



# Oregon

Theodore R. Kulongoski, Governor

A/F  
Department of Agriculture

635 Capitol Street NE  
Salem, OR 97301-2532

April 7, 2005



Matt and Joan Marti  
Marti Holsteins Inc,  
15400 Tideland Road  
Nehalem, Oregon 97131

Re: Animal Waste Management Plan (AWMP) review

Dear Mr. and Mrs. Marti:

On November 13, 2002, the department received an AWMP for your dairy facility located at 15400 Tideland Road. The AWMP you provided was logged into our files as #0230. On March 24, 2005, the department received additional documents to update the existing plan.

**AWMP Status: Approved**

The AWMP amendments you provided were logged into our files as #05037. With the addition of the AWMP amendments, the AWMP has been approved. Please find enclosed our review memo.

The department appreciates the effort put forth to complete the AWMP before your required due date of October 1, 2005. If you have any questions, please contact the area Livestock Water Quality Specialist Kathryn Higgs, at 503-842-6278.

Sincerely,

Debbie Gorham, Administrator  
Natural Resources Division  
PH (503) 986-4700  
FX (503) 986-4730

Enclosure: AWMP review memo

DG/kh/cs

142931

**MEMO**

**To:** Debbie Gorham  
**From:** Kathryn Higgs  
**Subject:** AWMP review for Mr. and Mrs. Matt Marti (dba Marti Holsteins Inc.)  
**Date:** April 7, 2005

Matt and Joan Marti own and operate Marti Holsteins Inc. located in Nehalem. Marti Holsteins Inc. submitted an AWMP to the department in 2003 (AWMP #0230). On March 24, 2005, I met with Mr. and Mrs. Marti during a routine inspection and at this time the plan was updated to reflect the current requirements. The AWMP amendments submitted by Marti Holsteins Inc. have been logged into our records as AWMP #05037. The AWMP was reviewed against the Minimum Required Elements document.

The AWMP was reviewed according to OAR Chapter 340 Division 51 and department policy documents.

AWMP Minimum Required Elements	Notes
<b>1) Summary of CAFO Operation</b>	
a) Contact name, address, phone number	Complete
b) Facility address	Complete
c) Type of operation	Complete
i) Number and size of animals by species, expansion?	Complete
d) Manure, litter and process waste system – provide a general narrative description of each	Complete
i) Collection – How is manure, litter and process waste removed from housing, confinement lots? How is clean water diverted from storage?	Complete
ii) Storage – Types and size of manure, litter and process waste storage tanks, ponds.	Complete
iii) Transfer – How is manure, litter and process waste moved to storage, application areas?	Complete
iv) Use – How is manure, litter and process waste treated (composted, separated, anaerobic digestion or storage, aeration)? How is manure, litter and process waste water used on crops? If export is utilized, describe that process.	Complete
<b>2) Specific descriptions and calculations</b>	
a) A description of production area and land application locations	Complete

iii) Using agronomic rates, application limitations, and scheduled applications, calculate the minimum storage required for liquids and solids.	Complete
iv) How is irrigation water managed relative to manure, litter and process waste water application? Indicate general timing and application rates of irrigation water. Irrigation water management must not allow leaching of soluble nutrients or runoff.	Not applicable
g) Animal mortality management	
i) Describe how the farm handles mortalities.	Complete
<b>3) Record keeping and reporting requirements</b>	
a) Testing – Monitoring	
i) Include the protocol for testing manure, litter and process waste.	Complete
ii) Include the protocol for testing and measuring crop nutrient removals.	Complete
iii) Include the protocol for soil testing to evaluate nutrient application and crop uptake.	Complete
b) Record keeping. Include the following:	
i) Date and amount of manure, litter and process waste applied by field. Calculate N and P applied.	Complete
ii) Manure, litter and process waste volume exported.	Complete
c) Reporting to Oregon Department of Agriculture	
i) Any discharge within 24 hours.	Complete
ii) Amount of manure, litter and process waste applied annually.	Complete
iii) Amount of manure, litter and process waste exported annually.	Complete

**Recommendations**

With the addition of the AWMP amendments, the AWMP for Marti Holsteins Inc. is complete. I recommend that the department approve this AWMP.

ANIMAL WASTE MANAGEMENT PLAN  
MINIMUM REQUIRED ELEMENT

AMENDMENT TO THE ANIMAL WASTE MANAGEMENT PLAN

Marti Holsteins Inc      Math and Jan Marti  
CONFINED ANIMAL FEEDING OPERATION      CAFO OPERATOR'S NAME

15400 Tideland Rd, Nehalem OR 97112      503/368-6652  
STREET ADDRESS, CITY, STATE, ZIP      PHONE NUMBER

On March 24, 2005      KATHRYN HIGGS  
INSPECTOR'S NAME

of the Oregon Department of Agriculture discussed modifications to Animal Waste Management Plan (AWMP) # 0230.

The following modifications were made to this AWMP:

- 1) Animal Mortalities and Record Keeping  
Amendment
- 2) Keeping Track of Manure Nutrients  
in Dairy Pastures (PNW 549)
- 3) \_\_\_\_\_

**CONCLUSION:**

The above amendments are accepted.

[Signature]  
INSPECTOR'S SIGNATURE

Math Marti  
OPERATOR'S SIGNATURE

MA # 63399  
AWMP # 05037  
Received Date: 3/24/05  
Review Date: 3/28/05  
APPROVED: KH.

**ANIMAL WASTE MANAGEMENT PLAN  
MINIMUM REQUIRED ELEMENT**

ANIMAL MORTALITY

Management of Animal Mortalities for: Marti Holstene, Inc.  
NAME OF OPERATION

Animal mortalities will be disposed of in a manner that will comply with local, state and federal regulations. Please mark and describe the method(s) of animal mortality management used on this operation:

REMOVAL SERVICE: Thru TCCA - Hawey Strong

COMPOSTED: \_\_\_\_\_

\_\_\_\_\_

INCINERATED: \_\_\_\_\_

\_\_\_\_\_

BURIED: \_\_\_\_\_

\_\_\_\_\_

OTHER: \_\_\_\_\_

\_\_\_\_\_

Signature of Legally Authorized Representative: Matt Marti

Print Name: Matt Marti Date: 3-24-05

PHOSPHORUS INDEX WORKSHEET - WESTERN OREGON

Producer: Marti Holsteins, Inc County: Tillamook Tract No. 212 Field No(s). 3 Date: 11/9/2003  
 Soil Map Unit(s): Co Soil Test P: 40 ppm Lab. Method: Weak Bray Sample Depth: \_\_\_\_\_  
 Crop Rotation: Permanent Pasture Nutrient Application Method(s): broadcast  
 Planner: \_\_\_\_\_ Notes: Soil samples collected by Tom Thompson

PHOSPHORUS LOSS RATING							Weighted Rating Value	
TRANSPORT FACTORS	Factor Weight	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Current	Planned
Soil Erosion - tons/acre/yr (RUSLE)	1.50	< 1 (0)	1 - 3 (1.5)	4 - 6 (3.0)	7 - 15 (6.0)	> 15 (12.0)	0	
Soil Erosion from Sprinkler Irrigation	0.75	No sprinkler irrigation (0)	Application rate < infiltration rate OR No visible runoff at field borders (0.75)	Application rate = infiltration rate OR Little to no visible runoff at field borders (1.5)	Application rate > infiltration rate OR Visible runoff at field borders (3.0)	Application rate > infiltration rate OR Excessive runoff visible at field borders. Fills and gullies present. (6.0)	0	
Runoff Class	1.00	Negligible (0)	Very low or low (1.0)	Medium (2.0)	High (4.0)	Very High (8.0)	1.0	
Flooding Frequency Class	0.75	None or very rare (0)	Rare (0.75)	Occasional (1.5)	Frequent (3.0)	Very Frequent (6.0)	0.56	
Distance to Perennial Surface Waters / Buffer Widths	0.75	> 500 feet OR buffer > 30 ft. wide (or meets NRCS standards) next to surface waters (0)	300 - 500 feet OR buffer 20 - 30 ft. wide next to surface waters (0.75)	200 - 299 feet OR buffer 10 - 19 ft. wide next to surface waters (1.5)	100 - 199 feet OR buffer < 10 ft. wide next to surface waters (3.0)	< 100 feet AND No buffer next to surface waters (6.0)	1.25	
Subsurface Drainage	0.50	No Tile Drains (0)	Tile drains present Soil Test P (Bray P1) < 60 ppm (0.5)	Tile drains present Soil Test P (Bray P1) 61 - 140 ppm (1.0)	Tile drains present Soil Test P (Bray P1) 141 - 190 ppm (2.0)	Tile drains present Soil Test P (Bray P1) > 190 ppm (4.0)	0	
<b>Transport Factors Subtotal (TFS)</b>							<b>2.085</b>	

Marti Holstein Inc.  
Matt Marti  
10/02

**LAND USE SUMMARY**

<u>Tract No.</u>	<u>Field No.</u>	<u>Land Use</u>	<u>Acres</u>
216	1	Hayland	27.6
	2	Hayland	2.5
	3	Hayland	21.7
	4	Hayland	12.0
	5	Hayland	4.8
	6	Hayland	8.9
	7	Hayland	1.3
	8	Wildlife	7.2
	9	Wildlife	1.0
	F	Farmstead	5.0
	<b>Subtotal</b>	<b>92.0</b>	
443	1	Pasture	21.1
	2	Pasture	8.6
	3	Pasture	18.2
	4	Pasture	11.1
		<b>Subtotal</b>	<b>59.0</b>

<u>Tract No.</u>	<u>Field No.</u>	<u>Land Use</u>	<u>Acres</u>
628	1	Pasture	24.4
		<b>Subtotal</b>	<b>24.4</b>
179	1	Hayland	13.1
	2	Hayland	1.0
	3	Hayland	18.9
	4	Hayland	9.7
	5	Hayland	4.5
	F	Farmstead	1.8
		<b>Subtotal</b>	<b>49.0</b>
27	1	Hayland	20.4
	2	Hayland	12.2
	3	Wildlife	18.4
		<b>Subtotal</b>	<b>51.0</b>
		<b>TOTAL</b>	<b>275.4</b>

**SUMMARY**

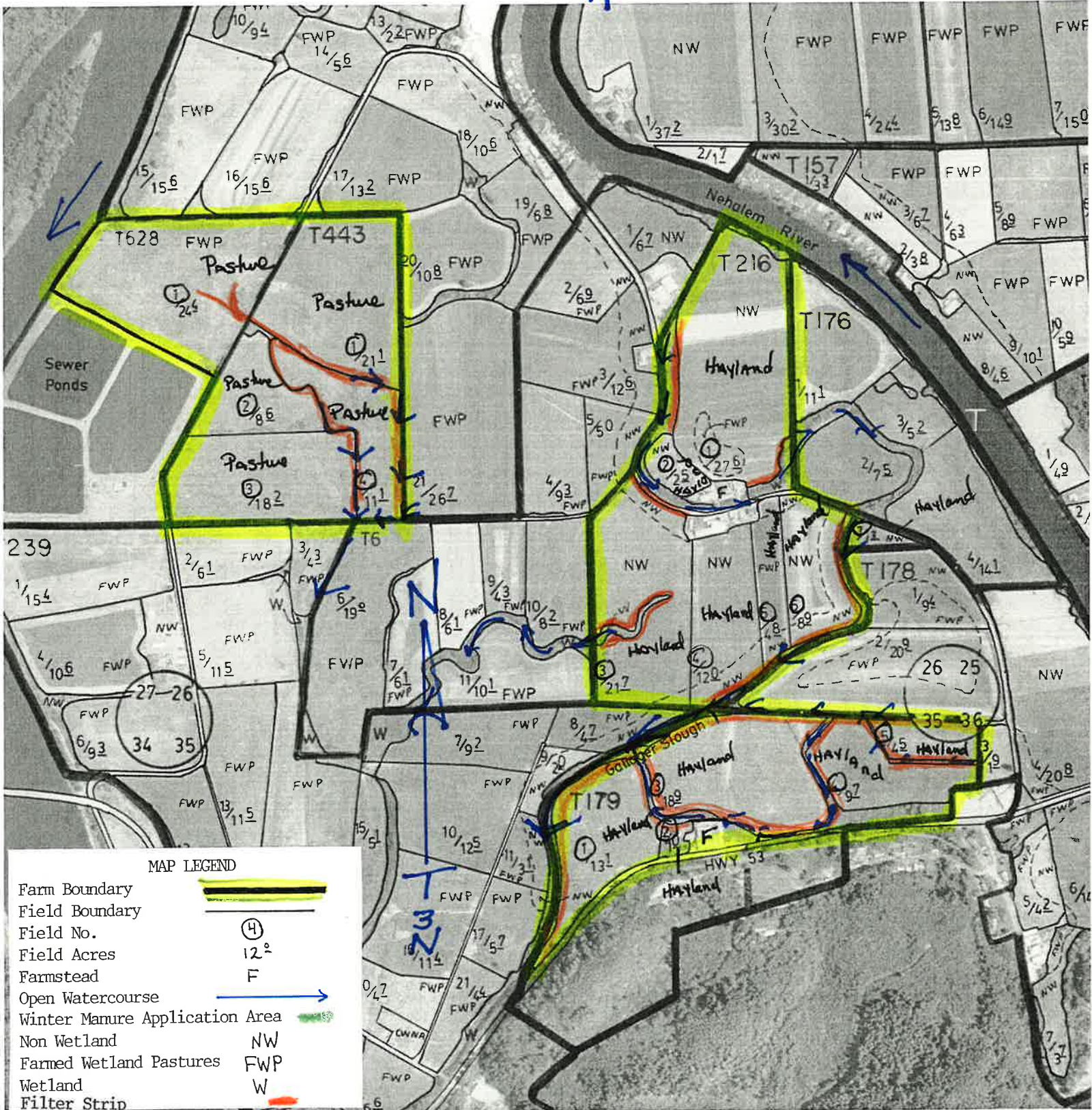
Hayland	158.6
Pasture	83.4
Wildlife	26.6
Farmstead	6.8
<b>TOTAL</b>	<b>275.4</b>

CONSERVATION PLAN MAP

Owner Marti Hostein Inc. Operator Matt Marti  
 County Tillamook State OR Date 10/02  
 Approximate Acres 222.6 Approximate Scale NOT TO SCALE  
 Cooperating with Tillamook County Soil & Water Conservation District  
 [N] Plan identification Photo # FSA D-4

↑ Assisted by Pedersen & Perkins  
 USDA Natural Resources Conservation Service

R10W

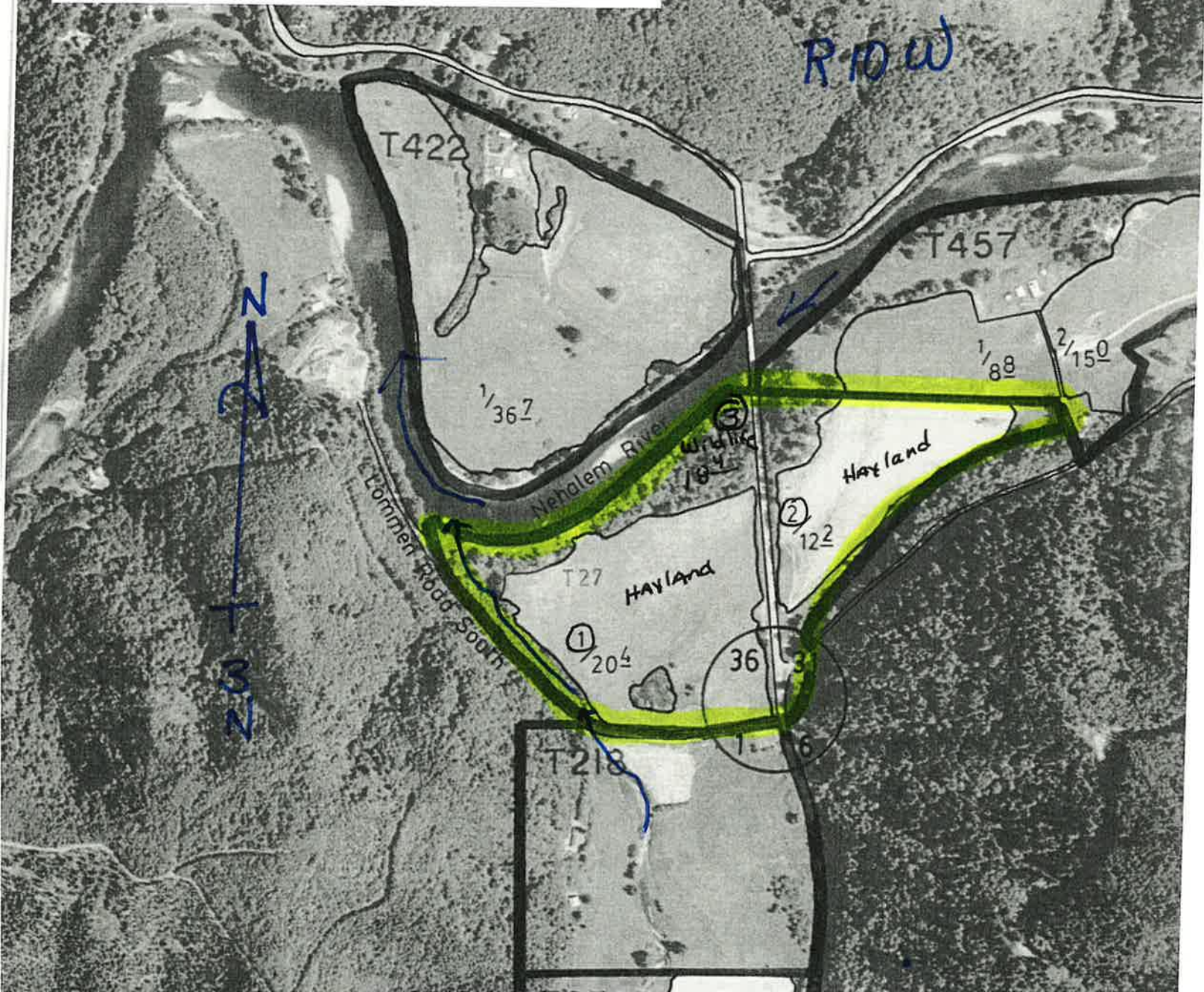


U.S. DEPARTMENT OF AGRICULTURE  
 NATURAL RESOURCES CONSERVATION SERVICES  
**CONSERVATION PLAN MAP**

NRCS-CPA-16

Owner Blackmore Operator Marti Holstein Inc.  
 County Tillamook State OR Date 09/02  
 Approximate Acres 51 Approximate Scale 1"=660'  
 Cooperating with Tillamook County Soil & Water Conservation District  
 Plan identification Tract 27 Photo # FSA E4A

Assisted by Pedersen & Perkins  
 USDA Natural Resources Conservation Service

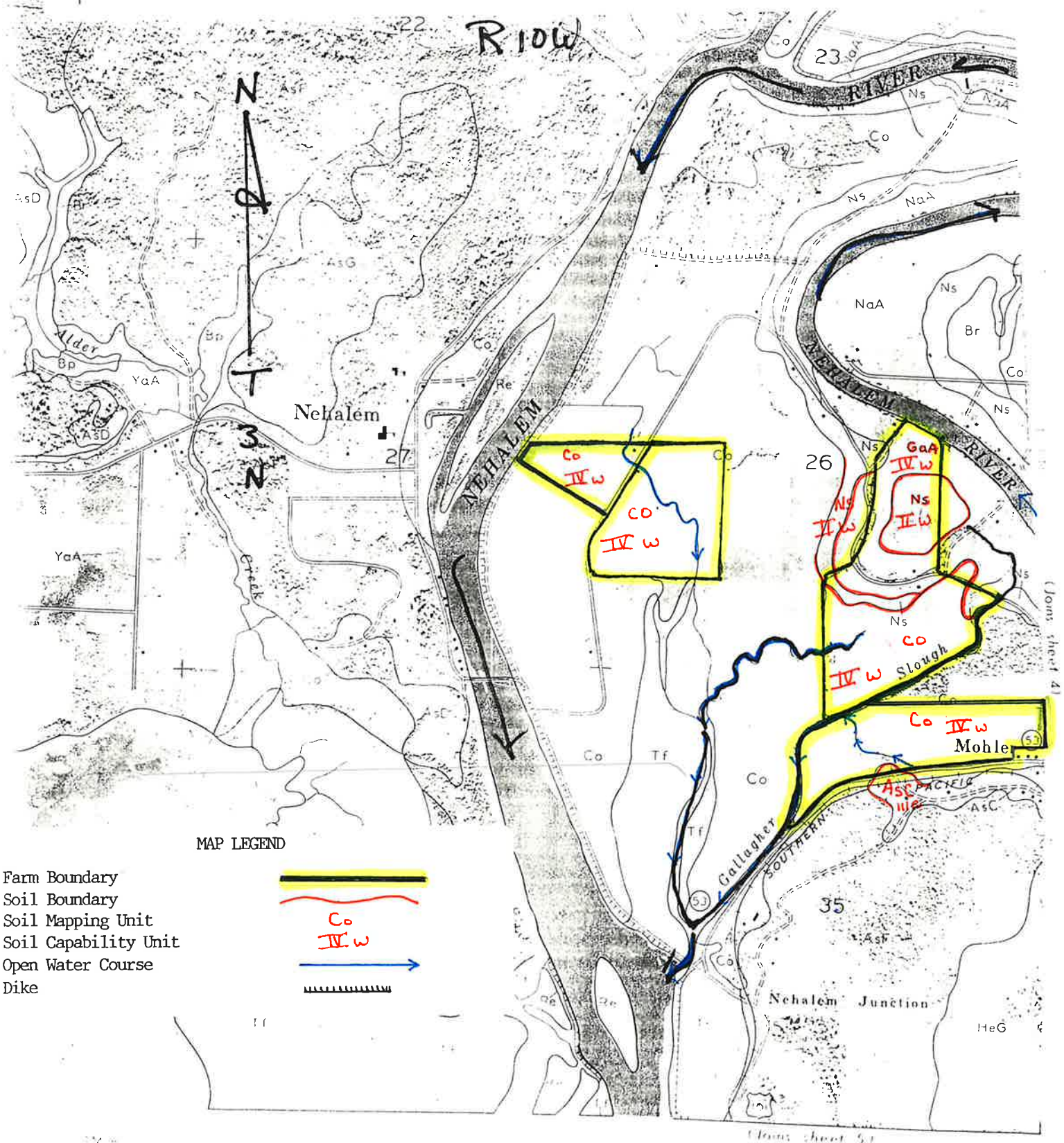


**CONSERVATION PLAN MAP LEGEND**

Farm Boundary	
Field Boundary	
Field No.	
Field Acres	
Farmstead	
Open Water Course	
Winter Manure Application Area	

### SOIL MAP

Owner Marti Holstein Inc. Operator Marti  
 County Tillamook State Oregon  
 Soil survey sheet(s) or code nos. 3 Approximate scale 1:20000  
 Prepared by U. S. Department of Agriculture, Soil Conservation Service cooperating  
 with Tillamook County Soil and Water Conservation District



- MAP LEGEND
- Farm Boundary
  - Soil Boundary
  - Soil Mapping Unit
  - Soil Capability Unit
  - Open Water Course
  - Dike

(Join sheet 4)

(Join sheet 5)

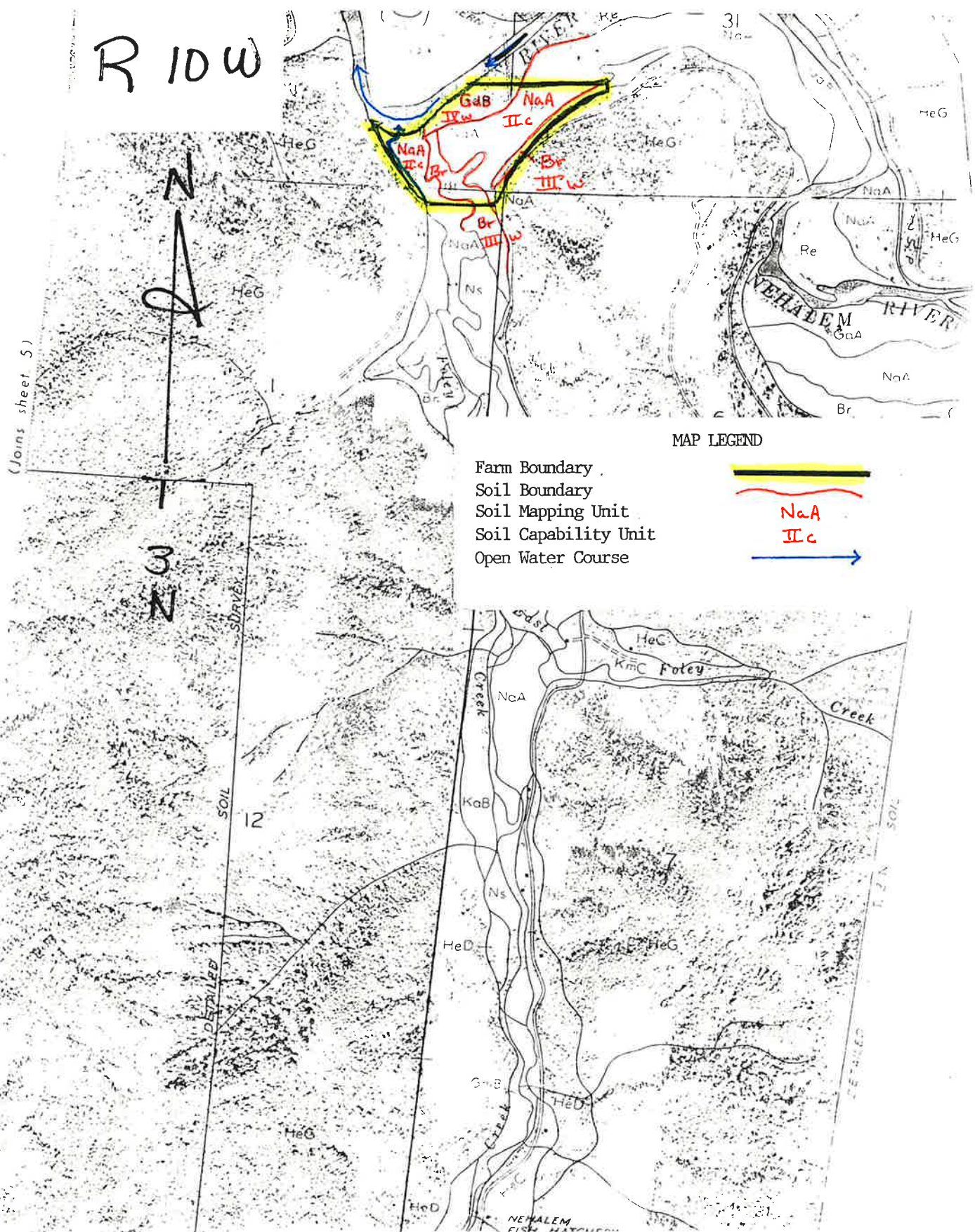
### SOIL MAP

Owner Blackmore Operator Marti Holstein Inc.

County Tillamook State Oregon

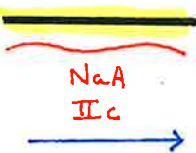
Soil survey sheet (s) or code nos. 5,6 Approximate scale 1:20000

Prepared by U. S. Department of Agriculture, Soil Conservation Service cooperating  
with Tillamook County Soil and Water Conservation District



#### MAP LEGEND

- Farm Boundary
- Soil Boundary
- Soil Mapping Unit
- Soil Capability Unit
- Open Water Course



## SOIL DESCRIPTION

**AsC** - Astoria silt loam, 3-12% slopes, consist of well drained, clayey soils. It is over 60 inches deep and occurs on footslopes and terraces. Permeability and runoff are both moderate. Water erosion is a potential hazard. The available water capacity is 9-12 inches. The effective rooting depth is more than 60 inches. The Natural Resources Conservation Service (NRCS) capability classification is IIIe. These soils are suited for use as pastureland.

**Br** - Brenner silt loams are poorly drained, strongly acid soils. These soils are on bottomlands in the lowest part of the floodplains. The erosion hazard is slight. Permeability is slow. Runoff is slow to ponded. NRCS capability classification is IIIw because of poor drainage. Available water holding capacity is 8.5 to 9.5 inches. Soils are well suited for pastures.

**Co** - Coquille-Brenner silt loams, 0-1% slopes. They are subject to tidal fluctuations unless protected by dikes and tidegates. These are hydric soils.

The Coquille soil is very poorly drained and silty. It is over 60 inches deep and occurs on tide-influenced floodplains. This soil is subject to frequent brief periods of flooding. A water table is present throughout the year. The permeability is moderate and the runoff is slow to ponded. The available water holding capacity is 10 to 12 inches. The effective rooting depth is more than 60 inches for water-tolerant plants. The NRCS capability classification is IVw. Areas protected by dikes and with surface drainage are suited for use as pastureland.

The Brenner soil is poorly drained and silty. It is over 60 inches deep and occurs in slightly higher areas near streams, on tide-influenced floodplains. This soil is subject to frequent brief periods of flooding. A water table is present during late fall, winter and spring. Permeability is slow. Runoff is slow to ponded. The erosion hazard is slight. The available water capacity is 10-12 inches. The effective rooting depth is more than 60 inches for water-tolerant plants. The NRCS capability classification is IIIw. Areas protected by dikes and with surface drainage are suited for use as pasture

**GaA** - Gardiner series, 0-3% slopes, occurs in narrow strips on nearly level bottom lands adjacent to major streams. The Gardiner series consists of deep, well-drained, coarse-textured soils on bottom lands. These soils are associated with the Nehalem, Gauldy, and Nestucca soils. The surface soil, dark brown and very friable, has weak, sub-angular blocky structure. Gardiner soils are subject to damaging overflow, which causes erosion, and which also deposit sand, silt, and debris. These soils are used almost exclusively for pasture and green chop. The soil is rapidly permeable, strongly acid, moderately fertile, and medium in organic matter. Erosion hazard is slight. The available water holding capacity is moderate to low. NRCS capability classification is IIIw because of flooding.

