
APPENDIX B

Toste Dairy NMP and WMP

This page intentionally
left blank.

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

DAIRY FACILITY INFORMATION

A. NAME OF DAIRY OR BUSINESS OPERATING THE DAIRY: Toste Dairy

Physical address of dairy:

609 Santa Fe Grade	Newman	Merced	95360
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address): _____

Date facility was originally placed in operation: 01/01/1965

Regional Water Quality Control Board Basin Plan designation: San Joaquin River Basin

County Assessor Parcel Number(s) for dairy facility:

0054-0090-0001-0000

B. OPERATOR NAME: Toste, John Telephone no.: (209) 862-1812

Landline	Cellular
----------	----------

609 Santa Fe Grade RD	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Operator should receive Regional Board correspondence (check): ☒ Yes ☐ No

OPERATOR NAME: Toste, Sandra Telephone no.: (209) 862-1812

Landline	Cellular
----------	----------

609 Santa Fe Grade RD	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Operator should receive Regional Board correspondence (check): ☐ Yes ☒ No

C. LEGAL OWNER NAME: Toste, John Telephone no.: (209) 862-1812

Landline	Cellular
----------	----------

609 Santa Fe Grade RD	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Owner should receive Regional Board correspondence (check): ☒ Yes ☐ No

LEGAL OWNER NAME: Toste, Sandra Telephone no.: (209) 862-1812

Landline	Cellular
----------	----------

609 Santa Fe Grade RD	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Owner should receive Regional Board correspondence (check): ☐ Yes ☒ No

D. CONTACT NAME: Ramos, Joe Telephone no.: (209) 250-2471 (209) 226-2375

Landline	Cellular
----------	----------

Title: Technical Service Provider

2857 Geer RD, STE A	Turlock	CA	95382
Mailing Address Number and Street	City	State	Zip Code

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

DAIRY FACILITY INFORMATION

A. NAME OF DAIRY OR BUSINESS OPERATING THE DAIRY: Toste Dairy

Physical address of dairy:

609 Santa Fe Grade	Newman	Merced	95360
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address): _____

Date facility was originally placed in operation: 01/01/1965

Regional Water Quality Control Board Basin Plan designation: San Joaquin River Basin

County Assessor Parcel Number(s) for dairy facility:

0054-0090-0001-0000

B. OPERATOR NAME: Toste, John Telephone no.: (209) 862-1812

Landline	Cellular
----------	----------

609 Santa Fe Grade RD	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Operator should receive Regional Board correspondence (check): ☒ Yes ☐ No

OPERATOR NAME: Toste, Sandra Telephone no.: (209) 862-1812

Landline	Cellular
----------	----------

609 Santa Fe Grade RD	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Operator should receive Regional Board correspondence (check): ☐ Yes ☒ No

C. LEGAL OWNER NAME: Toste, John Telephone no.: (209) 862-1812

Landline	Cellular
----------	----------

609 Santa Fe Grade RD	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Owner should receive Regional Board correspondence (check): ☒ Yes ☐ No

LEGAL OWNER NAME: Toste, Sandra Telephone no.: (209) 862-1812

Landline	Cellular
----------	----------

609 Santa Fe Grade RD	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Owner should receive Regional Board correspondence (check): ☐ Yes ☒ No

D. CONTACT NAME: Ramos, Joe Telephone no.: (209) 250-2471 (209) 226-2375

Landline	Cellular
----------	----------

Title: Technical Service Provider

2857 Geer RD, STE A	Turlock	CA	95382
Mailing Address Number and Street	City	State	Zip Code

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

AVAILABLE NUTRIENTS

A. HERD INFORMATION

The milk cow dairy is currently regulated under individual Waste Discharge Requirements.

Total number of milk and dry cows combined as a baseline value in response to the Report of Waste Discharge (ROWD) request of October, 2005:

3,000 milk and dry cows combined (regulatory review is required for any expansion)

	Milk Cows	Dry Cows	Bred Heifers (15-24 mo.)	Heifers (7-14 mo. to breeding)	Calves (4-6 mo.)	Calves (0-3 mo.)
Present count	2,500	500	0	2,550	400	0
Maximum count	2,500	500	0	2,550	400	0
Avg live weight (lbs)	1,400	1,400	0	700		
Daily hours on flush	20	20	0	0	0	0

Predominant milk cow breed: Holstein

Average milk production: 68 pounds per cow per day

B. IRRIGATION SOURCES

Irrigation Source Name	Type	Nitrogen (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Discharge Rate
CCID Canal	Surface water (canal, river)	0.40	0.00	0.00	15 cfs
CCID Canal	Surface water (canal, river)	1.44			6 cfs

C. NUTRIENT IMPORTS

Nutrient Type/Name	Quantity	Moisture	Nitrogen	Phosphorus (as P2O5)	Potassium (as K2O)
UN 32	17.35 ton	0.1%	32.000%	0.000%	0.000%

Total nitrogen imported: 11,092.90 lbs

Total phosphorus imported: 0.00 lbs

Total potassium imported: 0.00 lbs

D. NUTRIENT EXPORTS

Nutrient Type/Name	Quantity	Moisture	Nitrogen	Phosphorus (as P2O5)	Potassium (as K2O)
Fall Settling Basin	7,300.00 ton	70.0%	2.700%	1.100%	1.300%
Sprng Settling Basin	7,300.00 ton	25.0%	1.500%	0.900%	1.000%
Spring Corral Solids	5,200.00 ton	20.0%	3.300%	1.750%	2.200%
Fall Corral Solids	5,200.00 ton	50.0%	2.750%	1.500%	2.000%

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

Total nitrogen exported: 700,070.00 lbs

Total phosphorus exported: 161,834.21 lbs

Total potassium exported: 376,388.40 lbs

E. STORAGE PERIOD

Storage period is the maximum period of time anticipated between land application of process wastewater (from storage ponds/lagoons) to croplands. A qualified agronomist and civil engineer should collaborate and collectively consider predominant soil types, soil infiltration rates, maximum depth, available water, field capacity, permanent wilting point, allowable depletion, crop water use, evapotranspiration, precipitation, irrigation system capacity, water delivery constraints, crop nutrient requirements, soil nutrient adsorption/desorption, rooting depth, nutrient accumulation/availability for current and future crop needs, facility wide process wastewater storage capacity and other factors as deemed necessary across all croplands where process wastewater is applied in selecting a storage period. In many cases conflicts will arise between crop water demands, crop nutrient demands and insufficient process wastewater storage capacity. Process wastewater may not be the best choice as a source of either water and/or nutrients to meet crop demands throughout the year. Groundwater and surface water vulnerability has been considered.

The storage period selected in this Nutrient Management Plan is consistent with the storage period selected in the Waste Management Plan.

Storage period: 120 days

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

APPLICATION AREA

A. ASSESSOR PARCEL NUMBER: 0026-0016-0032-0000

Legal owner of parcel:	<u>Trucking Inc., Five JS</u>	Telephone no.:	<u>(209) 854-6038</u>
		Landline	Cellular
<u>1240 Brentwood AVE</u>	<u>Gustine</u>	<u>CA</u>	<u>95322</u>
Mailing Address Number and Street	City	State	Zip Code

ASSESSOR PARCEL NUMBER: 0026-0016-0033-0000

Legal owner of parcel:	<u>Trucking Inc., Five JS</u>	Telephone no.:	<u>(209) 854-6038</u>
		Landline	Cellular
<u>1240 Brentwood AVE</u>	<u>Gustine</u>	<u>CA</u>	<u>95322</u>
Mailing Address Number and Street	City	State	Zip Code

ASSESSOR PARCEL NUMBER: 0054-0090-0001-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0054-0090-0004-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0054-0100-0018-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0054-0100-0023-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0054-0100-0030-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0054-0130-0005-0000

Legal owner of parcel:	<u>Azevedo, Elmer & Julia</u>	Telephone no.:	<u>(209) 862-2373</u>
		Landline	Cellular
<u>P.O. Box 187</u>	<u>Gustine</u>	<u>CA</u>	<u>95322</u>
Mailing Address Number and Street	City	State	Zip Code

ASSESSOR PARCEL NUMBER: 0128-0023-0002-0000

Legal owner of parcel:	<u>Trucking Inc., Five JS</u>	Telephone no.:	<u>(209) 854-6038</u>
		Landline	Cellular
<u>1240 Brentwood AVE</u>	<u>Gustine</u>	<u>CA</u>	<u>95322</u>
Mailing Address Number and Street	City	State	Zip Code

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

B. FIELD NAME: Azevedo

Cropable acres: 18

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? ☐ Yes ☒ No

Can fresh water for irrigation purposes be delivered to the field year round? ☐ Yes ☒ No

Can process wastewater be delivered to the field at agronomic rates and times? ☐ Yes ☒ No

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	18
Corn, silage	Late May	Late September	18

FIELD NAME: Azevedo Home - 6

Cropable acres: 22

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? ☐ Yes ☒ No

Can fresh water for irrigation purposes be delivered to the field year round? ☐ Yes ☒ No

Can process wastewater be delivered to the field at agronomic rates and times? ☒ Yes ☐ No

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	22
Corn, silage	Late May	Late September	22

FIELD NAME: Botelho Back 40 - 3

Cropable acres: 36

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? ☐ Yes ☒ No

Can fresh water for irrigation purposes be delivered to the field year round? ☐ Yes ☒ No

Can process wastewater be delivered to the field at agronomic rates and times? ☒ Yes ☐ No

Tailwater management method: Returned to retention pond

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	36
Corn, silage	Late May	Late September	36

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

FIELD NAME: Botelho East - 5

Cropable acres: 21

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? ☐ Yes ☒ No

Can fresh water for irrigation purposes be delivered to the field year round? ☐ Yes ☒ No

Can process wastewater be delivered to the field at agronomic rates and times? ☒ Yes ☐ No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	21
Corn, silage	Late May	Late September	21

FIELD NAME: Botelho Pasture - 4

Cropable acres: 21

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? ☐ Yes ☒ No

Can fresh water for irrigation purposes be delivered to the field year round? ☐ Yes ☒ No

Can process wastewater be delivered to the field at agronomic rates and times? ☒ Yes ☐ No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Alfalfa, hay	Early September	Early October	21

FIELD NAME: Costa

Cropable acres: 83

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? ☐ Yes ☒ No

Can fresh water for irrigation purposes be delivered to the field year round? ☒ Yes ☐ No

Can process wastewater be delivered to the field at agronomic rates and times? ☒ Yes ☐ No

Tailwater management method: Returned to retention pond

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	83
Corn, silage	Late May	Late September	83

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

FIELD NAME: Creamery

Cropable acres: 37

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? [] Yes [X] No

Can fresh water for irrigation purposes be delivered to the field year round? [] Yes [X] No

Can process wastewater be delivered to the field at agronomic rates and times? [] Yes [X] No

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	37
Corn, silage	Late May	Late September	37

FIELD NAME: Home 1-2

Cropable acres: 75

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? [] Yes [X] No

Can fresh water for irrigation purposes be delivered to the field year round? [] Yes [X] No

Can process wastewater be delivered to the field at agronomic rates and times? [X] Yes [] No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	75
Corn, silage	Late May	Late September	75

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

C. LAND APPLICATION AREA FIELDS AND PARCELS

Field name	Cropable acres	Total harvests	Parcel number
Azevedo	18	2	0054-0130-00050000
Azevedo Home - 6	22	2	0054-0090-00040000
Botelho Back 40 - 3	36	2	0054-0100-00300000
Botelho East - 5	21	2	0054-0100-00300000
Botelho Pasture - 4	21	7	0054-0100-00300000
Costa	83	2	0054-0100-00180000
Creamery	37	2	0026-0016-00320000
			0026-0016-00330000
			0128-0023-00020000
Home 1-2	75	2	0054-0090-00010000
			0054-0100-00230000
Land application area totals	462	27	

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET

A. NUTRIENT BUDGET FOR CROP: Azevedo / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure	1	190.0	60.0	180.0	190.0
<i>Nutrient source:</i> From dairy					
<i>Application method:</i> Broadcast/incorporate		50%	80%	80%	
In season irrigation (no fertilizer)	1	0.0	0.0	0.0	1.9
<i>Nutrient source:</i> Water only		0%	0%	0%	
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	18.0	
	1.9	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	1.9	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	190.0	60.0	180.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	198.9	60.0	180.0
Potential crop nutrient removal	150.0	24.0	124.5
Nutrient balance	48.9	36.0	55.5
Applied to removal ratio	1.33	2.50	1.45

Fresh water applied: 0.50 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Azevedo / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure	1	175.0	56.0	162.0	175.0
<i>Nutrient source:</i> From dairy		50%	80%	80%	
<i>Application method:</i> Broadcast/incorporate					
Pre-irrigation prior to planting (no fertilizer)	1	0.0	0.0	0.0	2.6
<i>Nutrient source:</i> Water only		0%	0%	0%	
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.6	0.0	0.0	24.0	
	2.6	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Azevedo / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (no fertilizer)	4	0.0	0.0	0.0	6.9
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	16.0	
	1.7	0.0	0.0		
In season irrigation (with fertilizer)	2	32.0	0.0	0.0	67.5
Nutrient source: Commercial fertilizer		100%	0%	0%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	16.0	
	1.7	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	12.9	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	64.0	0.0	0.0
Dry manure	175.0	56.0	162.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	258.9	56.0	162.0
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	66.9	20.0	3.6
Applied to removal ratio	1.35	1.56	1.02

Fresh water applied: 3.31 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Azevedo Home - 6 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	120.0	15.0	140.0	122.1
Nutrient source: Retention pond (lagoon)		50%	90%	90%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.1	0.0	0.0	24.0	
	2.1	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Azevedo Home - 6 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	1	75.0	10.0	90.0	77.1
Nutrient source: Retention pond (lagoon)		50%	90%	90%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.1	0.0	0.0	24.0	
	2.1	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	4.2	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	195.0	25.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	206.2	25.0	230.0
Potential crop nutrient removal	150.0	24.0	124.5
Nutrient balance	56.2	1.0	105.5
Applied to removal ratio	1.37	1.04	1.85

Fresh water applied: 1.08 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Azevedo Home - 6 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	95.0	16.0	100.0	97.1
Nutrient source: Retention pond (lagoon)		50%	90%	90%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.1	0.0	0.0	24.0	
	2.1	0.0	0.0		
In season irrigation (no fertilizer)	3	0.0	0.0	0.0	5.6
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	21.0	
	1.9	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Azevedo Home - 6 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	2	60.0	10.0	65.0	123.7
<i>Nutrient source:</i> Retention pond (lagoon)		50%	90%	90%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	21.0	
	1.9	0.0	0.0		
In season irrigation (with fertilizer)	1	32.0	0.0	0.0	33.9
<i>Nutrient source:</i> Commercial fertilizer		100%	0%	0%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	21.0	
	1.9	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	13.2	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	32.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	215.0	36.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	267.2	36.0	230.0
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	75.2	0.0	71.6
Applied to removal ratio	1.39	1.00	1.45

Fresh water applied: 3.38 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Botelho Back 40 - 3 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	120.0	15.0	140.0	121.9
<i>Nutrient source:</i> Retention pond (lagoon)		50%	90%	90%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	36.0	
	1.9	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Botelho Back 40 - 3 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	1	75.0	10.0	90.0	76.9
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal		1.9	0.0	0.0	36.0
		1.9	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	3.9	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	195.0	25.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	205.9	25.0	230.0
Potential crop nutrient removal	150.0	24.0	124.5
Nutrient balance	55.9	1.0	105.5
Applied to removal ratio	1.37	1.04	1.85

Fresh water applied: 0.99 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Botelho Back 40 - 3 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	95.0	16.0	100.0	96.9
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal		1.9	0.0	0.0	36.0
		1.9	0.0	0.0	
In season irrigation (no fertilizer)	3	0.0	0.0	0.0	5.2
<i>Nutrient source:</i> Water only					
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal		1.7	0.0	0.0	32.0
		1.7	0.0	0.0	

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Botelho Back 40 - 3 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	2	60.0	10.0	65.0	123.5
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	32.0	
	1.7	0.0	0.0		
In season irrigation (with fertilizer)	1	32.0	0.0	0.0	33.7
<i>Nutrient source:</i> Commercial fertilizer					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	32.0	
	1.7	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	12.3	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	32.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	215.0	36.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	266.3	36.0	230.0
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	74.3	0.0	71.6
Applied to removal ratio	1.39	1.00	1.45

Fresh water applied: 3.14 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Botelho East - 5 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	120.0	15.0	140.0	122.2
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.2	0.0	0.0	24.0	
	2.2	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Botelho East - 5 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	1	75.0	10.0	90.0	77.2
<i>Nutrient source:</i> Retention pond (lagoon)		50%	90%	90%	
<i>Application method:</i> Pipeline					
<i>Irrigation Source</i>		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.2	0.0	0.0		24.0
	2.2	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	4.4	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	195.0	25.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	206.4	25.0	230.0
Potential crop nutrient removal	150.0	24.0	124.5
Nutrient balance	56.4	1.0	105.5
Applied to removal ratio	1.38	1.04	1.85

Fresh water applied: 1.13 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Botelho East - 5 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	95.0	16.0	100.0	97.2
<i>Nutrient source:</i> Retention pond (lagoon)		50%	90%	90%	
<i>Application method:</i> Pipeline					
<i>Irrigation Source</i>		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.2	0.0	0.0		24.0
	2.2	0.0	0.0		
In season irrigation (no fertilizer)	3	0.0	0.0	0.0	5.8
<i>Nutrient source:</i> Water only		0%	0%	0%	
<i>Application method:</i> Surface					
<i>Irrigation Source</i>		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0		21.0
	1.9	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Botelho East - 5 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	2	60.0	10.0	65.0	123.9
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
<i>Irrigation Source</i>					
<i>CCID Canal</i>					
	1.9	0.0	0.0	21.0	
	1.9	0.0	0.0		
In season irrigation (with fertilizer)	1	32.0	0.0	0.0	33.9
<i>Nutrient source:</i> Commercial fertilizer					
<i>Application method:</i> Pipeline					
<i>Irrigation Source</i>					
<i>CCID Canal</i>					
	1.9	0.0	0.0	21.0	
	1.9	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	13.9	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	32.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	215.0	36.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	267.9	36.0	230.0
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	75.9	0.0	71.6
Applied to removal ratio	1.40	1.00	1.45

Fresh water applied: 3.54 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Botelho Pasture - 4 / Alfalfa, hay

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure	1	195.0	60.0	180.0	195.0
<i>Nutrient source:</i> From dairy					
<i>Application method:</i> Broadcast/incorporate					
		50%	90%	90%	

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Botelho Pasture - 4 / Alfalfa, hay

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (no fertilizer)	7	0.0	0.0	0.0	15.5
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.2	0.0	0.0	24.0	
	2.2	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	15.5	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	195.0	60.0	180.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	14.0		
Nutrients applied	224.5	60.0	180.0
Potential crop nutrient removal	450.0	40.5	315.0
Nutrient balance	-225.5	19.5	-135.0
Applied to removal ratio	0.50	1.48	0.57

Fresh water applied: 3.97 feet Total harvests: 7

NUTRIENT BUDGET FOR CROP: Costa / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	120.0	15.0	140.0	121.7
Nutrient source: Retention pond (lagoon)		50%	90%	90%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	72.0	
	1.7	0.0	0.0		
In season irrigation (with fertilizer)	1	75.0	10.0	90.0	76.7
Nutrient source: Retention pond (lagoon)		50%	90%	90%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	72.0	
	1.7	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	3.4	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	195.0	25.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	205.4	25.0	230.0
Potential crop nutrient removal	150.0	24.0	124.5
Nutrient balance	55.4	1.0	105.5
Applied to removal ratio	1.37	1.04	1.85

Fresh water applied: 0.86 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Costa / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	95.0	16.0	100.0	97.0
<i>Nutrient source:</i> Retention pond (lagoon)		50%	90%	90%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.0	0.0	0.0		84.0
	2.0	0.0	0.0		
In season irrigation (no fertilizer)	3	0.0	0.0	0.0	5.1
<i>Nutrient source:</i> Water only		0%	0%	0%	
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0		72.0
	1.7	0.0	0.0		
In season irrigation (with fertilizer)	2	60.0	10.0	65.0	123.4
<i>Nutrient source:</i> Retention pond (lagoon)		50%	90%	90%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0		72.0
	1.7	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Costa / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	1	32.0	0.0	0.0	33.7
<i>Nutrient source:</i> Commercial fertilizer					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal		1.7	0.0	0.0	72.0
		1.7	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	12.1	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	32.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	215.0	36.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	266.1	36.0	230.0
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	74.1	0.0	71.6
Applied to removal ratio	1.39	1.00	1.45

Fresh water applied: 3.08 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Creamery / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure	1	190.0	60.0	180.0	190.0
<i>Nutrient source:</i> From dairy					
<i>Application method:</i> Broadcast/incorporate					
In season irrigation (no fertilizer)	1	0.0	0.0	0.0	2.2
<i>Nutrient source:</i> Water only					
<i>Application method:</i> Surface					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.2	0.0	0.0	42.0
	2.2	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	2.2	0.0	0.0

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	190.0	60.0	180.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	199.2	60.0	180.0
Potential crop nutrient removal	150.0	24.0	124.5
Nutrient balance	49.2	36.0	55.5
Applied to removal ratio	1.33	2.50	1.45

Fresh water applied: 0.56 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Creamery / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure	1	175.0	56.0	162.0	175.0
<i>Nutrient source:</i> From dairy		50%	80%	80%	
<i>Application method:</i> Broadcast/incorporate					
Pre-irrigation prior to planting (no fertilizer)	1	0.0	0.0	0.0	2.5
<i>Nutrient source:</i> Water only		0%	0%	0%	
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.5	0.0	0.0		48.0
	2.5	0.0	0.0		
In season irrigation (no fertilizer)	4	0.0	0.0	0.0	6.7
<i>Nutrient source:</i> Water only		0%	0%	0%	
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0		32.0
	1.7	0.0	0.0		
In season irrigation (with fertilizer)	2	32.0	0.0	0.0	67.4
<i>Nutrient source:</i> Commercial fertilizer		100%	0%	0%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0		32.0
	1.7	0.0	0.0		
		Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	
Irrigation sources		12.6	0.0	0.0	

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	64.0	0.0	0.0
Dry manure	175.0	56.0	162.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	258.6	56.0	162.0
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	66.6	20.0	3.6
Applied to removal ratio	1.35	1.56	1.02

Fresh water applied: 3.22 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Home 1-2 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	120.0	15.0	140.0	121.9
<i>Nutrient source:</i> Retention pond (lagoon)		50%	90%	90%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	72.0	
	1.9	0.0	0.0		
In season irrigation (with fertilizer)	1	75.0	10.0	90.0	76.9
<i>Nutrient source:</i> Retention pond (lagoon)		50%	90%	90%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	72.0	
	1.9	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	3.7	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	195.0	25.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	205.7	25.0	230.0
Potential crop nutrient removal	150.0	24.0	124.5

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

Nutrient balance	55.7	1.0	105.5
Applied to removal ratio	1.37	1.04	1.85

Fresh water applied: 0.95 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Home 1-2 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	95.0	16.0	100.0	97.2
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source					
CCID Canal					
	2.2	0.0	0.0	84.0	
	2.2	0.0	0.0		
In season irrigation (no fertilizer)	3	0.0	0.0	0.0	5.6
<i>Nutrient source:</i> Water only					
<i>Application method:</i> Surface					
Irrigation Source					
CCID Canal					
	1.9	0.0	0.0	72.0	
	1.9	0.0	0.0		
In season irrigation (with fertilizer)	2	60.0	10.0	65.0	123.7
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source					
CCID Canal					
	1.9	0.0	0.0	72.0	
	1.9	0.0	0.0		
In season irrigation (with fertilizer)	1	32.0	0.0	0.0	33.9
<i>Nutrient source:</i> Commercial fertilizer					
<i>Application method:</i> Pipeline					
Irrigation Source					
CCID Canal					
	1.9	0.0	0.0	72.0	
	1.9	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	13.4	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	32.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	215.0	36.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	267.4	36.0	230.0

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

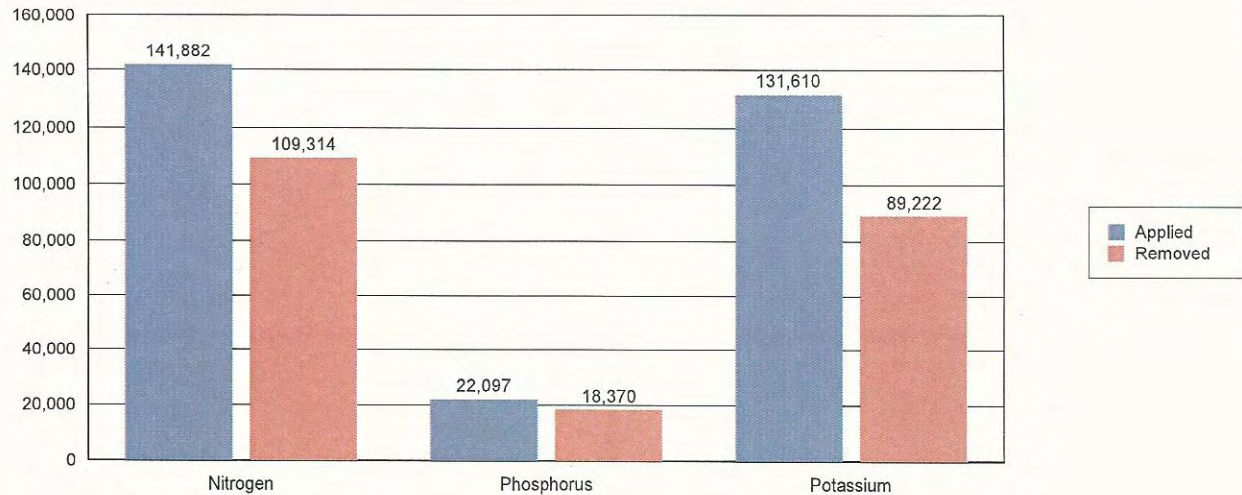
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	75.4	0.0	71.6
Applied to removal ratio	1.39	1.00	1.45

Fresh water applied: 3.41 feet Total harvests: 1

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT APPLICATIONS, POTENTIAL REMOVAL, AND BALANCE

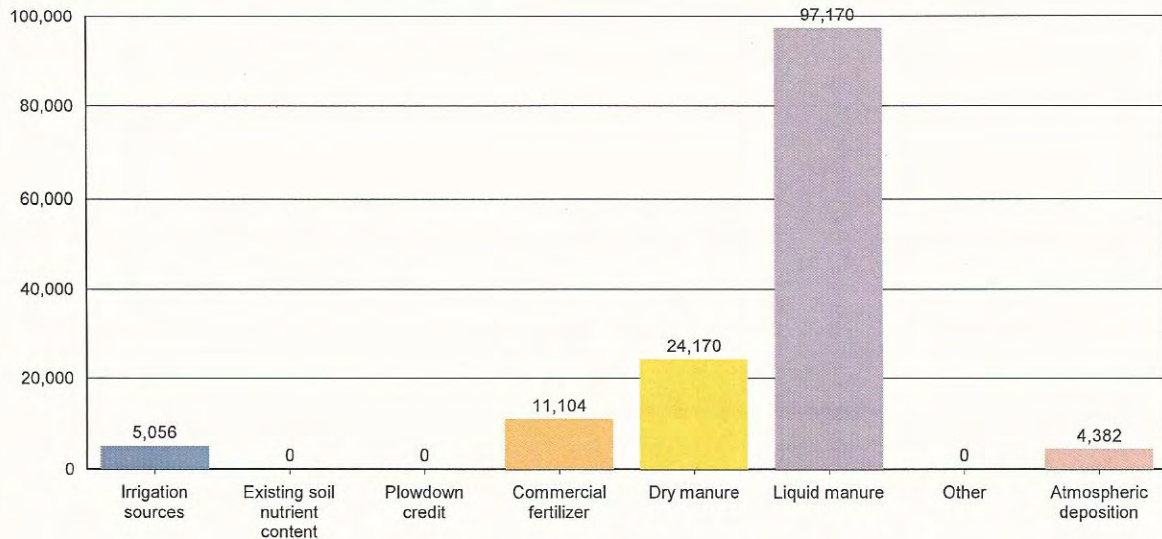
A. POUNDS OF NUTRIENT APPLIED VS. CROP REMOVAL POTENTIAL



	Total N (lbs)	Total P (lbs)	Total K (lbs)
Irrigation sources	5,056.1	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	11,104.0	0.0	0.0
Dry manure	24,170.0	7,640.0	22,590.0
Liquid manure	97,170.0	14,457.0	109,020.0
Other	0.0	0.0	0.0
Atmospheric deposition	4,382.0		
Nutrients applied to all crops	141,882.1	22,097.0	131,610.0
Potential crop nutrient removal	109,314.0	18,370.5	89,221.8
Nutrient balance	32,568.1	3,726.5	42,388.2
Applied to removal ratio	1.30	1.20	1.48

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

B. POUNDS OF NITROGEN APPLIED BY NUTRIENT SOURCE



	Total N (lbs)	Total P (lbs)	Total K (lbs)
Irrigation sources	5,056.1	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	11,104.0	0.0	0.0
Dry manure	24,170.0	7,640.0	22,590.0
Liquid manure	97,170.0	14,457.0	109,020.0
Other	0.0	0.0	0.0
Atmospheric deposition	4,382.0		
Nutrients applied to all crops	141,882.1	22,097.0	131,610.0
Potential crop nutrient removal	109,314.0	18,370.5	89,221.8
Nutrient balance	32,568.1	3,726.5	42,388.2
Applied to removal ratio	1.30	1.20	1.48

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BALANCE

A. WHOLE FARM BALANCE

	Total N (lbs)	Total P (lbs)	Total K (lbs)
Nutrients in storage from herd*			
Daily gross	3,245.1	534.2	1,302.7
Annual gross	1,184,462.9	194,977.3	475,488.1
Net to pond storage after ammonia losses (30% loss applied)	537,849.6	127,149.1	396,240.1
Net to drylot storage after ammonia losses (30% loss applied)	291,274.4	67,828.2	79,248.0
Net in storage (30% loss applied)	829,124.1	194,977.3	475,488.1
Irrigation sources	5,056.1	0.0	0.0
Atmospheric deposition	4,382.0		
Imports	11,092.9	0.0	0.0
Exports	700,070.0	161,834.2	376,388.4
Potential crop nutrient removal	109,314.0	18,370.5	89,221.8
Nutrient balance	40,271.1	14,772.6	9,877.9
Nutrient balance ratio	1.37	1.80	1.11

* Potassium excretion from milk cows and dry cows only.

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

SAMPLING AND ANALYSIS PLAN

A. MANURE SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Annually	<p>Annual estimation for total manure dry weight applied to each field will be quantified using the following:</p> <p>Dry weight applied from a source to a crop per application event = weight applied * (1 - (percent moisture / 100))</p> <p>Dry weight applied to crop per application event = sum of dry weights applied from each source</p> <p>Dry weight applied to a crop = sum of dry weights applied during each application</p> <p>Dry weight applied to a field = sum of dry weights applied to each crop</p> <p>Annual estimation for total manure dry weight exported will be quantified using the following:</p> <p>Dry weight exported from a source per event = weight exported * (1 - (percent moisture / 100))</p> <p>Dry weight exported per event = sum of dry weights exported from each source</p> <p>Dry weight exported to any offsite destination = sum of dry weights exported per event</p>	<p>Corral solids</p> <p>Settling basin solids</p>	<p>Total dry weight (tons) manure applied annually to each land application area, and total dry weight (tons) manure exported offsite annually</p>	<p>None required</p>

<p align="center">Nutrient Management Plan Report General Order No. R5-2007-0035, Attachment C July 1, 2009 deadline</p>

A. MANURE SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Twice per year	For each manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Corral solids Settling basin solids	None required	Total nitrogen, total phosphorus, total potassium, and percent moisture
Once every two years (biennially)	For each manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Corral solids Settling basin solids	None required	General minerals, including: calcium, magnesium, sodium, sulfate, chloride Fixed solids (ash)
Each application to each land application area	For each applied manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For each applied manure source, a scaled weight by truckload will be recorded.	Corral solids Settling basin solids	Date applied and total weight (tons) applied	Percent moisture

<p align="center">Nutrient Management Plan Report General Order No. R5-2007-0035, Attachment C July 1, 2009 deadline</p>

A. MANURE SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each offsite export of manure	For each manure source exported, a composite sample "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For each manure source exported, a scaled weight by truckload will be recorded.	Corral solids Settling basin solids	Date exported and total weight (tons) exported	Percent moisture

B. PROCESS WASTEWATER SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Annually	A composite or grab sample prior to blending with irrigation water per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	WWS 2	None required	pH, total dissolved solids, electrical conductivity, nitrate-nitrogen, ammonium-nitrogen, total Kjeldahl nitrogen, total phosphorus, and total potassium
Once every two years (biennially)	For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	WWS 2	None required	General minerals, including: calcium, magnesium, sodium, bicarbonate, carbonate, sulfate, and chloride

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

B. PROCESS WASTEWATER SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each application	For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	WWS 2	Date applied and volume (gallons or acre-inches) applied	None required
Quarterly during one application event	For field measurement: For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For laboratory analyses: For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	WWS 2	Date applied and electrical conductivity	Nitrate-nitrogen (only when pond is aerated), un-ionized ammonia-nitrogen, total Kjeldahl nitrogen, total phosphorus, total potassium, and total dissolved solids

C. SOIL SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes

<p align="center">Nutrient Management Plan Report General Order No. R5-2007-0035, Attachment C July 1, 2009 deadline</p>

C. SOIL SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Once every five years for each land application area (may be distributed over a 5-year period by sampling 20% of the land application areas annually)	For each field, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Azevedo - 18 Acres Azevedo Home - 22 Acres Botelho Back 40 - 36 Acres Botelho East - 21 Acres Botelho Pasture - 21 Acres Creamery - 37 Acres Home 1-2 - 75 Acres Costa - 83 Acres	None required	Soluble phosphorus
Spring pre-plant for each crop	For each field, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Azevedo - 18 Acres Azevedo Home - 22 Acres Botelho Back 40 - 36 Acres Botelho East - 21 Acres Creamery - 37 Acres Home 1-2 - 75 Acres Costa - 83 Acres	None required	0 to 1 foot: Nitrate-nitrogen and organic matter 1 to 2 foot: Nitrate-nitrogen

D. PLANT TISSUE SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each crop harvest from each land application area	For each field and crop, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For each field and crop, a scaled weight by truckload will be recorded.	Azevedo - Corn/Oats Azevedo Home - Corn/Oats Botelho Back 40 - Corn/Oats Botelho East - Corn/Oats Botelho Pasture - Alfalfa Creamery - Corn/Oats Home 1-2 - Corn/Oats	Date harvested and total weight (tons) of harvested material removed from each land application area	Percent wet weight of harvested plant removed Laboratory analyses for total nitrogen, total phosphorus, total potassium (expressed on a dry weight basis), fixed solids (ash), and percent moisture

E. IRRIGATION WATER SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

E. IRRIGATION WATER SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each fresh water irrigation event for each land application area	CCID Canal - flow rate multiplied by runtime	CCID Canal	Date applied and volume (gallons or acre-inches) applied	None required
One irrigation event during each irrigation season during actual irrigation events – for each irrigation water source (well and canal)	For each irrigation source, a grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. In lieu of sampling the irrigation water, the Discharger may provide equivalent data from the local irrigation district.	CCID Canal	None required	Electrical conductivity, total dissolved solids, and total nitrogen

F. GROUNDWATER MONITORING SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Every five years (may be distributed over a 5-year period by sampling 20% of the wells annually)	For each domestic and agricultural supply well, a grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	All Groundwater Wells	None required	General minerals, including: calcium, magnesium, sodium, bicarbonate, carbonate, sulfate, chloride Total dissolved solids
Annually	For each domestic and agricultural supply well, a grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	All Groundwater Wells	Electrical conductivity and ammonium-nitrogen	Nitrate-nitrogen. If field measurement indicates the presence of ammonium-nitrogen, the Discharger shall collect a sample for laboratory analysis of ammonium-nitrogen.

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT MANAGEMENT PLAN REVIEW

A. NUTRIENT MANAGEMENT PLAN REVIEW

Person who created the NMP:	<u>Ramos, Joe</u>	<i>See above for contact information.</i>
Date the NMP was drafted:	<u>08/01/2015</u>	
Person who approved the final NMP:	<u>Ramos, Joe</u>	<i>See above for contact information.</i>
Date of NMP implementation:	<u>08/01/2015</u>	

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

ATTACHED MAP AND DOCUMENTATION REFERENCES

The following list, based upon user selections and data entries, describes the minimum required attachments that must be submitted with the Nutrient Management Plan for the reporting schedule of 'July 1, 2009'.

A. PRELIMINARY DAIRY FACILITY ASSESSMENT

The NMP will include the initial Preliminary Dairy Facility Assessment (Attachment A) and the annual updates as required by Monitoring and Reporting Program No. R5-2007-0035. Copies of these assessments shall be maintained for 10 years.

B. LAND AREA MAP(S)

Identify each land application area (under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) on a single published base map

1. A field identification system (Assessor's Parcel Number; land application area; crops grown); indication if each land application is owned, rented, or leased by the Discharger; indication of what type of waste is applied (solid manure only, wastewater only, or both solid manure and wastewater); drainage flow direction in each field, nearby surface waters, and storm water discharge points; tailwater and storm water drainage controls; subsurface (tile) drainage systems (including discharge points and lateral extent); irrigation supply wells and groundwater monitoring wells; sampling locations for discharges of storm water and tailwater to surface water from the field.
2. Process wastewater conveyance structures, discharge points and discharge mixing points with irrigation water supplies; pumping facilities; flow meter locations; drainage ditches and canals, culverts, draining controls (berms, levees, etc.), and drainage easements.

Application area map reference number: Figure 3 and 4

Identify each field under control of the Discharger and within five miles of the dairy where neither process wastewater nor manure is applied. Each field shall be identified on a single published base map at an appropriate scale by the following:

1. Assessor's Parcel Number.
2. Total acreage.
3. Information on who owns or leases the field

Non-application area map reference number: None

Setbacks, Buffers, and Other Alternatives to Protect Surface Water (see Technical Standard VII):

1. Identify all potential surface waters or conduits to surface water that are within 100 feet of any land application area.
2. For each land application area that is within 100 feet of a surface water or a conduit to surface water, identify the setback, vegetated buffer, or other alternative practice that will be implemented to protect surface water (Technical Standard VII).

Setbacks and buffers map reference number: Figure 3 and 4

C. PROCESS WASTEWATER WRITTEN AGREEMENTS

Provide copies of written agreements with third parties that receive process wastewater for their own use from the Discharger's dairy (Technical Standards V.A.1 and V.A.3).

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

SAMPLING AND ANALYSIS PLAN CERTIFICATION

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Toste Dairy

Physical address of dairy:

609 Santa Fe Grade

Newman

Merced

95360

Physical Address Number and Street

City

County

Zip Code

Street and nearest cross street (if no address): _____

B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

I certify that I meet the requirements as a certified specialist in developing nutrient management plans as described in Attachment C of Waste Discharge Requirements General Order No. R5-2007-0035 and that I prepared the Sampling and Analysis plan.

Technical Service Provider

TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

SIGNATURE OF TRAINED PROFESSIONAL

Joe Ramos

PRINT OR TYPE NAME

12/4/18
DATE

2857 Geer RD, STE A; Turlock, CA 95382

MAILING ADDRESS

(209) 250-2471

PHONE NUMBER

C. OWNER AND/OR OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF OWNER OF FACILITY

SIGNATURE OF OPERATOR OF FACILITY

John Toste

PRINT OR TYPE NAME

PRINT OR TYPE NAME

1-14-19
DATE

DATE

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET CERTIFICATION

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Toste Dairy

Physical address of dairy:

609 Santa Fe Grade

Newman

Merced

95360

Number and Street

City

County

Zip Code

Street and nearest cross street (if no address):

B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

I certify that I meet the requirements as a certified specialist in developing nutrient management plans as described in Attachment C of Waste Discharge Requirements General Order No. R5-2007-0035 and that I prepared the Nutrient Budget plan.

Technical Service Provider

TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

SIGNATURE OF TRAINED PROFESSIONAL

DATE

Joe Ramos

PRINT OR TYPE NAME

2857 Geer RD, STE A; Turlock, CA 95382

MAILING ADDRESS

(209) 250-2471

PHONE NUMBER

C. OWNER AND/OR OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF OWNER OF FACILITY

SIGNATURE OF OPERATOR OF FACILITY

John Toste

PRINT OR TYPE NAME

PRINT OR TYPE NAME

DATE

DATE

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

STATEMENTS OF COMPLETION

Waste Discharge Requirements General Order No. R5-2007-0035 for Existing Milk Cow Dairies (General Order) requires owners and operators of existing milk cow dairies (Dischargers) to develop and implement a Nutrient Management Plan for their land application areas (land under control of the Discharger, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient cycling). The Discharger is required to maintain the NMP at the dairy, make the NMP available to Central Valley Water Board staff during their inspections, and submit the NMP to the Executive Officer upon request.

The General Order requires the Discharger to submit two Statements of Completion during development of the NMP. The Discharger may use this form to comply with the General Order requirement to submit one or both of these Statements of Completion. Parts A and E must be completed for each Statement of Completion. Parts B, C and D are to be completed for the Statements of Completion due by 1 July 2008, 31 December 2008 and 1 July 2009, respectively. Both the owner and the operator of the dairy must sign this form in Part E below.

