

PLANNING & DEVELOPMENT

600 West Fourth Street

Davenport, Iowa 52801-1106

Office: (563) 326-8643 Fax: (563) 326-8257

Email: planning@scottcountyiowa.com

Item 5

3/29/2022



Chris Mathias, Director

To: Mahesh Sharma, County Administrator

From: Chris Mathias, Planning Director

Date: March 21, 2022

Re: County review and public hearing on the Construction Permit Application of Sievers Family Farms, LLC in the S½NE¼ of Section 32, T80N, R1E (Liberty Township), which has submitted an application to the Iowa Department of Natural Resources (IDNR) for a construction permit for the expansion of an existing confined animal feeding operation, also known as Glenora Feed Yard at 26618 20th Avenue in unincorporated Scott County.

Scott County's adoption of the Master Matrix allows the County to review applications for State construction permits for confined animal feeding operations. The Master Matrix rewards points for additional separation distances above the State required minimums. Points are also rewarded based upon the design and operation of the site, such as the development of an emergency action plan, responsible manure application, among others. Points are awarded in the three categories of air, water, and community. A minimum score is required for each of these categories, with a total minimum score of 440 points required to pass the Matrix.

The IDNR notified Scott County it had received the application on March 18th, 2022. Scott County has 30 days from the date the IDNR notifies the County that it has received the application to submit comments and a recommendation on that application. Notice of the receipt of this application, as well as notice of a public hearing to be held on the application at the March 31st Board meeting, were published in two area newspapers (*North Scott Press*, *Quad City Times*) as required by the IDNR. A public hearing is not required by the IDNR rules, but the Board of Supervisors has the option to hold such hearings. The Board has held a public hearing on all such applications.

Glenora Feed Yard is an existing operation that was approved for 4,888 head of cattle in four confinement barns along with an anaerobic digester and two earthen storage basins. Approximately half the site was built with two of the four confinement barns and one of the two earthen basins constructed. At this time, the applicant would like to build another anaerobic digester consisting of a covered earthen basin with an HDPE liner and cover along with all the associated manure pumps and pipelines. There are no other changes proposed to the site. The site is not reapplying for the construction of the two additional confinement barns and therefore is reducing its permitted number of head down to 2,444 head of finishing cattle.

PLANNING & DEVELOPMENT

600 West Fourth Street

Davenport, Iowa 52801-1106

Office: (563) 326-8643 Fax: (563) 326-8257

Email: planning@scottcountyiowa.com



Chris Mathias, Director

In reviewing the submitted application, this expansion meets the minimum required points to pass the Matrix. Glenora Feed Yard took 455 total points, 15 more than the required minimum of 440 points. The application meets the minimum scores for each of the three categories of air, water, and community.

There are no businesses, churches, schools, no ag drainage wells, no surface intakes for ag drainage wells, and no designated wetlands within one mile of the site. The closest residence to the site is 1,909' away and the distance to the right of way is 1,751'.

Staff has not, as of yet, received any calls or emails regarding this request. Staff will include any written comments and a summary of any verbal comments received at the public hearing with the Board's recommendation to the IDNR. In addition to publishing public notice, staff has also mailed notice of the public hearing to property owners within 500 feet of the property.

Planning Staff will accompany the Health Dept. inspector to inspect the site and will report on that inspection and provide a recommendation at the Committee of the Whole meeting on Tuesday April 12th.

PLANNING & DEVELOPMENT

600 West Fourth Street

Davenport, Iowa 52801-1106

E-mail: planning@scottcountyiowa.com

Office: (563) 326-8643

Fax: (563) 326-8257



NOTICE OF PUBLIC HEARING TO BE HELD BY THE SCOTT COUNTY BOARD OF SUPERVISORS FOR THE REVIEW OF AN APPLICATION FOR A STATE CONSTRUCTION PERMIT FOR THE EXPANSION OF AN EXISTING CONFINED ANIMAL FEEDING OPERATION

Public Notice is hereby given that the Scott County Board of Supervisors will hold a public hearing on **Thursday, March 31, 2022**, in the Board Room in the Scott County Administrative Center, 600 West 4th Street, Davenport, Iowa, during their regular meeting which starts promptly at **5:00 P.M.**

The Scott County Board of Supervisors will review and hear public comments on the State of Iowa Construction Permit application of Sievers Family Farms LLC. in the S ½ of NE ¼ of Section 32, T80N, R1E (Liberty Township) for the expansion of an existing confined animal feeding operation. The addresses of the subject property is 26618 20th Avenue, Stockton, Iowa 52769.

The existing confined animal feeding operation has an Animal Unit Capacity (AUC) of 2,444. The proposed expansion would not impact the capacity, but since the capacity is over 1,667 AUC, a master matrix evaluation is required. The expansion would include the construction of a covered earthen plug-flow digester, which will be constructed with a clay liner, then four (4) inches of insulation, and then an HDPE liner over the insulation in order to capture the methane gas.

A copy of the application is on file with the Scott County Planning and Development Department and is available for review prior to the hearing during normal working hours 8:00 AM to 4:30 PM, Monday through Friday. If you have questions or want further information please call or write the Planning and Development Department, Administrative Center, 600 West Fourth Street, Davenport, Iowa 52801, 563-326-8643, or attend the hearing.

Written, faxed or emailed comments for the Board of Supervisors may be delivered or sent to the Scott County Planning and Development Department in advance of the public hearing. All comments will be forwarded to the Iowa Department of Natural Resources. The fax number for Scott County Planning and Development is 563-326-8257 and the email address is planning@scottcountyiowa.com

Chris Mathias
Director

PLANNING & DEVELOPMENT

600 West Fourth Street

Davenport, Iowa 52801-1106

E-mail: planning@scottcountyiowa.com

Office: (563) 326-8643

Fax: (563) 326-8257



**PUBLIC NOTICE TO ALLOW FOR REVIEW AND COMMENT ON AN
APPLICATION FOR A STATE CONSTRUCTION PERMIT
FOR THE EXPANSION OF AN EXISTING
ANIMAL CONFINEMENT FEEDING OPERATION**

The Scott County Board of Supervisors has on file an application for a State of Iowa construction permit that has been submitted to the Iowa Department of Natural Resources for the expansion of an existing animal (cattle) confinement feeding operation in Scott County.

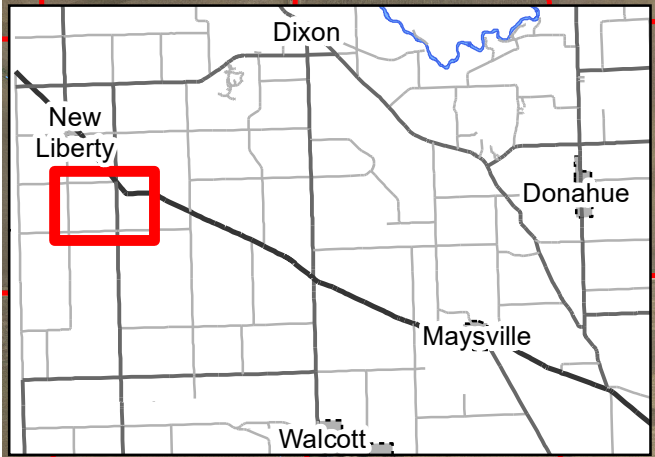
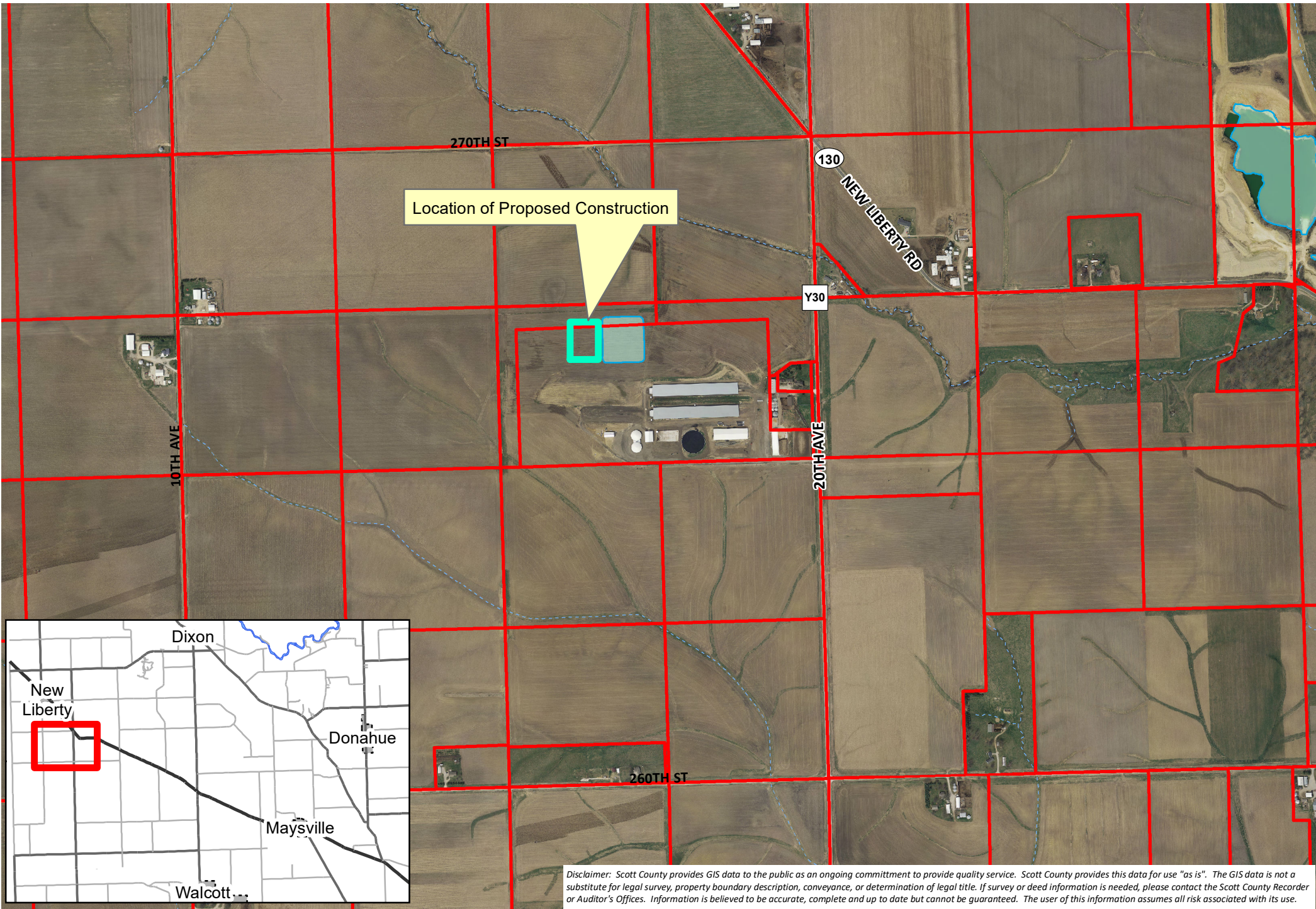
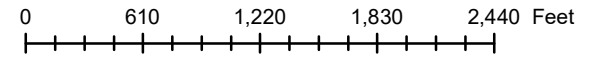
Name of Applicant:	Sievers Family Farms LLC, applicant Glenora Feed Yard, LLC
Address	26618 20 th Avenue Stockton, Iowa 52769
Location of operation	S ½ of NE ¼ of Section 32, T80N, R1E (Liberty Township)
Description of application	The existing confined animal feeding operation has an Animal Unit Capacity (AUC) of 2,444. The proposed expansion would not impact the capacity, but since the capacity is over 1,667 AUC, a master matrix evaluation is required. The expansion would include the construction of a covered earthen plug-flow digester, which will be constructed with a clay liner, then four (4) inches of insulation, and then an HDPE liner over the insulation in order to capture the methane gas
Examination:	The application for a State Construction Permit and associated manure management plan is on file with the Scott County Planning and Development Department located at 600 West 4 th Street, Davenport, Iowa and is available for review by the public during normal working hours 8 AM to 4:30 PM, Monday through Friday.
Comments:	Written, faxed or emailed comments for the Board of Supervisors may be delivered or sent to the Scott County Planning and Development Department until Thursday, March 31, 2022 at 4:00 PM. All comments will be forwarded to the Iowa Department of Natural Resources. The fax number for Planning and Development is 563-326-8257 and the email address is planning@scottcountyiowa.com
Additional Information:	Chris Mathias, Planning and Development Director 600 West 4 th Street Davenport, Iowa 52801 563-326-8643



