

Dan Mori
Little Valley Land
31587 Thatsamori Pl.
Bruneau, ID 83604

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**Owyhee County
Planning & Zoning**

PO Box 128, Murphy, ID 83650
Phone (208) 495-2095 Fax (208) 495-2051

Land Use Permit Application

Requiring Public Hearing

- SINGLE FAMILY RESIDENCE
- REZONE
- COMMERCIAL
- OTHER _____
- SUBDIVISION
- CAFO
- INDUSTRIAL

Daniel Mori, Little Valley Land
APPLICANT/ APPLICANT REPRESENTATIVE

31587 Thatsamori Pl., Bruneau, ID
PROJECT ADDRESS/LOCATION

31587 Thatsamori Place
MAILING ADDRESS

22, 23 7S 4E
SECTION TOWNSHIP RANGE

Bruneau Idaho 83604
CITY STATE ZIP CODE

Does this parcel border dry land/range land? Y
(If yes, please include fire mitigation measures on site plan)

208-845-2615
TELEPHONE FAX

RP07S04E231200, RP07S04E231201
TAX ASSESSOR'S PARCEL NUMBER(S)

Daniel Mori
OWNER'S NAME

Agriculture
CURRENT ZONING OF THE SUBJECT PARCEL

31587 Thatsamori Place
OWNER'S MAILING ADDRESS

Feedlot and farm ground
CURRENT USE OF THE SUBJECT PARCEL

Bruneau Idaho 83604
CITY STATE ZIP CODE

Expanded feedlot
PROPOSED USE

208-845-2615 or cell 208-599-2615
OWNER'S TELEPHONE NUMBER

TOTAL SQ. FT OF ALL PROPOSED STRUCTURES

I DECLARE UNDER PENALTY OF PERJURY that I/we, ,
being duly sworn, depose and say that

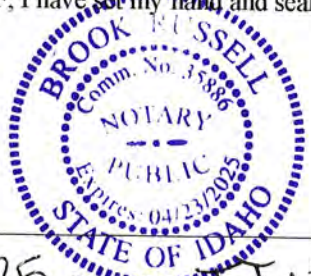
I/we am/are the applicant(s) in the foregoing application, that I/we have read the foregoing application and know the content thereof and state that the same is true and correct to the best of my knowledge. Furthermore, all information and data submitted to Owyhee County in support of my application is true and correct to the best of my knowledge. I/we acknowledge that by submitting this application a member or members of the planning and zoning commission may physically make a site visit to the proposed site and surrounding vicinity. I/we understand that this will be done at an unannounced time without conversation with owners, applicants, or the public.

Dated: 4-28-20 Signed: Daniel Mori

Dated: 4-28-20 Signed: _____

On the 28th day of April, 2020, before me, the undersigned Notary Public, personally appeared, known to me to be the person(s) whose name(s) is/are subscribed to the foregoing instrument, and acknowledged to me that s/he executed the same.

IN WITNESS WHEREOF, I have set my hand and seal the day and year as above written.



Brook Russell
Notary Public

Residing at Malba Idaho
Commission Expires: 4.23.25

File No. Z20-25 Rec'd by: T Tuttle Date: 5/18/20 Pd \$9300 Check No. 7630

(received application sooner but held it for fee change)

Owyhee County Planning and Zoning Commission
CUP Application Request

Daniel Mori is the owner/operator of Little Valley Land, an existing feedlot operation located at 31587 Thatsamori Place near Bruneau, ID. The feedlot has been in operation since the early 1960's and owned by the Mori family since 1990. Little Valley Land feedlot has operated for 30 years with zero complaints filed with the Idaho State Department of Agriculture.

Little Valley Land feedlot is surrounded almost completely by production agriculture with farm ground owned by the JR Simplot company to the east and south, farm ground owned by Dean & Deanna Isaac to the east, and farm ground owned by Hegerhorst Dairy and Darrel & Krista Koehn to the north. There is some dry rangeland bordering the northeast portion of the Little Valley Land property. Access to the operation is over county roads.

The current operation is permitted for 7,500 growing and finishing cattle. The requested expansion is for a total of 50,000 growing and finishing cattle. Dan intends to grow the operation in phases as cattle and finances allow over the next ten years. This will include improvements and additions to the current feed mill to increase milling capacity sufficiently to meet the needs of the additional livestock.

Phase one will occur during the first two years following approval and will include mill upgrades, waterline installation, and required lagoon expansion along with additional pen space for approximately 2,500 additional cattle.

Phase two will include construction of additional pen space and the addition of 10,000 head of additional cattle for a total of 20,000 head. Additional cattle working/handling facilities will be added. This phase will be completed 3-4 years from approval of the application.

Phase three will include the construction of additional pen space and the addition of 10,000 more cattle for a total of 30,000 head. During this phase, additional milling capacity will be added. This phase will be completed 5-6 years from approval of the application.

Phase four will include the construction of additional pen space and the addition of 10,000 more cattle for a total of 40,000 head. Additional lagoon storage will also be added to meet the needs for additional storage capacity as required in the nutrient management plan. This phase will be completed 7-8 years from approval of the application.

Phase five will be the final stage of expansion and will include construction of additional pen space and the addition of 10,000 more cattle for a total of 50,000 head. This phase will be completed 9-10 years from approval of the application.

The initial pen space that will be added will be located in the area directly to the north of the existing feedlot in an area that is currently under pivot irrigation. Berms and natural slope will direct any runoff from this area to Lagoon 1. Additional feed storage will be located to the north of the existing mill. Once this area has been built out, pens will then be constructed below (south) of the existing feedlot.

We recognize that it is not typical to approve a CUP that will take up to 10 years to be completed. Why not apply for half the number of additional animals and then submit another CUP application for the rest. The main reason has to do with the feed mill. It is not reasonable to construct a mill suitable for

30,000 head and then go back a few years later and tear it down to construct a mill for 50,000 head. At the same time, it is not reasonable to construct a mill for 50,000 head while being approved for fewer animals on the hope that additional animal numbers could be approved in the future.

ISDA allows for the nutrient management plan to be updated along with required lagoon storage capacity and commitments for third party manure export as the feedlot expansion progresses. Currently the approved NMP contains sufficient acres for the first three phases of the expansion.

It is recognized that Little Valley Land feedlot is not located in a herd district and therefore any unwanted livestock must be fenced out.

The following water right information pertains to meeting the requirements of the feedlot at full expanded capacity of 50,000 head of growing/finishing cattle. Stockwater required to meet animal needs is ~12 gallons/head/day which equates to 600,000 gallons/day, 219 million gallons/year, or 672.1 acre feet. The groundwater licenses owned by Little Valley Land (license number 51-02151D) provide 1261 acre feet. The necessary stockwater from this license will be leased to the water bank and then in turn leased back to the feedlot operation as needed as stockwater. Doing so in this method will ensure that no water right is lost should there ever be a need to put some acreage back into irrigated cropland. Copies of these water licenses are provided in the additional information section of the application.

Review Criteria:

1. Whether the intended use is necessary or desirable for the public convenience and welfare. *While the proposed expansion may not be necessary for the public convenience and welfare, there are some benefits that do make it desirable. The expansion will create an anticipated 10 additional jobs. The feedlot will purchase all of its feed from outside sources which will provide a ready market for alfalfa hay, corn silage, and other feedstuffs from local farmers. Additionally Little Valley Land feedlot will provide custom feeding services to area ranchers.*
2. Whether the proposed use may create a hazard, nuisance, detriment or other injury to other property in the immediate vicinity or to the health or safety of the citizens of the county in general. *Little Valley Land feedlot sits in an ideal location with no adjacent neighbors and few residents within a short distance. Little Valley Land feedlot recognizes the potential issues of dust, flies, odor, and additional truck traffic. Proper maintenance and care of corrals and manure storage will help to minimize the negative impacts of dust, flies, and odors. Historically there is very minimal precipitation at the feedlot location and lagoons contain minimal liquid throughout most of the summer. Water will be applied to corrals as needed to minimize dust issues. Although there will be increased truck traffic to the feedlot throughout the year, this will mainly occur in the fall as crops are harvested and hauled to the feedlot. Roads leading to the feedlot are rural with no large concentrations of homes.*
3. Whether essential public services, or the general public health or safety or the general public environment may be negatively impacted by such use or whether there may be a requirement of additional public funding in order to meet the needs created by the requested use. *There will be no public funding required by the requested expansion. There should be no increased demands on public health services, first responders, etc. Little Valley Land feedlot is located in an area of Owyhee County with few residents and surrounded by production agriculture. They have a current, approved nutrient management plan that adherence to will mitigate potential negative environmental impacts.*
4. Whether adequate sewer, water and drainage facilities and utility and other service systems are to be provided by the applicant to accommodate said use. *Little Valley Land will provide all necessary construction and improvements to water storage and drainage facilities. These facilities will be designed in accordance with ISDA requirements and approved by ISDA inspectors. Little Valley Land has more than adequate water licenses to provide for stockwater needs.*
5. Whether the proposed use may have adverse impacts on water supplies, both surface and groundwater. *As stated previously, Little Valley Land has more than adequate water licenses to provide for stockwater needs. Additionally, a series of natural contour, berms, and storage lagoons will serve to protect surface water from potential runoff from the feedlot.*
6. Whether the geological base on which the use is to be placed may or may not support the proposed use. *The geological base will support the existing use as is demonstrated by the existing portion of the feedlot that has been in place since the early 1960's. Soils are mostly*

sandy loam with NRCS Soil Surveys showing limited or very limited ratings for manure processing and storage and ponds or lagoons. Dan's experience over many years has shown that the soils tend to form a relatively impenetrable layer below the soil surface which will reduce potential groundwater issues. Additionally, any lagoon construction will be clay-lined to ISDA specifications in order to prevent seepage into groundwater.

7. Whether the proposed use at the site may endanger human health, animal life, plant life in the surrounding areas and/or the county in general. (i.e. species of animals or plants or their habitats which might be harmed or interfered with by the proposed use) *The proposed expansion of Little Valley Land feedlot will not harm the health or well-being of humans, animals, or plants. The existing feedlot has been in operation for ~60 years with no such issues.*

8. Whether the proposed use compliments, benefits, and is compatible with the surrounding land uses. *The proposed expansion of Little Valley Land feedlot is compatible with surrounding land uses that are almost exclusively production agriculture. This expansion will be beneficial to area farmers in that there will be a ready market for several feed crops as well as valuable manure exports that will provide much needed nutrients and organic matter to the soil.*

9. Whether special conditions could be imposed upon the proposed use which would minimize any adverse impact as to justify the granting of the conditional use permit. *The applicant has read and agrees to follow the standard special conditions that are imposed on every Owyhee County CUP. In addition to that, the applicant is willing to discuss and consider any reasonable special conditions that the commission may think necessary.*

SPECIAL WARRANTY DEED
INCLUDING GRANT AND RESERVATION OF EASEMENTS

GRANTOR, FARM CREDIT BANK OF SPOKANE, a corporation, successor by merger to The Federal Land Bank of Spokane, for good and valuable consideration, the receipt of which is hereby acknowledged, does hereby grant, bargain, sell and convey unto DANIEL R. MORI and KATHY L. MORI, husband and wife, whose current address is ^{H.C. 85} ~~P.O.~~ Box 155, Bruneau, Idaho 83604, as GRANTEE, and to GRANTEE'S heirs and assigns forever, all of the real estate located in Owyhee County, State of Idaho, more particularly described on Exhibit A, attached hereto and incorporated herein.

Together with the following water rights from License Nos. 51-7025 and 51-2151:

Section 22, Township 7 South, Range 4
East, Boise Meridian:

NESE	17 acres
NWSE	1 acre
SWSE	2 acres
SESE	3 acres

Section 23, Township 7 South, Range 4
East, Boise Meridian:

NENW	4 acres
NWNW	1 acre
SWNW	6 acres
SENW	26 acres
NESW	2 acres
NWSW	7 acres
SWNE	14 acres

TOGETHER with a water right of .16 cubic feet per second from License No. 51-02217.

SPECIAL WARRANTY DEED INCLUDING GRANT
AND RESERVATION OF EASEMENTS 1

GRANTOR HEREBY EXPRESSLY RESERVES to itself and its successors and assigns the following-described easements upon the above-described real property:

1. An easement extending fifteen feet (15') in both directions from the centerline described in Easement No. 1, attached hereto and incorporated herein as a part of Exhibit A, for a total thirty feet (30') in width, for the purpose of operating, maintaining, repairing and replacing an irrigation pipeline;

2. An easement described in Easement No. 2, attached hereto and incorporated herein as a part of Exhibit A, for the purposes of ingress and egress, and for operating, maintaining, repairing and replacing an irrigation pipeline and utilities;

3. An easement described in Easement No. 5, attached hereto and incorporated herein as a part of Exhibit A, for purposes of ingress and egress.

The above described easements are for the benefit of and appurtenant to that real property owned by GRANTOR which is particularly described on Exhibit B, attached hereto and incorporated herein, and shall run with the land and shall inure to the benefit of GRANTEE and GRANTEE's successors and assigns.

GRANTOR HEREBY GRANTS TO GRANTEE and to GRANTEE's heirs, successors and assigns, the following described easements:

SPECIAL WARRANTY DEED INCLUDING GRANT
AND RESERVATION OF EASEMENTS 2

1. An easement described in Easement No. 3, attached hereto as a part of Exhibit A and incorporated herein, for purposes of ingress and egress;

2. An easement described in Easement No. 4, attached hereto as a part of Exhibit A and incorporated herein, for purposes of ingress and egress.

The above described easements shall benefit and be appurtenant to the land described in Exhibit A; shall run over and across that property of GRANTOR specifically described in Easements Nos. 3 and 4, and shall run with the land and benefit GRANTEE and GRANTEE'S heirs, successors and assigns.

GRANTOR does hereby covenant that the above-described real estate is free from encumbrances done, made or suffered by the GRANTOR or any persons claiming under him.

GRANTOR warrants that it has complied with the applicable provisions of the Agricultural Credit Act of 1987.

In construing this deed, and where the context so requires, the singular includes the plural and the masculine, the feminine and the neuter.

IN WITNESS WHEREOF, GRANTOR has hereunto subscribed his name to this instrument this 20 day of June, 1990.

FARM CREDIT BANK OF SPOKANE

By: Daniel R. Hall

Authorized Agent

STATE OF IDAHO)
) (ss.
COUNTY OF Campan)

On this 20th day of June, 1990, before me, the undersigned, a Notary Public in and for the State of Idaho, personally appeared Warren R. Huff, known or identified to me to be the authorized agent of Farm Credit Bank of Spokane, the person who executed the instrument on behalf of said corporation, and acknowledged to me that such corporation executed the same.

WITNESS my hand and Official Seal.

Shirley J. Larson
Notary Public for Idaho
Residing at Remond, Idaho
My Commission expires:
7-28-94

202693
FILED-RECORDED
JUN 26 11 41 AM '90
BARBARA J. ...
OWNEY COUNTY ...
BY Shirley J. Larson
DEPUTY
RECEIVED AT
OCT
FEE \$39.00

SPECIAL WARRANTY DEED INCLUDING GRANT
AND RESERVATION OF EASEMENTS 4

SKINNER & ASSOCIATES INC.

1002 BLAINE ST., SUITE 202
CALDWELL, IDAHO 83605
TELEPHONE (208) 454-0933

May 29, 1990

Description for
Farm Credit Services
Total parcel

This parcel lies in Sections 22 and 23 of Township 7 South, Range 4 East of the Boise Meridian and is more particularly described as follows:

COMMENCING at the west 1/4 corner of said Section 23;

Thence South 0°01'31" West along the westerly boundary of the SW1/4 of said Section 23 a distance of 467.22 feet to the TRUE POINT OF BEGINNING;

Thence North 66°16'49" East a distance of 52.20 feet;

Thence North 3°42'03" West a distance of 63.46 feet;

Thence North 53°40'47" East a distance of 1032.72 feet;

Thence North 7°30'17" East a distance of 1187.00 feet;

Thence North 77°27'31" East a distance of 1645.46 feet to a point on the westerly boundary of the N1/2NE1/4 of said Section 23;

Thence South 0°02'52" East along said westerly boundary a distance of 439.82 feet to the southwest corner of said N1/2NE1/4;

Thence North 89°58'49" East along the southerly boundary of said N1/2NE1/4 a distance of 1462.88 feet;

Thence South 59°42'30" West a distance of 2602.75 feet;

Thence South 57°35'49" West a distance of 1134.43 feet;

Thence South 70°02'48" West a distance of 933.45 feet;

Thence South 0°31'08" West a distance of 375.26 feet to a point which lies on a line 25.00 feet northerly from and parallel with the approximate centerline of an existing gravel road;

Thence North 89°08'58" West along said parallel line a distance of 14.61 feet to a point on the westerly boundary of said Section 23 which bears North 0°01'31" East a distance of 1350.84 feet from the southwest corner of said Section 23;

EXHIBIT A I

Thence continuing along said parallel line as follows:

North 89°08'58" West a distance of 396.59 feet;

South 76°08'54" West a distance of 189.32 feet;

South 68°46'32" West a distance of 543.99 feet;

South 71°05'32" West a distance of 548.37 feet;

Thence leaving said parallel line and bearing North 12°39'05" West a distance of 434.41 feet;

Thence North 63°00'25" East a distance of 1058.96 feet;

Thence North 66°17'01" East a distance of 828.07 feet to the TRUE POINT OF BEGINNING.

