic Group: B

Riparian buffer width: 0 ft
Distance to stream: 0 ft

Conservation Practices:
Pasture (>75% cover)

P-Index Summary
N-based
Phosphorus Limit method: VA P-Index Calulation
P-Index value = 7.94

%slope: 0.0 Slope Len: 0. R factor: 0.0 K factor: 0.0
T factor: 0.0 P factor: 1.0 Cmax: 0.000 Erosion: 0.44 tons/acre

Soil Test Results:

DATE	PH	P	K	Lab
Sp-2008	5.6	VH(234 P ppm)	VH(233 K ppm)	A&L MIII

Soils:

PERCENT	SYMBOL	SOIL SERIES
50	3B Allegheny	Allegheny Monongahela
15	40B Laidig	Laidig
15	40D Laidig	Laidig
20	47B Monongahela	Monongahela

Field Warnings:
Environmentally Sensitive Soils due to:

Shallow soils less than 41 inches deep likely to be located over fractured or limestone bedrock

Soils with perent slope in excess of 15%

Crop Rotation:

PLANTED	YIELD	CROP NAME
2009-Sp	1.9 ton	Hay/Pasture - No Till
2010-Sp	1.9 ton	Hay/Pasture - No Till
2011-Sp	1.9 ton	Hay/Pasture - No Till

Field Name: 4
Total Acres: 30.50 Usable Acres: 23.90
FSA Number: 0
Tract: NORVELL
Location: Rockingham
Slope Class: B Hydrologic Group: C

Riparian buffer width: 0 ft
Distance to stream: 0 ft

Conservation Practices:
Pasture (>75% cover)

P-Index Summary
N-based
Phosphorus Limit method: Phosphorus Environmental Threshold (PET) method

%slope: 0.0 Slope Len: 0. R factor: 0.0 K factor: 0.0
T factor: 0.0 P factor: 1.0 Cmax: 0.000 Erosion: 0.32 tons/acre

Soil Test Results:

DATE	PH	P	K	Lab
Su-2009	5.8	L+(20 P ppm)	L+(46 K ppm)	A&L MIII

Soils:

PERCENT	SYMBOL	SOIL SERIES
30	3B	Allegheny Monongahela
60	47B	Monongahela

10	40B	Laidig

Field Warnings:

Crop Rotation:

PLANTED	YIELD	CROP NAME
2009-Sp	1.8 ton	Hay/Pasture - No Till
2010-Sp	1.8 ton	Hay/Pasture - No Till
2011-Sp	1.8 ton	Hay/Pasture - No Till