Location of Glenora Feed Yard Construction

Scott County, Iowa

1 inch = 1,000 feet



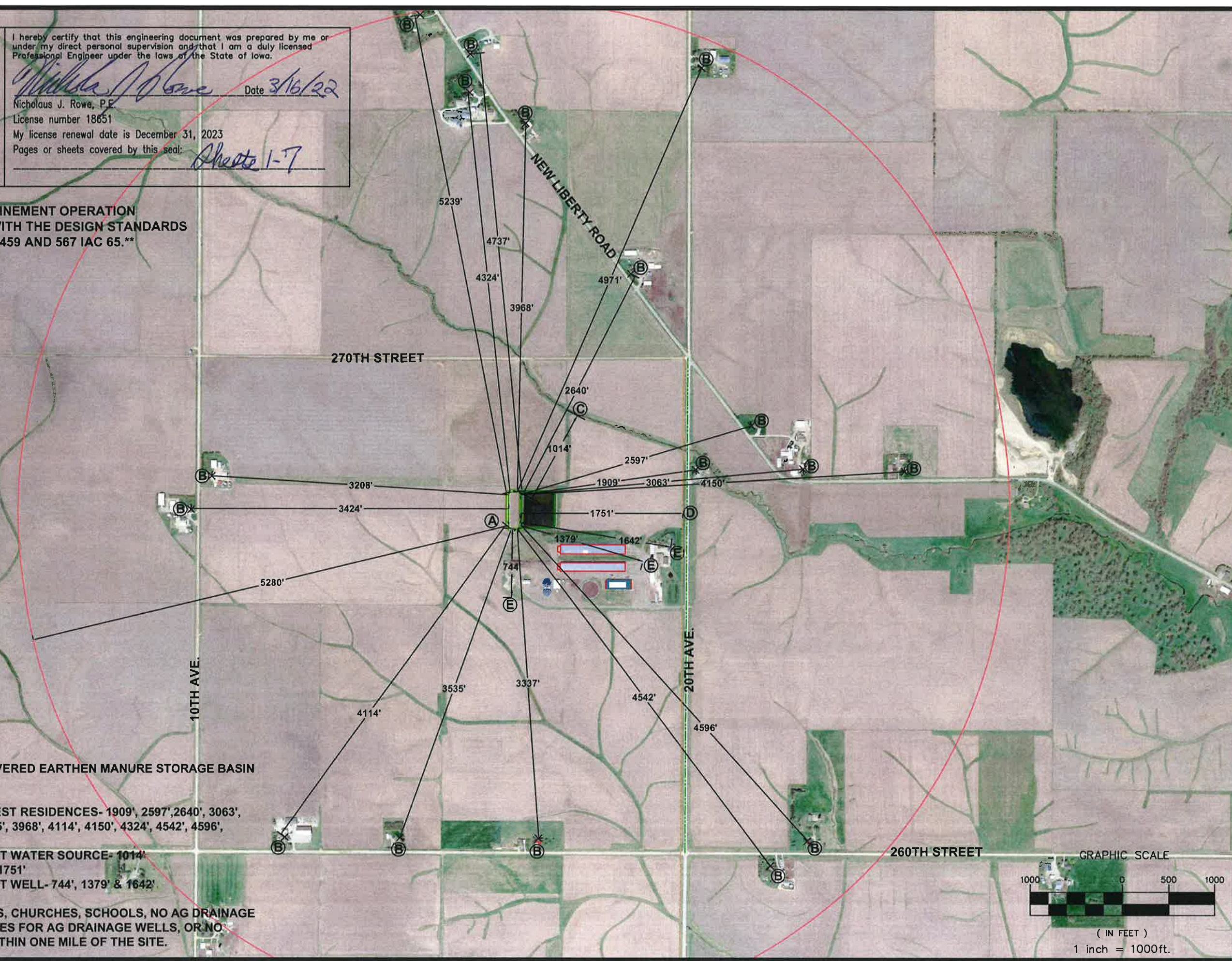
Disclaimer: Scott County provides GIS data to the public as an ongoing commitment to provide quality service. Scott County provides this data for use "as is". The GIS data is not a substitute for legal survey, property boundary description, conveyance, or determination of legal title. If survey or deed information is needed, please contact the Scott County Recorder or Auditor's Offices. Information is believed to be accurate, complete and up to date but cannot be guaranteed. The user of this information assumes all risk associated with its use.



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Nicholas J. Rowe Date *3/16/22*
 Nicholas J. Rowe, P.E.
 License number 18651
 My license renewal date is December 31, 2023
 Pages or sheets covered by this seal: *Sheets 1-7*

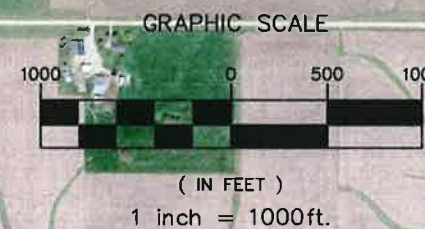
****THE PROPOSED CONFINEMENT OPERATION STRUCTURES COMPLY WITH THE DESIGN STANDARDS OF IOWA CODE SECTION 459 AND 567 IAC 65.****



