

plan
#13019
MA #
995006

DATE: April 8 2013

TO: Ms. Carol A. Devore
CAFO Program Support
Natural Resource Division
Department of Agriculture
635 Capital St NE
Salem, OR 97301-2532

FROM: Stuart and Diane Gresswell
YOLOFarms LLC
19728 SE 35th Way
Camas, WA 98607

SUBJECT: Revised Comprehensive Nutrient Management Plan

REFERENCE: CAFO Application #995006

Dear Ms. Devore:

Please find enclosed a revised Comprehensive Nutrient Management Plan for YOLOfarms LLC application for a CAFO permit. Please call or e-mail us with any questions at 360-513-0341 or yolofarms1@gmail.com. Thank you for your assistance in this matter.

Best regards,



Stuart Gresswell

Diane Gresswell

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DIVISION

Comprehensive Nutrient Management Plan (CNMP) (Version 2, 9/14/2011 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 for the animal feeding operation. It includes background information and provides guidance, reference information and Web-based sites where up-to-date information can be obtained. Refer to the Producer Activity Document (PAD) for information about day-to-day management activities and recordkeeping. Both this CNMP document and the PAD document shall remain in the possession of the producer/landowner.

Farm/Facility: YOLO FARMS LLC
c/o STUART AND DIANE GRESSWELL
3311 HASKINS RD.
BONANZA, OR 97623
360-513-0341

Owner/Operator: Stuart and Diane Gresswell

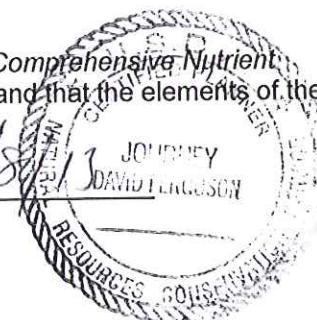
Farm Headquarters Legal Description: T38S, R11E, Sec. 30

Plan Period: Jun 2013 - May 2018

Certified Conservation Planner

As a Certified Conservation Planner, I certify that I have reviewed both the *Comprehensive Nutrient Management Plan* and *Producer Activity Document* for technical adequacy and that the elements of the documents are technically compatible, reasonable and can be implemented.

Signature: [Signature] Date: 4/8/13
Name: David F. Ferguson
Title: District Conservationist Certification Credentials:



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 the necessary records associated with the implementation of this CNMP. It is my intention to implement/accomplish this CNMP in a timely manner as described in the plan.

Signature: [Signature] Date: 4/8/13
Name: Stuart or Diane Gresswell

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Section 1. Background and Site Information

1.1. General Description of Operation

A 3,500 goat dairy is planned to be in operation by the end of 2013 at an existing facility previously built to operate as a cow dairy. There are 2 large covered free-stall barns that will hold both dairy goats and dry manure. Most of manure will be transported from dairy farm to neighboring cropland owned by other producers. Sand bedding is to be placed in linear stall areas for goats to lay upon and would be cleaned out once a year and spread on 2 fields. Some animal manure will also be spread on two small sprinkler irrigated alfalfa fields associated with the goat dairy. There are two waste storage lagoons adjacent the facility and may be utilized in the future to handle the milk parlor waste water produced during cleaning twice a day. Currently, a large tank may be used as temporary storage of fresh wash water, or waste wash water until storage lagoons are retested for permeability and approved for use once again. This waste water would be applied to the fields through the irrigation system.

1.2. Sampling, Calibration and Other Statements

- Manure sampling frequency
- Soil testing frequency
- Equipment calibration method and frequency
- Clean water diversion
- Measures to prevent direct contact of animals with water

1.3. Natural Resource Concerns

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

Soil Quality Concerns

	<i>Soil Quality Concern</i>	<i>Activities to Address Concern</i>
	Ephemeral Gully Erosion	NA
	Gully Erosion	NA
	Sheet and Rill Erosion	NA
	Stream/Ditchbank Erosion	NA
	Wind Erosion	NA

Water Quality Concerns

	<i>Water Quality Concern</i>	<i>Activities to Address Concern</i>
	Facility Wastewater Runoff	Minimal, existing storage lagoons will handle runoff from barn roofs and unused lots adjacent barns.
	Manure Runoff (Field Application)	Goat manure will be applied at agronomic rates

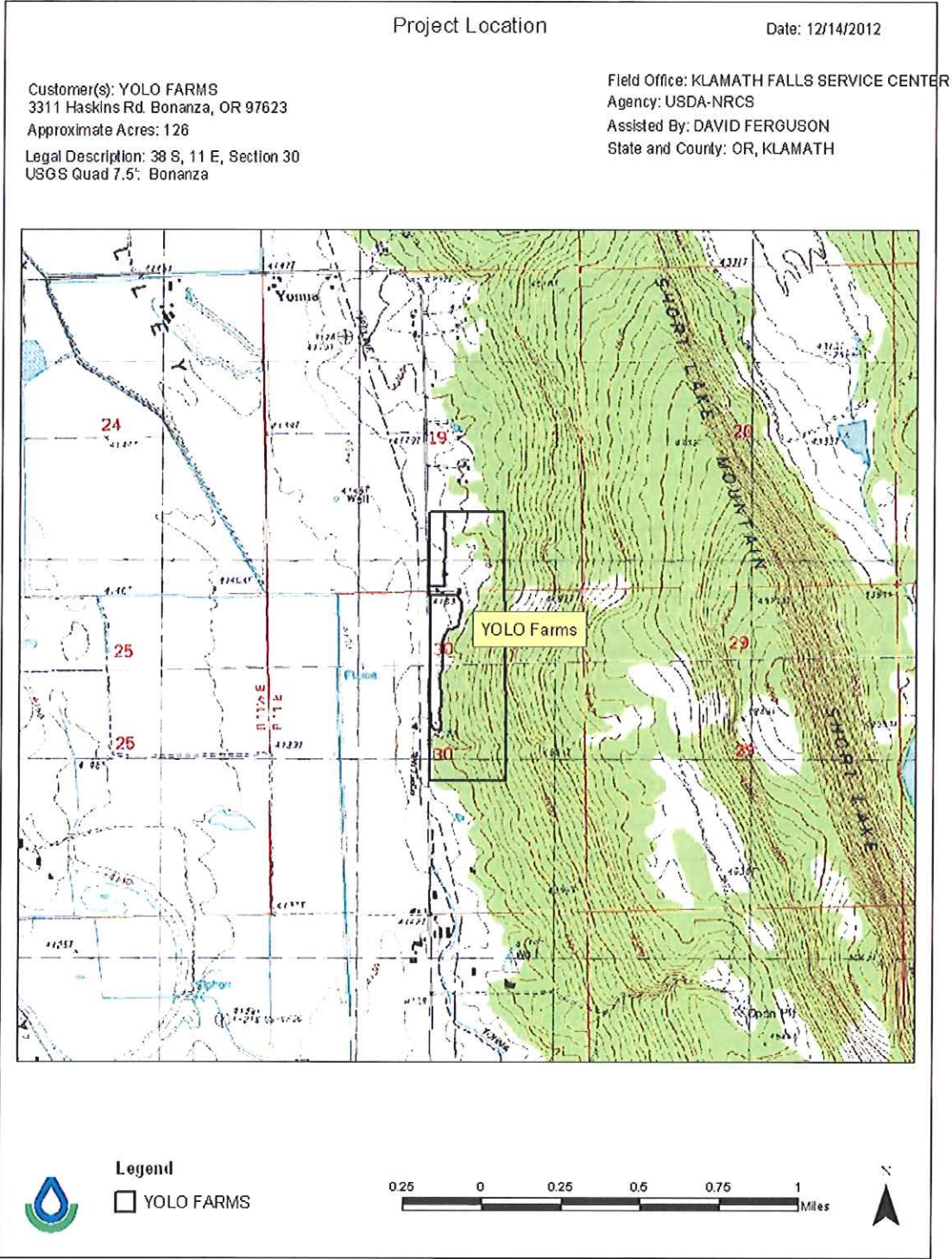
	<i>Water Quality Concern</i>	<i>Activities to Address Concern</i>
	Manure Runoff (From Facilities)	Minimal, existing storage lagoons will handle runoff from barn roofs and unused lots adjacent barns.
	Nutrients in Groundwater	Goat manure will be applied at agronomic rates
	Nutrients in Surface Water	Goat manure will be applied at agronomic rates
	Silage Leachate	NA
	Excessive Soil Test Phosphorus	Alfalfa will reduce soil P
	Tile-Drained Fields	NA