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Toste Dairy

<u>609 Santa Fe Grade</u>	<u>Newman</u>	<u>Merced</u>	<u>95360</u>
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address): _____

Operator name: _____ Telephone no.: _____

	Landline	Cellular
--	----------	----------

<u> </u>	<u> </u>	<u> </u>	<u> </u>
Mailing Address Number and Street	City	State	Zip Code

Legal owner name: Toste, John Telephone no.: (209) 862-1812

	Landline	Cellular
--	----------	----------

<u>609 Santa Fe Grade RD</u>	<u>Newman</u>	<u>CA</u>	<u>95360</u>
Mailing Address Number and Street	City	State	Zip Code

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

B. STATEMENT OF COMPLETION DUE 1 JULY 2008

I have completed the following items of the Nutrient Management Plan (check the boxes of completed sections), which are due 1 July 2008:

- ☐ **Item I.A.1 Land Application Information**
Identification of land used for manure application and needed information on a facility map.
- ☐ **Item I.B Land Application Information**
Information list for information provided on map above.
- ☐ **Item I.C Land Application Information**
Copies of written third-party process wastewater agreements.
- ☐ **Item I.D Land Application Information**
Identification of fields under control of the discharger within five miles of the dairy where neither process wastewater nor manure is applied.
- ☐ **Item II Sampling and Analysis Plan**
- ☐ **Item IV Setbacks, Buffers, and Other Alternatives to Protect Surface Water**
Identification of all potential surface waters or conduits to surface waters within 100 feet of land application areas and appropriate protection.
- ☐ **Item VI Record-Keeping Requirements**
Identification of monitoring records that will be maintained as required in the production and land application areas.

Has Item II (Sampling and Analysis Plan) of the Nutrient Management Plan been certified by a Certified Nutrient Management Specialist as required in the General Order?

☐ Yes ☐ No

C. STATEMENT OF COMPLETION DUE 31 DECEMBER 2008

I have completed the following items of the Nutrient Management Plan (check the boxes of completed sections), which are due 31 December 2008:

- ☐ **Item V Field Risk Assessment**
Evaluation of the effectiveness of management practices used to control the discharge of waste constituents from land application areas by assessing the water quality monitoring results of discharges of manure, process wastewater, tailwater, subsurface (tile) drainage, or storm water from the land application areas.

D. STATEMENT OF COMPLETION DUE 1 JULY 2009

I have completed the following items of the Nutrient Management Plan (check the boxes of completed sections), which are due 1 July 2009:

- ☐ **Item I.A.2 Land Application Area Information**
Identification of process wastewater conveyance, mixing and drainage information for each land application area on a facility map.
- ☐ **Item III Nutrient Budget**
Established planned rates of nutrient applications by crop based on nutrient monitoring results for each land application area.

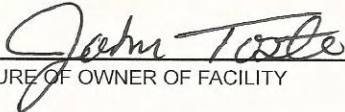
Has Item III (Nutrient Budget) of the Nutrient Management Plan been certified by a Certified Nutrient Management Specialist as required in the General Order?

☐ Yes ☐ No

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

E. CERTIFICATION STATEMENT

I certify under penalty of law that I have completed the items of the Nutrient Management Plan that are checked in Parts B, C and/or D above for the dairy identified in Part A above and that the appropriate certified nutrient management specialist has certified the items requiring such certification as noted in part B and/or D above and that I have personally examined and am familiar with the information submitted in Parts A, B, C and D of this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



SIGNATURE OF OWNER OF FACILITY

SIGNATURE OF OPERATOR OF FACILITY

John Toste

PRINT OR TYPE NAME




















PRINT OR TYPE NAME

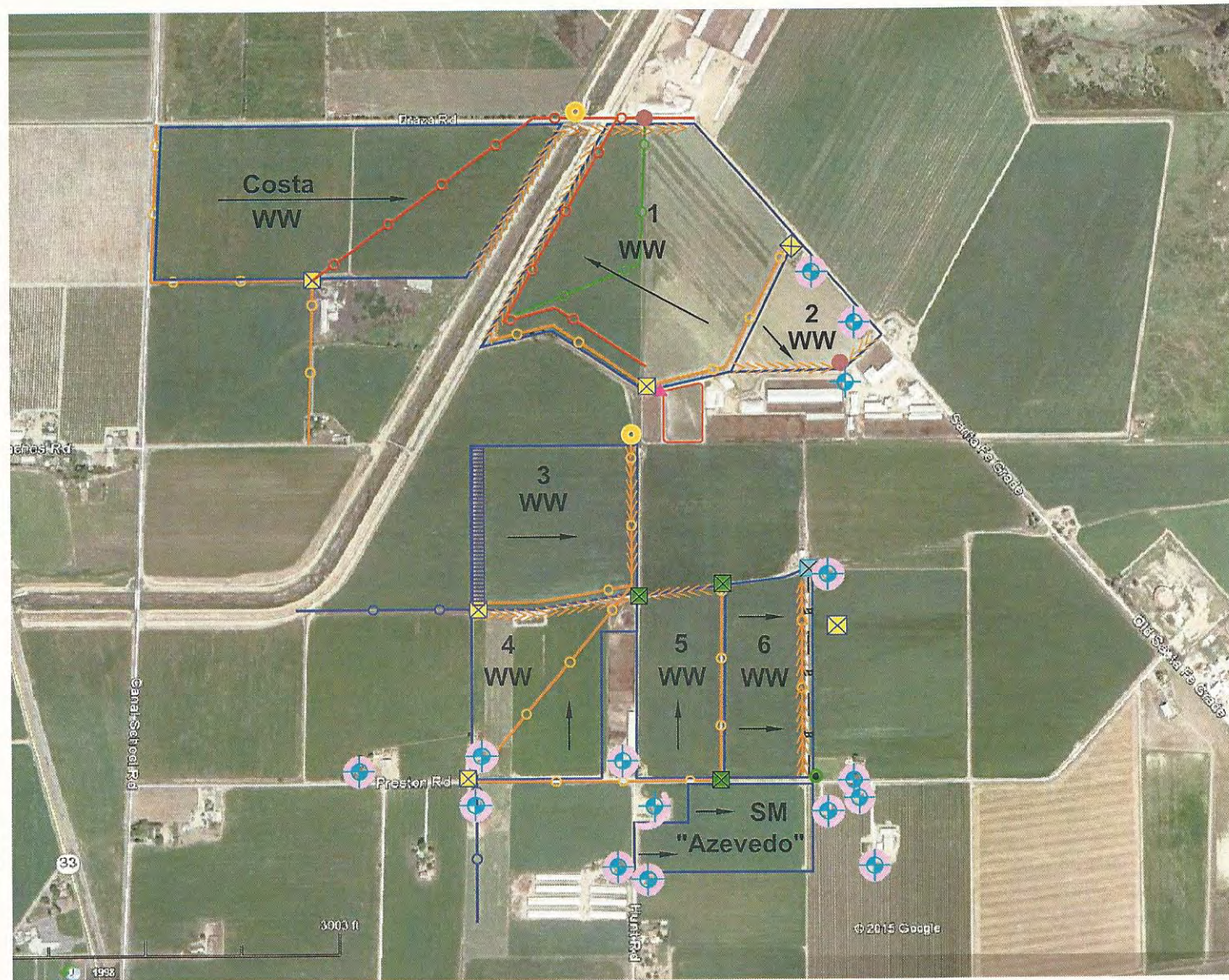
1-14-19

DATE

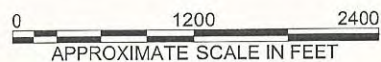
DATE

LEGEND

-  Fields
-  Wastewater Storage
-  Tailwater Pump
-  Pump
-  Capped
-  Valve
-  Tail Water
-  Irrigation Mixing Box
-  Drain
-  Control Box
-  Domestic Well
-  Storm Water Sampling Location
-  Irrigation Flow
-  Tail Water Pipeline
-  Irrigation Pipeline
-  Freshwater Pipeline
-  Proposed Wastewater Pipeline
-  Berms/Levees
-  Concrete Ditch
-  Setback or Physical Barrier
- WW Waste Water
- SM Solid Manure



SCALE:



JOHN TOSTE DAIRY
MERCED COUNTY, CA

FIGURE 3
DAIRY FIELDS

PROJECT NO.

FRA-00

DATE:

1/10/18




DRAWN BY:

SB

JR

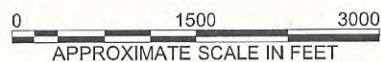
FRA-00_Toste

LEGEND

-  Fields
-  Setback or Physical Barrier
-  Domestic Well
- SM Solid Manure



SCALE:



JOHN TOSTE DAIRY
MERCED COUNTY, CA

FIGURE 4
DAIRY FIELDS

PROJECT NO.

FRA-00

DATE:

7/26/15

DRAWN BY:

SB

APP. BY:

JR

FRA-00_Live Oak D Topomap

Waste Management Plan For John Toste Dairy Merced County, CA

Prepared For:
John Toste Dairy
609 Santa Fe Grade
Newman, CA 95360



**WASTE MANAGEMENT PLAN
FOR
JOHN TOSTE DAIRY
MERCED COUNTY, CA**

TABLE OF CONTENTS

1. NARRATIVE

- a. Introduction
- b. Compliance Criteria
- c. Results and Conclusions

2. EXHIBITS

- a. Sheet 1 – Vicinity Map
- b. Sheet 2 – Site Map – Land Application Areas
- c. Sheet 3 – Site Map – Production Area
- d. Sheet 4 – Site Map – Production Area
- e. Sheet 5 – Production Area Hydrologic Map
- f. Sheet 6 - Production Area Hydrologic Map
- g. Sheet 7 – FEMA Panel No. 06047C0350G

3. DESIGN, CONSTRUCTION, OPERATION, AND MAINTENANCE DOCUMENTATION

- a. Waste Management Plan Report / Process Wastewater Calculations
- b. Production Area Design & Construction Report
- c. Backflow Prevention Documentation
- d. Flood Protection Analysis
- e. Vector Control Plan

1. NARRATIVE

INTRODUCTION

This Waste Management Plan (WMP) has been prepared at the request of the subject dairy's owner and/or operator in order to comply with Section H.1.b., *Waste Management Plan*, of Order No. R5-2013-0122, *Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies*, (Order) adopted by the California Regional Water Quality Control Board (CRWQCB) Central Valley Region. Per the requirements set forth by the aforementioned Order it is the intent of this plan to provide an evaluation of the existing milk cow facility's design, construction, operation, and maintenance for flood protection and waste containment and to determine whether the facility complies with Prohibition A.14, General Specifications B.1 through B.3, Pond Specifications C.1 through C.3, and Production Area Specifications D.1, D.4, and D.5. Should the evaluation provided by this plan determine that the existing facility does not comply with the requirements of the Order, then modifications will be proposed for the facility that will bring it into compliance and those modifications shall be made a part of this plan.

COMPLIANCE CRITERIA

As required by the Order this plan must evaluate the existing facility's compliance with Prohibition A.14, General Specifications B.1 through B.3, Pond Specifications C.1 through C.3, and Production Area Specifications D.1, D.4, and D.5. The criteria set forth by this Prohibition and General Specifications are as follows:

Prohibition A.14: *"The direct discharge of wastewater into groundwater via backflow through water supply or irrigation supply wells is prohibited."*

The water, irrigation, and wastewater systems of this facility have been examined by a Registered Civil Engineer licensed in the State of California. It has been determined and hereby documented that there are no existing conditions on the project site that would allow for direct discharge of wastewater into groundwater via backflow through water supply or irrigation supply wells. The existing well that supplies the irrigation system has been constructed with an air gap so as to prevent backflow of wastewater into the well.

General Specification B.1: *"The existing milk cow dairy shall have facilities that are designed, constructed, operated, and maintained to retain all facility process wastewater generated during the storage period (maximum period of time anticipated between land application of process wastewater), together with all precipitation on and drainage through manured areas, up to and including during a 25-year, 24-hour storm (see item II of Attachment B, which is attached to and made part of this Order)."*

Section 3.a. of this plan contains calculations that demonstrate the facility's ability to retain all process wastewater and precipitation generated by the 25-year, 24-hour storm. The tributary areas for storm drain runoff were determined by utilizing field measurements and aerial photography. The existing Wastewater Basins (WW) were field measured.

General Specification B.2: *"In the Sacramento and San Joaquin River Basins, ponds and manured areas at existing milk cow dairies in operation on or before 27 November 1984 shall be protected from inundation or washout by overflow from any stream channel during 20-year peak stream flows. Existing milk cow dairies that were in operation on or before 27 November 1984 and that are protected against 100-year peak stream flows must continue to provide such protection. Existing milk cow dairies built or expanded after 27 November 1984 shall be protected against 100-year peak stream flows (Title 27 Section 22562(c))."*

The facility is in the San Joaquin River Basin and was constructed before 27 November 1984. However the facility has been expanded since 27 November 1984 and thus must have protection against the 100-year storm event. The relevant Flood Zone Maps published by the Federal Emergency Management Agency (FEMA) are Panel Nos. 06047C150G and 06047C350G. This map indicates that the existing dairy facility is in Zone A and is thus subject to inundation by the 100-year storm event. An analysis describing locations and levels of inundation and recommended protection measures is included in the Plan in Section 3.d.

General Specification B.3: *“In the Tulare Lake Basin, existing milk cow dairies that existed as of 25 July 1975 shall be protected from inundation or washout from overflow from any stream channel during 20-year peak stream flows and existing milk cow dairies constructed after 25 July 1975 shall be protected from 100-year peak stream flows. Existing milk cow dairies expanded after 8 December 1984 shall be protected from 100-year peak stream flows.”*

As the facility is in the San Joaquin River Basin this specification is not applicable.

Pond Specification C.1: *“The level of waste in the process wastewater retention ponds shall be kept a minimum of two (2) feet from the top of each aboveground embankment and a minimum of one (1) foot from the ground surface of each belowground pond. Less freeboard may be approved by the Executive Officer when a Civil Engineer who is registered pursuant to California law, or other person as may be permitted under the provisions of the California Business and Professions Code to assume responsible charge of such work, demonstrates that the structural integrity of the pond will be maintained with the proposed freeboard.*

2' of freeboard has been assigned to the wastewater retention ponds WWS1, WWS2, WWS3, and WWS5 (proposed as all have been or will be constructed above grade. 1' of freeboard has been assigned to WWS4 as it has been constructed in ground or below grade.

Pond Specification C.2: *“Ponds shall be managed and maintained to prevent breeding of mosquitoes and other vectors. In particular,*

- a. Small coves and irregularities shall not be allowed around the perimeter of the water surface;*
- b. Weeds shall be minimized through control of water depth, harvesting, or other appropriate method;*
- c. Dead algae, vegetation, and debris shall not accumulate on the water surface; and*
- d. Management shall be in accordance with the requirements of the Mosquito Abatement District.”*

An Operations and Maintenance Plan addressing these items has been included in Section 3.a. and is hereby made a part of this plan.

Pond Specification C.3: *“Ponds designated to contain the 25-year, 24-hour storm event runoff must have a depth marker that clearly indicates the minimum capacity necessary to contain the runoff and direct precipitation from a 25-year, 24-hour storm event.”*

A marker meeting this specification will be installed in all the facility's ponds by the compliance date.

Production Area Specification D.1: *“All dirt or unpaved corrals shall be graded to promote drainage. Cow washing areas shall be paved (concrete or equivalent) and sloped to a drain. Water troughs,*

permanent feed racks, and mangers shall have paved access, and water troughs shall have a drain to carry water away from the corrals. (Cal Code Regs., title 3, § 646.1.).”

Dirt or unpaved areas are graded to promote drainage. Any areas requiring improvement are noted on Exhibit Sheets 3 and 4 and in Section 3.b.

All cow washing areas are paved with Portland Cement Concrete (PCC) and sloped to a drain which conveys wastewater to the retention ponds.

Water troughs, feed racks, and mangers have access paved with PCC. Water troughs have drains which convey wastewater to the retention ponds.

Production Area Specification D.4: *“All roofs, buildings, and non-manured areas located in the production area of the existing milk cow dairy shall be constructed or otherwise designed so that clean rainwater is diverted away from manured areas and waste containment facilities, unless such drainage is fully contained in the wastewater retention ponds. (Title 27, § 22562(b).).”*

The production area is designed such that rainwater that is not diverted away from manured areas and waste containment facilities is collected and conveyed to the wastewater retention ponds.

Production Area Specification D.5: *“Roof drainage from barns, milk houses, or shelters shall not drain into the corrals unless the corrals are properly graded and drained. (Cal Code Regs., title 3, § 661.).”*

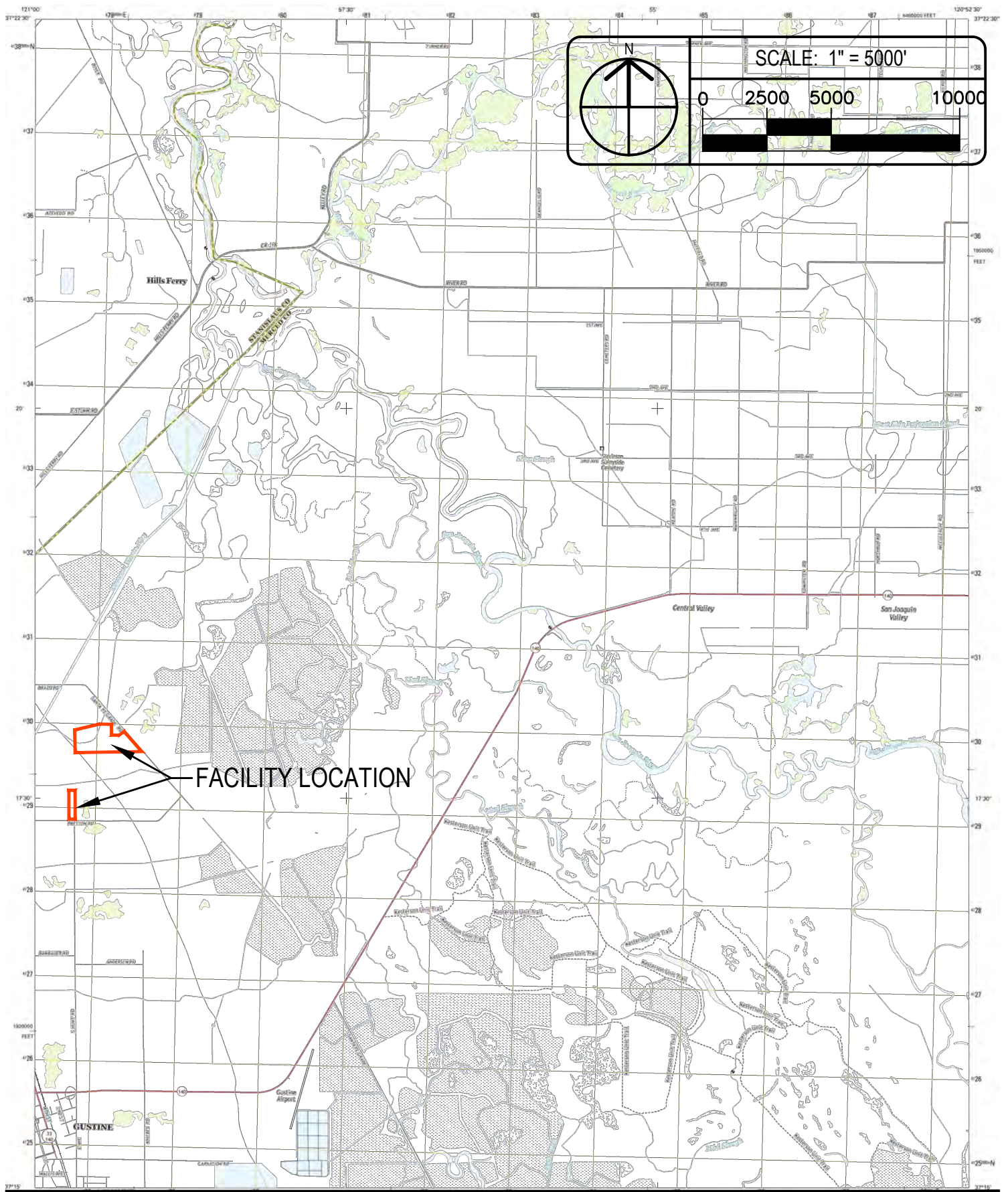
Roof drainage is collected by gutters, downspouts, and drains and is conveyed to the wastewater retention ponds.

RESULTS AND CONCLUSIONS

After conducting a visual inspection of the site, obtaining herd and facility information from the operator, performing the required measurements of facility improvements, and performing the calculations included in Attachment B it has been determined that the design, construction, operation, and waste containment of this facility are in compliance with Prohibition A.14 and General Specifications B.1 through B.3 and B.10 through B.16 of Order No. R5-2013-0122, *Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies*.

Some improvements will be required to ensure that the proposed facility expansion meets the General Order's requirements for flood protection. Those improvements are described in detail in Section 3.d., *Flood Protection Analysis*, of this Plan.

2. EXHIBITS



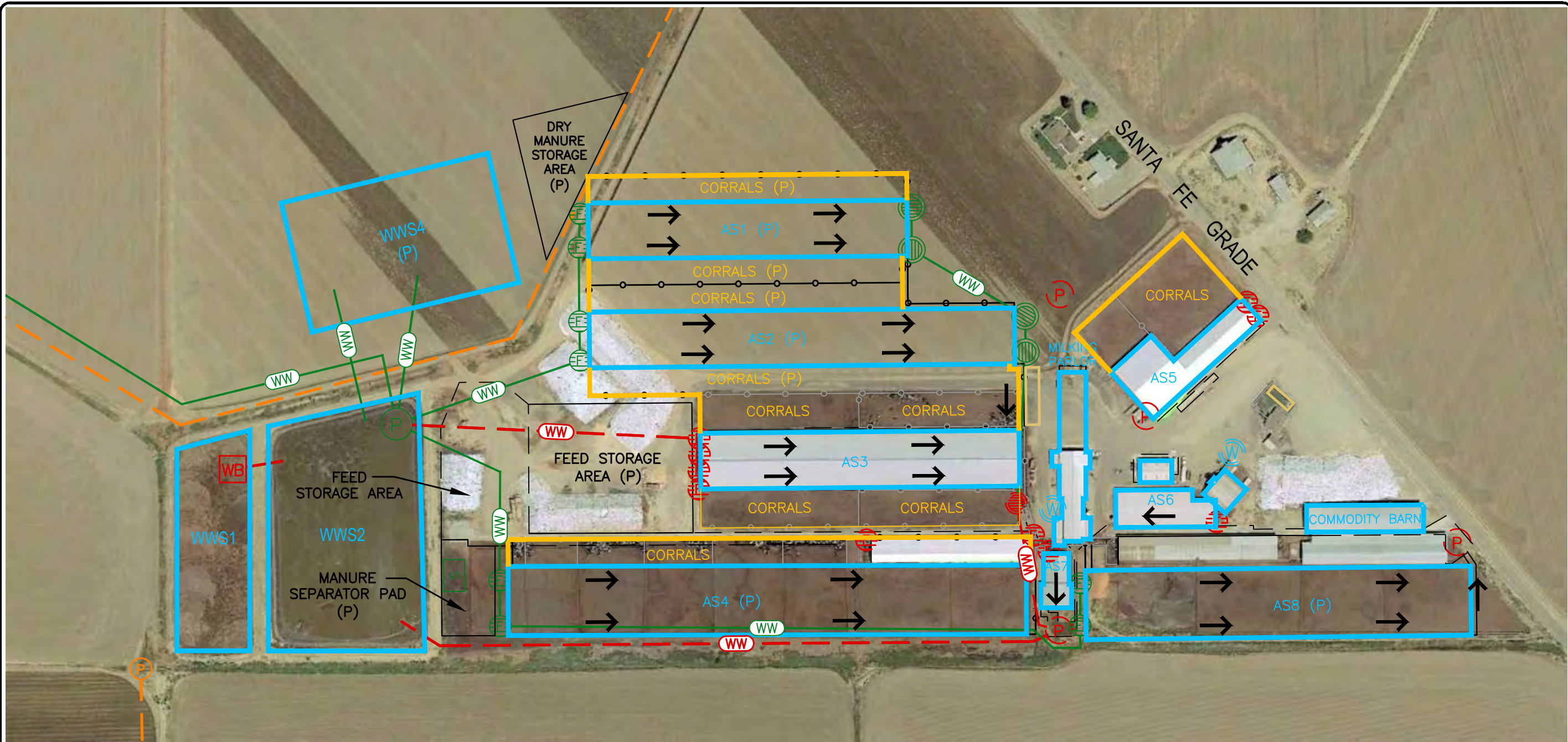
SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT -
AGRICULTURE

PO BOX 1613
OAKDALE, CA 95361

PH: (209)238-3151
WWW.SOUSAENG.COM

VICINITY MAP
JOHN TOSTE DAIRY

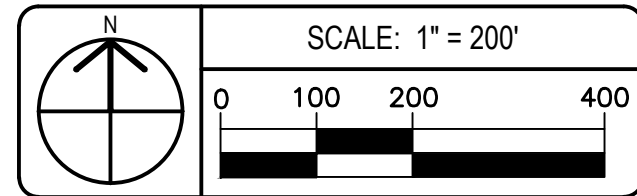
MERCED COUNTY, CA



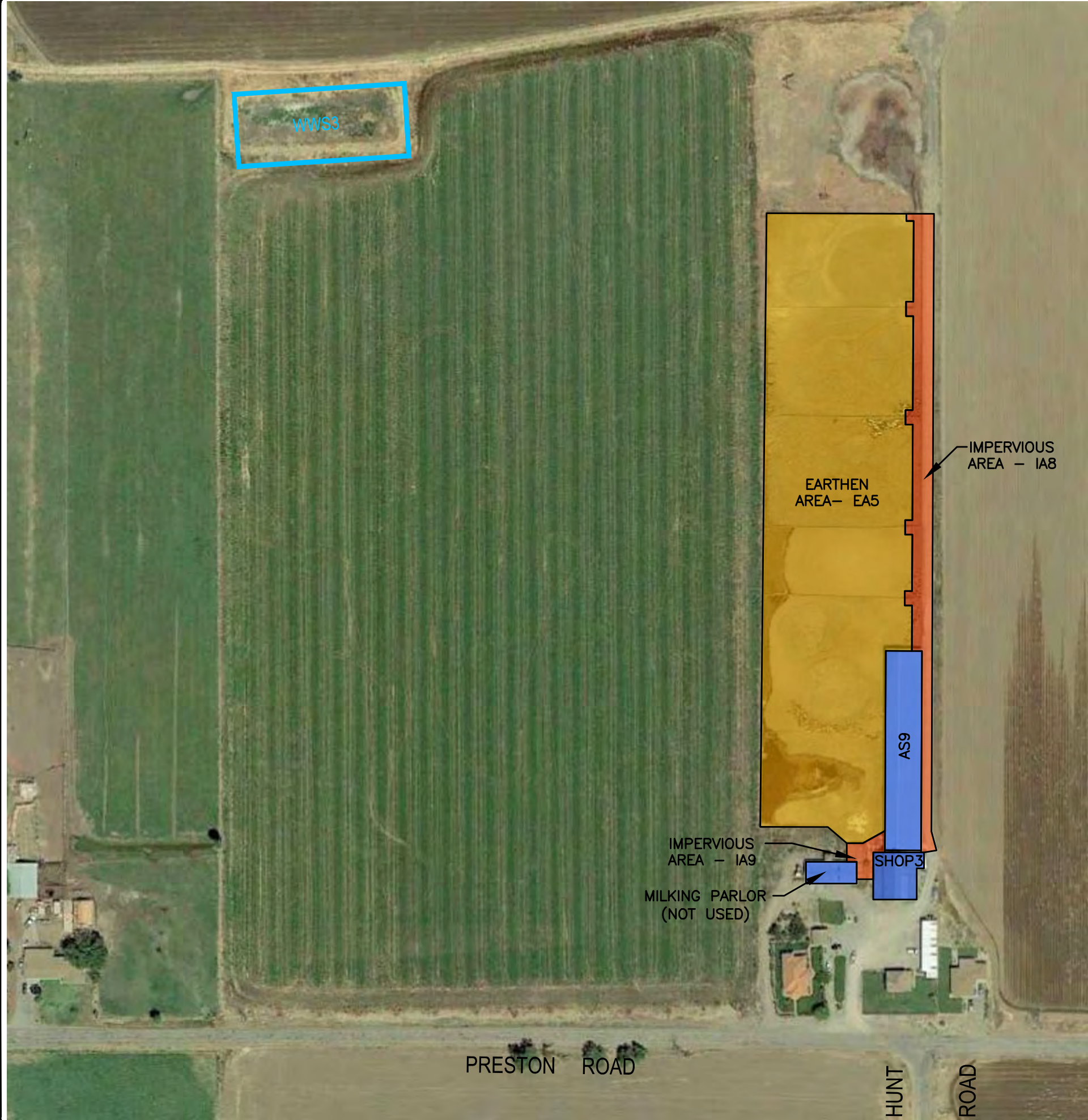
LEGEND

	ROOF AREA
	ROOF AREA (PROPOSED)
	CORRAL AREA
	CORRAL AREA (PROPOSED)
	IRRIGATION DITCH
	IRRIGATION LINE
	WASTEWATER LINE
	WASTEWATER LINE (PROPOSED)
	WASTEWATER SUMP WITH PUMP

	FLUSH SYSTEM DRAIN INLET
	FLUSH SYSTEM DRAIN INLET (PROPOSED)
	FLUSH SYSTEM DISCHARGE VALVE
	FLUSH SYSTEM DISCHARGE VALVE (PROPOSED)
	MECHANICAL SEPARATOR (PROPOSED)
	WASTEWATER SUMP WITH PUMP (PROPOSED)
	WELL
	GENERAL SLOPE AND DIRECTION OF FLOW
	INSPECTION POINT FOR MONITORING ANIMAL HOUSING AND FLUSH WATER CONVEYANCE SYSTEM

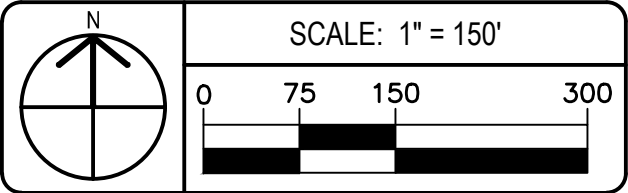


DRAWN BY: MS	DATE: 5/29/2019	FILE: 03_dpa.dwg	JOB NO.: 2018-016
SYMBOL	REVISIONS	DESCRIPTION	APPD.




LEGEND

- ROOF AREA
- EARTHEN AREA
- IMPERVIOUS AREA



DRAWN BY: MS		
DATE: 2/28/2019		
FILE: 06_hydro.dwg		
JOB NO.: 2015-025		
SYMBOL	REVISIONS	
	DESCRIPTION	APPD.

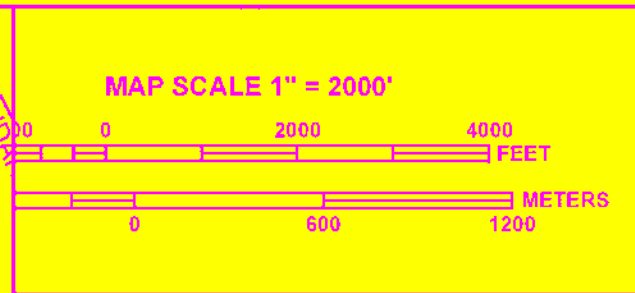
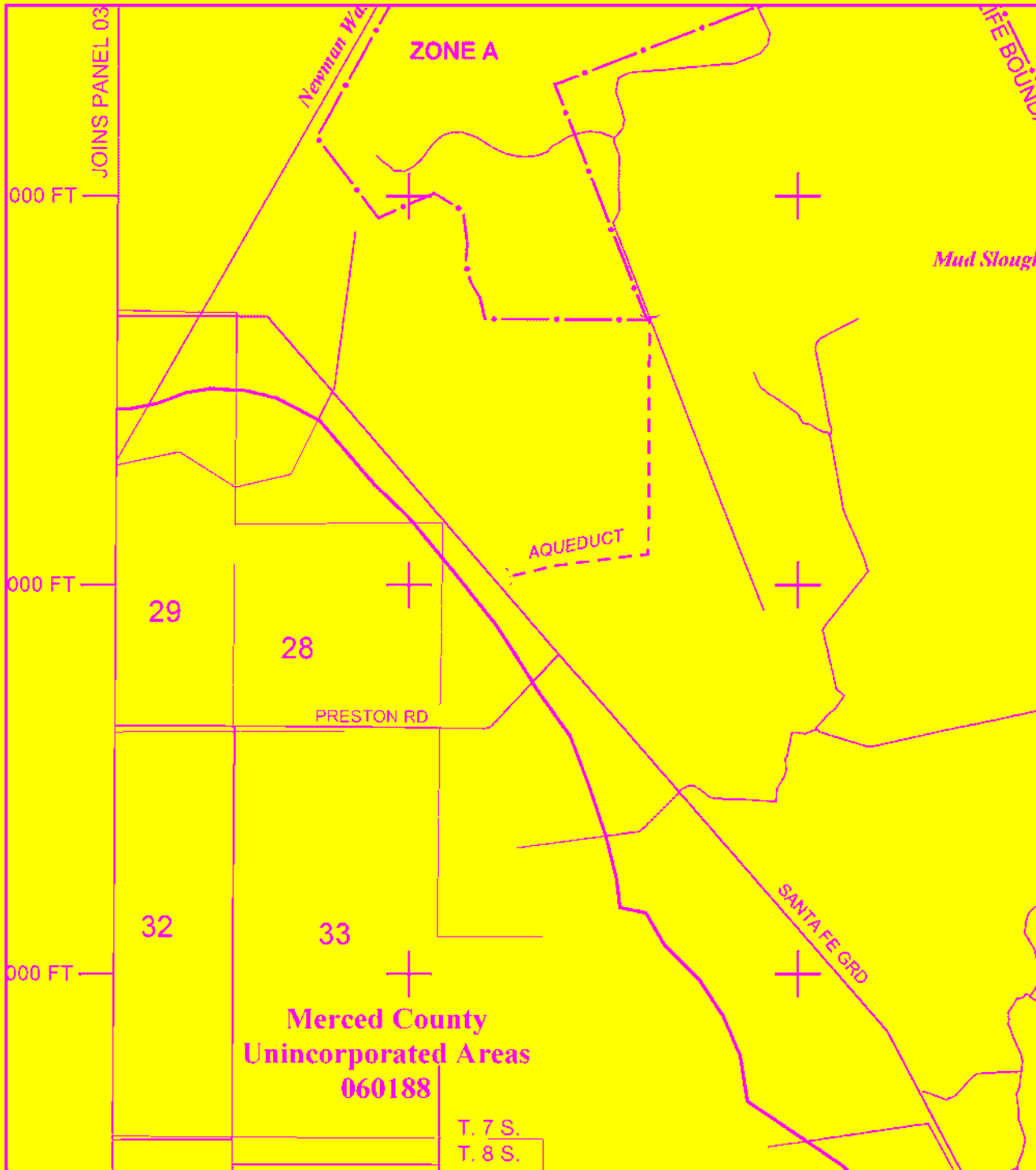
PRODUCTION AREA
HYDROLOGIC MAP
JOHN TOSTE DAIRY
MERCED COUNTY, CA



SOUSA
ENGINEERING
INFRASTRUCTURE -
DEVELOPMENT - AGRICULTURE

PO BOX 1613
OAKDALE, CA 95361

PH: (209)238-3151
WWW.SOUSAENG.COM



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0350G

FIRM

FLOOD INSURANCE RATE MAP

**MERCED COUNTY,
CALIFORNIA**

AND INCORPORATED AREAS

PANEL 350 OF 1225

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

<u>CONTAINS</u>	<u>NUMBER</u>	<u>PANEL</u>	<u>SUFFIX</u>
GUSTINE CITY OF	000447	0350	C
MERCED COUNTY	000188	0350	C

MAP NUMBER
06047C0350G

MAP REVISED
DECEMBER 2, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

3. DESIGN, CONSTRUCTION, OPERATION, AND MAINTENANCE DOCUMENTATION

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

DAIRY FACILITY INFORMATION

A. NAME OF DAIRY OR BUSINESS OPERATING THE DAIRY: John Toste Dairy

Physical address of dairy:

609 Santa Fe Grade	Newman	Merced	95360
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address): _____

TRS Data and Coordinates:

7S	9E	28	Mt. Diablo	37° 17' 50.70" N	120° 59' 19.50" W
Township (T_)	Range (R_)	Section (S_)	Baseline meridian	Latitude (N)	Longitude (W)

Date facility was originally placed in operation: 01/01/1965

Regional Water Quality Control Board Basin Plan designation: San Joaquin River Basin

County Assessor Parcel Number(s) for dairy facility:

0054-0090-0001-0000 0054-0100-0018-0000 0054-0100-0030-0000

B. OPERATOR NAME: Toste, John Telephone no.: (209) 862-1812

Landline Cellular

785 Santa Fe Grade	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Operator should receive Regional Board correspondence (check): ☒ Yes ☐ No

OPERATOR NAME: Toste, Sandra Telephone no.: (209) 862-1812

Landline Cellular

785 Santa Fe Grade	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Operator should receive Regional Board correspondence (check): ☐ Yes ☒ No

C. LEGAL OWNER NAME: Toste, John Telephone no.: (209) 862-1812

Landline Cellular

785 Santa Fe Grade	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Owner should receive Regional Board correspondence (check): ☒ Yes ☐ No

LEGAL OWNER NAME: Toste, Sandra Telephone no.: (209) 862-1812

Landline Cellular

785 Santa Fe Grade	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Owner should receive Regional Board correspondence (check): ☐ Yes ☒ No

D. CONTACT NAME: Sousa, Manny Telephone no.: (209) 238-3151

Landline Cellular

Title: Civil Engineer

P.O. Box 1613	Oakdale	CA	95361
Mailing Address Number and Street	City	State	Zip Code

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

CONTACT NAME: Ramos, Joe		Telephone no.: (209) 250-2471	
		Landline	Cellular
Title: Technical Service Provider			
2857 Geer RD, STE A		Turlock	CA
Mailing Address Number and Street		City	State
			95382
			Zip Code

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

HERD AND MILKING EQUIPMENT

A. HERD AND MILKING

The milk cow dairy is currently regulated under individual Waste Discharge Requirements.

Total number of milk and dry cows combined as a baseline value in response to the Report of Waste Discharge (ROWD) request of October, 2005:

3,000 milk and dry cows combined (regulatory review is required for any expansion)

Type of Animal	Present Count	Maximum Count	Daily Flush Hours	Avg Live Weight (lbs)
Milk Cows	2,500	2,500	20	1,400
Dry Cows	500	500	20	1,400
Bred Heifers (15-24 mo.)	0	0	0	0
Heifers (7-14 mo.)	2,550	2,550	0	700
Calves (4-6 mo.)	400	400	0	
Calves (0-3 mo.)	0	0	0	

Predominant milk cow breed:

Holstein

Average milk production:

68 pounds per cow per day

Average number of milk cows per string sent to the milkbarn:

209 milk cows per string

Number of milkings per day:

2.0 milkings per day

Number of times milk tank is emptied/filled each day:

2.0 per day

Number of hours spent milking each day:

20.0 hours per day

B. MILKBARN EQUIPMENT AND FLOOR WASH

Bulk tank wash and sanitizing:

3.0 run cycles/wash

Bulk tank wash vat volume:

150 gallons/cycle

Bulk tank wash wastewater:

900.0 gallons/day

Pipeline wash and sanitizing:

3.0 run cycles/wash

Pipeline wash vat volume:

150 gallons/cycle

Pipeline wash wastewater:

900.0 gallons/day

Reused / recycled water is the source of parlor floor wash water:

☒ Yes ☐ No

Milkbarn / parlor floor wash volume:

7,500 gallons/day

Plate coolers type:

Well Water Cooled (Water Reused/Recycled)

Plate coolers volume:

39,535 gallons/day

Vacuum pumps / air compressors / chillers type:

Mechanically/Air Cooled

Vacuum pumps / air compressors / chillers volume:

0 gallons/day

Milkbarn and equipment wastewater volume generated daily:

41,335 gallons/day

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

C. OTHER WATER USES

Reused/recycled water is the source of herd drinking water: ☐ Yes ☒ No

	Milk Cows	Dry Cows	Bred Heifers (15-24 mo.)	Bred Heifers (7-14 mo.)	Calves (4-6 mo.)	Calves (0-3 mo.)
<i>Number of cows drinking from reusable water:</i>	0	0	0	0	0	0
	<i>of 2,500</i>	<i>of 500</i>	<i>of 0</i>	<i>of 2,550</i>	<i>of 400</i>	<i>of 0</i>
<i>Gallons per head per day:</i>	0	0	0	0	0	0

Total reusable water consumed by herd: 0 gallons/day

Reused/recycled water is the source of sprinkler pen water: ☒ Yes ☐ No

Number of sprinklers in the holding pen: 38 sprinklers

Duration of each sprinkler cycle: 3.0 minutes

Number of sprinkler pen runs/milking: 2 cycles/milking

Flow rate for each sprinkler head: 5.0 gallons/minute

Total sprinkler pen wastewater volume: 27,268 gallons/day

Total fresh water used in manure flush lane system(s): 0 gallons/day

D. MISCELLANEOUS EQUIPMENT

No miscellaneous equipment entered.