This parcel contains 114.43 acres and is subject to the following easements No. 1, No. 2 and No. 5 as shown attached, and includes use of and access over and across easements No. 3 and No. 4 as shown attached.

((

SKINNER & ASSOCIATES INC.

1002 BLAINE ST., SUITE 202
CALDWELL, IDAHO 83605
TELEPHONE (208) 454-0933

May 22, 1990

Description for
Farm Credit Services
Easement No. 1

A description for the centerline of an irrigation pipeline easement lying in the N1/2 of Section 23, Township 7 South, Range 4 East of the Boise Meridian and more particularly described as follows:

COMMENCING at the west 1/4 corner of said Section 23;

Thence South 0°01'31" West along the westerly boundary of the SW1/4 of said Section 23 a distance of 467.22 feet;

Thence North 66°16'49" East a distance of 52.20 feet;

Thence North 3°42'03" West a distance of 63.46 feet;

Thence North 53°40'47" East a distance of 1032.72 feet;

Thence North 7°30'17" East a distance of 1044.39 feet to the TRUE POINT OF BEGINNING of said centerline;

Thence North 76°44'21" East a distance of 588.72 feet;

Thence South 81°35'45" East a distance of 823.25 feet;

Thence South 68°53'55" East a distance of 1048.40 feet to the TERMINATION POINT of said easement centerline.

EXHIBIT A 3

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SKINNER & ASSOCIATES INC.

1002 BLAINE ST., SUITE 202
CALDWELL, IDAHO 83605
TELEPHONE (208) 454-0933

May 29, 1990

Description for
Farm Credit Services
Easement No. 2

A description for an ingress-egress, irrigation pipeline and utility easement lying in the S1/2 of Sections 22 and 23, Township 7 South, Range 4 East of the Boise Meridian and more particularly described as follows:

COMMENCING at the west 1/4 corner of said Section 23;

Thence South 0°01'31" West along the westerly boundary of the SW1/4 of said Section 23 a distance of 467.22 feet to the TRUE POINT OF BEGINNING;

Thence North 66°16'49" East a distance of 52.20 feet;

Thence South 3°40'24" West a distance of 470.43 feet;

Thence South 0°31'08" West a distance of 375.26 feet;

Thence North 89°08'58" West a distance of 50.00 feet;

Thence North 2°29'14" East a distance of 823.74 feet;

Thence North 87°30'46" West a distance of 60.95 feet;

Thence North 66°17'01" East a distance of 67.93 feet to the TRUE POINT OF BEGINNING.

EXHIBIT A 4

SKINNER & ASSOCIATES INC.

1002 BLAINE ST., SUITE 202
CALDWELL, IDAHO 83605
TELEPHONE (208) 454-0933

May 29, 1990

Description for
Farm Credit Services
Easement No. 3

A description for an ingress-egress easement lying in the S1/2 of Section 22, Township 7 South, Range 4 East of the Boise Meridian and more particularly described as follows:

COMMENCING at the east 1/4 corner of said Section 22;

Thence South 0°01'31" West along the easterly boundary of the SE1/4 of said Section 22 a distance of 412.60 feet to the TRUE POINT OF BEGINNING;

Thence continuing South 0°01'31" West a distance of 54.62 feet;

Thence South 66°17'01" West a distance of 828.07 feet;

Thence South 63°00'25" West a distance of 1058.96 feet;

Thence North 26°59'35" West a distance of 50.00 feet;

Thence North 63°00'25" East a distance of 1060.39 feet;

Thence North 66°17'01" East a distance of 851.50 feet to the TRUE POINT OF BEGINNING.

EXHIBIT A 5

SKINNER & ASSOCIATES INC.

1002 BLAINE ST., SUITE 202
CALDWELL, IDAHO 83605
TELEPHONE (208) 454-0933

May 29, 1990

Description for
Farm Credit Services
Easement No. 4

A description for an ingress-egress easement lying in the S1/2 of Section 22, Township 7 South, Range 4 East of the Boise Meridian and more particularly described as follows:

COMMENCING at the east 1/4 corner of said Section 22;

Thence South 0°01'31" West along the easterly boundary of the SE1/4 of said Section 22 a distance of 1290.72 feet to the TRUE POINT OF BEGINNING;

Thence continuing South 0°01'31" West a distance of 50.00 feet to a point on the said easterly boundary of said SE1/4 which bears North 0°01'31" East a distance of 1300.84 feet from the southeast corner of said Section 22;

Thence North 89°08'58" West a distance of 390.86 feet;

Thence South 76°08'54" West a distance of 179.65 feet;

Thence South 68°46'32" West a distance of 541.78 feet;

Thence South 71°05'32" West a distance of 549.38 feet;

Thence North 18°54'28" West a distance of 50.00 feet;

Thence North 71°05'32" East a distance of 548.37 feet;

Thence North 68°46'32" East a distance of 543.99 feet;

Thence North 76°08'54" East a distance of 189.32 feet;

Thence South 89°08'58" East a distance of 396.59 feet to the TRUE POINT OF BEGINNING.

EXHIBIT A 6

SKINNER & ASSOCIATES INC.

1002 BLAINE ST., SUITE 202
CALDWELL, IDAHO 83605
TELEPHONE (208) 454-0933

May 22, 1990

Description for
Farm Credit Services
Easement No. 5

A description for a 50.00 foot wide ingress-egress easement lying in the N1/2 of Section 23, Township 7 South, Range 4 East of the Boise Meridian and more particularly described as follows:

COMMENCING at the west 1/4 corner of said Section 23;

Thence South 0°01'31" West along the westerly boundary of the SW1/4 of said Section 23 a distance of 467.22 feet;

Thence North 66°16'49" East a distance of 52.20 feet;

Thence North 3°42'03" West a distance of 63.46 feet;

Thence North 53°40'47" East a distance of 1032.72 feet to the TRUE POINT OF BEGINNING of said easement;

Thence North 7°30'17" East a distance of 1187.00 feet;

Thence North 77°27'31" East a distance of 53.22 feet;

Thence South 7°30'17" West a distance of 1157.25 feet;

Thence South 53°40'47" West a distance of 69.30 feet to the TRUE POINT OF BEGINNING.

EXHIBIT A 7

Together with all tenements, hereditaments, and appurtenances thereunto belonging or anywise appertaining to the property, including all existing fixtures; subject to any and all easements, rights of way, or restrictions of record, and the exceptions, provisions and reservations contained in patents or deeds from the United States of America, or the State of Idaho, or in other deeds of record.

EXHIBIT A 8

EXHIBIT 'B'
LAND DESCRIPTION

PARCEL NO. 1:

IN TOWNSHIP 7 SOUTH, RANGE 4 EAST, B.M., OWYHEE COUNTY, IDAHO

Section 22: NE $\frac{1}{4}$, North 400 feet of SW $\frac{1}{4}$ SE $\frac{1}{4}$

N $\frac{1}{2}$ SE $\frac{1}{4}$, LESS a parcel of land in NE $\frac{1}{4}$ SE $\frac{1}{4}$.

described as follows: BEGINNING at the SE corner of NE $\frac{1}{4}$ SE $\frac{1}{4}$; thence West parallel with the South boundary section line 540 feet, to the TRUE POINT OF BEGINNING; thence West parallel with the South boundary section line 200 feet; thence North parallel with the East boundary section line 300 feet; thence East parallel with the South boundary section line 200 feet; thence South parallel with the East boundary section line 300 feet to the TRUE POINT OF BEGINNING.

PARCEL NO. 2:

IN TOWNSHIP 7 SOUTH, RANGE 4 EAST, B.M., OWYHEE COUNTY, IDAHO

Section 22: SE $\frac{1}{4}$ SE $\frac{1}{4}$

A parcel in NE $\frac{1}{4}$ SE $\frac{1}{4}$ described as follows:

BEGINNING at the SE corner of NE $\frac{1}{4}$ SE $\frac{1}{4}$; thence West parallel with the South boundary section line 540 feet, to the TRUE POINT OF BEGINNING; thence continuing West parallel with the South boundary section line 200 feet; thence North parallel with the East boundary section line 300 feet; thence East parallel with the South boundary section line 200 feet; thence South parallel with the East boundary section line 300 feet to the TRUE POINT OF BEGINNING.

SW $\frac{1}{4}$ SE $\frac{1}{4}$ LESS the North 400 feet.

Section 23:

NW $\frac{1}{4}$, N $\frac{1}{2}$ SW $\frac{1}{4}$

A parcel in N $\frac{1}{2}$ SE $\frac{1}{4}$ described as follows:

BEGINNING at the NW corner of NW $\frac{1}{4}$ SE $\frac{1}{4}$, the TRUE POINT OF BEGINNING; thence North 89°57' East a distance of 2,056.8 feet to a point; thence South 54°57' West a distance of 905 feet to a point; thence South 59°39' West a distance of 860 feet to a point; thence North 33°42' West a distance of 79 feet to a point; thence South 67°04' West a distance of 598.8 feet to a point on the West boundary line of NW $\frac{1}{4}$ SE $\frac{1}{4}$; thence North a distance of 1165 feet to the TRUE POINT OF BEGINNING.

S $\frac{1}{2}$ NE $\frac{1}{4}$ EXCEPT a parcel in SE $\frac{1}{4}$ NE $\frac{1}{4}$ described as follows: BEGINNING at the East quarter section corner of Sec. 23, the TRUE POINT OF BEGINNING; thence South 89°57' West a distance of 503.2 feet to a point; thence North 54°57' East a distance of 273 feet to a point; thence North 73°32' East a distance of 300.2 feet; more or less, to the East section line of Sec. 23; thence South a distance of 264.6 feet, more or less, to the POINT OF BEGINNING.

Section 27:

N $\frac{1}{2}$ NE $\frac{1}{4}$, NW $\frac{1}{4}$, EXCEPT all that portion of NW $\frac{1}{4}$ which lies South of Little Valley Creek.

EXCEPTING THEREFROM the real property described in Exhibit A

EXHIBIT B.

P03330

WARRANTY DEED

THIS INDENTURE, made this 21st day of April, 2000, between Cecil J. Meyers and Ila Meyers, husband and wife, and Raymond A. Meyers and Charlotte L. Meyers, husband and wife, of HC 85 Box 252, Grand View, Idaho 83624, the parties of the first part, and Daniel R. Mori and Kathy L. Mori, husband and wife, of HC 85, Box 155, Bruneau, Idaho 83604, the parties of the second part.

WITNESSETH, That the said parties of the first part, for and in consideration of the sum of TEN DOLLARS, lawful money of the United States of America, and other good and valuable consideration to them in hand paid by the said parties of the second part, the receipt whereof is hereby acknowledged have granted, bargained and sold, and by these presents do grant, bargain, sell, convey and confirm unto the said parties of the second part, and to their heirs and assigns forever, all of the following described real estate, situated in the County of Owyhee, State of Idaho, and more particularly described in Exhibit A that is attached hereto and by this reference made a part hereof.

TOGETHER with all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining, the reversion and reversions, remainder and remainders, rents, issues and profits thereof; and all estate, right, title and interest in and to the said property, as well in law as in equity, of the parties of the first part.

TO HAVE AND TO HOLD, all and singular the above-mentioned and described premises, together with the appurtenances, unto the parties of the second part, and to their heirs and assigns forever and the said parties of the first part, and their heirs, the said premises in the quiet and peaceable possession of the said parties of the second part, their heirs and assigns, and against all and every person and persons whomsoever, lawfully claiming or to claim the same shall and will WARRANT and by these presents forever DEFEND.

IN WITNESS WHEREOF, the said parties of the first part have hereunto set their hands and seals the day and year first above written.

[Signature]
Cecil J. Meyers

Cecil J. Meyers
Cecil J. Meyers

APR 25 2000
BY [Signature]
COUNTY CLERK

Ila Meyers
Ila Meyers

00 APR 25 PM 4:45

232145

FILED - RECORDED

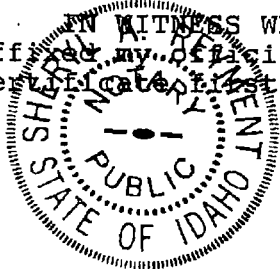
Raymond A. Meyers
Raymond A. Meyers

Charlotte L. Meyers
Charlotte L. Meyers

STATE OF IDAHO,)
) ss.
COUNTY OF Elmore)

On this 21st day of April, 2000, before me, the undersigned, a Notary Public in and for said state, personally appeared Cecil J. Meyers and Ila Meyers, husband and wife, known to me to be the persons whose names are subscribed to the foregoing instrument, and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

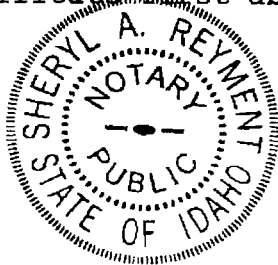


Sheryl A. Reymont
Notary Public for Idaho,
Residing at: Mountain Home
My commission expires: 12-27-05

STATE OF IDAHO,)
) ss.
COUNTY OF Elmore)

On this 21st day of April, 2000, before me, the undersigned, a Notary Public in and for said state, personally appeared Raymond A. Meyers and Charlotte L. Meyers, husband and wife, known to me to be the persons whose names are subscribed to the foregoing instrument, and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.



Sheryl A. Reymont
Notary Public for Idaho,
Residing at: Mountain Home
My commission expires: 12-27-05

Exhibit "A"

In Township 7 South, Range 4 East, Boise Meridian, Owyhee County, Idaho.

Section 23:

Northwest Quarter, North One-Half of the Southwest Quarter and a parcel in North One-Half of the Southeast Quarter described as follows:

BEGINNING at the Northwest corner of the Northwest Quarter of the Southeast Quarter, the TRUE POINT OF BEGINNING; thence

North 89° 57' East a distance of 2,056.8 feet to a point; thence

South 54° 57' West a distance of 905 feet to a point; thence

South 59° 39' West a distance of 860 feet to a point; thence

North 33° 42' West a distance of 79 feet to a point; thence

South 67° 04' West a distance of 598.8 feet to a point on the West boundary line of

Northwest Quarter of the Southeast Quarter; thence

North a distance of 1165 feet to the TRUE POINT OF BEGINNING.

South One-Half, Northeast Quarter except a parcel in Southeast Quarter of the Northeast Quarter as follows:

BEGINNING at the East quarter section corner of Section 23, the TRUE POINT OF BEGINNING; thence

South 89° 57' West a distance of 583.2 feet to a point; thence

North 54° 57' East a distance of 273 feet to a point; thence

North 73° 32' East a distance of 380.2 feet; more or less, to the East section line of Section 23; thence South a distance of 264.6 feet, more or less, to the POINT OF BEGINNING.

From the above described parcels excepting any portion of the following described property lying within said Section 23 of Township 7 South, Range 4 East, Boise Meridian, Owyhee County, Idaho, more particularly described as follows:

COMMENCING at the West Quarter corner of said Section 23; thence

South 0° 01' 31" West along the Westerly boundary of the Southwest Quarter of said Section 23 a distance of 467.22 feet to the TRUE POINT OF BEGINNING; thence

North 66° 16' 49" East a distance of 52.20 feet; thence

North 3° 42' 03" West a distance of 63.46 feet; thence

North 53° 40' 47" East a distance of 1032.72 feet; thence

North 7° 30' 17" East a distance of 1187.00 feet; thence

North 77° 27' 31" East a distance of 1645.46 feet to a point on the Westerly boundary of the North One-Half of the Northeast Quarter of said Section 23; thence

South 0° 02' 52" East along said Westerly boundary a distance of 439.82 feet to the Southwest corner of said North One-Half of the Northeast Quarter; thence

North 89° 58' 49" East along the Southerly boundary of said North One-Half of the Northeast Quarter a distance of 1462.88 feet; thence

South 59° 42' 30" West a distance of 2602.75 feet; thence

South 57° 35' 49" West a distance of 1134.43 feet; thence

South 70° 02' 48" West a distance of 933.45 feet; thence

South 0° 31' 08" West a distance of 375.26 feet to a point which lies on a line 25.00 feet Northerly from and parallel with the approximate centerline of an existing gravel road; thence

North 89° 08' 58" West along said parallel line a distance of 14.61 feet to a point on the Westerly boundary of said Section 23 which bears

North 0° 01' 31" East a distance of 1350.84 feet from the Southwest corner of said Section 23; thence continuing along said parallel line as follows:

North 89° 08' 58" West a distance of 396.59 feet;

South 76° 08' 54" West a distance of 189.32 feet; thence

South 68° 46' 32" West a distance of 543.99 feet;

South 71° 05' 32" West a distance of 548.37 feet; thence leaving said parallel line and bearing

North 12° 39' 05" West a distance of 434.41 feet; thence

North 63° 00' 25" East a distance of 1058.96 feet; thence

North 66° 17' 01" East a distance of 828.07 feet to the TRUE POINT OF BEGINNING.