Other Concerns Addressed

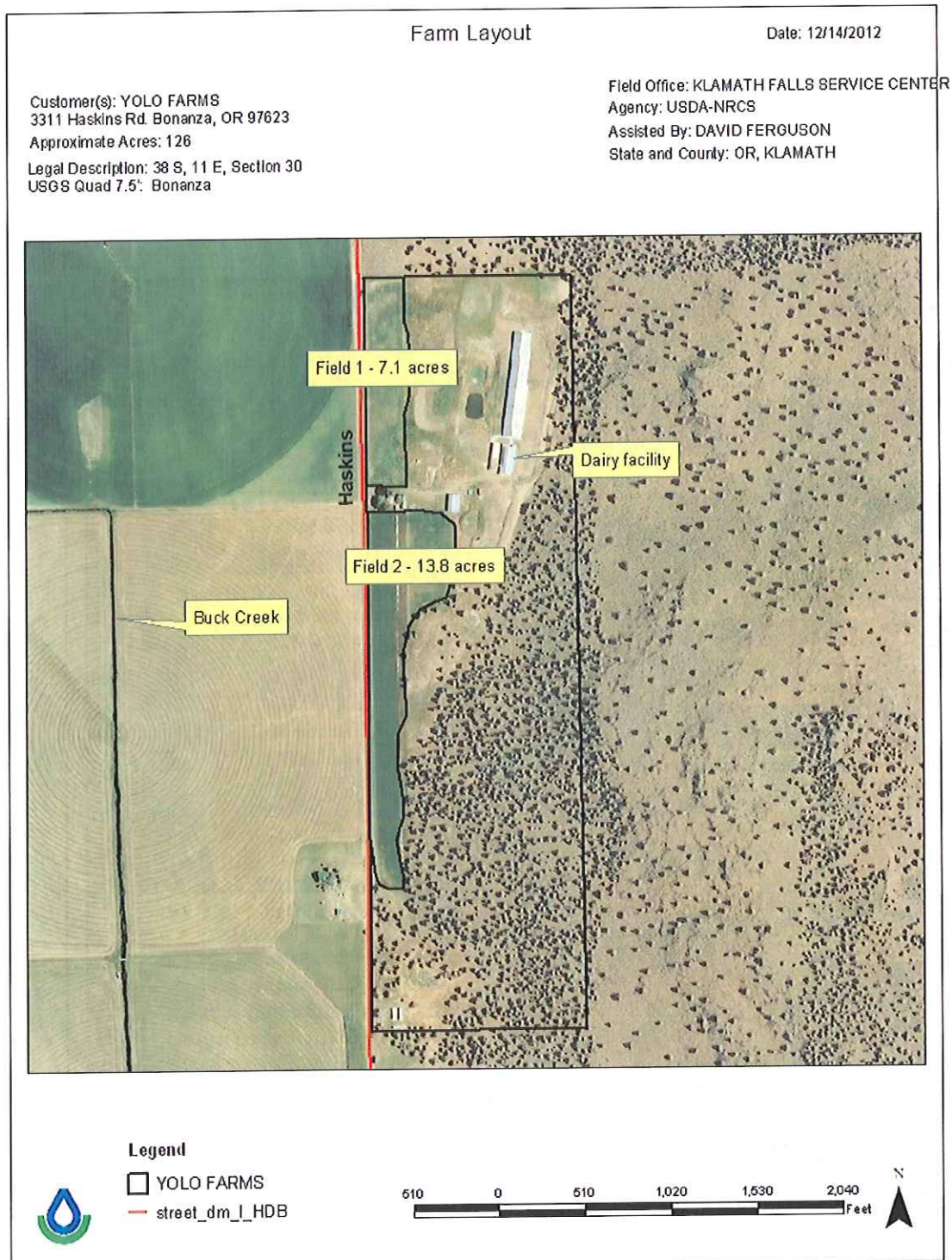
	<i>Other Concern</i>	<i>Activities to Address Concern</i>
	Acres Available for Manure Application	18.4, most manure to transported to neighbor fields
	Aesthetics	NA
	Maximize Nutrient Utilization	Goat manure will be applied at agronomic rates
	Minimize Nutrient Costs	Goat manure will be applied at agronomic rates
	Neighbor Relations	Managers have addressed concerns and manure needs
	Profitability	To be determined
	Regulations	Plan to meet local, state, and federal regulations
	Soil Compaction	Plans to avoid wet soil conditions during manure transport and application
	Time Available for Manure Application	NA – Most manure will transported off of facility
	Odors	Should be minimal
	Air Quality	Should have minimal impact
	Biosecurity	This plan does not address biosecurity