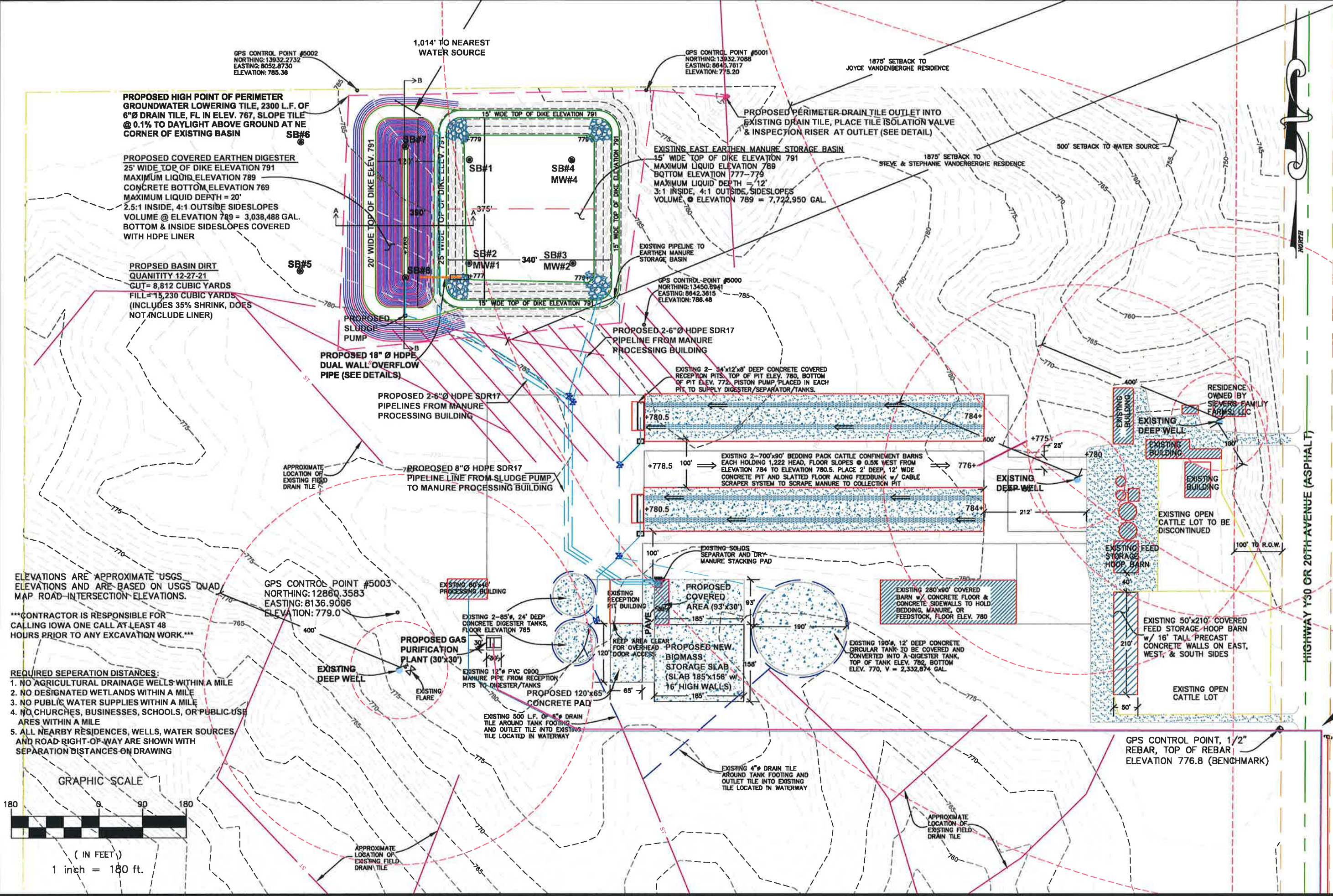
KEY FOR AERIAL PHOTO

- PROPOSED COVERED EARTHEN MANURE STORAGE BASIN
- A. BASIN LOCATION
- B. DISTANCES TO NEAREST RESIDENCES- 1909', 2597', 2640', 3063', 3208', 3337', 3424', 3535', 3968', 4114', 4150', 4324', 4542', 4596', 4737', 4971' & 5239'
- C. DISTANCE TO NEAREST WATER SOURCE- 1014'
- D. DISTANCE TO R.O.W.- 1751'
- E. DISTANCE TO NEAREST WELL- 744', 1379' & 1642'

THERE ARE NO BUSINESSES, CHURCHES, SCHOOLS, NO AG DRAINAGE WELLS, NO SURFACE INTAKES FOR AG DRAINAGE WELLS, OR NO DESIGNATED WETLANDS WITHIN ONE MILE OF THE SITE.



SHEET 1/7	
Project No.	09-074
Checked By	N.J.R.
Date	3/14/22
Drawn	D.D.A.
GLENORA FEED YARD, LLC MILE RADIUS MAP NE 1/4, SECTION 32 T-80-N, R-1-E SCOTT COUNTY, IOWA	
ProAg Engineering, Inc. 507 Milwaukee Street Lakefield, MN 56150 (507) 662-5538	

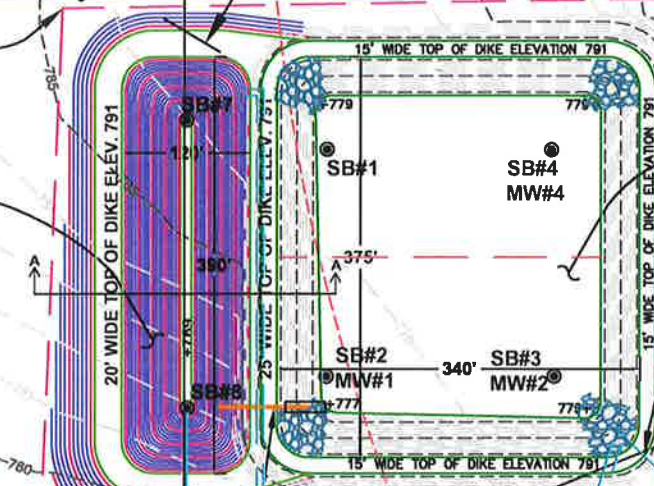


GPS CONTROL POINT #5002
NORTHING: 13932.2732
EASTING: 8052.8730
ELEVATION: 785.38

PROPOSED HIGH POINT OF PERIMETER GROUNDWATER LOWERING TILE, 2300 L.F. OF 6"Ø DRAIN TILE, FL IN ELEV. 767, SLOPE TILE @ 0.1% TO DAYLIGHT ABOVE GROUND AT NE CORNER OF EXISTING BASIN SB#6

PROPOSED COVERED EARTHEN DIGESTER
25' WIDE TOP OF DIKE ELEVATION 791
MAXIMUM LIQUID ELEVATION 789
CONCRETE BOTTOM ELEVATION 769
MAXIMUM LIQUID DEPTH = 20'
2.5:1 INSIDE, 4:1 OUTSIDE SIDESLOPES
VOLUME @ ELEVATION 789 = 3,038,488 GAL.
BOTTOM & INSIDE SIDESLOPES COVERED WITH HDPE LINER

PROPOSED BASIN DIRT
QUANTITY 12-27-21
CUT = 8,812 CUBIC YARDS
FILL = 15,230 CUBIC YARDS
(INCLUDES 35% SHRINK, DOES NOT INCLUDE LINER)



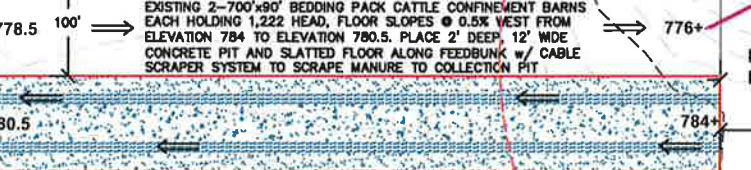
EXISTING EAST EARTHEN MANURE STORAGE BASIN
15' WIDE TOP OF DIKE ELEVATION 791
MAXIMUM LIQUID ELEVATION 789
BOTTOM ELEVATION 777-779
MAXIMUM LIQUID DEPTH = 12'
3:1 INSIDE, 4:1 OUTSIDE SIDESLOPES
VOLUME @ ELEVATION 789 = 7,722,950 GAL.

PROPOSED 2-6"Ø HDPE SDR17 PIPELINE FROM MANURE PROCESSING BUILDING

EXISTING 2-34"x12"x8' DEEP CONCRETE COVERED RECEPTION PITS, TOP OF PIT ELEV. 780, BOTTOM OF PIT ELEV. 772. PISTON PUMP PLACED IN EACH PIT TO SUPPLY DIGESTER/SEPARATOR/TANKS.

PROPOSED 2-6"Ø HDPE SDR17 PIPELINES FROM MANURE PROCESSING BUILDING

PROPOSED 8"Ø HDPE SDR17 PIPELINE LINE FROM SLUDGE PUMP TO MANURE PROCESSING BUILDING



EXISTING 2-700'x90' BEDDING PACK CATTLE CONFINEMENT BARN
EACH HOLDING 1,222 HEAD, FLOOR SLOPES @ 0.5% WEST FROM ELEVATION 784 TO ELEVATION 780.5. PLACE 2' DEEP, 12' WIDE CONCRETE PIT AND SLATTED FLOOR ALONG FEEDBUNK w/ CABLE SCRAPER SYSTEM TO SCRAPE MANURE TO COLLECTION PIT

EXISTING SOLIDS SEPARATOR AND DRY MANURE STACKING PAD

EXISTING 2-85'x24' DEEP CONCRETE DIGESTER TANKS, FLOOR ELEVATION 785

EXISTING 12"Ø PVC C900 MANURE PIPE FROM RECEPTION PITS TO DIGESTER/TANKS

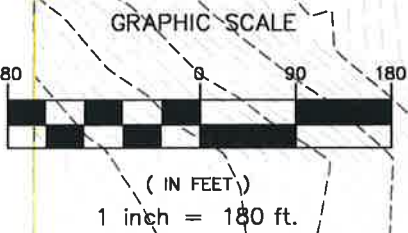
EXISTING 500 L.F. OF 4"Ø DRAIN TILE AROUND TANK FOOTING AND OUTLET TILE INTO EXISTING TILE LOCATED IN WATERWAY

EXISTING 4"Ø DRAIN TILE AROUND TANK FOOTING AND OUTLET TILE INTO EXISTING TILE LOCATED IN WATERWAY

ELEVATIONS ARE APPROXIMATE USGS ELEVATIONS AND ARE BASED ON USGS QUAD MAP ROAD-INTERSECTION ELEVATIONS.

CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA ONE CALL AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.

- REQUIRED SEPERATION DISTANCES:**
1. NO AGRICULTURAL DRAINAGE WELLS WITHIN A MILE
 2. NO DESIGNATED WETLANDS WITHIN A MILE
 3. NO PUBLIC WATER SUPPLIES WITHIN A MILE
 4. NO CHURCHES, BUSINESSES, SCHOOLS, OR PUBLIC USE AREAS WITHIN A MILE
 5. ALL NEARBY RESIDENCES, WELLS, WATER SOURCES AND ROAD RIGHT-OF-WAY ARE SHOWN WITH SEPERATION DISTANCES ON DRAWING



GPS CONTROL POINT #5003
NORTHING: 12860.3583
EASTING: 8136.9006
ELEVATION: 779.0

EXISTING DEEP WELL

EXISTING FLARE

EXISTING 60'x44' PROCESSING BUILDING

PROPOSED GAS PURIFICATION PLANT (30'x30')

EXISTING 120'x65' CONCRETE PAD

PROPOSED NEW BIOMASS STORAGE SLAB (SLAB 185'x158' w/ 16" HIGH WALLS)

EXISTING 190'Ø, 12' DEEP CONCRETE CIRCULAR TANK TO BE COVERED AND CONVERTED INTO A DIGESTER TANK, TOP OF TANK ELEV. 782, BOTTOM ELEV. 770, V = 2,332,874 GAL.