## SOIL DESCRIPTION

**GdB** - Yachats (formerly Gardiner) very fine sandy loam. 0 to 3% slopes occur in low lying bends of major rivers. They are subject to overflow due to high water. The soil is well-drained, moderately coarse in texture. Most areas have recently deposited sand on the surface. Runoff is slow and erosion hazard is moderate. Permeability is moderately rapid. NRCS capability classification is Illw because of the flooding. Effective rooting depth is greater than 60 inches. Water holding capacity is 6 to 8.0 inches. Soils are used primarily for pastureland and green chop.

**NaA** - Nehalem silt loam, 0-3% slopes, are well to moderately well drained soils. These occupy level to gently undulating river floodplains. The erosion hazard is slight. Permeability is moderate. Runoff is slow. NRCS capability classification is Ilc due to climate. Effective rooting depth is greater than 60 inches. Available water holding capacity is 11 to 12.5 inches. Nehalem soils are excellent for pastures. Manure application is restricted when flood potential is high.

**Ns** - Nestucca silt loams are somewhat poorly drained soils located on stream bottoms with shallow swales and depressions. The erosion hazard is slight. Permeability is moderately slow. NRCS capability classification is Ilw because of poor drainage. Effective rooting depth is limited by a seasonal water table at 0-20 inches. Available water holding capacity is 11.5 to 12.5 inches. Soils are well suited for pastures. However, animal waste application is limited unless adequately drained during the wet season.

**AsC ASTORIA SILT LOAM, 3 TO 12 PERCENT SLOPES**

THE ASTORIA SERIES CONSISTS OF WELL DRAINED SOILS FORMED IN COLLUVIUM WEATHERED FROM SEDIMENTARY ROCK IN FOOTHILL AREAS. THE SURFACE LAYER IS VERY DARK GRAYISH BROWN SILT LOAM ABOUT 19 INCHES THICK. THE SUBSOIL IS DARK YELLOWISH BROWN SILTY CLAY LOAM ABOUT 31 INCHES THICK. THE SUBSTRATUM IS WEATHERED SEDIMENTARY ROCK AT ABOUT 50 INCHES. ELEVATIONS ARE 100 TO 1600 FEET. MEAN ANNUAL PRECIP. IS 70 TO 100 INCHES. MEAN ANNUAL AIR TEMP. IS 45 TO 52 DEGREES F. FROST FREE PERIOD IS 100 TO 210 DAYS.

ESTIMATED SOIL PROPERTIES

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT: PERCENT OF MATERIAL LESS >3 IN: THAN 3" PASSING SIEVE NO.				LIQUID LIMIT	PLAS-TICITY INDEX	
				(PCT):	4	10	40	200		
0-19	SIL	ML	A-5	0	100	100	95-100	75-90	40-50	5-10
19-50	SICL	CL	A-6	0	100	100	95-100	75-95	35-50	15-30

DEPTH (IN.)	CLAY (PCT)	MOIST DENSITY (G/CM3)	BULK DENSITY (IN/HR)	PERMEABILITY (IN/IN)	AVAILABLE WATER CAPACITY (PH)	SOIL REACTION (MMHOS/CM)	SALINITY	SHRINK-POTENTIAL	EROSION FACTORS	WIND EROD. GROUP	ORGANIC MATTER (PCT)	CORROSIVITY
0-19	18-27	0.85-0.95	0.6-2.0	0.19-0.24	3.6-5.5	-	-	LOW	K: .32	T: 4	10-15	STEEL HIGH
19-50	25-35	0.90-1.10	0.6-2.0	0.20-0.25	3.6-5.0	-	-	MODERATE	.20			CONCRETE HIGH

FLOODING	HIGH WATER TABLE	CEMENTED PAN	BEDROCK	SUBSIDENCE	HYD: POTENTIAL
NONE	>6.0				

SANITARY FACILITIES		CONSTRUCTION MATERIAL	
SEPTIC TANK ABSORPTION FIELDS	MODERATE-DEPTH TO ROCK, PERCS SLOWLY	ROADFILL	POOR-LOW STRENGTH
SEWAGE LAGOON AREAS	SEVERE-SLOPE	SAND	IMPROBABLE-EXCESS FINES
SANITARY LANDFILL (TRENCH)	SEVERE-DEPTH TO ROCK	GRAVEL	IMPROBABLE-EXCESS FINES
SANITARY LANDFILL (AREA)	MODERATE-DEPTH TO ROCK	TOPSOIL	GOOD

DAILY COVER FOR LANDFILL	FAIR-DEPTH TO ROCK, TOO CLAYEY	WATER MANAGEMENT
		MODERATE-SEEPAGE, DEPTH TO ROCK, SLOPE

BUILDING SITE DEVELOPMENT		POND RESERVOIR AREA	
SHALLOW EXCAVATIONS	SLIGHT	EMBANKMENTS, DIKES AND LEVEES	SEVERE-THIN LAYER
DWELLINGS WITHOUT BASEMENTS	MODERATE-SHRINK-SWELL	EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER
DWELLINGS WITH BASEMENTS	MODERATE-SHRINK-SWELL	DRAINAGE	DEEP TO WATER
SMALL COMMERCIAL BUILDINGS	MODERATE-SHRINK-SWELL, SLOPE	IRRIGATION	SLOPE
LOCAL ROADS AND STREETS	SEVERE-LOW STRENGTH	TERRACES AND DIVERSIONS	FAVORABLE
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	SLIGHT	GRASSED WATERWAYS	FAVORABLE

SOIL INTERPRETATIONS RECORD

8r BRENNER SILT LOAM

THE BRENNER SERIES CONSISTS OF VERY DEEP, POORLY-DRAINED SOILS FORMED IN MIXED ALLUVIUM. THEY OCCUR ON FLOODPLAINS. TYPICALLY, THE SURFACE LAYER IS VERY DARK GRAYISH-BROWN SILT LOAM, ABOUT 13 INCHES THICK. THE SUBSOIL IS DARK GRAYISH-BROWN SILT LOAM ABOUT 27 INCHES THICK. THE SUBSTRATUM IS DARK GREENISH GRAY SILTY CLAY EXTENDING BELOW 60 INCHES. MEAN ANNUAL PRECIP. IS 60 TO 90 INCHES. MEAN ANNUAL AIR TEMP IS 48 TO 52 DEGREES F. FROST FREE PERIOD IS 160 TO 265 DAYS.

LANDSCAPE AND CLIMATE PROPERTIES				
ANNUAL AIR TEMPERATURE	FROST FREE DAYS	ANNUAL PRECIPITATION	ELEVATION (FT)	DRAINAGE CLASS
	160-265			P
				SLOPE (PCT) 0-3

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.				CLAY (PCT)		
				FRACT. >10 IN (PCT)	FRACT. 3-10 IN (PCT)	5	10		40	200
0-13	SIL	ML	A-4	0	0	100	100	80-100	80-90	20-27
13-40	SICL, SIL	CL	A-6	0	0	100	100	95-100	85-95	18-30
40-60	SICL	MH, ML	A-6, A-7	0	0	100	100	95-100	85-95	27-50

DEPTH (IN.)	LIQUID LIMIT	PLAS. TICITY INDEX	MOIST BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CaCO3 (PCT)	GYPSUM (PCT)
0-13	25-35	NP-5	0.90-1.20	0.6-2.0	0.19-0.21	3.6-5.5	-				
13-40	30-40	10-20	1.10-1.30	0.2-0.6	0.19-0.21	3.6-5.5	-				
40-60	35-55	10-20	1.10-1.30	0.06-0.2	0.15-0.17	3.6-6.5	-				

DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS	WIND EROD. GROUP	WIND EROD. INDEX	CORROSIVITY	
						STEEL	CONCRETE
0-13	5-10	LOW	32	5	6	48	HIGH
13-40		MODERATE	24				HIGH
40-60		MODERATE	24				HIGH

FREQUENCY	DURATION	MONTHS	HIGH WATER TABLE		CEMENTED PAV.	BEDROCK	SUBSIDENCE		HYD. GRP.	POTENTIAL FROST ACTION
			DEPTH (FT)	KIND			INITIAL (IN)	TOTAL (IN)		
FREQUENT	BRIEF	DEC-APR	5-10	PERCHED	-	>60	-	-	0	-

SEPTIC TANK ABSORPTION FIELDS	SANITARY FACILITIES		CONSTRUCTION MATERIAL	
	SEVERE-FLOODING, PONDING, PERCS SLOWLY		ROADFILL	POOR-LOW STRENGTH, WETNESS
SEWAGE LAGOON AREAS	SEVERE-FLOODING, PONDING		SAND	IMPROBABLE-EXCESS FINES
SANITARY LANDFILL (TRENCH)	SEVERE-FLOODING, PONDING		GRAVEL	IMPROBABLE-EXCESS FINES
SANITARY LANDFILL (AREA)	SEVERE-FLOODING, PONDING		TOPSOIL	POOR-WETNESS
DAILY COVER FOR LANDFILL	POOR-PONDING			WATER MANAGEMENT
			POND RESERVOIR AREA	SLIGHT
	BUILDING SITE DEVELOPMENT			
SHALLOW EXCAVATIONS	SEVERE-PONDING		EMBANKMENTS DIKES AND LEVEES	SEVERE-THIN LAYER, PONDING
DWELLINGS WITHOUT BASEMENTS	SEVERE-FLOODING, PONDING		EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER
DWELLINGS WITH BASEMENTS	SEVERE-FLOODING, PONDING		DRAINAGE	PONDING, FLOODING
SMALL COMMERCIAL BUILDINGS	SEVERE-FLOODING, PONDING		IRRIGATION	PONDING, PERCS SLOWLY, FLOODING
LOCAL ROADS AND STREETS	SEVERE-LOW STRENGTH, PONDING, FLOODING		TERRACES AND DIVERSIONS	PONDING
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	SEVERE-PONDING, FLOODING		GRASSED WATERWAYS	WETNESS

SOIL INTERPRETATIONS RECORD

USDA-SCS

CO COQUILLE AND BRENNER SILT LOAMS, PROTECTED  
COQUILLE PART

REV. 2/98  
JAS

THE COQUILLE SERIES CONSISTS OF VERY DEEP, VERY POORLY DRAINED SOILS FORMED IN ALLUVIUM. THEY ARE ON FLOOD PLAINS AND ARE PROTECTED FROM AVERAGE TIDAL FLUCTUATIONS. ELEVATIONS ARE 0 TO 20 FEET. TYPICALLY, THE SURFACE LAYER IS VERY DARK GRAYISH BROWN SILT LOAM ABOUT 13 INCHES THICK. THE SUBSTRATUM IS DARK GRAYISH BRDWN SILT CLAY LOAM AND SILTY CLAY TO 60 INCHES. THE MEAN ANNUAL PRECIP IS 60 TO 100 INCHES. THE MEAN ANNUAL AIR TEMP. IS 49 TO 53 DEGREES F. THE FROST FREE PERIOD IS 180 TO 245 DAYS.

ANNUAL AIR TEMPERATURE		FROST FREE DAYS		LANDSCAPE AND CLIMATE PROPERTIES		ANNUAL PRECIPITATION		ELEVATION (FT)		DRAINAGE CLASS		SLOPE (PCT)	
		180-245						0-20		VP		0-1	
ESTIMATED SOIL PROPERTIES													
DEPTH (IN.)	USDA TEXTURE	UNIFIED		AASHTO		FRACT. >10 IN (PCT)	FRACT. 3-10 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO				CLAY (PCT)	
0-13	SIL	ML		A-4		0	0	100	100	85-100	75-90	20-30	
13-40	SICL, SIL	ML		A-4		0	0	100	100	85-100	85-95	25-35	
40-60	SIC, SICL	ML, MH		A-7		0	0	100	100	85-100	80-95	35-65	
DEPTH (IN.)	LIQUID LIMIT	PLAS-TICITY INDEX	MOIST BULK DENSITY (G/CM3)	PERMEA-BILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHDS/CM)	SAR	CEC (ME/100G)	CaCO3 (PCT)	GYP SUM (PCT)		
0-13	30-35	NP-5	1.00-1.20	0.6-2.0	0.18-0.21	5.6-7.3							
13-40	35-40	S-10	1.20-1.30	0.2-0.6	0.18-0.21	5.6-7.3							
40-60	45-55	15-20	1.25-1.35	0.06-0.2	0.15-0.17	5.6-7.3	2-4						
DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS	WIND EROD. INDEX	WIND EROD. INDEX	CORROSIVITY							
0-13	4-10	LOW	32	5	48	STEEL	CONCRETE						
13-40		LOW	37			HIGH	HIGH						
40-60		MODERATE	37										
FLOODING													
FREQUENCY	DURATION	MONTHS	DEPTH (FT)	KIND	MONTHS	CEMENTED PAN DEPTH (IN)	HARDNESS	BEDROCK DEPTH (IN)	HARDNESS	SUBSIDENCE INIT. (IN)	TOTAL (IN)	HYD GRP	POTENT. FROST ACTION
Occasional	BRIEF	Nov-Apr	+2-2	0	APPARENT	JAN-DEC		>60				0	
SANITARY FACILITIES													
SEPTIC TANK ABSORPTION FIELDS	SEVERE-FLOODING, PONDING, PERCS SLOWLY					ROADFILL	CONSTRUCTION MATERIAL POOR-LOW STRENGTH, WETNESS						
SEWAGE LAGOON AREAS	SEVERE-FLOODING, PONDING					SAND	IMPROBABLE-EXCESS FINES						
SANITARY LANDFILL (TRENCH)	SEVERE-FLOODING, PONDING					GRAVEL	IMPROBABLE-EXCESS FINES						
SANITARY LANDFILL (AREA)	SEVERE-FLOODING, PONDING					TOPSOIL	POOR-WETNESS						
DAILY COVER FOR LANDFILL	POOR-PONDING						WATER MANAGEMENT						
						POND RESERVOIR AREA	SLIGHT						
BUILDING SITE DEVELOPMENT													
SHALLOW EXCAVATIONS	SEVERE-PONDING					EMBANKMENTS DIKES AND LEVEES	SEVERE-PIPING, PONDING						
DWELLINGS WITHOUT BASEMENTS	SEVERE-FLOODING, PONDING					EXCAVATED PONDS AQUIFER FED	SEVERE-SLOW REFILL						
DWELLINGS WITH BASEMENTS	SEVERE-FLOODING, PONDING					DRAINAGE	PONDING, FLOODING						
SMALL COMMERCIAL BUILDINGS	SEVERE-FLOODING, PONDING					IRRIGATION	PONDING, PERCS SLOWLY, FLOODING						
LOCAL ROADS AND STREETS	SEVERE-LOW STRENGTH, PONDING, FLOODING					TERRACES AND DIVERSIONS	ERODES EASILY, PONDING						
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	SEVERE-PONDING, FLOODING					GRASSED WATERWAYS	WETNESS, ERODES EASILY						

**SOIL INTERPRETATIONS RECORD**

GaA GARDINER FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES

THE GARDINER SERIES CONSISTS OF WELL DRAINED SOILS FORMED IN COARSE-TEXTURED, MIXED ALLUVIUM ON FLOOD PLAINS. TYPICALLY THE SURFACE LAYER IS DARK BROWN FINE SANDY LOAM ABOUT 8 INCHES THICK. THE SUBSOIL IS DARK YELLOWISH-BROWN LOAMY FINE SAND 52 INCHES OR MORE WITH THIN LAYERS OF FINER TEXTURES. ELEVATIONS ARE 0 TO 100 FEET. MEAN ANNUAL PRECIP. IS 60 TO 90 INCHES. MEAN ANNUAL AIR TEMP. IS 50 TO 52 DEGREES F. THE FROST FREE PERIOD IS 220 TO 290 DAYS.

LANDSCAPE AND CLIMATE PROPERTIES											
ANNUAL AIR TEMPERATURE	FROST FREE DAYS	ANNUAL PRECIPITATION	ELEVATION (FT)	DRAINAGE CLASS	SLOPE (PCT)						
	220-290		0-100	W	0-3						
ESTIMATED SOIL PROPERTIES											
DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT. >10 IN (PCT)	FRACT. 3-10 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.				CLAY (PCT)	
0-8	FSL	SM	A-4	0	0	2	10	40	200	10-15	
8-60	LFS, LS	SM	A-2	0	0	100	100	85-85	35-50	5-10	
						100	100	50-75	15-35		
DEPTH (IN.)	LIQUID LIMIT	PLASTICITY INDEX	MOIST BULK DENSITY (G/CM3)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CAC03 (PCT)	GYPSUM (PCT)
0-8	20-25	NP-5	1.20-1.40	2.0-6.0	0.14-0.17	5.1-5.5					
8-60		NP	1.30-1.40	6.0-20	0.09-0.10	5.1-5.5					
DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS	WIND EROD. GROUP	WIND EROD. INDEX	CORROSION					
0-8	2-3	LOW	24 5	3	86	STEEL	CONCRETE				
8-60		LOW	10			MODERATE	MODERATE				
FLOODING											
FREQUENCY	DURATION	MONTHS	DEPTH (FT)	KIND	MONTHS	CEMENTED PAN DEPTH (IN)	HARDNESS	BEDROCK DEPTH (IN)	HARDNESS	SUBSIDENCE (IN)	POTENTIAL FROST ACTION
FREQUENT	BRIEF	NOV-MAR	>6.0					>60			A
SANITARY FACILITIES											
SEVERE-FLOODING, POOR FILTER											
SEPTIC TANK ABSORPTION FIELDS						ROADFILL	GOOD CONSTRUCTION MATERIAL				
SEWAGE LAGOON AREAS	SEVERE-SEEPAGE, FLOODING					SAND	IMPROBABLE-EXCESS FINES				
SANITARY LANDFILL (TRENCH)	SEVERE-FLOODING, SEEPAGE					GRAVEL	IMPROBABLE-EXCESS FINES				
SANITARY LANDFILL (AREA)	SEVERE-FLOODING, SEEPAGE					TOPSOIL	GOOD				
DAILY COVER FOR LANDFILL	FAIR-TOO SANDY					WATER MANAGEMENT					
						POND RESERVOIR AREA	SEVERE-SEEPAGE				
BUILDING SITE DEVELOPMENT											
SHALLOW EXCAVATIONS	SEVERE-CUTBANKS CAVE					EMBANKMENTS DIKES AND LEVEES	SEVERE-SEEPAGE, PIPING				
DWELLINGS WITHOUT BASEMENTS	SEVERE-FLOODING					EXCAVATED PONDS AQUIFER FED	SEVERE-NO WATER				
DWELLINGS WITH BASEMENTS	SEVERE-FLOODING					DRAINAGE	DEEP TO WATER				
SMALL COMMERCIAL BUILDINGS	SEVERE-FLOODING					IRRIGATION	SOIL BLOWING, FLOODING				
LOCAL ROADS AND STREETS	SEVERE-FLOODING					TERRACES AND DIVERSIONS	TOO SANDY, SOIL BLOWING				
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	SEVERE-FLOODING					GRASSED WATERWAYS	FAVORABLE				



SOIL INTERPRETATIONS RECORD

N44 NEHALEM SILT LOAM, 0 TO 3 PERCENT SLOPES

THE NEHALEM SERIES CONSISTS OF WELL DRAINED SOILS FORMED IN MIXED ALLUVIUM ON FLOODPLAINS. TYPICALLY THE SURFACE LAYER IS VERY DARK GRAYISH BROWN OVER DARK BROWN SILT LOAM ABOUT 17 INCHES THICK. THE SUBSOIL IS DARK BROWN SILTY CLAY LOAM ABOUT 20 INCHES THICK. THE SUBSTRATUM IS DARK BROWN SILTY CLAY LOAM TO 60 INCHES OR MORE. ELEVATIONS RANGE FROM 10 TO 750 FEET. THE MEAN ANNUAL PRECIP. IS 50 TO 100 INCHES. MEAN ANNUAL AIR TEMP. IS 48 TO 53 DEGREES F. FROST FREE PERIOD IS 160 TO 265 DAYS.

ANNUAL AIR TEMPERATURE		FROST FREE DAYS		LANDSCAPE AND CLIMATE PROPERTIES		ANNUAL PRECIPITATION		ELEVATION (FT)		DRAINAGE CLASS		SLOPE (PCT)			
		160-265				10-750		W		0-3					
ESTIMATED SOIL PROPERTIES															
DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT. >10 IN (PCT)	FRACT. >3 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.				CLAY (PCT)					
0-17	SIL	ML, CL-ML	A-4	0	0	4	10	40	200						
17-37	SIL, SILCL	CL	A-6, A-7	0	0	100	100	90-100	70-90				15-25		
37-60	SILCL, SIL, L	CL, CL-ML	A-6, A-4	0	0-5	100	100	90-100	75-95				20-35		
						85-100	80-100	80-95	60-90				20-35		
DEPTH (IN.)	LIQUID LIMIT	PLASTICITY INDEX	MOIST BULK DENSITY (G/CM <sup>3</sup> )	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHDS/CM)	SAR	CEC (ME/100G)	CaCO <sub>3</sub> (PCT)	GYPSUM (PCT)				
0-17	25-35	5-10	1.10-1.20	0.6-2.0	0.19-0.21	4.5-6.0									
17-37	30-45	10-20	1.20-1.30	0.6-2.0	0.19-0.21	4.5-5.5									
37-60	25-40	5-15	1.25-1.35	0.2-0.6	0.19-0.21	4.5-5.0									
DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS	WIND EROD. GROUP	WIND EROD. INDEX	CORROSIVITY									
0-17	5-10	LOW	32	5	48	STEEL	CONCRETE								
17-37		MODERATE	37			HIGH	HIGH								
37-60		LOW	37												
FLOODING															
FREQUENCY	DURATION	MONTHS	DEPTH (FT)	KIND	MONTHS	CEMENTED PAN DEPTH (IN)	BEDROCK DEPTH (IN)	SUBSIDENCE (IN)	HYD. POTENTIAL						
RARE			>6.0												
SANITARY FACILITIES															
SEPTIC TANK ABSORPTION FIELDS				SEWAGE LAGOON AREAS				SANITARY LANDFILL (TRENCH)				SANITARY LANDFILL (AREA)			
SEVERE-PERCS SLOWLY				MODERATE-SEEPAGE				MODERATE-FLOODING, TOO CLAYEY				MODERATE-FLOODING			
ROADFILL				SAND				GRAVEL				TOPSOIL			
DAILY COVER FOR LANDFILL															
FAIR-TOO CLAYEY				POND RESERVOIR AREA				WATER MANAGEMENT				MODERATE-SEEPAGE			
BUILDING SITE DEVELOPMENT															
SHALLOW EXCAVATIONS				DWELLINGS WITHOUT BASEMENTS				DWELLINGS WITH BASEMENTS				SMALL COMMERCIAL BUILDINGS			
SLIGHT				SEVERE-FLOODING				SEVERE-FLOODING				SEVERE-FLOODING			
EMBANKMENTS DIKES AND LEVEES				EXCAVATED PONDS AQUIFER FED				DRAINAGE				IRRIGATION			
SEVERE-PIPING				SEVERE-NO WATER				DEEP TO WATER				FAVORABLE			
LOCAL ROADS AND STREETS				LAWNS, LANDSCAPING AND GOLF FAIRWAYS											
SEVERE-LOW STRENGTH				SLIGHT				TERRACES AND DIVERSIONS				GRASSSED WATERWAYS			
ERODES EASILY				ERODES EASILY											

SOIL INTERPRETATIONS RECORD

MS NESTUCCA SILT LOAM

THE NESTUCCA SERIES CONSISTS OF VERY DEEP, SOMEWHAT POORLY DRAINED SOILS FORMED IN MIXED ALLUVIUM ON FLOODPLAINS. THE SURFACE LAYER IS DARK BROWN OVER VERY DARK GRAYISH BROWN, MOTTLED SILTY LOAM ABOUT 14 INCHES THICK. THE SUBSOIL IS DARK GRAYISH BROWN, MOTTLED AND CLEYED SILTY CLAY LOAM ABOUT 27 INCHES THICK. THE SUBSTRATUM IS DARK GRAY, MOTTLED AND CLEYED SILTY CLAY TO 50 INCHES OR MORE. ELEVATIONS RANGE FROM 10 TO 750 FEET. MEAN ANNUAL PRECIP IS 60 TO 100 INCHES. MEAN ANNUAL AIR TEMP IS 48 TO 52 DEGREES F. FROST FREE PERIOD IS 160 TO 245 DAYS.

ANNUAL AIR TEMPERATURE		FROST FREE DAYS		LANDSCAPE AND CLIMATE PROPERTIES		ANNUAL PRECIPITATION		ELEVATION (FT)		DRAINAGE CLASS		SLOPE (PCT)				
		160-245				10-750				SP		0-3				
ESTIMATED SOIL PROPERTIES																
DEPTH (IN)	USDA TEXTURE	UNIFIED	AASHTO		FRACT >10 IN (PCT)	FRACT 3-10 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.				CLAY (PCT)					
0-14	SIL	CL-ML	A-4		0	0	100	100	80-100	75-95	18-27					
14-41	SICL, SIL	CL	A-6, A-7		0	0	100	100	85-100	85-95	25-35					
41-60	SIC, CL, L	CL	A-7, A-8		0	0	100	95-100	85-100	85-95	20-45					
DEPTH (IN)	LIQUID LIMIT	PLASTICITY INDEX	MOISTURE DENSITY (G/CM <sup>3</sup> )	BULK DENSITY (G/CM <sup>3</sup> )	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC (ME/100G)	CaCO <sub>3</sub> (PCT)	GYPSUM (PCT)				
0-14	20-30	5-10	1.10-1.25	0.6-2.0	0.6-2.0	0.19-0.21	4.5-5.5									
14-41	35-45	15-20	1.25-1.40	0.2-0.6	0.2-0.6	0.18-0.21	4.5-5.5									
41-60	30-50	10-25	1.35-1.45	0.06-0.6	0.06-0.6	0.15-0.17	4.5-5.5									
DEPTH (IN)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS	WIND EROD. GROUP	WIND EROD. INDEX	CORROSIVITY										
0-14	4-8	LOW	32	5	6	STEEL	CONCRETE									
14-41		MODERATE	32			HIGH	HIGH									
41-60		MODERATE	28													
FLOODING																
FREQUENCY			DURATION			HIGH WATER TABLE			CEMENTED PAN		BEDROCK		SUBSIDENCE		HYD	POTENTIAL
FREQUENT			BRIEF			DEPTH (FT)			DEPTH (IN)		DEPTH (IN)		INITIAL (IN)		DEPTH	FROST ACTION
			MONTHS			1-0-2-0			PERCHED		DEC-APR					
SANITARY FACILITIES																
SEPTIC TANK ABSORPTION FIELDS	SEVERE-FLOODING, WETNESS, PERCS SLOWLY			ROADFILL		CONSTRUCTION MATERIAL								POOR-LOW STRENGTH		
SEWAGE LAGOON AREAS	SEVERE-FLOODING, WETNESS			SAND		IMPROBABLE-EXCESS FINES										
SANITARY LANDFILL (TRENCH)	SEVERE-FLOODING, WETNESS			GRAVEL		IMPROBABLE-EXCESS FINES										
SANITARY LANDFILL (AREA)	SEVERE-FLOODING, WETNESS			TOPSOIL		GOOD										
DAILY COVER FOR LANDFILL	POOR-WETNESS			POND RESERVOIR AREA		SLIGHT								WATER MANAGEMENT		
BUILDING SITE DEVELOPMENT																
SHALLOW EXCAVATIONS	SEVERE-WETNESS			EMBANKMENTS DIKES AND LEVEES		MODERATE-WETNESS										
DWELLINGS WITHOUT BASEMENTS	SEVERE-FLOODING, WETNESS			EXCAVATED PONDS AQUIFER FED		SEVERE-NO WATER										
DWELLINGS WITH BASEMENTS	SEVERE-FLOODING, WETNESS			DRAINAGE		FLOODING										
SMALL COMMERCIAL BUILDINGS	SEVERE-FLOODING, WETNESS			IRRIGATION		WETNESS, PERCS SLOWLY, FLOODING										
LOCAL ROADS AND STREETS	SEVERE-LOW STRENGTH, FLOODING			TERRACES AND DIVERSIONS		WETNESS										
LAWNS, LANDSCAPING AND GOLF FAIRWAYS	SEVERE-FLOODING			GRASSED WATERWAYS		WETNESS										

Assistance Notes for Date Range  
10/07/02 - 10/07/02

Client Name: Marti, Matt  
Business Name: Marti Holstein Inc.  
Business ID: NA011

Client Address

15400 Tideland Road  
Nehalem, OR  
97131-

Business Address

15400 Tideland Road  
Nehalem, OR  
97131-

Client Phone	Ext	Description	Business Phone	Ext	Description
503-368-6652		HOME	503-368-5521		HOME

NOTES

Assistance Type: Business Comment  
Fund ID: CTA

Assisted By: RAP  
Date: 10/07/02

Note:

This operation will be a 713-1000 lb unit Holstein-Jersey milking, dry cow, heifer, and calve operation. At the milking operation (Tract 216) there will be 500 lactating cows, 100 dry cows, and 100 calves. Mature cows and calves will be confined for 365 days. Tract 179 is the heifer operation. The 50 heifers will be confined for 151 days and on the pastures in Tracts 443 and 628 for 214 days.