Section 2. Manure and Wastewater Handling and Storage

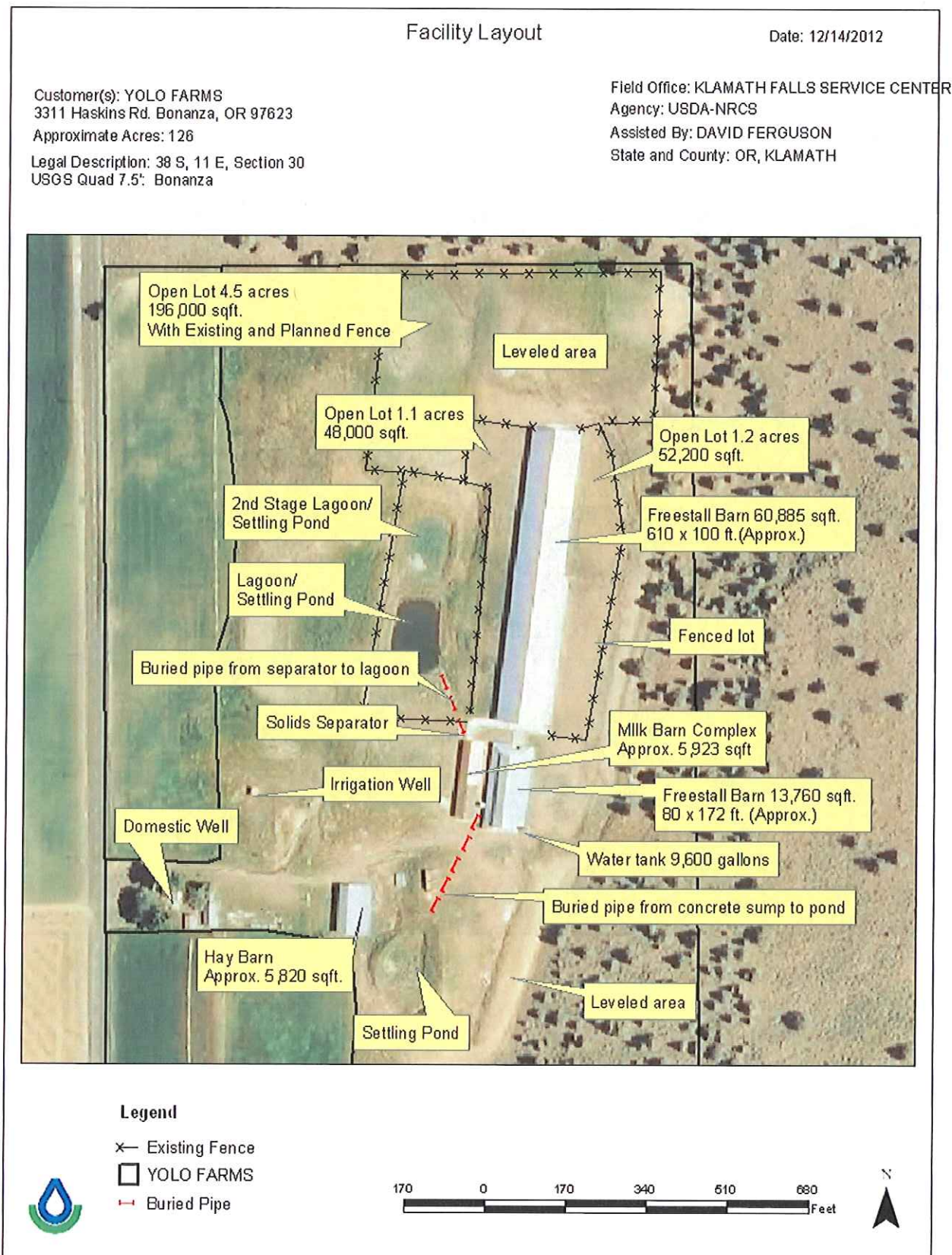
2.1.a. Map(s) of Production Area - Location



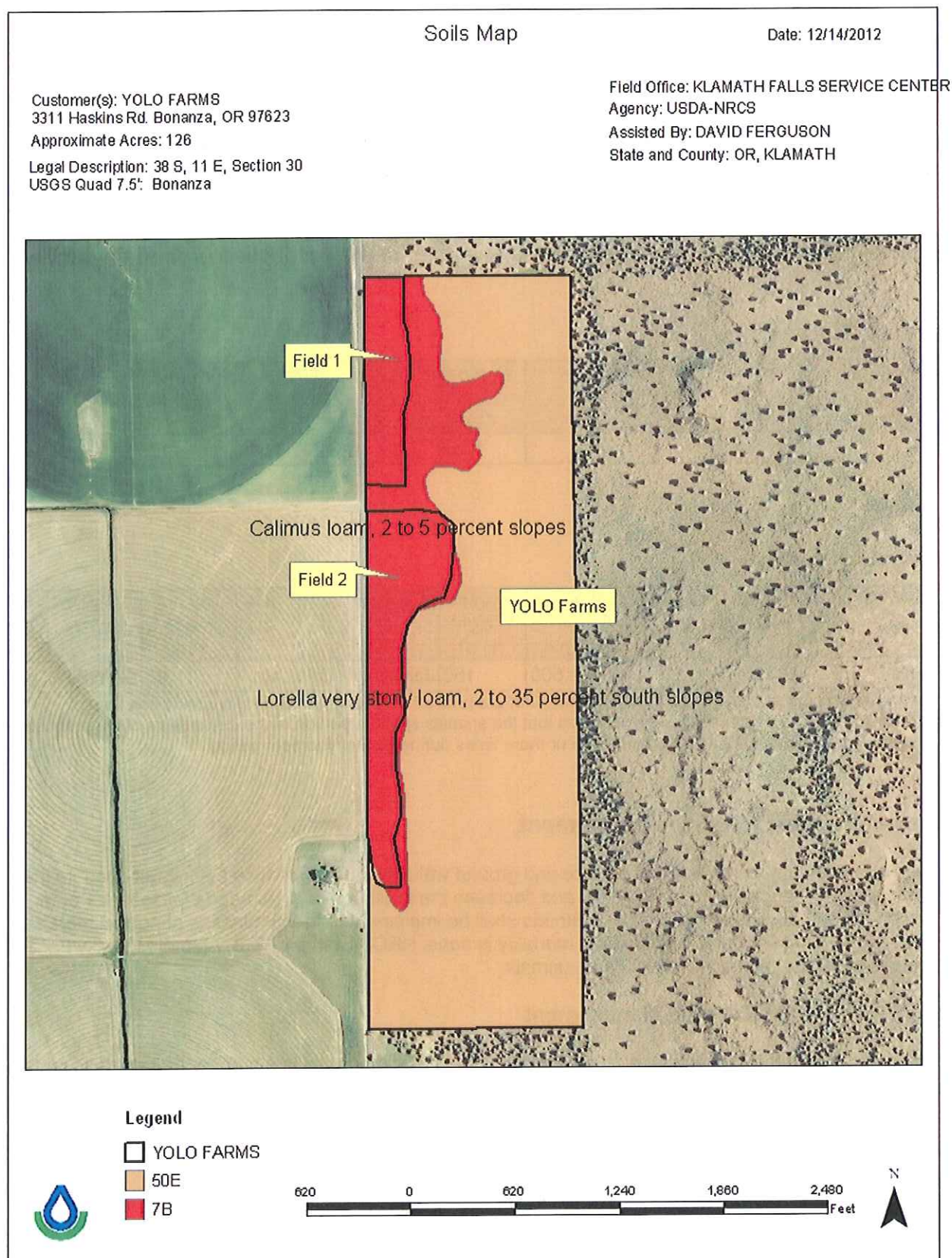
2.1.b. Map(s) of Production Area - Farm



2.1.c. Map(s) of Production Area – Facility



2.1.d. Map(s) of Production Area – Soils Map



Soils descriptions:

2.2. Production Area Conservation Practices

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

No additional practices have been identified in this plan for the production area (dairy facility)

2.3. Manure Storage

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Annual Manure Collected	Maximum Days of Storage
DRY STACK	Dry stack	1,996 Tons	3,732 Tons	195

2.4. Animal Inventory

Animal Group	Type or Production Phase	Number of Animals	Average Weight (Lbs)	Confinement Period	Manure Collected (%)	Storage Where Manure Will Be Stored
Dairy Goats	Sheep	3,500	150	Jan Early - Dec Late	95	DRY STACK

(1) Number of Animals is the average number of animals that are present in the production facility at any one time.

(2) If Manure Collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or that the production facility is unoccupied one or more times during the confinement period.

2.5. 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.

Dead animals will be picked up by the tallow truck as needed.

Natural Disposal

It is legal to simply allow nature to take its course. If you choose this action you must deposit the dead animal to a location that is at least one-half mile from any dwelling and at least a one-quarter mile from any open water way (ORS 601.140) and let scavengers eat the carcass. It is important to note that this method of disposal is not acceptable in instances where numerous carcasses must be disposed of, and is not available for disposal of animal byproducts generated during butchering.

Burial

It is legal to bury animal mortalities on your farm if certain requirements are met and specific recommendations are followed. The bottom of the hole must be dry (not in a water table). The dead animal should be covered with hydrated lime, and then covered with at least 4' of soil mounded up to allow for settling as the carcass decomposes [ORS 601.090(7)]. Burials should be at least 500' from surface waters or wells, preferably downhill from the well. Burial of large dead animals will probably require a backhoe because an adult cow burial takes a hole approximately 2' x 7' x 8' deep. Goats would require less space but still large enough to require a backhoe.

Composting

While not the simplest method of disposal, composting animal mortalities and byproducts allows you to recycle the nutrients in the carcasses and is a sound environmental practice. If you are going to compost animal mortalities and byproducts on your farm, you must have a composting plan on file with ODA, and be implementing that plan. The plan must include a drawing of your composting area, a description of how you will contain any runoff from the compost piles or bins, a description of the process you will use, and a description of how the compost will be used on the farm. Details of the plan and assistance are available from the Natural Resources Division at the Oregon Department of Agriculture, (503) 986-4700. If you are going to compost animal mortalities and byproducts and intend to bring in animal mortality and byproducts from off-farm sites you will need a composting permit from the DEQ.

For other options, see http://oregon.gov/ODA/NRD/cafo_front.shtml

2.6. Planned Manure Exports off the Farm

Month-Year	Manure Source	Amount	Receiving Operation	Location
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There is planned to be at least 3,456 tons of manure exported from the facility annually, loaded into large manure spreaders or dump trucks and delivered to neighboring farms for utilization as a supplement nutrient source for crops such as alfalfa hay and small grain. Exports will occur throughout the year, based on availability of adequate storage on neighboring lands and fields ready for application following a cutting of hay or fall harvest of hay and grain.

2.7. Planned Manure Imports onto the Farm

Month-Year	Manure's Animal Type	Amount	Originating Operation	Location
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(None)

2.8. Planned Internal Transfers of Manure

Month-Year	Manure Source	Amount	Manure Destination
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(None)

Section 3. Farmstead Safety and Security

3.1. Emergency Response Plan

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

Implement the following first containment steps:

- Stop all other activities to address the spill.
- Stop the flow. For example, use skid loader or tractor with blade to contain or divert spill or leak.
- Call for help and excavator if needed.
- Complete the clean-up and repair the necessary components.
- 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:

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

Emergency Contacts

Department / Agency	Phone Number
Fire	541-545-6400, or 911
Rescue services	
State veterinarian - Oregon	503-986-4680
Sheriff or local police	541-883-5130 (Sheriff) or 911

Nearest available excavation equipment/supplies for responding to emergency

Equipment Type	Contact Person	Phone Number
Front end loader and scraper	Stuart or Diane Gresswell	360-513-0341

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

Organization	Phone Number
EPA Emergency Spill Hotline	1-800-424-8802 (EPA)
County Health Department	541-882-8846
Other State Emergency Agency	ODA Area V - Maria Snodgress - 541-617-0055

Be prepared to provide the following information:

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

3.2. 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.

3.3. 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.

Call appropriate authorities with ODA first on previous page. See also ODA's animal disease emergency plan at http://www.oregon.gov/ODA/AHID/oadem_plan.shtml

Important! In the event of catastrophic animal mortality, contact the following authority before beginning carcass disposal:

Authority name: ODA
Contact name:
Phone number: 503-986-4680

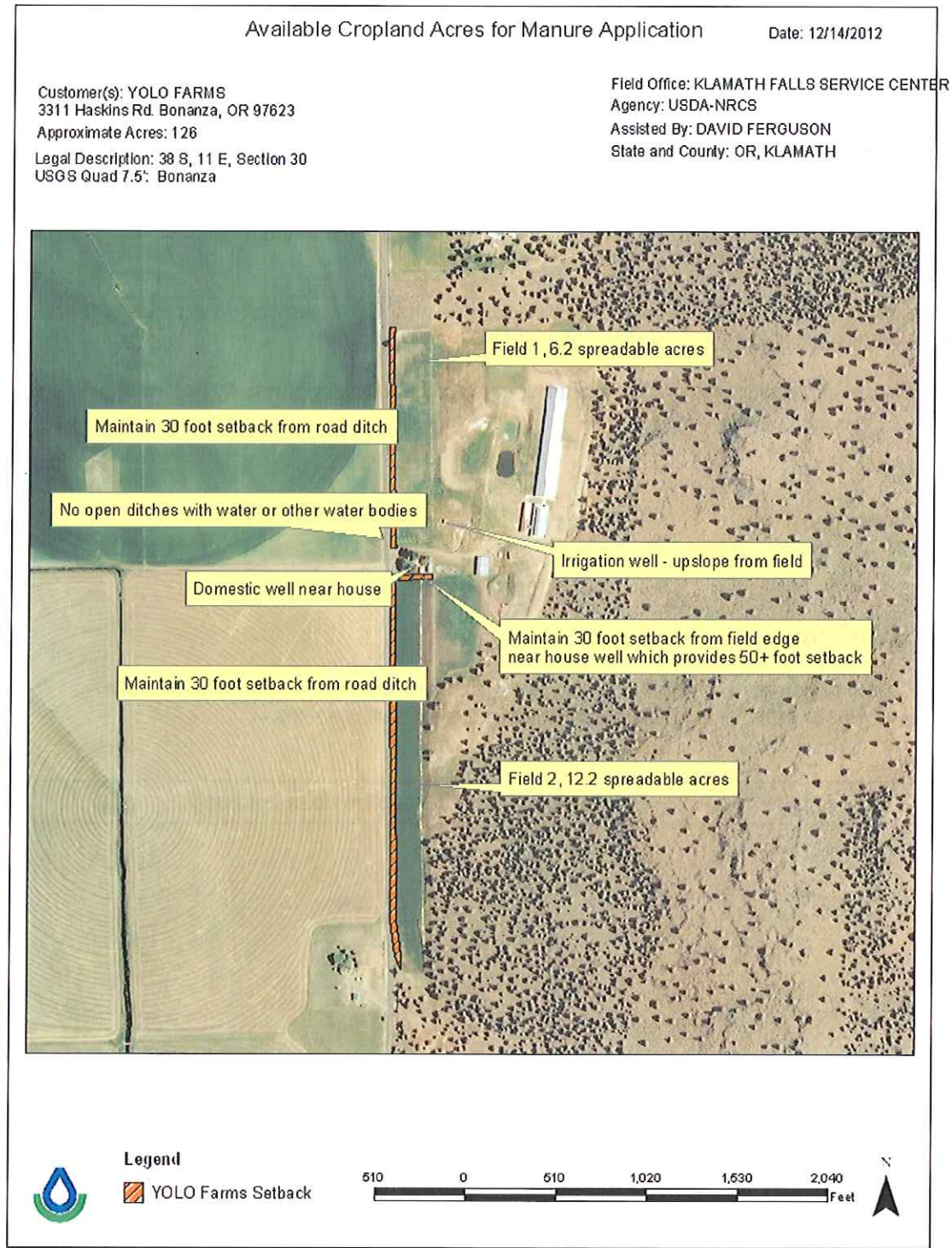
3.4. Chemical Handling

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.

X	This is not a regulatory-agency permitted facility. This section does not apply.
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Section 4. Land Treatment

4.1. Map(s) of Fields and Conservation Practices



4.2. Land Treatment Conservation Practices

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

Irrigation water management plan

Conservation Practice Worksheet

OR IWM-W9.2.xls

Natural Resources Conservation Service, Oregon

February 2007

Irrigation Water Application – How Much, When, System Capacity

Client: YOLO FARMS, LLC

Date: 4/3/2013

System

Type: WHEEL LINE

Field ID:	1
Crop:	ALFALFA
Soil Map Unit Name:	CALIMUS LOAM
Soil texture:	LOAM
Soil Depth (in):	60
Managed Root Zone Depth (in):	23
Management Allowed Deficit (%):	50%
Irrigated Area (acres):	20
System Application Efficiency (%):	70%
Hours of Operation per Day (hr):	12

Soil Profile Depth Zones	Upper Limit (in)	Lower Limit (in)	AWC (in/in)	AWC in soil zone (in)
	0	11	0.15	1.7
	11	40	0.16	4.6
	40	60	0.12	2.4
Total Soil Water Capacity (in) in the soil profile				8.7

Irrigation Requirement HOW MUCH water to apply?	Month	Month	Month	Month	Month	Month	Month
	APR	MAY	JUN	JUL	AUG	SEP	OCT
Managed Root Zone Depth (in):	23	23	23	23	23	23	23
Soil Water Capacity in Root Zone (in):	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Management Allowed Deficit (%):	50%	50%	50%	50%	50%	50%	50%
Maximum Net Irrigation Requirement (in):	1.79	1.79	1.79	1.79	1.79	1.79	1.79

Irrigation Timing WHEN to apply water?	Month	Month	Month	Month	Month	Month	Month
	APR	MAY	JUN	JUL	AUG	SEP	OCT
Daily Crop Water Use (in/day):	0.09	0.17	0.20	0.24	0.20	0.15	
Maximum Irrigation Frequency (days):	20.5	10.6	8.8	7.4	9.1	11.9	
Actual Irrigation Period (days):	20.1	10.4	8.6	7.3	8.9	11.7	
Actual NET Irrigation Application (in):	1.75	1.75	1.75	1.75	1.75	1.75	
Percent of Root Zone Capacity Applied (%):	49%	49%	49%	49%	49%	49%	
Expected number of Irrigations per month:	1.3	2.7	3.1	3.8	3.1	2.3	

System Capacity	NOT E: Actual precipitation will affect the timing and number of Irrigations.						
	Month	Month	Month	Month	Month	Month	Month
System Application Efficiency (%):	70%	70%	70%	70%	70%	70%	
Frequency Factor, K _f :	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GROSS Irrigation Application (in):	2.50	2.50	2.50	2.50	2.50	2.50	
Hours of System Operation per Day (hr):	12.0	12.0	12.0	12.0	12.0	12.0	

System flow rate to meet peak demand:	259.3 gpm	13.0 gpm/acre
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Percent run time at peak system flow rate:	36%	70%	85%	100%	82%	62%	
GROSS Monthly Application (in):	3.37	6.74	7.87	9.81	7.87	5.80	
GROSS Monthly Application (ac-ft):	5.62	11.24	13.12	16.02	13.12	9.67	

GROSS Annual Application:	41.27 inches	68.79 ac-ft
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Section 5. Soil and Risk Assessment Analyses

5.1. Soil Information

Field	Soil Survey	Map Unit	Soil Component Name	Surface Texture	Slope Range (%)	OM Range (%)	Bedrock Depth (in.)	Drainage	Annual Flooding	Hydro-logic Group
1	640	7B	Calimus	L	2-5%	2-5%		Well	None	B
2	640	7B	Calimus	L	2-5%	2-5%		Well	None	B

5.2. Predicted Soil Erosion

Average water, wind, irrigation, gully and ephemeral soil loss

Field	Predominant Soil Type	Slope (%)	Water (Ton/A/Yr)	Wind (Ton/A/Yr)	Irrigation (Ton/A/Yr)	Gully (Ton/A/Yr)	Ephemeral (Ton/A/Yr)	Total (Ton/A/Yr)	T Factor (Ton/A/Yr)
1	7B (Calimus L)	3.5	0.5	0.5	0.5	NA	NA	1.0	5
2	7B (Calimus L)	3.5	0.5	0.5	0.5	NA	NA	1.0	5

Note: Wind and water erosion on sprinkler irrigated perennial alfalfa is typically very low.