SUBJECT TO easements and rights-of-way of record and visible easements.

Valuation Summary Sheet

Time: 3/10/2020 9:37:43 AM

Parcel Number: RP07S04E231201

Property Address:

Effective Date: 1/1/2017

Tax Code Area: 40-0000

Expiration Date:

Legal Description: PART OF TAX 1B 23 7S 4E

Legal Party Name	Address	City St Zip	Role
MORI, DANIEL & KATHY	31587 THATSAMORI PL	BRUNEAU, ID 83604	Primary Owner

Cat ID	Ext	Rv Year	Unit	Quantity	Value	HO Mkt	HO Exemp	PTR	Other
01	L00	2017	AC	81.162	\$23,943	\$0	\$0	\$0	\$0
05	L00	2017	AC	10.458	\$157	\$0	\$0	\$0	\$0
32	R01	2017		-	\$105,630	\$0	\$0	\$0	\$0
Totals:				91.620	\$129,730	\$0	\$0	\$0	\$0

Deed Date	Deed Reference
4/15/2018	202693

Zone Code:

Parcel Type:

Location Code: 5000

Comments:

Valuation Summary Sheet

Time: 3/10/2020 9:37:12 AM

Parcel Number: RP07S04E231200

Property Address:

Effective Date: 1/1/2017

Tax Code Area: 40-0000

Expiration Date:

Legal Description: S2NE LS TX 2,NW4,N2SW,TAX 1, LESS TAX 1B 23 7S 4E

Legal Party Name	Address	City/ St/ Zip	
MORI, DANIEL R & KATHY L	31587 THATSAMORI PL	BRUNEAU, ID 83604	Primary Owner

Cat ID	Ext	Rv Year	Unit	Quantity	Value	HO Mkt	HO Exemp	PTR	Other
01	L00	2017	AC	241.965	\$71,380	\$0	\$0	\$0	\$0
05	L00	2017	AC	6.085	\$91	\$0	\$0	\$0	\$0
19	L00	2017	AC	5.500	\$0	\$0	\$0	\$0	\$0
32	R01	2017		-	\$47,790	\$0	\$0	\$0	\$0
Totals:				253.550	\$119,261	\$0	\$0	\$0	\$0

Deed Date	Deed Reference
4/25/2000	232145
4/25/2000	208284
4/25/2000	198089

Zone Code:

Parcel Type:

Location Code: 5000

Comments:

Valuation Summary Sheet

Time: 3/10/2020 9:38:13 AM

Parcel Number: RP07S04E227700

Property Address: 31587 THATSAMORI PL, BRUNEAU ID 83604

Effective Date: 1/1/2017

Tax Code Area: 40-0000

Expiration Date:

Legal Description: PART OF TAX 1B 22 7S 4E

Legal Party Name	Address	City/ St/ Zip	
MORI, DANIEL & KATHY	31587 THATSAMORI PL	BRUNEAU, ID 83604	Primary Owner

Cat ID	Ext	Rv Year	Unit	Quantity	Value	HO Mkt	HO Exemp	PTR	Other
05	L00	2017	AC	19.810	\$297	\$0	\$0	\$0	\$0
10	L00	2017	AC	2.000	\$8,448	\$0	\$0	\$0	\$0
10H	L00	2017	AC	1.000	\$11,384	\$11,384	\$5,692	\$0	\$0
31	R03	2017		-	\$44,570	\$0	\$0	\$0	\$0
31H	R02	2017		-	\$175,030	\$175,030	\$87,515	\$0	\$0
32	R02	2017		-	\$1,640	\$0	\$0	\$0	\$0
Totals:				22.810	\$241,369	\$186,414	\$93,207	\$0	\$0

Deed Date: 4/15/2018
Deed Reference: 202693

Zone Code:

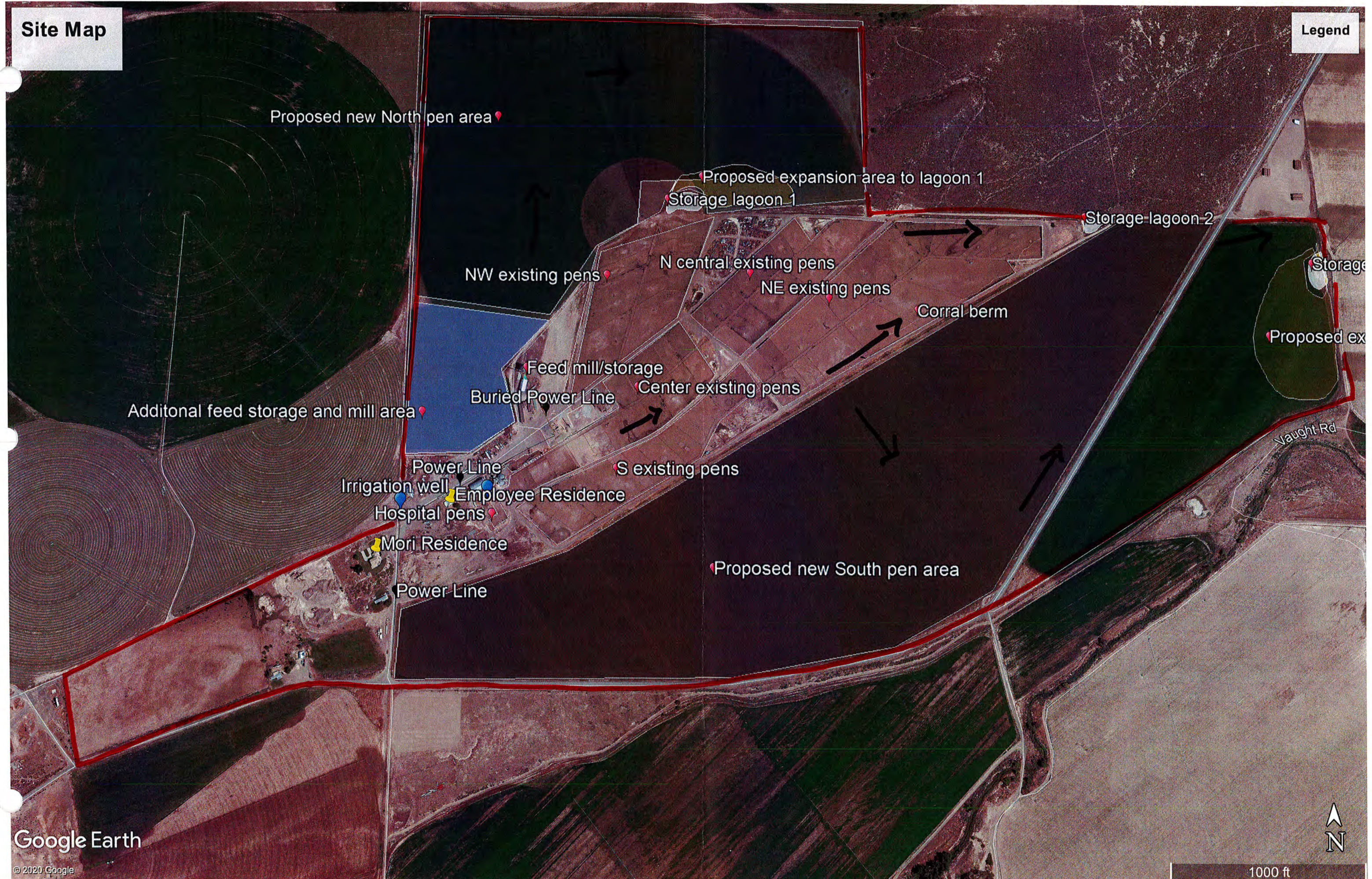
Parcel Type:

Location Code: 5000

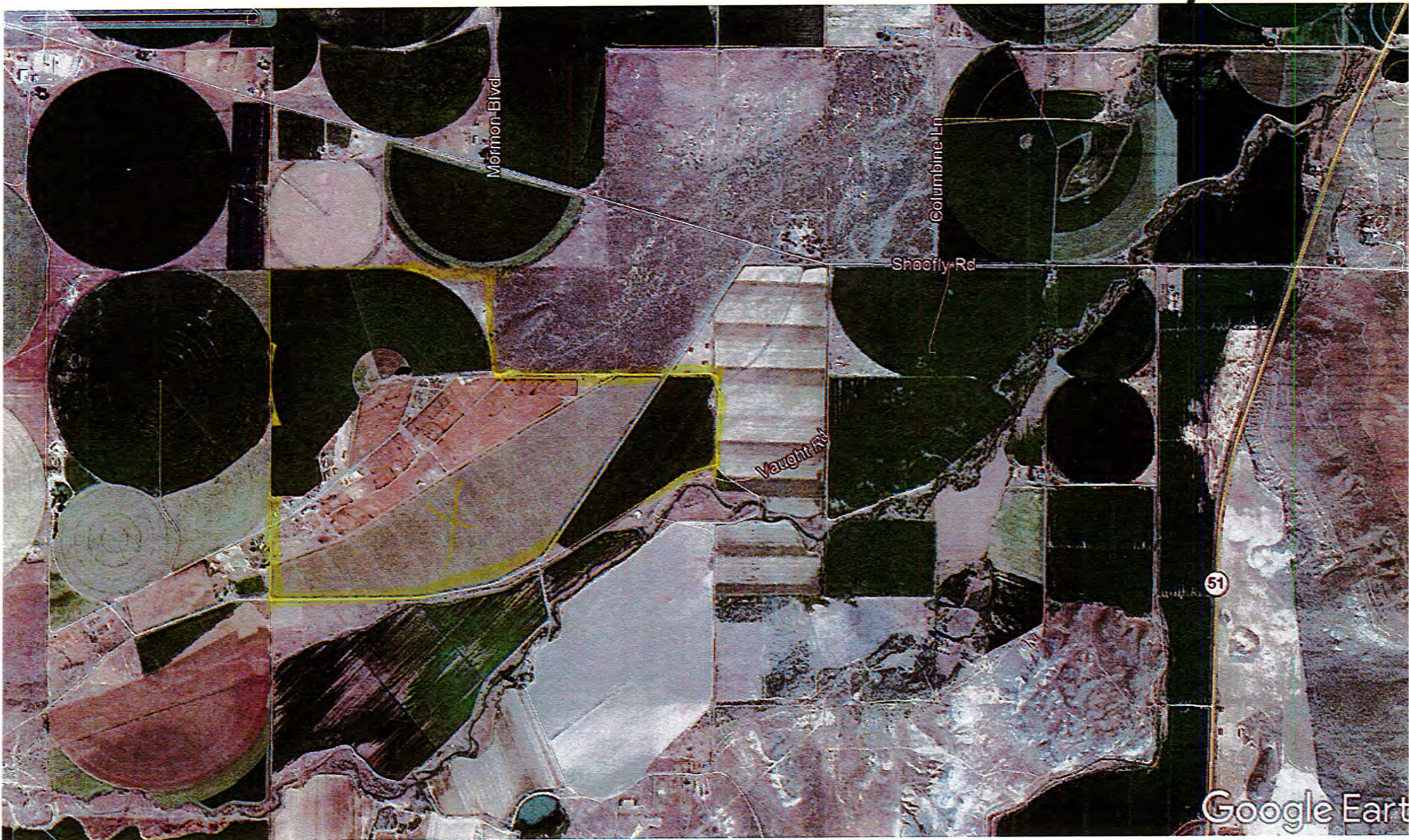
Comments:

Site Map

Legend



— Boundary — Slope



Vicinity map

16
STATE

15
HEGERHORST DAIRY LLC

WARKENTIN, RYAN & JENNIFER & LIVING TRUST
14
ISAAC, JERRY L & KAYLA G
KOEHN, DARRELL J & KRISTA J
KOEHN, DARRELL J & KRISTA J
HEGERHORST DAIRY LLC