The operation consists of 242 acres where manure and wastes are applied. Forage is cut for silage. Liquid wastes are transported to hayland and pasture fields and applied with a 3,250 gallon tank wagon. Fifty percent of the solids produced will be hauled off the farm. The solid manure is transported to the pasture and hayland fields and applied with either a 400 or a 630 bushel manure spreader. The hayland fields are in good condition. The pastures are in fair condition. The target yield is 6 tons of dry matter per acre per year. The primary forage species are Orchardgrass, ryegrass, and clover. Tracts 216, 443, 628, and 179 are located within the Sunset Drainage District. Tidegates and open ditches are used to remove the surface drainage from the area.

Manure from the milking operation will be handled 40% solids and 60% liquids. The existing liquid manure storage system at the milking operation consists of 1 below ground liquid waste storage structure. The size is: 24'x 60'x 6'. A 100'x 16 above ground liquid waste storage tank has been constructed. These two liquid waste storage tanks can store the

Assistance Notes for Date Range  
10/07/02 - 10/07/02

Client Name: Marti, Matt  
Business Name: Marti Holstein Inc.  
Business ID: NA011

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liquid wastes produced by the planned 660-1000 lb. units at the milking operation for 82 days. The existing solid manure storage facility is 40'x 50'x 6'. A manure separator is planned for installation along with a 50'x 72'x 6' solid manure storage facility to store the separated wastes. These solid waste storage facilities will store the solid manure produced from the planned 685- 1000 lb units milking operation for 387 days. The manure storage system at the heifer operation consists of two below ground liquid waste tanks and one solid waste storage facility. The wastes will be handled 75% solids and 25% liquids. The below ground liquid waste tanks are 32'x 8' and 20'x 8'. The solid manure storage facility is 25'x 25'x 6'. The solids at the heifer operation can be stored for 125 days for the 33-1000 lb. units. The liquid wastes can be stored for 259 days for the 33-1000 lb. units. All conservation practices installed and/or planned for installation will be maintained in accordance with the enclosed "CONSERVATION PRACTICE OPERATION AND MAINTENANCE WORKSHEETS" and is part of the Operation Agreement.

Soils where manure is applied are Coquille-Brenner, Brenner, Nestucca, Nehalem silt loams, and Gardiner fine sandy loam soils. The Coquille-Brenner and Brenner silt loam soils are poorly drained. The Nestucca silt loam soil is somewhat poorly drained. The Nehalem silt loam and the Gardiner fine sandy loam soils are well drained.

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CONSERVATION PLAN COVER PAGE

Client: Marti, Fritz                      Marti Holstein Inc.  
Assisted By: Robert A. Pedersen

Farm	Tract	ACRES	LAND UNIT NAME	OWNER NAME
1	443	59.0	Heifer Pasture	
	628	24.4	Heifer Pasture	
	216	92.0	Home Place	
	27	51.0	South River Farm	
	TOTAL	226.4 ACRES		

BUSINESS OBJECTIVES

10/08/02  
Develop and implement a comprehensive nutrient management plan that is in compliance with ODA's Confined Animal Feeding Operation permit, rules and regulation and allows for an increase in livestock numbers.

CONSERVATION PLAN

Client: Marti, Fritz  
 Assisted By: Robert A. Pedersen  
 Marti Holstein Inc.

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
216	F	5.0Ac					<p>Farmstead</p> <p>The major land use is the farmstead. The operation is located in the Sunset Drainage District in the lower Nehalem River Watershed. Flooding can occur. The animal confinement buildings, milkhouse, parlor, silage bunker, and waste storage facilities are located in this land use. The annual precipitation is 90 inches. The soils are vary from poorly to well drained. This Resource Management System will prevent degradation to surface and/or groundwater associated with the dairy operation.</p>
216	F	1.0no	09	2005			<p>WASTE MANAGEMENT SYSTEM</p> <p>A waste management system consisting of structural and vegetative practices for the collection, transfer, storage and land application of waste generated from the confined animal feeding operation will be installed, maintained, and managed. The identified practices will allow the management of the wastes during periods when direct application may contribute to surface and/or groundwater degradation. Conservation practices installed will be operated and maintained in accordance with the enclosed "OPERATION AND MAINTENANCE WORKSHEETS". Practices planned will be installed in accordance with the Practice Specifications provided.</p>
216	F	1.0no	10	2004			<p>MANURE TRANSFER (Manure Separator)</p> <p>A manure separator will be installed to remove the solid fraction from the liquid. The manure separator will be installed in accordance with the manufacture's specifications.</p>
216	F	21600.0cf	09	2003			<p>WASTE STORAGE FACILITY (Solid Manure Storage Facility)</p> <p>A solid manure storage facility with roof, gutters and downspouts will be constructed to increase solid manure storage capacity. A 50'x 72'x 6' facility will be installed. This facility in combination with the existing solid manure storage facility will store the solid manure produced by the 660-1000 lb units at the milking operation for 464 days. The solid manure storage facility will be installed in accordance with the enclosed NRCS drawing OR-D-552. Roof design will be approved by NRCS prior to installation.</p>
216	F	80.0cy	09	2003			<p>WASTE STORAGE FACILITY (Site Preparation)</p> <p>The site for the solid manure storage facility will be prepared in accordance with NRCS Specifications. All manure, organic material, vegetation and woody debris will be</p>

CONSERVATION PLAN

Client: Marti, Fritz  
 Assisted By: Robert A. Pedersen  
 Marti Holstein Inc.

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
216	F	315.0cy	09	2003			removed from the site. Only mineral soil will be present at the site.  WASTE STORAGE FACILITY (Rock/Fill) Pit run rock or other suitable material approved by NRCS will be used for the solid manure storage facility's foundation base. Reject sand or 3/4 inch minus gravel will be used as grading material.
216	F	1.0no	11	2000	1.0no	11/16/2000	WASTE STORAGE FACILITY (Agitator) An agitator has been installed in the above ground liquid manure tank to prevent solid manure buildup in the tank and keep the manure in a slurry so it can be pumped to the pastures.
216	F	125664.0cf	11	2000	125664.0cf	11/16/2000	WASTE STORAGE FACILITY (Above Ground Liquid Manure Tank) An above ground liquid manure tank has been installed. A 100'x 16' above ground liquid waste storage facility was installed in accordance with NRCS Specifications and Oregon Standard Drawing No. AWM-313060. This waste storage facility in combination with the below ground liquid waste storage facility will store the liquid wastes from the 660-1,000 lb. units at the milking operation for 82 days.
216	F	300.0ft	11	2000	300.0ft	11/16/2000	MANURE TRANSFER (5 inch pipe) A 5 inch PVC 160 psi pipe has been installed to transfer the liquid manure from the below ground liquid manure tanks to the above ground liquid manure tank.
216	F	600.0ft	09	1998	600.0ft	09/28/1998	UNDERGROUND OUTLET (8 inch pipe) An 8 inch underground PVC non-perforated pipe was installed to outlet the gutter downspouts in an area free of manure.
216	F	997.0ft	09	1998	997.0ft	09/28/1998	UNDERGROUND OUTLET (5 inch pipe) A 5 inch underground PVC nonperforated pipe has been installed to outlet the gutter downspouts in an area free of manure.
216	F	4.0no	09	1998	4.0no	09/28/1998	SUBSURFACE DRAIN OUTLET An 8-foot section of rigid pipe with a rodent guard was installed at the end of the gutter outlet system.
216	F	784.0ft	09	1998	784.0ft	09/28/1998	ROOF RUNOFF MANAGEMENT (Gutters & Downspouts) Gutters and downspouts have been installed on the existing animal confinement buildings.

CONSERVATION PLAN

Client: Marti, Fritz  
 Assisted By: Robert A. Pedersen  
 Marti Holstein Inc.

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
216	F	9600.0cf	09	1996	9600.0cf	09/10/1996	WASTE STORAGE FACILITY (Solid Manure Storage Facility) A solid manure storage facility with roof, gutters and downspouts has been constructed. The facility is 40'x 50'x 6'. This in combination with the planned solid manure store facility will store the solid manure produced from the 660-1000 lb units at the milking operation for 464 days.
216	F	700.0sf	11	1991	700.0sf	11/13/1991	ROOF RUNOFF MANAGEMENT (Roof) A roof has been installed over the existing below ground liquid manure tank to prevent rainwater from entering the tank. Gutters and downspouts were installed.
216	F	11233.0sf	11	1991	11233.0sf	11/13/1991	ROOF RUNOFF MANAGEMENT (Roof) A roof was installed over the manure accumulation slab.
216	F	1.0no	01	1989	1.0no	01/10/1989	MANURE TRANSFER (Pump) A pump has been installed. The pump is used to transfer parlor and milkhouse waste through the 3 inch PVC waste transfer pipe to the existing liquid waste storage tank on the north side of the slough.
216	F	100.0ft	01	1989	1000.0ft	01/10/1989	MANURE TRANSFER (3 inch pipe) A 3 inch PVC Class Code 125 waste transfer pipe was installed. The pipe is used to transfer milkhouse and parlor wastes to the existing below ground waste tank on the north side of the slough.
216	F	8640.0cf	07	1962	8640.0cf	07/15/1962	WASTE STORAGE FACILITY (Below Ground Liquid Manure Tank) A below ground liquid manure tank has been installed. The liquid waste tank is 24'x 60'x 6'. This liquid waste storage facility at the milking operation in combination with the above ground liquid waste storage facility will store the liquid waste generated from the 660-1000 lb. units for 82 days.
27	1, 2	32.6Ac					Hayland
216	1, 2, 3, 4, 5, 6, 7	78.8Ac					The major land use is hayland. Forage is cut for silage. The forage is used to support a dairy operation. The landscape is lower Nehalem River Watershed. Most of the fields are located within the Sunset Drainage District. The annual precipitation is 90 inches. The soils vary from poorly drained to well drained. The hayland fields are in good condition. This Resource Management System will maintain the

CONSERVATION PLAN

Client: Marti, Fritz

Marti Holstein Inc.

Assisted By: Robert A. Pedersen

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
							forage yield. It will prevent surface and/or groundwater degradation.
27	1	20.4ac	09	2003			WASTE UTILIZATION
	2	12.2ac	09	2003			Manure will be applied to hayland in accordance with the
216	1	27.6ac	09	2003			enclosed Waste Utilization Conservation Practice
	2	2.5ac	09	2003			Jobsheet(633 OR-JS).
	3	21.7ac	09	2003			
	4	12.0ac	09	2003			
	5	4.8ac	09	2003			
	6	8.9ac	09	2003			
	7	1.3ac	09	2003			
27	1	20.4ac	09	2003			NUTRIENT MANAGEMENT
	2	12.2ac	09	2003			Manure will be used for forage production. Soil tests will be
216	1	27.6ac	09	2003			used to determine rates of application. Nutrient management
	2	2.5ac	09	2003			will be implemented in accordance with the enclosed Nutrient
	3	21.7ac	09	2003			Management Specification Sheet Code 590.
	4	12.0ac	09	2003			
	5	4.8ac	09	2003			
	6	8.9ac	09	2003			
	7	1.3ac	09	2003			
27	1	20.4ac	09	2003			FORAGE HARVEST MANAGEMENT
	2	12.2ac	09	2003			Forage will be harvested in accordance with the enclosed
216	1	27.6ac	09	2003			Forage Harvest Management Specification Sheet Code 511.
	2	2.5ac	09	2003			
	3	21.7ac	09	2003			
	4	12.0ac	09	2003			
	5	4.8ac	09	2003			
	6	8.9ac	09	2003			
	7	1.3ac	09	2003			
27	1	0.5ac	09	2003			FILTER STRIP
216	1	0.6ac	09	2003			Grass filter strips adjacent to the open watercourses will be
	2	0.2ac	09	2003			established and maintained as part of the animal confinement
	3	0.4ac	09	2003			operation water quality plan to prevent agricultural waste
	4	0.3ac	09	2003			from entering the open water course.
	5	0.2ac	09	2003			The grass filter strip will be established in accordance with
	6	0.5ac	09	2003			the enclose NRCS Filter Strip Specification Sheet Code 393.
27	1	20.4ac	06	2003			PEST MANAGEMENT
	2	12.2ac	06	2003			WHEN APPLYING CHEMICALS FOR WEED CONTROL, MANUFACTURER'S
216	1	27.6ac	06	2003			LABEL APPLICATION RATES WILL BE FOLLOWED. No pesticide will
	2	2.5ac	06	2003			be sprayed into an open water course. Chemicals will be
	3	21.7ac	06	2003			applied during periods of minimum potential for drift.

CONSERVATION PLAN

Client: Marti, Fritz

Marti Holstein Inc.

Assisted By: Robert A. Pedersen

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
	4	12.0ac	06	2003			Pesticide containers will be stored and disposed of according to manufacturer's label. Chemicals are used to control dock, Canada Thistle, and black berries. Special attention is paid to all environmental hazards and site-specific application criteria listed on pesticide labels and contained in Extension Service and crop consultant recommendations. Pest Management is applied in accordance with enclosed Pest management Practice Job Sheet 595.
	5	4.8ac	06	2003			
	6	8.9ac	06	2003			
	7	1.3ac	06	2003			
216	3	600.0ft	05	1996	600.0ft	11/25/1996	SURFACE DRAINAGE, MAIN OR LATERAL The existing open ditch will be maintained.
443	1, 2, 3, 4	59.0Ac					<p>Pasture</p> <p>The major land use is pasture. The grazing land supports a heifer operation. The landscape is the lower Nehalem River Watershed. The operation is located within the Sunset Drainage District. The annual precipitation is 90 inches. The soils are poorly drained. The pastures are in fair condition. The average forage yield is 6 tons or greater of dry matter per acre per year. Pastures are in a static trend. This Resource Management System will maintain or improve the forage production and prevent surface water and/or groundwater degradation associated with this operation.</p>
628	1	24.4Ac					
443	1	21.1ac	09	2003			<p>WASTE UTILIZATION</p> <p>Manure will be applied to the pastures in accordance with the enclosed Waste Utilization Conservation Practice Jobsheet (633 OR-JS).</p>
	2	8.6ac	09	2003			
	3	18.2ac	09	2003			
	4	11.1ac	09	2003			
628	1	24.4ac	09	2003			<p>PRESCRIBED GRAZING</p> <p>Pastures will be managed in accordance with the enclosed Prescribed Grazing Specification Sheet Code 528A.</p>
443	1	21.1ac	09	2003			
	2	8.6ac	09	2003			
	3	18.2ac	09	2003			
	4	11.1ac	09	2003			<p>NUTRIENT MANAGEMENT</p> <p>Manure will be used for forage production. Soil tests will be used to determine rates of application. Nutrient management will be implemented in accordance with the enclosed Nutrient Management Specification Sheet Code 590.</p>
628	1	24.4ac	09	2003			
443	1	21.1ac	09	2003			
	2	8.6ac	09	2003			
	3	18.2ac	09	2003			<p>FILTER STRIP</p> <p>Grass filter strips adjacent to the open watercourses will be established and maintained as part of the animal confinement</p>
	4	11.1ac	09	2003			
628	1	24.4ac	09	2003			
443	1	0.4ac	09	2003			<p>FILTER STRIP</p> <p>Grass filter strips adjacent to the open watercourses will be established and maintained as part of the animal confinement</p>
	2	0.6ac	09	2003			
	3	0.5ac	09	2003			

CONSERVATION PLAN

Client: Marti, Fritz

Marti Holstein Inc.

Assisted By: Robert A. Pedersen

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
							operation water quality plan to prevent agricultural waste from entering the open water course. The filter strip will be 30 feet wide. The filter strip will be installed in accordance with the enclosed NRCS Specification Sheet Code 393.
443	1	1900.0ft	07	1970	1900.0ft	07/20/1970	SURFACE DRAINAGE, MAIN OR LATERAL
	2	850.0ft	07	1970	850.0ft	07/20/1970	The existing open ditch will be maintained.
	3	750.0ft	07	1970	750.0ft	07/20/1970	
	4	900.0ft	07	1970	900.0ft	07/20/1970	
							Wildlife
27	3	18.4Ac					The major land use is wildlife. The land is associated with predominantly agricultural lands. The area includes the stream, sloughs, and associated riparian zones. The landscape is characterized by floodplains. The soils vary from well drained to poorly drained. There is woody vegetation within the riparian zones. This Resource Management System will improve and maintain the wildlife habitat along the stream and slough corridor. Increased shading will have some effect on reducing temperatures along these slough and stream sections.
216	8, 9	8.2Ac					
27	3	18.4ac	09	1999	18.4ac	11/09/2000	UPLAND WILDLIFE HABITAT MANAGEMENT
216	8	7.2ac	09	1999	7.2ac	11/09/2000	The riparian areas will be maintained to provide wildlife cover, food, and protect the streambanks from erosion.
	9	1.0ac	09	1999	1.0ac	11/09/2000	

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CONSERVATION PLAN APPROVAL

Client: Marti, Matt

Marti Holstein Inc.

Assisted By: Mitch Cummings

Farm	Tract	ACRES	LAND UNIT NAME	OWNER NAME
1	216	92.0	Home Place	
	27	51.0	South River Farm	
	443	59.0	West Farm	
	TOTAL	202.0 ACRES		

Cooperator (Producer)	<i>Matt Marti</i>	Date	<i>7-26-99</i>
The above Conservation Plan meets the requirements of the Field Office Technical Guide.			
Designated Conservationist	<i>Roberta Pedersen</i>	Date	<i>7-26-99</i>
Approved by	<i>Walter Porto</i>		<i>7-26-99</i>
Conservation District		Date	

CONSERVATION PLAN COVER PAGE

Client: Marti, Matt                      Marti Holstein Inc.  
Assisted By: Robert A. Pedersen

Farm	Tract	ACRES	LAND UNIT NAME	OWNER NAME
1	179	90.0	Hayland	
	TOTAL	90.0 ACRES		

BUSINESS OBJECTIVES

CONSERVATION PLAN

Client: Marti, Matt  
 Assisted By: Robert A. Pedersen  
 Marti Holstein Inc.

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
179	F-1	1.8Ac					<p>FHQS</p> <p>The major land use is the farmstead. This leased heifer operation is located within the Sunset Drainage District in the lower Nehalem River Watershed. Flooding can occur. The animal confinement buildings, silage bunker, and waste storage facilities are located in this land use. The annual precipitation is 90 inches. The soils are poorly drained. This Resource Management System will prevent degradation to surface and/or groundwater that is associated with a heifer operation.</p>
179	F-1	300.0ft	08	1989	300.0ft	08/29/1989	<p>UNDERGROUND OUTLET (5 inch pipe)</p> <p>A 5 inch underground PVC nonperforated pipe has been installed to outlet the gutter downspouts in an area free of manure.</p>
179	F-1	76.0ft	08	1989	76.0ft	08/29/1989	<p>ROOF RUNOFF MANAGEMENT (Gutters &amp; Downspouts)</p>
179	F-1	4032.0cf	08	1982	4032.0cf	08/16/1982	<p>WASTE STORAGE FACILITY (Solid Manure Storage Facility)</p> <p>A solid manure storage facility with roof, gutters and downspouts has been constructed.</p> <p>The facility is 24'x 28' x 6'. This solid waste storage facility will provide 125 days of solid waste storage for the 33-1000 lb. units</p>
179	F-1	6447.0cf	09	1971	6447.0cf	09/08/1971	<p>WASTE STORAGE FACILITY (Below Ground Liquid Manure Tank)</p> <p>A below ground liquid manure tank has been installed. A 32'x 8' below ground liquid waste storage tank was installed. This liquid waste tank in combination with the other existing below ground liquid waste tank will store the liquid waste from the 33-1000 lb. units for 259 days.</p>
179	F-1	2204.0cf	09	1960	2204.0cf	09/25/1960	<p>WASTE STORAGE FACILITY (Below Ground Liquid Manure Tank)</p> <p>A below ground liquid manure tank has been installed. A 20'x 8' below ground liquid waste storage tank was installed. This tank in combination with the other below ground liquid waste tank will provide 259 days of liquid waste for the 33-1000 lb. units.</p>
179	1, 2, 3, 4, 5	47.2Ac					<p>Hayland</p> <p>The major land use is hayland. Forage is cut for silage. The forage is used to support a dairy operation. The landscape is the lower Nehalem River Watershed. The annual precipitation is 90 inches. The soils are poorly drained. These leased hayland fields are in fair to good condition. This Resource Management System will maintain and/or improve the forage</p>

CONSERVATION PLAN

Client: Marti, Matt                      Marti Holstein Inc.  
 Assisted By: Robert A. Pedersen

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	
							yield. It will prevent surface and/or groundwater degradation.
179	1	13.1ac	09	2003			WASTE UTILIZATION
	2	1.0ac	09	2003			Manure will be applied to hayland in accordance with the
	3	18.9ac	09	2003			enclosed Waste Utilization Conservation Practice
	4	9.7ac	09	2003			Jobsheet(633 OR-JS).
	5	4.5ac	09	2003			
179	1	13.1ac	09	2003			NUTRIENT MANAGEMENT
	2	1.0ac	09	2003			Manure will be used for forage production. Soil tests will be
	3	18.9ac	09	2003			used to determine rates of application. Nutrient management
	4	9.7ac	09	2003			will be implemented in accordance with the enclosed Nutrient
	5	4.5ac	09	2003			Management Specification Sheet Code 590.
179	1	13.1ac	09	2003			FORAGE HARVEST MANAGEMENT
	2	1.0ac	09	2003			Forage will be harvested in accordance with the enclosed
	3	18.9ac	09	2003			Forage Harvest Management Specification Sheet Code 511.
	4	9.7ac	09	2003			
	5	4.5ac	09	2003			
179	1	1.6ac	09	2003			FILTER STRIP
	2	0.1ac	09	2003			Grass filter strips adjacent to the open watercourses will be
	3	2.6ac	09	2003			established and maintained as part of the animal confinement
	4	1.2ac	09	2003			operation water quality plan to prevent agricultural waste
	5	1.2ac	09	2003			from entering the open water course.
179	1	13.1ac	06	2003			PEST MANAGEMENT
	2	1.0ac	06	2003			WHEN APPLYING CHEMICALS FOR WEED CONTROL, MANUFACTURER'S
	3	18.9ac	06	2003			LABEL APPLICATION RATES WILL BE FOLLOWED. Chemicals will be
	4	9.7ac	06	2003			used to control the following weeds: Canada Thistle, dock,
	5	4.5ac	06	2003			and blackberries. No pesticides will be sprayed into an open
							water course. Chemicals will be applied during periods of
							minimum potential for drift. Pesticide containers will be
							stored and disposed of according to manufacturer's label
							directions. Special attention will be paid to all
							environmental hazards and site-specific application criteria
							listed on pesticide lables and contained in Extension and
							Crop Consultant recommendations.
							Pest Management is applied in accordance with enclosed Pest
							Management Practice Job Sheet 595.

CONSERVATION PLAN

Client: Marti, Matt                      Marti Holstein Inc.  
Assisted By: Robert A. Pedersen

LAND UNITS		PLANNED			APPLIED		PLANNED CONSERVATION TREATMENT
TRACT	FIELD	AMOUNT	MONTH	YEAR	AMOUNT	DATE	

NONDISCRIMINATION STATEMENT

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CONSERVATION PLAN APPROVAL

Client: Marti, Matt  
Assisted By: KENT PERKINS

Marti Holstein Inc.

Farm	Tract	ACRES	LAND UNIT NAME	OWNER NAME
1	443	59.0	Heifer Pasture	
	628	24.4	Heifer Pasture	
	216	92.0	Home Place	
	27	51.0	South River Farm	
TOTAL		226.4 ACRES		

Cooperator (Producer) *Marti Holstein Inc. by Matt* Date 11-3-02

The above Conservation Plan meets the requirements of the Field Office Technical Guide.

*Randy Feuk*  
Designated Conservationist

10/4/02  
Date

Approved by  
*Randy Feuk*  
Conservation District

10-4-02  
Date

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

**OPERATION AND MAINTENANCE WORKSHEET**

**WASTE STORAGE FACILITY (SOLID MANURE STORAGE FACILITY)  
CODE 313**

For: Landowner/Operator Marti Holstein

Job Location: T 3N R 10W; Sec 26

County Tillamook SWCD Tillamook Farm/Tract No. T-216

Prepared By Pedersen Date 09/02

A 40' x 50' x 8' solid manure storage facility

**Operation and Maintenance Items**

A properly operated and maintained waste storage structure is an asset to your farm. This waste storage structure was designed and installed for temporary storage of animal wastes. The estimated life span of this installation is at least 10 years. If at any time a structure is taken out of service, the Natural Resources Division of the Oregon Department of Agriculture should be contacted for guidance in decommissioning the structure to avoid environmental concerns. The life of this installation can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic operation and maintenance to maintain satisfactory performance. A good operation and maintenance plan includes:

- ⇒ Do not allow equipment that exceeds the design loading to operate within 20 feet of the structure
- ⇒ Immediately repair any vandalism, vehicular or livestock damage to the structure, earthen areas surrounding the structure, or any appurtenances.
- ⇒ During de-watering of the structure, ensure that waste is spread at minimum rates in areas where crops are grown, spread waste no closer than 50 feet from open watercourses during the winter months and apply no manure within 30 feet of an open watercourse during the summer months. Avoid applying waste during heavy rainfall events.
- ⇒ Roofs of the solid manure storage facilities will be inspected annually.
- ⇒ All roof sections that are rusted and leaking will be repaired and/or replaced.
- ⇒ Loose roof sections on the solid manure storage facilities will be secured.
- ⇒ Broken trusses, beams, poles, gutters and downspouts will be repaired or replaced on the solid waste storage facilities.

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

**OPERATION AND MAINTENANCE WORKSHEET**

**WASTE STORAGE FACILITY (ROOF)  
CODE 313**

For: Landowner/Operator Marti Holstein Inc.

Job Location: T 3N; R 10W; Sec. 26

County Tillamook SWCD Tillamook Farm/Tract No. T-216

Prepared By Pedersen Date 09/02

**Operation and Maintenance Items**

A properly operated and maintained roof is an asset to your farm. These roofs were designed and installed for preventing manure runoff from manure accumulation areas. The estimated life span of this installation is at least 10 years. The life of this installation can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic operation and maintenance to maintain satisfactory performance. A good operation and maintenance plan includes:

- ⇒ Roof will be inspected annually.
- ⇒ All roof sections that are rusted and leaking will be replaced.
- ⇒ Loose roof sections will be secured.
- ⇒ Broken trusses, beams, poles, gutters and downspouts will be repaired or replaced.

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

**OPERATION AND MAINTENANCE WORKSHEET  
IRRIGATION WATER CONVEYANCE**

**HIGH-PRESSURE UNDERGROUND, PLASTIC PIPELINE  
CODE 430-DD**

Landowner/Operator Marti Holstein Inc. Job Location: T 3N; R 10W; Sec. 26

County Tillamook SWCD Tillamook Tract No. 216

Prepared By Pedersen Date 09/02

Waste Transfer Pipe

**Operation and Maintenance Items**

A properly operated and maintained waste transfer system is an asset to your farm. This waste transfer system was designed and installed for transferring liquid wastes from a below ground liquid storage facility to an above ground liquid waste storage facility. The estimated life span of this installation is at least 20 years. The life of this installation can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic operation and maintenance to maintain satisfactory performance. A good operation and maintenance plan includes:

- ⇒ Check to make sure all valves and air vents are set at the proper operating condition so they may provide protection to the pipeline. Remove foreign materials and vegetation that can interfere with proper valve operation.
- ⇒ Pipeline will be flushed regularly to prevent clogging.
- ⇒ Leaks or broken sections will be replaced and/or repaired.
- ⇒ Maintain the designed depth of cover over the pipeline.
- ⇒ Limit traffic over the pipeline to designated sections that were designed for traffic loads.
- ⇒ Avoid travel over pipelines by tillage equipment when the soil is saturated.
- ⇒ Avoid any sub-soiling operation that may disturb the pipeline.
- ⇒ Maintain a vigorous growth of vegetative covering. This includes reseeding, fertilization and application of herbicides when necessary. Periodic mowing may also be needed to control height of vegetation.

⇒ Eradicate or otherwise remove all rodents or burrowing animals that can potentially damage or displace the pipe. Immediately repair any damages caused by their activity.

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

**OPERATION AND MAINTENANCE WORKSHEET**

**MANURE TANK AGITATOR  
CODE 634**

Landowner/Operator: Marti Holstein Inc. Job Location: T 3N; R 10W; Sec. 26

County Tillamook SWCD Tillamook Tract No. T-216

Prepared By: Pedersen Date 09/02

**Operation and Maintenance Items**

A properly operated and maintained manure tank agitator is an asset to your farm. The manure agitator was designed and installed to stir the liquid waste and keep the solids in suspension so solid manure will not buildup in the bottom of the tank and reduce the designed storage capacity. The estimated life span of this installation is at least 10 years. The life of the manure agitator can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic operation and maintenance to maintain satisfactory performance. A good operation and maintenance plan includes:

- ⇒ Preventive maintenance will be in accordance with the manufacturer's recommendations.
- ⇒ Periodically examine the agitator for proper operation. Clean debris from the propeller, and promptly replace any defective or damaged parts.
- ⇒ Remove the agitator from the manure tank and periodically clean and oil as needed to increase the life expectancy of the agitator.
- ⇒ Immediately repair any vandalism or livestock damage. Do not allow livestock near equipment during operation.

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

**OPERATION AND MAINTENANCE WORKSHEET**

**MANURE PUMP  
CODE 634**

Landowner/Operator: Marti Holstein Inc.