5.3. Nitrogen and Phosphorus Risk Analyses

Oregon Phosphorus Index (East)

Field	Crop Year	Transport Factor Sum	Source Factor Sum	P Index w/o P Apps	P Index w/ P Apps	P Loss Risk
1	2013	10.00	14.94	46.00	149.40	High
1	2014	10.00	4.60	46.00	46.00	Medium
1	2015	10.00	17.28	46.00	172.80	High
1	2016	10.00	14.94	46.00	149.40	High
1	2017	10.00	13.47	46.00	134.68	High
2	2013	10.00	10.74	4.00	107.40	High
2	2014	10.00	0.40	4.00	4.00	Low
2	2015	10.00	13.08	4.00	130.80	High
2	2016	10.00	10.74	4.00	107.40	High
2	2017	10.00	9.26	4.00	92.63	Medium

5.4. Additional Field Data Required by Risk Assessment Procedure(s)

Oregon Phosphorus Index

Field	Distance to Water (Feet)	Buffer Width (Feet)	Type of Artificial Drainage
1	1,300	None	None
2	1,300	None	None

Section 6. Nutrient Management

6.1. Field Information

Field ID	Sub-field ID	Total Acres	Spreadable Acres	County	Predominant Soil Type	Slope (%)	Watershed Code	FSA Farm	FSA Tract	FSA Field
1		7.1	6.2	Klamath	7B (Calimus L)	2%				
2		13.8	12.2	Klamath	7B (Calimus L)	2%				

6.2. Manure Application Setback Distances

Setback distances, which was used to determine acres of cropland of available for manure application is 50 feet.

6.3. Soil Test Data

Field	Test Year	OM (%)	P Test Used	P	K	Mg	Ca	Na	Units	Soil pH	Buffer pH	CEC (meq/100g)	NO ₃ -N (ppm)	EC (mmhos/cm)
1	2012	3.0	Olsen	66	1,047	536	1,919	58	ppm	7.0		8.0	43.0	
2	2012	2.5	Olsen	24	505	582	2,043	69	ppm	7.1		7.0	11.0	

6.4. Manure Nutrient Analyses

Manure Source	Dry Matter (%)	Total N	NH ₄ -N	Total P ₂ O ₅	Total K ₂ O	Avail. P ₂ O ₅	Avail. K ₂ O	Units	Analysis Source and Date
DRY STACK		17.6	4.9	7.8	17.6	7.8	17.6	Lb/Ton	MMP Estimate

(1) Entered analysis may be the average of several individual analyses.

(2) Oregon 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 Oregon, see Waste Utilization Jobsheet 633 OR-JS, Oregon USDA-NRCS, May 2003 (<http://efotg.sc.egov.usda.gov/references/public/OR/633js042707.pdf>).

6.5. Planned Crops and Fertilizer Recommendations

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P ₂ O ₅ Rec (Lbs/A)	K ₂ O Rec (Lbs/A)	N Removed (Lbs/A)	P ₂ O ₅ Removed (Lbs/A)	K ₂ O Removed (Lbs/A)	Custom Fert. Rec. Source
1	2013	Alfalfa, new	4.0 Ton	0	0	0	180	40	180	
1	2014	Alfalfa, maintenance	4.0 Ton	0	0	0	180	40	180	
1	2015	Alfalfa, maintenance	4.0 Ton	0	0	0	180	40	180	
1	2016	Alfalfa, maintenance	4.0 Ton	0	0	0	180	40	180	
1	2017	Alfalfa, maintenance	4.0 Ton	0	0	0	180	40	180	
2	2013	Alfalfa, new	4.0 Ton	0	0	0	180	40	180	
2	2014	Alfalfa, maintenance	4.0 Ton	0	0	0	180	40	180	
2	2015	Alfalfa, maintenance	4.0 Ton	0	0	0	180	40	180	
2	2016	Alfalfa, maintenance	4.0 Ton	0	0	0	180	40	180	
2	2017	Alfalfa, maintenance	4.0 Ton	0	0	0	180	40	180	

* Unharvested cover crop or first crop in double-crop system.

^a Custom fertilizer recommendation.

6.6. Manure Application Planning Calendar – June 2013 through May 2014

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2013 Crop (Prev. Primary Crop)	Jun '13	Jul '13	Aug '13	Sep '13	Oct '13	Nov '13	Dec '13	Jan '14	Feb '14	Mar '14	Apr '14	May '14
1	7.1	6.2	Calimus L (7B 2-5%)	Alfalfa, new (Alfalfa, maintenance)				18.6								
2	13.8	12.2	Calimus L (7B 2-5%)	Alfalfa, new (Alfalfa, maintenance)				36.7								
Total	20.9	18.4						55.3								
Crop in field																
No. indicates total loads "X" indicates other manure apps																

Manure Application Planning Calendar – June 2014 through May 2015

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2014 Crop (Prev. Primary Crop)	Jun '14	Jul '14	Aug '14	Sep '14	Oct '14	Nov '14	Dec '14	Jan '15	Feb '15	Mar '15	Apr '15	May '15
1	7.1	6.2	Calimus L (7B 2-5%)	Alfalfa, maintenance (Alfalfa, new)					18.6							
2	13.8	12.2	Calimus L (7B 2-5%)	Alfalfa, maintenance (Alfalfa, new)					36.7							
Total	20.9	18.4							55.3							
Crop in field																
No. indicates total loads "X" indicates other manure apps																

Manure Application Planning Calendar – June 2015 through May 2016

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2015 Crop (Prev. Primary Crop)	Jun '15	Jul '15	Aug '15	Sep '15	Oct '15	Nov '15	Dec '15	Jan '16	Feb '16	Mar '16	Apr '16	May '16
1	7.1	6.2	Calimus L (7B 2-5%)	Alfalfa, maintenance (Alfalfa, maintenance)				18.6								
2	13.8	12.2	Calimus L (7B 2-5%)	Alfalfa, maintenance (Alfalfa, maintenance)				36.7								
Total	20.9	18.4						55.3								
Crop in field																
No. indicates total loads "X" indicates other manure apps																

Manure Application Planning Calendar – June 2016 through May 2017

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2016 Crop (Prev. Primary Crop)	Jun '16	Jul '16	Aug '16	Sep '16	Oct '16	Nov '16	Dec '16	Jan '17	Feb '17	Mar '17	Apr '17	May '17
1	7.1	6.2	Calimus L (7B 2-5%)	Alfalfa, maintenance (Alfalfa, maintenance)				18.6								
2	13.8	12.2	Calimus L (7B 2-5%)	Alfalfa, maintenance (Alfalfa, maintenance)				36.7								
Total	20.9	18.4						55.3								