E. MILKBARN AND EQUIPMENT SUMMARY

Number of days in storage period: 120 days

Water available for reuse/recycle: 39,535 gallons/day

Recycled water reused: 34,768 gallons/day

Recycled water leaving system: 0 gallons/day

Reusable water balance: 4,767 gallons/day

Volume of milkbarn and equipment wastewater generated for storage period: 4,960,200 gallons/storage period

MANURE AND BEDDING SOLIDS

A. IMPORTED AND FACILITY GENERATED BEDDING

Bedding Type	Imported or Generated (tons)	Density (lbs/cu. ft.)	Applied Separation Efficiency (default)	Solids to Pond (cu. ft./period)
Almond shells	150	20.0	0%	2,250
Facility generated bedding	270	40.0	0%	6,750
Total:				9,000

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

B. SOLIDS SEPARATION PROCESS

Combined manure solids separation efficiency (weight basis): 0 %

Description of all solids separation equipment used in flushed lane manure management systems:

None

C. MANURE AND BEDDING SOLIDS SUMMARY

	cubic feet		gallons	
	day	storage period	day	storage period
Manure generated by the herd (pre-separation):	8,460.45	1,015,254	63,288.58	7,594,630
Manure generated by the herd sent to pond(s):	5,157.73	618,928	38,582.51	4,629,901
Manure generated by the herd sent to dry lot(s):	3,302.72	396,327	24,706.07	2,964,729
Manure solids (herd) removed by separation:	0.00	0	0.00	0
Liquid component in separated solids not sent to pond(s):	0.00	0	0.00	0
Imported and facility generated bedding sent to pond(s):	75.00	9,000	561.04	67,325
Total manure and bedding sent to pond(s):	5,232.73	627,928	39,143.55	4,697,226
Residual manure solids and bedding sent to pond(s) w/factor:	446.95	53,634	3,343.40	401,208
	cubic feet per year		gallons per year	
Residual manure solids and bedding sent to pond(s) w/factor:	163,136		1,220,342	

RAINFALL AND RUNOFF

A. RAINFALL ESTIMATES

Rainfall station nearest the facility: Newman

25 year/24 hour storm event (default NOAA Atlas 2, 1973): 2.50 inches/storage period

25 year/24 hour storm event (user-override): inches/storage period

Storage period rainfall (default DWR climate data): 7.58 inches/storage period

Storage period rainfall (user-override): inches/storage period

Flood zone: Zone A

B. IMPERVIOUS AREAS

Name	Surface Area (sq. ft.)	Quantity	25yr/24hr Storm Runoff Coefficient	Storage Period Runoff Coefficient	Runoff Destination
Impervious Area IA1 - Manure Storage	30,000	1	0.95	0.50	Drains into pond(s).
Impervious Area IA2-Feed Storage, Feed/Flush Lanes	289,400	1	0.95	0.50	Drains into pond(s).
Impervious Area IA3 - Milk Parlor Slab	600	1	0.95	0.50	Drains into pond(s).
Impervious Area IA4 - AS5 Feed Lane	2,475	1	0.95	0.50	Drains into pond(s).
Impervious Area IA5 - Scale	1,140	1	0.95	0.50	Drains into pond(s).
Impervious Area IA6 - Shop Slab	1,800	1	0.95	0.50	Drains into pond(s).

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

Impervious Area IA7 - Feed and Corral Lanes	21,700	1	0.95	0.50	Drains into pond(s).
---	--------	---	------	------	----------------------

Surface area that does not run off into pond(s): 0 sq. ft.

Surface area that runs off into pond(s): 347,115 sq. ft.

Total surface area: 347,115 sq. ft.

Runoff from normal storage period rainfall: 820,093 gallons/storage period

Runoff from normal storage period rainfall with 1.5 factor: 1,230,139 gallons/storage period

25 year/24 hour storm event runoff: 513,911 gallons/storage period

Total surface area runoff: 1,334,004 gallons/storage period

Total surface area runoff with 1.5 factor: 1,744,050 gallons/storage period

C. ROOF AREAS

Name	Surface Area (sq. ft.)	Quantity	Runoff Destination
Animal Shelter AS1	63,000	1	Field
Animal Shelter AS2	84,000	1	Field
Animal Shelter AS3	63,000	1	Field
Animal Shelter AS4	126,750	1	Field
Animal Shelter AS5	21,550	1	Field
Animal Shelter AS6	2,300	1	Field
Animal Shelter AS7	5,300	1	Wastewater pond
Animal Shelter AS8	94,250	1	Field
Animal Shelter AS9	13,750	1	Field
Commodity Barn	11,000	1	Wastewater pond
Milking Parlor	17,100	1	Wastewater pond
Milking Parlor (Not Used)	2,100	1	Field
Shop 1	2,400	1	Wastewater pond
Shop 2	3,400	1	Wastewater pond
Shop 3	4,120	1	Field

Surface area that does not run off into pond(s): 474,820 sq. ft.

Surface area that runs off into pond(s): 39,200 sq. ft.

Total surface area: 514,020 sq. ft.

Runoff from normal storage period rainfall: 185,228 gallons/storage period

Runoff from normal storage period rainfall with 1.5 factor: 277,841 gallons/storage period

25 year/24 hour storm event runoff: 61,091 gallons/storage period

Total surface area runoff: 246,319 gallons/storage period

Total surface area runoff with 1.5 factor: 338,932 gallons/storage period

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

D. EARTHEN AREAS

Name	Surface Area (sq. ft.)	Quantity	25yr/24 Storm Coefficient	Storage Period Coefficient	Runoff Destination
Earthen Area - EA1	624,000	1	0.35	0.20	Drains into pond(s).
Earthen Area - EA2	24,800	1	0.35	0.20	Drains into pond(s).
Earthen Area - EA3	16,950	1	0.35	0.20	Drains into pond(s).
Earthen Area - EA4	37,900	1	0.35	0.20	Drains into pond(s).
Earthen Area - EA5	1,950	1	0.35	0.20	Drains into pond(s).
Earthen Area - EA5	1,900	1	0.35	0.20	Drains into pond(s).
Earthen Area - EA6	165,300	1	0.35	0.20	Drains into pond(s).

Surface area that does not run off into pond(s):	<u>0</u> sq. ft.
Surface area that runs off into pond(s):	<u>872,800</u> sq. ft.
Total surface area:	<u>872,800</u> sq. ft.
Runoff from normal storage period rainfall:	<u>824,830</u> gallons/storage period
Runoff from normal storage period rainfall with 1.5 factor:	<u>1,237,245</u> gallons/storage period
25 year/24 hour storm event runoff:	<u>476,073</u> gallons/storage period
Total surface area runoff:	<u>1,300,903</u> gallons/storage period
Total surface area runoff with 1.5 factor:	<u>1,713,318</u> gallons/storage period

E. TAILWATER MANAGEMENT

No fields with tailwater entered.

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

LIQUID STORAGE

A. POND OR BASIN DESCRIPTION: WWS1

Pond is rectangular in shape: ☐ Yes ☒ No

Dimensions			
Earthen Length (EL):	_____ ft.	Earthen Depth (ED):	_____ ft.
Earthen Width (EW):	_____ ft.	Side Slope (S):	_____ ft. (h:1v)
Free Board (FB):	_____ 2 ft.	Dead Storage Loss (DS):	_____ ft.

Calculations			
Liquid Length (LL):	_____ ft.	Storage Volume Adjusted for Dead Storage Loss:	_____ 501,656 cu. ft.
Liquid Width (LW):	_____ ft.		
Pond Surface Area:	_____ 61,637 sq. ft.	Pond Marker Elevation:	_____ 9.0 ft.
Storage Volume:	_____ 551,043 cu. ft.	Evaporation Volume:	_____ 386,701 gals/period
		Adjusted Surface Area:	_____ sq. ft.

POND OR BASIN DESCRIPTION: WWS2

Pond is rectangular in shape: ☐ Yes ☒ No

Dimensions			
Earthen Length (EL):	_____ ft.	Earthen Depth (ED):	_____ ft.
Earthen Width (EW):	_____ ft.	Side Slope (S):	_____ ft. (h:1v)
Free Board (FB):	_____ 2 ft.	Dead Storage Loss (DS):	_____ ft.

Calculations			
Liquid Length (LL):	_____ ft.	Storage Volume Adjusted for Dead Storage Loss:	_____ 708,784 cu. ft.
Liquid Width (LW):	_____ ft.		
Pond Surface Area:	_____ 128,883 sq. ft.	Pond Marker Elevation:	_____ 7.0 ft.
Storage Volume:	_____ 917,460 cu. ft.	Evaporation Volume:	_____ 808,593 gals/period
		Adjusted Surface Area:	_____ sq. ft.

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

POND OR BASIN DESCRIPTION: WWS3

Pond is rectangular in shape: ☒ Yes ☐ No

Dimensions			
Earthen Length (EL):	<u>240</u> ft.	Earthen Depth (ED):	<u>6</u> ft.
Earthen Width (EW):	<u>85</u> ft.	Side Slope (S):	<u>2.0</u> ft. (h:1v)
Free Board (FB):	<u>2</u> ft.	Dead Storage Loss (DS):	<u>0.0</u> ft.
Calculations			
Liquid Length (LL):	<u>232</u> ft.	Storage Volume Adjusted for Dead Storage Loss:	<u>61,909</u> cu. ft.
Liquid Width (LW):	<u>77</u> ft.		
Pond Surface Area:	<u>20,400</u> sq. ft.	Pond Marker Elevation:	<u>3.2</u> ft.
Storage Volume:	<u>61,909</u> cu. ft.	Evaporation Volume:	<u>109,206</u> gals/period
		Adjusted Surface Area:	<u>17,405</u> sq. ft.

POND OR BASIN DESCRIPTION: WWS4 (proposed)

Pond is rectangular in shape: ☒ Yes ☐ No

Dimensions			
Earthen Length (EL):	<u>420</u> ft.	Earthen Depth (ED):	<u>12</u> ft.
Earthen Width (EW):	<u>250</u> ft.	Side Slope (S):	<u>3.0</u> ft. (h:1v)
Free Board (FB):	<u>2</u> ft.	Dead Storage Loss (DS):	<u>2.0</u> ft.
Calculations			
Liquid Length (LL):	<u>408</u> ft.	Storage Volume Adjusted for Dead Storage Loss:	<u>658,944</u> cu. ft.
Liquid Width (LW):	<u>238</u> ft.		
Pond Surface Area:	<u>105,000</u> sq. ft.	Pond Marker Elevation:	<u>9.3</u> ft.
Storage Volume:	<u>789,240</u> cu. ft.	Evaporation Volume:	<u>600,699</u> gals/period
		Adjusted Surface Area:	<u>95,740</u> sq. ft.

Potential storage losses (due to dead storage): 388,359.0 cubic feet - or - 2,905,127.1 gallons

Liquid storage surface area: 114,968 sq. ft.

Rainfall onto retention pond(s): 1,492,784 gallons/storage period

Rainfall runoff into retention pond(s): 1,830,151 gallons/storage period

Normal rainfall onto retention pond(s) with 1.5 factor: 2,239,175 gallons/storage period

Normal rainfall runoff into retention pond(s) with 1.5 factor: 2,745,226 gallons/storage period

Storage period evaporation (default): 13.42 inches/storage period

Storage period evaporation (user-override): inches/storage period

Storage period evaporation volume: 1,905,199 gallons/storage period

Manure and bedding sent to pond(s): 4,697,226 gallons/storage period

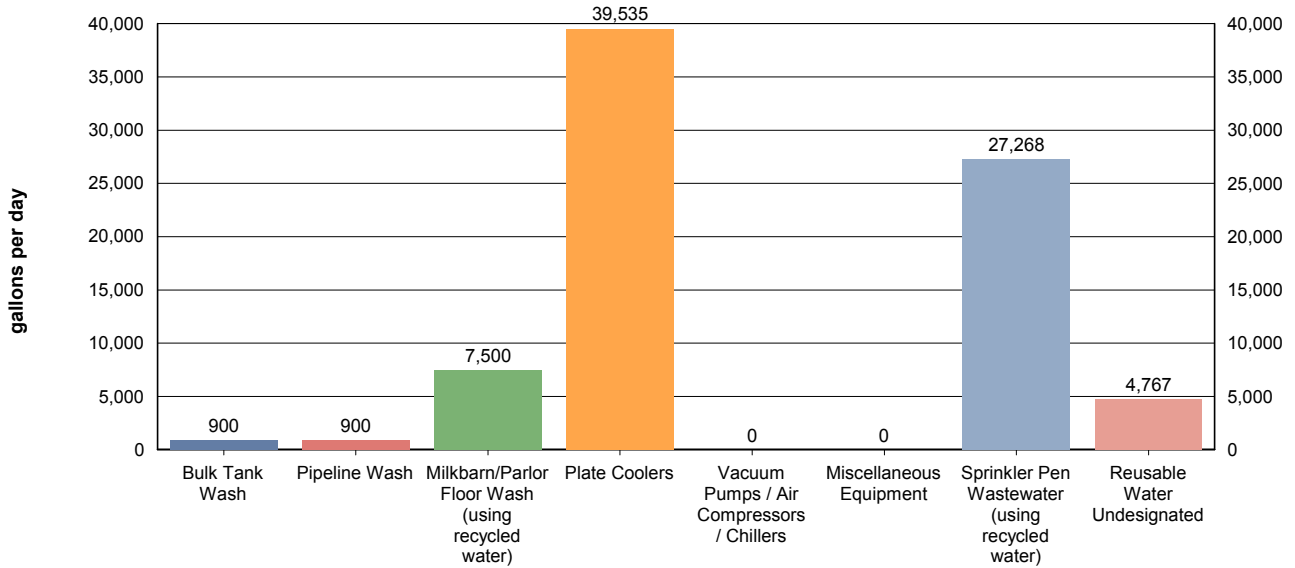
Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

Milkbarn water sent to pond(s):	<u>4,960,200</u> gallons/storage period
Fresh flush water for storage period:	<u>0</u> gallons/storage period

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

CHARTS

A. MILKBARN WASTEWATER SENT TO POND(S)

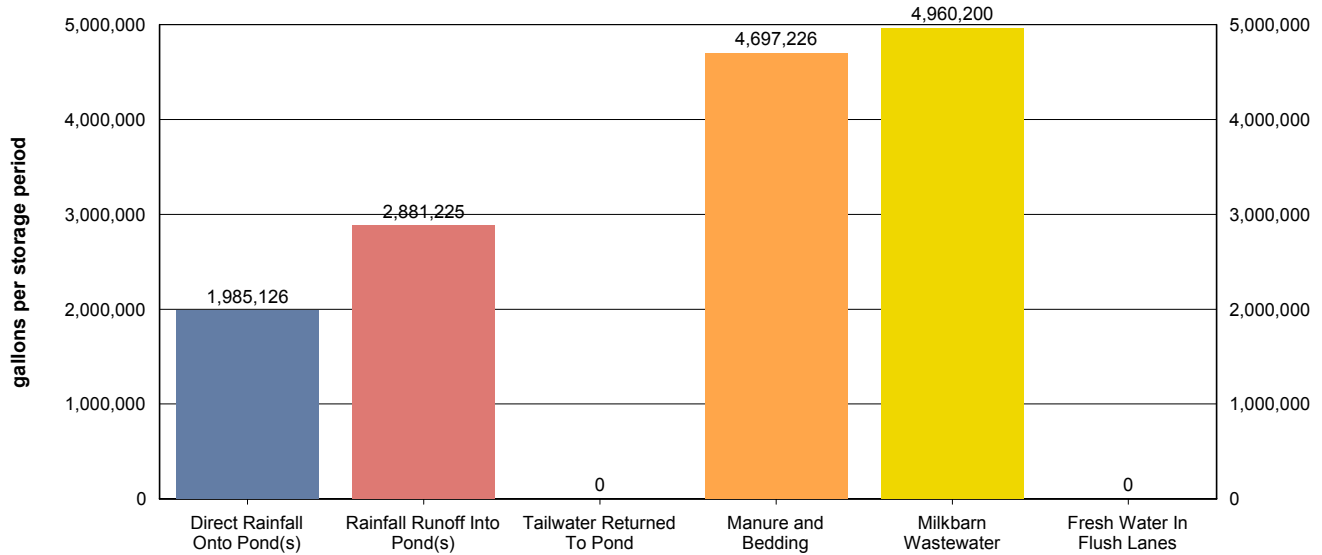


Values shown in chart are approximate values per day.

Total milkbarn wastewater generated daily:	41,335 gallons/day
Total milkbarn wastewater generated per period:	4,960,200 gallons/storage period

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

B. PROCESS WASTEWATER (NORMAL PRECIPITATION)



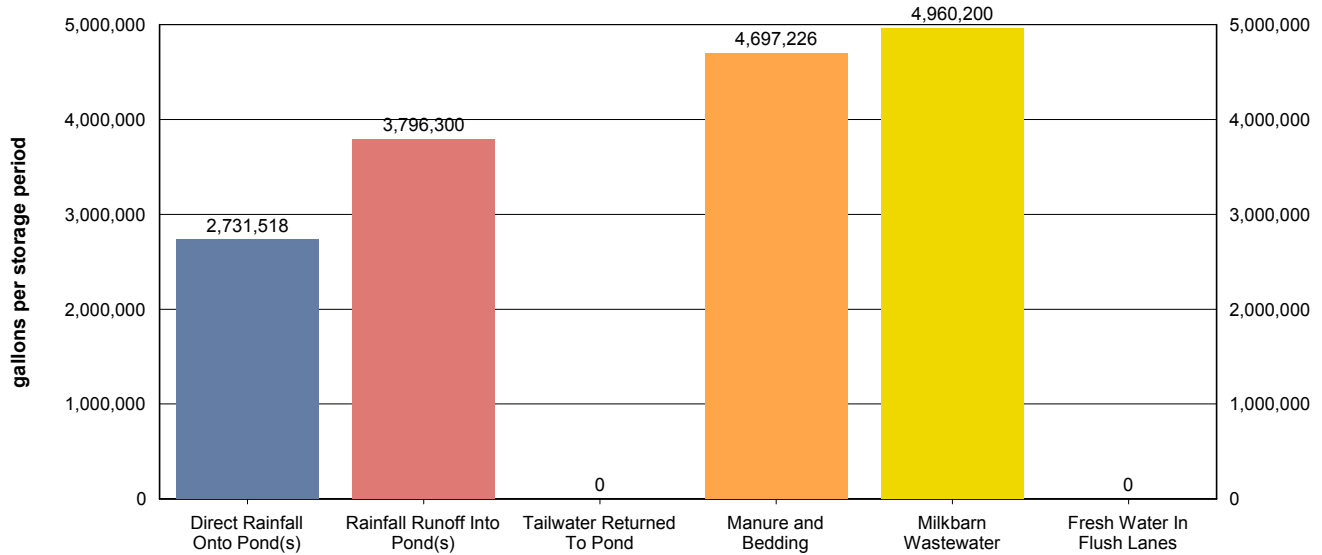
Values shown in chart are approximate values for storage period.

Storage period:	<u>120 days</u>
Total process wastewater generated daily:	<u>121,031 gallons/day</u>
Total process wastewater generated per period:	<u>14,523,777 gallons/storage period</u>
Total process wastewater removed due to evaporation:	<u>1,905,199 gallons/storage period</u>
Total storage capacity required:	<u>12,618,578 gallons</u>
	<u>1,686,859 cu. ft.</u>
Existing storage capacity (adjusted for dead storage loss):	<u>14,447,075 gallons</u>
	<u>1,931,293 cu. ft.</u>

Considering normal precipitation, existing capacity meets estimated storage needs: ☒ Yes ☐ No

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

C. PROCESS WASTEWATER (NORMAL PRECIPITATION WITH 1.5 FACTOR)



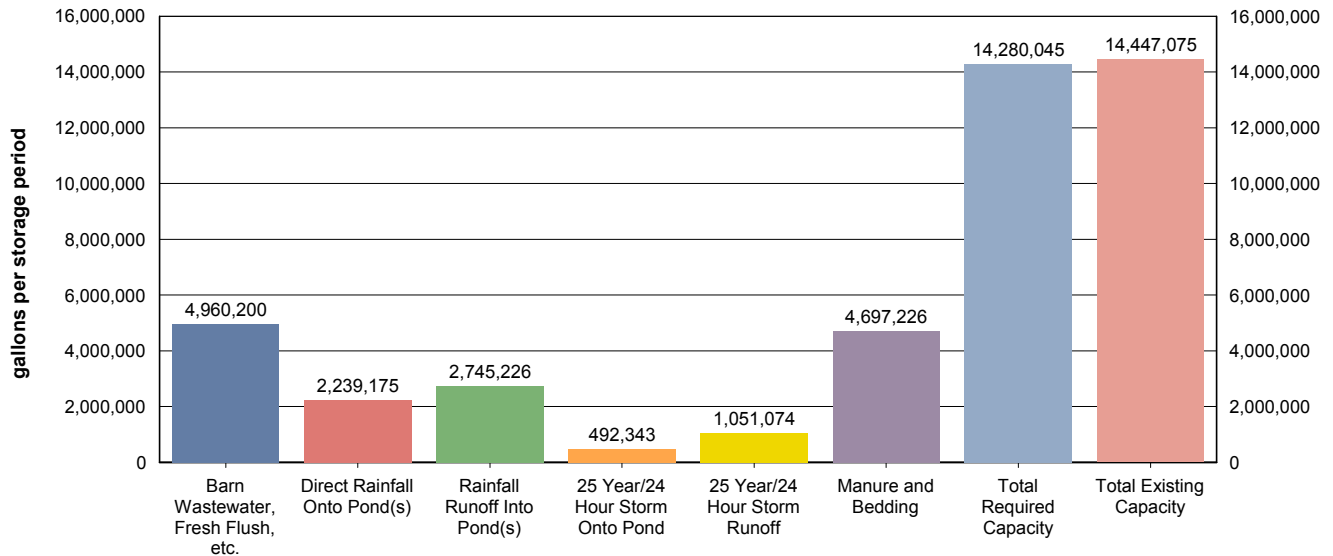
Values shown in chart are approximate values for storage period.

Storage period:	<u>120 days</u>
Total process wastewater generated daily:	<u>134,877 gallons/day</u>
Total process wastewater generated per period:	<u>16,185,244 gallons/storage period</u>
Total process wastewater removed due to evaporation:	<u>1,905,199 gallons/storage period</u>
Total storage capacity required:	<u>14,280,045 gallons</u>
	<u>1,908,964 cu. ft.</u>
Existing storage capacity (adjusted for dead storage loss):	<u>14,447,075 gallons</u>
	<u>1,931,293 cu. ft.</u>

Considering factored precipitation, existing capacity meets estimated storage needs: ☒ Yes ☐ No

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

D. STORAGE VOLUME ASSESSMENT (NORMAL PRECIPITATION WITH 1.5 FACTOR)



Values shown in chart are approximate values for storage period.

Storage period:	<u>120 days</u>
Barn wastewater, fresh flush water, and tailwater:	<u>4,960,200</u> gallons/storage period
Manure and bedding sent to pond:	<u>4,697,226</u> gallons/storage period
Precipitation onto pond:	<u>2,239,175</u> gallons/storage period
Precipitation runoff:	<u>2,745,226</u> gallons/storage period
25 year/24 hour storm onto pond:	<u>492,343</u> gallons/storage period
25 year/24 hour storm runoff:	<u>1,051,074</u> gallons/storage period
Residual solids after liquids have been removed (liquid equivalent):	<u>401,208</u> gallons/storage period
Total process wastewater removed due to evaporation:	<u>1,905,199</u> gallons/storage period
Total required capacity:	<u>14,280,045</u> gallons/storage period
Total existing capacity:	<u>14,447,075</u> gallons/storage period
Existing capacity meets estimated storage needs:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

OPERATION AND MAINTENANCE PLAN

The goal of the Operation and Maintenance Plan is to eliminate discharges of waste or storm water to surface waters from the production area and the protection of underlying soils and ground water.

A. POND MAINTENANCE

i. FREEBOARD MONITORING

1. Freeboard will be monitored monthly from June 1 through September 1 (dry season) and weekly from October 1 through May 31 (wet season). The results will be recorded on a Dairy Production Area Visual Inspection Form.
2. Freeboard will be monitored during and after each significant storm event and the results recorded on a Production Area Significant Storm Event Inspection Form.
3. Ponds will be photographed on the first day of each month. Pond photos will be labeled and maintained with the dairy's monitoring records.

ii. PREPARATION FOR MAINTAINING WINTER STORAGE CAPACITY

1. The retention pond(s) will begin to be lowered to the minimum operating level on or before a designated date each year.
2. The minimum operating level will include the necessary storage volume as identified in Section II.A in Attachment B of the General Order.

iii. OTHER POND MONITORING

1. At the time of each monitoring for freeboard, the pond(s) will be inspected for evidence of excessive odors, mosquito breeding, algae, or equipment damage; and issues with berm integrity, including cracking, slumping, erosion, excess vegetation, animal burrows, and seepage. Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Other Pond Monitoring.
2. At the time of each monitoring during and after each significant storm event, the ponds will be inspected for evidence of any discharge and issues with berm integrity, including cracking, slumping, erosion, excess vegetation, animal burrows, and seepage. Any issues identified and corrective actions performed will be recorded on a Production Area Significant Storm Event Inspection Form.

iv. SOLIDS REMOVAL PROCEDURES

1. The average thickness of the solids accumulated on the bottom of the pond(s) will be measured on the designated interval using the owner, operator, and/or designer specified procedure.
2. Once solids/sludge on the bottom of the pond(s) reach the owner, operator, and/or designer specified critical thickness, solids/sludge will be removed so that adequate capacity is maintained.
3. When necessary, solids/sludge will be removed using the owner, operator, and/or designer specified methods for protecting any pond liner.

OPERATIONS AND MAINTENANCE PLAN FOR POND: WWS2

Dry season freeboard monitoring will occur on the 5th of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 2.0 feet above the pond invert beginning in April of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Ponds are visually monitored to evaluate solid accumulation.

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

When solids/sludge accumulate to a thickness of 3.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Water is added throughout the year to dilute solids. Solids are pumped out during irrigations. If necessary, sludge can also be agitated and pumped into slurry wagons, however cannot be directly excavated as it is lined with a synthetic liner.

OPERATIONS AND MAINTENANCE PLAN FOR POND: WWS1

Dry season freeboard monitoring will occur on the 5th of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 1.0 feet above the pond invert beginning in April of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Ponds are visually monitored to evaluate solid accumulation.

When solids/sludge accumulate to a thickness of 3.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Water is added throughout the year to dilute solids. Solids are pumped out during irrigations. If necessary, sludge can also be agitated and pumped into slurry wagons or directly excavated for Spring and /or Fall application. If excavation is required, cleaning equipment operator will be informed as to overall depth of storage and instructed to remain 6-12 inches from the floor.

OPERATIONS AND MAINTENANCE PLAN FOR POND: WWS3

Dry season freeboard monitoring will occur on the 1st of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 0.0 feet above the pond invert beginning in April of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Ponds are visually monitored to evaluate solid accumulation.

When solids/sludge accumulate to a thickness of 3.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Solids and sludge will be removed with a backhoe or excavator.

OPERATIONS AND MAINTENANCE PLAN FOR POND: WWS4 (proposed)

Dry season freeboard monitoring will occur on the 1st of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 2.0 feet above the pond invert beginning in April of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Ponds are visually monitored to evaluate solid accumulation.

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

When solids/sludge accumulate to a thickness of 3.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Water is added throughout the year to dilute solids. Solids are pumped out during irrigations. If necessary, sludge can also be agitated and pumped into slurry wagons or directly excavated for Spring and /or Fall application. If excavation is required, cleaning equipment operator will be informed as to overall depth of storage and instructed to remain 6-12 inches from the floor.

B. RAINFALL COLLECTION SYSTEM MAINTENANCE

- i. Annually, rainfall collection systems will be assessed to ensure:
1. Conveyances are free of debris and operating within designer/manufacturer specifications.
 2. Components are properly fastened according to designer/manufacturer specifications.
 3. All downspouts and related infrastructure are connected to conveyances that divert water away from manured areas.
 4. Water from the rainfall collection system(s) is diverted to an appropriate destination.

<i>Buildings with rooftop rainfall collection systems</i>	Quantity	Surface Area (sq. ft.)
Animal Shelter AS1	1	63,000
Animal Shelter AS2	1	84,000
Animal Shelter AS3	1	63,000
Animal Shelter AS4	1	126,750
Animal Shelter AS5	1	21,550
Animal Shelter AS6	1	2,300
Animal Shelter AS7	1	5,300
Animal Shelter AS8	1	94,250
Animal Shelter AS9	1	13,750
Commodity Barn	1	11,000
Milking Parlor	1	17,100
Milking Parlor (Not Used)	1	2,100
Shop 1	1	2,400
Shop 2	1	3,400
Shop 3	1	4,120

Assessment for buildings with rooftop rainfall collection systems will occur on or before: 5th of October

Assessment for other rainfall collections systems will occur on or before: 5th of November

Description of how rainfall collection systems will be assessed:

Gutters, downspouts, and appurtenant piping will be cleaned and repaired as needed.

C. CORRAL MAINTENANCE

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

- i. Monthly from June 1st through September 30th (dry season) and weekly from October 1st through May 31st (wet season), the perimeter of the corrals and pens will be assessed to ensure that runoff controls such as berms are functioning correctly, and that all water that contacts waste is collected and diverted into the wastewater retention pond(s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Corrals.
- ii. The corrals will be assessed by the designated date to determine:
 1. Whether manure needs to be removed from the corrals based on the owner, operator, and/or designer specified conditions.
 2. Whether there are depressions within the corrals that should be filled/groomed to prevent ponding.
- iii. Removal of manure and/or regrading, when necessary, will be completed on or before the designated month/day of each year.

Day of the month dry season assessment will occur: 5th of each month

Day of the week wet season assessment will occur: Monday

Solid manure removal and regrading assessment will occur on or before: 5th of October

Conditions requiring manure removal and/or regrading:

Solids are removed annually, typically after fall harvest.

Solid manure removal and/or regrading will occur on or before: 5th of December

D. FEED STORAGE AREA MAINTENANCE

- i. During the dry season and prior to the wet season, the perimeter of storage areas will be assessed to ensure all runoff controls such as berms are functioning correctly and runoff and leachate from the areas are collected and diverted into the wastewater pond(s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Manure and Feed Storage Areas.
- ii. During the wet season, feed storage area(s) will be assessed to determine if there are depressions within any feed storage area that should be filled or repaired to prevent ponding.
- iii. Any necessary regrading/resurfacing and berm/conveyance maintenance will be completed on an annual basis.

Day of the month dry season assessment will occur: 5th of each month

Day of the week wet season assessment will occur: Monday

Regrading/resurfacing and berm maintenance assessment will occur on or before: 5th of October

Regrading/resurfacing and berm maintenance completion will occur on or before: 5th of November

E. SOLID MANURE STORAGE AREA MAINTENANCE

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

- i. During the dry season and prior to the wet season, the perimeter of manure storage areas will be assessed to ensure all runoff and runoff controls such as berms are functioning correctly and runoff and leachate from the areas are collected and diverted into the wastewater pond(s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Manure and Feed Storage Areas.
- ii. During the wet season, manure storage area(s) will be assessed to determine if there are depressions within any manure storage area that should be filled to prevent ponding.
- iii. Any necessary regrading/resurfacing and berm/conveyance maintenance will be completed on an annual basis.

Day of the month dry season assessment will occur: 5th of each month

Day of the month wet season assessment will occur: Monday

Regrading/resurfacing and berm maintenance assessment will occur on or before: 5th of October

Regrading/resurfacing and berm maintenance completion will occur on or before: 5th of November

F. ANIMAL HOUSING AND FLUSH WATER CONVEYANCE SYSTEM MAINTENANCE

- i. A map will be attached that identifies critical points for monitoring the animal housing and flush water conveyance system to verify that water is being managed as identified in this Waste Management Plan. These points will be maintained at owner, operator, and/or designer specified intervals.

Animal housing area assessment will occur on or before: 5th of October

Animal housing drainage system maintenance will occur on or before: 5th of November

Animal housing area drainage system assessment and maintenance methods:

Debris is removed from flush lanes, drains and corral drains as needed.
Pumps are monitored daily.
Scrape lanes are cleaned daily or as needed.

G. MORTALITY MANAGEMENT

- i. Dead animals will be stored, removed, and disposed of properly.

Rendering company or landfill name: San Jose Tallow

Rendering company or landfill telephone number: (408) 452-8777

H. ANIMALS AND SURFACE WATER MANAGEMENT

- i. A system will be in place, monitored, and maintained to prevent animals from entering any surface waters when a stream or other surface water crosses or adjoins the corral(s).

Does a stream or any other surface water cross or adjoin the corrals? ☐ Yes ☒ No

I. MONITORING SALT IN ANIMAL RATIONS

- i. The combined quantity of minerals as salt in animal drinking water and feed rations will be reviewed by a qualified nutritionist on a routine basis to verify that minerals are limited to the amount required to maintain animal health and optimum production. As feed rations change, mineral content may change.

Assessment interval: Annually

J. CHEMICAL MANAGEMENT

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

- i. Chemicals and other contaminants handled at the facility will not be disposed of in any manure or process wastewater, storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.

Chemical Name	Quantity	Units	Frequency	Usage Area	Destination (Used Chemical / Container)	Disposal Company		Collection Frequency
						Name	Phone	
Roundup	20	gallons	year	Dairy Production Area and Land Application Areas	Containers are disposed of in dumpster.			
Acid	250	gallons	year	Milking parlor	Picked up by supplier			
Chlorine	750	gallons	year	Milking parlor	Picked up by supplier			
Formaldehyde	750	gallons	year	Milking parlor	Picked up by supplier			
Detergent	5,000	pounds	year	Milking parlor	Picked up by supplier			

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

REQUIRED ATTACHMENTS

The following list, based upon user selections and data entries, describes the minimum required attachments that must be submitted with the Waste Management Plan for the reporting schedule of 'July 1, 2010'.

A. SITE MAP(S)

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of the production area including the following in sufficient detail: structures used for animal housing, milk parlor, and other buildings; corrals and ponds; solids separation facilities (settling basins or mechanical separators); other areas where animal wastes are deposited or stored; feed storage areas; drainage flow directions and nearby surface waters; all water supply wells (domestic, irrigation, and barn wells) and groundwater monitoring wells.

Production area map reference number: Exhibit Sheets 3 & 4

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of all land application areas (land under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) including the following in sufficient detail: a field identification system (Assessor's Parcel Number; field by name or number; total acreage of each field; crops grown; indication if each field is owned, leased, or used pursuant to a formal agreement); indication of what type of waste is applied (solid manure only, wastewater only, or both solid manure and wastewater); drainage flow direction in each field, nearby surface waters, and storm water discharge points; tailwater and storm water drainage controls; subsurface (tile) drainage systems (including discharge points and lateral extent); irrigation supply wells and groundwater monitoring wells; sampling locations for discharges of storm water and tailwater to surface water from the field.

Application area map reference number: Exhibit Sheet 2

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of all cropland (land that is part of the dairy but not used for dairy waste application) including the following in sufficient detail: Assessor's Parcel Number, total acreage, crops grown, and information on who owns or leases the field. The Waste Management Plan shall indicate if such cropland is covered under the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Order No. R5-2006-0053 for Coalition Group or Order No. R5-2006-0054 for Individual Discharger, or updates thereto).

Non-application area map reference number: n/a

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of all off-property domestic wells within 600 feet of the production area or land application area(s) associated with the dairy and the location of all municipal supply wells within 1,500 feet of the production area or land application area(s) associated with the dairy.

Well area map reference number: Exhibit Sheets 2-4

Provide a site map (or maps) of appropriate scale to show property boundaries and a vicinity map, north arrow and the date the map was prepared. The map shall be drawn on a published base map (e.g., a topographic map or aerial photo) using an appropriate scale that shows sufficient details of all facilities.

Vicinity map reference number: Exhibit Sheet 1

B. PROCESS WASTEWATER MAP(S)

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of the production area including the following in sufficient detail: process wastewater conveyance structures, discharge points, and discharge /mixing points with irrigation water supplies; pumping facilities and flow meter locations; upstream diversion structures, drainage ditches and canals, culverts, drainage controls (berms/levees, etc.), and drainage easements; and any additional components of the waste handling and storage system.

Production infrastructure system area map reference number: Exhibit Sheets 3 & 4

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of all land application areas (land under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) including the following in sufficient detail: process wastewater conveyance structures, discharge points and discharge mixing points with irrigation water supplies; pumping facilities; flow meter locations; drainage ditches and canals, culverts, drainage controls (berms, levees, etc.), and drainage easements.

Land application infrastructure system area map reference number: Exhibit Sheet 2

C. EXCESS PRECIPITATION CONTINGENCY REPORT

There were no attachment references entered or required for this attachment section.

D. OPERATION AND MAINTENANCE PLAN

Attach a map that identifies critical points for monitoring the system to verify that water is being managed as identified in this Waste Management Plan (see Attachment B, Pg B-7 V.F, V.G, and V.H for additional requirements).

Animal housing assessment map reference number: Exhibit Sheet 3

E. FLOOD PROTECTION / INUNDATION REPORT

Provide an engineering report showing that the facility has adequate flood protection.

Flood zone map and/or document reference number: WMP Section 3.d.

F. BACKFLOW PROTECTION

Attach documentation from a trained professional (i.e. a person certified by the American Backflow Prevention Association, an inspector from a state or local governmental agency who has experience and/or training in backflow prevention, or a consultant with such experience and/or training), as specified in Required Reports and Notices H.1 of Waste Discharge Requirements General Order No. R5-2007-0035, that there are no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the Site Map.

Backflow documentation reference number: WMP Section 3.c.

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

CERTIFICATION

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: John Toste Dairy

Physical address of dairy:

609 Santa Fe Grade
Number and Street

Newman
City

Merced
County

95360
Zip Code

Street and nearest cross street (if no address): _____

B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

I have reviewed the portion of the waste management plan that is related to storage capacity facility and design specifications in accordance with Item II, Attachment B of the Waste Discharge Requirements General Order for Existing Milk Cow Dairies - Order No. R5-2007-0035 and certify that this plan was prepared by, or under the responsible charge of, and certified by a civil engineer who is registered pursuant to California law or other person as may be permitted under the provisions of the California Business and Professions Code to assume responsible charge of such work.

Storage capacity is:

Insufficient

- ☐ Retrofitting Plan/Schedule/Design Criteria attached in accordance with Attachment B, II.B. 1-5 and Attachment B, II. C.

Sufficient

- ☒ Certification 1 - Certified in accordance with Attachment B, II. A. 1-8. (no contingency plan)
- ☐ Certification 2 - Certified in accordance with Attachment B, II. A. 1-8, II. C. (with contingency plan attached)



CIVIL ENGINEER'S WET STAMP

3/10/2019

SIGNATURE OF CIVIL ENGINEER

DATE

Manny Sousa

PRINT OR TYPE NAME

P.O. Box 1613; Oakdale, CA 95361

MAILING ADDRESS

(209) 238-3151

PHONE NUMBER

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

C. OWNER AND/OR OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF OWNER

SIGNATURE OF OPERATOR

John Toste

PRINT OR TYPE NAME

PRINT OR TYPE NAME

DATE

DATE



PRODUCTION AREA DESIGN & CONSTRUCTION REPORT

PART I: DAIRY FACILITY INFORMATION

A. Name of Dairy or Business Operating the Dairy: _____

Physical address of Dairy:

Number and Street City County Zip Code

B. Operator Name: _____ Telephone No: _____

Operator mailing address:

Number and Street City County Zip Code

C. Owner Name: _____ Telephone No: _____

Owner Mailing Address:

Number and Street City County Zip Code

PART II: DESIGN AND CONSTRUCTION DETAILS

A. Corrals and Pens

(1) Is all process wastewater collected in the retention pond? ☐ Yes ☐ No

If Yes, describe how (circle all that apply):

ditch curbs berm(s) drainpipe sumps pumps other

Explain how your system works: _____

If No, describe what is done with it: _____

(2) Is all run on water (clean precipitation and surface drainage) diverted away from the production area? ☐ Yes ☐ No

If Yes, describe how (circle all that apply):

ditch curbs berm(s) slope elevation other

Explain how your system works: The production area is elevated to prevent storm water run-on.