13



22 HEGERHORST DAIRY LLC
Agricultural

PRIVATE

ISAAC, DEAN & DEANNA

MORI, DANIEL R & KATHY
RP07 S04E 23/200

MORI, DANIEL & KATHY

JR SIMPLOT COMPANY THOMAS, JA

23
RP07 S04E 23/201

MORI, DANIEL R & KATHY L

24

BLM

MORI, DANIEL & KATHY

JR SIMPLOT COMPANY

NILLES, WALTER

ISAAC, DEAN & DEANNA

28

27
LAHTINEN, DAVID L & BARBARA M FAMILY TRUST
LAHTINEN, DAVID L & BARBARA M FAMILY TRUST

JR SIMPLOT COMPANY

26

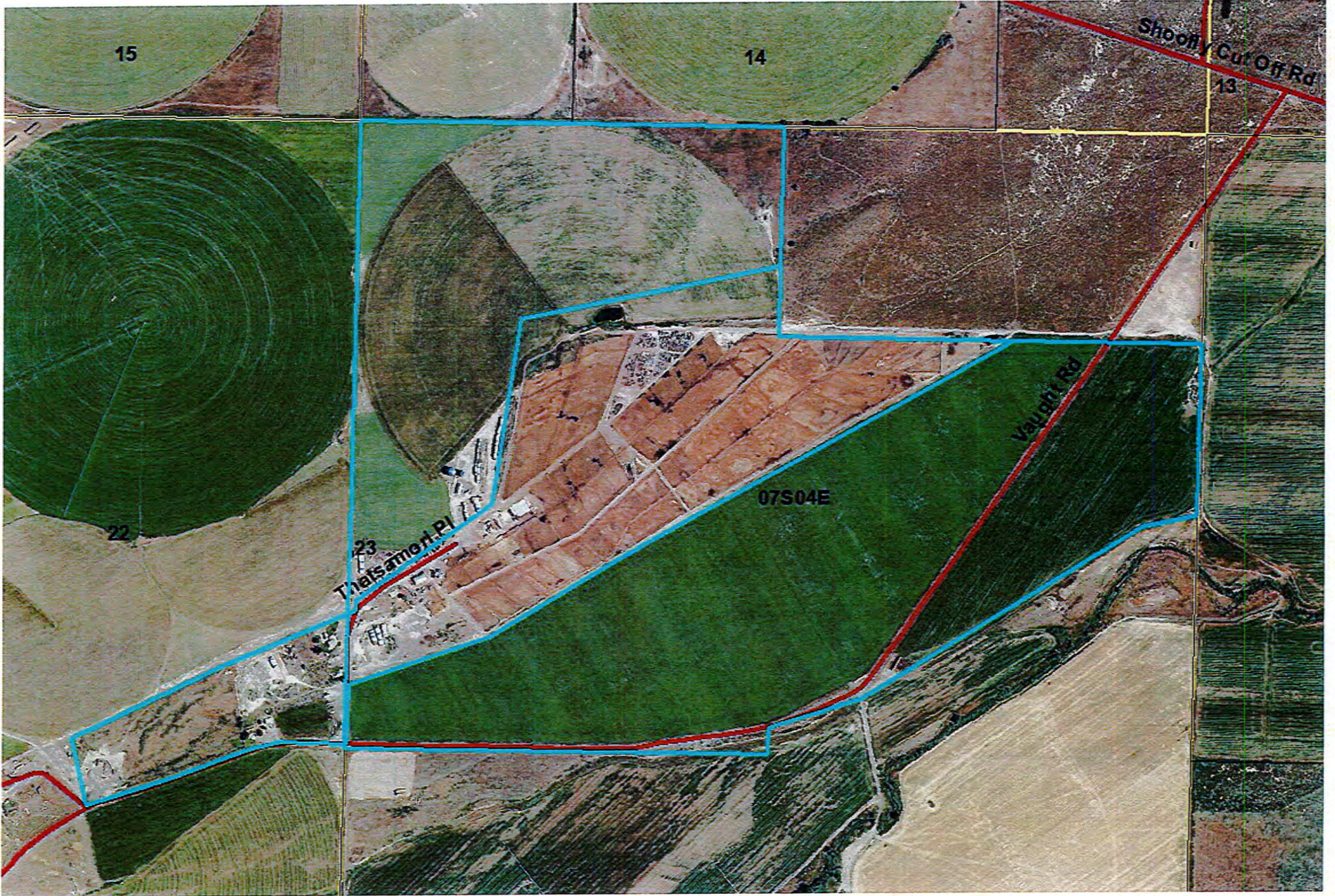
JR SIMPLOT COMPAN

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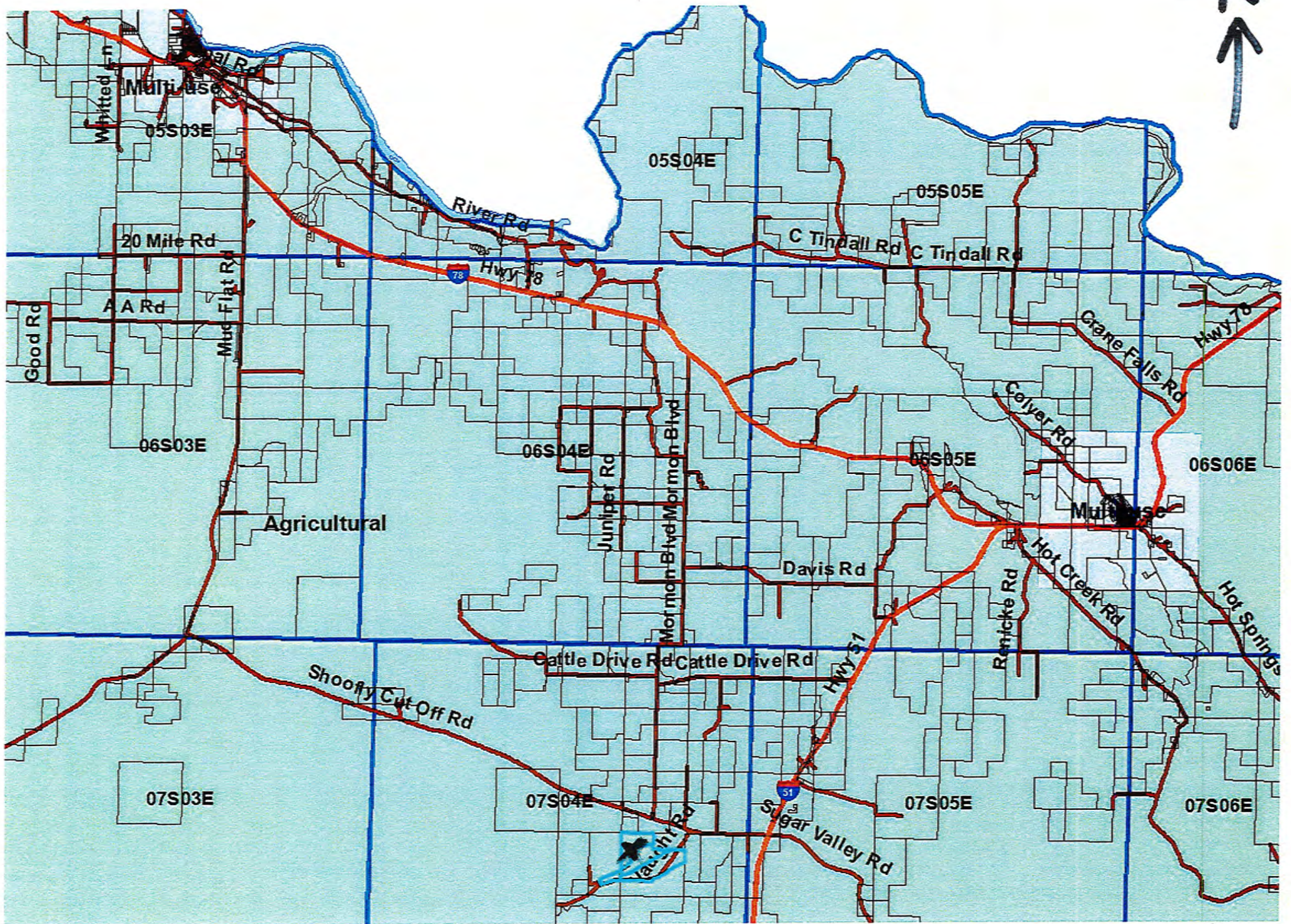
Assessors Parcel Map



Aerial Map



Close up Aerial



Zone Map

Well Locations

Legend

Irrigation well

Domestic & Stock Water well

Thatsamori Pl

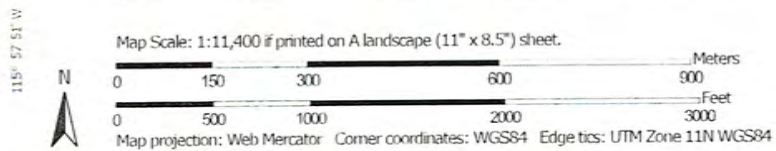
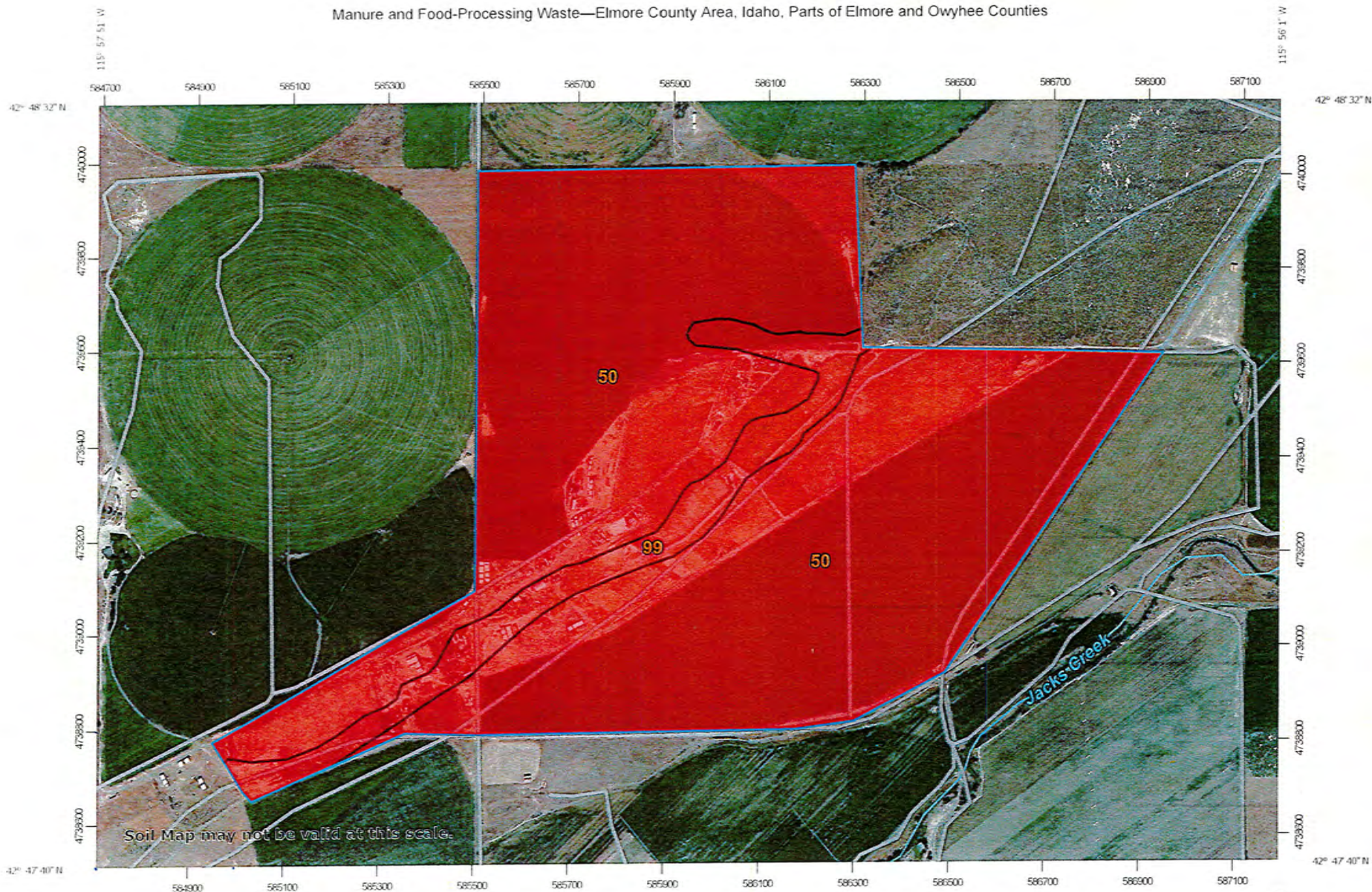
Google Earth

© 2020 Google




900 ft

Manure and Food-Processing Waste—Elmore County Area, Idaho, Parts of Elmore and Owyhee Counties



MAP LEGEND

Area of Interest (AOI)





 Area of Interest (AOI)

Background





 Aerial Photography

Soils





Soil Rating Polygons

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Soil Rating Lines

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available




Soil Rating Points

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Elmore County Area, Idaho, Parts of Elmore and Owyhee Counties

Survey Area Data: Version 6, Sep 14, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 14, 2010—Mar 11, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Manure and Food-Processing Waste

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
50	Dors fine sandy loam, 0 to 4 percent slopes	Very limited	Dors (75%)	Filtering capacity (1.00) Leaching (0.45) Sodium content (0.18) Droughty (0.03)	305.8	90.7%
99	Loray-Dors complex, 8 to 20 percent slopes	Very limited	Loray (45%)	Filtering capacity (1.00) Droughty (1.00) Slope (0.96) Leaching (0.45) Sodium content (0.32)	31.5	9.3%
			Dors (35%)	Filtering capacity (1.00) Slope (0.96) Leaching (0.45) Sodium content (0.18) Droughty (0.03)		
Totals for Area of Interest					337.3	100.0%
Rating		Acres in AOI		Percent of AOI		
Very limited				337.3	100.0%	
Totals for Area of Interest				337.3	100.0%	

Description

The application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include saturated hydraulic conductivity (Ksat), depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, soil erosion factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

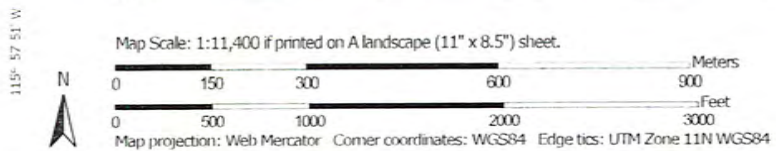
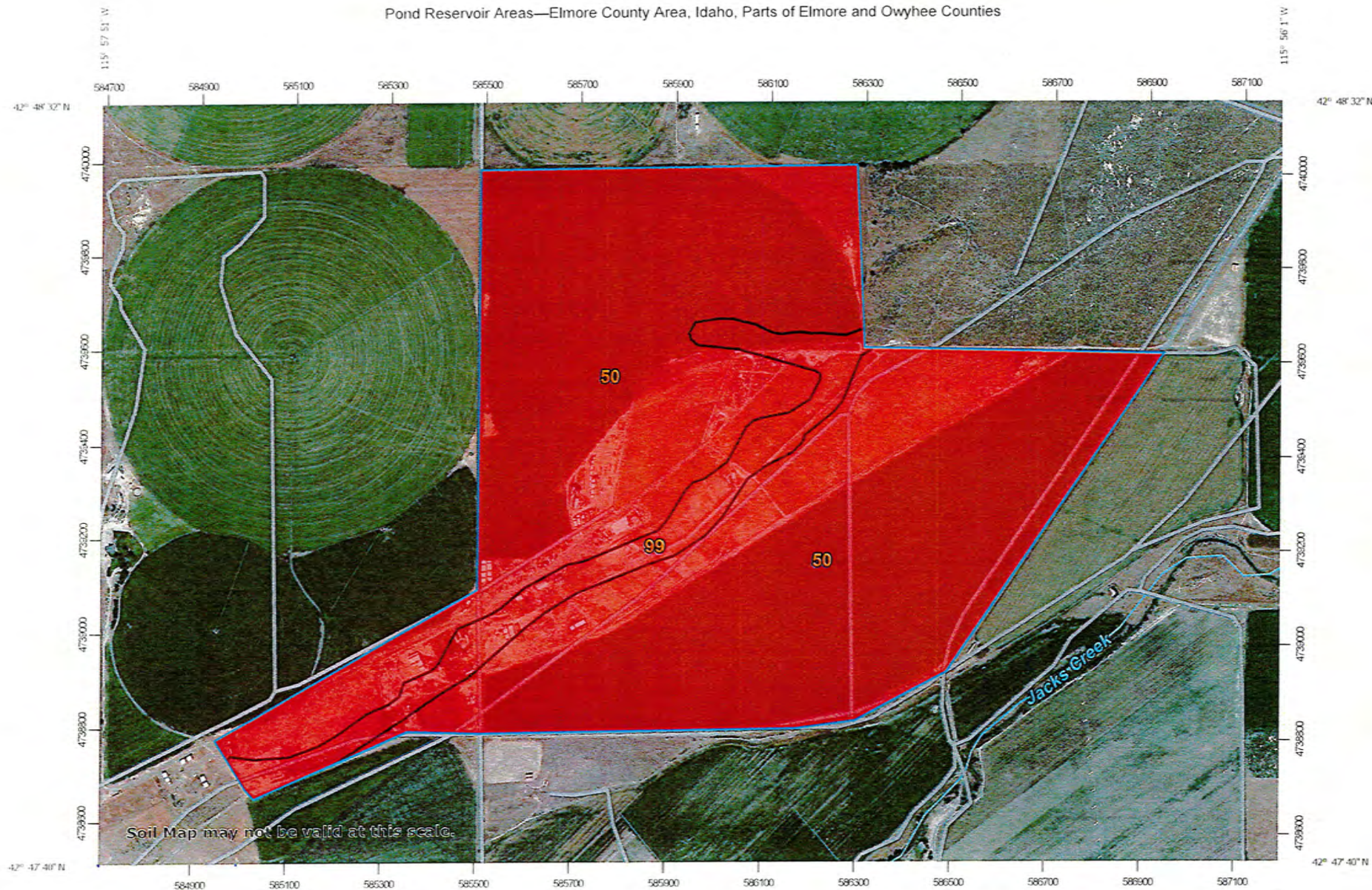
Rating Options

Aggregation Method: Dominant Condition





















Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Pond Reservoir Areas—Elmore County Area, Idaho, Parts of Elmore and Owyhee Counties



MAP LEGEND

- Area of Interest (AOI)**
 -  Area of Interest (AOI)
- Background**
 -  Aerial Photography
- Soils**
 - Soil Rating Polygons**
 -  Very limited
 -  Somewhat limited
 -  Not limited
 -  Not rated or not available
 - Soil Rating Lines**
 -  Very limited
 -  Somewhat limited
 -  Not limited
 -  Not rated or not available
 - Soil Rating Points**
 -  Very limited
 -  Somewhat limited
 -  Not limited
 -  Not rated or not available
- Water Features**
 -  Streams and Canals
- Transportation**
 -  Rails
 -  Interstate Highways
 -  US Routes
 -  Major Roads
 -  Local Roads

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale. Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Elmore County Area, Idaho, Parts of Elmore and Owyhee Counties
 Survey Area Data: Version 6, Sep 14, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 14, 2010—Mar 11, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Pond Reservoir Areas

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
50	Dors fine sandy loam, 0 to 4 percent slopes	Very limited	Dors (75%)	Seepage (1.00)	305.8	90.7%
99	Loray-Dors complex, 8 to 20 percent slopes	Very limited	Loray (45%)	Seepage (1.00) Slope (1.00)	31.5	9.3%
			Dors (35%)	Seepage (1.00) Slope (1.00)		
Totals for Area of Interest					337.3	100.0%

Rating	Acres in AOI	Percent of AOI
Very limited	337.3	100.0%
Totals for Area of Interest	337.3	100.0%

Description

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the saturated hydraulic conductivity (Ksat) of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