Job Location: T 3N; R 10W. Sec. 26

County Tillamook SWCD Tillamook Tract No. T-216

Prepared By: Pedersen Date 09/02

**Operation and Maintenance Items**

A properly operated and maintained manure pump is an asset to your farm. The manure pump was designed and installed transfer liquid waste. The estimated life span of this installation is at least 10 years. The life of the manure pump can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require you to perform periodic operation and maintenance to maintain satisfactory performance. A good operation and maintenance plan includes:

- ⇒ Preventive maintenance will be in accordance with the manufacturer's recommendations.
- ⇒ Periodically examine the pump for proper operation. Clean debris from the propeller, and promptly replace any defective or damaged parts.
- ⇒ Periodically clean and oil as needed to increase the life expectancy of the pump.
- ⇒ Immediately repair any vandalism or livestock damage. Do not allow livestock near equipment during operation.

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

**OPERATION AND MAINTENANCE WORKSHEET  
ROOF RUNOFF MANAGEMENT**

**CODE 558**

For: Landowner/Operator Marti Holstein Inc.

Job Location: T 3N; R 10W; Sec.26

County Tillamook SWCD Tillamook Farm/Tract No. T 216

Prepared By Pedersen Date 09/02

Gutters and Downspouts

**Operation and Maintenance Items**

Properly operated and maintained roof runoff facilities are an asset to the farm. Roof runoff facilities were designed and installed to control roof runoff. Estimated life span of this installation is at least 10 years. Facility life can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require periodic maintenance and may require operational items to maintain satisfactory performance. A good operation and maintenance plan includes:

- ⇒ Periodically check gutters, downspouts and above ground pipelines, and appurtenances for proper operation. Repair or replace if needed.
- ⇒ Periodically remove debris from gutters, downspouts and outlet facilities.
- ⇒ Protect downspouts from damage by livestock and equipment. Repair or replace damaged components as needed.
- ⇒ Keep gutters, downspouts, conveyance pipelines and ditches and appurtenances in good operating condition.

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

OPERATION AND MAINTENCE WORKSHEET

UNDERGROUND OUTLETS  
Code 620

For: Landowner/Operator Marti Hostein Inc.

Job Location: T 3N; R 10W; Sec. 26

County Tillamook SWCD Tillamook Farm/Tract No. T-216

Prepared By Pedersen Date 09/02

Gutter Outlet

**Operation and Maintenance Items**

Properly operated and maintained under ground outlet for the guttering system is an asset to the farm. This outlet was designed and installed to convey roof runoff in an underground pipeline to where it can be released without causing erosion. The estimated life span of this installation is at least 10 years. The life of the practice can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require periodic maintenance and may require operational items to maintain satisfactory performance. A good operation and maintenance plan includes:

- ⇒ Check all above ground connections, rodent guards, inlets and outlets to make sure they are functioning properly.
- ⇒ Maintain design depth of cover on all pipelines.
- ⇒ Avoid operation of tillage and sub-soiling equipment that could damage any component of the gutter outlet system.
- ⇒ Remove all foreign debris that hinders the gutter system operation.
- ⇒ Limit traffic over pipeline to designated sections that were designated for traffic loads.
- ⇒ Maintain vigorous growth of vegetative coverings. This includes reseeding, fertilization and application of herbicides when necessary. Periodic mowing may also be needed to control growth.
- ⇒ Eradicate or otherwise remove all rodents or burrowing animals. Immediately repair any damage caused by their activity.
- ⇒ Immediately repair any vandalism, vehicular livestock damage.

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

**OPERATION AND MAINTENANCE WORKSHEET**

**SURFACE DRAINAGE MAIN OR LATERAL  
CODE 608**

For: Landowner/Operator Marti Holstein Inc.

Job Location: T 3N; R 10W; Sec.26

County Tillamook SWCD Tillamook Farm/Tract No. T-443, T-216

Prepared By Pedersen Date 09/02

**Operation and Maintenance Items**

Properly operated and maintain drainage system is an asset to the farm. The drainage system was installed to remove excess surface and subsurface water. The estimated life span of this installation is at least 10 years. The life of the practice can be assured and usually increased by developing and carrying out a good operation and maintenance program.

This practice will require periodic maintenance and may require operational items to maintain satisfactory performance. A good operation and maintenance plan includes:

- ⇒ Maintain cross-section and gradient by controlling channel erosion and bank sloughing.
- ⇒ Control the growth of undesirable vegetative materials by use of herbicides and/or mowing.
- ⇒ Remove all foreign debris and trash that hinders system operation.
- ⇒ Install and maintain fences to prevent livestock access when adjacent fields are used for pasture.
- ⇒ Eradicate or otherwise remove all rodents and/or burrowing animals that have or can potentially damage any part of the system. Immediately repair any damage caused by their activity.
- ⇒ Immediately repair any vandalism, vehicular or livestock damage.

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

**OPERATION AND MAINTENANCE WORKSHEET**

**PRESCRIBED GRAZING  
CODE 633**

For: Landowner/Operator Marti Holstein Inc.

Job Location: T 3N; R 10W; Sec.26

County Tillamook SWCD Tillamook Farm/Tract No. T-216, T-443

Prepared By Pedersen Date 09/02

**Operation and Maintenance Items**

Prescribed Grazing can provide economic and resource benefits if applied properly which are assets to the heifer operation. Proper Prescribed Grazing requires certain operational procedures to be followed and evaluated on an annual basis.

- ⇒ Pastures are reestablished when forage production falls below planned yield threshold.
- ⇒ A rotational grazing system is used to maintain plant vigor.
- ⇒ Pastures are clipped and dragged during the growing season to maintain plant vigor and spread the livestock droppings to prevent grass from becoming rank.
- ⇒ Manure and commercial fertilizer applied in accordance with soil and forage tests.
- ⇒ Pasture weeds are controlled.
- ⇒ Pasture grasses are not grazed below 2 inches during the growing season
- ⇒ Livestock are removed when the soils become wet in the fall.

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

**OPERATION AND MAINTENANCE WORKSHEET**

**FORAGE HARVEST MANAGEMENT**

**CODE 511**

For: Landowner/Operator: Marti Holstein Inc.

Job Location: T 3N; R 10W; Sec 26 & 36

County Tillamook SWCD Tillamook Farm/Tract No. T-443, T-216, T-27

Prepared By Pedersen Date 9/02

**Operation and Maintenance Items**

Forage Harvest Management can provide economic and resource benefits. If applied properly, is an assets to the dairy operation. Forage Harvest Management requires certain operational procedures to be followed and evaluated on an annual basis.

- ⇒ Before forage harvest, clear fields of debris that could damage machinery, or if ingested by livestock, lead to sickness (for example, hardware disease) or death.
- ⇒ Monitor weather conditions and take action accordingly before and after cutting to optimize forage wilting or cutting time to preserve feed quality and prevent forage swaths or windrows from smothering underlying plants.
- ⇒ Inspect and repair harvesting equipment following manufacturer's preventive maintenance procedures.
- ⇒ All shields shall be in place during machine operation to prevent injury or death. Shut off machinery before working or unplugging moving parts.
- ⇒ Select equipment sizes and capabilities that will in a timely and economically feasible manner handle the acreage normally harvested.
- ⇒ Operate all forage harvesting equipment at the optimum setting and speeds to minimize loss of leaves.
- ⇒ Set shear-plate on forage chopper to the proper theoretical cut for the crop being harvested. Keep knives well sharpened. Do not use re-cutters or screens unless forage moisture levels fall below recommended levels for optimum chopping action.
- ⇒ Regardless of silage/haylage storage method, ensure good compaction and an air-tight seal to exclude oxygen and mold formation.

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

**OPERATION AND MAINTENANCE WORKSHEET**

**FILTER STRIP**

**CODE 393**

For: Landowner/Operator Marti Holstein Inc.

Job Location: T 3N; R 10W; Sec. 26 & 36

County Tillamook SWCD Tillamook Farm/Tract No. T-444, T-216, T-27

Prepared By Pedersen Date 09/02

**Operation and Maintenance Items**

A properly operated and maintained vegetated filter strip is an asset to your farm. This vegetative filter strip was designed and installed to remove sediment and pollutants from runoff. The estimated life span of this practice is at least 10 years. The life of this practice can be assured and usually increased by developing and carrying out a good operation and maintenance program

This practice will require you to perform periodic maintenance and may also require operation items to maintain satisfactory performance. Some recommendations to assist you develop a good operation and maintenance program:

- ⇒ Maintain vigorous growth of vegetative covering. This includes reseeding, commercial fertilization and application of herbicides when necessary. Periodic mowing or grazing may also be needed to control height.
- ⇒ Where the filter strip is used to trap nutrients, periodic grazing or mechanical harvesting and removal of vegetation is needed.
- ⇒ Remove all foreign debris that hinders system operation.
- ⇒ Limit the traffic and do not use as a roadway.
- ⇒ Limit livestock usage to vegetative growth periods when they will not damage vegetative root system or compact the soil.
- ⇒ Immediately repair any vandalism, vehicular, or livestock damage.
- ⇒ Eradicate or remove all rodents or burrowing animals. Immediately repair any damage caused by their activity.

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

**OPERATION AND MAINTENANCE WORKSHEET**

**UPLAND WILDLIFE HABITAT MANAGEMENT**

**CODE 645**

For: Landowner/Operator Marti Holstein Inc.

Job Location: T 3N R 10W; Sec. 26

County Tillamook SWCD Tillamook Farm/Tract No. T-216, T-27

Prepared By Pedersen Date 09/02

**Operation and Maintenance Items**

A properly operated and maintained riparian zone is an asset to your farm. This Upland Wildlife Habitat Management is designed to improve and diversify the wildlife habitat benefits. The estimated life span of this practice is at least 20 years. The life of this practice can be assured and usually increased by developing and carrying out a good operation and maintenance program

This practice will require you to perform periodic maintenance and may also require operation items to maintain satisfactory performance. Some recommendations to assist you develop a good operation and maintenance program:

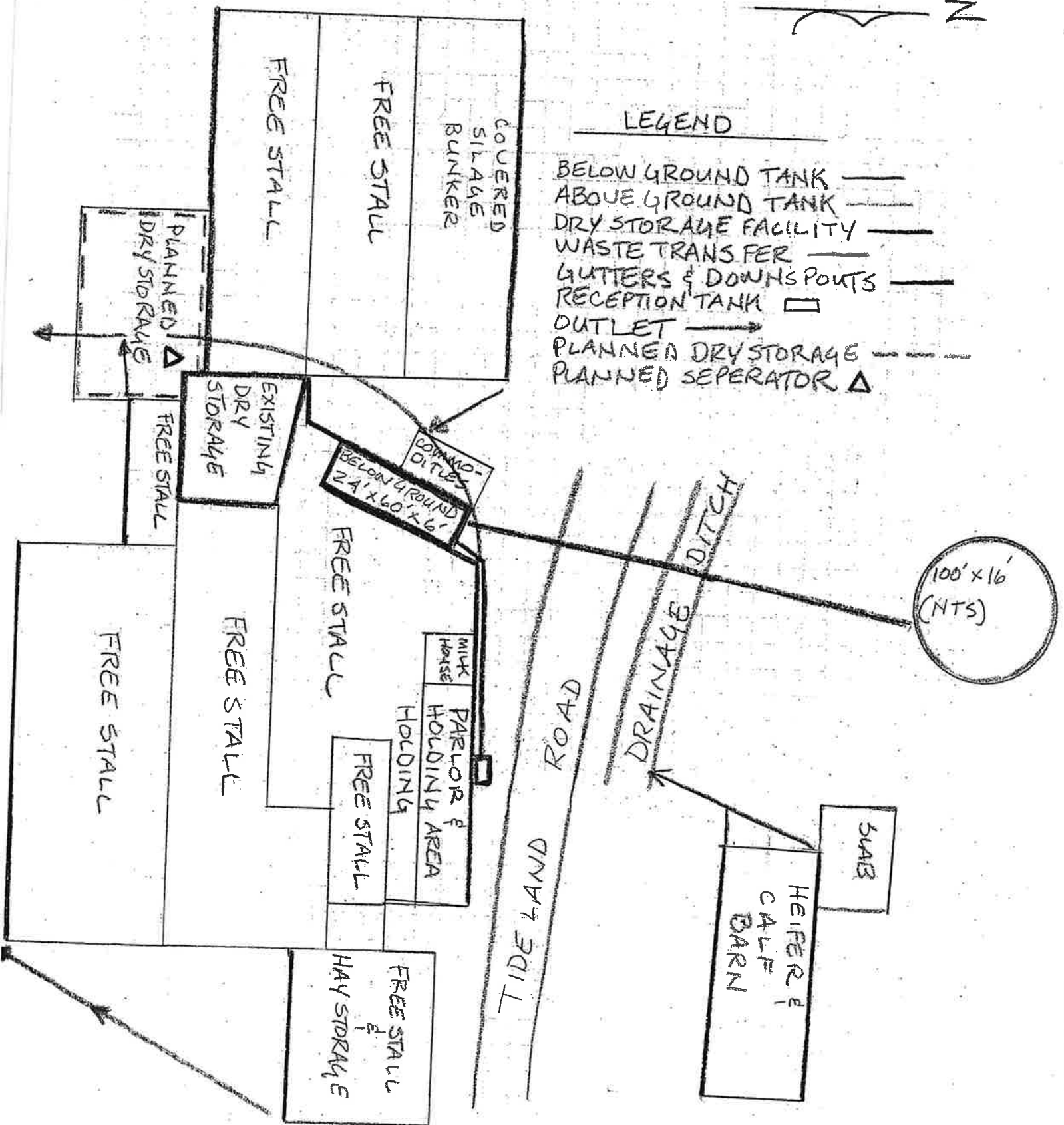
- ⇒ Replace all dead trees or shrubs the following planting season.
- ⇒ Perform regular inspections to check for animal, insect or disease damage. Seek professional assistance to implement damage control measures.
- ⇒ Biological control of pest is encouraged.
- ⇒ Exclude livestock from the area.
- ⇒ Maintain the fence.

OREGON  
 KWP 10-31-02  
 MATT MARTI HOLSTEINS INC  
 MILKING FACILITIES LAYOUT



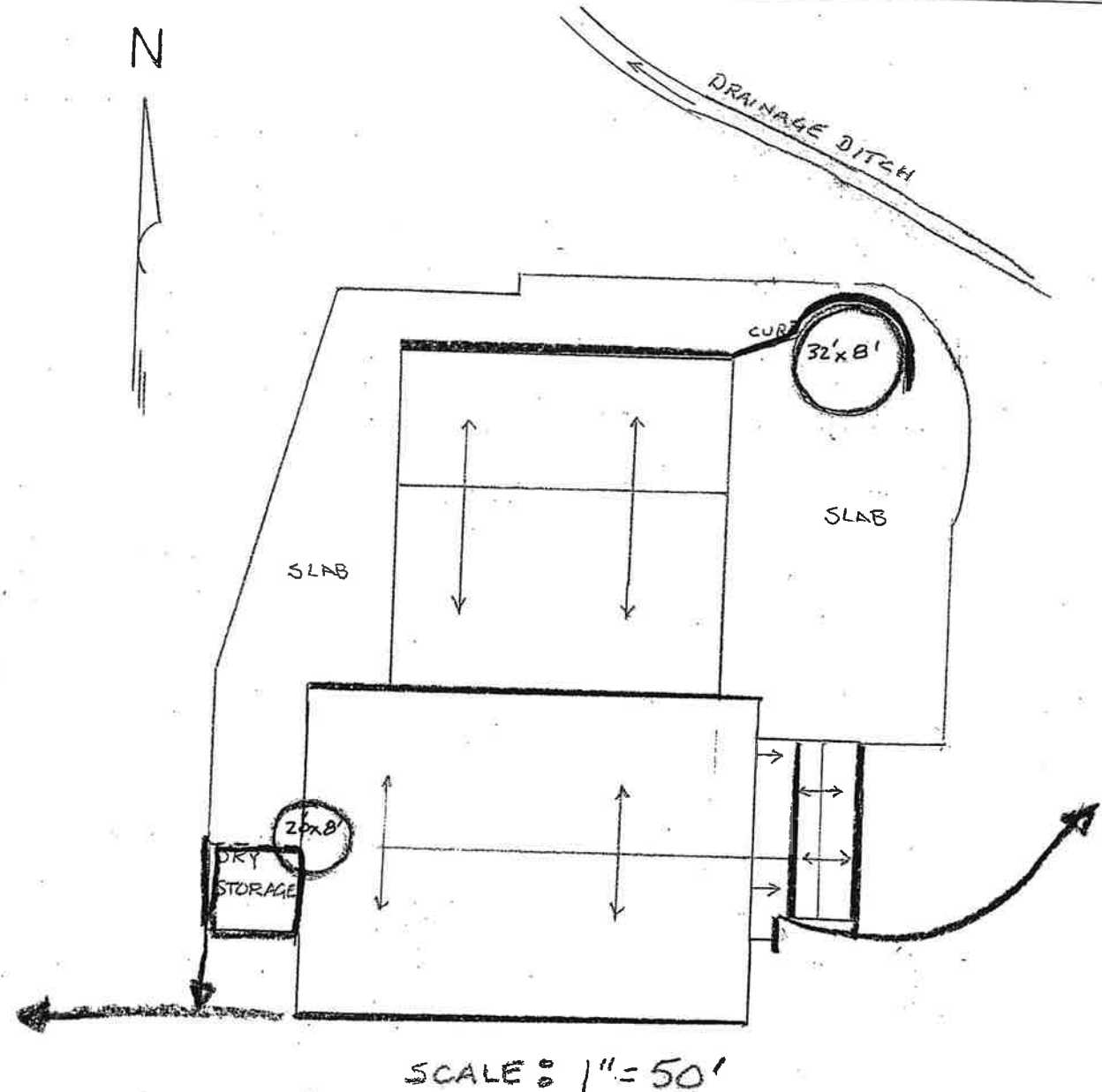
LEGEND

- BELOW GROUND TANK ———
- ABOVE GROUND TANK ———
- DRY STORAGE FACILITY ———
- WASTE TRANSFER ———
- GUTTERS & DOWNSPOUTS ———
- RECEPTION TANK □
- OUTLET →
- PLANNED DRY STORAGE - - - - -
- PLANNED SEPERATOR Δ



SCALE: 1" = 50'

STATE	OREGON	PROJECT	MATT MARTI HOLSTEINS INC.	
BY	KMP	DATE	10-31-02	CHECKED BY
SUBJECT	HEIFER FARM LAYOUT			JOB NO.
				SHEET 1 OF 1



HWY 53

LEGEND

- BELOW GROUND TANK ———
- DRY STORAGE FACILITY ———
- GUTTER & DOWNSPOUTS ———
- OUTLET ———
- CURBING ———

CLIENT: Marti Holstein Inc. Milking & Heifer Operation (Planned)

ASSISTED BY: Pedersen

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM INVENTORY

ANIMAL INVENTORY

Type of Animal	Number of Animals	Average Weight (lbs.)	Animal Units (1,000 lb.)	Milk Production in Pounds/Cow/Day=						60				
				Nutrient Production						Manure			Annual	
				(lbs./day/1000 lb. Animal Unit)		(lbs./day)		CF/D/AU		Days Confined	Days Grazed			
N	P	K	N	P	K	N	P	K						
MILKER	250	1,300	325.0	0.53	0.09	0.30	172.64	29.25	97.56	1.47	365	0		
MILKER	250	900	225.0	0.53	0.09	0.30	119.52	20.25	67.54	1.47	365	0		
MILKER (DRY)	50	1,300	65.0	0.36	0.05	0.23	23.40	3.25	14.95	1.10	365	0		
MILKER (DRY)	50	900	45.0	0.36	0.05	0.23	16.20	2.25	10.35	1.10	365	0		
HEIFERS (12-24 Months)	50	650	32.5	0.31	0.04	0.24	10.075	1.30	7.80	1.30	136	230		
CALVES (1-12 Months)	100	250	25.0	0.31	0.04	0.24	7.75	1.00	6.00	1.30	365	0		
Totals-	750	1,325	717.5	0.49	0.08	0.28	119.54	20.13	67.94	1.4				

GRAZING PERIOD

Type of Animal	Percent of Month and Number of Animals Grazing												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	AU-YR.
MILKER	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
MILKER	250	250	250	250	250	250	250	250	250	250	250	250	250
MILKER (DRY)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
MILKER (DRY)	50	50	50	50	50	50	50	50	50	50	50	50	50
HEIFERS (12-24 Months)	100%	0%	0%	0%	0%	50%	100%	100%	100%	100%	100%	100%	244
CALVES (1-12 Months)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
Totals	284	0	0	0	0	16	33	33	33	33	33	33	2,313
Total AUM's Available>>>	252	0	0	0	0	276	260	260	260	260	255	255	2,069





CLIENT: Marti Holstein Inc. Milking & Heifer Operation (Planned)  
ASSISTED BY: Pedersen  
CHECKED BY:

**ANIMAL WASTE MANAGEMENT SYSTEM PRODUCTION**

**MONTHLY VOLUMES**

Month	Roof Area			Runoff in Cubic Feet		Slage Pit Surface Area, SF	Facility Water Use Cubic Feet	Manure		Bedding		Solids Separated		Solids in Liquids		Total Solids	
	Square Feet	Paved Slab Area Square Feet	Unpaved Lot Area Square Feet	Solids Cubic Feet	Liquids Cubic Feet			Cubic Feet	Pounds	Cubic Feet	Pounds	Cubic Feet	Pounds	Cubic Feet	Pounds	Cubic Feet	Pounds
October	0	0	0	0	0	1,074	3,664	4,708	26,365	9,110	63,767	6,806	245,027	6,871	247,372	6,806	38,948
November	0	0	0	0	0	1,021	3,545	4,556	25,514	9,192	64,343	7,819	281,500	7,061	254,184	7,819	38,402
December	0	0	0	0	0	1,074	3,664	4,708	26,365	9,498	66,487	8,080	290,883	7,296	262,657	8,080	39,700
January	0	0	0	0	0	1,074	3,664	4,708	26,365	9,498	66,487	8,080	290,883	7,296	262,657	8,080	39,700
February	0	0	0	0	0	969	3,309	4,253	23,813	8,579	60,053	7,298	262,733	7,296	262,657	8,080	39,700
March	0	0	0	0	0	1,074	3,664	4,708	26,365	9,304	65,127	7,443	267,955	7,084	255,015	7,298	35,858
April	0	0	0	0	0	1,021	3,545	4,556	25,514	8,816	61,710	6,587	237,123	6,650	239,392	7,443	39,324
May	0	0	0	0	0	0	0	4,708	26,365	9,110	9,110	6,806	245,027	6,871	247,372	6,587	37,674
June	0	0	0	0	0	0	3,545	4,556	25,514	8,816	61,710	6,587	237,123	6,650	239,392	6,806	37,674
July	0	0	0	0	0	0	3,664	4,708	26,365	9,110	63,767	6,806	245,027	6,871	247,372	6,806	37,674
August	0	0	0	0	0	0	3,664	4,708	26,365	9,110	63,767	6,806	245,027	6,871	247,372	6,806	37,674
September	0	0	0	0	0	1,021	3,545	4,556	25,514	8,816	61,710	6,587	237,123	6,650	239,392	6,806	37,674
Annual	0	0	0	0	0	8,328	43,136	55,437	310,421	108,956	708,038	85,707	3,085,435	82,762	2,979,416	85,707	457,556

**DAILY NUTRIENT PRODUCTION**

Type of Animal	Pounds/Day of Nutrients from						Pounds/Day of Nutrients from					
	LIQUIDS			SOLIDS			GRAZING			GRAZING		
	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O
MILKER	103.59	40.21	70.53	69.06	26.80	47.02	172.64	67.01	117.56			
MILKER	71.71	27.84	48.83	47.81	18.56	32.55	119.52	46.39	81.39			
MILKER (DRY)	14.04	4.47	10.81	9.36	2.98	7.21	23.40	7.45	18.01			
MILKER (DRY)	9.72	3.09	7.48	6.48	2.06	4.99	16.20	5.15	12.47			
HEIFERS (12-24 Months)	2.52	0.74	2.35	7.56	2.23	7.05	10.08	2.98	9.40			
CALVES (1-12 Months)	0.00	0.00	0.00	7.75	2.29	7.23	7.75	2.29	7.23			
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			

CLIENT: Marti Holstein Inc. Milking & Helder Operation (Planned)  
ASSISTED BY: Pedersen  
CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM PRODUCTION

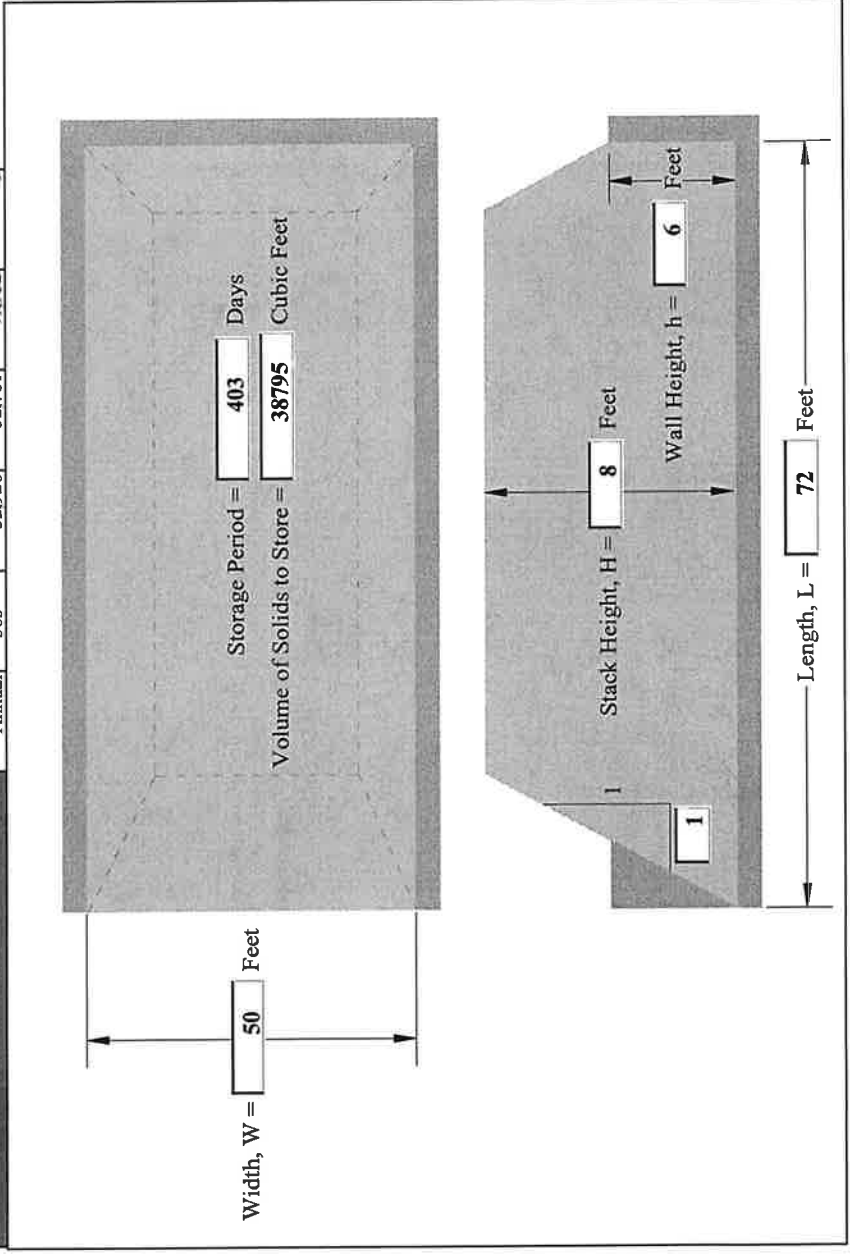
MONTHLY NUTRIENT PRODUCTION

Month	Pounds of Nutrients from LIQUIDS			Pounds of Nutrients from SOLIDS			Pounds of Nutrients from GRAZING			Pounds of Nutrients going OFF-FARM			Total Pounds of Nutrients from ALL SOURCES		
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
October	6,171	2,344	4,267	4,354	1,633	3,069	312	92	291	0	0	0	10,837	4,070	7,628
November	6,047	2,290	4,200	4,440	1,648	3,182	0	0	0	0	0	0	10,488	3,938	7,382
December	6,249	2,367	4,340	4,588	1,703	3,288	0	0	0	0	0	0	10,837	4,070	7,628
January	6,249	2,367	4,340	4,588	1,703	3,288	0	0	0	0	0	0	10,837	4,070	7,628
February	5,644	2,138	3,920	4,144	1,538	2,969	0	0	0	0	0	0	9,789	3,676	6,890
March	6,210	2,355	4,304	4,471	1,668	3,178	156	46	146	0	0	0	10,837	4,070	7,628
April	5,972	2,268	4,130	4,214	1,581	2,970	302	89	282	0	0	0	10,488	3,938	7,382
May	6,171	2,344	4,267	4,354	1,633	3,069	312	92	291	0	0	0	10,837	4,070	7,628
June	5,972	2,268	4,130	4,214	1,581	2,970	302	89	282	0	0	0	10,488	3,938	7,382
July	6,171	2,344	4,267	4,354	1,633	3,069	312	92	291	0	0	0	10,837	4,070	7,628
August	6,171	2,344	4,267	4,354	1,633	3,069	312	92	291	0	0	0	10,837	4,070	7,628
September	5,972	2,268	4,130	4,214	1,581	2,970	302	89	282	0	0	0	10,488	3,938	7,382
Annual	72,998	27,696	50,563	52,291	19,536	37,091	2,312	684	2,157	0	0	0	127,601	47,915	89,811

CLIENT: Marti Holstein Inc. Milking & Heifer Operation (Planned)  
ASSISTED BY: Pedersen  
CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM STORAGE