If No, identify areas where the run on occurs: _____

If No, identify how the run on is contained: _____

- (3) If run on water has the potential to contact manure and is not contained, explain what modifications or improvements are proposed, and provide a schedule for construction. (Note: a certification of completion must be provided when complete): _____

- (4) Are there areas where water contacting manure stands for more than 72 hours? ☐ Yes ☐ No

If No, explain how standing water is avoided: _____

If Yes, describe what modifications or improvements are proposed, and provide a schedule for construction. (Note: a certification of completion must be provided when complete.): _____

- (5) Are there conveyance structures such as earthen ditches, bermed channels, or swales where manure water stands for more than 72 hours? ☐ Yes ☐ No

If No, explain how standing water is avoided: _____

If Yes, explain what modifications or improvements are proposed, and provide a schedule for construction. Note: a certification of completion must be provided when complete): _____

B. Animal Housing Area

- (1) Is the animal housing area (i.e., barn, shed, milk parlor, paved and unpaved roadways and areas within the production area, etc.) designed, and constructed to drain all water that has contacted animal wastes to the retention pond? ☐Yes ☐No ☐Partially

If Yes, describe how (circle all that apply)

ditch curbs berm(s) slope elevation drainpipe other

Explain how your system works: _____

If No or Partially, describe the areas not diverted to the retention pond: _____

For the areas not diverted to the retention pond, explain what modifications or improvements are proposed, and a schedule for construction. (Note: a certification of completion must be provided when complete): _____

- (2) Are there any areas, outside of the retention system, where water that has contacted manure stands for more than 72 hours? ☐Yes ☐No

If No, describe how your system works to avoid standing water: _____

If Yes, explain what modifications or improvements are proposed, and provide a schedule for construction. A certification of completion must be provided when complete: _____

- (3) Are there conveyance structures such as earthen ditches, bermed channels, or swales where water that has contacted manure stands for more than 72 hours, or where parts of the conveyance system are used for storage of manure water? ☐Yes ☐No

If Yes, explain what modifications or improvements are proposed to prevent this condition, and provide a schedule for construction. (Note: a certification of completion must be provided when complete): _____

C. Manure and Feed Storage Area

- (1) Is all leachate or water that has contacted stored manure, bedding, or feed collected in the retention pond? ☐ Yes ☐ No

If Yes, describe how (circle all that apply):

ditch curbs berm(s) drainpipe sumps pumps other

Explain how your system works: _____

If No, describe where it is collected and what is done with it: _____

If necessary, explain what modifications or improvements are proposed, and provide a schedule for construction. (Note: a certification of completion must be provided when complete): _____

- (2) Are there any areas where leachate or water contacting stored manure, bedding, or feed stands for more than 72 hours? ☐ Yes ☐ No

If No, describe how standing leachate and water is prevented or handled: _____

If Yes, explain what modifications or improvements are proposed, and provide a schedule for construction. (Note: a certification of completion must be provided when complete): _____

- (3) Are there conveyance structures such as earthen ditches, bermed channels, or swales where leachate or water that has contacted stored manure, bedding, or feed stands for more than 72 hours, or are there parts of the system that are used for storage of leachate or manure water? ☐ Yes ☐ No

If Yes, explain what modifications or improvements are proposed to prevent this condition, and provide a schedule for construction. (Notes: a certification of completion must be provided when complete): _____

I certify that the modifications or improvements identified above or similar alternatives were completed to achieve collection and management of all process wastewater, water that has contacted animal wastes, and runoff and leachate from manure and feed storage areas.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

John Toste
SIGNATURE OF OWNER

SIGNATURE OF OPERATOR

PRINT OR TYPE NAME

PRINT OR TYPE NAME

1-14-19
DATE

DATE

1. Identify cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map;
2. Propose and schedule corrective action to prevent backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map; and/or
3. Document there are no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map.

A Site Map must be attached to this form that shows all water supply wells, irrigation wells, and surface water bodies in the dairy's Production Area and all Land Application Areas that are under the Discharger's control. The Site Map must also show all wastewater conveyance structures, wastewater discharge points to surface water, and where wastewater is mixed/blended with fresh irrigation water in these areas. Each of these locations must be identified by a name or number and listed in Part II below. Completion of Part II will identify how backflow can or does occur at each location and any current backflow preventive measures.

A. Name of Dairy or Business Operating the Dairy: _____

Number and Street	City	County	Zip Code
-------------------	------	--------	----------

B. Operator Name: _____ Telephone No: _____

Number and Street	City	County	Zip Code
-------------------	------	--------	----------

C. Owner Name: _____ Telephone No: _____

Number and Street	City	County	Zip Code
-------------------	------	--------	----------

Page 1

**FORM FOR DOCUMENTING BACKFLOW PREVENTION
UNDER
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035
FOR
EXISTING MILK COW DAIRIES**



PART II: IDENTIFICATION OF EXISTING BACKFLOW CONDITIONS (due by 1 July 2008)

The attached Site Map identifies all of the locations in the Production Area and all Land Application Areas under the control of the Discharger at the dairy identified in Part I above where there are cross-connections that could, or do, allow the backflow of wastewater into a water supply well, irrigation well, or surface water. For each location shown on the map, the table below describes:

- a. How and where wastewater can potentially, or does, backflow to a groundwater supply and/or surface water supply (if there are no current or potential backflow problems, indicate so with "none"), and
- b. How backflow of process wastewater into the groundwater or surface water supply is currently prevented (if there is no current prevention method, indicate so with "none").

Location Where Backflow can Occur	How Backflow Can or Does Occur	Current Backflow Preventive Measure
none		

**FORM FOR DOCUMENTING BACKFLOW PREVENTION
UNDER
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035
FOR
EXISTING MILK COW DAIRIES**



PART III: PROPOSED BACKFLOW CORRECTIVE ACTIONS AND SCHEDULE (due by 1 July 2008)

For each location identified in Part II above where there is currently no backflow prevention, the table below identifies:

- a. The method proposed to be implemented that will prevent backflow, and
- b. A schedule to install the preventive measure.

If there are no current or potential backflow problems identified in Part II above, this Part does not need to be completed.

Location With No Current Backflow Prevention	Proposed Backflow Prevention Method	Schedule to Install Proposed Backflow Prevention Method

PART IV: DOCUMENTATION OF EXISTING BACKFLOW CONDITIONS AND PROPOSED BACKFLOW PREVENTION METHODS (due by 1 July 2008)

As a trained professional in backflow prevention, I certify that, based on the information provided to me by the Discharger named above and my personal examination of the wastewater system, the above information in Part II above is true, accurate, and complete and the proposed backflow prevention method in Part III above will be effective to prevent the backflow of wastewater into a water supply well, irrigation well, or surface water at the dairy named in Part I above.

QUALIFICATIONS OF TRAINED PROFESSIONAL (EDUCATION AND/OR EXPERIENCE)

SIGNATURE OF TRAINED PROFESSIONAL

DATE

PRINT OR TYPE NAME

**FORM FOR DOCUMENTING BACKFLOW PREVENTION
UNDER
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035
FOR
EXISTING MILK COW DAIRIES**



**PART V: DOCUMENTATION THAT THERE ARE NO CROSS-CONNECTIONS THAT
WOULD ALLOW THE BACKFLOW OF WASTEWATER INTO A WATER SUPPLY WELL,
IRRIGATION WELL, OR SURFACE WATER (due by 1 July 2009)**

As a trained professional in backflow prevention, I certify that, based on the information provided to me by the Discharger named in Part I above and my personal examination of the wastewater system, that the backflow prevention methods proposed in Part III above (if any) have been completed, and/or there are currently no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water at the dairy named in Part I above.

CA Registered Civil Engineer No. 65379

QUALIFICATIONS OF TRAINED PROFESSIONAL (EDUCATION AND/OR EXPERIENCE)

Manny Sousa

1-17-19

SIGNATURE OF TRAINED PROFESSIONAL

DATE

Manny Sousa

PRINT OR TYPE NAME

PART VI: OWNER AND/OR OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

John Toste

SIGNATURE OF OWNER

SIGNATURE OF OPERATOR

John Toste

PRINT OR TYPE NAME

PRINT OR TYPE NAME

1-14-19

DATE

DATE

**FLOOD PROTECTON ANALYSIS
FOR
JOHN TOSTE DAIRY
MERCED COUNTY, CA**

TABLE OF CONTENTS

1. Introduction / Project Overview
2. Determination of Base Flood Elevation (BFE)
3. Determination of Elevations of Existing Dairy Production Area within FEMA Zone A
4. Determination of Levels of Flood Protection and Inundation / Conceptual Flood Protection Plan
5. Exhibits
 - a. Vicinity Map
 - b. FIRM Panel No. 06047C0350G
 - c. Estimated 100-Year Base Flood Elevation
 - d. Existing Topography – Existing and Proposed Improvements
 - e. Conceptual Flood Protection Plan / Grading Plan



INTRODUCTION / PROJECT OVERVIEW

This analysis has been prepared to accompany a Waste Management Plan prepared in conjunction with a Conditional Use Permit (CUP) application for expansion of the existing John Toste Dairy facility in Merced County, CA. A Waste Management Plan (WMP) describing the generation and management of dairy wastewater by the facility must be prepared in accordance with Merced County and Central Valley Regional Water Quality Control Board (CVRWQCB) requirements. CVRWQCB General Order No. R5-20013-0122, *Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies*, (Order) was adopted by the California Regional Water Quality Control Board (CRWQCB) Central Valley Region in 2013 and establishes the criteria for preparation of the WMP.

Per the requirements set forth by the aforementioned Order each existing milk cow dairy in the Central Valley Region that is located in an area subject to inundation from the prescribed flood event must have or must construct improvements that provide protection from that flood event. More particularly the aforementioned Order states the following:

General Specification B.2: *“In the Sacramento and San Joaquin River Basins, ponds and manured areas at existing milk cow dairies in operation on or before 27 November 1984 shall be protected from inundation or washout by overflow from any stream channel during 20-year peak stream flows. Existing milk cow dairies that were in operation on or before 27 November 1984 and that are protected against 100-year peak stream flows must continue to provide such protection.*

Existing milk cow dairies built or expanded after 27 November 1984 shall be protected against 100-year peak stream flows (Title 27 Section 22562(c)).”

Since this WMP is being prepared as part of an application to expand this dairy, the facility will be evaluated using available 100-year peak stream flow data.

The above referenced section of Title 27 (Section 22562 of Chapter 7, Subchapter 2) also states the following criterion in its item (3):

“The determination of peak stream flows shall be from data provided by a recognized federal, state, local, or other agency.”

The source of flood information for this analysis is Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) Flood Insurance Studies (FISs). FIRMs and FISs are industry standard sources of flood information for engineers, scientists, lending institutions, and other industries with a vested interest in the location of real property as it relates to areas subject to flood inundation.

A portion of the existing John Toste Dairy site lies within a FEMA Zone A, or an area determined to be subject to inundation by the 100-year flood event. It is the intent of this analysis to do the following:

1. Determine a Base Flood Elevation (BFE) for the portion of the site location with the FEMA Zone A.
2. Determine the elevations of existing Dairy Production Area (DPA) improvements relative to the determined BFE.
 - a. If the DPA is currently protected from inundation by the design storm event, then the extent of this protection will be demonstrated.

- b. If the DPA is not protected from inundation by the design storm event, then the extent of inundation will be demonstrated.
3. If portions of the existing and proposed DPA are determined not to be protected from the design storm event by existing conditions, then a plan for constructing improvements to provide adequate protection will be developed.

Neither this analysis nor any of the information contained herein represent a certificate of elevation or Letter of Map Revision or Amendment (LOMR / LOMA) for the project site.

DETERMINATION OF BASE FLOOD ELEVATION (BFE)

A portion of the existing John Toste Dairy site lies within Zone A per the relevant FIRM. Zone A is defined as an area subject to inundation by the 100-year storm event but for which a Base Flood Elevation (BFE) has not been established. The location of the DPA is shown on the FIRM on the attached Exhibit B.

The hydrologic analysis used to determine the boundary of Zone A in these cases typically has been performed utilizing topographic information available on quadrangle maps prepared by the United States Geological Survey (USGS). The method of determining an estimated flood elevation for Zone A sites as recommended by FEMA is to superimpose the Zone A boundary defined by the FIRM over the relevant USGS quadrangle map and interpolate the elevation along said Zone A boundary (see *Managing Floodplain Development in Approximate Zone A Areas*, Federal Emergency Management Agency, April, 1995).

For purposes of this analysis the FIRM was digitally superimposed over an aerial photo of the project site. The 20' contours on the quadrangle map were digitized and a three-dimensional model of the existing terrain was generated. Spot elevations of this model were then taken along the Zone A boundary in order to obtain estimated flood elevations within the DPA. The elevations of the model along with the aforementioned spot elevations are shown on Exhibit C, Estimated 100-Year Base Flood Elevation. Spot elevations are designated as "og_quad" on the drawing.

As indicated on Exhibit C, Estimated 100-Year Base Flood Elevation, the estimated flood elevation in the vicinity of the DPA that is subject to inundation is approximately 77.4' (NAVD88 datum). Rounding up to the nearest one-half foot, the BFE will thus be estimated at 77.5' (NAVD88).

DETERMINATION OF ELEVATION OF EXISTING DAIRY PRODUCTION AREA WITHIN FEMA ZONE A

An engineering survey was performed in order to determine the actual existing elevations of facilities within the DPA relative to the estimated flood elevation. USGS benchmarks were used to establish elevations based on the datum corresponding to that of the quadrangle map relevant to the project site. The elevations shown on the quadrangle map are based on the North American Vertical Datum of 1988 (NAVD88). A three dimensional model of the existing terrain was generated using the engineering survey performed on the existing DPA improvements in order to compare actual elevations to those of the estimated flood elevation. Contours of that model are shown on Exhibit D, Existing Topography – Existing Improvements.

It is apparent upon visual inspection that much of the existing DPA was raised significantly above existing grade during construction. In particular the following areas appear to have been elevated in the manners described:

- a. The existing structures, including the milking parlor and animal shelters, have been elevated to finished elevations between 77.5' and 81.0'. This represents an increase from existing natural grade of between 2' to 6' and an elevation equal to or 3.5' higher than the estimated BFE;
- b. Portions of the feed storage area and portions of corrals have been elevated to finished elevations between 77.5' and 80'. This represents an increase from existing natural grade of between 2' and 5' and an elevation equal to or 2.5' higher than the estimated BFE.

As shown on Exhibit D, Existing Topography – Existing Improvements, approximately 60% of the DPA that is within Zone A as described above has been constructed to finished elevations at or above the estimated BFE. These areas are outlined in red on the aforementioned Exhibit D.

As also shown on Exhibit D, portions of the DPA would be subject to inundation levels of approximately 0.5' to 1.5' based on the estimated 100-year BFE. These areas are outlined in blue on the aforementioned Exhibit D and include approximately 40% of DPA that is within Zone A.

DETERMINATION OF LEVELS OF FLOOD PROTECTION AND INUNDATION / CONCEPTUAL FLOOD PROTECTION PLAN

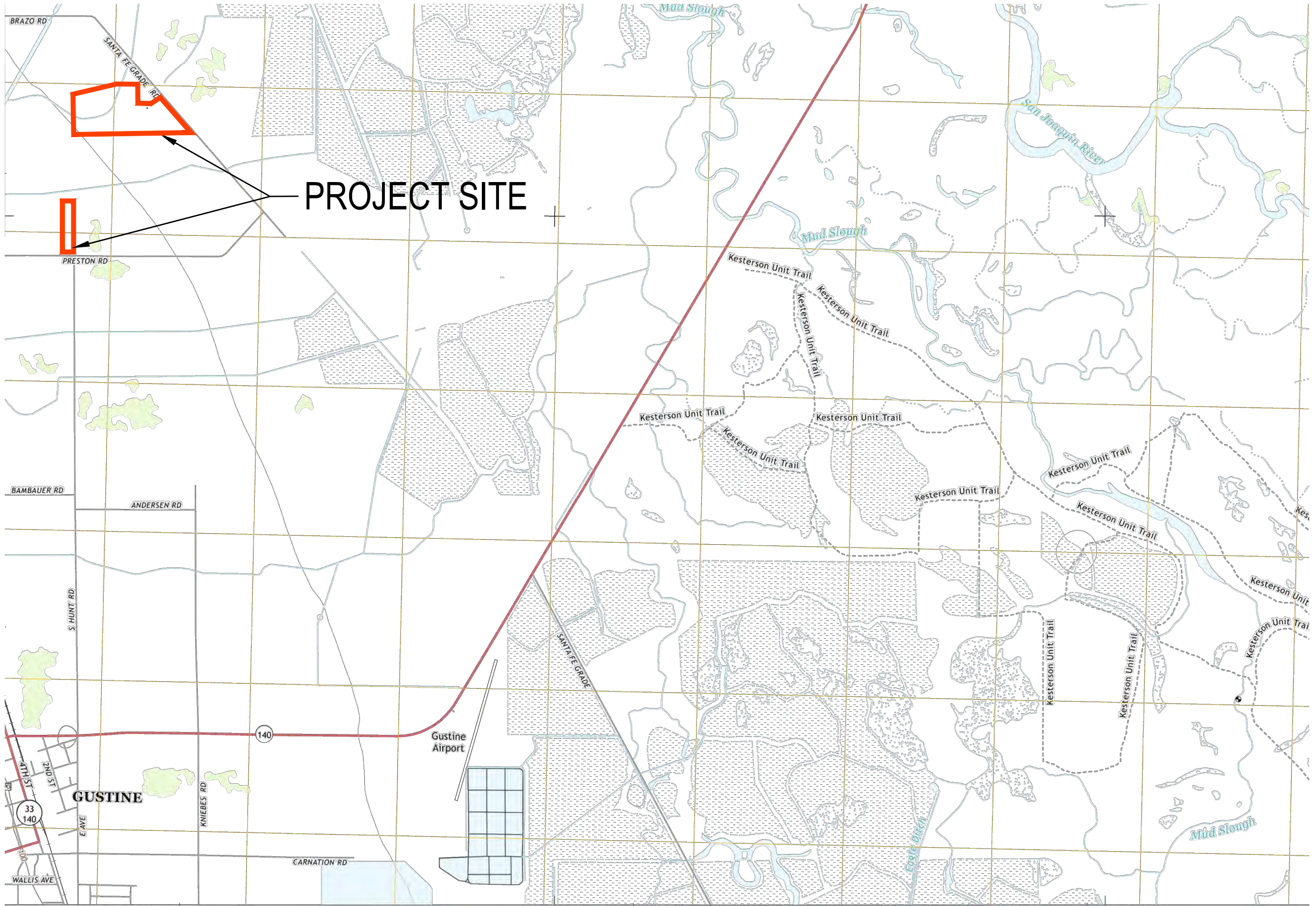
As discussed in the previous section approximately 60% of the existing DPA that is within the designated Zone A area has been elevated to elevations between 77.5' to 81.0', or equal to or 3.5' above the estimated flood elevation, and as such currently meets the requirements of General Specification B.2. of the General Order for flood protection. However the remaining 40% of the existing DPA that is within Zone A would be subject to inundation levels of approximately 0.5' to 1.5' in the event of a 100-year storm at its current elevation.

A Conceptual Grading Plan / Flood Protection Plan has been prepared and is incorporated in this Analysis as Exhibit E. This Plan includes proposed improvements that would provide adequate flood protection as required by the Order. A summary of the proposed improvements is as follows:

1. Elevating existing access roads on the north, east, and south perimeter of the DPA to finished elevations of 77.5' or greater.
2. New structures will be constructed with finished floor elevations of 79.00' or greater.

With construction of the proposed improvements described above and shown conceptually on Exhibit E, the existing DPA should have adequate protection from the 100-year flood event.

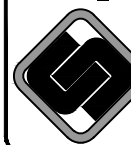
EXHIBITS



PROJECT SITE

SOUSA
ENGINEERING

INFRASTRUCTURE · DEVELOPMENT ·
AGRICULTURE

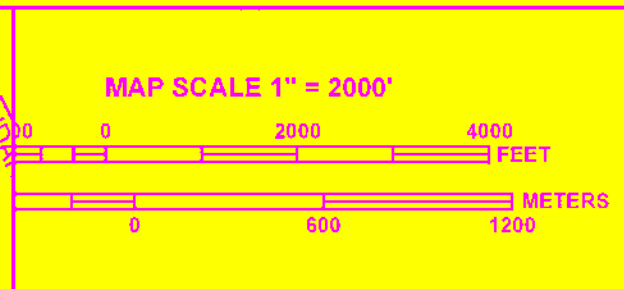
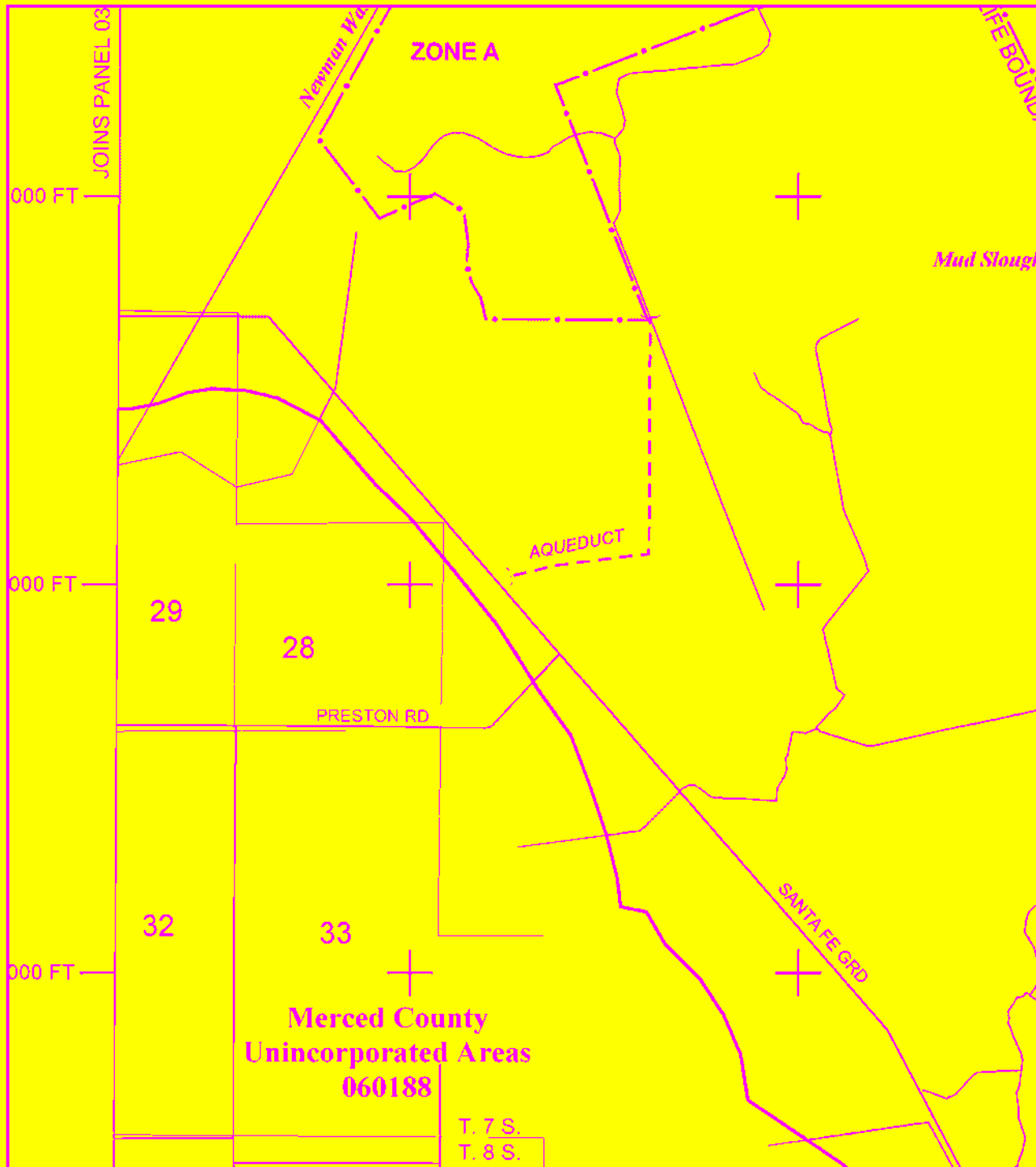


PO BOX 1613
OAKDALE, CA 95361
PH: (209)238-3151
WWW.SOUSAENG.COM

EXHIBIT A
VICINITY MAP

JOHN TOSTE DAIRY
MERCED COUNTY, CA

DRAWN BY: MS	
DATE: 11/6/2018	
FILE: 01_vic.dwg	
JOB NO: 2018-016	
SYMBOL	REVISIONS
	DESCRIPTION
	APPD.



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0350G

FIRM

FLOOD INSURANCE RATE MAP

**MERCED COUNTY,
CALIFORNIA**

AND INCORPORATED AREAS

PANEL 350 OF 1225

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GUSTINE CITY OF	000447	0350	G
MERCED COUNTY	000188	0350	G

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER
06047C0350G**

**MAP REVISED
DECEMBER 2, 2008**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



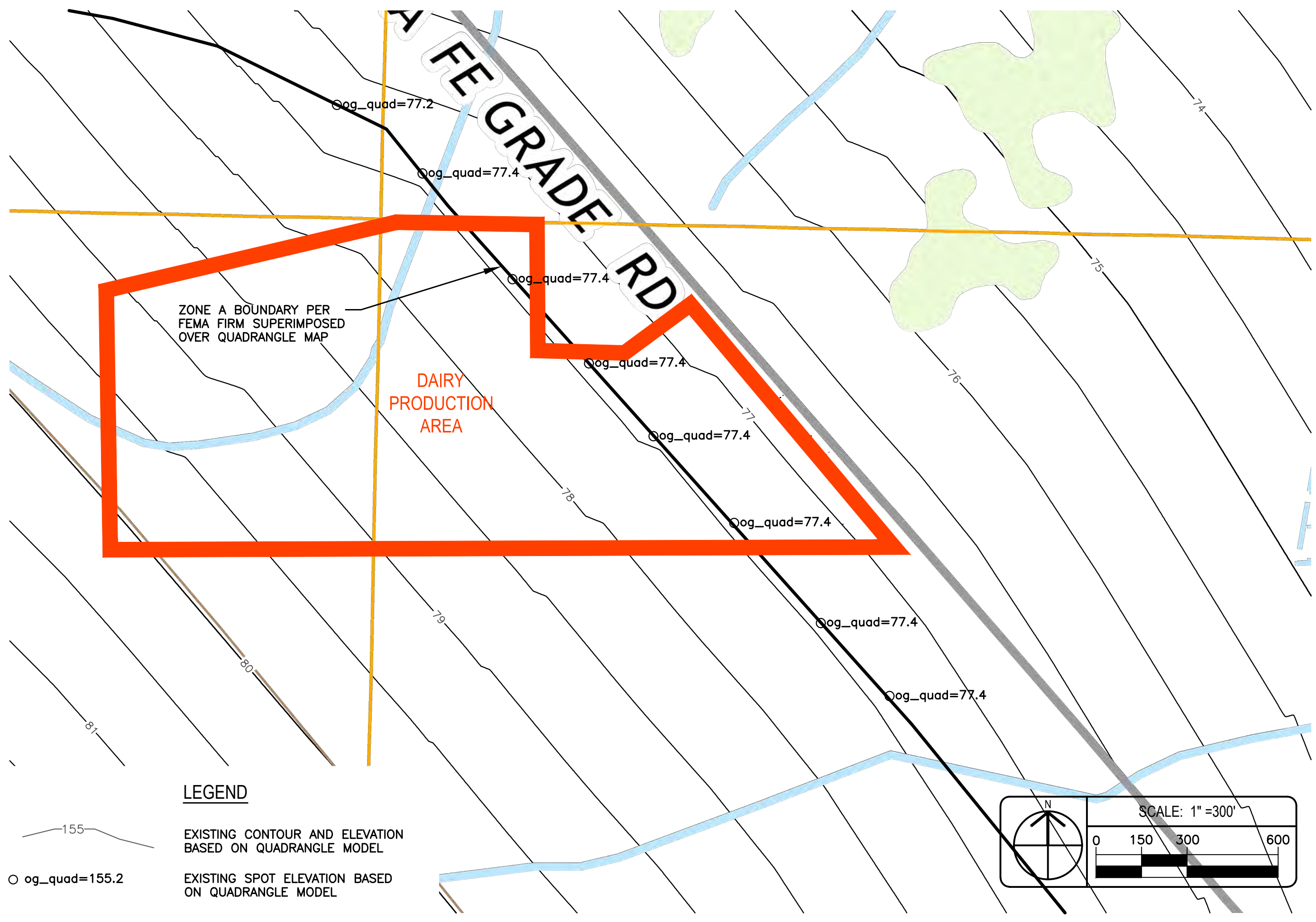
SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT -
AGRICULTURE

PH: (209)238-3151
WWW.SOUSAENG.COM

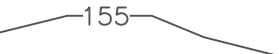

PO BOX 1613
OAKDALE, CA 95361

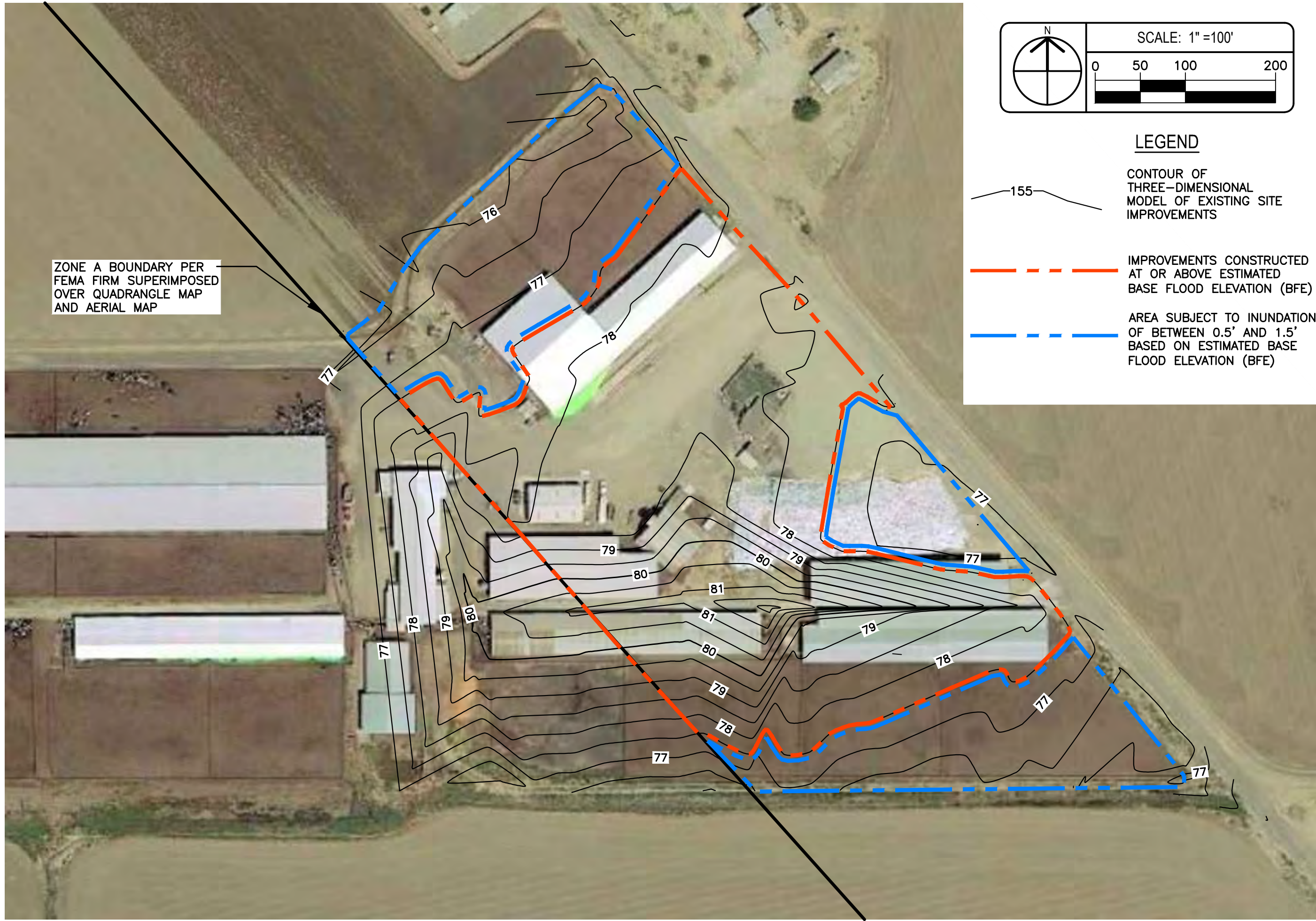
EXHIBIT C
ESTIMATED 100-YEAR BASE FLOOD
ELEVATION
JOHN TOSTE DAIRY
MERCED COUNTY, CA

DRAWN BY: MS	REVISIONS	APPD.
DATE: 11/8/2018	DESCRIPTION	
FILE: 03_site.dwg		
JOB NO.: 2018-016		

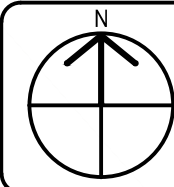


LEGEND

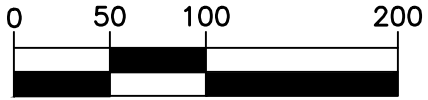
-  EXISTING CONTOUR AND ELEVATION BASED ON QUADRANGLE MODEL
-  EXISTING SPOT ELEVATION BASED ON QUADRANGLE MODEL



ZONE A BOUNDARY PER
FEMA FIRM SUPERIMPOSED
OVER QUADRANGLE MAP
AND AERIAL MAP



SCALE: 1" = 100'



LEGEND

155

CONTOUR OF
THREE-DIMENSIONAL
MODEL OF EXISTING SITE
IMPROVEMENTS

IMPROVEMENTS CONSTRUCTED
AT OR ABOVE ESTIMATED
BASE FLOOD ELEVATION (BFE)

AREA SUBJECT TO INUNDATION
OF BETWEEN 0.5' AND 1.5'
BASED ON ESTIMATED BASE
FLOOD ELEVATION (BFE)

SHEET
4 OF 5

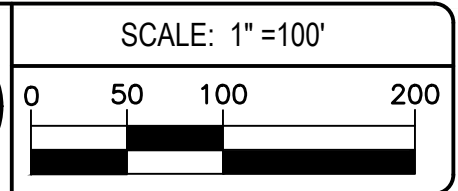
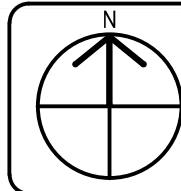
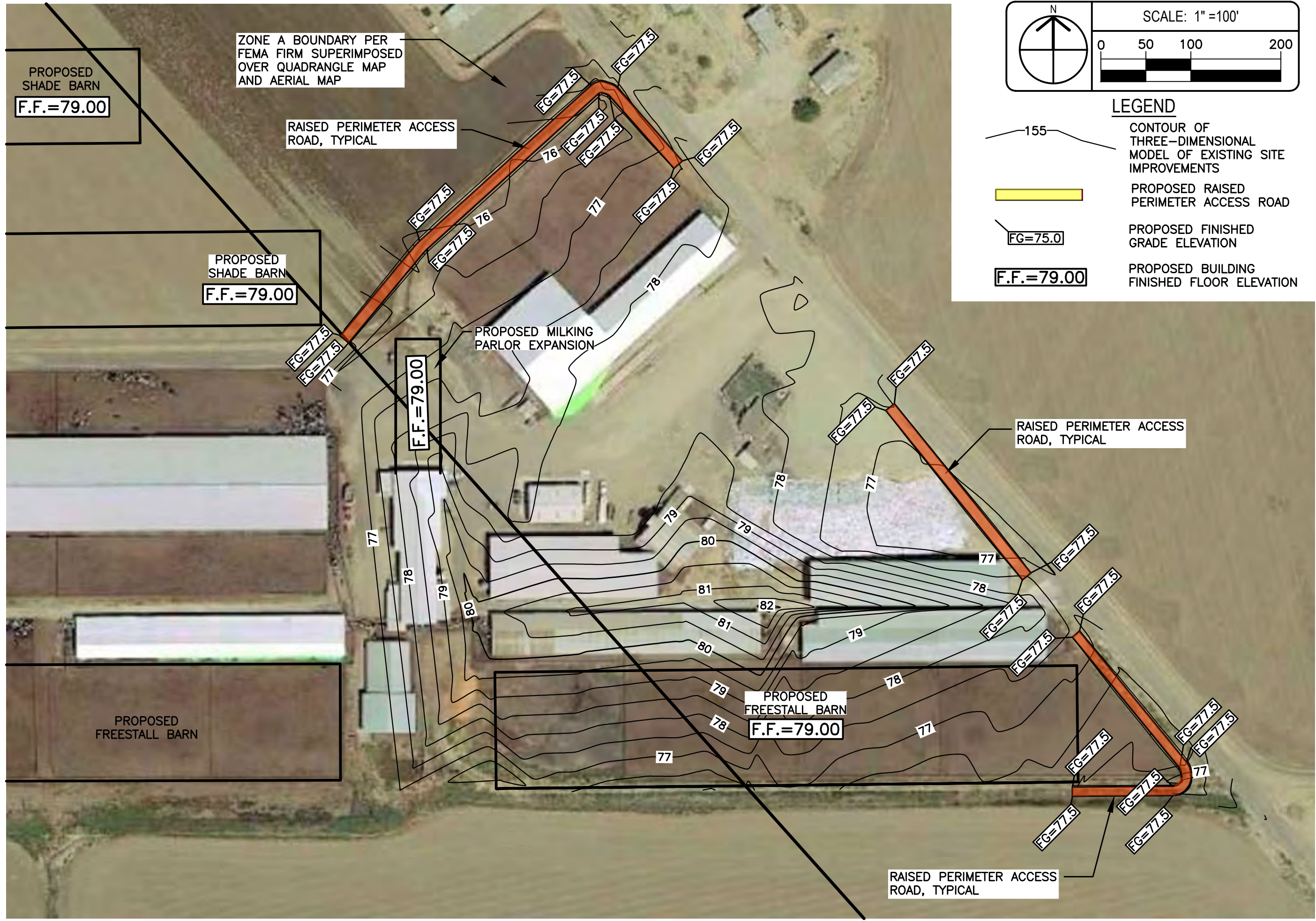
Sousa
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT -
AGRICULTURE



PH: (209)238-3151
WWW.SOUSAENG.COM
PO BOX 1613
OAKDALE, CA 95361

EXHIBIT D
EXISTING TOPOGRAPHY -
EXISTING AND PROPOSED
IMPROVEMENTS
JOHN TOSTE DAIRY
MERCED COUNTY, CA

DRAWN BY: MS	DATE: 11/8/2018	FILE: 04_survey.dwg	JOB NO.: 2018-016
SYMBOL	REVISIONS	DESCRIPTION	APPD.



LEGEND

- 155 CONTOUR OF THREE-DIMENSIONAL MODEL OF EXISTING SITE IMPROVEMENTS
- PROPOSED RAISED PERIMETER ACCESS ROAD
- PROPOSED FINISHED GRADE ELEVATION
- PROPOSED BUILDING FINISHED FLOOR ELEVATION

Sousa
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT - AGRICULTURE

PH: (209)238-3151
WWW.SOUSAENG.COM

PO BOX 1613
OAKDALE, CA 95361

EXHIBIT E
CONCEPTUAL GRADING AND
FLOOD PROTECTION PLAN
JOHN TOSTE DAIRY
MERCED COUNTY, CA

DRAWN BY: MS	DATE: 11/12/2018	FILE: 05_grad.dwg	JOB NO.: 2018-016	REVISIONS	APPD.
				DESCRIPTION	

**VECTOR CONTROL PLAN
FOR
JOHN TOSTE DAIRY
MERCED COUNTY, CA**

TABLE OF CONTENTS

- 1. INTRODUCTION**
- 2. BEST MANAGEMENT PRACTICES**
 - a. Land Application Areas
 - b. Dairy Production Area (DPA)
- 3. CONTACT INFORMATION**

1. INTRODUCTION

Vector control is an important aspect of disease prevention and public health. Without proper management, agricultural production facilities can create or enhance opportunities for vectors to develop and proliferate. Certain land management practices can reduce vector populations thereby reducing long-term vector treatment costs, reducing the amount of pesticides used in vector control operations, helping to protect public health, and contributing to an integrated pest management (IPM) approach to vector control.

Integrated Pest Management is an approach that focuses on site-specific, scientifically sound decisions to manage pest populations by matching a wide variety of techniques with the conditions found on site. These techniques are commonly grouped into four categories:

1. Source reduction or physical control—environmental manipulation that results in a reduction of vector development sites.
2. Biological Control—use of biological agents to limit vector populations
3. Chemical Control—larvicides (materials that kill immature larval vectors and mosquitoes) and adulticides (materials that kill adult vectors and mosquitoes)
4. Cultural Control—change the behavior of people so that their actions prevent the development of vectors or the transmission of vector-borne disease.

Through the adoption of these policies and procedures, this Plan will provide an outline to effectively control vectors by physical, cultural, and biological means.

The Vector Reduction Best Management Practices (BMPs) referred to in this document are the recommended land management practices that can provide a reduction in vector populations by various means including: reducing or eliminating breeding areas, increasing the efficacy of biological controls, increasing the efficacy of chemical controls, and improving access for control operations.

While it is generally accepted that vector production from all sources may be reduced through the widespread implementation of vector Reduction BMPs, these policies specifically target the most severe vector problems with the greatest likelihood of responding through the use of BMPs.

2. **BEST MANAGEMENT PRACTICES (BMPs)**

- a. **Land Application Areas:** for Land Application Areas, the following are areas of concern and recommended BMPs for vector control:

Common Vector Development Areas

- Vegetated ditches
- Seepage or flooding of fallow fields
- Irrigation tail water return sumps
- Blocked ditches or culverts
- Leaky water control structures
- Irrigated pastures
- Low areas caused by improper grading
- Broken or leaky irrigation pipes or valves

Special Concerns

Agricultural practices vary among growers, locations, and conventional or organic production methods. Pesticide regulations can affect the ability to use chemical control. The Best Management Practices below are offered as tools to balance the economic and agronomic requirements of the growers and land owners with the need for effective vector control.

General Vector Reduction Principles

1. Prevent or eliminate unnecessary standing water that stands for more than 72 –96 hours during mosquito season which can start as early as March and extend through October depending on weather.
2. Maintain access for Abatement District staff to monitor and treat mosquito breeding sources.
3. Minimize emergent vegetation and surface debris on the water.
4. Contact the County Department of Environmental Health or Mosquito Abatement District for technical guidance or assistance in implementing vector reduction BMPs.