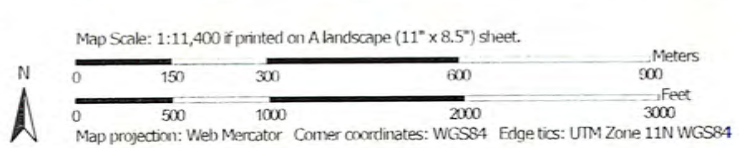
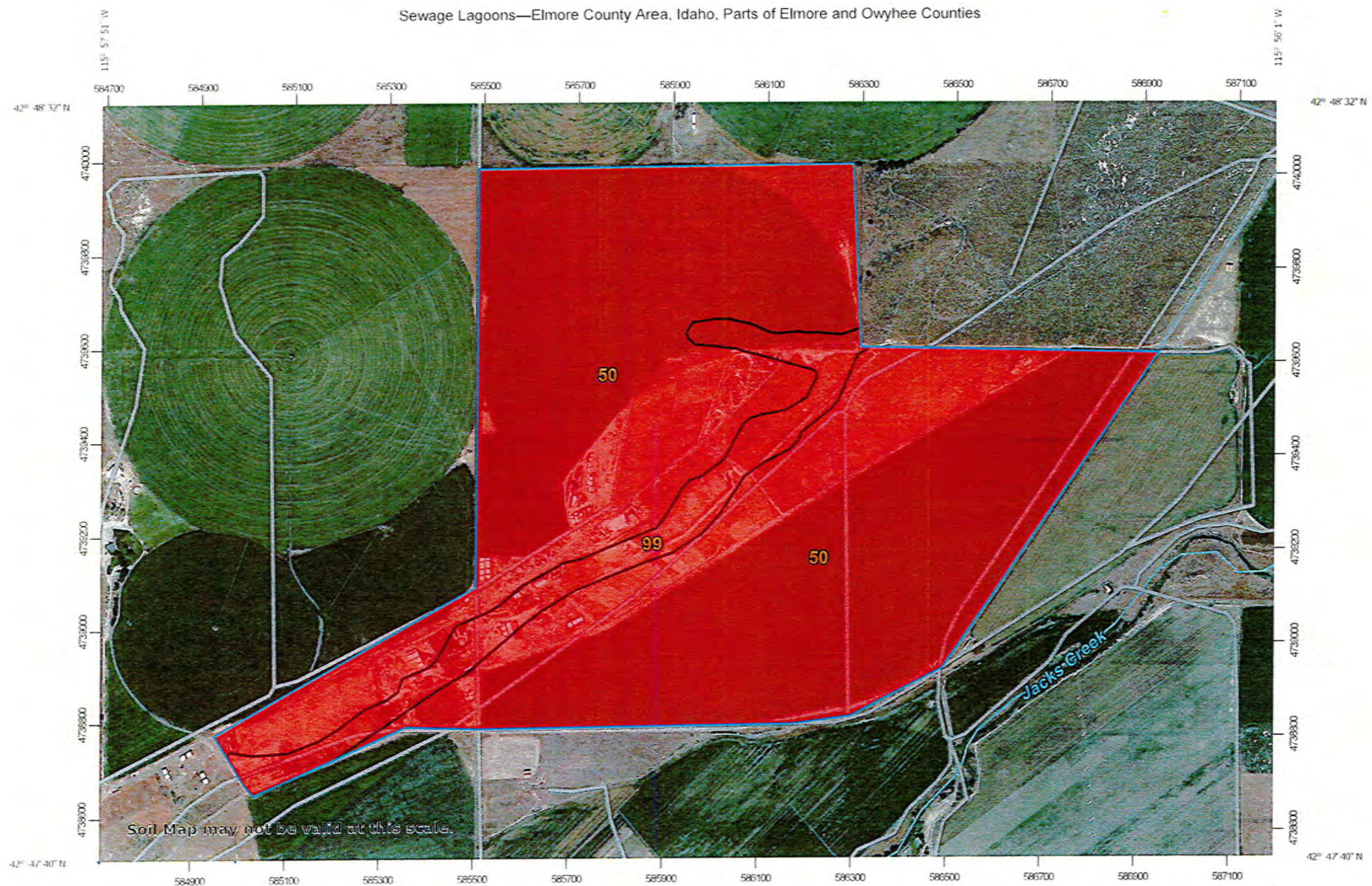
Rating Options

Aggregation Method: Dominant Condition





















Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Sewage Lagoons—Elmore County Area, Idaho, Parts of Elmore and Owyhee Counties



MAP LEGEND

Area of Interest (AOI)	Background
 Area of Interest (AOI)	 Aerial Photography
Soils	
Soil Rating Polygons	
 Very limited	
 Somewhat limited	
 Not limited	
 Not rated or not available	
Soil Rating Lines	
 Very limited	
 Somewhat limited	
 Not limited	
 Not rated or not available	
Soil Rating Points	
 Very limited	
 Somewhat limited	
 Not limited	
 Not rated or not available	
Water Features	
 Streams and Canals	
Transportation	
 Rails	
 Interstate Highways	
 US Routes	
 Major Roads	
 Local Roads	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Elmore County Area, Idaho, Parts of Elmore and Owyhee Counties
 Survey Area Data: Version 6, Sep 14, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 14, 2010—Mar 11, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Sewage Lagoons

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
50	Dors fine sandy loam, 0 to 4 percent slopes	Very limited	Dors (75%)	Seepage (1.00)	305.8	90.7%
99	Loray-Dors complex, 8 to 20 percent slopes	Very limited	Loray (45%)	Slope (1.00) Seepage (1.00)	31.5	9.3%
			Dors (35%)	Slope (1.00) Seepage (1.00)		
Totals for Area of Interest					337.3	100.0%

Rating	Acres in AOI	Percent of AOI
Very limited	337.3	100.0%
Totals for Area of Interest		337.3
		100.0%

Description

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Ksat is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a Ksat rate of more than 14 micrometers per second are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The

percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Idaho State Department of Agriculture
P.O. Box 7249 • Boise, Idaho 83707
P: 208.332.8500 • F: 208.334.2170
www.agri.idaho.gov

BRAD LITTLE, GOVERNOR
CELIA GOULD, DIRECTOR

February 25, 2020

Little Valley Land Co
Dan Mori
31587 Thatsamori Pl.
Bruneau, ID 83604

Dear Mr. Mori:

I received the Environmental/Nutrient Management Plan for Little Valley Land Co from K. Scott Jensen, Certified Nutrient Management Planner. I approved the Environmental/ Nutrient Management Plan on February 25, 2020. This Environmental/ Nutrient Management Plan is for your existing facility located at 31587 Thatsamori Pl Bruneau ID 83604.

Key Points for EMP/NMP Compliance:

1. You are required to soil test all fields, annually, to which nutrients (commercial fertilizer or manure) will be applied that year and soil test records must be kept for 5 years. Soil tests need to be taken by a certified soil sampler.
2. Liquid effluent applications are to occur only within the growing period of the active crop. Fall application of liquid effluent must be completed prior to the non-growing season. The non-growing season will be determined each year by the ISDA Dairy/Animal Bureau. Permission to apply liquid effluent during the non-growing season will be considered on a case-by-case basis. Producers seeking permission to land apply nutrients outside of the application season must contact the Department of Agriculture, Dairy/Animal Bureau at (208) 332-8550 prior to application. Factors considered in granting approval will be, but are not limited to, the following:
 - Date
 - Existing and forecasted weather conditions
 - Moisture content of the soil
 - Frost layers in the soil
 - Water holding capacity of the soil
 - Crop needs
3. CAFO byproduct management is a key component to your ability to appropriately implement your environmental/nutrient management plan. It is important to remove accumulated solids and byproduct water from your containment facilities prior to the wet season to ensure that the byproduct containment facilities have the required 120 day storage capacity.

If you have any questions or concerns, please contact me at (208) 332-8550.

Sincerely,

Pradip Adhikari, PhD
Nutrient Management Specialist/ Soil Scientist, Animal Industries

Little Valley Land Co. Nutrient Management Plan

Nutrient Management Plan Prepared For:

Dan Mori

Little Valley Land Co

31587 Thatsamori Pl.

Bruneau, ID 83604

(208) 845-2615

Certified Planner:

K. Scott Jensen

Extension Educator, University of Idaho-Owyhee County Extension

(208) 896-4104

Producer

Signature:

Certified Planner

Signature:

A handwritten signature in black ink, appearing to read "K. Scott Jensen", written over a white background.

PRODUCER SUMMARY

Beef Feedlot Information

Facility Name	Little Valley Land Co.		
Facility Address	31587 Thatsamori , Bruneau, ID 83604		
Operator Information	Dan Mori	Home Phone	(208) 845-2615
Mailing Address	Same	Cell Phone	(208) 599-2615
County	Owyhee		
GPS	42°48'01.15 N 11°57'09.17 W		

Resource Concerns

Resource Concern	Surface Water
Soil Conservation District:	Bruneau River
Watershed Basin:	Bruneau
Hydrologic Unit Code:	17050102
Stream Segment:	Jack's Creek, Little Jack's Creek to C.J. Strike Reservoir

Animal Class

description	animal	number	average animal weight	housing	bedding type	bedding (tons)	waste (tons)
Beef – growing animals	Growing steers/heifers	15,000	700	Open Lot	None	0	147,551
Beef – growing animals	Growing steers/heifers	20,000	950	Open lot	None	0	269,998
Beef – Finishing animals	Finishing steers/heifers	15,000	1100	Open lot	None	0	195,731

Total Animal Units on Facility	45,000
Total Acres Available for Nutrients Owned by the facility	0
Total Acres Available for 3 rd Party Export	12,670

Nutrient Distribution Table

	N (pounds)	P ₂ O ₅ (pounds)	K ₂ O(pounds)
Nutrients currently produced	1,402,617	508,080	925,640
Nutrients Produced with expansion	7,013,475	2,540,400	4,628,200
Nutrients Exported	7,013,087	2,540,400	4,628,200

Storage Summary

Required Storage 2,930,125
 Available Storage 3,019,418

Waste Storage Summary

Container Name	Volume (ft ³)	Storage Period (Days)	Length	Width	Depth	Slope	Diameter	Existing	Proposed
Lagoon 1	68,171	120	130	90	8	2	0.0	Yes	No
Lagoon 2	90,375	120	185	50	15	1	0.0	Yes	No
Lagoon 3	195,417	120	365	120	5	2	0.0	Yes	No
Berm/corral storage	60,000	120	1200	50	3	1	0.0	No	Yes
Lagoon 1 expansion	1,245,807	120	400	250	15	2	0.0	No	Yes
Lagoon 3 expansion	1,359,648	120	500	250	14	1	0.0	No	Yes

Third Party Export

Name	Address	Phone Number	Acres Available for Manure Application
Russ Schiermeier	29393 Davis Rd. Bruneau, ID 83604	208-845-2200	3,400
Sam Ward	29899 Mormon Blvd. Bruneau, ID 83604	208-845-2905	800
Hegerhorst Farms	30767 Mormon, Blvd. Bruneau, ID 83604	208-845-2975	640
Andy Jantz	26166 Shoofly Rd. Bruneau, ID 83604	208-834-2643	340

Dean Isaac	28098 Vaught Rd. Bruneau, ID 83604	208-845-2688	345
Arlan Isaac	31364 Highway 51, Bruneau, ID 83604	208-845-2262	250
Gene Tindall	30633 Sugar Valley Rd., Bruneau, ID 83604	208-845-2821	300
Darryl Koehn	31267 Mormon Blvd. Bruneau, ID 83604	208-599-0048	1400
Gingerich Farms	47584 Hwy 78, Mountain Home, ID 83647	208-845-2868	500
Ryan Johnson	51845 Highway 78 Hammett, ID 83627	208-366-7734	2000
Fowers, Inc.	PO Box 305, Grand View, ID 83624	208-845-2181	1065
Quey Johns	48803 Hwy 78, Mountain Home, ID 83647	208-366-7734	350
Harold Glerum	27031 Joe Black Rd., Hammett, ID 83627	208-366-2537	50
Wilson Cattle	52512 Hwy 78, Hammett, ID 83627	208-366-3329	280
Rich Ogg	32047 Hot Creek Rd., Bruneau, ID 83604	208-845-2970	200
Phil Davis	19 Warm Lake Hwy., Cascade, ID 83611	208-382-4892	750

Planner Information

Name: K. Scott Jensen
Address: PO Box 400
Marsing, ID 83639
Phone Numbers
Office: (208) 896-4104
Cell: (208) 880-0482
Fax: (208) 896-4105
Certification #:

Facility Summary

Little Valley Land Feedlot is an existing facility that is located south of Bruneau, Idaho at 31587 Thatsamori Place, Bruneau, Idaho. The feedlot is owned and operated by Dan Mori and family. Little Valley Land Feedlot is a custom feedlot with a current capacity of 10,000 animals at one time. Dan plans to expand the feedlot/capacity to 50,000 animals at one time. The feedlot is used for backgrounding or finish feeding cattle for varying lengths of time depending on market conditions. Animals come into the feedlot weighing approximately 500 lbs. and are fed a receiving/growing ration. At approximately 800 lbs. the growing ration is stepped up. At approximately 1050 lbs. animals are placed on a finishing ration until approximately 1,300 lbs. when they are shipped.

This nutrient management plan is written for 50,000 animals. This number will be reached incrementally as market conditions allow. There are three existing runoff storage containment ponds (lagoons). New lagoon storage will be constructed as necessary to meet the required storage capacity as the feedlot expands. Runoff from the existing pens labeled north central will be contained in lagoon 1. The first phase of construction will be in the north pen area and any runoff will be contained in the expansion of lagoon 1. Runoff from other existing pens and proposed new construction to the south will be contained in storage lagoons 2 and 3 as well as corral berms. The design and topography are such that any runoff in these areas flows towards lagoon 2 with any overflow going by pipe and ditch to lagoon 3.

The actual number of cattle on hand will vary depending on market conditions. The cattle will be housed in open lots with compost bedding. Very little if any straw bedding will be use. Manure will be stored in corral mounds with any excess removed and stored near lagoon 2. Any manure storage area will be bermed as needed to ensure all runoff is contained. All manure will be exported to 3rd party receivers.

Per IDAPA 02.04.15 Rules Governing Beef covers land owned or operated by a beef operation and it also states all livestock (bovidae, suidae, equidae, and other animals) that are kept on or contiguous to a beef operation and are owned or controlled by the beef operation are required to conform to the requirements of the rule. The producer must ensure all livestock are restricted from waters of the state (e.g., streams, rivers, canals, irrigation ditches).

Resource Concerns

Little Valley Land Feedlot is located in the Bruneau (#17050102) watershed basin on the Jack's Creek, Little Jack's Creek to C.J. Strike Reservoir stream segment. The Jack's Creek, Little Jack's Creek to C.J. Strike Reservoir stream segment is water quality limited. The pollutants of concern are flow alteration, nutrients, sediment, temperature, and dissolved oxygen. The primary resource concern for the Little Valley Land Feedlot is surface water quality although all manure will be exported to third-party receivers.

Minimum Acres Required for Manure Application

Manure Group	Acres
Solid Stack(s)	25,404

The acreage in the table is based on an average crop uptake of 100 lbs P₂O₅ per acre. These acreage numbers are for estimating export acreage needed.

Storage and Handling requirements

Wastewater applications should begin and end with the irrigation season. Depending on weather and soil conditions, applications outside of this window may be allowed. Lagoons must be emptied in the fall. Fall application of effluent must be completed prior to November 15th. No application will be allowed to frozen or snow covered ground. Spring applications prior to the start of the irrigation season may be allowed if moisture or nutrients are needed to enhance crop production. You must contact the Department of Agriculture, Dairy Bureau (208) 332-8550 prior to any wastewater application outside of the irrigation season. The need for wastewater application outside of the irrigation season will be evaluated on a case by case basis. Factors considered in granting approval will be but are not limited to the following; date, existing and forecasted weather conditions, moisture content of the soil, water holding capacity of the soil, frost layers in the soil, and crop needs.

Environmental Management Plan Requirements

If the producer applies liquid to the land onsite, they will be required to maintain field level records for a minimum of five years and make them available for review at routine waste inspections by ISDA personnel. These records must include the following:

1. Soil tests. The producer must soil test all fields to which nutrients (commercial fertilizer or manure) will be applied that year. If nutrients are not applied to a field, a test will not be required that year. Soil tests will, however, be required prior to any future nutrient application. These soil tests should be taken from 0-12 inches and should be used to develop the annual nutrient budget for each field.
 - a. For fields that are classified as being a surface water concern, the phosphorus threshold is 40 ppm. If the phosphorus test exceeds 40 ppm, the producer shall not apply phosphorus (commercial fertilizer or manure) in excess of the estimated annual crop phosphorus uptake.

- b. For fields that are classified as being a groundwater concern, soil tests for phosphorus from the 18-24 inch zone are required to track phosphorus trends. The producer is required to test these fields at this zone (18-24 inches) at least every five years. If the phosphorus test exceeds 20 or 30 ppm (depends on soil depth) the producer shall not apply phosphorus (commercial fertilizer or manure) in excess of the estimated annual crop phosphorus uptake.
2. Quantities, analyses and sources of nutrients applied. Approximate dates and methods nutrients were applied.
3. Crop Information Including
 - a. Crops planted
 - b. Planting and harvest dates
 - c. Crop yields
 - d. Crop residues removed.
4. Plan Review Information
 - a. Dates of annual review
 - b. Person performing the review
 - c. Recommendations that resulted from the review.

Record Keeping

For each field keep a record of annual manure and chemical fertilizer applications. Include nutrient source, date, time, rate and application method. Records must also be kept on exported manure. These records should include the name of the person receiving the manure, source, and quantity of the manure, and the export date.

Facility Testing Requirements

Regulatory soil samples will be required from each field every three to five years. These samples must be taken from 18-24" for fields listed as a groundwater concern and from 0-12" for fields listed as surface water concern. The samples should be reviewed by the producer for phosphorus levels and compared with previous test data. These tests will indicate compliance with the environmental management plan. If the soil phosphorus levels are increasing over time, the plan must be re-evaluated to make adjustments so that phosphorus levels do not continue to increase.

Recommendations for Best Management Practices

1. Waste water applied to cropland must be applied during the growing season. Waste water applied outside the growing season must be done in accordance with the water balance in the plan or by obtaining permission from the Idaho Department of Agriculture.
2. Irrigation equipment used to apply liquids should be of the type that uses low pressure and has drop nozzles to reduce atomizing the water/waste mix to reduce drift and odor dispersion.
3. Do not over irrigate cropland to conserve water and nutrients. In addition, over irrigation will increase the incidence of nutrients being moved through the crop root zone beyond the reach of plants.

4. Examine manure storage areas frequently to verify that waste is being properly stored and contained. Guard against storing manure where it may have access to surface or ground water sources.