EXISTING 280'x90' COVERED BARN w/ CONCRETE FLOOR & CONCRETE SIDEWALLS TO HOLD BEDDING, MANURE, OR FEEDSTOCK, FLOOR ELEV. 780

EXISTING 50'x210' COVERED FEED STORAGE HOOP BARN w/ 16' TALL PRECAST CONCRETE WALLS ON EAST, WEST, & SOUTH SIDES

EXISTING OPEN CATTLE LOT

GPS CONTROL POINT, 1/2" REBAR, TOP OF REBAR ELEVATION 776.8 (BENCHMARK)

HIGHWAY Y30 OR 20TH AVENUE (ASPHALT)





GPS CONTROL POINT #5002
NORTHING: 13932.2732
EASTING: 8052.8730
ELEVATION: 785.36

1,014' TO NEAREST
WATER SOURCE

GPS CONTROL POINT #5001
NORTHING: 13932.7088
EASTING: 8645.7617
ELEVATION: 775.20

**PROPOSED HIGH POINT OF PERIMETER
GROUNDWATER LOWERING TILE, 2300 L.F. OF
6"Ø DRAIN TILE, FL IN ELEV. 767, SLOPE TILE
@ 0.1% TO DAYLIGHT ABOVE GROUND AT NE
CORNER OF EXISTING BASIN**

**PROPOSED PERIMETER
DRAIN TILE OUTLET
INTO EXISTING DRAIN
TILE, PLACE TILE
ISOLATION VALVE &
INSPECTION RISER AT
OUTLET (SEE DETAIL)**

**PROPOSED COVERED EARTHEN DIGESTER
25' WIDE TOP OF DIKE ELEV. 791
MAXIMUM LIQUID ELEVATION 789
CONCRETE BOTTOM ELEVATION 769
MAXIMUM LIQUID DEPTH = 20'
2.5:1 INSIDE, 4:1 OUTSIDE SIDESLOPES
VOLUME @ ELEVATION 789 = 3,038,488 GAL.
BOTTOM & INSIDE SIDESLOPES COVERED
WITH HDPE LINER**

**EXISTING EAST EARTHEN MANURE STORAGE BASIN
15' WIDE TOP OF DIKE ELEVATION 791
MAXIMUM LIQUID ELEVATION 789
BOTTOM ELEVATION 777-779
MAXIMUM LIQUID DEPTH = 12'
3:1 INSIDE, 4:1 OUTSIDE SIDESLOPES
VOLUME @ ELEVATION 789 = 7,722,950 GAL.**

**PROPOSED BASIN DIRT
QUANTITY 12-27-21
CUT= 8,812 CUBIC YARDS
FILL= 15,230 CUBIC YARDS
(INCLUDES 35% SHRINK, DOES
NOT INCLUDE LINER)**

EXISTING PIPELINE TO
EARTHEN MANURE
STORAGE BASIN

GPS CONTROL POINT #5000
NORTHING: 13450.6941
EASTING: 8642.3615
ELEVATION: 786.48

PROPOSED
SLUDGE
PUMP

**PROPOSED 2-6"Ø HDPE SDR17
PIPELINE FROM MANURE
PROCESSING BUILDING**

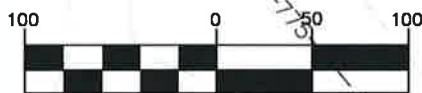
EXISTING 2- 54'x12'x8' DEEP CONCRETE COVERED
RECEPTION PITS. TOP OF PIT ELEV. 780, BOTTOM
OF PIT ELEV. 772. PISTON PUMP PLACED IN EACH
PIT TO SUPPLY DIGESTER/SEPARATOR/TANKS.

**PROPOSED 18" Ø HDPE
DUAL WALL OVERFLOW
PIPE (SEE DETAILS)**

**PROPOSED 2-6"Ø HDPE SDR17
PIPELINES FROM MANURE
PROCESSING BUILDING**

+780.5

GRAPHIC SCALE



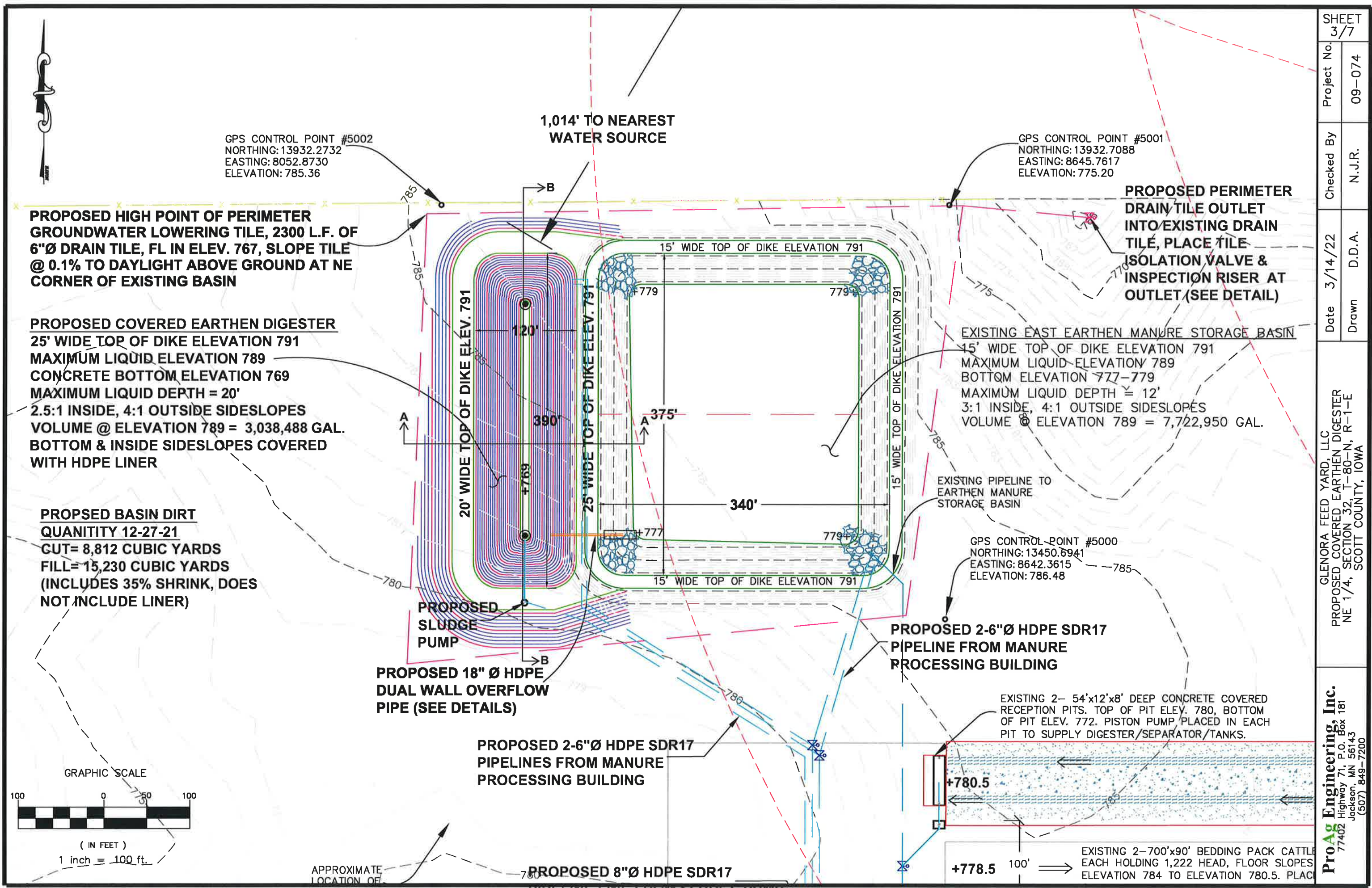
(IN FEET)
1 inch = 100 ft.