Vector Reduction BMPs for Land Application Areas

Ditches and Drains

- DD-1** Construct or improve ditches with at least 2:1 slopes and a minimum 4-foot bottom. Consider a 3:1 slope or greater to discourage burrowing animal damage, potential seepage problems, and prevent unwanted vegetation growth. Other designs may be approved by the MVCD based on special circumstances.
- DD-2** Keep ditches clean and well-maintained. Periodically remove accumulated sediment and vegetation. Maintain ditch grade to prevent areas of standing water.

- DD-3** Design irrigation systems to use water efficiently and drain completely to avoid standing water.

Irrigated Pastures

- IP-1** Grade field to achieve efficient use of irrigation water. Use NRCS guidelines for irrigated pastures. Initial laser leveling and periodic maintenance to repair damaged areas are needed to maintain efficient water flow.
- IP-2** Irrigate only as frequently as is needed to maintain proper soil moisture. Check soil moisture regularly until you know how your pasture behaves
- IP-3** Do not over fertilize. Excess fertilizers can leach into irrigation tail water, making mosquito production more likely in ditches or further downstream
- IP-4** Apply only enough water to wet the soil to the depth of rooting.
- IP-5** Drain excess water from the pasture within 24 hours following each irrigation. This prevents scalding and reduces the number of weeds in the pasture. good check slopes are needed to achieve drainage. A drainage ditch may be used to remove water from the lower end of the field.
- IP-6** Inspect fields for drainage and broken checks to see whether re-leveling or reconstruction of levees is needed. Small low areas that hold water can be filled and replanted by hand. Broken checks create cross-leakage that provide habitat for vectors.
- IP-7** Keep animals off the pasture while the soil is soft. An ideal mosquito habitat is created in irrigated pastures when water collects in hoof prints of livestock that were run on wet fields or left in the field during irrigation. Keeping animals off wet fields until soils stiffen also protects the roots of the forage crop and prevents soil compaction that interferes with plant growth.
- IP-8** Break up pastures into smaller fields so that the animals can be rotated from one field to another. This allows fields to dry between irrigations and provides a sufficient growth period between grazings. It also prevents hoof damage (pugging), increases production from irrigated pastures, and helps improve water penetration into the soil by promoting a better root system.

- b. Dairy Production Area (DPA):** for the Dairy Production Area, the following are areas of concern and recommended BMPs for vector control:

Common Vector Development Areas

- Wastewater lagoons
- Animal washing areas

- Drain ditches
- Sumps/ponds
- Watering troughs

Special Concerns

Dairy and associated agricultural practices vary; however, these practices need to consider mosquito and vector control issues. The Best Management Practices for Vector Reduction below offer options to balance the requirements of the dairy operators with the need for effective vector control.

General Vector Control Principles

1. Prevent or eliminate unnecessary standing water that remains for more than 72 –96 hours during mosquito season which can start as early as March and extend through October depending on weather.
2. Maintain access for Abatement District staff to monitor and treat mosquito breeding sources.
3. Minimize emergent vegetation and surface debris on the water.
4. Contact the County Department of Environmental Health or Mosquito Abatement District for technical guidance or assistance in implementing vector reduction BMPs.

Vector Reduction BMPs for Dairy Production Area

- DA-1 All holding ponds should be surrounded by lanes of adequate width to allow safe passage of vector control equipment. This includes keeping the lanes clear of any materials or equipment (e.g. trees, calf pens, hay stacks, silage, tires, equipment, etc.).
- DA-2 If fencing is used around the holding ponds, it should be placed on the outside of the lanes with gates provided for vehicle access.
- DA-3 It is recommended that all interior banks of the holding ponds should have a grade of at least 2:1.
- DA-4 An effective solids separation system should be utilized such as a mechanical separator or two or more solids separator ponds. If ponds are used, they should not exceed sixty feet in surface width.
- DA-5 Drainage lines should not by-pass the separator ponds whenever possible, except those that provide for normal corral run-off and do not contain solids. All drain inlets must be sufficiently graded to prevent solids accumulation.
- DA-6 Floating debris should be minimized in all ponds; mechanical agitators may be used to break up crusts.

- DA-7 Vegetation should be controlled regularly to prevent emergent vegetation and barriers to access. This includes access lanes, interior pond embankments and any weed growth that might become established within the pond surface.
- DA-8 Dairy wastewater discharged for irrigation purposes should be managed so that it does not stand for more than three days.
- DA-9 All structures and water management practices should meet current California Regional Water Quality Control Board requirements.
- DA-10 Tire sidewalls or other objects that will not hold water should be used to hold down tarps (e.g. on silage piles). Whole tires or other water-holding objects should be replaced.

3. **CONTACT INFORMATION**

- a. Merced County Department of Environmental Health
260 E. 15th St.
Merced, CA 95341
Toll Free: 800-734-7391
Phone: (209)381-1100
Fax: (209) 384-1593

- b. Merced County Mosquito Abatement District
3478 Beachwood Drive
P.O. Box 909
Merced, CA 95341
Toll Free: 800-622-3242
Phone: (209) 722-1527
Fax: (209) 722-3051

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

AVAILABLE NUTRIENTS

A. HERD INFORMATION

The milk cow dairy is currently regulated under individual Waste Discharge Requirements.

Total number of milk and dry cows combined as a baseline value in response to the Report of Waste Discharge (ROWD) request of October, 2005:

3,000 milk and dry cows combined (regulatory review is required for any expansion)

	Milk Cows	Dry Cows	Bred Heifers (15-24 mo.)	Heifers (7-14 mo. to breeding)	Calves (4-6 mo.)	Calves (0-3 mo.)
Present count	2,500	500	0	2,550	400	0
Maximum count	2,500	500	0	2,550	400	0
Avg live weight (lbs)	1,400	1,400	0	700		
Daily hours on flush	20	20	0	0	0	0

Predominant milk cow breed: Holstein

Average milk production: 68 pounds per cow per day

B. IRRIGATION SOURCES

Irrigation Source Name	Type	Nitrogen (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Discharge Rate
CCID Canal	Surface water (canal, river)	0.40	0.00	0.00	15 cfs
CCID Canal	Surface water (canal, river)	1.44			6 cfs

C. NUTRIENT IMPORTS

Nutrient Type/Name	Quantity	Moisture	Nitrogen	Phosphorus (as P2O5)	Potassium (as K2O)
UN 32	17.35 ton	0.1%	32.000%	0.000%	0.000%

Total nitrogen imported: 11,092.90 lbs

Total phosphorus imported: 0.00 lbs

Total potassium imported: 0.00 lbs

D. NUTRIENT EXPORTS

Nutrient Type/Name	Quantity	Moisture	Nitrogen	Phosphorus (as P2O5)	Potassium (as K2O)
Fall Settling Basin	7,300.00 ton	70.0%	2.700%	1.100%	1.300%
Sprng Settling Basin	7,300.00 ton	25.0%	1.500%	0.900%	1.000%
Spring Corral Solids	5,200.00 ton	20.0%	3.300%	1.750%	2.200%
Fall Corral Solids	5,200.00 ton	50.0%	2.750%	1.500%	2.000%

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

Total nitrogen exported: 700,070.00 lbs

Total phosphorus exported: 161,834.21 lbs

Total potassium exported: 376,388.40 lbs

E. STORAGE PERIOD

Storage period is the maximum period of time anticipated between land application of process wastewater (from storage ponds/lagoons) to croplands. A qualified agronomist and civil engineer should collaborate and collectively consider predominant soil types, soil infiltration rates, maximum depth, available water, field capacity, permanent wilting point, allowable depletion, crop water use, evapotranspiration, precipitation, irrigation system capacity, water delivery constraints, crop nutrient requirements, soil nutrient adsorption/desorption, rooting depth, nutrient accumulation/availability for current and future crop needs, facility wide process wastewater storage capacity and other factors as deemed necessary across all croplands where process wastewater is applied in selecting a storage period. In many cases conflicts will arise between crop water demands, crop nutrient demands and insufficient process wastewater storage capacity. Process wastewater may not be the best choice as a source of either water and/or nutrients to meet crop demands throughout the year. Groundwater and surface water vulnerability has been considered.

The storage period selected in this Nutrient Management Plan is consistent with the storage period selected in the Waste Management Plan.

Storage period: 120 days

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

APPLICATION AREA

A. ASSESSOR PARCEL NUMBER: 0026-0016-0032-0000

Legal owner of parcel:	<u>Trucking Inc., Five JS</u>	Telephone no.:	<u>(209) 854-6038</u>
		Landline	Cellular
<u>1240 Brentwood AVE</u>	<u>Gustine</u>	<u>CA</u>	<u>95322</u>
Mailing Address Number and Street	City	State	Zip Code

ASSESSOR PARCEL NUMBER: 0026-0016-0033-0000

Legal owner of parcel:	<u>Trucking Inc., Five JS</u>	Telephone no.:	<u>(209) 854-6038</u>
		Landline	Cellular
<u>1240 Brentwood AVE</u>	<u>Gustine</u>	<u>CA</u>	<u>95322</u>
Mailing Address Number and Street	City	State	Zip Code

ASSESSOR PARCEL NUMBER: 0054-0090-0001-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0054-0090-0004-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0054-0100-0018-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0054-0100-0023-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0054-0100-0030-0000

Legal owner of parcel: Owned by Dairy

ASSESSOR PARCEL NUMBER: 0054-0130-0005-0000

Legal owner of parcel:	<u>Azevedo, Elmer & Julia</u>	Telephone no.:	<u>(209) 862-2373</u>
		Landline	Cellular
<u>P.O. Box 187</u>	<u>Gustine</u>	<u>CA</u>	<u>95322</u>
Mailing Address Number and Street	City	State	Zip Code

ASSESSOR PARCEL NUMBER: 0128-0023-0002-0000

Legal owner of parcel:	<u>Trucking Inc., Five JS</u>	Telephone no.:	<u>(209) 854-6038</u>
		Landline	Cellular
<u>1240 Brentwood AVE</u>	<u>Gustine</u>	<u>CA</u>	<u>95322</u>
Mailing Address Number and Street	City	State	Zip Code

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

B. FIELD NAME: Azevedo

Cropable acres: 18

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? ☐ Yes ☒ No

Can fresh water for irrigation purposes be delivered to the field year round? ☐ Yes ☒ No

Can process wastewater be delivered to the field at agronomic rates and times? ☐ Yes ☒ No

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	18
Corn, silage	Late May	Late September	18

FIELD NAME: Azevedo Home - 6

Cropable acres: 22

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? ☐ Yes ☒ No

Can fresh water for irrigation purposes be delivered to the field year round? ☐ Yes ☒ No

Can process wastewater be delivered to the field at agronomic rates and times? ☒ Yes ☐ No

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	22
Corn, silage	Late May	Late September	22

FIELD NAME: Botelho Back 40 - 3

Cropable acres: 36

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? ☐ Yes ☒ No

Can fresh water for irrigation purposes be delivered to the field year round? ☐ Yes ☒ No

Can process wastewater be delivered to the field at agronomic rates and times? ☒ Yes ☐ No

Tailwater management method: Returned to retention pond

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	36
Corn, silage	Late May	Late September	36

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

FIELD NAME: Botelho East - 5

Cropable acres: 21

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? ☐ Yes ☒ No

Can fresh water for irrigation purposes be delivered to the field year round? ☐ Yes ☒ No

Can process wastewater be delivered to the field at agronomic rates and times? ☒ Yes ☐ No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	21
Corn, silage	Late May	Late September	21

FIELD NAME: Botelho Pasture - 4

Cropable acres: 21

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? ☐ Yes ☒ No

Can fresh water for irrigation purposes be delivered to the field year round? ☐ Yes ☒ No

Can process wastewater be delivered to the field at agronomic rates and times? ☒ Yes ☐ No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Alfalfa, hay	Early September	Early October	21

FIELD NAME: Costa

Cropable acres: 83

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? ☐ Yes ☒ No

Can fresh water for irrigation purposes be delivered to the field year round? ☒ Yes ☐ No

Can process wastewater be delivered to the field at agronomic rates and times? ☒ Yes ☐ No

Tailwater management method: Returned to retention pond

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	83
Corn, silage	Late May	Late September	83

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

FIELD NAME: Creamery

Cropable acres: 37

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? [] Yes [X] No

Can fresh water for irrigation purposes be delivered to the field year round? [] Yes [X] No

Can process wastewater be delivered to the field at agronomic rates and times? [] Yes [X] No

Tailwater management method: Bermed

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	37
Corn, silage	Late May	Late September	37

FIELD NAME: Home 1-2

Cropable acres: 75

Predominant soil type: Clay loam

Do irrigation system head-to-head flow conditions exist on the field? [] Yes [X] No

Can fresh water for irrigation purposes be delivered to the field year round? [] Yes [X] No

Can process wastewater be delivered to the field at agronomic rates and times? [X] Yes [] No

Tailwater management method: Returned to top of field

Crops grown and rotation:

Crop Type	Plant Date	Harvest Date	Acres Planted
Oats, silage-soft dough	Late October	Late April	75
Corn, silage	Late May	Late September	75

<p align="center">Nutrient Management Plan Report General Order No. R5-2007-0035, Attachment C July 1, 2009 deadline</p>

C. LAND APPLICATION AREA FIELDS AND PARCELS

Field name	Cropable acres	Total harvests	Parcel number
Azevedo	18	2	0054-0130-00050000
Azevedo Home - 6	22	2	0054-0090-00040000
Botelho Back 40 - 3	36	2	0054-0100-00300000
Botelho East - 5	21	2	0054-0100-00300000
Botelho Pasture - 4	21	7	0054-0100-00300000
Costa	83	2	0054-0100-00180000
Creamery	37	2	0026-0016-00320000
			0026-0016-00330000
			0128-0023-00020000
Home 1-2	75	2	0054-0090-00010000
			0054-0100-00230000
Land application area totals	462	27	

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET

A. NUTRIENT BUDGET FOR CROP: Azevedo / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure	1	190.0	60.0	180.0	190.0
<i>Nutrient source:</i> From dairy					
<i>Application method:</i> Broadcast/incorporate		50%	80%	80%	
In season irrigation (no fertilizer)	1	0.0	0.0	0.0	1.9
<i>Nutrient source:</i> Water only		0%	0%	0%	
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	18.0	
	1.9	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	1.9	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	190.0	60.0	180.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	198.9	60.0	180.0
Potential crop nutrient removal	150.0	24.0	124.5
Nutrient balance	48.9	36.0	55.5
Applied to removal ratio	1.33	2.50	1.45

Fresh water applied: 0.50 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Azevedo / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure	1	175.0	56.0	162.0	175.0
<i>Nutrient source:</i> From dairy		50%	80%	80%	
<i>Application method:</i> Broadcast/incorporate					
Pre-irrigation prior to planting (no fertilizer)	1	0.0	0.0	0.0	2.6
<i>Nutrient source:</i> Water only		0%	0%	0%	
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.6	0.0	0.0	24.0	
	2.6	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Azevedo / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (no fertilizer)	4	0.0	0.0	0.0	6.9
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	16.0	
	1.7	0.0	0.0		
In season irrigation (with fertilizer)	2	32.0	0.0	0.0	67.5
Nutrient source: Commercial fertilizer		100%	0%	0%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	16.0	
	1.7	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	12.9	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	64.0	0.0	0.0
Dry manure	175.0	56.0	162.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	258.9	56.0	162.0
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	66.9	20.0	3.6
Applied to removal ratio	1.35	1.56	1.02

Fresh water applied: 3.31 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Azevedo Home - 6 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	120.0	15.0	140.0	122.1
Nutrient source: Retention pond (lagoon)		50%	90%	90%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.1	0.0	0.0	24.0	
	2.1	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Azevedo Home - 6 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	1	75.0	10.0	90.0	77.1
Nutrient source: Retention pond (lagoon)		50%	90%	90%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.1	0.0	0.0	24.0	
	2.1	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	4.2	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	195.0	25.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	206.2	25.0	230.0
Potential crop nutrient removal	150.0	24.0	124.5
Nutrient balance	56.2	1.0	105.5
Applied to removal ratio	1.37	1.04	1.85

Fresh water applied: 1.08 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Azevedo Home - 6 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	95.0	16.0	100.0	97.1
Nutrient source: Retention pond (lagoon)		50%	90%	90%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.1	0.0	0.0	24.0	
	2.1	0.0	0.0		
In season irrigation (no fertilizer)	3	0.0	0.0	0.0	5.6
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	21.0	
	1.9	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Azevedo Home - 6 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	2	60.0	10.0	65.0	123.7
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	21.0	
	1.9	0.0	0.0		
In season irrigation (with fertilizer)	1	32.0	0.0	0.0	33.9
<i>Nutrient source:</i> Commercial fertilizer					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	21.0	
	1.9	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	13.2	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	32.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	215.0	36.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	267.2	36.0	230.0
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	75.2	0.0	71.6
Applied to removal ratio	1.39	1.00	1.45

Fresh water applied: 3.38 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Botelho Back 40 - 3 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	120.0	15.0	140.0	121.9
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	36.0	
	1.9	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Botelho Back 40 - 3 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	1	75.0	10.0	90.0	76.9
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	36.0	
	1.9	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	3.9	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	195.0	25.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	205.9	25.0	230.0
Potential crop nutrient removal	150.0	24.0	124.5
Nutrient balance	55.9	1.0	105.5
Applied to removal ratio	1.37	1.04	1.85

Fresh water applied: 0.99 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Botelho Back 40 - 3 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	95.0	16.0	100.0	96.9
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	36.0	
	1.9	0.0	0.0		
In season irrigation (no fertilizer)	3	0.0	0.0	0.0	5.2
<i>Nutrient source:</i> Water only					
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	32.0	
	1.7	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Botelho Back 40 - 3 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	2	60.0	10.0	65.0	123.5
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	32.0	
	1.7	0.0	0.0		
In season irrigation (with fertilizer)	1	32.0	0.0	0.0	33.7
<i>Nutrient source:</i> Commercial fertilizer					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	32.0	
	1.7	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	12.3	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	32.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	215.0	36.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	266.3	36.0	230.0
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	74.3	0.0	71.6
Applied to removal ratio	1.39	1.00	1.45

Fresh water applied: 3.14 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Botelho East - 5 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	120.0	15.0	140.0	122.2
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.2	0.0	0.0	24.0	
	2.2	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Botelho East - 5 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	1	75.0	10.0	90.0	77.2
<i>Nutrient source:</i> Retention pond (lagoon)		50%	90%	90%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.2	0.0	0.0		24.0
	2.2	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	4.4	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	195.0	25.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	206.4	25.0	230.0
Potential crop nutrient removal	150.0	24.0	124.5
Nutrient balance	56.4	1.0	105.5
Applied to removal ratio	1.38	1.04	1.85

Fresh water applied: 1.13 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Botelho East - 5 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	95.0	16.0	100.0	97.2
<i>Nutrient source:</i> Retention pond (lagoon)		50%	90%	90%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.2	0.0	0.0		24.0
	2.2	0.0	0.0		
In season irrigation (no fertilizer)	3	0.0	0.0	0.0	5.8
<i>Nutrient source:</i> Water only		0%	0%	0%	
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0		21.0
	1.9	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Botelho East - 5 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	2	60.0	10.0	65.0	123.9
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source					
N (lbs/acre) P (lbs/acre) K (lbs/acre) Runtime (hrs)					
CCID Canal	1.9	0.0	0.0	21.0	
	1.9	0.0	0.0		
In season irrigation (with fertilizer)	1	32.0	0.0	0.0	33.9
<i>Nutrient source:</i> Commercial fertilizer					
<i>Application method:</i> Pipeline					
Irrigation Source					
N (lbs/acre) P (lbs/acre) K (lbs/acre) Runtime (hrs)					
CCID Canal	1.9	0.0	0.0	21.0	
	1.9	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	13.9	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	32.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	215.0	36.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	267.9	36.0	230.0
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	75.9	0.0	71.6
Applied to removal ratio	1.40	1.00	1.45

Fresh water applied: 3.54 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Botelho Pasture - 4 / Alfalfa, hay

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure	1	195.0	60.0	180.0	195.0
<i>Nutrient source:</i> From dairy					
<i>Application method:</i> Broadcast/incorporate					
		50%	90%	90%	

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Botelho Pasture - 4 / Alfalfa, hay

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (no fertilizer)	7	0.0	0.0	0.0	15.5
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.2	0.0	0.0	24.0	
	2.2	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	15.5	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	195.0	60.0	180.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	14.0		
Nutrients applied	224.5	60.0	180.0
Potential crop nutrient removal	450.0	40.5	315.0
Nutrient balance	-225.5	19.5	-135.0
Applied to removal ratio	0.50	1.48	0.57

Fresh water applied: 3.97 feet Total harvests: 7

NUTRIENT BUDGET FOR CROP: Costa / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	120.0	15.0	140.0	121.7
Nutrient source: Retention pond (lagoon)		50%	90%	90%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	72.0	
	1.7	0.0	0.0		
In season irrigation (with fertilizer)	1	75.0	10.0	90.0	76.7
Nutrient source: Retention pond (lagoon)		50%	90%	90%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	72.0	
	1.7	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	3.4	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	195.0	25.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	205.4	25.0	230.0
Potential crop nutrient removal	150.0	24.0	124.5
Nutrient balance	55.4	1.0	105.5
Applied to removal ratio	1.37	1.04	1.85

Fresh water applied: 0.86 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Costa / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	95.0	16.0	100.0	97.0
<i>Nutrient source:</i> Retention pond (lagoon)		50%	90%	90%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.0	0.0	0.0		84.0
	2.0	0.0	0.0		
In season irrigation (no fertilizer)	3	0.0	0.0	0.0	5.1
<i>Nutrient source:</i> Water only		0%	0%	0%	
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0		72.0
	1.7	0.0	0.0		
In season irrigation (with fertilizer)	2	60.0	10.0	65.0	123.4
<i>Nutrient source:</i> Retention pond (lagoon)		50%	90%	90%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0		72.0
	1.7	0.0	0.0		

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET FOR CROP (CONTINUED): Costa / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
In season irrigation (with fertilizer)	1	32.0	0.0	0.0	33.7
Nutrient source: Commercial fertilizer		100%	0%	0%	
Application method: Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0	72.0	
	1.7	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	12.1	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	32.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	215.0	36.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	266.1	36.0	230.0
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	74.1	0.0	71.6
Applied to removal ratio	1.39	1.00	1.45

Fresh water applied: 3.08 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Creamery / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure	1	190.0	60.0	180.0	190.0
Nutrient source: From dairy		50%	80%	80%	
Application method: Broadcast/incorporate					
In season irrigation (no fertilizer)	1	0.0	0.0	0.0	2.2
Nutrient source: Water only		0%	0%	0%	
Application method: Surface					

Irrigation Source	N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.2	0.0	0.0	42.0
	2.2	0.0	0.0	

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	2.2	0.0	0.0

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	190.0	60.0	180.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	199.2	60.0	180.0
Potential crop nutrient removal	150.0	24.0	124.5
Nutrient balance	49.2	36.0	55.5
Applied to removal ratio	1.33	2.50	1.45

Fresh water applied: 0.56 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Creamery / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Dry manure	1	175.0	56.0	162.0	175.0
<i>Nutrient source:</i> From dairy		50%	80%	80%	
<i>Application method:</i> Broadcast/incorporate					
Pre-irrigation prior to planting (no fertilizer)	1	0.0	0.0	0.0	2.5
<i>Nutrient source:</i> Water only		0%	0%	0%	
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	2.5	0.0	0.0		48.0
	2.5	0.0	0.0		
In season irrigation (no fertilizer)	4	0.0	0.0	0.0	6.7
<i>Nutrient source:</i> Water only		0%	0%	0%	
<i>Application method:</i> Surface					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0		32.0
	1.7	0.0	0.0		
In season irrigation (with fertilizer)	2	32.0	0.0	0.0	67.4
<i>Nutrient source:</i> Commercial fertilizer		100%	0%	0%	
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.7	0.0	0.0		32.0
	1.7	0.0	0.0		
		Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)	
Irrigation sources		12.6	0.0	0.0	

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	64.0	0.0	0.0
Dry manure	175.0	56.0	162.0
Liquid manure	0.0	0.0	0.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	258.6	56.0	162.0
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	66.6	20.0	3.6
Applied to removal ratio	1.35	1.56	1.02

Fresh water applied: 3.22 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Home 1-2 / Oats, silage-soft dough

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	120.0	15.0	140.0	121.9
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	72.0	
	1.9	0.0	0.0		
In season irrigation (with fertilizer)	1	75.0	10.0	90.0	76.9
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source		N (lbs/acre)	P (lbs/acre)	K (lbs/acre)	Runtime (hrs)
CCID Canal	1.9	0.0	0.0	72.0	
	1.9	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	3.7	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	0.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	195.0	25.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	205.7	25.0	230.0
Potential crop nutrient removal	150.0	24.0	124.5

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

Nutrient balance	55.7	1.0	105.5
Applied to removal ratio	1.37	1.04	1.85

Fresh water applied: 0.95 feet Total harvests: 1

NUTRIENT BUDGET FOR CROP: Home 1-2 / Corn, silage

Activity / Event	# of Events	N (lbs/acre) % avail.	P (lbs/acre) % avail.	K (lbs/acre) % avail.	Total N (lbs/acre)
Pre-irrigation prior to planting (with fertilizer)	1	95.0	16.0	100.0	97.2
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source					
CCID Canal					
	2.2	0.0	0.0	84.0	
	2.2	0.0	0.0		
In season irrigation (no fertilizer)	3	0.0	0.0	0.0	5.6
<i>Nutrient source:</i> Water only					
<i>Application method:</i> Surface					
Irrigation Source					
CCID Canal					
	1.9	0.0	0.0	72.0	
	1.9	0.0	0.0		
In season irrigation (with fertilizer)	2	60.0	10.0	65.0	123.7
<i>Nutrient source:</i> Retention pond (lagoon)					
<i>Application method:</i> Pipeline					
Irrigation Source					
CCID Canal					
	1.9	0.0	0.0	72.0	
	1.9	0.0	0.0		
In season irrigation (with fertilizer)	1	32.0	0.0	0.0	33.9
<i>Nutrient source:</i> Commercial fertilizer					
<i>Application method:</i> Pipeline					
Irrigation Source					
CCID Canal					
	1.9	0.0	0.0	72.0	
	1.9	0.0	0.0		

	Total N (lbs/acre)	Total P (lbs/acre)	Total K (lbs/acre)
Irrigation sources	13.4	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	32.0	0.0	0.0
Dry manure	0.0	0.0	0.0
Liquid manure	215.0	36.0	230.0
Other	0.0	0.0	0.0
Atmospheric deposition	7.0		
Nutrients applied	267.4	36.0	230.0

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

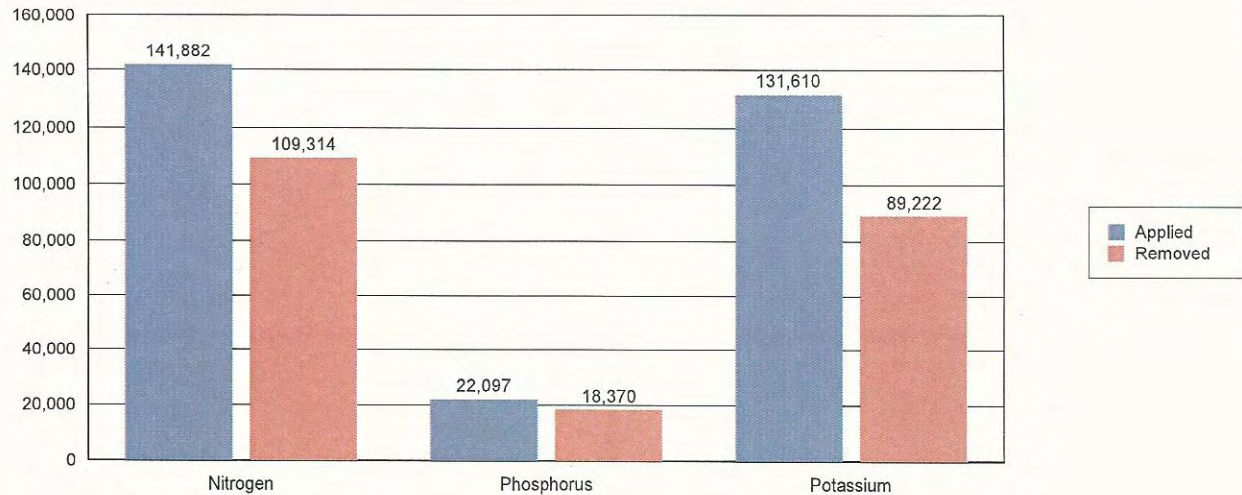
Potential crop nutrient removal	192.0	36.0	158.4
Nutrient balance	75.4	0.0	71.6
Applied to removal ratio	1.39	1.00	1.45

Fresh water applied: 3.41 feet Total harvests: 1

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT APPLICATIONS, POTENTIAL REMOVAL, AND BALANCE

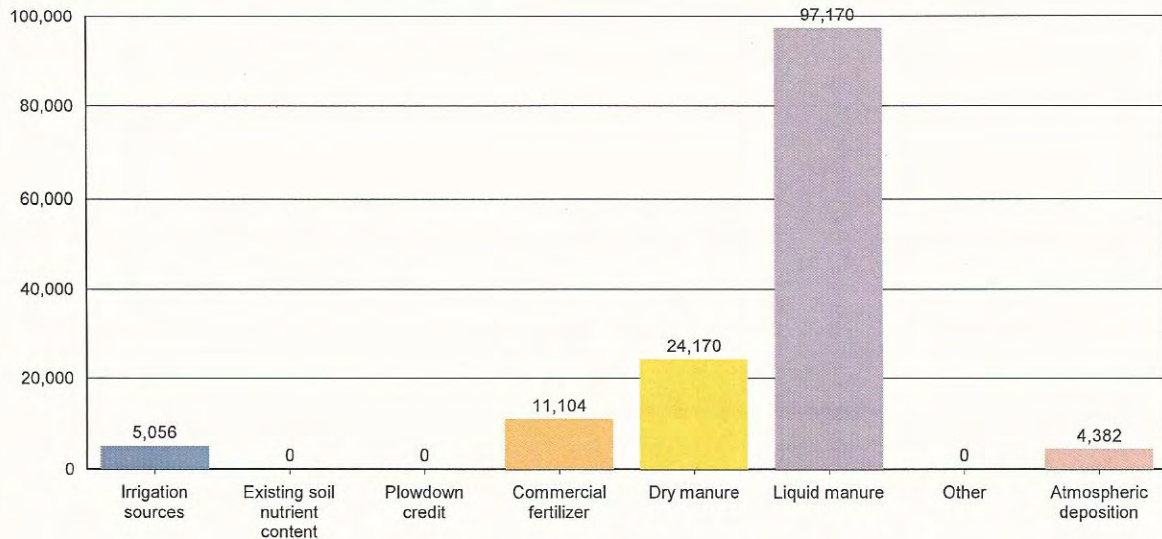
A. POUNDS OF NUTRIENT APPLIED VS. CROP REMOVAL POTENTIAL



	Total N (lbs)	Total P (lbs)	Total K (lbs)
Irrigation sources	5,056.1	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	11,104.0	0.0	0.0
Dry manure	24,170.0	7,640.0	22,590.0
Liquid manure	97,170.0	14,457.0	109,020.0
Other	0.0	0.0	0.0
Atmospheric deposition	4,382.0		
Nutrients applied to all crops	141,882.1	22,097.0	131,610.0
Potential crop nutrient removal	109,314.0	18,370.5	89,221.8
Nutrient balance	32,568.1	3,726.5	42,388.2
Applied to removal ratio	1.30	1.20	1.48

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

B. POUNDS OF NITROGEN APPLIED BY NUTRIENT SOURCE



	Total N (lbs)	Total P (lbs)	Total K (lbs)
Irrigation sources	5,056.1	0.0	0.0
Existing soil nutrient content	0.0	0.0	0.0
Plowdown credit	0.0	0.0	0.0
Commercial fertilizer	11,104.0	0.0	0.0
Dry manure	24,170.0	7,640.0	22,590.0
Liquid manure	97,170.0	14,457.0	109,020.0
Other	0.0	0.0	0.0
Atmospheric deposition	4,382.0		
Nutrients applied to all crops	141,882.1	22,097.0	131,610.0
Potential crop nutrient removal	109,314.0	18,370.5	89,221.8
Nutrient balance	32,568.1	3,726.5	42,388.2
Applied to removal ratio	1.30	1.20	1.48

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BALANCE

A. WHOLE FARM BALANCE

	Total N (lbs)	Total P (lbs)	Total K (lbs)
Nutrients in storage from herd*			
Daily gross	3,245.1	534.2	1,302.7
Annual gross	1,184,462.9	194,977.3	475,488.1
Net to pond storage after ammonia losses (30% loss applied)	537,849.6	127,149.1	396,240.1
Net to drylot storage after ammonia losses (30% loss applied)	291,274.4	67,828.2	79,248.0
Net in storage (30% loss applied)	829,124.1	194,977.3	475,488.1
Irrigation sources	5,056.1	0.0	0.0
Atmospheric deposition	4,382.0		
Imports	11,092.9	0.0	0.0
Exports	700,070.0	161,834.2	376,388.4
Potential crop nutrient removal	109,314.0	18,370.5	89,221.8
Nutrient balance	40,271.1	14,772.6	9,877.9
Nutrient balance ratio	1.37	1.80	1.11

* Potassium excretion from milk cows and dry cows only.

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

SAMPLING AND ANALYSIS PLAN

A. MANURE SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Annually	<p>Annual estimation for total manure dry weight applied to each field will be quantified using the following:</p> <p>Dry weight applied from a source to a crop per application event = weight applied * (1 - (percent moisture / 100))</p> <p>Dry weight applied to crop per application event = sum of dry weights applied from each source</p> <p>Dry weight applied to a crop = sum of dry weights applied during each application</p> <p>Dry weight applied to a field = sum of dry weights applied to each crop</p> <p>Annual estimation for total manure dry weight exported will be quantified using the following:</p> <p>Dry weight exported from a source per event = weight exported * (1 - (percent moisture / 100))</p> <p>Dry weight exported per event = sum of dry weights exported from each source</p> <p>Dry weight exported to any offsite destination = sum of dry weights exported per event</p>	<p>Corral solids</p> <p>Settling basin solids</p>	<p>Total dry weight (tons) manure applied annually to each land application area, and total dry weight (tons) manure exported offsite annually</p>	<p>None required</p>

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

A. MANURE SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Twice per year	For each manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Corral solids Settling basin solids	None required	Total nitrogen, total phosphorus, total potassium, and percent moisture
Once every two years (biennially)	For each manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Corral solids Settling basin solids	None required	General minerals, including: calcium, magnesium, sodium, sulfate, chloride Fixed solids (ash)
Each application to each land application area	For each applied manure source, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For each applied manure source, a scaled weight by truckload will be recorded.	Corral solids Settling basin solids	Date applied and total weight (tons) applied	Percent moisture

<p align="center">Nutrient Management Plan Report General Order No. R5-2007-0035, Attachment C July 1, 2009 deadline</p>

A. MANURE SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each offsite export of manure	For each manure source exported, a composite sample "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For each manure source exported, a scaled weight by truckload will be recorded.	Corral solids Settling basin solids	Date exported and total weight (tons) exported	Percent moisture

B. PROCESS WASTEWATER SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Annually	A composite or grab sample prior to blending with irrigation water per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	WWS 2	None required	pH, total dissolved solids, electrical conductivity, nitrate-nitrogen, ammonium-nitrogen, total Kjeldahl nitrogen, total phosphorus, and total potassium
Once every two years (biennially)	For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	WWS 2	None required	General minerals, including: calcium, magnesium, sodium, bicarbonate, carbonate, sulfate, and chloride

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

B. PROCESS WASTEWATER SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each application	For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	WWS 2	Date applied and volume (gallons or acre-inches) applied	None required
Quarterly during one application event	For field measurement: For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For laboratory analyses: For each pond, a composite or grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	WWS 2	Date applied and electrical conductivity	Nitrate-nitrogen (only when pond is aerated), un-ionized ammonia-nitrogen, total Kjeldahl nitrogen, total phosphorus, total potassium, and total dissolved solids

C. SOIL SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes

<p align="center">Nutrient Management Plan Report General Order No. R5-2007-0035, Attachment C July 1, 2009 deadline</p>

C. SOIL SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Once every five years for each land application area (may be distributed over a 5-year period by sampling 20% of the land application areas annually)	For each field, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Azevedo - 18 Acres Azevedo Home - 22 Acres Botelho Back 40 - 36 Acres Botelho East - 21 Acres Botelho Pasture - 21 Acres Creamery - 37 Acres Home 1-2 - 75 Acres Costa - 83 Acres	None required	Soluble phosphorus
Spring pre-plant for each crop	For each field, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	Azevedo - 18 Acres Azevedo Home - 22 Acres Botelho Back 40 - 36 Acres Botelho East - 21 Acres Creamery - 37 Acres Home 1-2 - 75 Acres Costa - 83 Acres	None required	0 to 1 foot: Nitrate-nitrogen and organic matter 1 to 2 foot: Nitrate-nitrogen

D. PLANT TISSUE SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each crop harvest from each land application area	For each field and crop, a composite sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. For each field and crop, a scaled weight by truckload will be recorded.	Azevedo - Corn/Oats Azevedo Home - Corn/Oats Botelho Back 40 - Corn/Oats Botelho East - Corn/Oats Botelho Pasture - Alfalfa Creamery - Corn/Oats Home 1-2 - Corn/Oats	Date harvested and total weight (tons) of harvested material removed from each land application area	Percent wet weight of harvested plant removed Laboratory analyses for total nitrogen, total phosphorus, total potassium (expressed on a dry weight basis), fixed solids (ash), and percent moisture

E. IRRIGATION WATER SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

E. IRRIGATION WATER SAMPLING AND ANALYSIS PLAN (CONTINUED)

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Each fresh water irrigation event for each land application area	CCID Canal - flow rate multiplied by runtime	CCID Canal	Date applied and volume (gallons or acre-inches) applied	None required
One irrigation event during each irrigation season during actual irrigation events – for each irrigation water source (well and canal)	For each irrigation source, a grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected. In lieu of sampling the irrigation water, the Discharger may provide equivalent data from the local irrigation district.	CCID Canal	None required	Electrical conductivity, total dissolved solids, and total nitrogen

F. GROUNDWATER MONITORING SAMPLING AND ANALYSIS PLAN

Frequency	Sampling Methods	Source	Minimum data collection requirements	
			Field Analytes	Lab Analytes
Every five years (may be distributed over a 5-year period by sampling 20% of the wells annually)	For each domestic and agricultural supply well, a grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	All Groundwater Wells	None required	General minerals, including: calcium, magnesium, sodium, bicarbonate, carbonate, sulfate, chloride Total dissolved solids
Annually	For each domestic and agricultural supply well, a grab sample per the "Approved Sampling Procedures for Nutrient and Groundwater Monitoring at Existing Milk Cow Dairies" will be collected.	All Groundwater Wells	Electrical conductivity and ammonium-nitrogen	Nitrate-nitrogen. If field measurement indicates the presence of ammonium-nitrogen, the Discharger shall collect a sample for laboratory analysis of ammonium-nitrogen.

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT MANAGEMENT PLAN REVIEW

A. NUTRIENT MANAGEMENT PLAN REVIEW

Person who created the NMP:	<u>Ramos, Joe</u>	<i>See above for contact information.</i>
Date the NMP was drafted:	<u>08/01/2015</u>	
Person who approved the final NMP:	<u>Ramos, Joe</u>	<i>See above for contact information.</i>
Date of NMP implementation:	<u>08/01/2015</u>	

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

ATTACHED MAP AND DOCUMENTATION REFERENCES

The following list, based upon user selections and data entries, describes the minimum required attachments that must be submitted with the Nutrient Management Plan for the reporting schedule of 'July 1, 2009'.

A. PRELIMINARY DAIRY FACILITY ASSESSMENT

The NMP will include the initial Preliminary Dairy Facility Assessment (Attachment A) and the annual updates as required by Monitoring and Reporting Program No. R5-2007-0035. Copies of these assessments shall be maintained for 10 years.

B. LAND AREA MAP(S)

Identify each land application area (under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) on a single published base map

1. A field identification system (Assessor's Parcel Number; land application area; crops grown); indication if each land application is owned, rented, or leased by the Discharger; indication of what type of waste is applied (solid manure only, wastewater only, or both solid manure and wastewater); drainage flow direction in each field, nearby surface waters, and storm water discharge points; tailwater and storm water drainage controls; subsurface (tile) drainage systems (including discharge points and lateral extent); irrigation supply wells and groundwater monitoring wells; sampling locations for discharges of storm water and tailwater to surface water from the field.
2. Process wastewater conveyance structures, discharge points and discharge mixing points with irrigation water supplies; pumping facilities; flow meter locations; drainage ditches and canals, culverts, draining controls (berms, levees, etc.), and drainage easements.

Application area map reference number: Figure 3 and 4

Identify each field under control of the Discharger and within five miles of the dairy where neither process wastewater nor manure is applied. Each field shall be identified on a single published base map at an appropriate scale by the following:

1. Assessor's Parcel Number.
2. Total acreage.
3. Information on who owns or leases the field

Non-application area map reference number: None

Setbacks, Buffers, and Other Alternatives to Protect Surface Water (see Technical Standard VII):

1. Identify all potential surface waters or conduits to surface water that are within 100 feet of any land application area.
2. For each land application area that is within 100 feet of a surface water or a conduit to surface water, identify the setback, vegetated buffer, or other alternative practice that will be implemented to protect surface water (Technical Standard VII).