The information used in the preparation of this Nutrient Management Plan was obtained from the producer or their designated representative. The number of animals, information used for sizing of containment facilities, crop rotation information, yield values and management of livestock and crop production systems that are used in the plan are the responsibility of the producer providing the information. It is the responsibility of the producer to have the plan reviewed annually and to inform the planner and the Idaho State Department of Agriculture of changes in number of animals, number of acres farmed or changes in crop rotations any of which would change the recommendations that are found in this plan.

Little Valley Land

ANALYSIS OF RESOURCE CONCERNS

INTRODUCTION

The purpose of this nutrient management plan is to meet agricultural production goals and to certify that manure and nutrients are properly managed to minimize adverse impact to surface or groundwater. Plans are written in cooperation with the producer to:

- 1) Assure proper containment of animal manure and process waste water.
- 2) Assess resource concerns which exist on the property.
- 3) Budget nutrient sources to optimize crop water and nutrient needs. Nutrient sources include commercial fertilizers, animal manure, mineralization of previous crop soil organic matter, accounting of residues, and irrigation water.
- 4) When applicable, assess irrigation water management to minimize movement of nutrients beyond the root zone or with runoff.

If animal manure and/or commercial fertilizers are not properly managed, contaminants may negatively impact surface and/or groundwater. Some water resource contaminants associated with poorly managed animal manure and fertilizers are:

Phosphorus in the soil readily adsorbs to soil particles; thus, erosion of soil by surface runoff is the general mode of phosphorus transport. Even at very low concentrations, phosphorus can result in plant and algae blooms in surface water bodies. Alga blooms are a nuisance to boaters, irrigators, and others. Toxins released by certain algae can be lethal to livestock or other animals that drink the water. Dissolved oxygen in the water is depleted as algae die and decompose, sometimes causing fish kills.

Nitrogen in the form of nitrate (NO_3^-) is highly water-soluble and will move with water, particularly down the soil profile past the root zone if not utilized by plants (thus becoming a groundwater contamination issue). Nitrates are toxic to infants under 6 months, and to livestock at high concentrations. In surface water, excess nitrogen, like phosphorus, can result in nuisance plant and algae growth.

Organic matter in high load decreases dissolved oxygen in a surface water body when it decomposes. Low levels of dissolved oxygen is harmful or even fatal to fish and other aquatic life.

Bacteria and microorganism illnesses (pathogens) potentially transmitted through water by animal manure include Giardia, Typhoid Fever, Cryptosporidium, and Cholera. Pathogens from animal waste can negatively impact surface and groundwater quality.

FACILITY DESCRIPTION

Owner Information

Owner (1): Dan Mori
Address: 31587 Thatsamori Pl.
Phone: (208) 845-2615
(208) 599-2615 Cell

Location

Site Map: Facility site plan illustrated in Figure 1

Soil Conservation District: Bruneau River
County: Owyhee
Watershed Basin: Bruneau (USGS Hydrologic Unit Code # 17050102)

ANALYSIS OF RESOURCE CONCERNS

Farm Resource Concerns

Little Valley Land Feedlot is located in the Bruneau (#17050102) watershed basin on the Jack's Creek, Little Jack's Creek to C.J. Strike Reservoir stream segment. The

Jack's Creek, Little Jack's Creek to C.J. Strike Reservoir stream segment is water quality limited. The pollutants of concern are flow alteration, nutrients, sediment, temperature, and dissolved oxygen. The primary resource concerns for the Little Valley Land Feedlot are both groundwater and surface water quality. Run-off containment pond 3 is immediately adjacent to an abandoned irrigation ditch which ultimately drains into Jack's Creek. Berms reduce the risk but an unlikely overflow could run into Jack's Creek. Care must be taken when irrigating to ensure that land-applied manure is not washed into Jack's Creek with irrigation tail-water. Groundwater quality risk exists due to cobbles in the top layers of soil in the fields.

Little Valley Land is not located in a critical Nitrate-Nitrogen management area. Nitrate Management Areas are designated based upon ground water quality sampling results. Two priority groups exist as follows:

Priority 1 is designated because at least 25% of the ground water sampling locations within the area exceed 5-milligrams/liter nitrate. This is one-half of the maximum contaminant level of 10-milligrams/liter nitrate. This nitrate concentration is considered evidence of significant degradation. Public drinking water systems are required to increase monitoring frequency when this level is reached.

Priority 2 is designated because at least 50% of the ground water sampling locations within the area exceed 2-milligrams/liter nitrate. This concentration threshold provides an indication of

human-caused (anthropogenic) impacts. The upper limit for naturally occurring (background) concentrations of nitrate is considered to be about 2 mg/l.

Little Valley Land is located in a sole source aquifer area - Western Snake River Plain Aquifer.

Field Resource Concerns

No fields

ISDA REGULATIONS AND THE IDAHO NUTRIENT MANAGEMENT STANDARD

Environmental/Nutrient management plans for animal agricultural operations regulated by the Idaho State Department of Agriculture (ISDA) must be approved by the Idaho State Department of Agriculture and must follow the Natural Resource Conservation Service (NRCS) Agriculture Waste Management Field Handbook and the Idaho Nutrient Management Standard. ISDA regulation and the Standard use soil test phosphorus as the indicator for environmental impact from agricultural production practices. The Idaho Nutrient Management Standard is based on a threshold soil test phosphorus level (TH), above which there is no agronomic advantage to application of phosphorus.

The Idaho Nutrient Management Standard categorizes fields as a surface water concern or a groundwater concern. A surface water concern indicates that runoff leaves the contiguous operating unit from normal storm events, rain on snow, frozen ground, or irrigation. The soil phosphorus threshold for a field with a surface water concern is 40 ppm phosphorus for basic soils (pH > 7) tested with the Olsen method; 60 ppm phosphorus for acidic soils (pH < 7) tested with the Bray method; and 6 ppm phosphorus for acidic soils tested with the Morgan method (0-12" Soil Sample Depth).

A groundwater resource concern indicates that runoff does not leave the contiguous operating unit from normal storm events, rain on snow, frozen ground, or irrigation. There are two sub-categories for fields identified as having a groundwater concern. The first category applies to fields with a resource concern within the first five feet of the soil profile. A resource concern could be shallow soils, gravel, cobble, bedrock, high groundwater table, or a drained field. These fields are indicated as a groundwater concern < 5'. The soil phosphorus threshold for a field with a groundwater concern < 5' is 20 ppm phosphorus for soils tested with the Olsen method; 25 ppm phosphorus for soils tested with the Bray method and 2.5 ppm phosphorus for soils tested with the Morgan method (18-24" Soil Sample Depth).

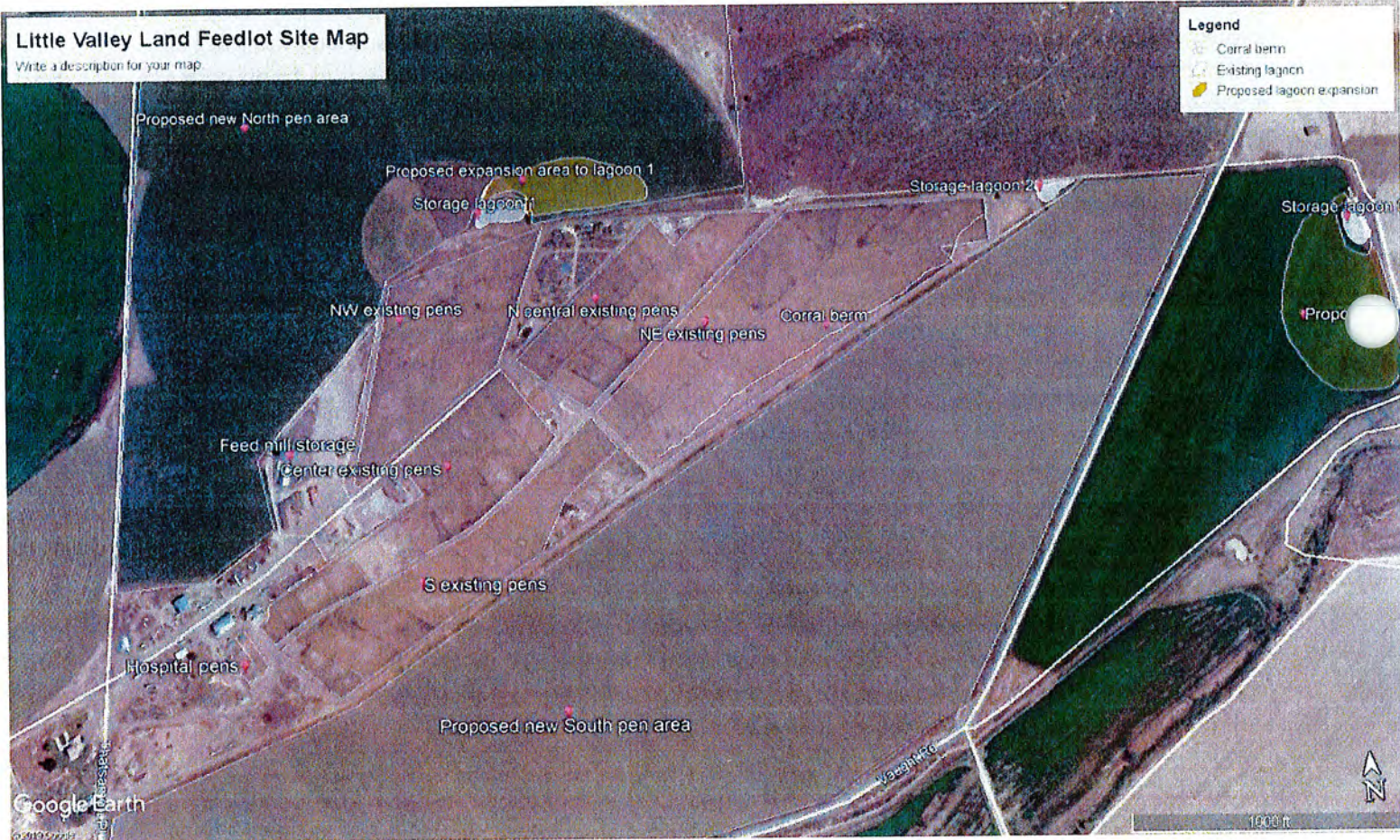
If a field is not classified as having a surface water concern or a groundwater < 5' concern, by default it is classified as having a groundwater concern > 5'. The soil phosphorus threshold for a field with a groundwater concern > 5' is 30 ppm phosphorus for soils tested with the Olsen method; 45 ppm phosphorus for soils tested with the Bray method; and 4.5 ppm phosphorus for soils tested with the Morgan method (18-24" Soil Sample Depth).

Field Phosphorus Threshold

No Fields

Feedlot Site Map

Figure 1. Site Map



ANALYSIS OF ANIMAL SYSTEM

WASTE STORAGE AND HANDLING

Livestock Unit Waste Characteristics

description	animal	number	average animal weight	housing	bedding type	bedding (tons)	waste (tons)
Beef – growing animals	Growing steers/heifers	15,000	700	Open Lot	None	0	147,551
Beef – growing animals	Growing steers/heifers	20,000	950	Open lot	None	0	269,998
Beef – Finishing animals	Finishing steers/heifers	15,000	1100	Open lot	None	0	195,731

Manure/Biosolid Groups

Manure Group	Storage Type	Application Method	Days to Incorporation	Nitrogen Retention(%)	Annual Volume (ft3)	Annual Weight (tons)
Corral mounds	Manure Stored in Open Lot, Arid Region	Broadcast, no incorporation, with containment	>7 days	35	9,772,875	306,640
Solid Stack(s)	Manure Stored in Open Lot, Arid Region	Broadcast, Incorporated deeper than 3 inches	>7 days	35	9,772,875	306,640

* in Nitrogen Retention % Column means "Overridden Nitrogen Values"

Manure Group		Animal
Solid Stack(s)	% To Group	50
Corral mounds	% To Group	50

Annual Production of Nutrients

The nutrient values were calculated based on animal weight and nitrogen loss estimates as described in the NRCS Agricultural Waste Management Field Handbook guidelines (1996). The calculations are estimates, and manure testing is recommended for more accuracy, as manure nutrient content varies widely among operations.

Nutrient Distribution on Facility					
	Pounds N	Pounds P ₂ O ₅	Pounds K ₂ O	% of Total	Weight (in Tons)
Total Nutrients Produced	7,013,087	2,540,400	4,628,200		
Solid Stack(s)	3,506,544	1,270,200	2,314,100	50	306,640
Corral mounds	3,506,544	1,270,200	2,314,100	50	306,640

MANURE STORAGE SUMMARY

Total Annual Liquid Capacity Required				
Bio-Nutrient Group	Recommended Capacity Cubic Feet	% Contained	Storage Days	Storage Vol. Cubic Feet
Feedlot pens	2,930,125	100%	120	3,019,418

Total Annual Solid Capacity		
Bio-Nutrient Group	Recommended Capacity Cubic Feet	% Contained
Solid Stack(s)	9,772,875	50%
Corral mounds	9,772,875	50%

Total Liquid Storage Capacity									
Container Name	Volume (ft ³)	Storage Period (Days)	Length	Width	Depth	Slope	Diameter	Existing	Proposed
Lagoon 1	68,171	120	130	90	8	2	0.0	Yes	No
Lagoon 2	90,375	120	185	50	15	1	0.0	Yes	No
Lagoon 3	195,417	120	365	120	5	2	0.0	Yes	No
Berm/corral storage	60,000	120	1200	50	3	1	0.0	No	Yes
Lagoon 1 expansion	1,245,807	120	400	250	15	2	0.0	No	Yes
Lagoon 3 expansion	1,359,648	120	500	250	14	1	0.0	No	Yes

Containment of Housing Facility Waste and Corral Runoff

It is important that water from housing facilities and contaminated runoff from corrals be contained and/or diverted to the lagoon storage system. As stated in the Idaho State Department of Agriculture (ISDA) regulation, a discharge is allowed only under large precipitation events (>25yr, 24hr storm event). Lagoon structures must be properly designed, operated, and maintained to contain all barn wastewater and contaminated runoff from a 25-year, 24-hour rainfall event for the site location and maintained to contain all runoff from accumulation of winter precipitation from a one in five-year winter. Animals confined in the CAFO may not have direct contact with canals, streams, lakes, or other surface waters.

BIO-NUTRIENT EXPORT INFO

Bio-Nutrient Group Name	Consumer	Consumer's Address	Telephone	Acres
Solid stack/compost	Russ Schiermeier	29393 Davis Rd. Bruneau, ID 83604	208-845-2200	3,400
Solid stack/compost	Sam Ward	29899 Mormon Blvd. Bruneau, ID 83604	208-845-2905	800
Solid stack/compost	Hegerhorst Farms	30767 Mormon, Blvd. Bruneau, ID 83604	208-845-2975	640
Solid stack/compost	Andy Jantz	26166 Shoofly Rd. Bruneau, ID 83604	208-834-2643	340
Solid stack/compost	Dean Isaac	28098 Vaught Rd. Bruneau, ID 83604	208-845-2688	345
Solid stack/compost	Arlan Isaac	31364 Highway 51, Bruneau, ID 83604	208-845-2262	250
Solid stack/compost	Gene Tindall	30633 Sugar Valley Rd., Bruneau, ID 83604	208-845-2821	300
Solid stack/compost	Darryl Koehn	31267 Mormon Blvd. Bruneau, ID 83604	208-599-0048	1400
Solid stack/compost	Gingerich Farms	47584 Hwy 78, Mountain Home, ID 83647	208-845-2868	500
Solid stack/compost	Ryan Johnson	51845 Highway 78 Hammett, ID 83627	208-366-7734	2000
Solid stack/compost	Fowers, Inc.	PO Box 305, Grand View, ID 83624	208-845-2181	1065
Solid stack/compost	Quey Johns	48803 Hwy 78, Mountain Home, ID 83647	208-366-7734	350

Solid stack/ compost	Harold Glerum	27031 Joe Black Rd., Hammett, ID 83627	208-366-2537	50
Solid stack/ compost	Wilson Cattle	52512 Hwy 78, Hammett, ID 83627	208-366-3329	280
Solid stack/ compost	Rich Ogg	32047 Hot Creek Rd., Bruneau, ID 83604	208-845-2970	200
Solid stack/ compost	Phil Davis	19 Warm Lake Hwy., Cascade, ID 83611	208-382-4892	750

Mortality Management

Mortalities, if improperly handled, are a source of odor, rodents and other critters, potential pathogens, and nutrients. Most states have a general rule that “dead animals should not be left exposed to the environment.” There are five USDA approved methods for managing mortalities: Incineration, composting, rendering, on-site burial and Value-added processing. Additionally the Idaho State Department of Agriculture has rules that govern the collection and disposal of animal mortalities. Contact the Idaho State Department of Agriculture at 208-332-8540 before finalizing your mortality plans.

Mortalities on my facility are rendered. Rendering pickup in many parts of the country is fast and reliable. Rendering provides a very low labor option for producers, however the cost of animal pickup has increased over time. Rendering also increases the risk of disease transfer if proper sanitary precautions are not made. Facilities need to be provided to house the carcasses prior to pickup and should be designed to minimize the view of neighbors and roadways, minimize vector and bird attraction, and facilitate the quick loading of dead animals. One of the limitations of traditional rendering is the decomposition and transformation of the carcass between death and processing in a rendering facility. Several local locations have encouraged producers to use on-site preservation methods to ensure the quality of the carcass protein that is delivered to the plant. In some of these instances producers can potentially receive payments from the rendering facility.