SOLIDS STACKING FACILITY		MONTHLY SOLIDS VOLUME STACKED IN FACILITY						
Solids Storage Facility Parameters	Value	Month	Number of Days	Manure CF	Bedding CF	Solids to Store CF	Normal Runoff CF	
Storage Period, Days=	403	October	31	2432	4,375	2,502	0	
Stacking Width, W in Feet=	50	November	30	3304	4,515	3,910	0	
Stacking Height, H in Feet=	8.00	December	31	3414	4,666	4,040	0	
Wall Height, h in Feet=	6.00	January	31	3414	4,666	4,040	0	
Stack Side Slope (X:1)=	1.00	February	28	3084	4,214	3,649	0	
Existing Storage, Cubic Feet=	12,000	March	31	2923	4,520	3,722	0	
Surface Area of Existing Storage, SF=	0	April	30	2353	4,233	3,293	0	
25 Year-24 Hour Storm Runoff, CF=	0	May	31	2432	4,375	3,403	0	
Volume Needed, Cubic Feet=	38,795	June	30	2353	4,233	3,293	0	
Design Volume, Cubic Feet=	26,846	July	31	2432	4,375	3,403	0	
Is Facility Covered?	YES	August	31	2432	4,375	3,403	0	
		September	30	2353	4,233	3,293	0	
		Annual	365	32,926	52,781	41,952	0	

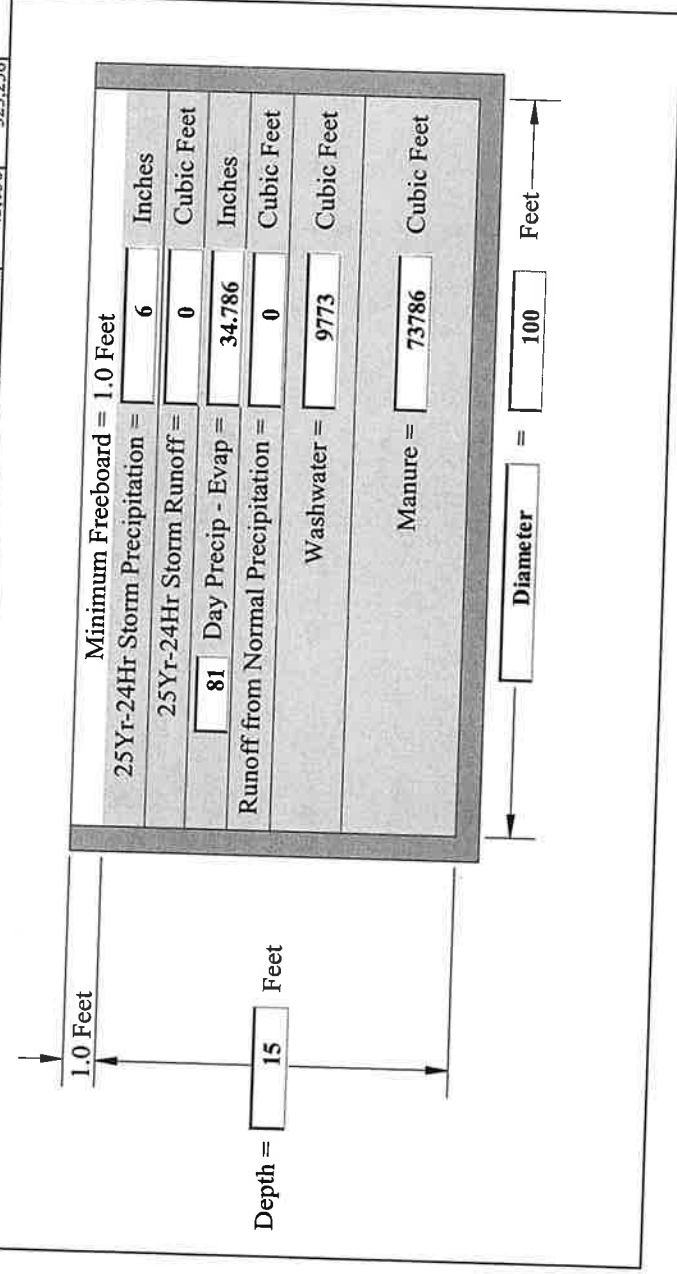


CLIENT: Marti Holstein Inc. Milking & Heifer Operation (Planned)  
ASSISTED BY: Pedersen  
CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM STORAGE

TANK

Tank Parameters		Value	Month	Number of days	Rain-Evap on Tank CF	Rain-Evap on Existing Storage, CF	Normal Runoff CF	Washwater CF	Manure CF
Storage Period, Days=	81		October	31	3,964	0	0	3,664	27,331
Tank Diameter, Feet=	100		November	30	7,883	0	0	3,545	26,767
Existing Storage, Cubic Feet=	10,844.00		December	31	8,929	0	0	3,664	27,659
Surface Area of Existing Storage, SF=	0		January	31	8,491	0	0	3,664	27,659
25 Year-24 Hour Storm Runoff, CF=	0		February	28	6,326	0	0	3,309	24,982
Volume Needed, Cubic Feet=	128,647		March	31	5,946	0	0	3,664	27,495
Design Volume, Cubic Feet=	117,750		April	30	2,702	0	0	3,545	26,450
Is Tank Covered?	NO		May	31	667	0	0	3,664	27,331
Tank Dimensions?	Circular		June	30	-157	0	0	3,545	26,450
			July	31	-1,616	0	0	3,664	27,331
			August	31	-1,171	0	0	3,664	27,331
			September	30	752	0	0	3,545	26,450
			Annual	365	42,717	0	0	43,136	323,236



ANIMAL WASTE MANAGEMENT SYSTEM APPLICATION

MANAGEMENT CRITERIA FOR TRACTOR SPREADER APPLICATION OF SOLIDS

To apply 85,707 cubic feet of solids generated from the operation it will take approximately 109 trips annually. Based on applying NITROGEN, N at agronomic rate use the application depths, travel lengths, and loads per acre listed below for each crop.

Field Number	Acres	Crop	Tractor Spreader		Spread Width Feet	NITROGEN, N Concentration in Storage Facility		Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Solids to Apply	Travel Length per Load Needed in Feet	Loads per Acre
			Capacity Bushels	CF		PPM	Lbs/100CF					
T216 1-7	78.8	Hay/Pasture Mix 20% Protein	630	784	10	6,564	40.96	192	2.00	0.3	3060	1
T443 1-4	59	Hay/Pasture Mix 20% Protein	630	784	10	6,564	40.96	192	2.00	0.3	3060	1
T628 1	24.4	Hay/Pasture Mix 20% Protein	630	784	10	6,564	40.96	192	2.00	0.3	3060	1
T179 1-5	47.2	Hay/Pasture Mix 20% Protein	630	784	10	6,564	40.96	192	2.00	0.3	3060	1
T-27 1-2	32.6	Hay/Pasture Mix 20% Protein	630	784	10	6,564	40.96	192	2.00	0.3	3060	1
0												
0												
0												
0												

MANAGEMENT CRITERIA FOR BIG GUN SPRINKLER APPLICATION OF LIQUIDS

To apply 3,422,520 gallons of liquids generated from the operation it will take approximately 190 hours of pumping annually. Based on applying NITROGEN, N at agronomic rate use the application depths, set times, and travel rates listed below for each crop.

Field Number	Acres	Crop	Sprinkler Flowrate GPM	Wetted Diameter Feet	Portion of Wetted Diameter Receiving Liquids	NITROGEN, N Concentration in Storage Facility		Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Liquids to Apply	Application Rate in Inches/Hour	Set Time Needed in Hours	Travel Rate Needed in Feet/Minute
						PPM	Lbs/1000Gal						
T216 1-7	78.8	Hay/Pasture Mix 20% Protein	300	250	1/2 Circle	1,191	9.94	75	5.12	0.66	1.45	1.12	2.91
T443 1-4	59	Hay/Pasture Mix 20% Protein	300	250	1/2 Circle	1,191	9.94	75	5.12	0.66	1.45	1.12	2.91
T628 1	24.4	Hay/Pasture Mix 20% Protein	300	250	1/2 Circle	1,191	9.94	75	5.12	0.66	1.45	1.12	2.91
T179 1-5	47.2	Hay/Pasture Mix 20% Protein	300	250	1/2 Circle	1,191	9.94	75	5.12	0.66	1.45	1.12	2.91
T-27 1-2	32.6	Hay/Pasture Mix 20% Protein	300	250	1/2 Circle	1,191	9.94	75	5.12	0.66	1.45	1.12	2.91
0													
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MANAGEMENT CRITERIA FOR TANK WAGON APPLICATION OF LIQUIDS

CLIENT: Marti Holstein Inc. Milking & Heifer Operation (Planned)  
 ASSISTED BY: Pedersen  
 CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM APPLICATION

To apply 3,422,520 gallons of liquids generated from the operation it will take approximately 1,053 trips annually. Based on applying NITROGEN, N at agronomic rates use the application depths, travel lengths, and loads per acre listed below for each crop.

Field Number	Acres	Crop	Tank Wagon Capacity Gallons	Spread Width Feet	NITROGEN, N in Storage Facility		Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Liquids to Apply	Travel Length per Load Needed in Feet	Loads per Acre
					PPM	Lbs/1000Gal					
T216 1-7	78.8	Hay/Pasture Mix 20% Protein	3,250	12	1,191	9.94	75	5.12	0.12	3,722	1.0
T443 1-4	59	Hay/Pasture Mix 20% Protein	3,250	12	1,191	9.94	75	5.12	0.12	3,722	1.0
T628 1	24.4	Hay/Pasture Mix 20% Protein	3,250	12	1,191	9.94	75	5.12	0.12	3,722	1.0
T179 1-5	47.2	Hay/Pasture Mix 20% Protein	3,250	12	1,191	9.94	75	5.12	0.12	3,722	1.0
T-27 1-2	32.6	Hay/Pasture Mix 20% Protein	3,250	12	1,191	9.94	75	5.12	0.12	3,722	1.0
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CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM UTILIZATION

Nutrient Source	Type of Operation	Pounds of Nutrients Available			Percent Nutrients Retained After Storage			Pounds of Nutrients Retained After Storage		
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Liquids Dairy	Tank (Uncovered)	72,998	27,696	50,563	70%	85%	85%	51,099	23,542	23,542
Solids Solids Storage Facility (Roofed)	Solids Storage Facility (Roofed)	52,291	19,536	37,091	75%	90%	90%	39,218	17,582	17,582
Grazing NONE		2,312	684	2,157	100%	100%	100%	2,312	684	684

NUTRIENTS AVAILABLE AFTER APPLICATION

Nutrient Source	Type of Application System	Pounds of Nutrients Available			Percent Nutrients Retained After Application			Pounds of Nutrients Retained After Application		
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Liquids Broadcast (Incorporated 7 or more days after application)	Broadcast (Incorporated 7 or more days after application)	51,099	23,542	42,979	70%	100%	100%	35,769	23,542	23,542
Solids Broadcast (Incorporated 7 or more days after application)	Broadcast (Incorporated 7 or more days after application)	39,218	17,582	33,382	70%	100%	100%	27,453	17,582	17,582
Grazing Grazing		2,312	684	2,157	85%	100%	100%	1,965	684	684

NUTRIENTS AVAILABLE AFTER DENITRIFICATION

Nutrient Source	Location	Pounds of Nutrients Available			Percent Nutrients Retained After Denitrification			Pounds of Nutrients Retained After Denitrification		
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Liquids Poorly Drained	Coast	35,769	23,542	42,979	60%	100%	100%	21,461	23,542	23,542
Solids Poorly Drained	Soil Drainage Class	27,453	17,582	33,382	60%	100%	100%	16,472	17,582	17,582
Grazing Poorly Drained		1,965	684	2,157	60%	100%	100%	1,179	684	684

CLIENT: Marti Holstein Inc. Milking & Heifer Operation (Planned)  
 ASSISTED BY: Pedersen  
 CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM UTILIZATION

PERCENT OF MANURE TO BE APPLIED TO FIELD AND UTILIZATION ACRES NEEDED BASED ON											
Field Number	Acres	Crop	LIQUIDS			SOLIDS			GRAZING		
			Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients	Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients	Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients
T216 1-7	78.8	Hay/Pasture Mix 20% Protein	81%	17,384	45	48%	7,906	21	0%	0	0
T443 1-4	59.0	Hay/Pasture Mix 20% Protein	0%	0	0	0%	0	0	71%	837	2
T628 1	24.4	Hay/Pasture Mix 20% Protein	0%	0	0	0%	0	0	29%	342	1
T179 1-5	47.2	Hay/Pasture Mix 20% Protein	19%	4,078	11	20%	3,294	9	0%	0	0
T-27 1-2	32.6	Hay/Pasture Mix 20% Protein	0%	0	0	32%	5,271	14	0%	0	0
0											
0											
0											
Off-Farm			100%	21,461	56	100%	16,472	43	0%	1,179	3
TOTALS-											

NUTRIENT BALANCE BASED ON AVAILABLE ACRES

Field Number	Acres	Crop	NUTRIENTS APPLIED			NUTRIENTS REMOVED			NUTRIENT BALANCE		
			Nitrogen, N Lbs/Acre	Phosphorous, P2O5 Lbs/Acre	Potassium, K2O Lbs/Acre	Nitrogen, N Lbs/Acre	Phosphorous, P2O5 Lbs/Acre	Potassium, K2O Lbs/Acre	Nitrogen, N Lbs/Acre	Phosphorous, P2O5 Lbs/Acre	Potassium, K2O Lbs/Acre
T216 1-7	78.8	Hay/Pasture Mix 20% Protein	321	349	645	384	106	294	-63	243	352
T443 1-4	59.0	Hay/Pasture Mix 20% Protein	14	8	26	384	106	294	-370	-98	-268
T628 1	24.4	Hay/Pasture Mix 20% Protein	14	8	26	384	106	294	-370	-98	-268
T179 1-5	47.2	Hay/Pasture Mix 20% Protein	156	169	314	384	106	294	-228	63	21
T-27 1-2	32.6	Hay/Pasture Mix 20% Protein	162	173	328	384	106	294	-222	67	34
0											
0											
0											
0											
Off-Farm											







CLIENT: Marti Holstein Inc. Milking Operation (Planned)  
ASSISTED BY: Pedersen  
CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM PRODUCTION

MONTHLY VOLUMES

Month	Roof Area			Runoff in Cubic Feet		Silage Pit Surface Area, SF	Facility Water Use Cubic Feet	Manure		Bedding		Solids Separated		Solids in Liquids		Total Solids	
	Square Feet	Square Feet	Square Feet	Paved Slab Area Square Feet	Unpaved Lot Area Square Feet			Solids Cubic Feet	Liquids Cubic Feet	Cubic Feet	Pounds	Cubic Feet	Pounds	Cubic Feet	Pounds	Cubic Feet	Pounds
October	0	0	0	0	0	0	3,664	4,568	25,195	9,110	63,767	7,349	264,561	7,685	276,672	7,349	38,145
November	0	0	0	0	0	0	3,545	4,421	24,382	8,816	61,710	7,112	256,027	7,437	267,747	7,112	36,915
December	0	0	0	0	0	0	3,664	4,568	25,195	9,110	63,767	7,349	264,561	7,685	276,672	7,349	38,145
January	0	0	0	0	0	0	3,664	4,568	25,195	9,110	63,767	7,349	264,561	7,685	276,672	7,349	38,145
February	0	0	0	0	0	0	3,309	4,126	22,757	8,228	57,596	6,638	238,958	6,942	249,898	6,638	34,454
March	0	0	0	0	0	0	3,664	4,568	25,195	9,110	63,767	7,349	264,561	7,685	276,672	7,349	38,145
April	0	0	0	0	0	0	3,545	4,421	24,382	8,816	61,710	7,112	256,027	7,437	267,747	7,112	36,915
May	0	0	0	0	0	0	3,664	4,568	25,195	9,110	63,767	7,349	264,561	7,685	276,672	7,349	38,145
June	0	0	0	0	0	0	3,545	4,421	24,382	8,816	61,710	7,112	256,027	7,437	267,747	7,112	36,915
July	0	0	0	0	0	0	3,664	4,568	25,195	9,110	63,767	7,349	264,561	7,685	276,672	7,349	38,145
August	0	0	0	0	0	0	3,664	4,568	25,195	9,110	63,767	7,349	264,561	7,685	276,672	7,349	38,145
September	0	0	0	0	0	0	3,545	4,421	24,382	8,816	61,710	7,112	256,027	7,437	267,747	7,112	36,915
Annual	0	0	0	0	0	0	43,136	53,787	296,650	107,258	696,148	86,528	3,114,993	90,489	3,257,593	86,528	449,131

DAILY NUTRIENT PRODUCTION

Type of Animal	Pounds/Day of Nutrients from LIQUIDS			Pounds/Day of Nutrients from SOLIDS			Pounds/Day of Nutrients from GRAZING							
	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	N	P2O5	K2O			
MILKER	103.59	40.21	70.53	69.06	26.80	47.02	172.64	67.01	117.56					
MILKER	71.71	27.84	48.83	47.81	18.56	32.55	119.52	46.39	81.39					
MILKER (DRY)	14.04	4.47	10.81	9.36	2.98	7.21	23.40	7.45	18.01					
MILKER (DRY)	9.72	3.09	7.48	6.48	2.06	4.99	16.20	5.15	12.47					
CALVES (1-12 Months)	0.00	0.00	0.00	7.75	2.29	7.23	7.75	2.29	7.23					
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					

CLIENT: Marti Holstein Inc. Milking Operation (Planned)  
ASSISTED BY: Petersen

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM PRODUCTION

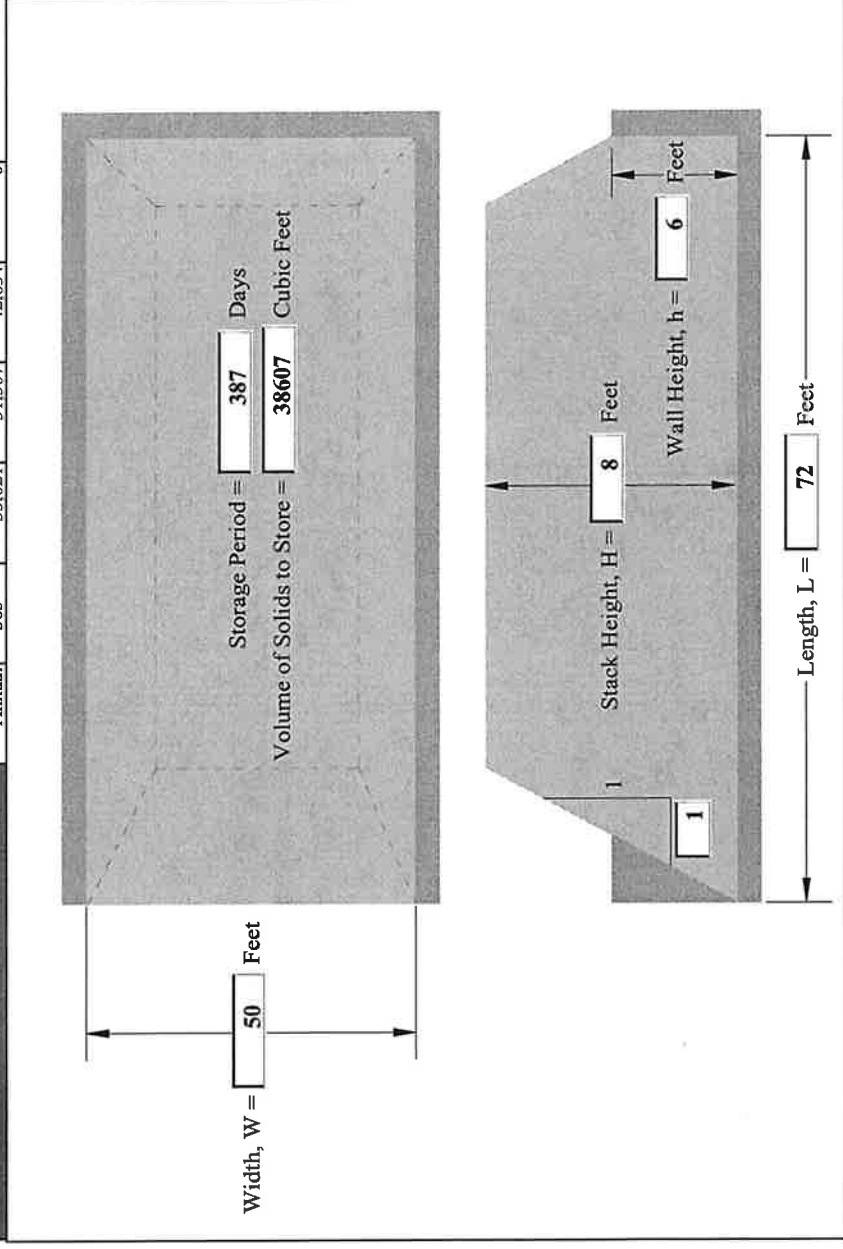
MONTHLY NUTRIENT PRODUCTION

Month	Pounds of Nutrients from LIQUIDS			Pounds of Nutrients from SOLIDS			Pounds of Nutrients from GRAZING			Pounds of Nutrients going OFF-FARM			Total Pounds of Nutrients from ALL SOURCES		
	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O
October	6,171	2,344	4,267	4,354	1,633	3,069	0	0	0	0	0	0	10,525	3,977	7,336
November	5,972	2,268	4,130	4,214	1,581	2,970	0	0	0	0	0	0	10,186	3,849	7,100
December	6,171	2,344	4,267	4,354	1,633	3,069	0	0	0	0	0	0	10,525	3,977	7,336
January	6,171	2,344	4,267	4,354	1,633	3,069	0	0	0	0	0	0	10,525	3,977	7,336
February	5,574	2,117	3,854	3,933	1,475	2,772	0	0	0	0	0	0	9,506	3,592	6,626
March	6,171	2,344	4,267	4,354	1,633	3,069	0	0	0	0	0	0	10,525	3,977	7,336
April	5,972	2,268	4,130	4,214	1,581	2,970	0	0	0	0	0	0	10,186	3,849	7,100
May	6,171	2,344	4,267	4,354	1,633	3,069	0	0	0	0	0	0	10,525	3,977	7,336
June	5,972	2,268	4,130	4,214	1,581	2,970	0	0	0	0	0	0	10,186	3,849	7,100
July	6,171	2,344	4,267	4,354	1,633	3,069	0	0	0	0	0	0	10,525	3,977	7,336
August	6,171	2,344	4,267	4,354	1,633	3,069	0	0	0	0	0	0	10,525	3,977	7,336
September	5,972	2,268	4,130	4,214	1,581	2,970	0	0	0	0	0	0	10,186	3,849	7,100
<b>Annual</b>	<b>72,657</b>	<b>27,595</b>	<b>50,245</b>	<b>51,267</b>	<b>19,233</b>	<b>36,136</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>123,924</b>	<b>46,828</b>	<b>86,381</b>

CLIENT: Marti Holstein Inc. Milking Operation (Planned)  
ASSISTED BY: Pedersen  
CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM STORAGE

SOLIDS STACKING FACILITY		MONTHLY SOLIDS VOLUME STACKED IN FACILITY						
Solids Storage Facility Parameters	Value	Month	Number of Days	Manure CF	Bedding CF	Solids to Store CF	Normal Runoff CF	
Storage Period, Days=	387	October	31	2974	4,375	3,045	0	
Stacking Width, W in Feet=	50	November	30	2878	4,233	3,556	0	
Stacking Height, H in Feet=	8.00	December	31	2974	4,375	3,674	0	
Wall Height, h in Feet=	6.00	January	31	2974	4,375	3,674	0	
Stack Side Slope (X:1)=	1.00	February	28	2687	3,951	3,319	0	
Existing Storage, Cubic Feet=	12,000	March	31	2974	4,375	3,674	0	
Surface Area of Existing Storage, SF=	0	April	30	2878	4,233	3,556	0	
25 Year-24 Hour Storm Runoff, CF=	0	May	31	2974	4,375	3,674	0	
Volume Needed, Cubic Feet=	38,607	June	30	2878	4,233	3,556	0	
Design Volume, Cubic Feet=	26,846	July	31	2974	4,375	3,674	0	
Is Facility Covered? YES	▼	August	31	2974	4,375	3,674	0	
		September	30	2878	4,233	3,556	0	
		Annual	365	35,021	51,507	42,634	0	

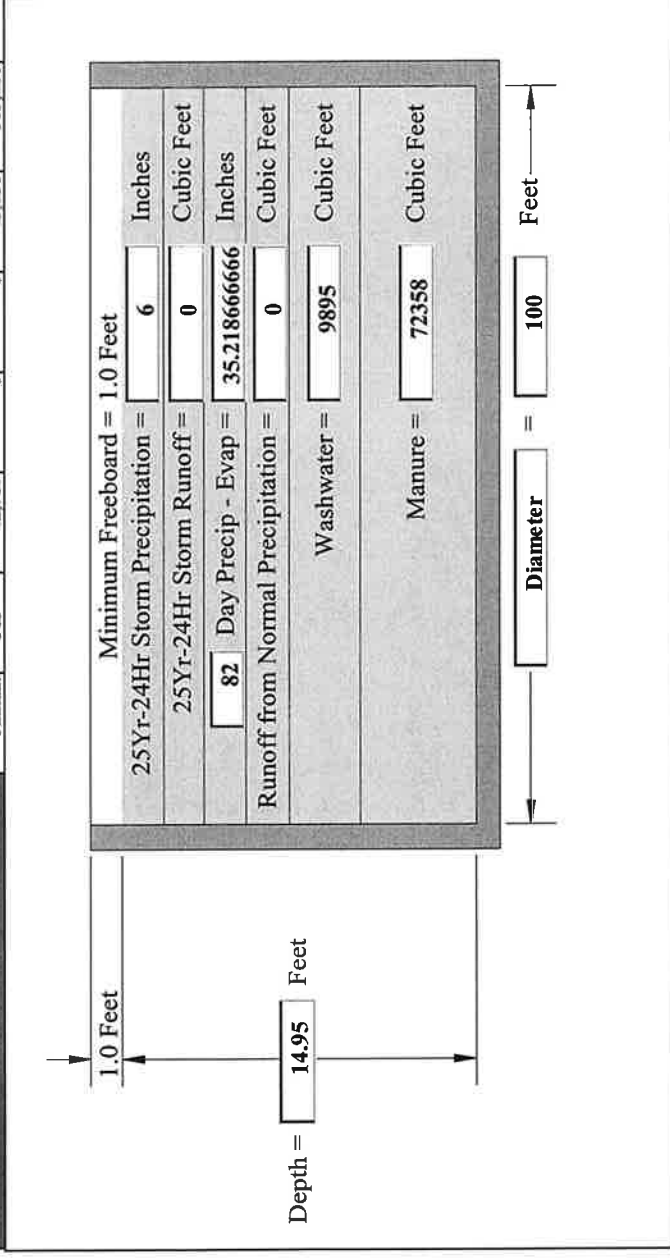


CLIENT: Marti Holstein Inc. Milking Operation (Planned)  
ASSISTED BY: Pedersen  
CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM STORAGE

TANK

Tank Parameters		Value	Month	Number of days	Rain-Evap on Tank CF	Rain-Evap on Existing Storage, CF	Normal Runoff CF	Washwater CF	Manure CF
Storage Period, Days=	82		October	31	3,964	0	0	3,664	26,789
Tank Diameter, Feet=	100		November	30	7,883	0	0	3,545	25,925
Existing Storage, Cubic Feet=		8,640.00	December	31	8,929	0	0	3,664	26,789
Surface Area of Existing Storage, SF=		0	January	31	8,491	0	0	3,664	26,789
25 Year-24 Hour Storm Runoff, CF=		0	February	28	6,326	0	0	3,309	24,196
Volume Needed, Cubic Feet=		126,071	March	31	5,946	0	0	3,664	26,789
Design Volume, Cubic Feet=		117,357	April	30	2,702	0	0	3,545	25,925
Is Tank Covered?   NO			May	31	667	0	0	3,664	26,789
Tank Dimensions?   Circular			June	30	-157	0	0	3,545	25,925
			July	31	-1,616	0	0	3,664	26,789
			August	31	-1,171	0	0	3,664	26,789
			September	30	752	0	0	3,545	25,925
			Annual	365	42,717	0	0	43,136	315,416



CLIENT: Marti Holstein Inc. Milking Operation (Planned)  
ASSISTED BY: Pedersen

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM APPLICATION

MANAGEMENT CRITERIA FOR TRACTOR SPREADER APPLICATION OF SOLIDS

To apply 86,528 cubic feet of solids generated from the operation it will take approximately 110 trips annually. Based on applying NITROGEN, N at agronomic rate use the application depths, travel lengths, and loads per acre listed below for each crop.

Field Number	Acres	Crop	Tractor Spreader Capacity		Spread Width Feet	NITROGEN, N Concentration in Storage Facility		Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Solids to Apply	Travel Length per Load Needed in Feet	Loads per Acre
			Bushels	CF		PPM	Lbs/1000CF					
T216 1-7	78.8	Hay/Pasture Mix 20% Protein	630	784	10	7,121	44.44	192	2.00	0.3	3320	1
T443 1-4	59	Hay/Pasture Mix 20% Protein	630	784	10	7,121	44.44	192	2.00	0.3	3320	1
T628 1	24.4	Hay/Pasture Mix 20% Protein	630	784	10	7,121	44.44	192	2.00	0.3	3320	1
T179 1-5	47.2	Hay/Pasture Mix 20% Protein	630	784	10	7,121	44.44	192	2.00	0.3	3320	1
T27 1-2	32.6	Hay/Pasture Mix 20% Protein	630	784	10	7,121	44.44	192	2.00	0.3	3320	1
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MANAGEMENT CRITERIA FOR BIG GUN SPRINKLER APPLICATION OF LIQUIDS

To apply 3,359,501 gallons of liquids generated from the operation it will take approximately 187 hours of pumping annually. Based on applying NITROGEN, N at agronomic rate use the application depths, set times, and travel rates listed below for each crop.