Setbacks and buffers map reference number: Figure 3 and 4

C. PROCESS WASTEWATER WRITTEN AGREEMENTS

Provide copies of written agreements with third parties that receive process wastewater for their own use from the Discharger's dairy (Technical Standards V.A.1 and V.A.3).

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

SAMPLING AND ANALYSIS PLAN CERTIFICATION

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Toste Dairy

Physical address of dairy:

609 Santa Fe Grade

Newman

Merced

95360

Physical Address Number and Street

City

County

Zip Code

Street and nearest cross street (if no address): _____

B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

I certify that I meet the requirements as a certified specialist in developing nutrient management plans as described in Attachment C of Waste Discharge Requirements General Order No. R5-2007-0035 and that I prepared the Sampling and Analysis plan.

Technical Service Provider

TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

SIGNATURE OF TRAINED PROFESSIONAL

Joe Ramos

PRINT OR TYPE NAME

12/4/18
DATE

2857 Geer RD, STE A; Turlock, CA 95382

MAILING ADDRESS

(209) 250-2471

PHONE NUMBER

C. OWNER AND/OR OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF OWNER OF FACILITY

SIGNATURE OF OPERATOR OF FACILITY

John Toste

PRINT OR TYPE NAME

PRINT OR TYPE NAME

1-14-19
DATE

DATE

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

NUTRIENT BUDGET CERTIFICATION

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Toste Dairy

Physical address of dairy:

609 Santa Fe Grade

Newman

Merced

95360

Number and Street

City

County

Zip Code

Street and nearest cross street (if no address):

B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

I certify that I meet the requirements as a certified specialist in developing nutrient management plans as described in Attachment C of Waste Discharge Requirements General Order No. R5-2007-0035 and that I prepared the Nutrient Budget plan.

Technical Service Provider

TITLE/QUALIFICATIONS OF CERTIFIED NUTRIENT MANAGEMENT SPECIALIST

SIGNATURE OF TRAINED PROFESSIONAL

DATE

Joe Ramos

PRINT OR TYPE NAME

2857 Geer RD, STE A; Turlock, CA 95382

MAILING ADDRESS

(209) 250-2471

PHONE NUMBER

C. OWNER AND/OR OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF OWNER OF FACILITY

SIGNATURE OF OPERATOR OF FACILITY

John Toste

PRINT OR TYPE NAME

PRINT OR TYPE NAME

DATE

DATE

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

STATEMENTS OF COMPLETION

Waste Discharge Requirements General Order No. R5-2007-0035 for Existing Milk Cow Dairies (General Order) requires owners and operators of existing milk cow dairies (Dischargers) to develop and implement a Nutrient Management Plan for their land application areas (land under control of the Discharger, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient cycling). The Discharger is required to maintain the NMP at the dairy, make the NMP available to Central Valley Water Board staff during their inspections, and submit the NMP to the Executive Officer upon request.

The General Order requires the Discharger to submit two Statements of Completion during development of the NMP. The Discharger may use this form to comply with the General Order requirement to submit one or both of these Statements of Completion. Parts A and E must be completed for each Statement of Completion. Parts B, C and D are to be completed for the Statements of Completion due by 1 July 2008, 31 December 2008 and 1 July 2009, respectively. Both the owner and the operator of the dairy must sign this form in Part E below.

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: Toste Dairy

<u>609 Santa Fe Grade</u>	<u>Newman</u>	<u>Merced</u>	<u>95360</u>
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address): _____

Operator name: _____ Telephone no.: _____

	Landline	Cellular
--	----------	----------

<u> </u>	<u> </u>	<u> </u>	<u> </u>
Mailing Address Number and Street	City	State	Zip Code

Legal owner name: Toste, John Telephone no.: (209) 862-1812

	Landline	Cellular
--	----------	----------

<u>609 Santa Fe Grade RD</u>	<u>Newman</u>	<u>CA</u>	<u>95360</u>
Mailing Address Number and Street	City	State	Zip Code

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

B. STATEMENT OF COMPLETION DUE 1 JULY 2008

I have completed the following items of the Nutrient Management Plan (check the boxes of completed sections), which are due 1 July 2008:

- ☐ **Item I.A.1 Land Application Information**
Identification of land used for manure application and needed information on a facility map.
- ☐ **Item I.B Land Application Information**
Information list for information provided on map above.
- ☐ **Item I.C Land Application Information**
Copies of written third-party process wastewater agreements.
- ☐ **Item I.D Land Application Information**
Identification of fields under control of the discharger within five miles of the dairy where neither process wastewater nor manure is applied.
- ☐ **Item II Sampling and Analysis Plan**
- ☐ **Item IV Setbacks, Buffers, and Other Alternatives to Protect Surface Water**
Identification of all potential surface waters or conduits to surface waters within 100 feet of land application areas and appropriate protection.
- ☐ **Item VI Record-Keeping Requirements**
Identification of monitoring records that will be maintained as required in the production and land application areas.

Has Item II (Sampling and Analysis Plan) of the Nutrient Management Plan been certified by a Certified Nutrient Management Specialist as required in the General Order?

☐ Yes ☐ No

C. STATEMENT OF COMPLETION DUE 31 DECEMBER 2008

I have completed the following items of the Nutrient Management Plan (check the boxes of completed sections), which are due 31 December 2008:

- ☐ **Item V Field Risk Assessment**
Evaluation of the effectiveness of management practices used to control the discharge of waste constituents from land application areas by assessing the water quality monitoring results of discharges of manure, process wastewater, tailwater, subsurface (tile) drainage, or storm water from the land application areas.

D. STATEMENT OF COMPLETION DUE 1 JULY 2009

I have completed the following items of the Nutrient Management Plan (check the boxes of completed sections), which are due 1 July 2009:

- ☐ **Item I.A.2 Land Application Area Information**
Identification of process wastewater conveyance, mixing and drainage information for each land application area on a facility map.
- ☐ **Item III Nutrient Budget**
Established planned rates of nutrient applications by crop based on nutrient monitoring results for each land application area.

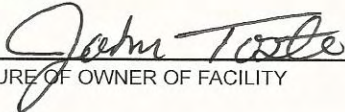
Has Item III (Nutrient Budget) of the Nutrient Management Plan been certified by a Certified Nutrient Management Specialist as required in the General Order?

☐ Yes ☐ No

Nutrient Management Plan Report
General Order No. R5-2007-0035, Attachment C
July 1, 2009 deadline

E. CERTIFICATION STATEMENT

I certify under penalty of law that I have completed the items of the Nutrient Management Plan that are checked in Parts B, C and/or D above for the dairy identified in Part A above and that the appropriate certified nutrient management specialist has certified the items requiring such certification as noted in part B and/or D above and that I have personally examined and am familiar with the information submitted in Parts A, B, C and D of this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



SIGNATURE OF OWNER OF FACILITY

SIGNATURE OF OPERATOR OF FACILITY

John Toste

PRINT OR TYPE NAME




















PRINT OR TYPE NAME

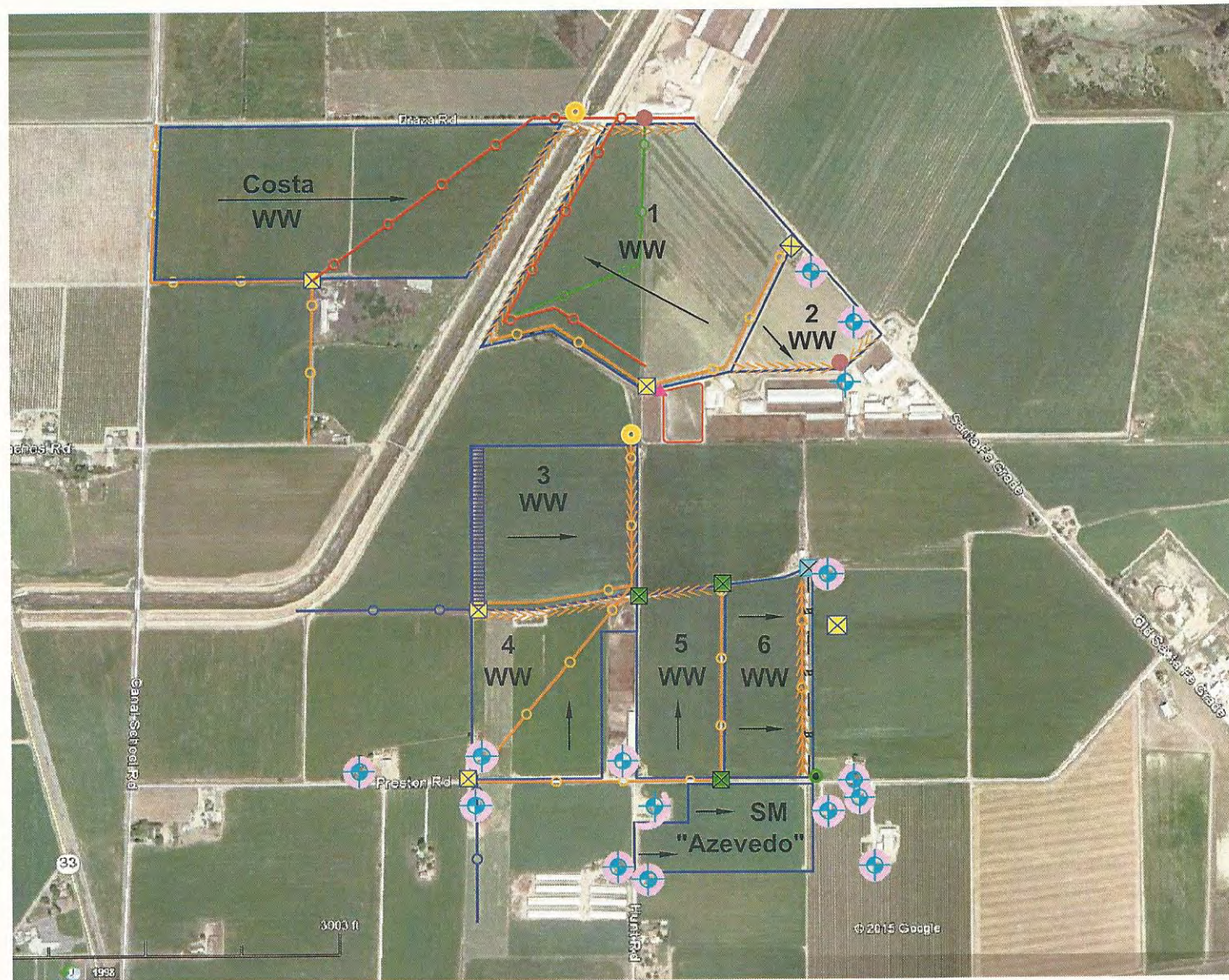
1-14-19

DATE

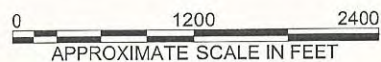
DATE

LEGEND

-  Fields
-  Wastewater Storage
-  Tailwater Pump
-  Pump
-  Capped
-  Valve
-  Tail Water
-  Irrigation Mixing Box
-  Drain
-  Control Box
-  Domestic Well
-  Storm Water Sampling Location
-  Irrigation Flow
-  Tail Water Pipeline
-  Irrigation Pipeline
-  Freshwater Pipeline
-  Proposed Wastewater Pipeline
-  Berms/Levees
-  Concrete Ditch
-  Setback or Physical Barrier
- WW Waste Water
- SM Solid Manure



SCALE:



JOHN TOSTE DAIRY
MERCED COUNTY, CA

FIGURE 3
DAIRY FIELDS

PROJECT NO.

FRA-00

DATE:

1/10/18

DRAWN BY:

SB

JR

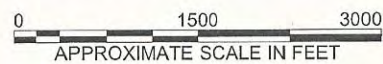
FRA-00_Toste

LEGEND

-  Fields
-  Setback or Physical Barrier
-  Domestic Well
- SM Solid Manure



SCALE:



JOHN TOSTE DAIRY
MERCED COUNTY, CA

FIGURE 4
DAIRY FIELDS

PROJECT NO.

FRA-00

DATE:

7/26/15

DRAWN BY:

SB

APP. BY:

JR

FRA-00_Live Oak D Topomap

Waste Management Plan For John Toste Dairy Merced County, CA

Prepared For:
John Toste Dairy
609 Santa Fe Grade
Newman, CA 95360



**WASTE MANAGEMENT PLAN
FOR
JOHN TOSTE DAIRY
MERCED COUNTY, CA**

TABLE OF CONTENTS

1. NARRATIVE

- a. Introduction
- b. Compliance Criteria
- c. Results and Conclusions

2. EXHIBITS

- a. Sheet 1 – Vicinity Map
- b. Sheet 2 – Site Map – Land Application Areas
- c. Sheet 3 – Site Map – Production Area
- d. Sheet 4 – Site Map – Production Area
- e. Sheet 5 – Production Area Hydrologic Map
- f. Sheet 6 - Production Area Hydrologic Map
- g. Sheet 7 – FEMA Panel No. 06047C0350G

3. DESIGN, CONSTRUCTION, OPERATION, AND MAINTENANCE DOCUMENTATION

- a. Waste Management Plan Report / Process Wastewater Calculations
- b. Production Area Design & Construction Report
- c. Backflow Prevention Documentation
- d. Flood Protection Analysis
- e. Vector Control Plan

1. NARRATIVE

INTRODUCTION

This Waste Management Plan (WMP) has been prepared at the request of the subject dairy's owner and/or operator in order to comply with Section H.1.b., *Waste Management Plan*, of Order No. R5-2013-0122, *Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies*, (Order) adopted by the California Regional Water Quality Control Board (CRWQCB) Central Valley Region. Per the requirements set forth by the aforementioned Order it is the intent of this plan to provide an evaluation of the existing milk cow facility's design, construction, operation, and maintenance for flood protection and waste containment and to determine whether the facility complies with Prohibition A.14, General Specifications B.1 through B.3, Pond Specifications C.1 through C.3, and Production Area Specifications D.1, D.4, and D.5. Should the evaluation provided by this plan determine that the existing facility does not comply with the requirements of the Order, then modifications will be proposed for the facility that will bring it into compliance and those modifications shall be made a part of this plan.

COMPLIANCE CRITERIA

As required by the Order this plan must evaluate the existing facility's compliance with Prohibition A.14, General Specifications B.1 through B.3, Pond Specifications C.1 through C.3, and Production Area Specifications D.1, D.4, and D.5. The criteria set forth by this Prohibition and General Specifications are as follows:

Prohibition A.14: *"The direct discharge of wastewater into groundwater via backflow through water supply or irrigation supply wells is prohibited."*

The water, irrigation, and wastewater systems of this facility have been examined by a Registered Civil Engineer licensed in the State of California. It has been determined and hereby documented that there are no existing conditions on the project site that would allow for direct discharge of wastewater into groundwater via backflow through water supply or irrigation supply wells. The existing well that supplies the irrigation system has been constructed with an air gap so as to prevent backflow of wastewater into the well.

General Specification B.1: *"The existing milk cow dairy shall have facilities that are designed, constructed, operated, and maintained to retain all facility process wastewater generated during the storage period (maximum period of time anticipated between land application of process wastewater), together with all precipitation on and drainage through manured areas, up to and including during a 25-year, 24-hour storm (see item II of Attachment B, which is attached to and made part of this Order)."*

Section 3.a. of this plan contains calculations that demonstrate the facility's ability to retain all process wastewater and precipitation generated by the 25-year, 24-hour storm. The tributary areas for storm drain runoff were determined by utilizing field measurements and aerial photography. The existing Wastewater Basins (WW) were field measured.

General Specification B.2: *"In the Sacramento and San Joaquin River Basins, ponds and manured areas at existing milk cow dairies in operation on or before 27 November 1984 shall be protected from inundation or washout by overflow from any stream channel during 20-year peak stream flows. Existing milk cow dairies that were in operation on or before 27 November 1984 and that are protected against 100-year peak stream flows must continue to provide such protection. Existing milk cow dairies built or expanded after 27 November 1984 shall be protected against 100-year peak stream flows (Title 27 Section 22562(c))."*

The facility is in the San Joaquin River Basin and was constructed before 27 November 1984. However the facility has been expanded since 27 November 1984 and thus must have protection against the 100-year storm event. The relevant Flood Zone Maps published by the Federal Emergency Management Agency (FEMA) are Panel Nos. 06047C150G and 06047C350G. This map indicates that the existing dairy facility is in Zone A and is thus subject to inundation by the 100-year storm event. An analysis describing locations and levels of inundation and recommended protection measures is included in the Plan in Section 3.d.

General Specification B.3: *“In the Tulare Lake Basin, existing milk cow dairies that existed as of 25 July 1975 shall be protected from inundation or washout from overflow from any stream channel during 20-year peak stream flows and existing milk cow dairies constructed after 25 July 1975 shall be protected from 100-year peak stream flows. Existing milk cow dairies expanded after 8 December 1984 shall be protected from 100-year peak stream flows.”*

As the facility is in the San Joaquin River Basin this specification is not applicable.

Pond Specification C.1: *“The level of waste in the process wastewater retention ponds shall be kept a minimum of two (2) feet from the top of each aboveground embankment and a minimum of one (1) foot from the ground surface of each belowground pond. Less freeboard may be approved by the Executive Officer when a Civil Engineer who is registered pursuant to California law, or other person as may be permitted under the provisions of the California Business and Professions Code to assume responsible charge of such work, demonstrates that the structural integrity of the pond will be maintained with the proposed freeboard.*

2' of freeboard has been assigned to the wastewater retention ponds WWS1, WWS2, WWS3, and WWS5 (proposed as all have been or will be constructed above grade. 1' of freeboard has been assigned to WWS4 as it has been constructed in ground or below grade.

Pond Specification C.2: *“Ponds shall be managed and maintained to prevent breeding of mosquitoes and other vectors. In particular,*

- a. Small coves and irregularities shall not be allowed around the perimeter of the water surface;*
- b. Weeds shall be minimized through control of water depth, harvesting, or other appropriate method;*
- c. Dead algae, vegetation, and debris shall not accumulate on the water surface; and*
- d. Management shall be in accordance with the requirements of the Mosquito Abatement District.”*

An Operations and Maintenance Plan addressing these items has been included in Section 3.a. and is hereby made a part of this plan.

Pond Specification C.3: *“Ponds designated to contain the 25-year, 24-hour storm event runoff must have a depth marker that clearly indicates the minimum capacity necessary to contain the runoff and direct precipitation from a 25-year, 24-hour storm event.”*

A marker meeting this specification will be installed in all the facility's ponds by the compliance date.

Production Area Specification D.1: *“All dirt or unpaved corrals shall be graded to promote drainage. Cow washing areas shall be paved (concrete or equivalent) and sloped to a drain. Water troughs,*

permanent feed racks, and mangers shall have paved access, and water troughs shall have a drain to carry water away from the corrals. (Cal Code Regs., title 3, § 646.1.)."

Dirt or unpaved areas are graded to promote drainage. Any areas requiring improvement are noted on Exhibit Sheets 3 and 4 and in Section 3.b.

All cow washing areas are paved with Portland Cement Concrete (PCC) and sloped to a drain which conveys wastewater to the retention ponds.

Water troughs, feed racks, and mangers have access paved with PCC. Water troughs have drains which convey wastewater to the retention ponds.

Production Area Specification D.4: *"All roofs, buildings, and non-manured areas located in the production area of the existing milk cow dairy shall be constructed or otherwise designed so that clean rainwater is diverted away from manured areas and waste containment facilities, unless such drainage is fully contained in the wastewater retention ponds. (Title 27, § 22562(b).)."*

The production area is designed such that rainwater that is not diverted away from manured areas and waste containment facilities is collected and conveyed to the wastewater retention ponds.

Production Area Specification D.5: *"Roof drainage from barns, milk houses, or shelters shall not drain into the corrals unless the corrals are properly graded and drained. (Cal Code Regs., title 3, § 661.)."*

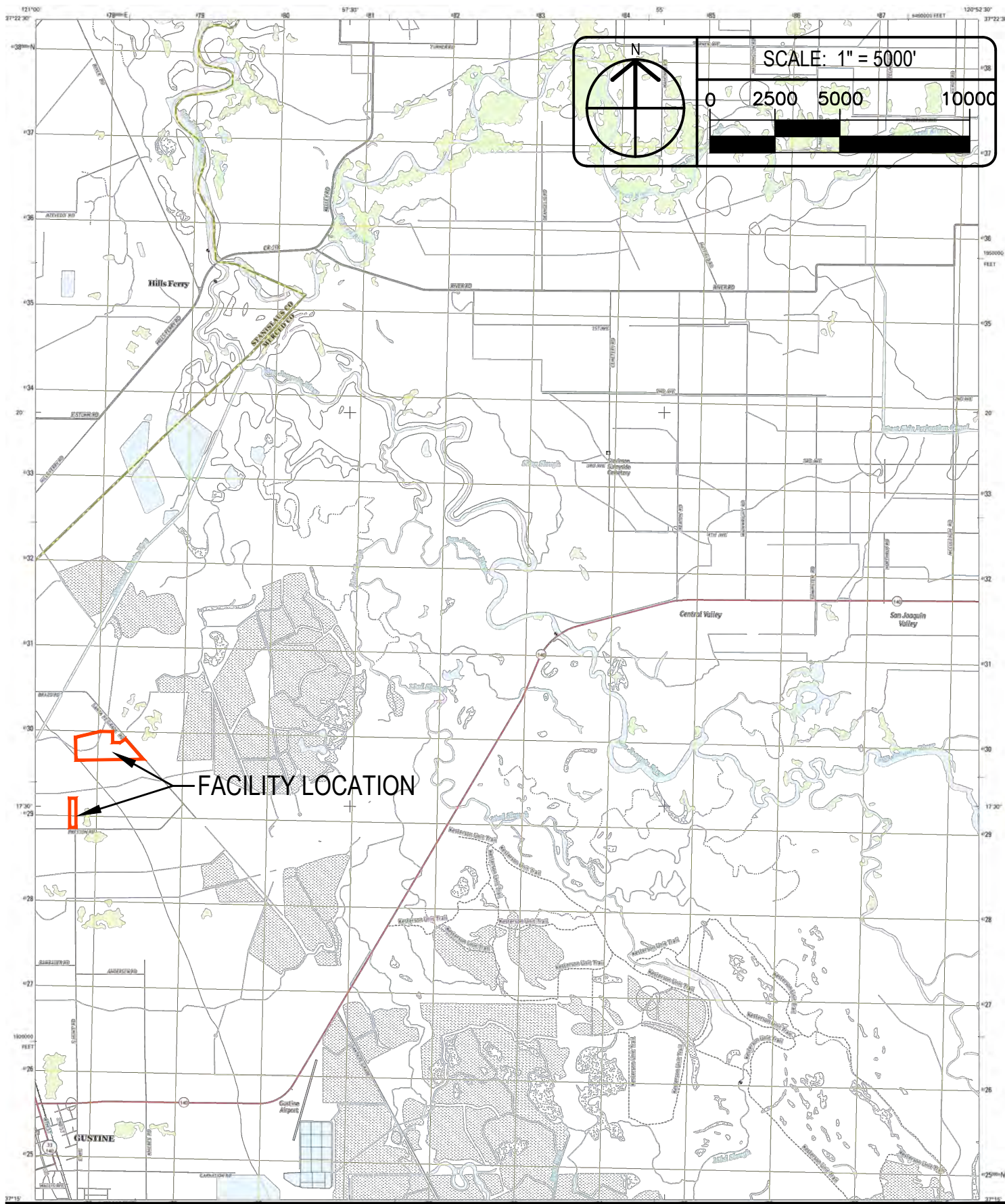
Roof drainage is collected by gutters, downspouts, and drains and is conveyed to the wastewater retention ponds.

RESULTS AND CONCLUSIONS

After conducting a visual inspection of the site, obtaining herd and facility information from the operator, performing the required measurements of facility improvements, and performing the calculations included in Attachment B it has been determined that the design, construction, operation, and waste containment of this facility are in compliance with Prohibition A.14 and General Specifications B.1 through B.3 and B.10 through B.16 of Order No. R5-2013-0122, *Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies*.

Some improvements will be required to ensure that the proposed facility expansion meets the General Order's requirements for flood protection. Those improvements are described in detail in Section 3.d., *Flood Protection Analysis*, of this Plan.

2. EXHIBITS



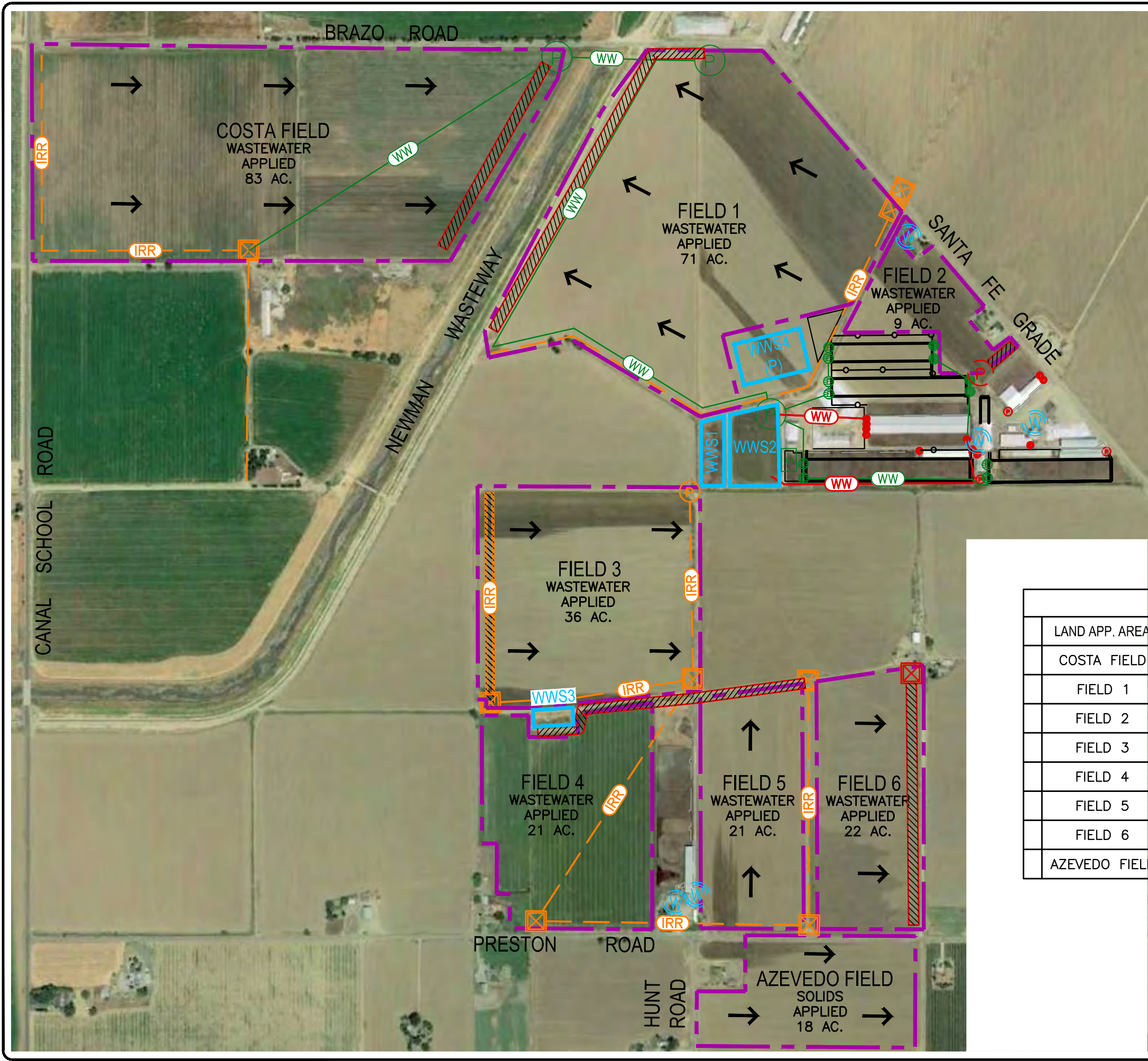
SOUSA
ENGINEERING
INFRASTRUCTURE - DEVELOPMENT -
AGRICULTURE

PO BOX 1613
OAKDALE, CA 95361

PH: (209)238-3151
WWW.SOUSAENG.COM

VICINITY MAP
JOHN TOSTE DAIRY

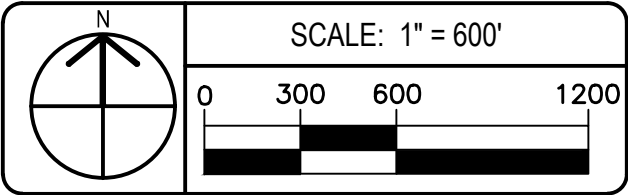
MERCED COUNTY, CA



LEGEND

- LAND APPLICATION AREA
- IRRIGATION LINE
- IRRIGATION DITCH
- IRRIGATION CONTROL BOX
- IRRIGATION STANDPIPE
- IRRIGATION WELL
- TAILWATER DITCH
- WASTEWATER LINE
- TAILWATER LINE
- WASTEWATER LINE (PROPOSED)
- DOMESTIC WELL
- GENERAL SLOPE AND DIRECTION OF FLOW
- MECHANICAL SEPARATOR (PROPOSED)

DISCHARGE POINTS		
LAND APP. AREA	LATITUDE	LONGITUDE
COSTA FIELD	N37° 18' 07.38"	W121° 00' 14.60"
FIELD 1	N37° 18' 02.34"	W120° 59' 41.30"
FIELD 2	N37° 17' 58.12"	W120° 59' 24.31"
FIELD 3	N37° 17' 41.14"	W120° 59' 48.78"
FIELD 4	N37° 17' 28.39"	W120° 59' 50.33"
FIELD 5	N37° 17' 28.66"	W120° 59' 36.70"
FIELD 6	N37° 17' 28.97"	W120° 59' 28.21"
AZEVEDO FIELD	N37° 17' 17.78"	W120° 59' 32.00"



SHEET 2 OF 7

SOUSA

ENGINEERING

INFRASTRUCTURE -

DEVELOPMENT - AGRICULTURE

PO BOX 1613

OAKDALE, CA 95361

PH: (209)238-3151

WWW.SOUSAENG.COM

SITE MAP

LAND APPLICATION AREAS

JOHN TOSTE DAIRY

MERCED COUNTY, CA

DRAWN BY: MS

DATE: 2/26/2019

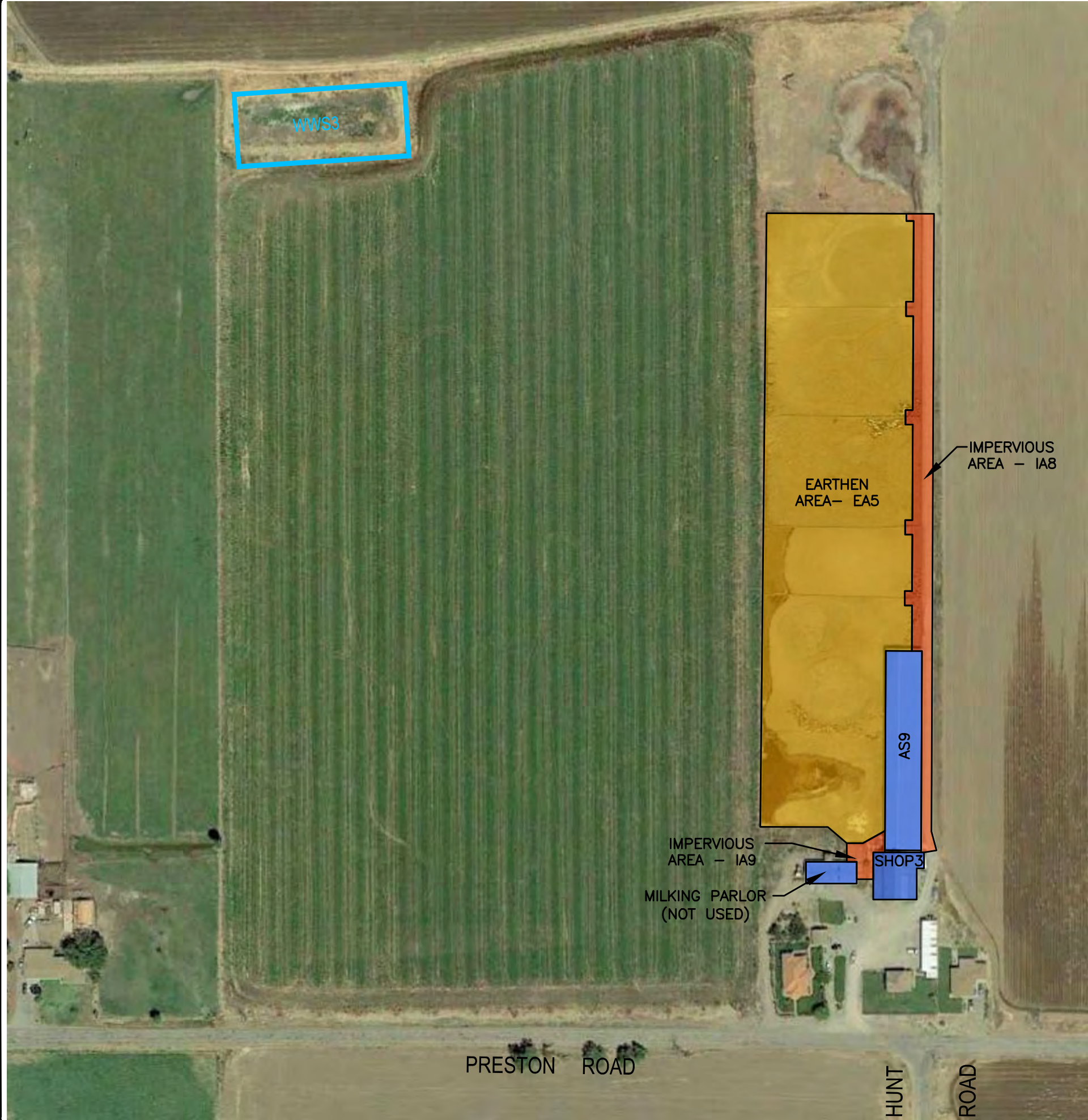
FILE: 02_site.dwg

JOB NO.: 2018-016

REVISIONS

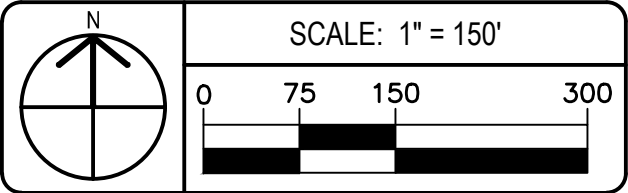
DESCRIPTION

APPD.




LEGEND

- ROOF AREA
- EARTHEN AREA
- IMPERVIOUS AREA



DRAWN BY: MS		
DATE: 2/28/2019		
FILE: 06_hydro.dwg		
JOB NO.: 2015-025		
SYMBOL	REVISIONS DESCRIPTION	APPD.

PRODUCTION AREA
HYDROLOGIC MAP
JOHN TOSTE DAIRY
MERCED COUNTY, CA

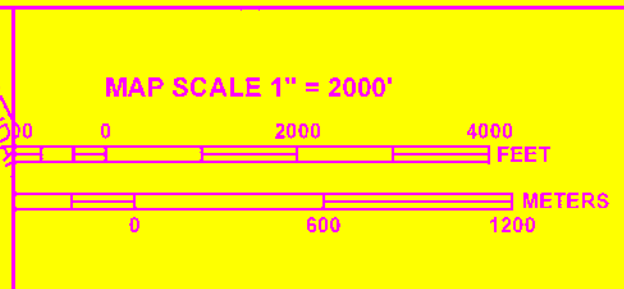
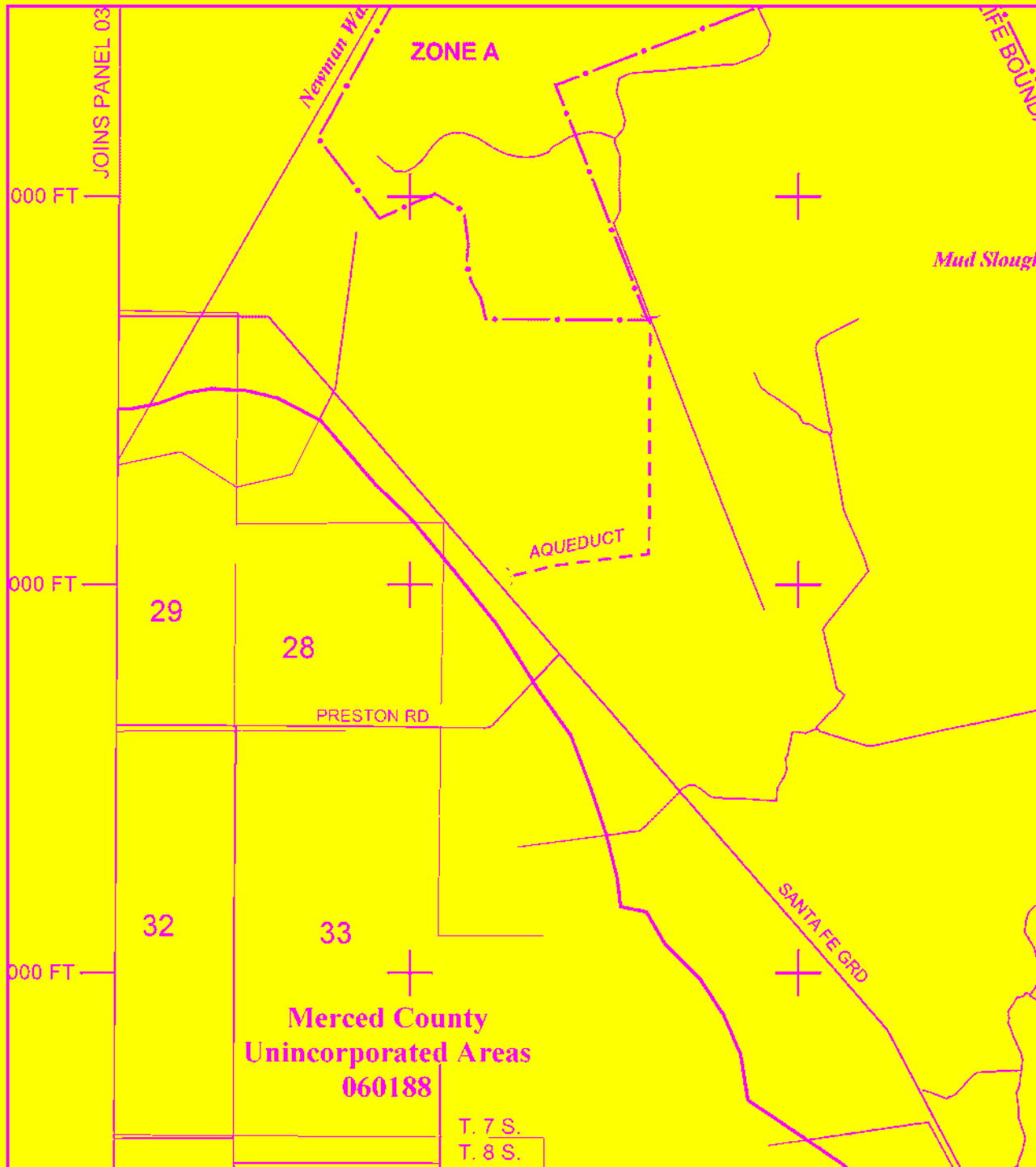


SOUSA
ENGINEERING

INFRASTRUCTURE -
DEVELOPMENT - AGRICULTURE

PO BOX 1613
OAKDALE, CA 95361

PH: (209)238-3151
WWW.SOUSAENG.COM



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0350G

FIRM

FLOOD INSURANCE RATE MAP

**MERCED COUNTY,
CALIFORNIA**

AND INCORPORATED AREAS

PANEL 350 OF 1225

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GUSTINE CITY OF	000447	0350	G
MERCED COUNTY	000188	0350	G

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER
06047C0350G**

**MAP REVISED
DECEMBER 2, 2008**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

3. DESIGN, CONSTRUCTION, OPERATION, AND MAINTENANCE DOCUMENTATION

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

DAIRY FACILITY INFORMATION

A. NAME OF DAIRY OR BUSINESS OPERATING THE DAIRY: John Toste Dairy

Physical address of dairy:

609 Santa Fe Grade	Newman	Merced	95360
Number and Street	City	County	Zip Code

Street and nearest cross street (if no address): _____

TRS Data and Coordinates:

7S	9E	28	Mt. Diablo	37° 17' 50.70" N	120° 59' 19.50" W
Township (T_)	Range (R_)	Section (S_)	Baseline meridian	Latitude (N)	Longitude (W)

Date facility was originally placed in operation: 01/01/1965

Regional Water Quality Control Board Basin Plan designation: San Joaquin River Basin

County Assessor Parcel Number(s) for dairy facility:

0054-0090-0001-0000 0054-0100-0018-0000 0054-0100-0030-0000

B. OPERATOR NAME: Toste, John Telephone no.: (209) 862-1812

Landline Cellular

785 Santa Fe Grade	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Operator should receive Regional Board correspondence (check): ☒ Yes ☐ No

OPERATOR NAME: Toste, Sandra Telephone no.: (209) 862-1812

Landline Cellular

785 Santa Fe Grade	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Operator should receive Regional Board correspondence (check): ☐ Yes ☒ No

C. LEGAL OWNER NAME: Toste, John Telephone no.: (209) 862-1812

Landline Cellular

785 Santa Fe Grade	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Owner should receive Regional Board correspondence (check): ☒ Yes ☐ No

LEGAL OWNER NAME: Toste, Sandra Telephone no.: (209) 862-1812

Landline Cellular

785 Santa Fe Grade	Newman	CA	95360
Mailing Address Number and Street	City	State	Zip Code

Owner should receive Regional Board correspondence (check): ☐ Yes ☒ No

D. CONTACT NAME: Sousa, Manny Telephone no.: (209) 238-3151

Landline Cellular

Title: Civil Engineer

P.O. Box 1613	Oakdale	CA	95361
Mailing Address Number and Street	City	State	Zip Code

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

CONTACT NAME: Ramos, Joe		Telephone no.: (209) 250-2471	
		Landline	Cellular
Title: Technical Service Provider			
2857 Geer RD, STE A	Turlock	CA	95382
Mailing Address Number and Street	City	State	Zip Code

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

HERD AND MILKING EQUIPMENT

A. HERD AND MILKING

The milk cow dairy is currently regulated under individual Waste Discharge Requirements.