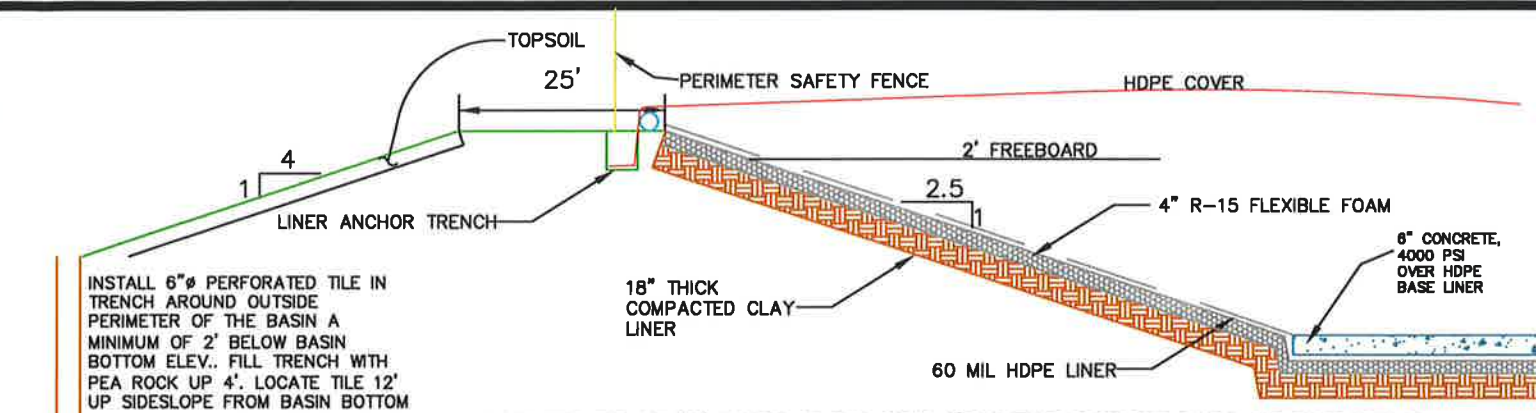
APPROXIMATE
LOCATION OF

PROPOSED 8"Ø HDPE SDR17

+778.5

EXISTING 2-700'x90' BEDDING PACK CATTLE
EACH HOLDING 1,222 HEAD, FLOOR SLOPES
ELEVATION 784 TO ELEVATION 780.5. PLAC



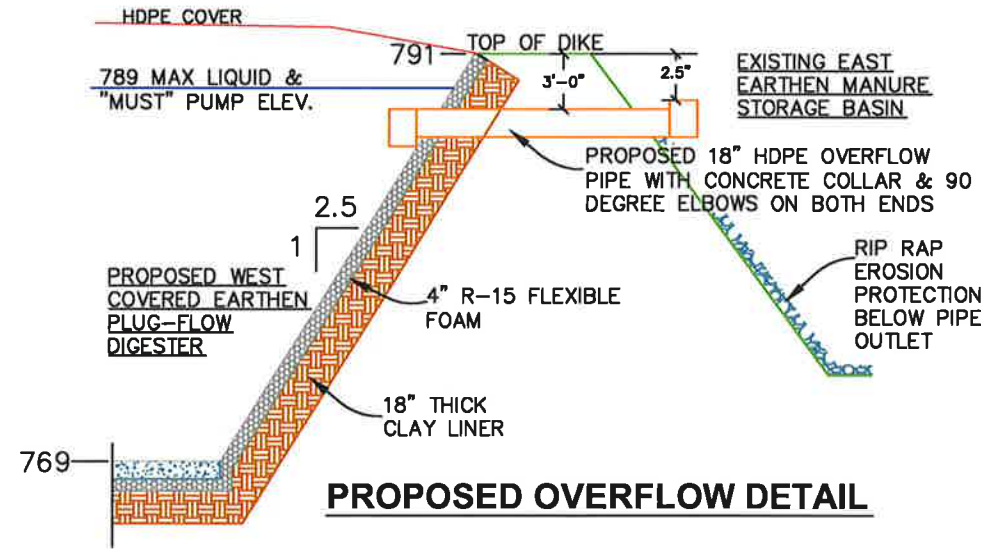
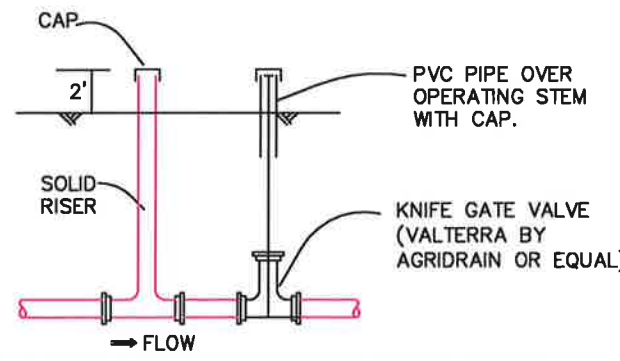


1. REMOVE TOP SIX (6) INCHES OF SOIL OVER AREAS THAT PROPOSED BASIN AND DIKES WILL BE BUILT, REMOVE ALL VEGETATION.
2. REMOVE TOP 48 INCHES OF SANDY SILTY CLAY & STOCKPILE FOR 24\"/>

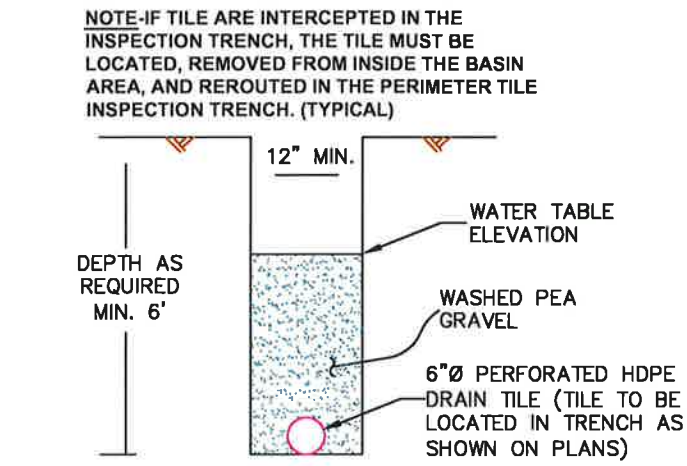
DIKE & BASIN CONSTRUCTION DETAIL
(NOT TO SCALE)



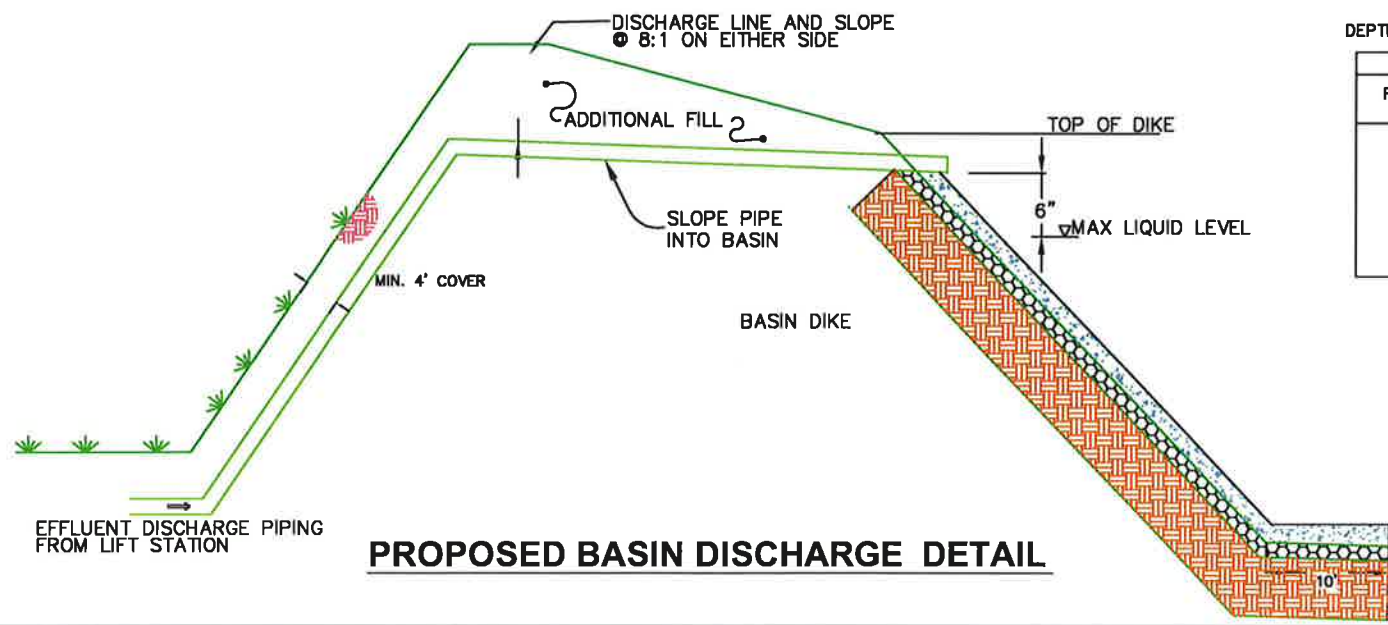
TILE ISOLATION AND MONITORING POINT DETAIL