Field Number	Acres	Crop	Sprinkler Flowrate GPM	Wetted Diameter Feet	Portion of Wetted Diameter Receiving Liquids	NITROGEN, N Concentration in Storage Facility		Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Liquids to Apply	Application Rate in Inches/Hour	Set Time Needed in Hours	Travel Rate Needed in Feet/Minute
						PPM	Lbs/1000Gal						
T216 1-7	78.8	Hay/Pasture Mix 20% Protein	300	250	1/2 Circle	1,814	15.14	96	4.00	0.56	1.45	0.94	3.46
T443 1-4	59	Hay/Pasture Mix 20% Protein	300	250	1/2 Circle	1,814	15.14	96	4.00	0.56	1.45	0.94	3.46
T628 1	24.4	Hay/Pasture Mix 20% Protein	300	250	1/2 Circle	1,814	15.14	96	4.00	0.56	1.45	0.94	3.46
T179 1-5	47.2	Hay/Pasture Mix 20% Protein	300	250	1/2 Circle	1,814	15.14	96	4.00	0.56	1.45	0.94	3.46
T27 1-2	32.6	Hay/Pasture Mix 20% Protein	300	250	1/2 Circle	1,814	15.14	96	4.00	0.56	1.45	0.94	3.46
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CLIENT: Marti Holstein Inc. Milking Operation (Planned)  
ASSISTED BY: Pedersen

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM APPLICATION

To apply		1,034 trips annually. Based on applying										NITROGEN, N
at agronomic rates use the application depths, travel lengths, and loads per acre listed below for each crop.		3,359,501 gallons of liquids generated from the operation it will take approximately		trips annually.		Based on applying		NITROGEN, N		trips annually.		NITROGEN, N
Field Number	Acres	Crop	Tank Wagon Capacity Gallons	Spread Width Feet	NITROGEN, N Concentration in Storage Facility		Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Liquids to Apply	Travel Length per Load Needed in Feet	Loads per Acre	
					PPM	Lbs/1000Gal						
T216 1-7	78.8	Hay/Pasture Mix 20% Protein	3,250	12	1,814	15.14	96	4.00	0.10	4,428	0.8	
T443 1-4	59	Hay/Pasture Mix 20% Protein	3,250	12	1,814	15.14	96	4.00	0.10	4,428	0.8	
T628 1	24.4	Hay/Pasture Mix 20% Protein	3,250	12	1,814	15.14	96	4.00	0.10	4,428	0.8	
T179 1-5	47.2	Hay/Pasture Mix 20% Protein	3,250	12	1,814	15.14	96	4.00	0.10	4,428	0.8	
T27 1-2	32.6	Hay/Pasture Mix 20% Protein	3,250	12	1,814	15.14	96	4.00	0.10	4,428	0.8	
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CLIENT: Marti Holstein Inc. Milking Operation (Planned)  
ASSISTED BY: Pedersen

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM UTILIZATION

NUTRIENTS AVAILABLE AFTER STORAGE

Nutrient Source	Type of Operation	Pounds of Nutrients Available			Percent Nutrients Retained After Storage			Pounds of Nutrients Retained After Storage		
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Dairy	Type of Storage Facility	72,657	27,595	50,245	70%	85%	85%	50,860	23,456	42,708
Liquids	Tank (Uncovered)	51,267	19,233	36,136	75%	90%	90%	38,450	17,310	32,522
Solids	Solids Storage Facility (Roofed)	0	0	0	100%	100%	100%	0	0	0
Grazing	NONE	0	0	0	100%	100%	100%	0	0	0

NUTRIENTS AVAILABLE AFTER APPLICATION

Nutrient Source	Type of Application System	Pounds of Nutrients Available			Percent Nutrients Retained After Application			Pounds of Nutrients Retained After Application		
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Liquids	Broadcast (Incorporated 7 or more days after application)	50,860	23,456	42,708	70%	100%	100%	35,602	23,456	42,708
Solids	Broadcast (Incorporated 7 or more days after application)	38,450	17,310	32,522	70%	100%	100%	26,915	17,310	32,522
Grazing	Grazing	0	0	0	85%	100%	100%	0	0	0

NUTRIENTS AVAILABLE AFTER DENITRIFICATION

Nutrient Source	Location	Pounds of Nutrients Available			Percent Nutrients Retained After Denitrification			Pounds of Nutrients Retained After Denitrification		
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Liquids	Coast	35,602	23,456	42,708	60%	100%	100%	21,361	23,456	42,708
Solids	Soil Drainage Class	26,915	17,310	32,522	60%	100%	100%	16,149	17,310	32,522
Grazing	Poorly Drained	0	0	0	60%	100%	100%	0	0	0

CLIENT: Marti Holstein Inc. Milking Operation (Planned)  
ASSISTED BY: Pedersen

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM UTILIZATION

PERCENT OF MANURE TO BE APPLIED TO FIELD AND UTILIZATION ACRES NEEDED BASED ON NITROGEN, N

Field Number	Acres	Crop	LIQUIDS			SOLIDS			GRAZING		
			Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients	Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients	Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients
T216 1-7	78.8	Hay/Pasture Mix 20% Protein	81%	17,303	45	48%	7,752	20	0%	0	0
T443 1-4	59.0	Hay/Pasture Mix 20% Protein	0%	0	0	0%	0	0	71%	0	0
T628 1	24.4	Hay/Pasture Mix 20% Protein	0%	0	0	0%	0	0	29%	0	0
T179 1-5	47.2	Hay/Pasture Mix 20% Protein	19%	4,059	11	20%	3,230	8	0%	0	0
T27 1-2	32.6	Hay/Pasture Mix 20% Protein	0%	0	0	32%	5,168	13	0%	0	0
0											
0											
0											
Off-Farm			0%	21,361	56	100%	16,149	42	0%	0	0
		TOTALS-	100%						100%		0

NUTRIENT BALANCE BASED ON AVAILABLE ACRES

Field Number	Acres	Crop	NUTRIENTS APPLIED			NUTRIENTS REMOVED			NUTRIENT BALANCE		
			Nitrogen, N Lbs/Acre	Phosphorous, P2O5 Lbs/Acre	Potassium, K2O Lbs/Acre	Nitrogen, N Lbs/Acre	Phosphorous, P2O5 Lbs/Acre	Potassium, K2O Lbs/Acre	Nitrogen, N Lbs/Acre	Phosphorous, P2O5 Lbs/Acre	Potassium, K2O Lbs/Acre
T216 1-7	78.8	Hay/Pasture Mix 20% Protein	318	347	637	384	106	294	-66	241	344
T443 1-4	59.0	Hay/Pasture Mix 20% Protein	0	0	0	384	106	294	-384	-106	-294
T628 1	24.4	Hay/Pasture Mix 20% Protein	0	0	0	384	106	294	-384	-106	-294
T179 1-5	47.2	Hay/Pasture Mix 20% Protein	154	168	310	384	106	294	-230	62	16
T27 1-2	32.6	Hay/Pasture Mix 20% Protein	159	170	319	384	106	294	-225	64	26
0											
0											
0											
Off-Farm											







CLIENT: Marti Holstein Inc. Heifer Storage (Existing)  
ASSISTED BY: Pedersen

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM PRODUCTION

MONTHLY VOLUMES

Month	Roof Area		Runoff in Cubic Feet		Sludge Pit Surface Area, SF	Facility Water Use Cubic Feet	Manure		Bedding		Solids Separated		Solids in Liquids		Total Solids	
	Square Feet	Square Feet	Paved Slab Area Square Feet	Unpaved Lot Area Square Feet			Solids Cubic Feet	Liquids Cubic Feet	Cubic Feet	Pounds	Cubic Feet	Pounds	Cubic Feet	Pounds	Cubic Feet	Pounds
October	0	0	0	0	0	0	140	1,170	0	0	0	0	0	0	0	0
November	0	0	0	0	0	0	136	1,132	376	2,633	44,376	411	14,792	1,233	1,233	728
December	0	0	0	0	0	0	140	1,170	389	2,720	45,856	425	15,285	1,274	1,274	752
January	0	0	0	0	0	0	140	1,170	389	2,720	45,856	425	15,285	1,274	1,274	752
February	0	0	0	0	0	0	127	1,056	351	2,457	41,418	384	13,806	1,151	1,151	680
March	0	0	0	0	0	0	140	1,170	389	2,720	45,856	425	15,285	1,274	1,274	752
April	0	0	0	0	0	0	136	1,132	0	0	0	0	0	0	0	1,132
May	0	0	0	0	0	0	140	1,170	0	0	0	0	0	0	0	1,170
June	0	0	0	0	0	0	136	1,132	0	0	0	0	0	0	0	1,132
July	0	0	0	0	0	0	140	1,170	0	0	0	0	0	0	0	1,170
August	0	0	0	0	0	0	140	1,170	0	0	0	0	0	0	0	1,170
September	0	0	0	0	0	0	136	1,132	0	0	0	0	0	0	0	1,132
Annual	0	0	0	0	0	0	1,650	13,771	1,893	13,250	6,204	2,068	74,454	6,204	6,204	11,739

DAILY NUTRIENT PRODUCTION

Type of Animal	Pounds/Day of Nutrients from LIQUIDS			Pounds/Day of Nutrients from SOLIDS			Pounds/Day of Nutrients from GRAZING		
	N	P2O5	K2O	N	P2O5	K2O	N	P2O5	K2O
HEIFERS (12-24 Months)	2.52	0.74	2.35	7.56	2.23	7.05	10.08	2.98	9.40
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CLIENT: Marti Holstein Inc. Heifer Storage (Existing)  
ASSISTED BY: Pedersen

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM PRODUCTION

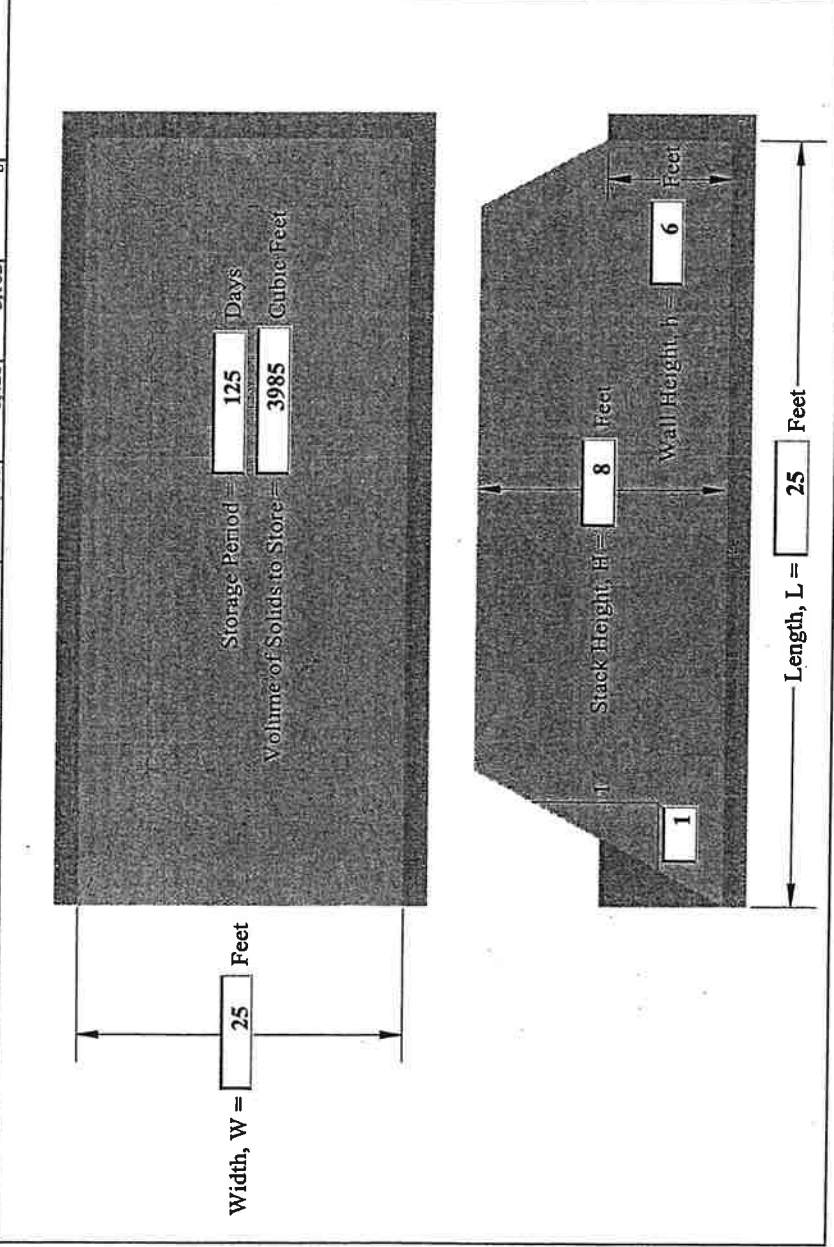
MONTHLY NUTRIENT PRODUCTION

Month	Pounds of Nutrients from LIQUIDS			Pounds of Nutrients from SOLIDS			Pounds of Nutrients from GRAZING			Pounds of Nutrients going OFF-FARM			Total Pounds of Nutrients from ALL SOURCES		
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
October	0	0	0	0	0	0	312	92	291	0	0	0	312	92	291
November	76	22	70	227	67	211	0	0	0	0	0	0	302	89	282
December	78	23	73	234	69	219	0	0	0	0	0	0	312	92	291
January	78	23	73	234	69	219	0	0	0	0	0	0	312	92	291
February	71	21	66	212	63	197	0	0	0	0	0	0	282	83	263
March	78	23	73	234	69	219	0	0	0	0	0	0	312	92	291
April	0	0	0	0	0	0	302	89	282	0	0	0	302	89	282
May	0	0	0	0	0	0	312	92	291	0	0	0	312	92	291
June	0	0	0	0	0	0	302	89	282	0	0	0	302	89	282
July	0	0	0	0	0	0	312	92	291	0	0	0	312	92	291
August	0	0	0	0	0	0	312	92	291	0	0	0	312	92	291
September	0	0	0	0	0	0	302	89	282	0	0	0	302	89	282
Annual	380	112	355	1,141	337	1,064	2,156	637	2,011	0	0	0	3,677	1,087	3,431

CLIENT: Marti Holstein Inc. Heifer Storage (Existing) CHECKED BY:  
ASSISTED BY: Pedersen

ANIMAL WASTE MANAGEMENT SYSTEM STORAGE

SOLIDS STACKING FACILITY		MONTHLY SOLIDS VOLUME STACKED IN FACILITY						
Solids Storage Facility Parameters	Value	Month	Number of Days	Manure CF	Bedding CF	Solids to Store CF	Normal Runoff CF	
Storage Period, Days=	125	October	31	0	0	0	0	
Stacking Width, W in Feet=	25	November	30	951	282	616	0	
Stacking Height, H in Feet=	8.00	December	31	982	291	637	0	
Wall Height, h in Feet=	6.00	January	31	982	291	637	0	
Stack Side Slope (X:1)=	1.00	February	28	887	263	575	0	
Existing Storage, Cubic Feet=	0	March	31	982	291	637	0	
Surface Area of Existing Storage, SF=	0	April	30	0	0	0	0	
25 Year-24 Hour Storm Runoff, CF=	0	May	31	0	0	0	0	
Volume Needed, Cubic Feet=	3,985	June	30	0	0	0	0	
Design Volume, Cubic Feet=	4,084	July	31	0	0	0	0	
Is Facility Covered? YES		August	31	0	0	0	0	
		September	30	0	0	0	0	
		Annual	365	4,785	1,420	3,102	0	



CLIENT: Marti Holstein Inc. Heifer Storage (Existing)

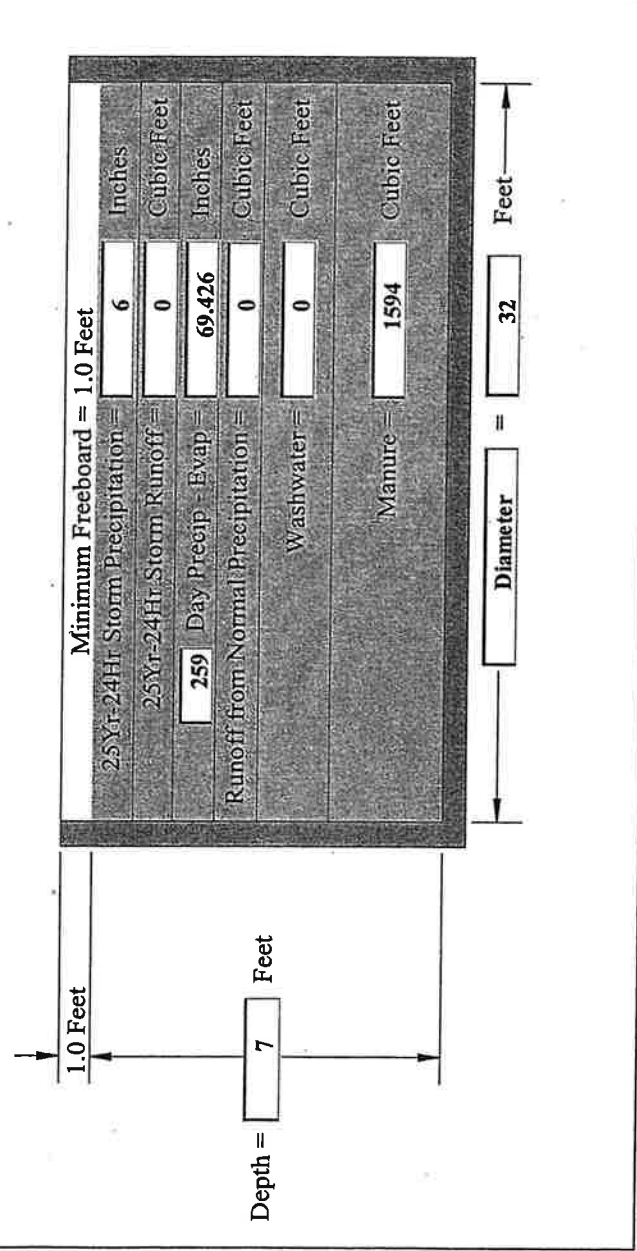
ASSISTED BY: Pedersen

CHECKED BY:

Version 1.6

ANIMAL WASTE MANAGEMENT SYSTEM STORAGE

TANK	MONTHLY INFLOWS INTO TANK									
	Tank Parameters	Value	Month	Number of days	Rain-Evap on Tank CF	Rain-Evap on Existing Storage, CF	Normal Runoff CF	Washwater CF	Manure CF	
Storage Period, Days=	32	October	31	0	0	0	0	0	0	
Tank Diameter, Feet=	32	November	30	0	0	0	0	0	317	
Existing Storage, Cubic Feet=	2,204.00	December	31	0	0	0	0	0	327	
Surface Area of Existing Storage, SF=	0	January	31	0	0	0	0	0	327	
25 Year-24 Hour Storm Runoff, CF=	0	February	28	0	0	0	0	0	296	
Volume Needed, Cubic Feet=	7,838	March	31	0	0	0	0	0	327	
Design Volume, Cubic Feet=	5,626	April	30	0	0	0	0	0	0	
Is Tank Covered? YES		May	31	0	0	0	0	0	0	
Tank Dimensions? Circular		June	30	0	0	0	0	0	0	
		July	31	0	0	0	0	0	0	
		August	31	0	0	0	0	0	0	
		September	30	0	0	0	0	0	0	
		Annual	365	0	0	0	0	0	1,595	



CLIENT: Marti Holstein Inc. Heifer Storage (Existing)

CHECKED BY:

Version 1.6

ANIMAL WASTE MANAGEMENT SYSTEM APPLICATION

MANAGEMENT CRITERIA FOR TRACTOR SPREADER APPLICATION OF SOLIDS

To apply 6,204 cubic feet of solids generated from the operation it will take approximately 31 trips annually. Based on applying NITROGEN, N at agronomic rate use the application depths, travel lengths, and loads per acre listed below for each crop.

Field Number	Acres	Crop	Tractor Spreader		Spread Width Feet	NITROGEN, N Concentration in Storage Facility PPM	NITROGEN, N Concentration Lbs/100CF	Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Solids to Apply	Travel Length per Load Needed in Feet	Loads per Acre
			Capacity Bushels	CF								
T179	47.2	Hay/Pasture Mix 20% Protein	160	199	15	1916	1195	384	1.00	2.1	76	38
0												
0												
0												
0												
0												
0												
0												

MANAGEMENT CRITERIA FOR BIG GUN SPRINKLER APPLICATION OF LIQUIDS

To apply 87,807 gallons of liquids generated from the operation it will take approximately 5 hours of pumping annually. Based on applying NITROGEN, N at agronomic rate use the application depths, set times, and travel rates listed below for each crop.

Field Number	Acres	Crop	Sprinkler Flowrate GPM	Wetted Diameter Feet	Portion of Wetted Diameter Receiving Liquids	NITROGEN, N Concentration in Storage Facility PPM	NITROGEN, N Concentration Lbs/1000Gal	Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Liquids to Apply	Application Rate in Inches/Hour	Set Time Needed in Hours	Travel Rate Needed in Feet/Minute
0													
0													
0													
0													
0													
0													
0													

MANAGEMENT CRITERIA FOR TANK WAGON APPLICATION OF LIQUIDS

CLIENT: Marti Holstein Inc. Heifer Storage (Existing)  
 ASSISTED BY: Pedersen

CHECKED BY:

ANIMAL WASTE MANAGEMENT SYSTEM APPLICATION

To apply 87,807 gallons of liquids generated from the operation it will take approximately 22 trips annually. Based on applying NITROGEN, N at agronomic rates use the application depths, travel lengths, and loads per acre listed below for each crop.

Field Number	Acres	Crop	Tank Wagon Capacity Gallons	Spread Width Feet	NITROGEN, N		Pounds of Nutrients to be Applied	Number of Applications Needed to meet Crop Demand	Inches of Liquids to Apply	Travel Length per Load Needed in Feet	Loads per Acre
					Concentration in Storage Facility PPM	Lbs/1000Gal					
T179	47.2	Hay/Pasture Mix 20% Protein	4,000	15	241	2,010	384	1.00	3.16	135	21.5
0											
0											
0											
0											
0											
0											
0											
0											

CLIENT: Marti Holstein Inc. Heifer Storage (Existing)  
ASSISTED BY: Pedersen

CHECKED BY:

Version 1.6

ANIMAL WASTE MANAGEMENT SYSTEM UTILIZATION

NUTRIENTS AVAILABLE AFTER STORAGE

Nutrient Source	Type of Operation	Pounds of Nutrients Available			Percent Nutrients Retained After Storage			Pounds of Nutrients Retained After Storage				
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O		
Dairy	Type of Storage Facility											
Liquids	Storage Pond (>50% Dilution)	380	112	355	47%	65%	80%	177	73	284		
Solids	Solids Storage Facility (Unroofed)	1,141	337	1,064	65%	80%	80%	742	270	852		
Grazing	NONE	2,156	637	2,011	100%	100%	100%	2,156	637	2,011		

NUTRIENTS AVAILABLE AFTER APPLICATION

Nutrient Source	Type of Application System	Pounds of Nutrients Available			Percent Nutrients Retained After Application			Pounds of Nutrients Retained After Application		
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Liquids	Sprinkling	177	73	284	75%	100%	100%	133	73	284
Solids	Broadcast (Incorporated 7 or more days after application)	742	270	852	70%	100%	100%	519	270	852
Grazing	Grazing	2,156	637	2,011	85%	100%	100%	1,833	637	2,011

NUTRIENTS AVAILABLE AFTER DENITRIFICATION

Nutrient Source	Location	Pounds of Nutrients Available			Percent Nutrients Retained After Denitrification			Pounds of Nutrients Retained After Denitrification		
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Liquids	Coast	133	73	284	60%	100%	100%	80	73	284
Solids	Soil Drainage Class	519	270	852	60%	100%	100%	311	270	852
Grazing	Poorly Drained	1,833	637	2,011	60%	100%	100%	1,100	637	2,011

CLIENT: Marti Holstein Inc. Heifer Storage (Existing)  
ASSISTED BY: Pedersen

CHECKED BY:

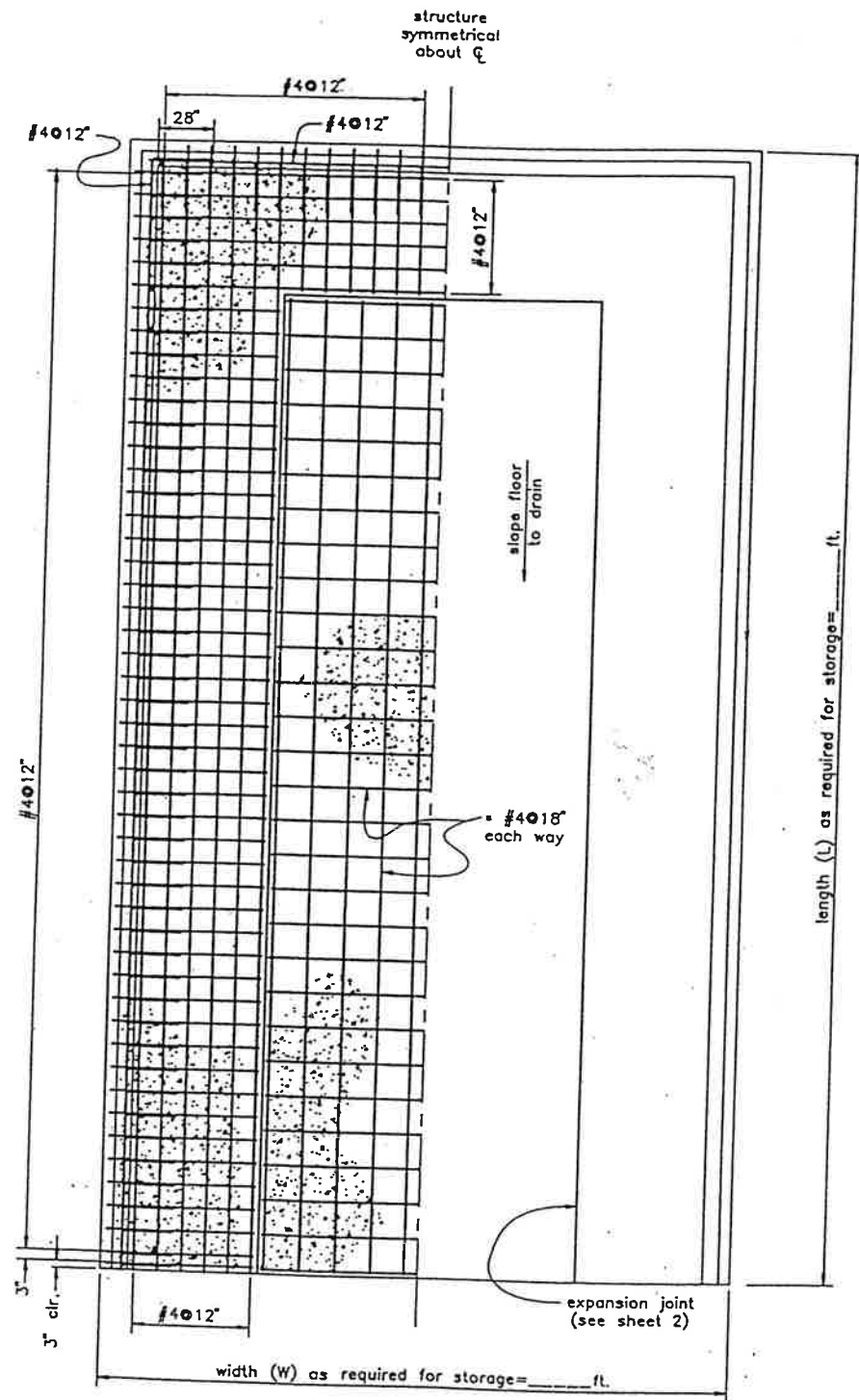
ANIMAL WASTE MANAGEMENT SYSTEM UTILIZATION

PERCENT OF MANURE TO BE APPLIED TO FIELD AND UTILIZATION ACRES NEEDED BASED ON NITROGEN, N

Field Number	Acres	Crop	LIQUIDS			SOLIDS			GRAZING		
			Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients	Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients	Percent to be Applied	Pounds of Nutrients to be Applied	Acres Needed for Utilization of Nutrients
T179	47.2	Hay/Pasture Mix 20% Protein	100%	80	0	100%	311	1	100%	1,100	3
0											
0											
0											
0											
0											
0											
Off-Farm			0%	0		0%	0		0%	0	
			100%	80	0	100%	311	1	100%	1,100	3
TOTALS:											

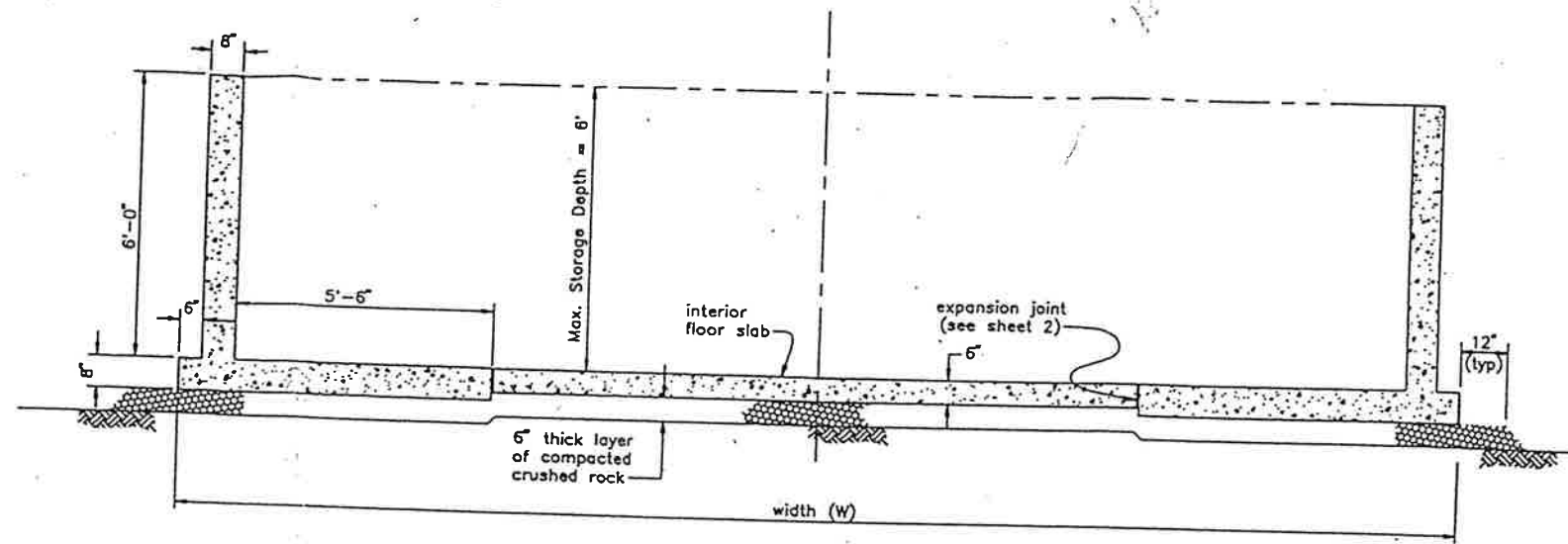
NUTRIENT BALANCE BASED ON AVAILABLE ACRES

Field Number	Acres	Crop	NUTRIENTS APPLIED			NUTRIENTS REMOVED			NUTRIENT BALANCE		
			Nitrogen, N Lbs/Acre	Phosphorous, P <sub>2</sub> O <sub>5</sub> Lbs/Acre	Potassium, K <sub>2</sub> O Lbs/Acre	Nitrogen, N Lbs/Acre	Phosphorous, P <sub>2</sub> O <sub>5</sub> Lbs/Acre	Potassium, K <sub>2</sub> O Lbs/Acre	Nitrogen, N Lbs/Acre	Phosphorous, P <sub>2</sub> O <sub>5</sub> Lbs/Acre	Potassium, K <sub>2</sub> O Lbs/Acre
T179	47.2	Hay/Pasture Mix 20% Protein	32	21	67	384	106	294	-352	-85	-227
0											
0											
0											
0											
0											
Off-Farm											

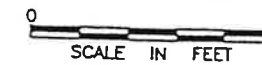


FLOOR PLAN

- NOTES:
- Expansion joints shall be provided at 75 ft. centers or closer (in each direction) where #4's @ 18" are used.
  - A single mat of WWF 6 x 6 - W1.4 x W1.4 (6 x 6 in - 10 x 10 gage) welded wire fabric may be used in lieu of #4's @ 18" where expansion joints are provided at 30 ft. centers or closer (in each direction).
  - Minimum splice length for welded wire fabric is 8".
  - If welded wire fabric is used, the thickness of the interior floor slab may be reduced to 5 inches.