Total number of milk and dry cows combined as a baseline value in response to the Report of Waste Discharge (ROWD) request of October, 2005:

3,000 milk and dry cows combined (regulatory review is required for any expansion)

Type of Animal	Present Count	Maximum Count	Daily Flush Hours	Avg Live Weight (lbs)
Milk Cows	2,500	2,500	20	1,400
Dry Cows	500	500	20	1,400
Bred Heifers (15-24 mo.)	0	0	0	0
Heifers (7-14 mo.)	2,550	2,550	0	700
Calves (4-6 mo.)	400	400	0	
Calves (0-3 mo.)	0	0	0	

Predominant milk cow breed:

Holstein

Average milk production:

68 pounds per cow per day

Average number of milk cows per string sent to the milkbarn:

209 milk cows per string

Number of milkings per day:

2.0 milkings per day

Number of times milk tank is emptied/filled each day:

2.0 per day

Number of hours spent milking each day:

20.0 hours per day

B. MILKBARN EQUIPMENT AND FLOOR WASH

Bulk tank wash and sanitizing:

3.0 run cycles/wash

Bulk tank wash vat volume:

150 gallons/cycle

Bulk tank wash wastewater:

900.0 gallons/day

Pipeline wash and sanitizing:

3.0 run cycles/wash

Pipeline wash vat volume:

150 gallons/cycle

Pipeline wash wastewater:

900.0 gallons/day

Reused / recycled water is the source of parlor floor wash water:

☒ Yes ☐ No

Milkbarn / parlor floor wash volume:

7,500 gallons/day

Plate coolers type:

Well Water Cooled (Water Reused/Recycled)

Plate coolers volume:

39,535 gallons/day

Vacuum pumps / air compressors / chillers type:

Mechanically/Air Cooled

Vacuum pumps / air compressors / chillers volume:

0 gallons/day

Milkbarn and equipment wastewater volume generated daily:

41,335 gallons/day

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

C. OTHER WATER USES

Reused/recycled water is the source of herd drinking water: ☐ Yes ☒ No

	Milk Cows	Dry Cows	Bred Heifers (15-24 mo.)	Bred Heifers (7-14 mo.)	Calves (4-6 mo.)	Calves (0-3 mo.)
<i>Number of cows drinking from reusable water:</i>	0	0	0	0	0	0
	<i>of 2,500</i>	<i>of 500</i>	<i>of 0</i>	<i>of 2,550</i>	<i>of 400</i>	<i>of 0</i>
<i>Gallons per head per day:</i>	0	0	0	0	0	0

Total reusable water consumed by herd: 0 gallons/day

Reused/recycled water is the source of sprinkler pen water: ☒ Yes ☐ No

Number of sprinklers in the holding pen: 38 sprinklers

Duration of each sprinkler cycle: 3.0 minutes

Number of sprinkler pen runs/milking: 2 cycles/milking

Flow rate for each sprinkler head: 5.0 gallons/minute

Total sprinkler pen wastewater volume: 27,268 gallons/day

Total fresh water used in manure flush lane system(s): 0 gallons/day

D. MISCELLANEOUS EQUIPMENT

No miscellaneous equipment entered.

E. MILKBARN AND EQUIPMENT SUMMARY

Number of days in storage period: 120 days

Water available for reuse/recycle: 39,535 gallons/day

Recycled water reused: 34,768 gallons/day

Recycled water leaving system: 0 gallons/day

Reusable water balance: 4,767 gallons/day

Volume of milkbarn and equipment wastewater generated for storage period: 4,960,200 gallons/storage period

MANURE AND BEDDING SOLIDS

A. IMPORTED AND FACILITY GENERATED BEDDING

Bedding Type	Imported or Generated (tons)	Density (lbs/cu. ft.)	Applied Separation Efficiency (default)	Solids to Pond (cu. ft./period)
Almond shells	150	20.0	0%	2,250
Facility generated bedding	270	40.0	0%	6,750
Total:				9,000

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

B. SOLIDS SEPARATION PROCESS

Combined manure solids separation efficiency (weight basis): 0 %

Description of all solids separation equipment used in flushed lane manure management systems:

None

C. MANURE AND BEDDING SOLIDS SUMMARY

	cubic feet		gallons	
	day	storage period	day	storage period
Manure generated by the herd (pre-separation):	8,460.45	1,015,254	63,288.58	7,594,630
Manure generated by the herd sent to pond(s):	5,157.73	618,928	38,582.51	4,629,901
Manure generated by the herd sent to dry lot(s):	3,302.72	396,327	24,706.07	2,964,729
Manure solids (herd) removed by separation:	0.00	0	0.00	0
Liquid component in separated solids not sent to pond(s):	0.00	0	0.00	0
Imported and facility generated bedding sent to pond(s):	75.00	9,000	561.04	67,325
Total manure and bedding sent to pond(s):	5,232.73	627,928	39,143.55	4,697,226
Residual manure solids and bedding sent to pond(s) w/factor:	446.95	53,634	3,343.40	401,208
	cubic feet per year		gallons per year	
Residual manure solids and bedding sent to pond(s) w/factor:	163,136		1,220,342	

RAINFALL AND RUNOFF

A. RAINFALL ESTIMATES

Rainfall station nearest the facility: Newman

25 year/24 hour storm event (default NOAA Atlas 2, 1973): 2.50 inches/storage period

25 year/24 hour storm event (user-override): inches/storage period

Storage period rainfall (default DWR climate data): 7.58 inches/storage period

Storage period rainfall (user-override): inches/storage period

Flood zone: Zone A

B. IMPERVIOUS AREAS

Name	Surface Area (sq. ft.)	Quantity	25yr/24hr Storm Runoff Coefficient	Storage Period Runoff Coefficient	Runoff Destination
Impervious Area IA1 - Manure Storage	30,000	1	0.95	0.50	Drains into pond(s).
Impervious Area IA2-Feed Storage, Feed/Flush Lanes	289,400	1	0.95	0.50	Drains into pond(s).
Impervious Area IA3 - Milk Parlor Slab	600	1	0.95	0.50	Drains into pond(s).
Impervious Area IA4 - AS5 Feed Lane	2,475	1	0.95	0.50	Drains into pond(s).
Impervious Area IA5 - Scale	1,140	1	0.95	0.50	Drains into pond(s).
Impervious Area IA6 - Shop Slab	1,800	1	0.95	0.50	Drains into pond(s).

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

Impervious Area IA7 - Feed and Corral Lanes	21,700	1	0.95	0.50	Drains into pond(s).
---	--------	---	------	------	----------------------

Surface area that does not run off into pond(s): 0 sq. ft.

Surface area that runs off into pond(s): 347,115 sq. ft.

Total surface area: 347,115 sq. ft.

Runoff from normal storage period rainfall: 820,093 gallons/storage period

Runoff from normal storage period rainfall with 1.5 factor: 1,230,139 gallons/storage period

25 year/24 hour storm event runoff: 513,911 gallons/storage period

Total surface area runoff: 1,334,004 gallons/storage period

Total surface area runoff with 1.5 factor: 1,744,050 gallons/storage period

C. ROOF AREAS

Name	Surface Area (sq. ft.)	Quantity	Runoff Destination
Animal Shelter AS1	63,000	1	Field
Animal Shelter AS2	84,000	1	Field
Animal Shelter AS3	63,000	1	Field
Animal Shelter AS4	126,750	1	Field
Animal Shelter AS5	21,550	1	Field
Animal Shelter AS6	2,300	1	Field
Animal Shelter AS7	5,300	1	Wastewater pond
Animal Shelter AS8	94,250	1	Field
Animal Shelter AS9	13,750	1	Field
Commodity Barn	11,000	1	Wastewater pond
Milking Parlor	17,100	1	Wastewater pond
Milking Parlor (Not Used)	2,100	1	Field
Shop 1	2,400	1	Wastewater pond
Shop 2	3,400	1	Wastewater pond
Shop 3	4,120	1	Field

Surface area that does not run off into pond(s): 474,820 sq. ft.

Surface area that runs off into pond(s): 39,200 sq. ft.

Total surface area: 514,020 sq. ft.

Runoff from normal storage period rainfall: 185,228 gallons/storage period

Runoff from normal storage period rainfall with 1.5 factor: 277,841 gallons/storage period

25 year/24 hour storm event runoff: 61,091 gallons/storage period

Total surface area runoff: 246,319 gallons/storage period

Total surface area runoff with 1.5 factor: 338,932 gallons/storage period

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

D. EARTHEN AREAS

Name	Surface Area (sq. ft.)	Quantity	25yr/24 Storm Coefficient	Storage Period Coefficient	Runoff Destination
Earthen Area - EA1	624,000	1	0.35	0.20	Drains into pond(s).
Earthen Area - EA2	24,800	1	0.35	0.20	Drains into pond(s).
Earthen Area - EA3	16,950	1	0.35	0.20	Drains into pond(s).
Earthen Area - EA4	37,900	1	0.35	0.20	Drains into pond(s).
Earthen Area - EA5	1,950	1	0.35	0.20	Drains into pond(s).
Earthen Area - EA5	1,900	1	0.35	0.20	Drains into pond(s).
Earthen Area - EA6	165,300	1	0.35	0.20	Drains into pond(s).

Surface area that does not run off into pond(s):	0 sq. ft.
Surface area that runs off into pond(s):	872,800 sq. ft.
Total surface area:	872,800 sq. ft.
Runoff from normal storage period rainfall:	824,830 gallons/storage period
Runoff from normal storage period rainfall with 1.5 factor:	1,237,245 gallons/storage period
25 year/24 hour storm event runoff:	476,073 gallons/storage period
Total surface area runoff:	1,300,903 gallons/storage period
Total surface area runoff with 1.5 factor:	1,713,318 gallons/storage period

E. TAILWATER MANAGEMENT

No fields with tailwater entered.

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

LIQUID STORAGE

A. POND OR BASIN DESCRIPTION: WWS1

Pond is rectangular in shape: ☐ Yes ☒ No

Dimensions			
Earthen Length (EL):	_____ ft.	Earthen Depth (ED):	_____ ft.
Earthen Width (EW):	_____ ft.	Side Slope (S):	_____ ft. (h:1v)
Free Board (FB):	_____ 2 ft.	Dead Storage Loss (DS):	_____ ft.

Calculations			
Liquid Length (LL):	_____ ft.	Storage Volume Adjusted for Dead Storage Loss:	_____ 501,656 cu. ft.
Liquid Width (LW):	_____ ft.		
Pond Surface Area:	_____ 61,637 sq. ft.	Pond Marker Elevation:	_____ 9.0 ft.
Storage Volume:	_____ 551,043 cu. ft.	Evaporation Volume:	_____ 386,701 gals/period
		Adjusted Surface Area:	_____ sq. ft.

POND OR BASIN DESCRIPTION: WWS2

Pond is rectangular in shape: ☐ Yes ☒ No

Dimensions			
Earthen Length (EL):	_____ ft.	Earthen Depth (ED):	_____ ft.
Earthen Width (EW):	_____ ft.	Side Slope (S):	_____ ft. (h:1v)
Free Board (FB):	_____ 2 ft.	Dead Storage Loss (DS):	_____ ft.

Calculations			
Liquid Length (LL):	_____ ft.	Storage Volume Adjusted for Dead Storage Loss:	_____ 708,784 cu. ft.
Liquid Width (LW):	_____ ft.		
Pond Surface Area:	_____ 128,883 sq. ft.	Pond Marker Elevation:	_____ 7.0 ft.
Storage Volume:	_____ 917,460 cu. ft.	Evaporation Volume:	_____ 808,593 gals/period
		Adjusted Surface Area:	_____ sq. ft.

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

POND OR BASIN DESCRIPTION: WWS3

Pond is rectangular in shape: ☒ Yes ☐ No

Dimensions			
Earthen Length (EL):	<u>240</u> ft.	Earthen Depth (ED):	<u>6</u> ft.
Earthen Width (EW):	<u>85</u> ft.	Side Slope (S):	<u>2.0</u> ft. (h:1v)
Free Board (FB):	<u>2</u> ft.	Dead Storage Loss (DS):	<u>0.0</u> ft.
Calculations			
Liquid Length (LL):	<u>232</u> ft.	Storage Volume Adjusted for Dead Storage Loss:	<u>61,909</u> cu. ft.
Liquid Width (LW):	<u>77</u> ft.		
Pond Surface Area:	<u>20,400</u> sq. ft.	Pond Marker Elevation:	<u>3.2</u> ft.
Storage Volume:	<u>61,909</u> cu. ft.	Evaporation Volume:	<u>109,206</u> gals/period
		Adjusted Surface Area:	<u>17,405</u> sq. ft.

POND OR BASIN DESCRIPTION: WWS4 (proposed)

Pond is rectangular in shape: ☒ Yes ☐ No

Dimensions			
Earthen Length (EL):	<u>420</u> ft.	Earthen Depth (ED):	<u>12</u> ft.
Earthen Width (EW):	<u>250</u> ft.	Side Slope (S):	<u>3.0</u> ft. (h:1v)
Free Board (FB):	<u>2</u> ft.	Dead Storage Loss (DS):	<u>2.0</u> ft.
Calculations			
Liquid Length (LL):	<u>408</u> ft.	Storage Volume Adjusted for Dead Storage Loss:	<u>658,944</u> cu. ft.
Liquid Width (LW):	<u>238</u> ft.		
Pond Surface Area:	<u>105,000</u> sq. ft.	Pond Marker Elevation:	<u>9.3</u> ft.
Storage Volume:	<u>789,240</u> cu. ft.	Evaporation Volume:	<u>600,699</u> gals/period
		Adjusted Surface Area:	<u>95,740</u> sq. ft.

Potential storage losses (due to dead storage): 388,359.0 cubic feet - or - 2,905,127.1 gallons

Liquid storage surface area: 114,968 sq. ft.

Rainfall onto retention pond(s): 1,492,784 gallons/storage period

Rainfall runoff into retention pond(s): 1,830,151 gallons/storage period

Normal rainfall onto retention pond(s) with 1.5 factor: 2,239,175 gallons/storage period

Normal rainfall runoff into retention pond(s) with 1.5 factor: 2,745,226 gallons/storage period

Storage period evaporation (default): 13.42 inches/storage period

Storage period evaporation (user-override): inches/storage period

Storage period evaporation volume: 1,905,199 gallons/storage period

Manure and bedding sent to pond(s): 4,697,226 gallons/storage period

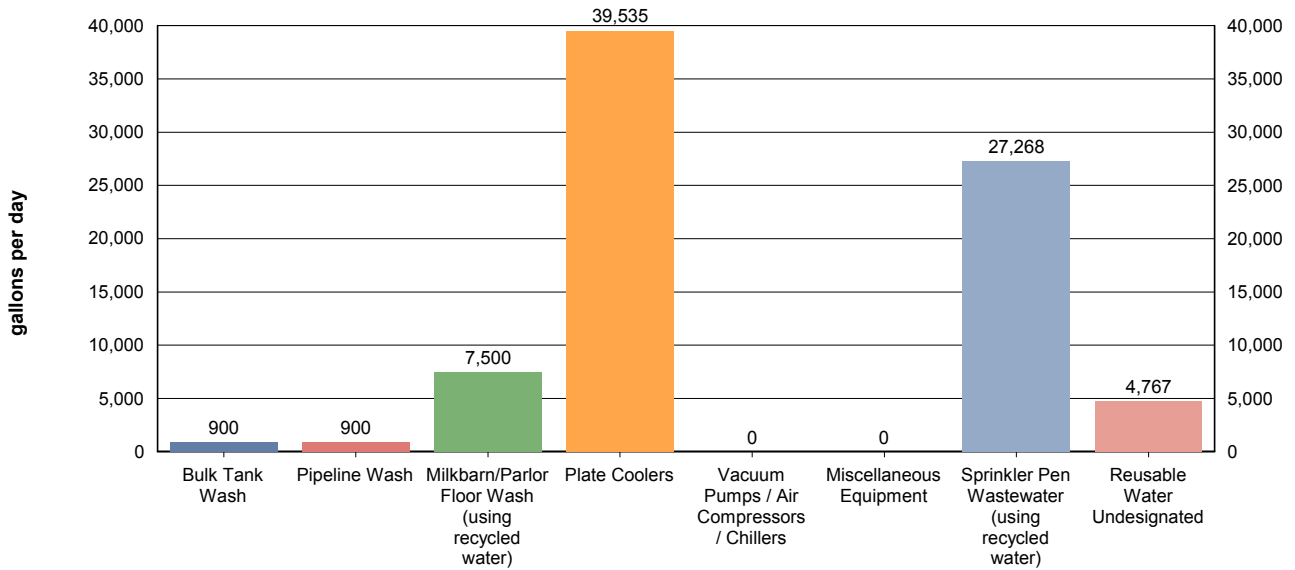
Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

Milkbarn water sent to pond(s):	<u>4,960,200</u> gallons/storage period
Fresh flush water for storage period:	<u>0</u> gallons/storage period

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

CHARTS

A. MILKBARN WASTEWATER SENT TO POND(S)

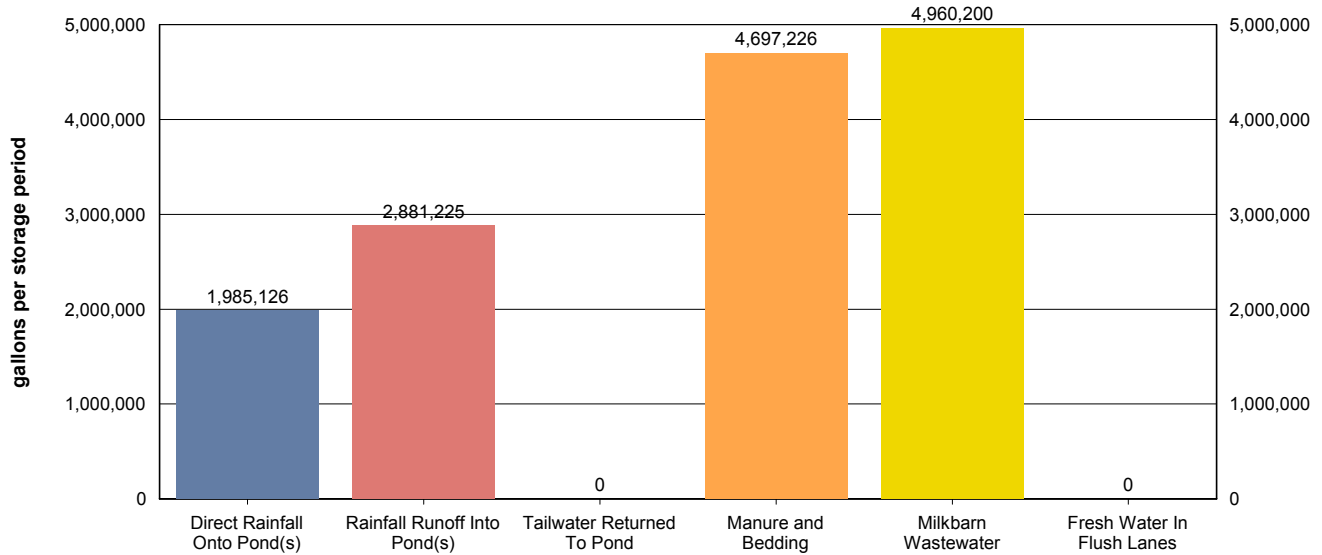


Values shown in chart are approximate values per day.

Total milkbarn wastewater generated daily:	41,335 gallons/day
Total milkbarn wastewater generated per period:	4,960,200 gallons/storage period

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

B. PROCESS WASTEWATER (NORMAL PRECIPITATION)



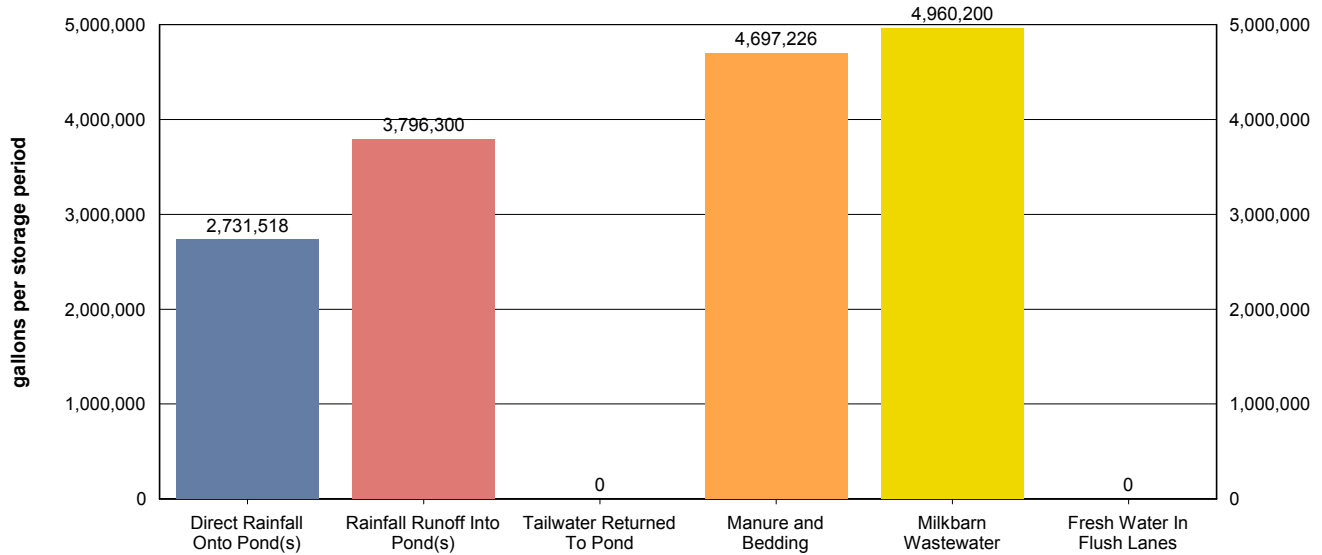
Values shown in chart are approximate values for storage period.

Storage period:	<u>120 days</u>
Total process wastewater generated daily:	<u>121,031 gallons/day</u>
Total process wastewater generated per period:	<u>14,523,777 gallons/storage period</u>
Total process wastewater removed due to evaporation:	<u>1,905,199 gallons/storage period</u>
Total storage capacity required:	<u>12,618,578 gallons</u>
	<u>1,686,859 cu. ft.</u>
Existing storage capacity (adjusted for dead storage loss):	<u>14,447,075 gallons</u>
	<u>1,931,293 cu. ft.</u>

Considering normal precipitation, existing capacity meets estimated storage needs: ☒ Yes ☐ No

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

C. PROCESS WASTEWATER (NORMAL PRECIPITATION WITH 1.5 FACTOR)



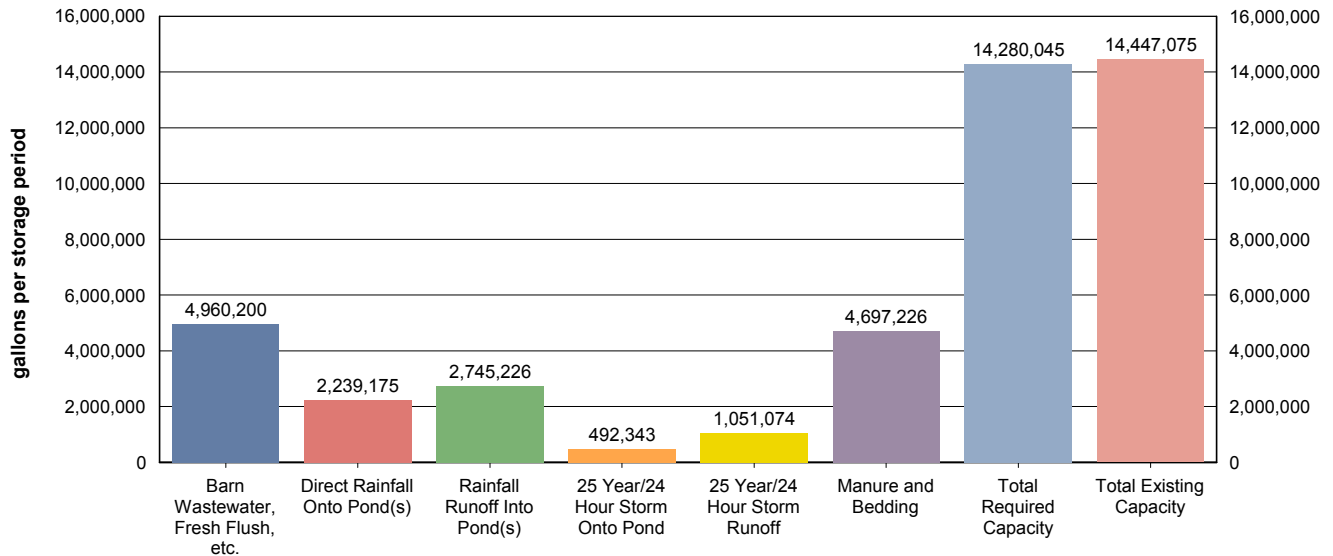
Values shown in chart are approximate values for storage period.

Storage period:	<u>120 days</u>
Total process wastewater generated daily:	<u>134,877 gallons/day</u>
Total process wastewater generated per period:	<u>16,185,244 gallons/storage period</u>
Total process wastewater removed due to evaporation:	<u>1,905,199 gallons/storage period</u>
Total storage capacity required:	<u>14,280,045 gallons</u>
	<u>1,908,964 cu. ft.</u>
Existing storage capacity (adjusted for dead storage loss):	<u>14,447,075 gallons</u>
	<u>1,931,293 cu. ft.</u>

Considering factored precipitation, existing capacity meets estimated storage needs: ☒ Yes ☐ No

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

D. STORAGE VOLUME ASSESSMENT (NORMAL PRECIPITATION WITH 1.5 FACTOR)



Values shown in chart are approximate values for storage period.

Storage period:	<u>120 days</u>
Barn wastewater, fresh flush water, and tailwater:	<u>4,960,200</u> gallons/storage period
Manure and bedding sent to pond:	<u>4,697,226</u> gallons/storage period
Precipitation onto pond:	<u>2,239,175</u> gallons/storage period
Precipitation runoff:	<u>2,745,226</u> gallons/storage period
25 year/24 hour storm onto pond:	<u>492,343</u> gallons/storage period
25 year/24 hour storm runoff:	<u>1,051,074</u> gallons/storage period
Residual solids after liquids have been removed (liquid equivalent):	<u>401,208</u> gallons/storage period
Total process wastewater removed due to evaporation:	<u>1,905,199</u> gallons/storage period
Total required capacity:	<u>14,280,045</u> gallons/storage period
Total existing capacity:	<u>14,447,075</u> gallons/storage period
Existing capacity meets estimated storage needs:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

OPERATION AND MAINTENANCE PLAN

The goal of the Operation and Maintenance Plan is to eliminate discharges of waste or storm water to surface waters from the production area and the protection of underlying soils and ground water.

A. POND MAINTENANCE

i. FREEBOARD MONITORING

1. Freeboard will be monitored monthly from June 1 through September 1 (dry season) and weekly from October 1 through May 31 (wet season). The results will be recorded on a Dairy Production Area Visual Inspection Form.
2. Freeboard will be monitored during and after each significant storm event and the results recorded on a Production Area Significant Storm Event Inspection Form.
3. Ponds will be photographed on the first day of each month. Pond photos will be labeled and maintained with the dairy's monitoring records.

ii. PREPARATION FOR MAINTAINING WINTER STORAGE CAPACITY

1. The retention pond(s) will begin to be lowered to the minimum operating level on or before a designated date each year.
2. The minimum operating level will include the necessary storage volume as identified in Section II.A in Attachment B of the General Order.

iii. OTHER POND MONITORING

1. At the time of each monitoring for freeboard, the pond(s) will be inspected for evidence of excessive odors, mosquito breeding, algae, or equipment damage; and issues with berm integrity, including cracking, slumping, erosion, excess vegetation, animal burrows, and seepage. Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Other Pond Monitoring.
2. At the time of each monitoring during and after each significant storm event, the ponds will be inspected for evidence of any discharge and issues with berm integrity, including cracking, slumping, erosion, excess vegetation, animal burrows, and seepage. Any issues identified and corrective actions performed will be recorded on a Production Area Significant Storm Event Inspection Form.

iv. SOLIDS REMOVAL PROCEDURES

1. The average thickness of the solids accumulated on the bottom of the pond(s) will be measured on the designated interval using the owner, operator, and/or designer specified procedure.
2. Once solids/sludge on the bottom of the pond(s) reach the owner, operator, and/or designer specified critical thickness, solids/sludge will be removed so that adequate capacity is maintained.
3. When necessary, solids/sludge will be removed using the owner, operator, and/or designer specified methods for protecting any pond liner.

OPERATIONS AND MAINTENANCE PLAN FOR POND: WWS2

Dry season freeboard monitoring will occur on the 5th of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 2.0 feet above the pond invert beginning in April of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Ponds are visually monitored to evaluate solid accumulation.

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

When solids/sludge accumulate to a thickness of 3.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Water is added throughout the year to dilute solids. Solids are pumped out during irrigations. If necessary, sludge can also be agitated and pumped into slurry wagons, however cannot be directly excavated as it is lined with a synthetic liner.

OPERATIONS AND MAINTENANCE PLAN FOR POND: WWS1

Dry season freeboard monitoring will occur on the 5th of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 1.0 feet above the pond invert beginning in April of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Ponds are visually monitored to evaluate solid accumulation.

When solids/sludge accumulate to a thickness of 3.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Water is added throughout the year to dilute solids. Solids are pumped out during irrigations. If necessary, sludge can also be agitated and pumped into slurry wagons or directly excavated for Spring and /or Fall application. If excavation is required, cleaning equipment operator will be informed as to overall depth of storage and instructed to remain 6-12 inches from the floor.

OPERATIONS AND MAINTENANCE PLAN FOR POND: WWS3

Dry season freeboard monitoring will occur on the 1st of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 0.0 feet above the pond invert beginning in April of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Ponds are visually monitored to evaluate solid accumulation.

When solids/sludge accumulate to a thickness of 3.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Solids and sludge will be removed with a backhoe or excavator.

OPERATIONS AND MAINTENANCE PLAN FOR POND: WWS4 (proposed)

Dry season freeboard monitoring will occur on the 1st of each month.

Wet season freeboard monitoring will occur every Monday of each week.

Process wastewater pond contents will be lowered to the minimum operating level (elevation) of 2.0 feet above the pond invert beginning in April of each year.

Sludge accumulation will be measured annually.

The following method will be used to measure solids/sludge accumulation:

Ponds are visually monitored to evaluate solid accumulation.

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

When solids/sludge accumulate to a thickness of 3.0 feet, the following method will be used to maintain adequate storage capacity while protecting any pond liner:

Water is added throughout the year to dilute solids. Solids are pumped out during irrigations. If necessary, sludge can also be agitated and pumped into slurry wagons or directly excavated for Spring and /or Fall application. If excavation is required, cleaning equipment operator will be informed as to overall depth of storage and instructed to remain 6-12 inches from the floor.

B. RAINFALL COLLECTION SYSTEM MAINTENANCE

- i. Annually, rainfall collection systems will be assessed to ensure:
1. Conveyances are free of debris and operating within designer/manufacturer specifications.
 2. Components are properly fastened according to designer/manufacturer specifications.
 3. All downspouts and related infrastructure are connected to conveyances that divert water away from manured areas.
 4. Water from the rainfall collection system(s) is diverted to an appropriate destination.

<i>Buildings with rooftop rainfall collection systems</i>	Quantity	Surface Area (sq. ft.)
Animal Shelter AS1	1	63,000
Animal Shelter AS2	1	84,000
Animal Shelter AS3	1	63,000
Animal Shelter AS4	1	126,750
Animal Shelter AS5	1	21,550
Animal Shelter AS6	1	2,300
Animal Shelter AS7	1	5,300
Animal Shelter AS8	1	94,250
Animal Shelter AS9	1	13,750
Commodity Barn	1	11,000
Milking Parlor	1	17,100
Milking Parlor (Not Used)	1	2,100
Shop 1	1	2,400
Shop 2	1	3,400
Shop 3	1	4,120

Assessment for buildings with rooftop rainfall collection systems will occur on or before: 5th of October

Assessment for other rainfall collections systems will occur on or before: 5th of November

Description of how rainfall collection systems will be assessed:

Gutters, downspouts, and appurtenant piping will be cleaned and repaired as needed.

C. CORRAL MAINTENANCE

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

- i. Monthly from June 1st through September 30th (dry season) and weekly from October 1st through May 31st (wet season), the perimeter of the corrals and pens will be assessed to ensure that runoff controls such as berms are functioning correctly, and that all water that contacts waste is collected and diverted into the wastewater retention pond(s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Corrals.
- ii. The corrals will be assessed by the designated date to determine:
 1. Whether manure needs to be removed from the corrals based on the owner, operator, and/or designer specified conditions.
 2. Whether there are depressions within the corrals that should be filled/groomed to prevent ponding.
- iii. Removal of manure and/or regrading, when necessary, will be completed on or before the designated month/day of each year.

Day of the month dry season assessment will occur: 5th of each month

Day of the week wet season assessment will occur: Monday

Solid manure removal and regrading assessment will occur on or before: 5th of October

Conditions requiring manure removal and/or regrading:

Solids are removed annually, typically after fall harvest.

Solid manure removal and/or regrading will occur on or before: 5th of December

D. FEED STORAGE AREA MAINTENANCE

- i. During the dry season and prior to the wet season, the perimeter of storage areas will be assessed to ensure all runoff controls such as berms are functioning correctly and runoff and leachate from the areas are collected and diverted into the wastewater pond(s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Manure and Feed Storage Areas.
- ii. During the wet season, feed storage area(s) will be assessed to determine if there are depressions within any feed storage area that should be filled or repaired to prevent ponding.
- iii. Any necessary regrading/resurfacing and berm/conveyance maintenance will be completed on an annual basis.

Day of the month dry season assessment will occur: 5th of each month

Day of the week wet season assessment will occur: Monday

Regrading/resurfacing and berm maintenance assessment will occur on or before: 5th of October

Regrading/resurfacing and berm maintenance completion will occur on or before: 5th of November

E. SOLID MANURE STORAGE AREA MAINTENANCE

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

- i. During the dry season and prior to the wet season, the perimeter of manure storage areas will be assessed to ensure all runoff and runoff controls such as berms are functioning correctly and runoff and leachate from the areas are collected and diverted into the wastewater pond(s). Any issues identified and corrective actions performed will be recorded on a Dairy Production Area Visual Inspection Form - Manure and Feed Storage Areas.
- ii. During the wet season, manure storage area(s) will be assessed to determine if there are depressions within any manure storage area that should be filled to prevent ponding.
- iii. Any necessary regrading/resurfacing and berm/conveyance maintenance will be completed on an annual basis.

Day of the month dry season assessment will occur: 5th of each month

Day of the month wet season assessment will occur: Monday

Regrading/resurfacing and berm maintenance assessment will occur on or before: 5th of October

Regrading/resurfacing and berm maintenance completion will occur on or before: 5th of November

F. ANIMAL HOUSING AND FLUSH WATER CONVEYANCE SYSTEM MAINTENANCE

- i. A map will be attached that identifies critical points for monitoring the animal housing and flush water conveyance system to verify that water is being managed as identified in this Waste Management Plan. These points will be maintained at owner, operator, and/or designer specified intervals.

Animal housing area assessment will occur on or before: 5th of October

Animal housing drainage system maintenance will occur on or before: 5th of November

Animal housing area drainage system assessment and maintenance methods:

Debris is removed from flush lanes, drains and corral drains as needed.
Pumps are monitored daily.
Scrape lanes are cleaned daily or as needed.

G. MORTALITY MANAGEMENT

- i. Dead animals will be stored, removed, and disposed of properly.

Rendering company or landfill name: San Jose Tallow

Rendering company or landfill telephone number: (408) 452-8777

H. ANIMALS AND SURFACE WATER MANAGEMENT

- i. A system will be in place, monitored, and maintained to prevent animals from entering any surface waters when a stream or other surface water crosses or adjoins the corral(s).

Does a stream or any other surface water cross or adjoin the corrals? ☐ Yes ☒ No

I. MONITORING SALT IN ANIMAL RATIONS

- i. The combined quantity of minerals as salt in animal drinking water and feed rations will be reviewed by a qualified nutritionist on a routine basis to verify that minerals are limited to the amount required to maintain animal health and optimum production. As feed rations change, mineral content may change.

Assessment interval: Annually

J. CHEMICAL MANAGEMENT

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

- i. Chemicals and other contaminants handled at the facility will not be disposed of in any manure or process wastewater, storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.

Chemical Name	Quantity	Units	Frequency	Usage Area	Destination (Used Chemical / Container)	Disposal Company		Collection Frequency
						Name	Phone	
Roundup	20	gallons	year	Dairy Production Area and Land Application Areas	Containers are disposed of in dumpster.			
Acid	250	gallons	year	Milking parlor	Picked up by supplier			
Chlorine	750	gallons	year	Milking parlor	Picked up by supplier			
Formaldehyde	750	gallons	year	Milking parlor	Picked up by supplier			
Detergent	5,000	pounds	year	Milking parlor	Picked up by supplier			

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

REQUIRED ATTACHMENTS

The following list, based upon user selections and data entries, describes the minimum required attachments that must be submitted with the Waste Management Plan for the reporting schedule of 'July 1, 2010'.

A. SITE MAP(S)

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of the production area including the following in sufficient detail: structures used for animal housing, milk parlor, and other buildings; corrals and ponds; solids separation facilities (settling basins or mechanical separators); other areas where animal wastes are deposited or stored; feed storage areas; drainage flow directions and nearby surface waters; all water supply wells (domestic, irrigation, and barn wells) and groundwater monitoring wells.

Production area map reference number: Exhibit Sheets 3 & 4

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of all land application areas (land under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) including the following in sufficient detail: a field identification system (Assessor's Parcel Number; field by name or number; total acreage of each field; crops grown; indication if each field is owned, leased, or used pursuant to a formal agreement); indication of what type of waste is applied (solid manure only, wastewater only, or both solid manure and wastewater); drainage flow direction in each field, nearby surface waters, and storm water discharge points; tailwater and storm water drainage controls; subsurface (tile) drainage systems (including discharge points and lateral extent); irrigation supply wells and groundwater monitoring wells; sampling locations for discharges of storm water and tailwater to surface water from the field.

Application area map reference number: Exhibit Sheet 2

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of all cropland (land that is part of the dairy but not used for dairy waste application) including the following in sufficient detail: Assessor's Parcel Number, total acreage, crops grown, and information on who owns or leases the field. The Waste Management Plan shall indicate if such cropland is covered under the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Order No. R5-2006-0053 for Coalition Group or Order No. R5-2006-0054 for Individual Discharger, or updates thereto).

Non-application area map reference number: n/a

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of all off-property domestic wells within 600 feet of the production area or land application area(s) associated with the dairy and the location of all municipal supply wells within 1,500 feet of the production area or land application area(s) associated with the dairy.

Well area map reference number: Exhibit Sheets 2-4

Provide a site map (or maps) of appropriate scale to show property boundaries and a vicinity map, north arrow and the date the map was prepared. The map shall be drawn on a published base map (e.g., a topographic map or aerial photo) using an appropriate scale that shows sufficient details of all facilities.

Vicinity map reference number: Exhibit Sheet 1

B. PROCESS WASTEWATER MAP(S)

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of the production area including the following in sufficient detail: process wastewater conveyance structures, discharge points, and discharge /mixing points with irrigation water supplies; pumping facilities and flow meter locations; upstream diversion structures, drainage ditches and canals, culverts, drainage controls (berms/levees, etc.), and drainage easements; and any additional components of the waste handling and storage system.

Production infrastructure system area map reference number: Exhibit Sheets 3 & 4

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

Provide a site map (or maps) of appropriate scale to show property boundaries and the location of the features of all land application areas (land under the Discharger's control, whether it is owned, rented, or leased, to which manure or process wastewater from the production area is or may be applied for nutrient recycling) including the following in sufficient detail: process wastewater conveyance structures, discharge points and discharge mixing points with irrigation water supplies; pumping facilities; flow meter locations; drainage ditches and canals, culverts, drainage controls (berms, levees, etc.), and drainage easements.

Land application infrastructure system area map reference number: Exhibit Sheet 2

C. EXCESS PRECIPITATION CONTINGENCY REPORT

There were no attachment references entered or required for this attachment section.