Crop in field

No. indicates total loads

"X" indicates other manure apps

Manure Application Planning Calendar – June 2017 through May 2018

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2017 Crop (Prev. Primary Crop)	Jun '17	Jul '17	Aug '17	Sep '17	Oct '17	Nov '17	Dec '17	Jan '18	Feb '18	Mar '18	Apr '18	May '18
1	7.1	6.2	Calimus L (7B 2-5%)	Alfalfa, maintenance (Alfalfa, maintenance)				18.6								
2	13.8	12.2	Calimus L (7B 2-5%)	Alfalfa, maintenance (Alfalfa, maintenance)				36.7								
Total	20.9	18.4						55.3								

Crop in field

No. indicates total loads

"X" indicates other manure apps

6.7. 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/A)	Avail P ₂ O ₅ (Lbs/A)	Avail K ₂ O (Lbs/A)
1	Sep 2013	Alfalfa, new	DRY STACK	Manure Spreader, Not incorporated	1-yr P	15 Ton	18.6 Lds	93 Ton	6.2	184	117	264
1	Oct 2014	Alfalfa, maintenance	DRY STACK	Manure Spreader, Not incorporated	1-yr P	15 Ton	18.6 Lds	93 Ton	6.2	184	117	264
1	Sep 2015	Alfalfa, maintenance	DRY STACK	Manure Spreader, Not incorporated	1-yr P	15 Ton	18.6 Lds	93 Ton	6.2	184	117	264
1	Sep 2016	Alfalfa, maintenance	DRY STACK	Manure Spreader, Not incorporated	1-yr P	15 Ton	18.6 Lds	93 Ton	6.2	184	117	264
1	Sep 2017	Alfalfa, maintenance	DRY STACK	Manure Spreader, Not incorporated	1-yr P	15 Ton	18.6 Lds	93 Ton	6.2	184	117	264
2	Sep 2013	Alfalfa, new	DRY STACK	Manure Spreader, Not incorporated	1-yr P	15 Ton	36.7 Lds	183.5 Ton	12.2	184	117	264
2	Oct 2014	Alfalfa, maintenance	DRY STACK	Manure Spreader, Not incorporated	1-yr P	15 Ton	36.7 Lds	183.5 Ton	12.2	184	117	264
2	Sep 2015	Alfalfa, maintenance	DRY STACK	Manure Spreader, Not incorporated	1-yr P	15 Ton	36.7 Lds	183.5 Ton	12.2	184	117	264
2	Sep 2016	Alfalfa, maintenance	DRY STACK	Manure Spreader, Not incorporated	1-yr P	15 Ton	36.7 Lds	183.5 Ton	12.2	184	117	264
2	Sep 2017	Alfalfa, maintenance	DRY STACK	Manure Spreader, Not incorporated	1-yr P	15 Ton	36.7 Lds	183.5 Ton	12.2	184	117	264

6.8. Field Nutrient Balance (Manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs ¹			Nutrients Applied ²			Balance After Recs ³			Balance After Removal ⁴		
		Acres		/Acre	N Lb/A	P ₂ O ₅ Lb/A	K ₂ O Lb/A	N Lb/A	P ₂ O ₅ Lb/A	K ₂ O Lb/A	N Lb/A	P ₂ O ₅ Lb/A	K ₂ O Lb/A	N Lb/A	P ₂ O ₅ Lb/A	K ₂ O Lb/A
2013	1	6.2	Alfalfa, new	4	0	0	0	184	117	264	4 ^a	117	264	77	84	
2014	1	6.2	Alfalfa, maintenance	4	0	0	0	0	0	0	0	117	264	37	-96	
2015	1	6.2	Alfalfa, maintenance	4	0	0	0	368	234	528	188 ^a	351	792	231	348	
2016	1	6.2	Alfalfa, maintenance	4	0	0	0	184	117	264	4 ^a	468	1,056	308	432	
2017	1	6.2	Alfalfa, maintenance	4	0	0	0	68	43	98	0 ^a	511	1,154	311	350	
Total	1				0	0	0	804	511	1154						
2013	2	12.2	Alfalfa, new	4	0	0	0	184	117	264	4 ^a	117	264	77	84	
2014	2	12.2	Alfalfa, maintenance	4	0	0	0	0	0	0	0	117	264	37	-96	
2015	2	12.2	Alfalfa, maintenance	4	0	0	0	368	234	528	188 ^a	351	792	231	348	
2016	2	12.2	Alfalfa, maintenance	4	0	0	0	184	117	264	4 ^a	468	1,056	308	432	
2017	2	12.2	Alfalfa, maintenance	4	0	0	0	68	43	97	0 ^a	511	1,153	311	349	
Total	2				0	0	0	804	511	1153						

Field Nutrient Balance (Non-manure-spreadable Area)

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs ¹			Nutrients Applied ²			Balance After Recs ³			Balance After Removal ⁴		
		Acres		/Acre	N Lb/A	P ₂ O ₅ Lb/A	K ₂ O Lb/A	N Lb/A	P ₂ O ₅ Lb/A	K ₂ O Lb/A	N Lb/A	P ₂ O ₅ Lb/A	K ₂ O Lb/A	N Lb/A	P ₂ O ₅ Lb/A	K ₂ O Lb/A
2013	1	0.9	Alfalfa, new	4	0	0	0	0	0	0	0	0	0	-40	-180	
2014	1	0.9	Alfalfa, maintenance	4	0	0	0	0	0	0	0	0	0	-40	-180	
2015	1	0.9	Alfalfa, maintenance	4	0	0	0	0	0	0	0	0	0	-40	-180	
2016	1	0.9	Alfalfa, maintenance	4	0	0	0	0	0	0	0	0	0	-40	-180	
2017	1	0.9	Alfalfa, maintenance	4	0	0	0	0	0	0	0	0	0	-40	-180	
Total	1				0	0	0	0	0	0						
2013	2	1.6	Alfalfa, new	4	0	0	0	0	0	0	0	0	0	-40	-180	
2014	2	1.6	Alfalfa, maintenance	4	0	0	0	0	0	0	0	0	0	-40	-180	
2015	2	1.6	Alfalfa, maintenance	4	0	0	0	0	0	0	0	0	0	-40	-180	
2016	2	1.6	Alfalfa, maintenance	4	0	0	0	0	0	0	0	0	0	-40	-180	
2017	2	1.6	Alfalfa, maintenance	4	0	0	0	0	0	0	0	0	0	-40	-180	
Total	2				0	0	0	0	0	0						

- ¹ Fertilizer Recs are the crop fertilizer recommendations. The N rec accounts for any N credit from previous legume crop.
 - ² 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.
 - ³ 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 P₂O₅ and K₂O, 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.
 - ⁴ Nutrients Applied minus amount removed by harvested portion of crop through the indicated year. Positive balances are carried forward to subsequent years.
- [‡] Indicates a custom fertilizer recommendation in the Fertilizer Recs column.
^a Indicates in the Balance After Recs N column that the legume crop is assumed to utilize some or all of the supplied N.
[†] Indicates in the Balance After Recs N column that the value includes residual N expected to become available that year from prior years' manure applications.