TYPICAL SECTION  
(STEEL NOT SHOWN)

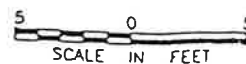


GENERAL NOTES

- SCS makes no representation as to the existence or non-existence of utilities. It is the responsibility of the Contractor to comply with the provisions of ORS 757.541 to 757.571. The Contractor will be liable for any damage resulting from disruption of service caused by construction activities.
- The foundation area shall be stripped of all vegetation, manure, or other unsuitable materials prior to installation of the structure. Stripped materials shall be disposed of in a manner such that sediment pollution is minimized.
- The construction site shall be cleaned of all waste materials and debris following construction.

STRUCTURAL NOTES

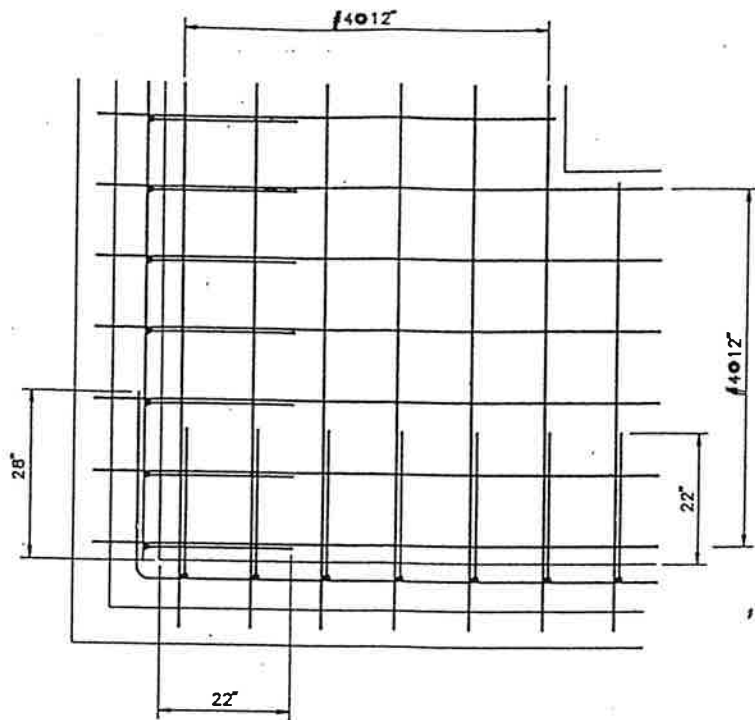
- All exposed concrete edges and corners to be rounded or chamfered 1 inch.
- Spacing of reinforcement bars is measured center to center of bars. Bar cover is clear distance between surface of bar and face of concrete and unless otherwise shown is 2 inches from formed and top surfaces and 3 inches for surfaces against earth.
- In sections having one mat of reinforcement, the steel shall be placed in the center of the section unless otherwise shown.



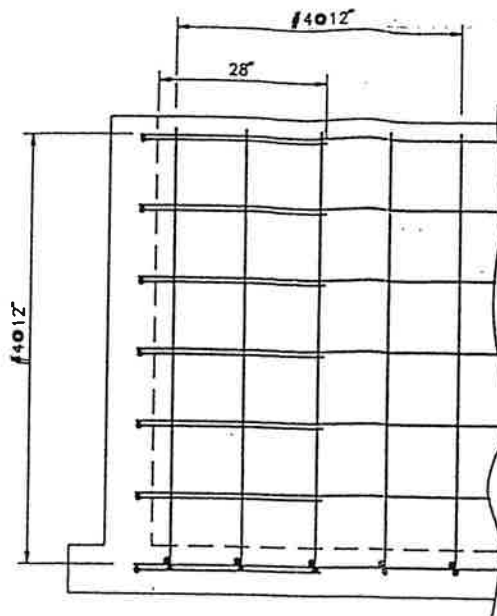
STANDARDIZED DESIGNS—MUST BE ADAPTED TO THE SPECIFIC SITE

DATE 3-93  
 Approved *Doug C. Douglas*  
 State Conservation Engineer  
 Designed *B.G. Dogg*  
 Drawn *K. Yasumilahi*  
 Traced  
 Checked

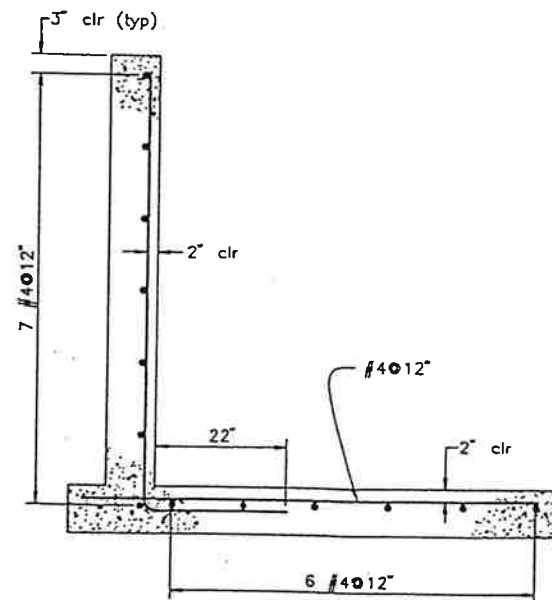
WASTE STACKING FACILITY  
 ABOVE GROUND  
 6' WALL HEIGHT - 6' MAXIMUM STORAGE DEPTH  
 U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE  
 CAD FILE NO. 552D10F2.DWG  
 DRAWING NO. OR-D-552



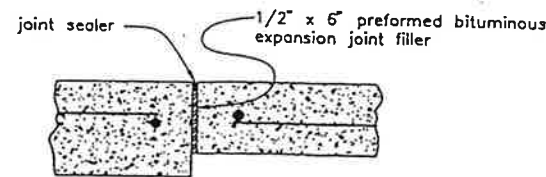
CORNER DETAIL  
(PLAN VIEW)



CORNER DETAIL  
(ELEVATION VIEW)

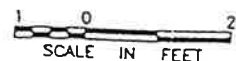


TYPICAL SECTION OF SIDEWALL  
(CORNER DETAILS NOT SHOWN)



EXPANSION JOINT DETAIL

(NOT TO SCALE)



CONCRETE SPECIFICATIONS:

1. The concrete shall be proportioned, transported, and placed in accordance with Specifications for Structural Concrete for Buildings - ACI 301-89. The concrete shall have a minimum compressive strength at 28 days of 3000 psi. Minimum cement content shall be 6 bags/cy and maximum net water content shall be 7 gallons/sack. The slump shall be 2 to 4 inches and the air content shall be 5 to 8% of the volume of concrete.
2. Forms shall be mortar tight, substantial and unyielding and shall be constructed so that the finished concrete will conform to the specified dimensions. Metal ties within the forms shall be equipped with a device that permits their removal to a depth of at least 1 inch without injury to the concrete.
3. The concrete shall be deposited as closely as possible to its final position in the forms and shall be worked into the corners and angles of the forms and around all reinforcement. Immediately after placement concrete shall be consolidated by vibrating.
4. Surfaces of all construction joints shall be cleaned by washing and scrubbing with a wire brush or broom.
5. Forms shall not be removed before 24 hours have elapsed after placement of concrete.
6. Holes produced by the removal of form ties, cone bolts, etc., shall be cleaned, wetted, and filled with dry pack mortar. Cone bolt holes may also be filled with pre-molded plugs set in epoxy.
7. Concrete shall be prevented from drying for a curing period of at least 7 days after it is placed. The slab and footings shall be kept continuously moist for the entire period or until curing compound is applied. Moisture shall be maintained by sprinkling, flooding, covering with plastic sheeting, continuously moistened canvas, cloth mats, straw, or other approved material. The walls shall be thoroughly wetted immediately after forms are removed and shall be kept wet until patching and repairs are made. After patching and repairs are made, curing compound may be applied in lieu of wetting. Curing compound shall meet the requirements of ASTM C 309, Type 2.
8. Concrete shall not be dropped more than 5 feet vertically unless suitable equipment is used to prevent segregation.
9. Reinforcing steel shall be ASTM designation A-615, grade 60.
10. Welded wire fabric, if used, shall meet the requirements of ASTM A 185.

DESIGN NOTES:

1. Foundation is to be field investigated to determine adequacy to support structure. Footing bearing pressure resulting from design loads is approximately 1000 psf.
2. The 6" layer of compacted crushed rock shall be of angular, clean, well graded material. Compaction shall be by at least one pass of the track or wheel of the loading and spreading equipment over every point in the layer.
3. Frost heave potential should be considered on a site-by-site basis. Additional free-draining rock or other protection methods should be provided as needed.
4. The concrete structure is designed for an internal hydrostatic load of 60 lbs/cu ft. No backfill will be permitted on the outside of the wall.
5. The structure is designed according to the criteria in SCS Practice Standard 313 for a medium service life (20 year minimum).

Unless otherwise marked, all splices shall be as follows:

Vertical reinforcement	Horizontal reinforcement	
	in floor	in walls
#4	#4	#4
22'	22'	28'

CONCRETE VOLUMES:

Wall and Footing:

$$\text{Vol. (cy)} = (2L + W)(0.313 \text{ cy/ft}) - 5.19 \text{ cy}$$

$$= (2 \dots + \dots)(0.313 \text{ cy/ft}) - 5.19 \text{ cy} = \dots \text{ cy}$$

Interior Floor Slab:

$$6' \text{ floor - Vol. (cy)} = (L - 6.67')(W - 13.33') / 54$$

$$= (\dots - 6.67')(\dots - 13.33') / 54 = \dots \text{ cy}$$

$$5' \text{ floor - Vol. (cy)} = 5 (L - 6.67')(W - 13.33') / 324$$

$$= 5 (\dots - 6.67')(\dots - 13.33') / 324 = \dots \text{ cy}$$

WASTE STACKING FACILITY

ABOVE GROUND

6' WALL HEIGHT - 6' MAXIMUM STORAGE DEPTH

S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

ON SERVICE

DATE: 3-93 Approved

DESIGNED: B.C. Doering

DRAWN: K. Yasumitani

TRACED: \_\_\_\_\_

CHECKED: \_\_\_\_\_

CAD FILE NO. 552020F2.DWG

DRAWING NO. OR-552

**WASTE UTILIZATION SPECIFICATION SHEET**Client Marti HolsteinLocation: 15400 Tideland Road, Nehalem, Oregon 97131Tillamook County SWCD Tract No. 216, 443, 628, 179, 27Prepared By Pedersen Date 09/26/02**Perform the following operations:**

- Have your technical assistance provider review the resource management system plan for your operation at least once every 5 years.
- Maintain records for all waste applications.
- Calibrate application equipment to apply wastes in accordance with the recommended amount and timing specified on the nutrient budget specification sheet, NRCS practice code 590, for the crop being grown.
- Chemical analysis of soils, plant tissue and waste should be used annually to monitor and adjust amounts of waste applied. Refer to Oregon State University Extension Service publication EC1478, "Soil Test Interpretation Guide" for guidance in getting soil tested and interpreting soil test results. Refer to Oregon State University Extension publication EM8585, "Manure Application Rates for Forage Production" and EM8768, "Calculating Dairy Manure Nutrient Application Rates" for guidance in getting animal waste tested for nutrient concentrations and computing application rates.
- Apply waste in a manner that will cover no more than 25 percent of the leaf surface with solids unless clean water applications are planned immediately after wastes are applied. For pasture/hayland it is best to apply waste 7 days after harvesting forage by haying or grazing.
- To reduce odor problems, apply waste in mid morning when temperatures are warming and air is rising rather than in the afternoon or evening when air is cooling and settling. Avoid applications during periods of fog.
- Do not apply waste directly into an open watercourse or where waste is likely to enter an open watercourse. Observe all waste application setbacks identified in the resource management system plan.
- Do not apply waste to fields where there is no growing crop. If applications are needed during fall and winter periods due to unforeseen circumstances, such as the storage facilities being full, use the following guidelines for waste applications:
  - a) Only spread waste on fields that are growing a crop, preferably grass.
  - b) Increase all waste application setbacks identified in the resource management system plan by 50 feet.
  - c) Don't apply waste during any rainfall event that will cause runoff.
  - d) Use maximum travel rates for the traveling big gun sprinkler and solids spreader.
  - e) Use soil tests, such as the Pre-sidedress Soil Nitrate test, to determine if additional applications of waste are needed on those fields receiving emergency winter applications.
- Do not apply waste to fields with frozen or snow covered soil conditions unless provisions are made to control runoff.
- Do not spread waste on fields where soils are saturated, ponded, flooded and/or during times when waste is likely to runoff into open watercourses.
- Be aware of the location of sensitive areas, concerns of neighbors or concerns of the public which require special application procedures
- Handle all waste material with caution. Wear appropriate protective clothing.
- Clean up residual materials from equipment and dispose of properly.
- Equipment used in waste utilization should be regularly inspected and maintained as needed in accordance with equipment operation and maintenance guidelines from the manufacturer or provided by NRCS.

**Additional Guidance and Notes:**


**WASTE UTILIZATION SPECIFICATION SHEET****DESIGN APPROVAL:**

Practice Code NO.	PRACTICE	LEAD DISCIPLINE	CONTROLLING FACTOR	UNITS	JOB CLASS				
					I	II	III	IV	V
633	Waste Utilization	BCSD-Agron & CED-EE	Area	Acres	20	40	80	180	All

This practice is classified as Job Class IV

Design Approved by: /s/ Rutha Pease Date: 11/3/02

Job title: North Coast Basin Team Leader

**CLIENTS ACKNOWLEDGEMENT STATEMENT:**

The Client acknowledges that:

- They have received a copy of the specification and understand the contents and requirements.
- The following information must be provided to NRCS by the client before this practice can be certified as applied:
  - Waste application records which include the date, crop, type of waste applied, and amount of waste applied.
  - Calibration records for waste application equipment.
  - Analysis of nutrient concentrations in solid and liquid wastes.
- It shall be the responsibility of the client to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to the application of this practice.

Accepted by: /s/ Marta Holsten Date: 11-3-02

**CERTIFICATION:**

I have completed a review of the information provided by the client and certify this practice has been applied.

Certification by: /s/ \_\_\_\_\_ Date: \_\_\_\_\_

Job title: \_\_\_\_\_



# Waste Utilization

## Conservation Practice Jobsheet

Natural Resources Conservation Service, Oregon

633 OR-JS

February 2002

Client Marti Holstein Inc.

Date 09/26/02



### Definition

Waste Utilization is the beneficial use of agricultural wastes such as manure and wastewater or other organic residues.

### Purpose

The ultimate purpose of waste utilization is to insure the proper use of agricultural wastes while protecting soil, water, air, plant, and animal resources.

Agricultural wastes can be used to provide nutrients for crops, forage, and fiber production and forest products. Agricultural waste also can be used as an amendment to improve or maintain soil structure, provide feedstuff for livestock, or provide a source of energy. The focus of this job sheet will be the use of agricultural wastes to provide fertility for crops, forage, and fiber production and forest products; and to supply organic material to the soil.

### Where used

Waste utilization is used where agricultural wastes (primarily animal manure and polluted runoff from livestock and poultry operations) are generated and collected as part of a resource management system. Wastes can be used as a source of fertility on cropland and pastureland, and occasionally on forest land or rangeland. Use of the Soil Condition Index (SCI) can be used to determine the effects of organic material on soil quality.

### Conservation Management Systems

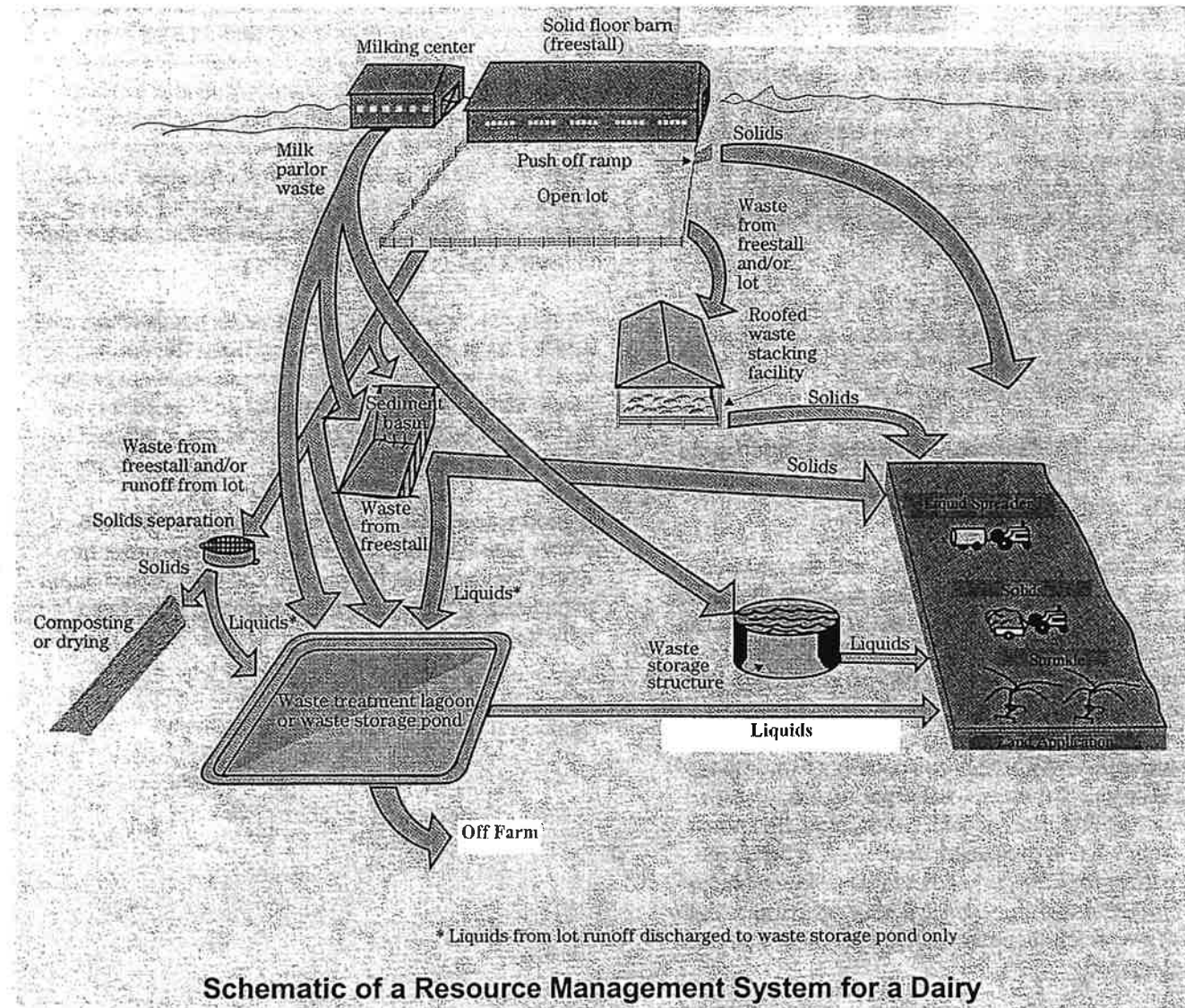
Waste utilization is generally one of several components of a resource management system used to manage manure and polluted water from livestock and poultry operations. Where the wastes are used to supply the fertility needs of crop and pasture, waste utilization is done as part of an overall resource management plan for the enterprise.

### Waste Utilization Planning

Waste utilization components of the conservation plan will contain the following information:

- field map and soil map
- crop rotation or sequence
- results of soil, water, plant, and organic material samples analyses
- expected yield
- sources of nutrients to be applied
- nutrient budget, including credits of nutrients available
- recommended nutrient rates, form, timing, and method of application
- location of designated sensitive areas
- guidelines for operation and maintenance

Waste utilization is most effective when used with other conservation practices such as cover crop, residue management, conservation buffers, irrigation water management, nutrient management, pest management, and conservation crop rotation.



### Operation and maintenance

Operation and maintenance activities shall include record keeping for 5 years or longer that includes the following:

- Quantity of manure and other agricultural wastes produced, and their nutrient content.
- Soil test results.
- Dates and rates of waste application where land applied, and the dates and amounts of waste removed from the system due to feeding, energy production, or export from the operation.
- Waste application methods.
- Crops grown and yields (both yield goals and measured yield).
- Other tests as needed, such as determining the nutrient content of the harvested product.

- Calibration of the application equipment.
- Changes in soil condition (SCI).
- Plan map showing fields where waste is applied.

### Specifications

Site specific requirements for waste utilization are listed on specification sheets. Specifications are prepared in accordance with the NRCS Field Office Technical Guide. See NRCS practice standard, Waste Utilization, code 633. Use NRCS's Agricultural Waste Management Field Handbook or locally accepted references for procedures to calculate values such as residual nitrogen from past waste applications, and to estimate available nutrients in wastes where lab analyses are not available.

**NUTRIENT MANAGEMENT SPECIFICATION SHEET**

**CODE 590**

Landowner/Operator: Marti Hostein Inc.

Job Location: T 3N; R 10W; Sec 26, 35, 36

County: Tillamook SWCD Tillamook Farm/Tract No. T-216, 443, 628, 179, 27

Field No.: T-216 1,2,3,4,5,6,7 T-443 1,2,3,4 T-27 1,2

Prepared By: Pedersen

Date: 09/02

⇒ **Purpose:**

- ⇒ To budget and supply nutrients for plant production.
- ⇒ To properly utilize manure and organic by-products as a plant nutrient source.
- ⇒ To minimize agricultural non-point source pollution of surface and ground water resources.
- ⇒ To maintain or improve the physical, chemical and biological condition of soil.

**Specifications:**

- ⇒ Manure is applied to the surface of permanent pastures in accordance with the enclosed Waste Utilization Specification Sheet.
- ⇒ A target yield of 6 tons of dry matter per acre per year is planned to utilize the nitrogen in the manure and/or commercial applied fertilizer.
- ⇒ Manure and commercial fertilizer is applied in accordance with soil tests.
- ⇒ Manure and/or commercial fertilizer is applied in split applications.
- ⇒ Soil tests are taken at least every 5 years.
- ⇒ No more than 307 lbs. of nitrogen is applied per acre per year unless soil and forage tests justifies higher rates.
- ⇒ Records are maintained of manure and/or commercial fertilizer applications.
- ⇒ Nutrient management plans are reviewed annually and adjustments are made as needed.
- ⇒ Manure is not applied within 30 feet of an open watercourse.

**DESIGN APPROVAL:**

This practice is classified as Job Class I

Design approved by: /s/ Roberta Pedem Date: 11/3/02

Job Title: Basin Team Leader

**CLIENTS ACKNOWLEDGEMENT STATEMENT:**

The client acknowledges that:

- a. They have received a copy of this specification and under-stands the contents and requirements.
- b. It shall be the responsibility of the client to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to the application of this practice.
- c. Maintain records of nutrient application as required by state and local regulations.

Accepted by: /s/ Mark Holstenhauer Date: 11/3/02  
By Joan Mast

**CERTIFICATION;**

I have completed a review of the nutrient management and the specification's application and certify this practice has been applied.

Certification by: /s/ \_\_\_\_\_ Date: \_\_\_\_\_

Job Title: \_\_\_\_\_

**PRESCRIBED GRAZING SPECIFICATION SHEET**

**CODE 528A**

Landowner/Operator: Marti Holstein Inc.

Job Location: T 3N; R 10W; Sec. 26

County: Tillamook SWCD Tillamook

Farm/Tract No. T-443, T-628

Field No. T 443 1,2,3,4 T-628 1

Prepared By: Pedersen

Date: 09/02

⇒ **Purpose:**

- ⇒ Improve or maintain the health and vigor of the forage stand
- ⇒ Maintain and improve water quality
- ⇒ Maintain or improve animal health and productivity.
- ⇒ Attain grazing and management efficiency to promote economic stability.

**Specifications:**

- ⇒ Pastures are managed to assure at least 6 tons of dry matter is produced per acre per year.
- ⇒ Pastures are reestablished when forage yields fall below 4 tons of dry matter per acre per year.
- ⇒ A rotational grazing system is used. There is 1 pasture units used in the system. A 21 day re-growth period is used during the normal years. During low rainfall years, the re-growth period varies between 30 to 35 days.
- ⇒ Noxious weeds such as Tansy Ragwort and Canada Thistle are controlled in accordance with an Integrated Pesticide Management Plan.
- ⇒ Pastures are clipped and dragged at least twice during the growing season.
- ⇒ Manure and commercial fertilizer applications are based on soil tests. Soil tests will be taken at least every 3 years. Nitrogen applications will not exceed 307 lbs. of nitrogen per acre per year unless soil tests and forage production justifies higher application rates.
- ⇒ Manure is applied to pastures in accordance with the enclosed Waste Utilization and Nutrient Management Specification Sheets.
- ⇒ Spring grazing is delayed until the grasses have at least 6 inches of growth and the soil is firm.
- ⇒ Pastures are not grazed below 2 inches any time during the growing season.

⇒ Livestock are removed from the pastures in the fall when the ground becomes wet and the grasses have at least 3 inches of growth going into the winter.

**DESIGN APPROVAL:**

This practice is classified as Job Class V

Design approved by: /s/ [Signature] Date: 11/3/02

Job Title: Basin Team Leader

**CLIENTS ACKNOWLEDGEMENT STATEMENT:**

The client acknowledges that:

- a. They have received a copy of this specification and understands the contents and requirements.
- b. It shall be the responsibility of the client to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to the application of this practice.

Accepted by: /s/ [Signature] Date: 11-3-02  
By Joan Mast

**CERTIFICATION:**

I have completed a review of the prescribed grazing practice and the specification's application and certify this practice has been applied.

Certification by: /s/ \_\_\_\_\_ Date: \_\_\_\_\_

Job Title: \_\_\_\_\_

## FORAGE HARVEST MANAGEMENT SPECIFICATION SHEET

CODE 511

Landowner/Operator: Marti Holstein Inc.

Job Location: T 3N; R 10W; NW 1/4 Sec. 26, 35, 36

County: Tillamook SWCD Tillamook Farm/Tract No. T-216, T-179, T-27

Field No. T-216 1,2,4,5,6,7 T-179 1,2,3,4,5 T-27 1,2

Prepared By: Pedersen Date: 09/02

### ⇒ Purpose:

- ⇒ Improve or maintain the health and vigor of the forage stand
- ⇒ Maintain and improve water quality
- ⇒ Maintain or improve animal health and productivity.
- ⇒ Attain management efficiency to promote economic stability.