D. OPERATION AND MAINTENANCE PLAN

Attach a map that identifies critical points for monitoring the system to verify that water is being managed as identified in this Waste Management Plan (see Attachment B, Pg B-7 V.F, V.G, and V.H for additional requirements).

Animal housing assessment map reference number: Exhibit Sheet 3

E. FLOOD PROTECTION / INUNDATION REPORT

Provide an engineering report showing that the facility has adequate flood protection.

Flood zone map and/or document reference number: WMP Section 3.d.

F. BACKFLOW PROTECTION

Attach documentation from a trained professional (i.e. a person certified by the American Backflow Prevention Association, an inspector from a state or local governmental agency who has experience and/or training in backflow prevention, or a consultant with such experience and/or training), as specified in Required Reports and Notices H.1 of Waste Discharge Requirements General Order No. R5-2007-0035, that there are no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the Site Map.

Backflow documentation reference number: WMP Section 3.c.

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

CERTIFICATION

A. DAIRY FACILITY INFORMATION

Name of dairy or business operating the dairy: John Toste Dairy

Physical address of dairy:

609 Santa Fe Grade
Number and Street

Newman
City

Merced
County

95360
Zip Code

Street and nearest cross street (if no address): _____

B. DOCUMENTATION OF QUALIFICATIONS AND PLAN DEVELOPMENT

I have reviewed the portion of the waste management plan that is related to storage capacity facility and design specifications in accordance with Item II, Attachment B of the Waste Discharge Requirements General Order for Existing Milk Cow Dairies - Order No. R5-2007-0035 and certify that this plan was prepared by, or under the responsible charge of, and certified by a civil engineer who is registered pursuant to California law or other person as may be permitted under the provisions of the California Business and Professions Code to assume responsible charge of such work.

Storage capacity is:

Insufficient

- ☐ Retrofitting Plan/Schedule/Design Criteria attached in accordance with Attachment B, II.B. 1-5 and Attachment B, II. C.

Sufficient

- ☒ Certification 1 - Certified in accordance with Attachment B, II. A. 1-8. (no contingency plan)
- ☐ Certification 2 - Certified in accordance with Attachment B, II. A. 1-8, II. C. (with contingency plan attached)



CIVIL ENGINEER'S WET STAMP

3/10/2019

SIGNATURE OF CIVIL ENGINEER

DATE

Manny Sousa

PRINT OR TYPE NAME

P.O. Box 1613; Oakdale, CA 95361

MAILING ADDRESS

(209) 238-3151

PHONE NUMBER

Waste Management Plan Report
General Order No. R5-2007-0035, Attachment B
July 1, 2010 deadline

C. OWNER AND/OR OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF OWNER

SIGNATURE OF OPERATOR

John Toste

PRINT OR TYPE NAME

PRINT OR TYPE NAME

DATE

DATE



PRODUCTION AREA DESIGN & CONSTRUCTION REPORT

PART I: DAIRY FACILITY INFORMATION

A. Name of Dairy or Business Operating the Dairy: _____

Physical address of Dairy:

Number and Street City County Zip Code

B. Operator Name: _____ Telephone No: _____

Operator mailing address:

Number and Street City County Zip Code

C. Owner Name: _____ Telephone No: _____

Owner Mailing Address:

Number and Street City County Zip Code

PART II: DESIGN AND CONSTRUCTION DETAILS

A. Corrals and Pens

(1) Is all process wastewater collected in the retention pond? ☐ Yes ☐ No

If Yes, describe how (circle all that apply):

ditch curbs berm(s) drainpipe sumps pumps other

Explain how your system works: _____

If No, describe what is done with it: _____

(2) Is all run on water (clean precipitation and surface drainage) diverted away from the production area? ☐ Yes ☐ No

If Yes, describe how (circle all that apply):

ditch curbs berm(s) slope elevation other

Explain how your system works: The production area is elevated to prevent storm water run-on.

If No, identify areas where the run on occurs: _____

If No, identify how the run on is contained: _____

- (3) If run on water has the potential to contact manure and is not contained, explain what modifications or improvements are proposed, and provide a schedule for construction. (Note: a certification of completion must be provided when complete): _____

- (4) Are there areas where water contacting manure stands for more than 72 hours? ☐ Yes ☐ No

If No, explain how standing water is avoided: _____

If Yes, describe what modifications or improvements are proposed, and provide a schedule for construction. (Note: a certification of completion must be provided when complete.): _____

- (5) Are there conveyance structures such as earthen ditches, bermed channels, or swales where manure water stands for more than 72 hours? ☐ Yes ☐ No

If No, explain how standing water is avoided: _____

If Yes, explain what modifications or improvements are proposed, and provide a schedule for construction. Note: a certification of completion must be provided when complete): _____

B. Animal Housing Area

- (1) Is the animal housing area (i.e., barn, shed, milk parlor, paved and unpaved roadways and areas within the production area, etc.) designed, and constructed to drain all water that has contacted animal wastes to the retention pond? ☐Yes ☐ No ☐Partially

If Yes, describe how (circle all that apply)

ditch curbs berm(s) slope elevation drainpipe other

Explain how your system works: _____

If No or Partially, describe the areas not diverted to the retention pond: _____

For the areas not diverted to the retention pond, explain what modifications or improvements are proposed, and a schedule for construction. (Note: a certification of completion must be provided when complete): _____

- (2) Are there any areas, outside of the retention system, where water that has contacted manure stands for more than 72 hours? ☐Yes ☐ No

If No, describe how your system works to avoid standing water: _____

If Yes, explain what modifications or improvements are proposed, and provide a schedule for construction. A certification of completion must be provided when complete: _____

- (3) Are there conveyance structures such as earthen ditches, bermed channels, or swales where water that has contacted manure stands for more than 72 hours, or where parts of the conveyance system are used for storage of manure water? ☐Yes ☐ No

If Yes, explain what modifications or improvements are proposed to prevent this condition, and provide a schedule for construction. (Note: a certification of completion must be provided when complete): _____

C. Manure and Feed Storage Area

- (1) Is all leachate or water that has contacted stored manure, bedding, or feed collected in the retention pond? ☐ Yes ☐ No

If Yes, describe how (circle all that apply):

ditch curbs berm(s) drainpipe sumps pumps other

Explain how your system works: _____

If No, describe where it is collected and what is done with it: _____

If necessary, explain what modifications or improvements are proposed, and provide a schedule for construction. (Note: a certification of completion must be provided when complete): _____

- (2) Are there any areas where leachate or water contacting stored manure, bedding, or feed stands for more than 72 hours? ☐ Yes ☐ No

If No, describe how standing leachate and water is prevented or handled: _____

If Yes, explain what modifications or improvements are proposed, and provide a schedule for construction. (Note: a certification of completion must be provided when complete): _____

- (3) Are there conveyance structures such as earthen ditches, bermed channels, or swales where leachate or water that has contacted stored manure, bedding, or feed stands for more than 72 hours, or are there parts of the system that are used for storage of leachate or manure water? ☐ Yes ☐ No

If Yes, explain what modifications or improvements are proposed to prevent this condition, and provide a schedule for construction. (Notes: a certification of completion must be provided when complete): _____

I certify that the modifications or improvements identified above or similar alternatives were completed to achieve collection and management of all process wastewater, water that has contacted animal wastes, and runoff and leachate from manure and feed storage areas.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

John Tate
SIGNATURE OF OWNER

SIGNATURE OF OPERATOR

PRINT OR TYPE NAME

PRINT OR TYPE NAME

1-14-19
DATE

DATE

1. Identify cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map;
2. Propose and schedule corrective action to prevent backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map; and/or
3. Document there are no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water as identified on the dairy's Site Map.

A Site Map must be attached to this form that shows all water supply wells, irrigation wells, and surface water bodies in the dairy's Production Area and all Land Application Areas that are under the Discharger's control. The Site Map must also show all wastewater conveyance structures, wastewater discharge points to surface water, and where wastewater is mixed/blended with fresh irrigation water in these areas. Each of these locations must be identified by a name or number and listed in Part II below. Completion of Part II will identify how backflow can or does occur at each location and any current backflow preventive measures.

A. Name of Dairy or Business Operating the Dairy: _____

Number and Street	City	County	Zip Code
-------------------	------	--------	----------

B. Operator Name: _____ Telephone No: _____

Number and Street	City	County	Zip Code
-------------------	------	--------	----------

C. Owner Name: Telephone No:

Number and Street	City	County	Zip Code
-------------------	------	--------	----------

Page 1

**FORM FOR DOCUMENTING BACKFLOW PREVENTION
UNDER
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035
FOR
EXISTING MILK COW DAIRIES**



PART II: IDENTIFICATION OF EXISTING BACKFLOW CONDITIONS (due by 1 July 2008)

The attached Site Map identifies all of the locations in the Production Area and all Land Application Areas under the control of the Discharger at the dairy identified in Part I above where there are cross-connections that could, or do, allow the backflow of wastewater into a water supply well, irrigation well, or surface water. For each location shown on the map, the table below describes:

- a. How and where wastewater can potentially, or does, backflow to a groundwater supply and/or surface water supply (if there are no current or potential backflow problems, indicate so with "none"), and
- b. How backflow of process wastewater into the groundwater or surface water supply is currently prevented (if there is no current prevention method, indicate so with "none").

Location Where Backflow can Occur	How Backflow Can or Does Occur	Current Backflow Preventive Measure
none		

**FORM FOR DOCUMENTING BACKFLOW PREVENTION
UNDER
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035
FOR
EXISTING MILK COW DAIRIES**



PART III: PROPOSED BACKFLOW CORRECTIVE ACTIONS AND SCHEDULE (due by 1 July 2008)

For each location identified in Part II above where there is currently no backflow prevention, the table below identifies:

- a. The method proposed to be implemented that will prevent backflow, and
- b. A schedule to install the preventive measure.

If there are no current or potential backflow problems identified in Part II above, this Part does not need to be completed.

Location With No Current Backflow Prevention	Proposed Backflow Prevention Method	Schedule to Install Proposed Backflow Prevention Method

PART IV: DOCUMENTATION OF EXISTING BACKFLOW CONDITIONS AND PROPOSED BACKFLOW PREVENTION METHODS (due by 1 July 2008)

As a trained professional in backflow prevention, I certify that, based on the information provided to me by the Discharger named above and my personal examination of the wastewater system, the above information in Part II above is true, accurate, and complete and the proposed backflow prevention method in Part III above will be effective to prevent the backflow of wastewater into a water supply well, irrigation well, or surface water at the dairy named in Part I above.

QUALIFICATIONS OF TRAINED PROFESSIONAL (EDUCATION AND/OR EXPERIENCE)

SIGNATURE OF TRAINED PROFESSIONAL

DATE

PRINT OR TYPE NAME

**FORM FOR DOCUMENTING BACKFLOW PREVENTION
UNDER
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER NO. R5-2007-0035
FOR
EXISTING MILK COW DAIRIES**



**PART V: DOCUMENTATION THAT THERE ARE NO CROSS-CONNECTIONS THAT
WOULD ALLOW THE BACKFLOW OF WASTEWATER INTO A WATER SUPPLY WELL,
IRRIGATION WELL, OR SURFACE WATER (due by 1 July 2009)**

As a trained professional in backflow prevention, I certify that, based on the information provided to me by the Discharger named in Part I above and my personal examination of the wastewater system, that the backflow prevention methods proposed in Part III above (if any) have been completed, and/or there are currently no cross-connections that would allow the backflow of wastewater into a water supply well, irrigation well, or surface water at the dairy named in Part I above.

CA Registered Civil Engineer No. 65379

QUALIFICATIONS OF TRAINED PROFESSIONAL (EDUCATION AND/OR EXPERIENCE)

Manny Sousa

1-17-19

SIGNATURE OF TRAINED PROFESSIONAL

DATE

Manny Sousa

PRINT OR TYPE NAME

PART VI: OWNER AND/OR OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

John Toste

SIGNATURE OF OWNER

SIGNATURE OF OPERATOR

John Toste

PRINT OR TYPE NAME

PRINT OR TYPE NAME

1-14-19

DATE

DATE

**FLOOD PROTECTON ANALYSIS
FOR
JOHN TOSTE DAIRY
MERCED COUNTY, CA**

TABLE OF CONTENTS

1. Introduction / Project Overview
2. Determination of Base Flood Elevation (BFE)
3. Determination of Elevations of Existing Dairy Production Area within FEMA Zone A
4. Determination of Levels of Flood Protection and Inundation / Conceptual Flood Protection Plan
5. Exhibits
 - a. Vicinity Map
 - b. FIRM Panel No. 06047C0350G
 - c. Estimated 100-Year Base Flood Elevation
 - d. Existing Topography – Existing and Proposed Improvements
 - e. Conceptual Flood Protection Plan / Grading Plan



INTRODUCTION / PROJECT OVERVIEW

This analysis has been prepared to accompany a Waste Management Plan prepared in conjunction with a Conditional Use Permit (CUP) application for expansion of the existing John Toste Dairy facility in Merced County, CA. A Waste Management Plan (WMP) describing the generation and management of dairy wastewater by the facility must be prepared in accordance with Merced County and Central Valley Regional Water Quality Control Board (CVRWQCB) requirements. CVRWQCB General Order No. R5-20013-0122, *Reissued Waste Discharge Requirements General Order for Existing Milk Cow Dairies*, (Order) was adopted by the California Regional Water Quality Control Board (CRWQCB) Central Valley Region in 2013 and establishes the criteria for preparation of the WMP.

Per the requirements set forth by the aforementioned Order each existing milk cow dairy in the Central Valley Region that is located in an area subject to inundation from the prescribed flood event must have or must construct improvements that provide protection from that flood event. More particularly the aforementioned Order states the following:

General Specification B.2: *“In the Sacramento and San Joaquin River Basins, ponds and manured areas at existing milk cow dairies in operation on or before 27 November 1984 shall be protected from inundation or washout by overflow from any stream channel during 20-year peak stream flows. Existing milk cow dairies that were in operation on or before 27 November 1984 and that are protected against 100-year peak stream flows must continue to provide such protection.*

Existing milk cow dairies built or expanded after 27 November 1984 shall be protected against 100-year peak stream flows (Title 27 Section 22562(c)).”

Since this WMP is being prepared as part of an application to expand this dairy, the facility will be evaluated using available 100-year peak stream flow data.

The above referenced section of Title 27 (Section 22562 of Chapter 7, Subchapter 2) also states the following criterion in its item (3):

“The determination of peak stream flows shall be from data provided by a recognized federal, state, local, or other agency.”

The source of flood information for this analysis is Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) Flood Insurance Studies (FISs). FIRMs and FISs are industry standard sources of flood information for engineers, scientists, lending institutions, and other industries with a vested interest in the location of real property as it relates to areas subject to flood inundation.

A portion of the existing John Toste Dairy site lies within a FEMA Zone A, or an area determined to be subject to inundation by the 100-year flood event. It is the intent of this analysis to do the following:

1. Determine a Base Flood Elevation (BFE) for the portion of the site location with the FEMA Zone A.
2. Determine the elevations of existing Dairy Production Area (DPA) improvements relative to the determined BFE.
 - a. If the DPA is currently protected from inundation by the design storm event, then the extent of this protection will be demonstrated.

- b. If the DPA is not protected from inundation by the design storm event, then the extent of inundation will be demonstrated.
3. If portions of the existing and proposed DPA are determined not to be protected from the design storm event by existing conditions, then a plan for constructing improvements to provide adequate protection will be developed.

Neither this analysis nor any of the information contained herein represent a certificate of elevation or Letter of Map Revision or Amendment (LOMR / LOMA) for the project site.

DETERMINATION OF BASE FLOOD ELEVATION (BFE)

A portion of the existing John Toste Dairy site lies within Zone A per the relevant FIRM. Zone A is defined as an area subject to inundation by the 100-year storm event but for which a Base Flood Elevation (BFE) has not been established. The location of the DPA is shown on the FIRM on the attached Exhibit B.

The hydrologic analysis used to determine the boundary of Zone A in these cases typically has been performed utilizing topographic information available on quadrangle maps prepared by the United States Geological Survey (USGS). The method of determining an estimated flood elevation for Zone A sites as recommended by FEMA is to superimpose the Zone A boundary defined by the FIRM over the relevant USGS quadrangle map and interpolate the elevation along said Zone A boundary (see *Managing Floodplain Development in Approximate Zone A Areas*, Federal Emergency Management Agency, April, 1995).

For purposes of this analysis the FIRM was digitally superimposed over an aerial photo of the project site. The 20' contours on the quadrangle map were digitized and a three-dimensional model of the existing terrain was generated. Spot elevations of this model were then taken along the Zone A boundary in order to obtain estimated flood elevations within the DPA. The elevations of the model along with the aforementioned spot elevations are shown on Exhibit C, Estimated 100-Year Base Flood Elevation. Spot elevations are designated as "og_quad" on the drawing.

As indicated on Exhibit C, Estimated 100-Year Base Flood Elevation, the estimated flood elevation in the vicinity of the DPA that is subject to inundation is approximately 77.4' (NAVD88 datum). Rounding up to the nearest one-half foot, the BFE will thus be estimated at 77.5' (NAVD88).

DETERMINATION OF ELEVATION OF EXISTING DAIRY PRODUCTION AREA WITHIN FEMA ZONE A

An engineering survey was performed in order to determine the actual existing elevations of facilities within the DPA relative to the estimated flood elevation. USGS benchmarks were used to establish elevations based on the datum corresponding to that of the quadrangle map relevant to the project site. The elevations shown on the quadrangle map are based on the North American Vertical Datum of 1988 (NAVD88). A three dimensional model of the existing terrain was generated using the engineering survey performed on the existing DPA improvements in order to compare actual elevations to those of the estimated flood elevation. Contours of that model are shown on Exhibit D, Existing Topography – Existing Improvements.

It is apparent upon visual inspection that much of the existing DPA was raised significantly above existing grade during construction. In particular the following areas appear to have been elevated in the manners described:

- a. The existing structures, including the milking parlor and animal shelters, have been elevated to finished elevations between 77.5' and 81.0'. This represents an increase from existing natural grade of between 2' to 6' and an elevation equal to or 3.5' higher than the estimated BFE;
- b. Portions of the feed storage area and portions of corrals have been elevated to finished elevations between 77.5' and 80'. This represents an increase from existing natural grade of between 2' and 5' and an elevation equal to or 2.5' higher than the estimated BFE.

As shown on Exhibit D, Existing Topography – Existing Improvements, approximately 60% of the DPA that is within Zone A as described above has been constructed to finished elevations at or above the estimated BFE. These areas are outlined in red on the aforementioned Exhibit D.

As also shown on Exhibit D, portions of the DPA would be subject to inundation levels of approximately 0.5' to 1.5' based on the estimated 100-year BFE. These areas are outlined in blue on the aforementioned Exhibit D and include approximately 40% of DPA that is within Zone A.

DETERMINATION OF LEVELS OF FLOOD PROTECTION AND INUNDATION / CONCEPTUAL FLOOD PROTECTION PLAN

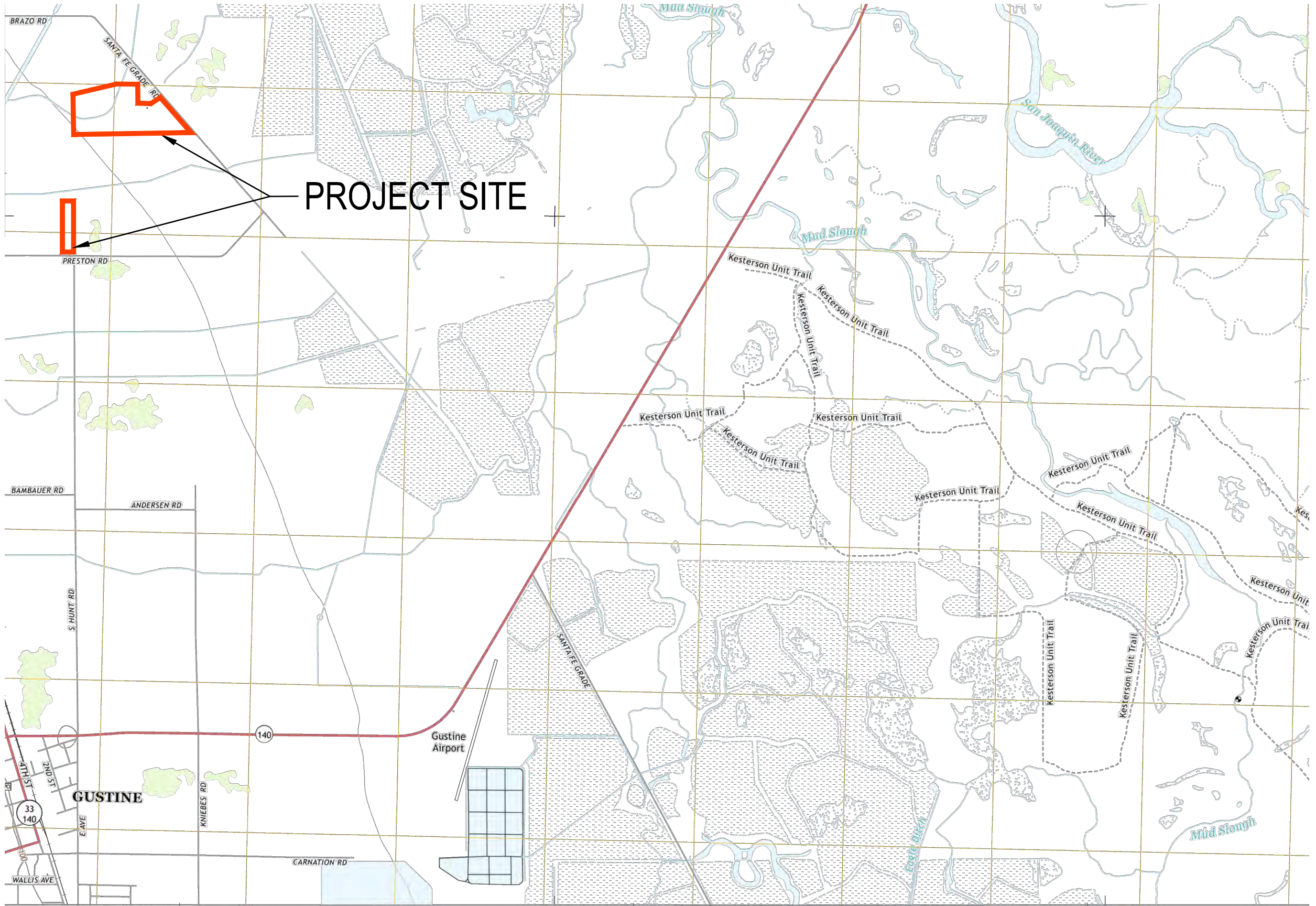
As discussed in the previous section approximately 60% of the existing DPA that is within the designated Zone A area has been elevated to elevations between 77.5' to 81.0', or equal to or 3.5' above the estimated flood elevation, and as such currently meets the requirements of General Specification B.2. of the General Order for flood protection. However the remaining 40% of the existing DPA that is within Zone A would be subject to inundation levels of approximately 0.5' to 1.5' in the event of a 100-year storm at its current elevation.

A Conceptual Grading Plan / Flood Protection Plan has been prepared and is incorporated in this Analysis as Exhibit E. This Plan includes proposed improvements that would provide adequate flood protection as required by the Order. A summary of the proposed improvements is as follows:

1. Elevating existing access roads on the north, east, and south perimeter of the DPA to finished elevations of 77.5' or greater.
2. New structures will be constructed with finished floor elevations of 79.00' or greater.

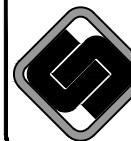
With construction of the proposed improvements described above and shown conceptually on Exhibit E, the existing DPA should have adequate protection from the 100-year flood event.

EXHIBITS



PROJECT SITE

SOSA
ENGINEERING



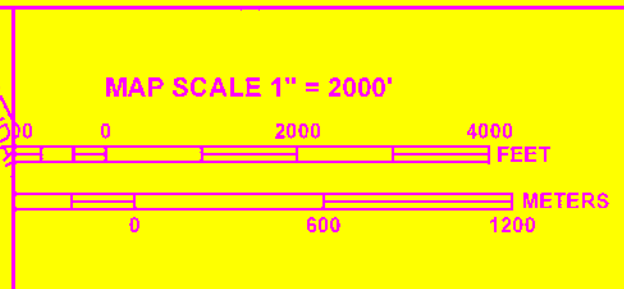
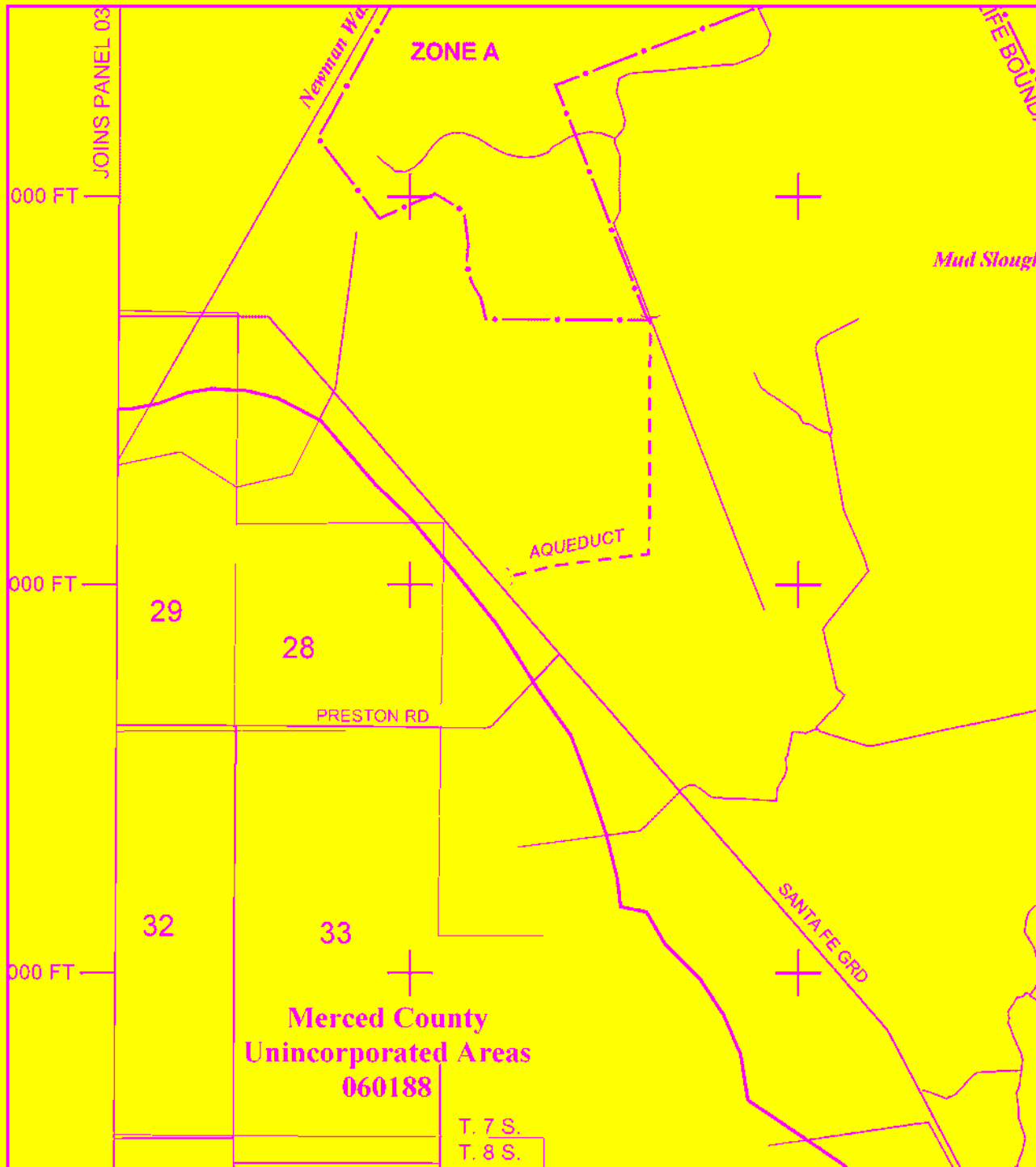
INFRASTRUCTURE · DEVELOPMENT ·
AGRICULTURE

PO BOX 1613
OAKDALE, CA 95361
PH: (209)238-3151
WWW.SOSAENG.COM

EXHIBIT A
VICINITY MAP

JOHN TOSTE DAIRY
MERCED COUNTY, CA

DRAWN BY: MS				
DATE: 11/6/2018				
FILE: 01_vic.dwg				
JOB NO: 2018-016				
SYMBOL	REVISIONS	DESCRIPTION	APPD.	



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0350G

FIRM

FLOOD INSURANCE RATE MAP

**MERCED COUNTY,
CALIFORNIA**

AND INCORPORATED AREAS

PANEL 350 OF 1225

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GUSTINE CITY OF	000447	0350	C
MERCED COUNTY	060188	0350	C

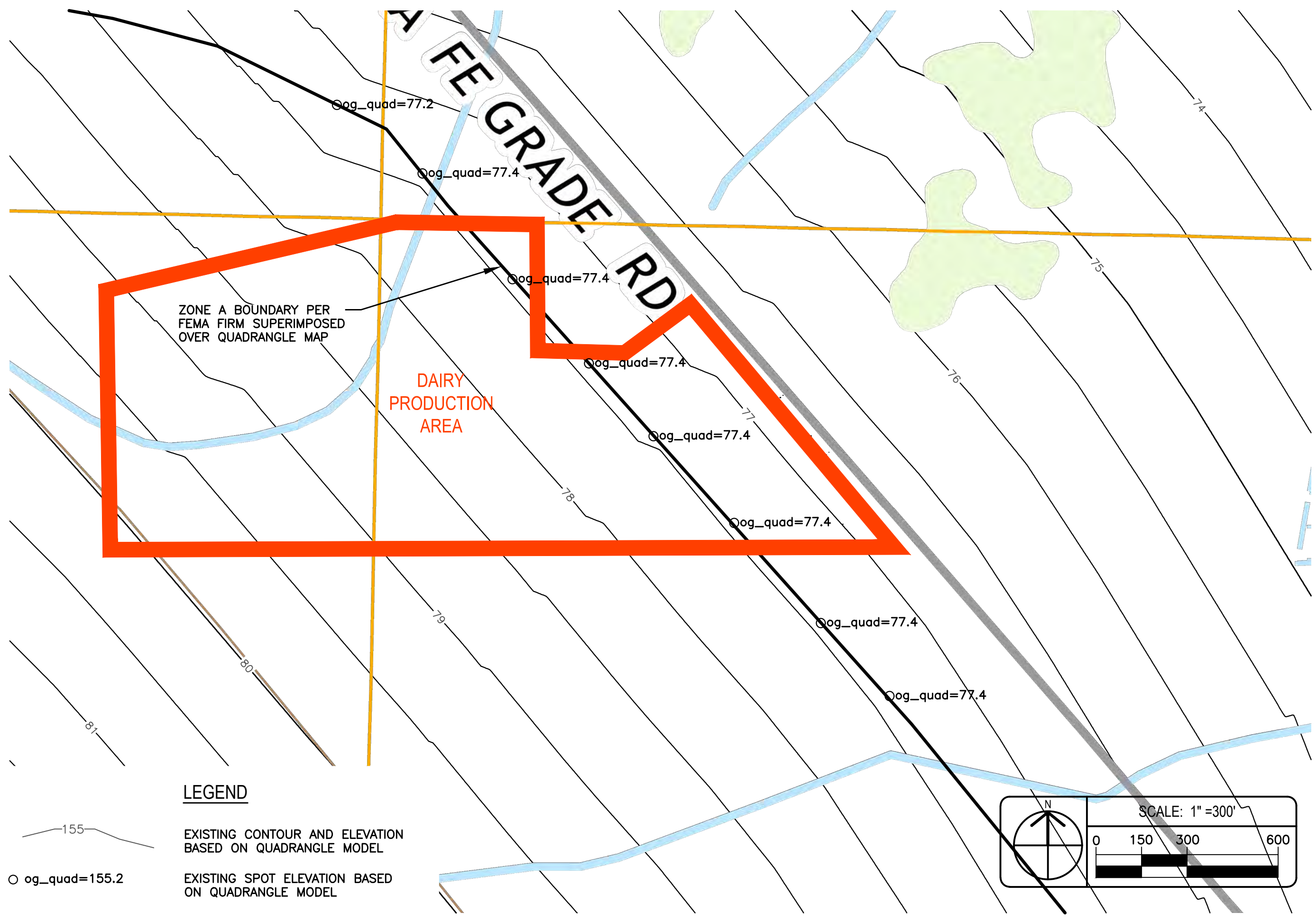
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER
06047C0350G**

**MAP REVISED
DECEMBER 2, 2008**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

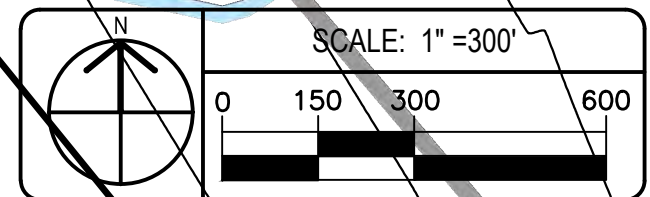


LEGEND

—155—
○ og_quad=155.2

EXISTING CONTOUR AND ELEVATION
BASED ON QUADRANGLE MODEL

EXISTING SPOT ELEVATION BASED
ON QUADRANGLE MODEL



DRAWN BY: MS	REVISIONS	APPD.
DATE: 11/8/2018	DESCRIPTION	
FILE: 03_site.dwg		
JOB NO.: 2018-016		

**VECTOR CONTROL PLAN
FOR
JOHN TOSTE DAIRY
MERCED COUNTY, CA**

TABLE OF CONTENTS

- 1. INTRODUCTION**
- 2. BEST MANAGEMENT PRACTICES**
 - a. Land Application Areas
 - b. Dairy Production Area (DPA)
- 3. CONTACT INFORMATION**

1. INTRODUCTION

Vector control is an important aspect of disease prevention and public health. Without proper management, agricultural production facilities can create or enhance opportunities for vectors to develop and proliferate. Certain land management practices can reduce vector populations thereby reducing long-term vector treatment costs, reducing the amount of pesticides used in vector control operations, helping to protect public health, and contributing to an integrated pest management (IPM) approach to vector control.

Integrated Pest Management is an approach that focuses on site-specific, scientifically sound decisions to manage pest populations by matching a wide variety of techniques with the conditions found on site. These techniques are commonly grouped into four categories:

1. Source reduction or physical control—environmental manipulation that results in a reduction of vector development sites.
2. Biological Control—use of biological agents to limit vector populations
3. Chemical Control—larvicides (materials that kill immature larval vectors and mosquitoes) and adulticides (materials that kill adult vectors and mosquitoes)
4. Cultural Control—change the behavior of people so that their actions prevent the development of vectors or the transmission of vector-borne disease.

Through the adoption of these policies and procedures, this Plan will provide an outline to effectively control vectors by physical, cultural, and biological means.

The Vector Reduction Best Management Practices (BMPs) referred to in this document are the recommended land management practices that can provide a reduction in vector populations by various means including: reducing or eliminating breeding areas, increasing the efficacy of biological controls, increasing the efficacy of chemical controls, and improving access for control operations.

While it is generally accepted that vector production from all sources may be reduced through the widespread implementation of vector Reduction BMPs, these policies specifically target the most severe vector problems with the greatest likelihood of responding through the use of BMPs.

2. **BEST MANAGEMENT PRACTICES (BMPs)**

- a. **Land Application Areas:** for Land Application Areas, the following are areas of concern and recommended BMPs for vector control:

Common Vector Development Areas

- Vegetated ditches
- Seepage or flooding of fallow fields
- Irrigation tail water return sumps
- Blocked ditches or culverts
- Leaky water control structures
- Irrigated pastures
- Low areas caused by improper grading
- Broken or leaky irrigation pipes or valves

Special Concerns

Agricultural practices vary among growers, locations, and conventional or organic production methods. Pesticide regulations can affect the ability to use chemical control. The Best Management Practices below are offered as tools to balance the economic and agronomic requirements of the growers and land owners with the need for effective vector control.

General Vector Reduction Principles

1. Prevent or eliminate unnecessary standing water that stands for more than 72 –96 hours during mosquito season which can start as early as March and extend through October depending on weather.
2. Maintain access for Abatement District staff to monitor and treat mosquito breeding sources.
3. Minimize emergent vegetation and surface debris on the water.
4. Contact the County Department of Environmental Health or Mosquito Abatement District for technical guidance or assistance in implementing vector reduction BMPs.

Vector Reduction BMPs for Land Application Areas

Ditches and Drains

- DD-1** Construct or improve ditches with at least 2:1 slopes and a minimum 4-foot bottom. Consider a 3:1 slope or greater to discourage burrowing animal damage, potential seepage problems, and prevent unwanted vegetation growth. Other designs may be approved by the MVCD based on special circumstances.
- DD-2** Keep ditches clean and well-maintained. Periodically remove accumulated sediment and vegetation. Maintain ditch grade to prevent areas of standing water.

- DD-3** Design irrigation systems to use water efficiently and drain completely to avoid standing water.

Irrigated Pastures

- IP-1** Grade field to achieve efficient use of irrigation water. Use NRCS guidelines for irrigated pastures. Initial laser leveling and periodic maintenance to repair damaged areas are needed to maintain efficient water flow.
- IP-2** Irrigate only as frequently as is needed to maintain proper soil moisture. Check soil moisture regularly until you know how your pasture behaves
- IP-3** Do not over fertilize. Excess fertilizers can leach into irrigation tail water, making mosquito production more likely in ditches or further downstream
- IP-4** Apply only enough water to wet the soil to the depth of rooting.
- IP-5** Drain excess water from the pasture within 24 hours following each irrigation. This prevents scalding and reduces the number of weeds in the pasture. good check slopes are needed to achieve drainage. A drainage ditch may be used to remove water from the lower end of the field.
- IP-6** Inspect fields for drainage and broken checks to see whether re-leveling or reconstruction of levees is needed. Small low areas that hold water can be filled and replanted by hand. Broken checks create cross-leakage that provide habitat for vectors.
- IP-7** Keep animals off the pasture while the soil is soft. An ideal mosquito habitat is created in irrigated pastures when water collects in hoof prints of livestock that were run on wet fields or left in the field during irrigation. Keeping animals off wet fields until soils stiffen also protects the roots of the forage crop and prevents soil compaction that interferes with plant growth.
- IP-8** Break up pastures into smaller fields so that the animals can be rotated from one field to another. This allows fields to dry between irrigations and provides a sufficient growth period between grazings. It also prevents hoof damage (pugging), increases production from irrigated pastures, and helps improve water penetration into the soil by promoting a better root system.

- b. Dairy Production Area (DPA):** for the Dairy Production Area, the following are areas of concern and recommended BMPs for vector control:

Common Vector Development Areas

- Wastewater lagoons
- Animal washing areas

- Drain ditches
- Sumps/ponds
- Watering troughs

Special Concerns

Dairy and associated agricultural practices vary; however, these practices need to consider mosquito and vector control issues. The Best Management Practices for Vector Reduction below offer options to balance the requirements of the dairy operators with the need for effective vector control.

General Vector Control Principles

1. Prevent or eliminate unnecessary standing water that remains for more than 72 –96 hours during mosquito season which can start as early as March and extend through October depending on weather.
2. Maintain access for Abatement District staff to monitor and treat mosquito breeding sources.
3. Minimize emergent vegetation and surface debris on the water.
4. Contact the County Department of Environmental Health or Mosquito Abatement District for technical guidance or assistance in implementing vector reduction BMPs.

Vector Reduction BMPs for Dairy Production Area

- DA-1 All holding ponds should be surrounded by lanes of adequate width to allow safe passage of vector control equipment. This includes keeping the lanes clear of any materials or equipment (e.g. trees, calf pens, hay stacks, silage, tires, equipment, etc.).
- DA-2 If fencing is used around the holding ponds, it should be placed on the outside of the lanes with gates provided for vehicle access.
- DA-3 It is recommended that all interior banks of the holding ponds should have a grade of at least 2:1.
- DA-4 An effective solids separation system should be utilized such as a mechanical separator or two or more solids separator ponds. If ponds are used, they should not exceed sixty feet in surface width.
- DA-5 Drainage lines should not by-pass the separator ponds whenever possible, except those that provide for normal corral run-off and do not contain solids. All drain inlets must be sufficiently graded to prevent solids accumulation.
- DA-6 Floating debris should be minimized in all ponds; mechanical agitators may be used to break up crusts.

- DA-7 Vegetation should be controlled regularly to prevent emergent vegetation and barriers to access. This includes access lanes, interior pond embankments and any weed growth that might become established within the pond surface.
- DA-8 Dairy wastewater discharged for irrigation purposes should be managed so that it does not stand for more than three days.
- DA-9 All structures and water management practices should meet current California Regional Water Quality Control Board requirements.
- DA-10 Tire sidewalls or other objects that will not hold water should be used to hold down tarps (e.g. on silage piles). Whole tires or other water-holding objects should be replaced.

3. CONTACT INFORMATION

- a. Merced County Department of Environmental Health
260 E. 15th St.
Merced, CA 95341
Toll Free: 800-734-7391
Phone: (209)381-1100
Fax: (209) 384-1593

- b. Merced County Mosquito Abatement District
3478 Beachwood Drive
P.O. Box 909
Merced, CA 95341
Toll Free: 800-622-3242
Phone: (209) 722-1527
Fax: (209) 722-3051