EMERGENCY PROCEDURES

- **Personal Injury or Fire**

1. Determine the nature of emergency and the type of assistance required. CALL 911.
2. Stabilize any injured persons without moving them, unless it is absolutely necessary to move them out of harm's way.
3. Implement CPR if necessary.
4. In the event of fire, evacuate people and livestock to a safe location.
5. If the fire is small and contained, use a fire extinguisher to put the fire out.
6. Notify emergency personnel of the location of flammables or hazardous materials when they arrive.

- **Manure Storage Overflow, Leak or Spill**

1. Stop all flow to the storage facility and call emergency farm contact.
2. Determine the extent of incident and what help is needed.
3. Contain the spill/leak/overflow by constructing a temporary dike from soil, corn silage, or other suitable materials, or redirect flow to designated containment/overflow area.
4. If possible, place agitation pump in designated pumping location and load tankers. Land apply manure on fields approved for manure application at rates established by the nutrient management plan.
5. Collect remaining spill and contaminated soil from overflow/leak/spill site and land apply materials on approved files and approved rates.
6. Complete all necessary clean up and temporary repairs. Contact appropriate authorities, if required, and document the incident and what was done.
7. Conduct engineering analysis of manure storage facility if needed and develop repair plan.

- **Manure Spill During Transport or Land Application**

1. Stop manure pumps and irrigation equipment and close valves.
2. If there's a road spill, move equipment out of traffic.
3. Call emergency farm contact and determine the extent of incident and what help is needed.
4. Contact the County Sheriff if traffic control is needed.
5. Stop leaks if needed, and contain spill by constructing a temporary berm with soil, straw bales or other available, appropriate materials.
6. If manure is spilled on the roadway, clean the spill immediately from the road and roadside.
7. Transfer remaining manure to another tanker/hauler if necessary.
8. Collect spilled manure and contaminated soil and land apply materials on approved fields at approved rates.
9. Complete all necessary clean up and make repairs.
10. Contact appropriate authorities, if required, and document the incident and what was done.

- **Accidental Entry to Manure Storage Facility**

1. CALL 911 and advise rescue personnel of the nature and location of the incident.
2. Locate emergency rescue equipment (ladder, pole, flotation device) and attempt to reach victim.
3. Do not enter a confined area where gases may accumulate.

4. Initiate CPR if necessary. Remain with the victim until help arrives.

- Hazardous Materials Spill

1. Keep a spill cleanup kit available at all locations where hazardous materials are handled, transported, or stored because you will not have time to locate all the necessary items before a significant amount of contamination has occurred.
2. Control the spill situation. Confine the spill by absorbing liquids and covering dry materials.
3. Clean the spill and decontaminate the spill site, equipment and protective clothing.
4. Dispose of spill materials using approved methods.
5. If you cannot manage a spill by yourself, get help. Call 911 for immediate response. If the spill is large or particularly hazardous, also contact the Idaho Bureau of Homeland Security at 1-800-632-8000.

- Catastrophic Event

1. In the case of a catastrophic event, all applicable measures above will be implemented.
2. Primary contact is the local emergency response.
3. All efforts will be coordinated within the framework of the Idaho Emergency Operations Plan (<http://www.bhs.idaho.gov/bhslibrary/idahopbasicplan.pdf>).

Effects of Diet and Feeding Management on Nutrient Content of Manure

Introduction

Accumulation of excess nutrients on the farm results in a whole-farm nutrient imbalance that can contribute to water and air pollution. A major portion of nutrients brought onto livestock and poultry farms comes from purchased feeds. Reducing nutrients or selecting more efficient feed nutrient sources and/or feeding techniques can significantly reduce the nutrient content of excreted manure (helping to achieve a whole farm nutrient balance), and help to reduce odors and other gaseous emissions from manure.

The U.S. Department of Agriculture (USDA) and the Environmental Protection Agency (EPA) released *Unified National Strategy for Animal Feeding Operations* in March 1999. Importantly, the Strategy articulated a national performance expectation that all animal feeding operations should develop and implement technically sound, economically feasible, and site-specific comprehensive nutrient management plans (CNMPs) to minimize potential adverse impacts on water quality and public health. Feed management is one component of a CNMP.

Proper management of animal diets is a valuable tool to help balance nutrient flows, to achieve a whole-farm nutrient balance, and to reduce the potential negative impacts some nutrients have on the environment.

This technical note describes a series of basic nutrition and feeding management principles and potential adjustments that can be made on livestock and poultry operations to reduce nutrient excretions. This technical note was prepared from material published by the Federation of Animal Science Societies (FASS), Savoy, Illinois (fass@assochn.org). Additional technical notes provide specific feeding management and nutrient excretion information for beef, dairy, poultry, and swine. These technical notes are not intended to be all-inclusive. Farmers or operators should consult with Extension personnel or qualified animal nutritionists for detailed information and thorough evaluations of the animal diets and feeding management programs for livestock or poultry operations.

Digestive processes

The digestive process begins with the intake of feed ingredients provided to meet animal maintenance, production, and reproduction requirements. The requirements for production are affected by stage of growth and the type of product (e.g., meat, milk, eggs) involved. How well the animal can retain nutrients for productive purposes depends upon the bioavailability of the nutrients in the diet, absorption, and metabolism. The quantity of nutrients excreted by animals is affected by three main factors:

- the amount of dietary nutrients consumed,
- the efficiency with which they are utilized by the animal for growth and other functions, and
- the amount of normal metabolic losses (endogenous). In other words, the amount of excreted nutrients can be expressed as:

Nutrients excreted = Nutrient intake - Nutrients utilized + Nutrients from endogenous sources

The primary way to reduce the amount of nutrients excreted by animals is to decrease the amount that is consumed and increase the efficiency of utilization of the dietary nutrients for formation of the product.

The goal of efficient and productive feeding of animals, within economic and environmental constraints, is to provide essential available nutrients for maintenance and production with minimal excess amounts.

Nutrients in feeds can vary considerably, and not all nutrients in feeds are available to the animal. Therefore, any means of increasing the digestibility or availability of nutrients will increase the potential for animal use and retention and reduce the amount of nutrients excreted. There is increasing interest today in using enzymes, genetically modified feed ingredients, and feed-processing technologies to enhance the availability of nutrients so as to meet the specific animal needs and reduce excretion of nutrients. In addition, a routine feed analysis program is imperative so that diets can be formulated and periodically adjusted to meet, but not exceed, the nutrient requirements of the animal.

Ruminants and nonruminants have different digestive systems. The ruminant (cattle and sheep) is capable of digesting and utilizing nutrients and energy from forages as well as from the easily digestible grains (concentrates). The nonruminant (poultry and swine) cannot effectively use a large amount of forages (fiber). Also, poultry and swine cannot digest some of the nutrients, particularly phytate phosphorus (P) contained in grains. Usually, 50 percent of the P in the grains and oilseeds is in the form of phytate, which is not available to swine and poultry. Therefore, to meet their P requirements, their diets must include additional P, generally supplied by mineral supplements. The combination of the P in feed grains and the additional mineral P added to the diet increases the total P consumed by the animal. A considerable portion of the non-available P and/or extra P not needed by the animal is excreted. If the diet contains an enzyme called phytase, which will release the phytate form of phosphorus from the grains, then supplemental phosphorus in the diets can be reduced.

Following are some factors that should be considered for making adjustments in the diet or feeding program to reduce anticipated excretion of nutrients and manure volume. In all cases, nutrients should be managed to meet the animal needs and, of equal importance, to minimize nutrient excesses.

Feed management factors

Recommended feed management practices for a particular operation may include implementation of grouping strategies, including grouping by gender and increasing the number of production groups; appropriately adjusting diets based on climatic factors; minimizing feed wastage; and employing processing options to improve feed use efficiency. Further information

is provided in the species-specific technical notes.

Grouping. (1) Place animals of similar ages, weights, and/or production levels together. (2) Place animals of the same gender together. Split-sex feeding divides the animals by gender so that diets can be formulated to meet the special nutrient needs of each sex.

Climate. Adjust diet to meet specific climate conditions (e.g, temperature, wind, precipitation), or adjust the building climate to optimize nutrient utilization.

Phase feeding. Use multi-phase feeding versus minimal-phase feeding. Phase feeding provides a series of diets that are formulated to more closely meet the nutrient needs of the animal at a particular stage of growth or production. Dividing the growth period into several periods with a smaller spread in body weight allows producers to provide diets that more closely meet the animal's nutrient requirements.

Wastage. Minimize feed and water spillage.

Processing. Pelleting, extrusion, steaming, micronization, ensiling, and reducing particle size increase the digestibility of diets for swine and poultry. Processing feeds (e.g., grinding, pelleting, and fermenting) releases nutrients in the diet so the animal can absorb and retain more nutrients and excrete less nutrients and manure volume. Processing is not as critical for ruminants; however, coarse grinding, ensiling, and steaming have been effective for ruminants.

Diet manipulation factors

Diet considerations that are described in more detail in the technical notes on individual species include formulation based on feed available nutrients, the use of growth promotants to improve feed use efficiency, consideration of genetic factors that influence nutrient needs, use of specialty feeds, and consideration of nutrient intake from water supplies.

Available nutrients. Know the availability of nutrients in feed ingredients and formulate diets based upon available nutrients in the feed ingredients. Nutritionists should use the respective National Research Council (NRC) nutrient requirements for each farm animal as a guide to formulating diets unless data are available on the farm showing nutrient requirements of a specific genetic line of animals.

Nutrient levels. Some nutrient levels in commercial animal diets may be excessive. Chemical analyses of ingredients and reformulation are critical to minimizing excesses.

Genetics. Know the genetic capability of the animal, including feed intakes and responses to environmental conditions (e.g., climate, disease pressure, housing system).

Growth promoters. Antibiotics and other growth promoters increase feed efficiency. Growth promoters reduce nutrient excretion by increasing nutrient utilization.

Specialty feeds. Providing specific feed ingredients (e.g., high-oil corn, nutrient-dense corn,

low-phytate corn, and soybeans) helps achieve a proper balance or increased availability of nutrients. Some of these are not commercially available today, but may be so in the near future.

Water supplies. Water supply sources can contribute significantly to mineral intakes.

Supplemental phosphorus. Reduce supplemental P and add phytase to swine and poultry diets to reduce P excretion. Remove all supplemental P in beef cattle diets and most of the supplemental P in dairy cattle diets to reduce P excretion.

Crude protein. Reduce dietary protein content and add synthetic amino acids to swine and poultry diets; reduce protein and select nitrogen (N) sources that cattle can absorb more effectively.

Benefits of reducing nutrients

Reducing the nutrient content of farm animal manure has the following benefits:

- ☐ A smaller land base per animal unit is required for manure application. This may provide a means to balance nutrients on a whole-farm basis.
- ☐ Greater volumes of manure can be applied per acre of land to meet agronomic rates for crop production. This may result in less labor and fuel costs for land application and reduce the potential need to supplement crop nutrient budgets with commercial fertilizer. Applying greater amounts of organic matter from manure per acre could result in more carbon sequestration and reduced emissions of gases responsible for global warming.
- ☐ Reduced N and sulfur excretion have the potential to reduce odors. Reduced volumes of manure production will reduce the requirement for manure storage capacity and increase the flexibility for timing of manure application to cropland.

Dietary adjustments

The table on page 4 provides potential reductions in the excretion of nutrients with the dietary and/or feeding management adjustments mentioned above for livestock and poultry on operations that have not yet adopted diet and/or feeding management strategies to reduce manure nutrient content. It should be noted, however, that these potential effects are not additive. For more specific information, see the FASS fact sheets and the NRCS technical notes in this series for the specific animal species.

Potential reductions in the excretion of nutrients

	Strategy Nitrogen reduction (%)	Phosphorus reduction (%)
Formulate diet closer to requirement	10-15 (nonruminants)	10-15 (nonruminants)
	10-25 (ruminants)	10-30 (ruminants)
Reduced protein/AA supplementation (nonruminants)	10-25 (poultry)	n/a ¹

	20-40 (swine)	
Protein manipulation (ruminants)	15-25	n/a ¹
Use of highly digestible feeds	5	5
Use of phytase/low P (nonruminants)	2-5	20-30
Selected enzymes	5	5
Growth promotants	5	5
Phase feeding	5-10	5-10
Split-sex feeding	5-8	n/a ¹

¹ Not applicable.

Table data adapted from Federation of Animal Science Societies (FASS) publication, *Dietary Adjustments to Minimize Nutrient Excretion from Livestock and Poultry*, January 2001.

Glossary terms used in the series of nutrient management technical notes

Available nutrient basis. Formulating a diet based on the bioavailability of the nutrients from the feed ingredients in the diet for the intended production purposes.

Bacterial protein (BCP). The crude protein in rumen bacteria made up of amino acids and nucleic acids.

Barrow. Male castrate of swine.

Bioavailability of nutrients. The amount of nutrient in the diet that is released in the digestion process and that can be absorbed in a form that can be used in the body for normal metabolic functions of the nutrient.

Bovine growth hormone. A natural nonsteroidal protein hormone produced in the pituitary glands of cattle that helps cows produce milk. The growth hormone produced in cattle will only be effective in cattle. This protein has been produced synthetically in bacteria.

Broiler. Chicken produced for meat.

By-products. Feed ingredients from sources that are normally waste products from other industries.

Concentrates. Plant materials (feeds) that contain relatively high starch content.

Crude protein. A measure of dietary protein that is based on the assumption that the average amino acid in a protein contains 16 percent nitrogen. Thus, total chemically determined nitrogen $\times 6.25$ ($100 / 16$) = crude protein.

Crystalline amino acid. Amino acid produced in its pure chemical form.

Cystine. A sulfur-containing amino acid that can replace up to one-half of the methionine requirement.

Degradable intake protein (DIP). Crude protein that is degraded in the rumen by micro-organisms.

Denitrification. The process by which nitrogen is converted to nitrogen gas (N₂) and nitrous oxide (N₂O) and returned to the atmosphere.

Diet formulation. The process of combining an assortment of feed ingredients into a diet that will meet the nutrient and energy requirements of the animal for the intended purpose for which the animal is produced.

Digestibility. The relative amount of nutrients released from the digestion process.

Digestion. The process of breaking down nutrients through chewing and the action of enzymes to release nutrients that can be absorbed in animals.

Dry-matter intake. The amount of completely dry feed consumed by animals.

Dry precipitation. Chemicals combining in the atmosphere and falling to Earth.

Endogenous. Nutrients within the animal that may be produced or synthesized. Excretion of endogenous nutrients may occur from the recycling of nutrients and normal cellular metabolic processes.

Endogenous phytase. The enzyme naturally derived within the animal or from microbial sources within the animal that degrades phytate and releases phosphorus.

Feed use efficiency. The amount of live weight gain, milk production, or egg production per unit of feed consumed.

Fermentation by-products. By-products that have been processed by anaerobic fermentation.

Fermented feeds. Feeds that have been processed and preserved by anaerobic fermentation. A typical example is the acid fermentation of whole corn plant silage.

Forage. Plant material that contains relatively high fiber content.

Gilt. A term used to describe young female swine before sexual maturity.

Grass tetany. A nutritional disease caused by inadequate magnesium in the blood. It most commonly occurs among lactating animals grazing on rapidly growing, lush spring pastures containing less than 0.2 percent magnesium and more than 3 percent potassium and 4 percent nitrogen.

Ideal protein basis. Formulating a diet based on the concept that the protein content of the diet has a balance of amino acids that exactly meets the animal's amino acid requirements.

Layer. A chicken raised to produce eggs.

Leaching. The process by which plant nutrients move down through the soil profile, potentially reaching ground water.

Lysine. A basic amino acid required for growth.

Metabolizable protein (MP). Protein (amino acids) absorbed from the small intestine of ruminants. Contains bacterial protein and undegraded intake protein.

Methionine. A sulfur-containing amino acid required for growth.

Microbial protein synthesis. The process by which protein is synthesized in the rumen as micro-organisms grow and multiply.

Near infrared spectroscopy. Feed analysis performed using near infrared light wave reflectance.

Nonruminant (monogastric). An animal that has a simple stomach (one compartment) and must utilize concentrate diets.

Phase feeding. Changing the nutrient concentrations in a series of diets formulated to meet an animal's nutrient requirements more precisely at a particular stage of growth or production.

Phytase. An enzyme that degrades phytate, making phosphorus available to nonruminants.

Phytate phosphorus. A complex, organic form of phosphorus that is bound to the phytate molecule and is not readily digested by nonruminant animals.

Precision nutrition. Providing the animal with the correct ratio and quantity of nutrients in a diet at the ideal ratio to most efficiently produce the end product for which the animal is raised.

Ruminant. An animal capable of digesting forages (roughages) because it has a large stomach with four compartments that have micro-organisms present.