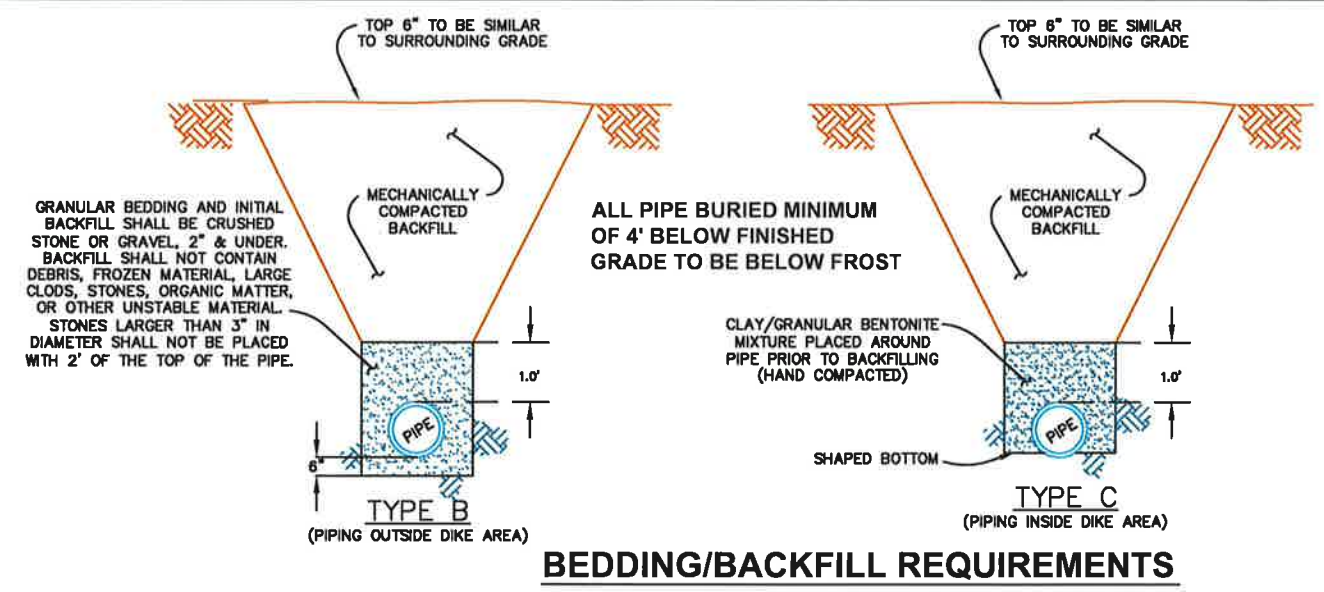
PROPOSED OVERFLOW DETAIL



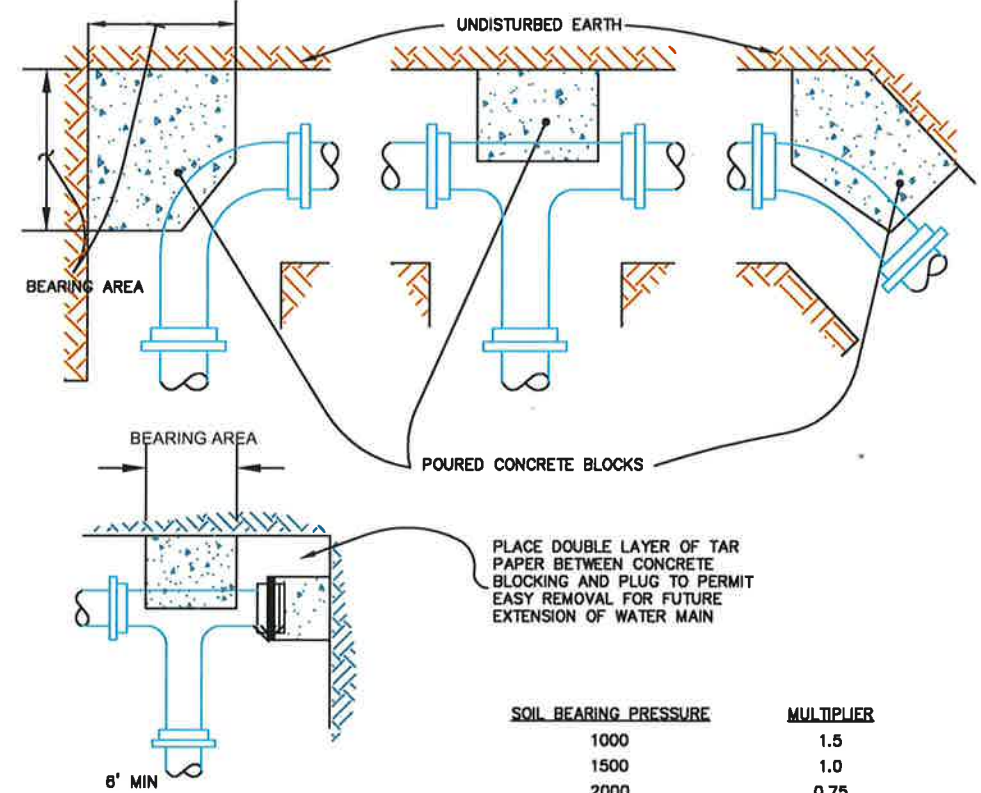
PERIMETER DRAIN TILE AND INSPECTION TRENCH DETAIL



PROPOSED BASIN DISCHARGE DETAIL



BEDDING/BACKFILL REQUIREMENTS



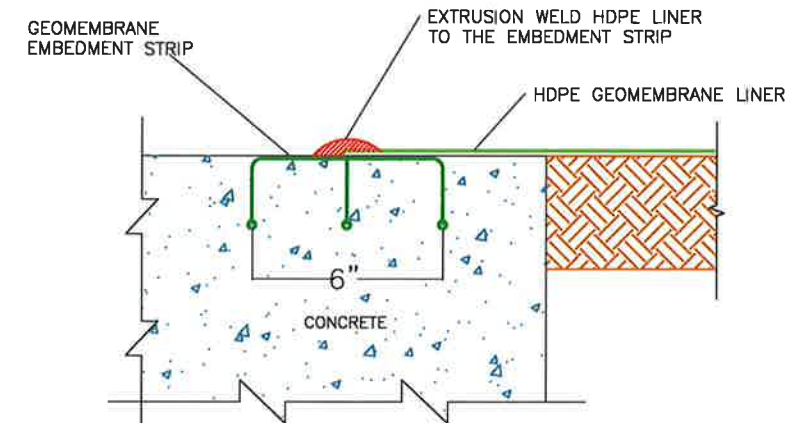
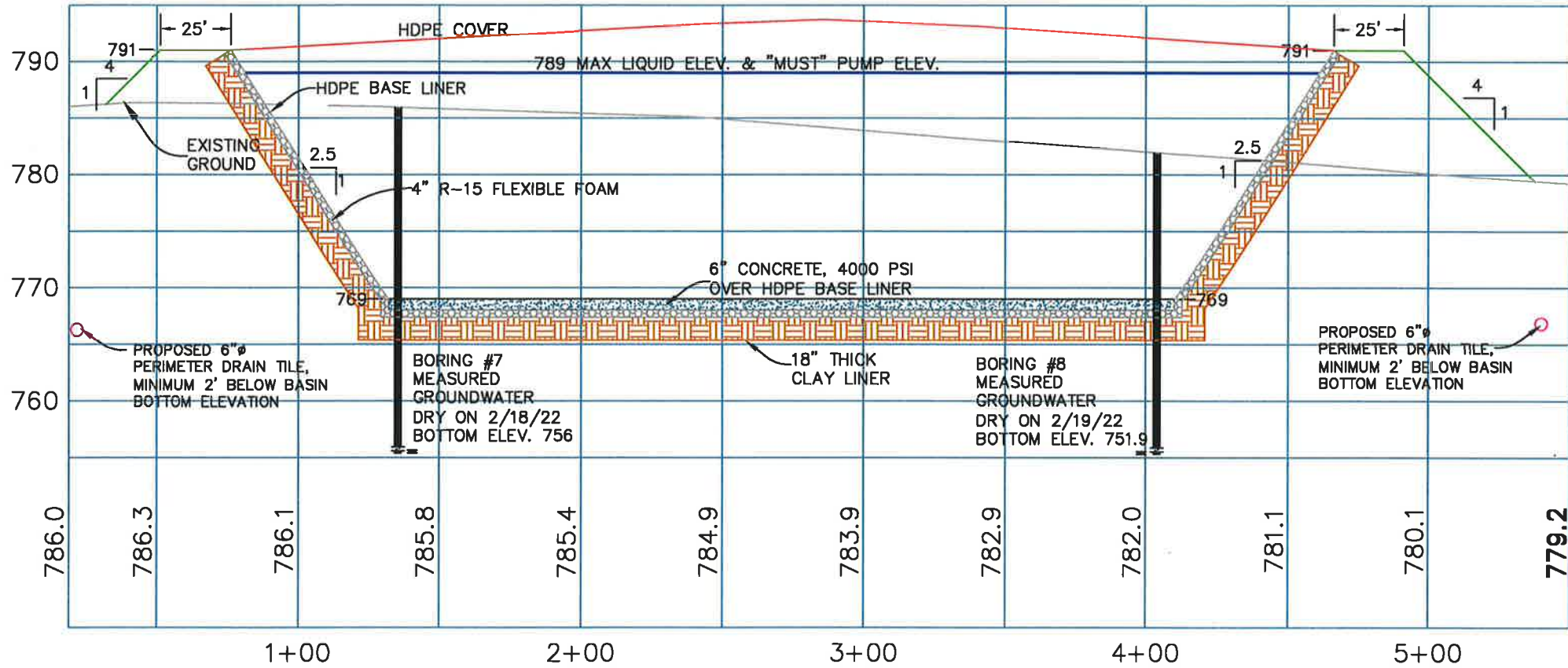
SOIL BEARING PRESSURE	MULTIPLIER
1000	1.5
1500	1.0
2000	0.75
3000	0.50

FITTING SIZES	BEARING AREA OF BLOCKS IN SQ. FT.					MIN. T (INCHES)
	TEE & END	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	
3"	1.0	1.33	0.87	0.4	0.25	4"
4"	1.87	2.4	1.1	0.67	0.4	6"
6"	3.75	5.4	2.5	1.5	0.8	8"
8"	6.7	9.5	5.2	2.7	1.33	12"
10"	10.5	15.0	7.0	4.1	2.0	16"
12"	15.1	21.6	10.1	5.9	2.9	18"

THRUST BLOCK DETAIL

CROSS SECTION B-B

PROPOSED COVERED EARTHEN PLUG-FLOW DIGESTER

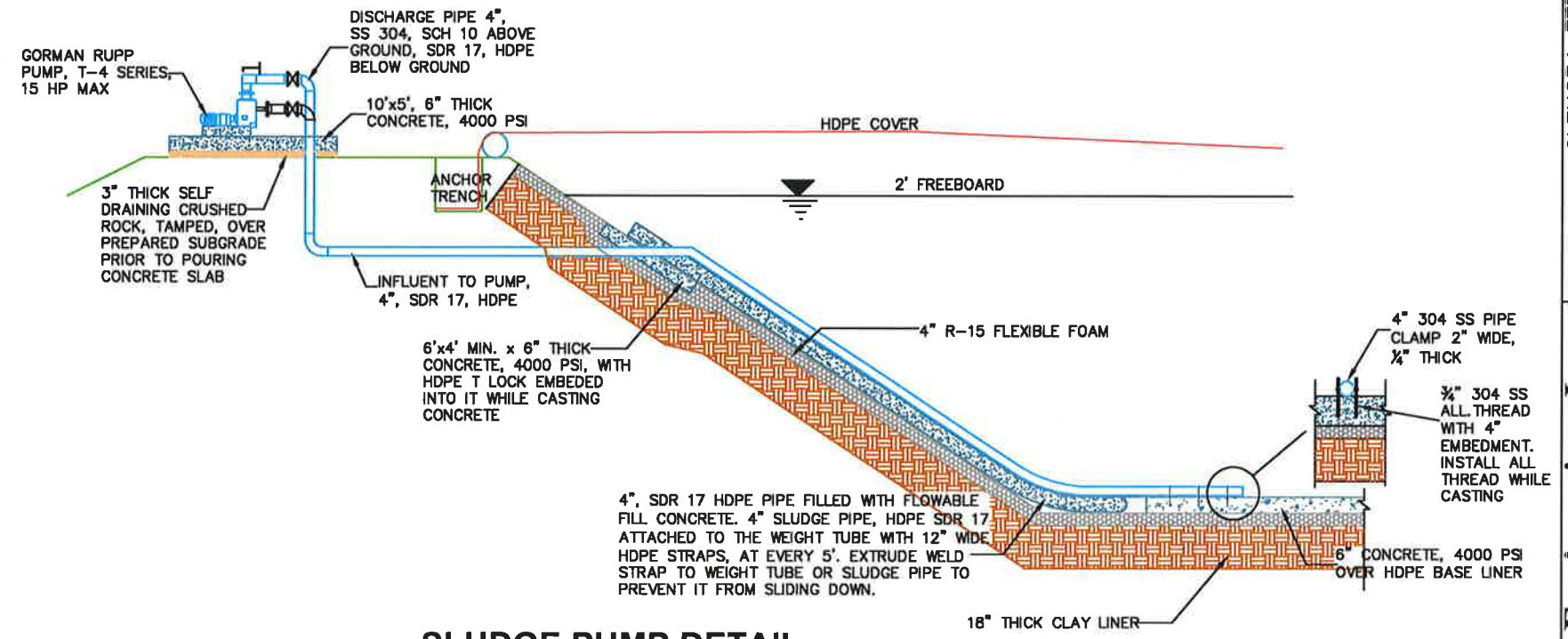
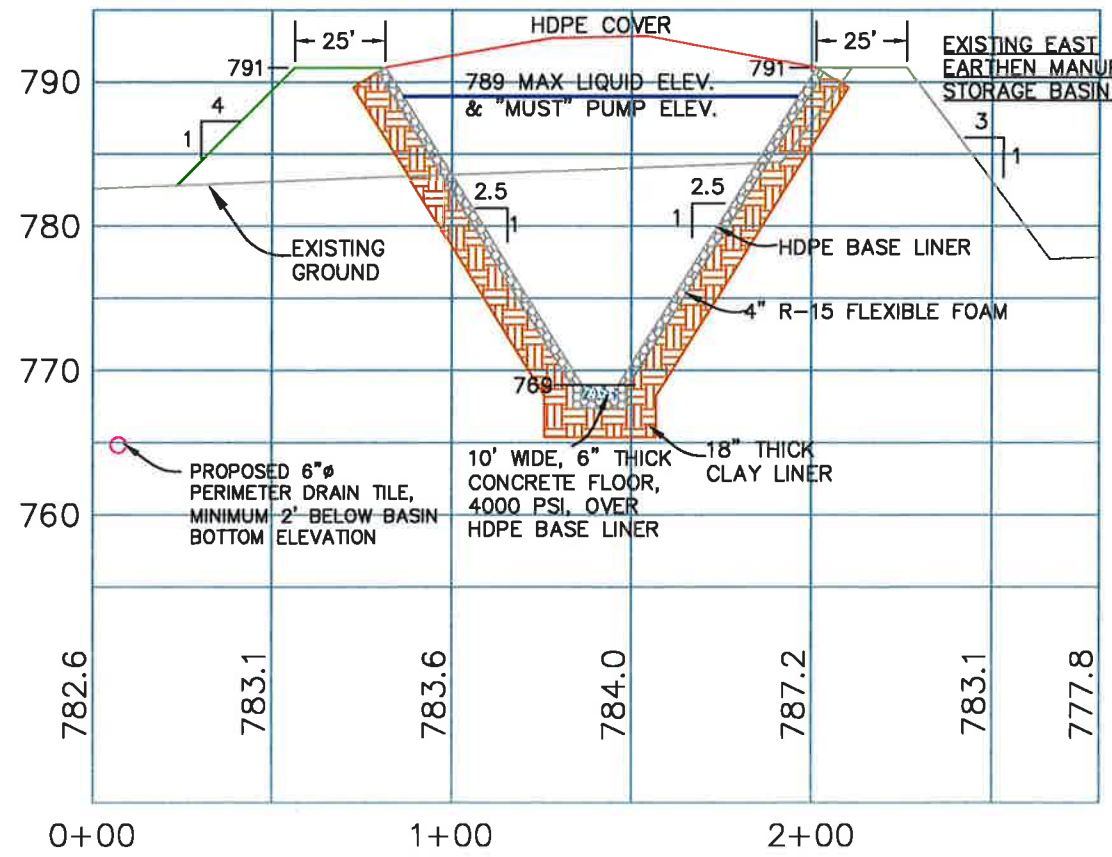