6.9. Manure Inventory Annual Summary

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Transferred In	Total Applied	Total Exported	Total Transferred Out	On Hand at End of Period	Units
DRY STACK	Jun '13 - May '14	0	3,732	0	0	277	0	0	3,456	Ton
DRY STACK	Jun '14 - May '15	3,456	3,732	0	0	277	0	0	6,911	Ton
DRY STACK	Jun '15 - May '16	6,911	3,732	0	0	277	0	0	10,367	Ton
DRY STACK	Jun '16 - May '17	10,367	3,732	0	0	277	0	0	13,822	Ton
DRY STACK	Jun '17 - May '18	13,822	3,732	0	0	277	0	0	17,831	Ton

Note: Manure "On Hand at Start of Period" and "On Hand at End of Period" are volumes planned to be exported from facility to neighboring non-dairy farms.

6.10. Fertilizer Material Annual Summary

Product Analysis	Plan Period	Product Needed Jun - Aug	Product Needed Sep - Dec	Product Needed Jan - May	Total Product Needed	Units
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Not applicable

6.11. Plan Nutrient Balance (Manure-spreadable Area)

	N (Lbs)	P ₂ O ₅ (Lbs)	K ₂ O (Lbs)
Total Manure Nutrients on Hand at Start of Plan ¹	0	0	0
Total Manure Nutrients Collected ²	328,416	145,548	328,416
Total Manure Nutrients Imported ³	0	0	0
Total Manure Nutrients Exported ⁴	0	0	0
Total Manure Nutrients on Hand at End of Plan ⁵	307,155	136,126	307,155
Total Manure Nutrients Applied ⁶	21,226	9,407	21,226
Available Manure Nutrients Applied ⁷	14,794	9,407	21,226
Commercial Fertilizer Nutrients Applied ⁸	0	0	0
Available Nutrients Applied ⁹	14,794	9,407	21,226
Nutrient Utilization Potential ¹⁰	16,560	3,680	16,560
Nutrient Balance of Spreadable Acres ^{11*}	-1,766	5,727	4,666
Average Nutrient Balance per Spreadable Acre per Year ^{12*}	-19	62	51

1. Values indicate total manure nutrients present in storage(s) at the beginning of the plan.

2. Values indicate total manure nutrients collected on the farm.

3. Values indicate total manure nutrients imported onto the farm.

4. Values indicate total manure nutrients exported from the farm to an external operation.

5. Values indicate total manure nutrients present in storage(s) at the end of plan.

6. Values indicate total nutrients present in land-applied manure. Losses due to rate, timing and method of application are not included in these values.

7. Values indicate available manure nutrients applied on the farm based on rate, time and method of application. These values are based on the total manure nutrients applied (row 6) after accounting for state-specific nutrient losses due to rate, time and method of application.

8. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water.

9. Values are the sum of available manure nutrients applied (row 7) and commercial fertilizer nutrients applied (row 8).

10. Values indicate nutrient utilization potential of crops grown. For N the value generally is based on crop N recommendation for non-legume crops and crop N uptake or other state-imposed limit for N application rates for legumes. P₂O₅ and K₂O values generally are based on fertilizer recommendations or crop removal (whichever is greatest).

11. Values indicate available nutrients applied (row 9) minus crop nutrient utilization potential (row 10). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.

12. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of spreadable acres (row 11) by the number of spreadable acres in plan and by the length of the plan in years. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

* 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 P₂O₅ and/or K₂O do not necessarily indicate that the plan was not developed properly. 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 P₂O₅ and K₂O indicate that planned applications to some fields are less than crop removal rates.

Plan Nutrient Balance (Non-manure-spreadable Area)

Not applicable

Section 7. Feed Management

Not applicable

Section 8. Other Utilization Options

Not applicable

Section 9. Record Keeping Forms

See attached forms

Section 10. References

10.1. Publications

Animal Waste

AWMFH Chapter 4, Table 4-13, March 2008

Crop Fertilizer Recommendations

"Alfalfa," OSU FG18 and FG60, Jan 2000 (w. of Cascades); OSU FG20, July 1983 (e. of Cascades)
<http://extension.oregonstate.edu/catalog/details.php?sortnum=0134&name=Fertilizer+Guides>

Manure Nutrient Availability

Waste Utilization Jobsheet 633 OR-JS, Oregon USDA-NRCS, May 2003
<http://efotg.sc.egov.usda.gov/references/public/OR/633js042707.pdf>

Phosphorus Assessment

"Agronomy Technical Note No. 26: The Phosphorus Index," Oregon NRCS, April 2006
ftp://ftp-fc.sc.egov.usda.gov/OR/Technical_Notes/Agronomy/Agronomy26.pdf

Agricultural Phosphorus Management Using the Oregon/Washington Phosphorus Indexes
<http://eesc.orst.edu/agcomwebfile/edmat/em8848-e.pdf>

Practice Standards

Oregon NRCS Nutrient Management Standard (590), May 2001
<http://efotg.nrcs.usda.gov/references/public/OR/590std.doc>

10.2. Software and Data Sources

MMP Version	MMP 0.3.1.0
MMP Plan File	YOLOFARMS.mmp 4/3/2013 9:45:03 AM
MMP Initialization File for Oregon	10/4/2011
MMP Soils File for Oregon	8/29/2011
Phosphorus Assessment Tool	2010.09.30
NRCS Conservation Plan(s)	n/a
RUSLE2 Library	n/a
RUSLE2 Database	n/a

Manure Application Records

Operation: YOLO FARMS

County: Klamath

Plan Saved: 8/20/2012

Plan File: YOLO.mmp

State: Oregon

Init. File Rev: 10/4/2011

Plan Folder: C:\Program Files\USDA\MMP 0.31

Soils File Rev: 8/29/2011

App. #	Hauler's Name (1)	Ground Cover % (2)	Soil Condition (3)	Air Temp. (4)	Wind Speed (5)	Wind Dir. (6)	Weather (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.

Manure Application Records

Operation: YOLO FARMS, LLC

County: Klamath

Plan Saved: 8/20/2012

Plan File: YOLO.mmp

State: Oregon

Init. File Rev: 10/4/2011

Plan Folder: C:\Program Files\USDA\MMP 0.31

Soils File Rev: 8/29/2011

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

Crop Records

Operation: YOLO FARMS, LLC

Plan File: YOLO.mmp

Plan Folder: C:\Program Files\USDA\MMP 0.31

County: Klamath

State: Oregon

Plan Saved: 8/20/2012

Init. File Rev: 10/4/2011

Soils File Rev: 8/29/2011

[illegible]

(1) Percent residue cover left after planting