Somatotropin. The hormone that regulates growth, affects the metabolism of all classes of nutrients, stimulates milk production, and improves productive efficiency.

Sparing effect. The process whereby one chemical or metabolite reduces the need or requirements for another nutrient.

Split sex feeding. A feeding and housing program that divides animals by gender and formulates diets to meet the specific nutrient requirements of each sex more precisely.

Total digestible nutrients (TDN). Total of all the nutrients in the diet that are available to the

animal.

Undegraded intake protein (UIP). Feed protein that is not degraded in the rumen by microorganisms.

Volatilization. The process by which chemicals evaporate at ordinary temperatures.

Wet-chemistry procedures. Analysis of nutrients using standard, approved laboratory procedures.

Wet-dry feeding systems. Feeding systems designed to introduce water with dry feeds, either at prescribed times or at any time on demand by the animal. By introducing water at the time of feeding, the potential for water spillage and dust from feed sources is reduced.

Feed and Animal Management for Beef Cattle

Introduction

Beef cattle feeding operations typically include weaned calves and backgrounded and stocker cattle that are fed to an optimum beef grade. For short periods, beef cows may be fed in confined feedlots. Distinctly different diets, generally differing in the amount of roughage relative to concentrate levels, are fed during different stages of growth or reproduction. This results in great differences in the volumes of manure produced and the nutrient compositions of those manures at the different life stages. This technical note briefly highlights some factors affecting nutrient excretion, along with potential dietary adjustments that can minimize excess nutrient excretion.

A critical part of feed management is to accurately formulate diets and manage the feeding of them so the nutrients fed consistently match the nutrients needed at each stage and rate of growth. For example, table 1 shows how the amount of nutrients needed daily changes with stage of growth and rate of gain for growing cattle. Table 2 illustrates how daily nutrients needed by beef cows change by stage of the reproductive cycle. These tables are only examples to illustrate how the diet formula needs to be specific for each feeding situation. The concentration of nutrients needed in the diet for a particular pen of animals changes with the mature size, level of production, and dry matter intake.

Diet formulation

Diets should be formulated and updated regularly to avoid the overfeeding of nutrients or fluctuations in performance. The most common standard for diet formulation is the National Research Council's (NRC) publication, *Nutrient Requirements of Beef Cattle*, 1996. This publication provides equations to compute nutrient requirements for any mature size and growth rate. Therefore, actual dry matter intakes and a computer program that includes NRC's and/or other research-based equations are needed to accurately predict how nutrient requirements should be used to formulate diets. Because of the complexity of formulating diets to optimize production while minimizing excretion, producers not trained in nutrition should seek help from qualified nutritionists.

Diets fed to cattle may contain excess nutrients as a safety factor to minimize poor growth or performance because of variation of nutrients in feed sources and performance variation in the cattle. By properly balancing protein, phosphorus (P), and the other nutrients in the diet to meet animal performance expectations, excretion of unnecessary excess nutrients can be minimized, reducing their potential to contribute to environmental degradation, particularly to water quality.

Table 1 Protein, calcium, and phosphorus requirements for growing and finishing beef cattle ¹

Body weight, lb =	525	650	775	900	1,025
Dry matter intake, lb/d =	14	17	19.5	21.5	23.5

Daily gain, lb Crude protein, lb/d

1.0 1.22 1.36 1.49 1.57 1.65
 1.8 1.55 1.69 1.82 1.86 1.91
 2.5 1.87 2.01 2.13 2.14 2.15
 3.3 2.18 2.32 2.43 2.40 2.38
 4.0 2.49 2.62 2.73 2.66 2.60

Calcium, lb/d

1.0 0.04 0.04 0.05 0.05 0.05
 1.8 0.06 0.06 0.06 0.06 0.06
 2.5 0.08 0.08 0.08 0.07 0.07
 3.3 0.10 0.09 0.09 0.09 0.08
 4.0 0.11 0.11 0.10 0.10 0.09

Phosphorus, lb/d

1.0 0.02 0.02 0.03 0.03 0.03
 1.8 0.03 0.03 0.03 0.03 0.04
 2.5 0.04 0.04 0.04 0.04 0.04
 3.3 0.04 0.04 0.04 0.05 0.05
 4.0 0.05 0.05 0.05 0.05 0.05

¹ Weight at small marbling=1,200 pounds. Adapted from table 9-1 with modifications, Nutrient Requirements of Beef Cattle, 7th Ed., 1996, National Research Council, National Academy Press, 2101 Constitution Ave., Washington, DC 20418 (J.G. Buchanan-Smith, Chair, Subcommittee on Beef Cattle Nutrition).

Table 2 Protein, calcium, and phosphorus requirements for beef cows ¹

Months since calving	Body weight (lb)	Dry matter intake (lb/d)	Crude protein (lb/d)	Calcium (lb/d)	Phosphorus (lb/d)
0 (calving)	1,340	24.6	2.20	0.06	0.04
1	1,200	26.8	2.71	0.08	0.05
2 (peak milk)	1,200	27.8	2.97	0.09	0.06
3	1,205	28.4	2.82	0.08	0.06
4	1,205	27.4	2.54	0.07	0.05
5	1,205	26.5	2.26	0.06	0.04
6	1,210	25.7	2.04	0.06	0.04
7 (weaning)	1,215	24.2	1.45	0.04	0.03
8	1,225	24.1	1.49	0.04	0.03
9	1,240	24.0	1.57	0.04	0.03

10	1,260	23.9	1.69	0.06	0.04
11	1,290	24.1	1.89	0.08	0.04

¹ Mature weight at body condition 5=1,200 pounds, peak milk=20 pounds, calf birth weight=86 pounds, calving interval=12 months. Adapted from table 9-7 with modifications, Nutrient Requirements for Beef Cattle, 7th Ed., 1996, National Research Council, National Academy of Sciences, National Academy Press, 2101 Constitution Ave., Washington, DC 20418 (J.G. Buchanan-Smith, Chair, Subcommittee on Beef Cattle Nutrition).

Routine feed analyses, especially when a new source of feed is used, are critical for proper diet formulation and reduction in nutrient excretion. The moisture content of feed ingredients, especially silage and wet by-products, should be checked frequently to produce formulations that accurately reflect the nutrient content of available feeds.

Feeding cattle using the metabolizable protein system as described by the NRC rather than crude protein is one way to better characterize rumen and lower digestive tract nutritional needs. Selecting and balancing the right type of protein sources are important to meeting the amino acid needs of the animal and for minimizing excretion. Because by-products are often utilized in cattle diets, one should note the digestibility (availability) of nutrients from each feed ingredient source as well as significant nutrient excesses. The content and availability of amino acids from different protein sources varies considerably, leading to inadvertent overfeeding of some amino acids that then contribute to nitrogen (N) excretion. Some estimates are that selecting optimal levels of the right type of protein to more accurately match animal requirements can reduce N excretion by as much as 25 percent.

Balancing nutrient levels can be challenging when by-products are used. An important feed source for the beef industry, by-product feeds include roughages and concentrates other than the primary products of plant and animal production, and by-products from industrial manufacturing. Examples include grain stover and fermentation by-products. The availability and levels of N and P are especially important. In addition, fermentation by-products used as energy or protein sources may increase P excretion. Therefore, more intensive management of manure storage, treatment, and utilization may be required.

In addition, P is routinely added into mineral mixes for cattle. However, the normal level of P in most typical ingredients in cattle rations exceeds their P requirements. Recent research has shown that P excretion can be reduced by 20 to 30 percent by not adding supplemental P to the diet. One notable exception is forage-based diets, especially when forage quality is poor. In this case there may be a need to add supplemental P to the diet to meet some cattle requirements.

The dietary salt intake level should be reduced in cattle feeds in semiarid and arid climates, where salinity problems can exist and sodium accumulation can adversely affect crop production. In addition, beware of potassium accumulation in forages receiving high levels of manure application. This can potentially cause grass tetany problems with cattle consuming such forages.

Phase feeding and grouping strategies may also be used to meet more nearly the nutritional needs of cattle of a common age, size, and sex. Uniform groups (by stage of growth) allow the

producer to use diets that come closer to the actual needs of all the individual animals in the group since there is less variation among animals.

Overfeeding of nutrients within a group can be significantly reduced. Dividing the growth period of the cattle into several periods with a smaller spread in body weight allows producers to provide diets that more closely meet the cattle's nutrient requirements. This approach may reduce N and P excretion by at least 5 to 10 percent.

Nutrient value of water. The mineral content of the water supply should be considered with regard to the total intake of dietary minerals. Depending on the quality of water supply available, water intake may substantially contribute to daily mineral intake, particularly with regard to sulfur, and in some areas of the country, salt. Routine water sampling can help the nutritionist formulate properly the amount of minerals to add to the diet to meet the animal's actual requirements.

Feed management

Feed bunk management. Good bunk management is imperative to reduce feed wastage. This involves checking feed intake levels and adjusting intake to closely meet the requirements of the size of the cattle involved. Consideration should also be given to how much feed is being wasted in the feedlot operation. In some cases refused feed is scraped from the feeding area and is not re-fed. In this situation waste removed from the lot includes the wasted feed and the manure nutrients.

Feed storage. Another aspect of feed management considers nutrient losses during feed storage. Depending upon how feed ingredients are stored, nutrients may be directly lost to the environment as a result of poor feed storage conditions or of rainfall on uncovered feed.

Fermented feeds, such as silage, can produce a leachate. Containment of silage leachate and good management of all feed storage areas and feed transport are advised so that feed-based nutrients are not lost directly to the environment.

Summary

The National Research Council's *Nutrient Requirements for Beef Cattle* (1996) provides equations, tables, and guidelines for evaluating all beef cattle diets, including the breeding herd. Also, consult qualified nutritionists to accurately evaluate current or planned diet compositions. Consider feed management alternatives during the development of Conservation Plans, especially during the development of Comprehensive Nutrient Management Plans (CNMPs).

Varies feed management practices can impact the nutrient content of excreted beef cattle manure. Table 3 summarizes the potential for various activities to impact nutrients in beef cattle manure.

The actual impact of a feed management strategy or strategies on a beef operation can only be determined by analysis of the manure after the strategy has been implemented. During the development of CNMPs, the potential impact of such strategies can be estimated using values in

table 3. In using data from this table, planners are encouraged to be conservative in their selection of factors. Also, it is important to remember that the impact of using multiple strategies in a single diet is not likely to be additive for each single strategy being used. Rather, it is more likely to be something greater than the value for the strategy with the smallest impact, but less than the sum of the values for all the individual strategies being used. During the development of CNMPs, it is better to underestimate the potential impact of feed management than to overestimate it. Later, the plan can be modified based upon data accumulated from the actual production operation.

Table 3 Potential for feed management to impact nutrients in beef cattle manure¹

Strategy	Nitrogen reduction (%)	Phosphorus reduction (%)
Minimize dietary nutrient excesses	0-25	0-30
Protein manipulation	0-25	n/a ²
Growth promotants	5	5
Phase feeding	5-10	5-10

¹ Table adapted from Federation of Animal Science Societies (FASS) publication, *Dietary Adjustments to Minimize Nutrient Excretion from Livestock and Poultry*, January 2001.

² Not applicable.

Glossary

By-products. Feed ingredients from sources that are normally waste products from other industries.

Crude protein. A measure of dietary protein that is based on the assumption that the average amino acid in a protein contains 16 percent nitrogen. Thus, total chemically determined nitrogen x 6.25 (100 / 16) = crude protein.

Fermentation by-products. By-products that have been processed by anaerobic fermentation.

Fermented feeds. Feeds that have been processed and preserved by anaerobic fermentation. A typical example is acid fermentation of whole corn plant silage.

Grass tetany. A nutritional disease caused by inadequate magnesium in the blood. It most commonly occurs among lactating animals grazing on rapidly growing, lush spring pastures containing less than 0.2 percent magnesium and more than 3 percent potassium and 4 percent nitrogen (25% protein).

Metabolizable protein. Protein (amino acids) absorbed from the small intestine of ruminants. It

contains bacterial protein and undegraded intake protein.

Phase feeding. Changing the nutrient concentrations in a series of diets formulated to meet an animal's nutrient requirements more precisely at a particular stage of growth or production.

Ruminant. An animal capable of digesting forages (roughages) because it has a large stomach with four compartments that have micro-organisms present.

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Bruneau, ID 83604

May 1, 2020

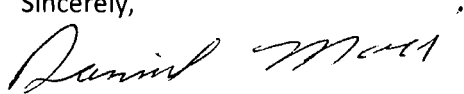
Bruneau Fire District
29029 Shoofly Cutoff
Bruneau, ID 83604

To Whom it may concern,

I am applying to the Owyhee County Planning and Zoning Commission seeking a conditional use permit to expand my cattle feedyard from 7,500 head capacity to 50,000 head capacity. The feedyard is located at 31587 Thatsamori Pl. southwest of Bruneau, Idaho.

If you have any comments or concerns about this proposed expansion, I please submit them to myself and the Owyhee County P&Z Office at PO Box 128, Murphy, ID 83650.

Sincerely,

A handwritten signature in black ink that reads "Dan Mori". The signature is written in a cursive style with a small dot at the end of the last name.

Dan Mori

Dan Mori
Little Valley Land
31587 Thatsamori Pl.
Bruneau, ID 83604

May 1, 2020

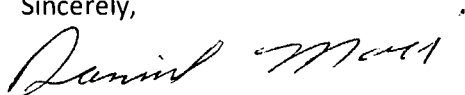
Little Valley Mutual Irrigation District
PO Box 54
Grand View, ID 83624

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Little Valley Land
31587 Thatsamori Pl.
Bruneau, ID 83604

May 1, 2020


Owyhee County Road & Bridge
District #3
PO Box 573
Grand View, ID 83624

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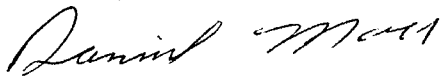
Bruneau Grand View School District #365
PO Box 54
Grand View, ID 83624

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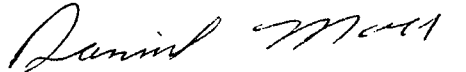
DEQ
Boise Region Office
1445 N. Orchard
Boise, ID 83706

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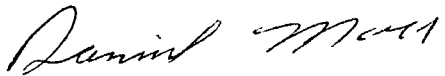
Idaho Transportation Department
PO Box 8028
Boise, ID 83707

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Bruneau, ID 83604

May 1, 2020

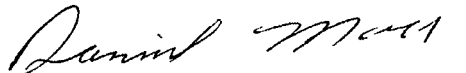
Idaho Department of Water Resources
Western Regional Office
2735 Airport Way
Boise, ID 83705

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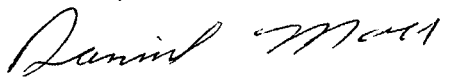
Southwest District Health
13307 Miami Ln.
Caldwell, ID 83607

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31587 Thatsamori Pl.
Bruneau, ID 83604

May 1, 2020

Owyhee County Natural Resource Committee
PO Box 128
Murphy, ID 83650

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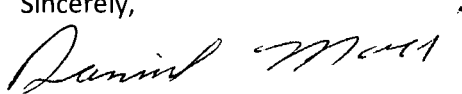
Idaho State Dept. of Agriculture
PO Box 790
Boise, ID 83701

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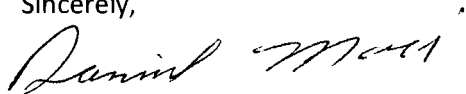
Boise District BLM
3948 Development Way
Boise, ID 83705

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Dan Mori

Owyhee County, Idaho



RIGHT TO FARM Disclosure Statement

- A. It is the intent of the Legislature of the State of Idaho pursuant to IDAHO CODE Title 22 Chapter 45, RIGHT TO FARM ACT to reduce the loss to the state of its agricultural resources by limiting the circumstances under which agricultural operations may be deemed to be a nuisance.
B. It is the intent of the Owyhee County Board of Commissioners and the Planning and Zoning Commission to uphold, support, and enforce the RIGHT TO FARM ACT.
C. The County of Owyhee fully supports and permits "agricultural operations" as defined in IDAHO CODE 22-4502, Definitions, when operated in accordance with generally recognized agricultural practices which includes conformity with Federal, State, and local laws and regulations and when not adversely affecting public health and safety.

I acknowledge Idaho's RIGHT TO FARM, and I accept the agricultural environment they protect and do agree to live within said environment.

Name: Dan Mori Date: 4-28-20

Name: Date:

Address: 31587 Thatsamori Pl, Bruneau, ID

Zip: 83604

Legal Section: 22,23 Township: 04E Range 07S

Assessor's Parcel Number: 231200, 231201

STATE OF IDAHO, County of Owyhee ss.

On this 28th day of April, 2020, before me, the undersigned, a Notary Public in and for said State, personally appeared:

Dan Mori

Known or identified to me to be the person(s) whose name(s) is/are subscribed to the within instrument, and acknowledged to me that he/she/they executed the same

Signature: Brook Russell

Name: Brook Russell

Residing Melba, Idaho at:

My Commission expires: 4.23.25