- NOTES:**
1. THE EMBEDMENT STRIP SHOWN IS AN EXAMPLE CROSS SECTION FROM ONE MANUFACTURER. THE EMBEDMENT STRIP SHALL BE PREMANUFACTURED AND SUPPLIED BY THE GEOMEMBRANE LINER PROVIDER OR OBTAINED FROM A SOURCE RECOMMENDED BY THE GEOMEMBRANE LINER PROVIDER.
 2. THE CONCRETE CONTRACTOR SHALL INSTALL THE EMBEDMENT STRIPS PER THE MANUFACTURER'S INSTALLATION SPECIFICATIONS.
 3. THE EMBEDMENT STRIPS SHALL BE FULLY EMBEDDED INTO THE CONCRETE WITH NO GAPS BETWEEN STRIPS.
 4. THE EMBEDMENT STRIPS SHALL BE STORED AT LOCATIONS WHERE EXCESSIVE HEAT OR SUNLIGHT WILL NOT CAUSE DEFORMATION OF THE STRIPS.

EMBEDMENT STRIP DETAIL

CROSS SECTION A-A

PROPOSED COVERED EARTHEN PLUG-FLOW DIGESTER



SLUDGE PUMP DETAIL

SHEET 5/7

Project No. 09-074

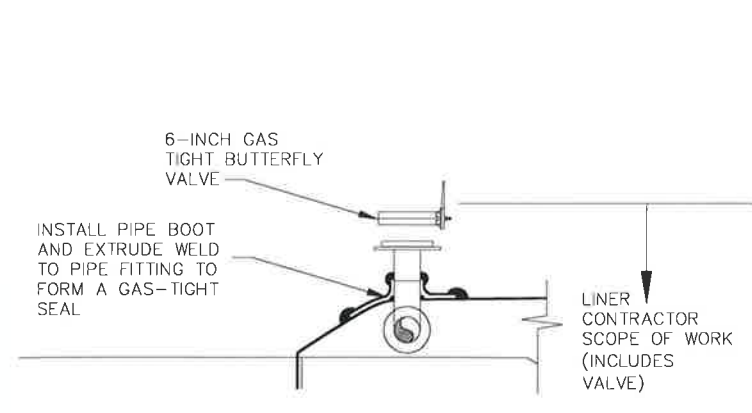
Checked By N.J.R.

Date 3/14/22

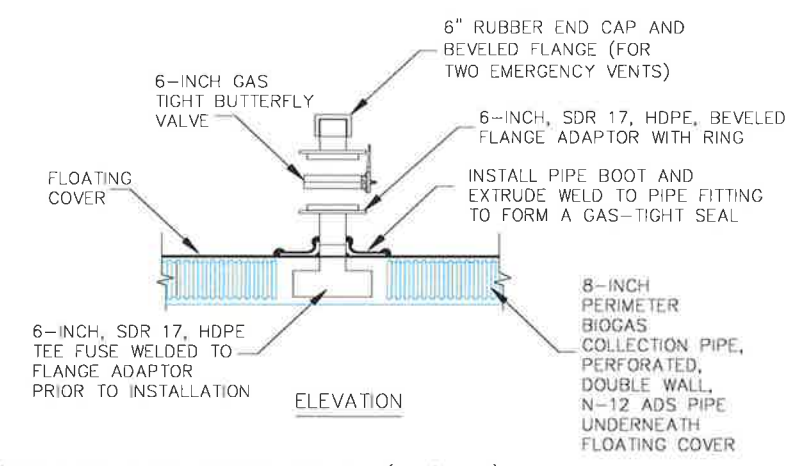
Drawn D.D.A.

GLENORA FEED YARD, LLC
PROPOSED COVERED EARTHEN DIGESTER
NE 1/4, SECTION 32, T-80-N, R-01-E
SCOTT COUNTY, IOWA

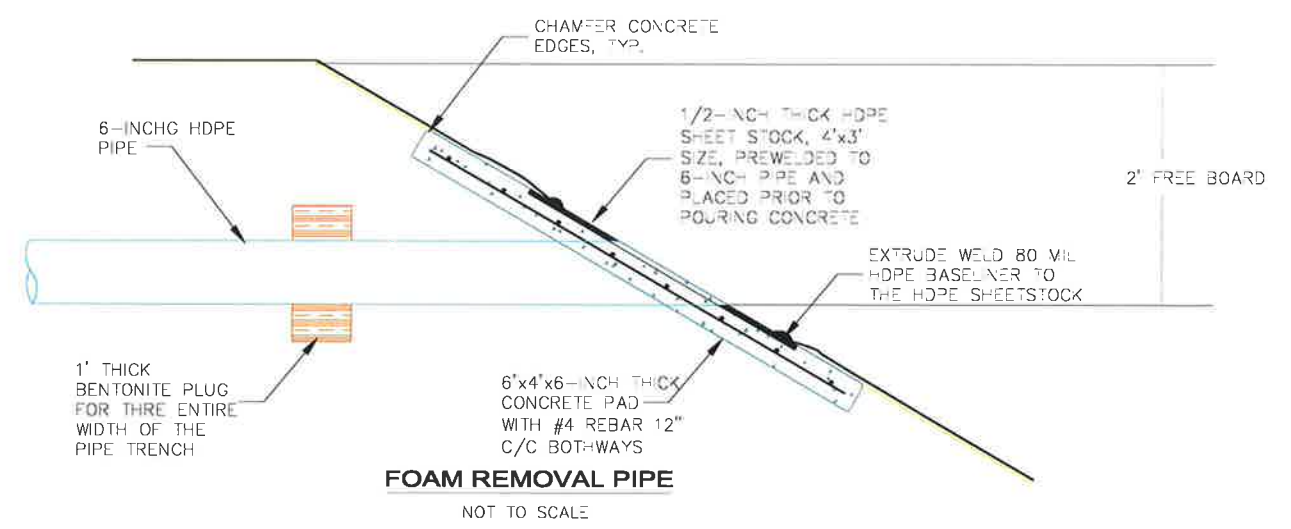
ProAg Engineering, Inc.
77402 Highway 71, P.O. Box 181
Jackson, MN 56143
(507) 849-7200