### Specifications:

- ⇒ Hayland fields are managed to assure at least 6 tons of dry matter is produced per acre per year.
- ⇒ Hayland fields are reestablished when forage yields fall below 4 tons of dry matter per acre per year.
- ⇒ Harvesting newly seeded fields are delayed until the grasses have at least 8 inches of growth and are firmly rooted.
- ⇒ Harvesting established stands are delayed until grasses have at least 6 inches of growth and ground is firm.
- ⇒ Grasses are not cut if the grass height is less than 2 inches.
- ⇒ Harvesting is not done when the fields are saturated or ponded.
- ⇒ Noxious weeds such as Tansy Ragwort and Canada Thistle are controlled in accordance with an Integrated Pesticide Management Plan.
- ⇒ Manure and commercial fertilizer applications are based on soil tests. Soil tests will be taken at least every 3 years. Nitrogen applications will not exceed 307 lbs. of nitrogen per acre per year unless soil tests and forage production justifies higher application rates.
- ⇒ Manure is applied to hayland fields in accordance with the enclosed Waste Utilization Conservation Practice and Nutrient Management Job Sheets

⇒ Field will be grazed when the required amount of forage is harvested. Grazing will be in accordance with the enclosed Prescribed Grazing Specification Sheet Code 528A.

**DESIGN APPROVAL:**

This practice is classified as Job Class I

Design approved by: /s/ Robert A. Pedersen

Date: 08/02

Job Title: Basin Team Leader

**CLIENTS ACKNOWLEDGEMENT STATEMENT:**

The client acknowledges that:

- a. They have received a copy of this specification and understand the contents and requirements.
- b. It shall be the responsibility of the client to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to the application of this practice.

Accepted by: /s/ Mark Holsten

Date: 11-3-02

By Don Mason

**CERTIFICATION;**

I have completed a review of the forage harvest management practice and the specification's application and certify this practice has been applied.

Certification by: /s/ \_\_\_\_\_

Date: \_\_\_\_\_

Job Title: \_\_\_\_\_

**FILTER STRIP SPECIFICATION SHEET  
CODE 393**

Landowner/Operator: Marti Holstein Inc.

Job Location: T 3N; R 10W; Sec 26, 35, 36.

County: Tillamook SWCD Tillamook Farm/Tract No. T-216, 443, 628, 179

Field No. T-216 1,2,3,4,5,6 T-443 1,2,3,4 T-628 1 T-179 1,2,3,4,5

Prepared By: Pedersen Date 09/02

**Purpose: To reduce manure runoff into an adjacent open watercourse and the resulting fecal and organic contamination in the watercourse.**

**Specifications:**

- ⇒ A 30 foot grass filter strip will be maintained adjacent to the open watercourses that flow through the Tracts
- ⇒ No manure will be applied to the area.
- ⇒ Noxious weeds such as Tansy Ragwort and Canada Thistle are controlled in accordance with an Integrated Pesticide Management Plan.
- ⇒ Excessive accumulation of sediment and/or manure will be removed. The filter strip will be harrow at least once each year prior to May 1<sup>st</sup> to shape and maintain at least a 1 % grade sloping away from the existing open water courses. Filter strip grade will be maintained to allow the runoff to occur along the entire length of the filter strip and not occur in only certain areas of the filter strip.
- ⇒ Depressions will be prevented from forming in the filter strip area where manure and sediment can be trapped.
- ⇒ Debris will not be allowed to accumulate in the filter strip.
- ⇒ Filter strips will be mowed and or grazed at least twice during the growing season.
- ⇒ Grass will be at least 3 inches high by October 15<sup>th</sup>.

**DESIGN APPROVAL**

This practice is classified as Job Class II

Design approved by: /s/ Robert A. Pedersen

Date: 11/3/02

Job Title: Basin Team Leader

**Client Acknowledgement Statement:**

The client acknowledges that:

- a. They have received a copy of this specification and understands the contents and requirements.
- b. It shall be the responsibility of the client to obtain all necessary permits and/or rights, and to comply with all ordinances and laws pertaining to the application of this practice.

Accepted by: /s/ Mark Holderness Date: 11-3-02  
By Joanna

**Certification:**

I have completed a review and checked out the filter strip practice specifications and certify that the practice has been applied in accordance with specifications.

Certified by: /s/ \_\_\_\_\_ Date: \_\_\_\_\_

Job Title: \_\_\_\_\_

**UPLAND WILDLIFE HABITAT MANAGEMENT JOB SHEET**

**CODE 645**

Landowner/Operator: Matt Marti

Job Location: T 3N; R 10W; Sec 26 & NSE1/4 Sec. 36

County: Tillamook SWCD Tillamook Farm/Tract No. T-27, 216

Field No. Tract 27 Field #3 Tract 216 Fields 8,9

Prepared By Pedersen

Date 04/99

⇒ **Purpose:**

- ⇒ Provide a variety of food and cover for the salmonids populations that use the Nehalem River during portions of their life cycle by improving and maintaining riparian vegetation along the river.
- ⇒ Protect streambanks and open ditches from streambank erosion and provide shade to prevent water temperatures to increase.

**Specifications:**

- ⇒ The native plant species will be maintained.
- ⇒ The open watercourses will be fenced to exclude livestock from the plantings.
- ⇒ Noxious weeds such as Tansy Ragwort and Canada Thistle are controlled in accordance with an Integrated Pesticide Management Plan. Weeds will be controlled by pulling, cutting with brush tools, and or by biological control.
- ⇒ Manure will not be applied to the areas.

# SOIL AND MANURE SAMPLING INSTRUCTIONS FOR ANIMAL WASTE MANAGEMENT SYSTEMS

## SOIL SAMPLES

### Job Sheet 5

---

#### Spring Soil Samples

- Spring soil samples are to be collected the last 2 weeks of March or the first 2 weeks in April when soils are not saturated.
- Soil samples are to be collected on fields that have not received manure applications within the last 30 days.
- Collect several samples (about 10 one-fourth cup samples ) of soils from just below the thin sod layer to a depth of 6 to 9 inches and add to bucket.
- Mix the samples in the bucket and remove about 1 cup from the mixture and place into a sample bag.
- The bag should be labeled with ;
  - farm or operator name
  - sample date
  - field and tract (see NRCS plan map)
  - sample depth (0 to 9 inches)
  - soil type if determined
- Keep soil sample cool (small cooler with some ice) in the field until sample can be put in refrigerator or into freezer. Soil can be stored in refrigerator for up to 1 week or can be stored in a freezer for longer periods.
- Ship samples to lab ( see shipping instructions below).

#### Fall Soil Samples

- Fall soil samples are to be collected during the last 2 weeks in September or the first 2 weeks in October on soils that are not saturated.
- Soil samples are to be collected on fields that have received normal manure applications during the current year.
- Sample soils and ship as outlined in the spring soil sample section above.

## MANURE SAMPLES

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#### Liquid Manure Samples

- Liquid manure samples should be sampled after agitating the storage facility for the first application made in the spring (March-April) and for the last application in the fall (September-October).
- Put a bucket in the path of the gun or carefully take bucket sample of liquid manure from the liquid manure tank wagon .
- Fill a sample bottle with some of the liquid manure from the bucket and keep cool while in the field. (you can put the sample in a small cooler with some ice)
- Label the sample with the farm or operator name, date, and liquid manure sample.
- Freeze the sample until ready to ship to the lab.

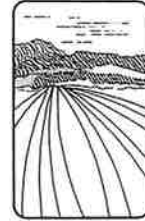


# Oregon

John A. Kitzhaber, M.D., Governor

Department of Agriculture

635 Capitol Street NE  
Salem, OR 97301-2532



June 13, 2001

Matt Marti  
Marti Holsteins, Inc.  
15400 Tideland Road  
Nehalem, Oregon 97131

Re: Construction of liquid manure storage tank

Dear Mr. Marti:

We have reviewed the material you provided on April 23, 2001, to support construction approval for a manure storage tank, and our conclusions follow.

**Construction Status: Approved**

You are hereby approved to construct a 100-ft diameter by 16-ft high reinforced concrete liquid manure holding tank, under the supervision and according to the plans and specifications of the USDA Natural Resources Conservation Service. You are also approved to install appurtenant pipelines and an agitator.

Thank you for your patience and cooperation with our construction approval process. If you have any questions, please call Livestock Water Quality Specialist Patricia Parrish at 503-842-6278.

Sincerely,

Joel D. Palmer, PE  
CAFO Program Administrator  
phone 503-986-4761  
fax 503-986-4730  
email jpalmer@oda.state.or.us

JDP/jp/cw

cc: Kent Perkins, NRCS Tillamook



CONSERVATION PRACTICES OPERATION AND MAINTENANCE

February 2001

AWMP # 0118

MARTI HOLSTEIN, INC.

**ABOVE GROUND LIQUID MANURE STORAGE FACILITY**

Facility will be pumped out within the first two years following construction to check for structural damage. All damages will be corrected. Thereafter, it will be pumped out at least every five years to check for damages and/or removal of rocks, gravel, wire and other debris. A one foot free board will be maintained to prevent spillage.

**WASTE TRANSFER PIPELINE**

Pipeline will be flushed regularly to prevent clogging. Any leaks or broken section will be repaired and/or replaced.

**AGITATOR**

Agitator will be operated and maintained in accordance with manufacturer's manual. Agitator will be inspected annually. Needed repairs will be made in a timely manner. Baling twine and wire will be removed from agitator.

RECEIVED

APR 23 2001

NATURAL RESOURCES  
DIVISION

JOEL -

4/19/01

INFO FOR CONSTRUCTION  
APPROVAL FOR AGLT  
AT MARTI HOLSTEIN INC.  
MATT MARTI  
15400 TIDELAND RD  
NEHALEM, OR 97131  
TILLAMOOK COUNTY

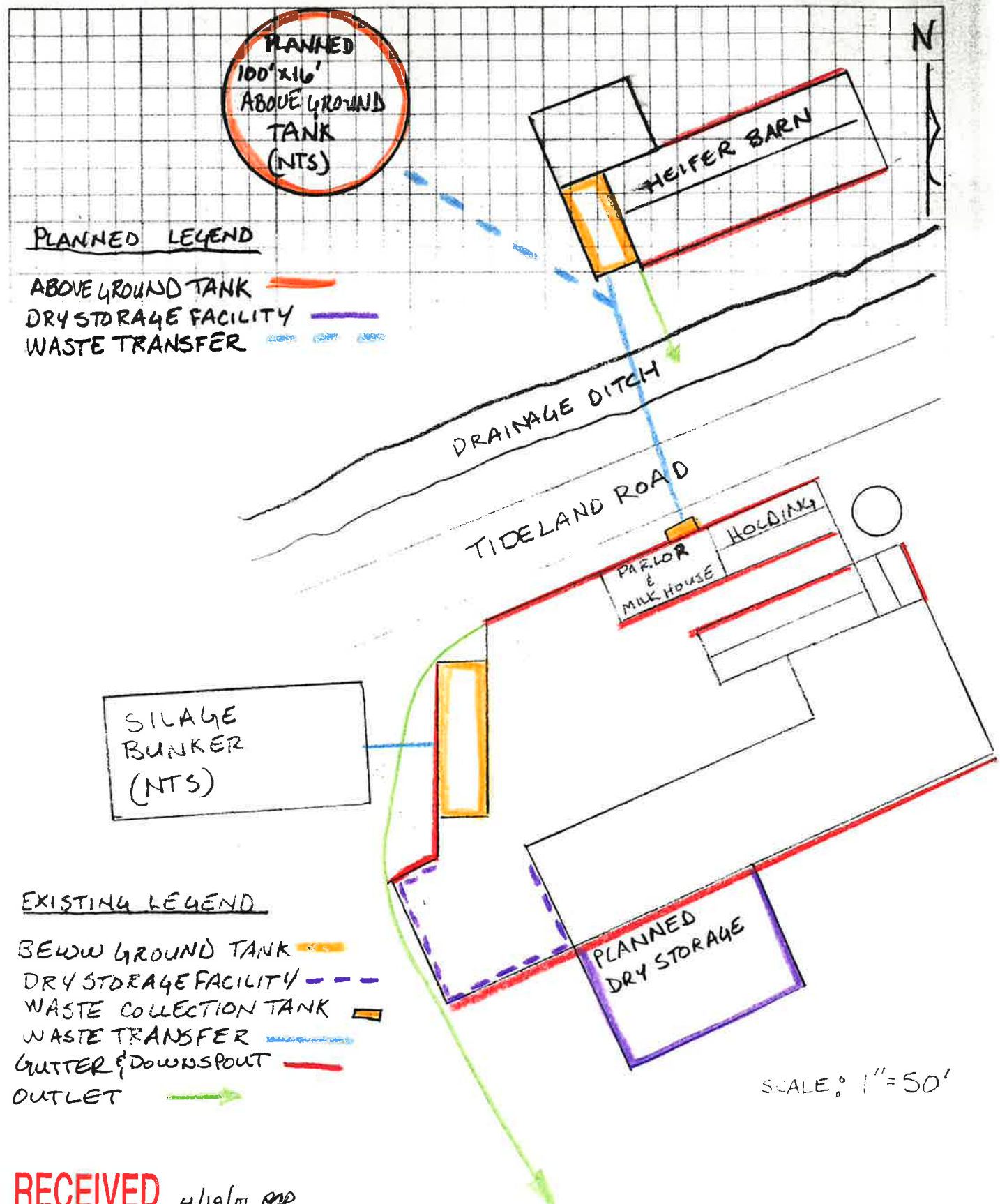
RECD IN OFFICE 4/19/01

PATRICIA

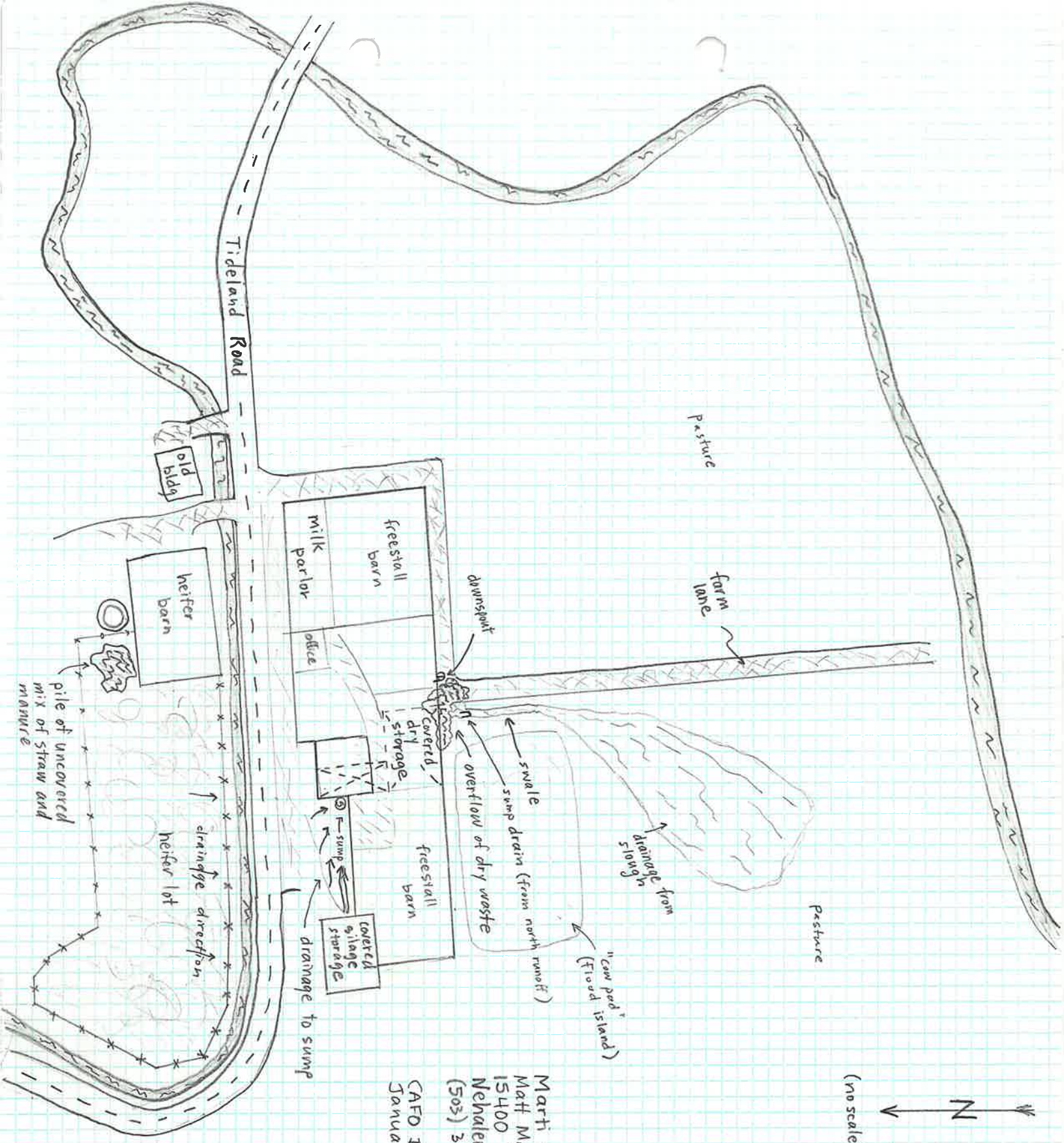
RECEIVED

4/19/01 POP  
TILLAMOOK

STATE	OREGON	PROJECT	MARTI HOUSTEIN		
BY	KMP	DATE	02-14-01	CHECKED BY	
SUBJECT		DATE		JOB NO.	
				SHEET	OF



**RECEIVED** 4/19/01 ROP  
TILMACK



Marti Holsteins Inc.  
 Matt Marti  
 15400 Tideland Road  
 Nehalem, OR 97131  
 (503) 368-5521  
 CAFO Inspection 98013  
 January 26, 1998

Pasture

(no scale)

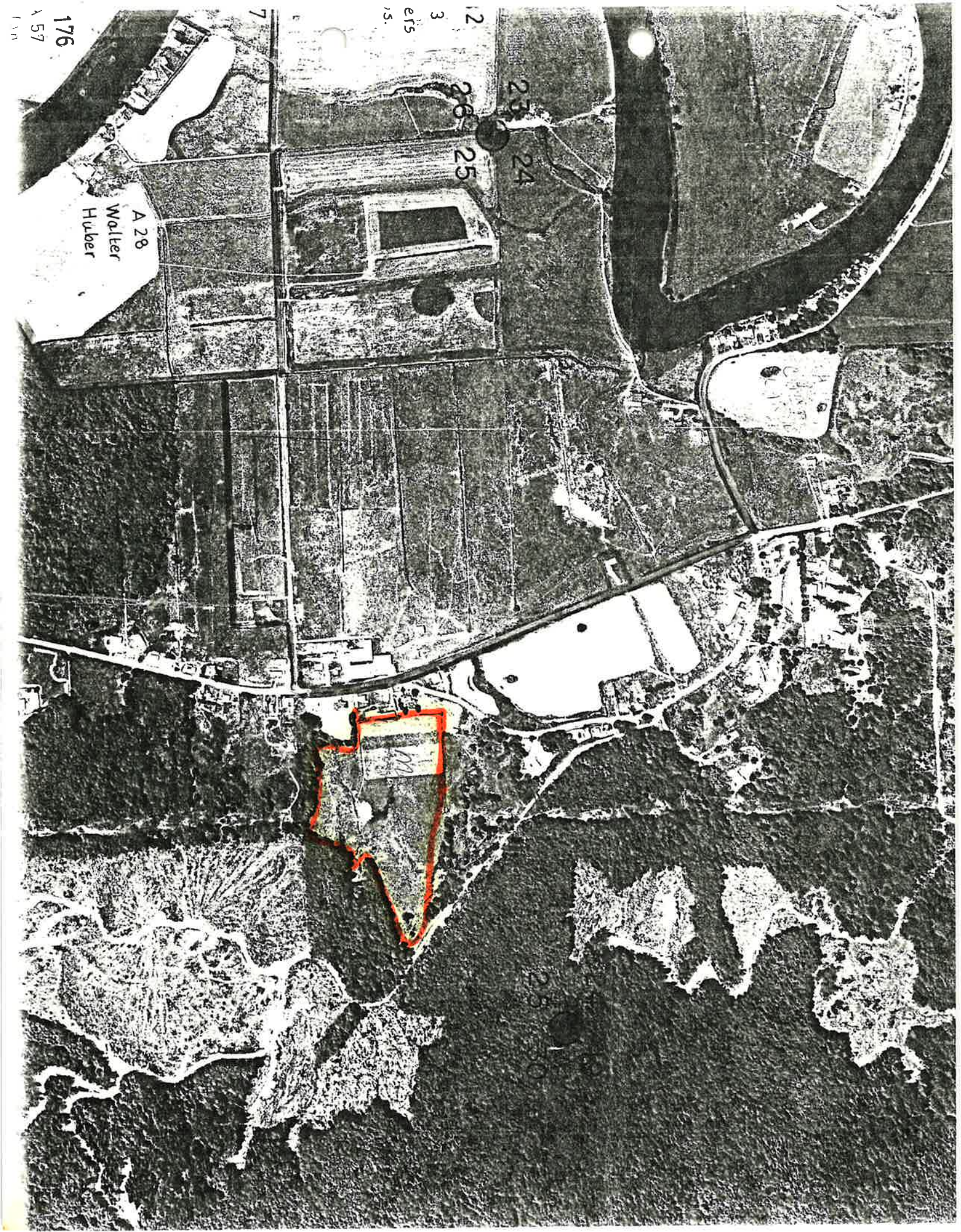


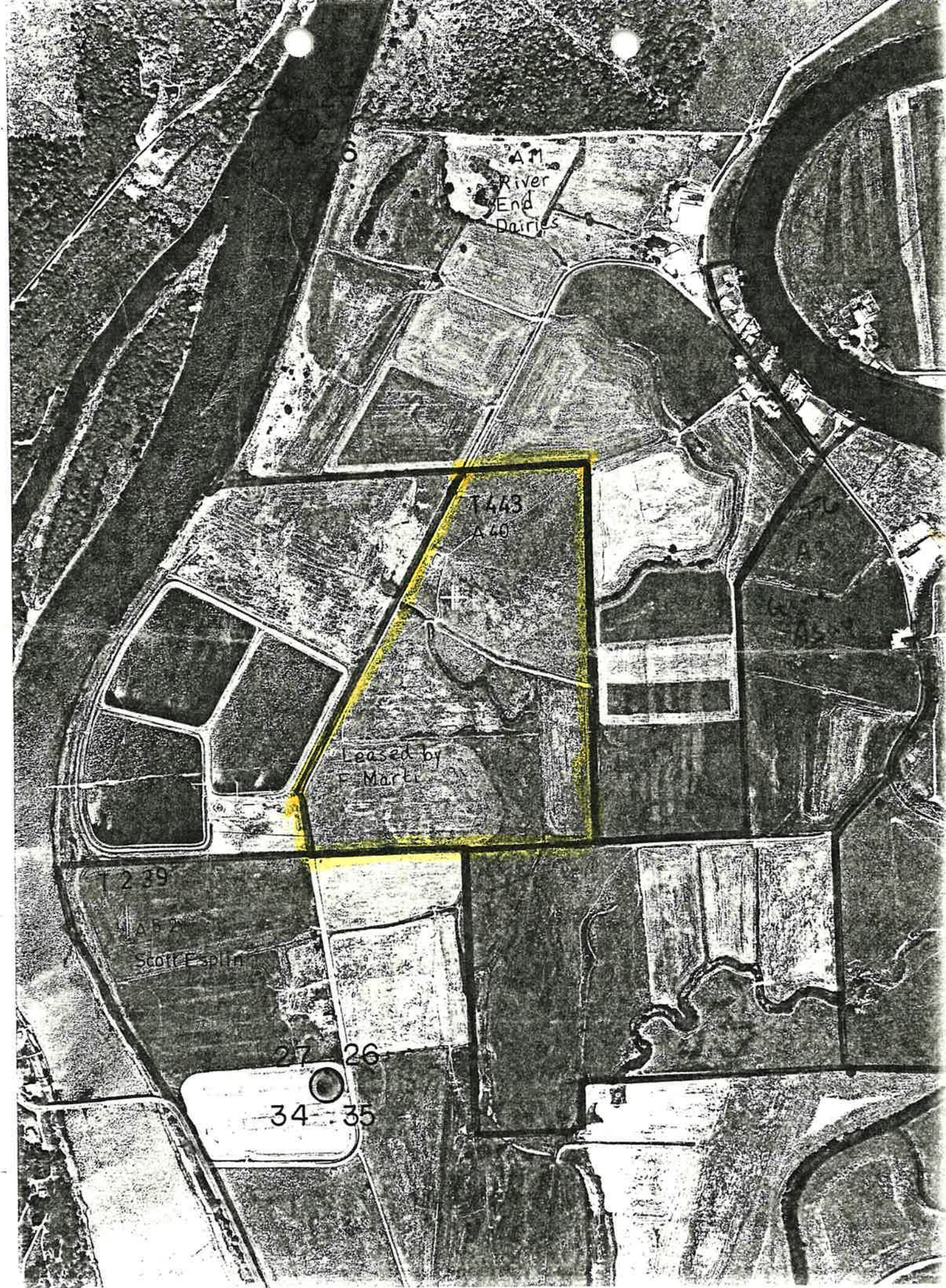
Pasture

farm lane

Pasture

Pasture





**CONSERVATION PLAN MAP**



Prepared by UNITED STATES DEPARTMENT of AGRICULTURE \* SOIL CONSERVATION SERVICE  
cooperating with

TILLAMOOK  
S. C. DISTRICT

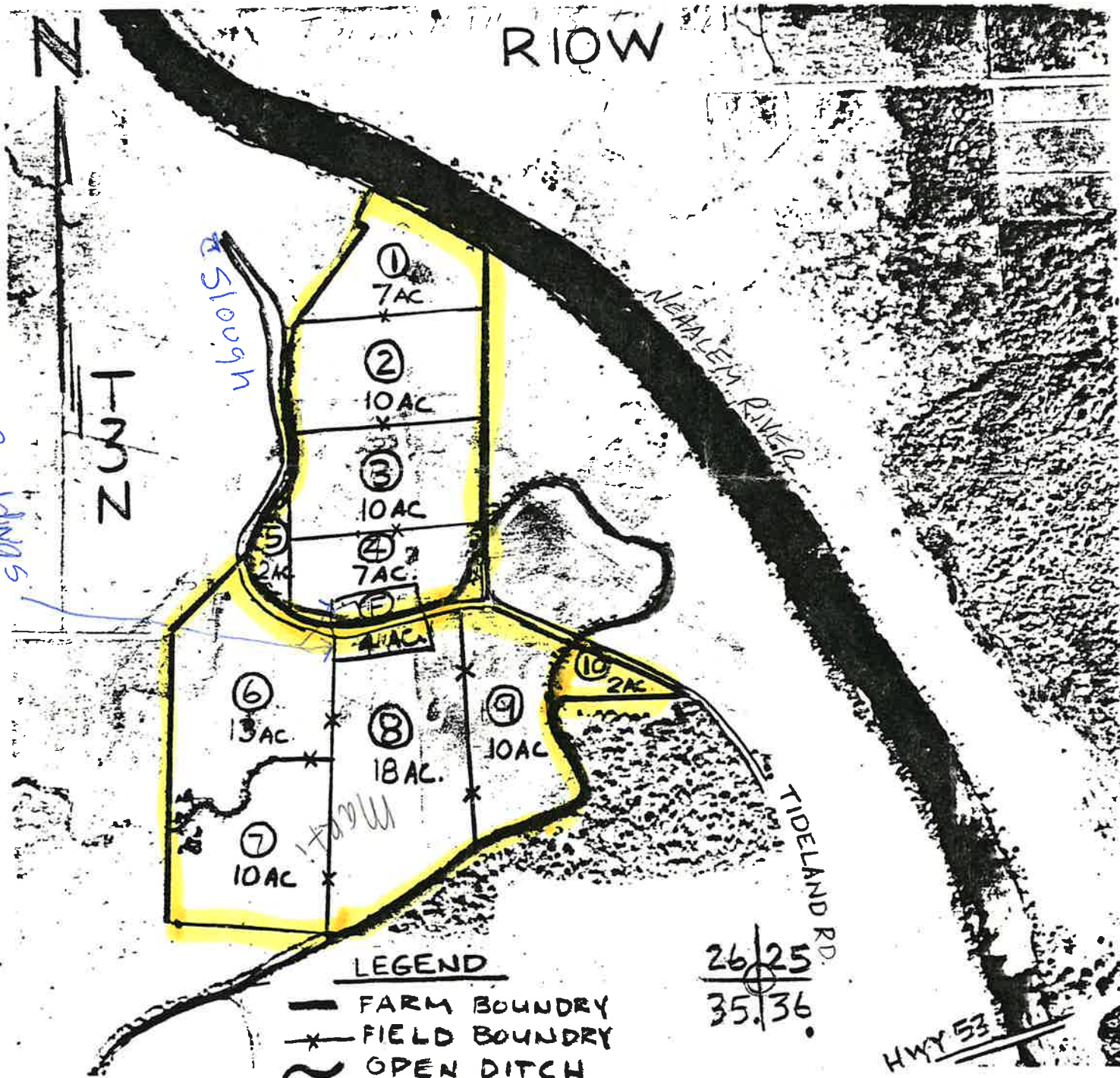
OWNER *Fritz Marti*  
OPERATOR *Same*  
TILLAMOOK  
COUNTY

FARM NO. *640* DATE *8/1/63*

SCALE *1"=660'* ACRES *93*

PHOTO NO. *BAT-A-611-21*

OREGON  
STATE



**LEGEND**

- FARM BOUNDARY
- \* FIELD BOUNDARY
- ~ OPEN DITCH
- ① FIELD NUMBER
- 7 AC APPROX ACRES

26 | 25  
35 | 36

HWY 53