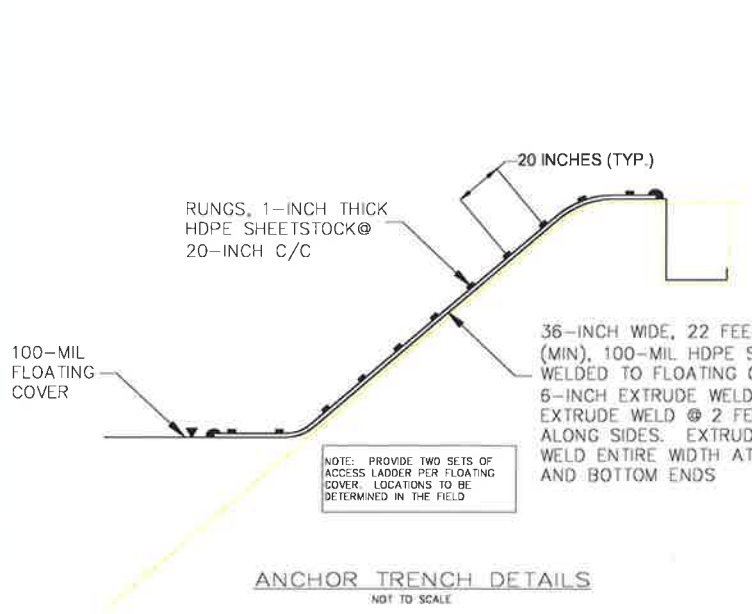
DETAIL - 1: BIOGAS EXTRACTION POINT AND EMERGENCY VENTS (6-INCH)
NTS



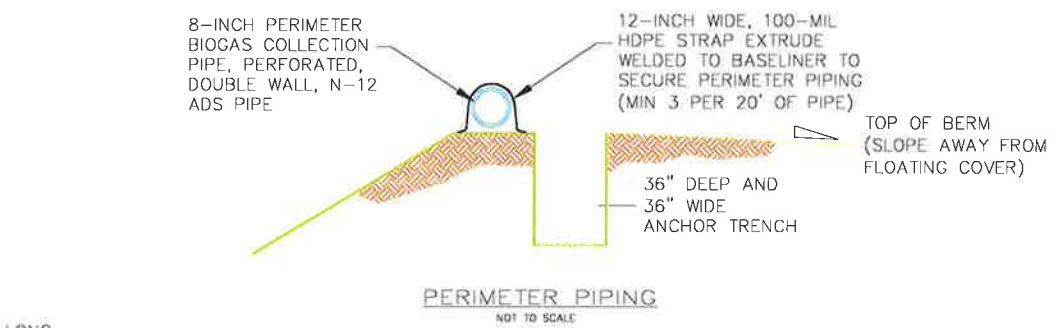
ELEVATION



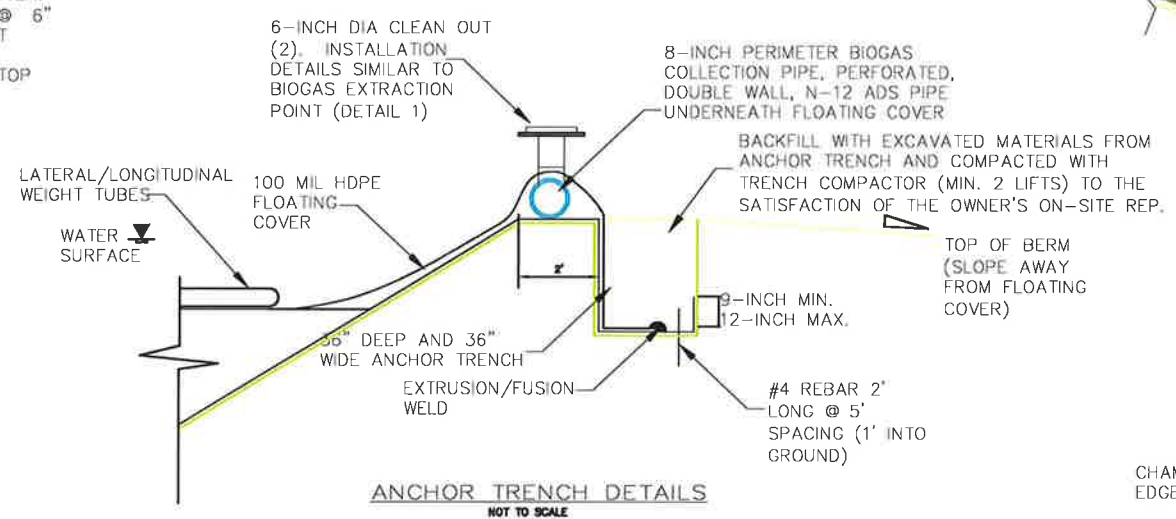
FOAM REMOVAL PIPE
NOT TO SCALE



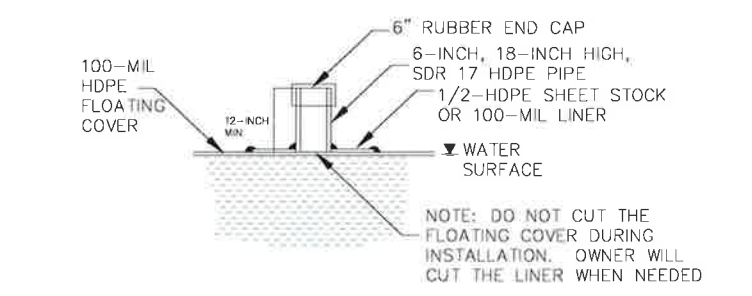
ANCHOR TRENCH DETAILS
NOT TO SCALE



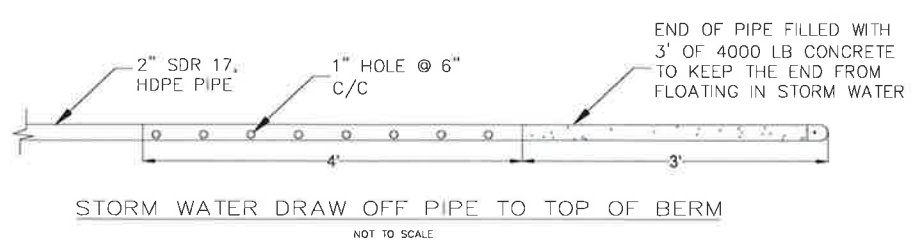
PERIMETER PIPING
NOT TO SCALE



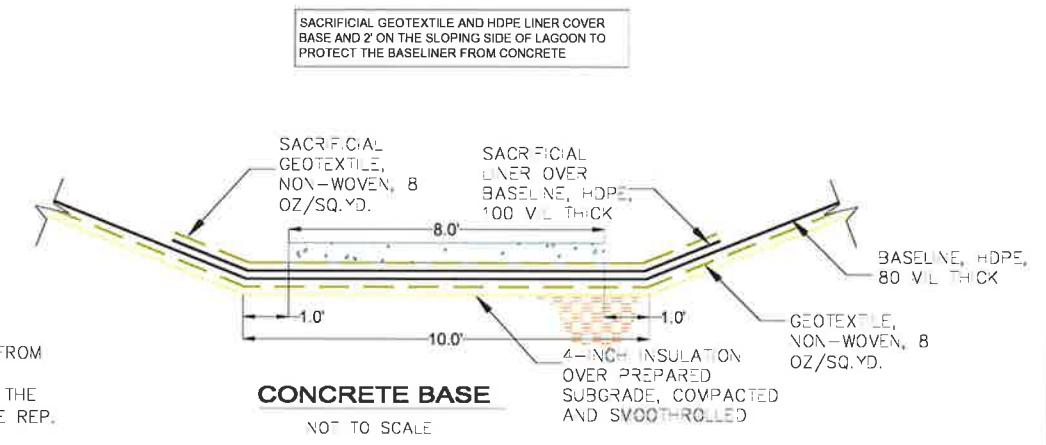
ANCHOR TRENCH DETAILS
NOT TO SCALE



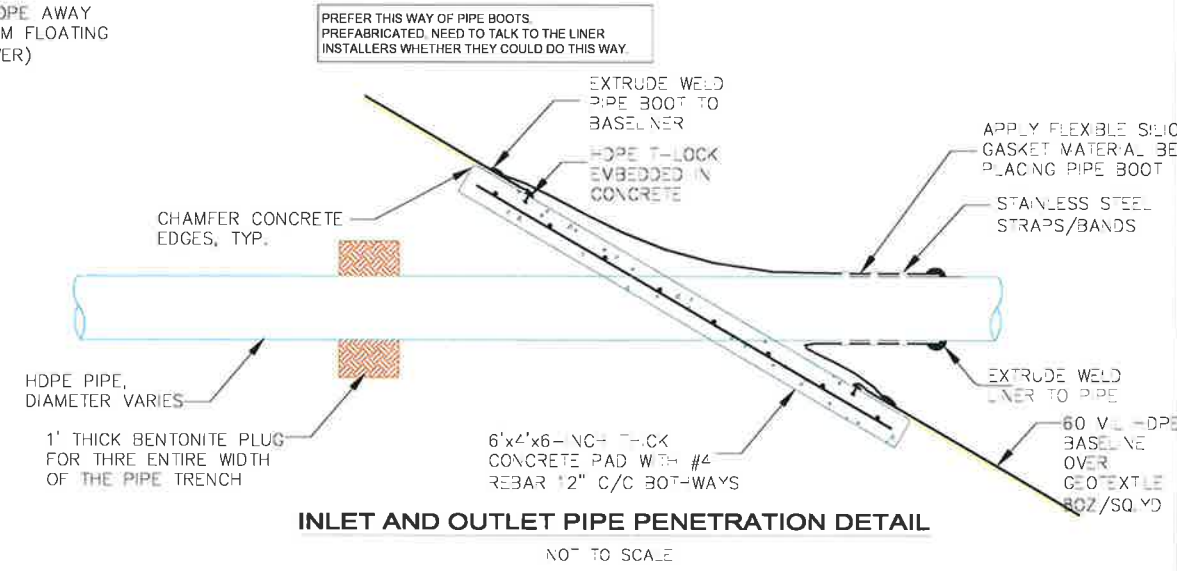
ACCESS POINTS FOR SLUDGE MEASUREMENTS
NOT TO SCALE



STORM WATER DRAW OFF PIPE TO TOP OF BERM
NOT TO SCALE



CONCRETE BASE
NOT TO SCALE



INLET AND OUTLET PIPE PENETRATION DETAIL
NOT TO SCALE

TWO MOBILIZATIONS REQUIRED FOR THE BASELINER INSTALLATION. ONE FOR INSTALLING THE BASELINER AND SACRIFICIAL LINERS AT THE BOTTOM AND THE OTHER ONE IS COMPLETING THE BASELINER AFTER THE COMPLETION OF THE CONCRETE INSTALLATION.

SACRIFICIAL GEOTEXTILE AND HDPE LINER COVER BASE AND 2 ON THE SLOPING SIDE OF LAGOON TO PROTECT THE BASELINER FROM CONCRETE

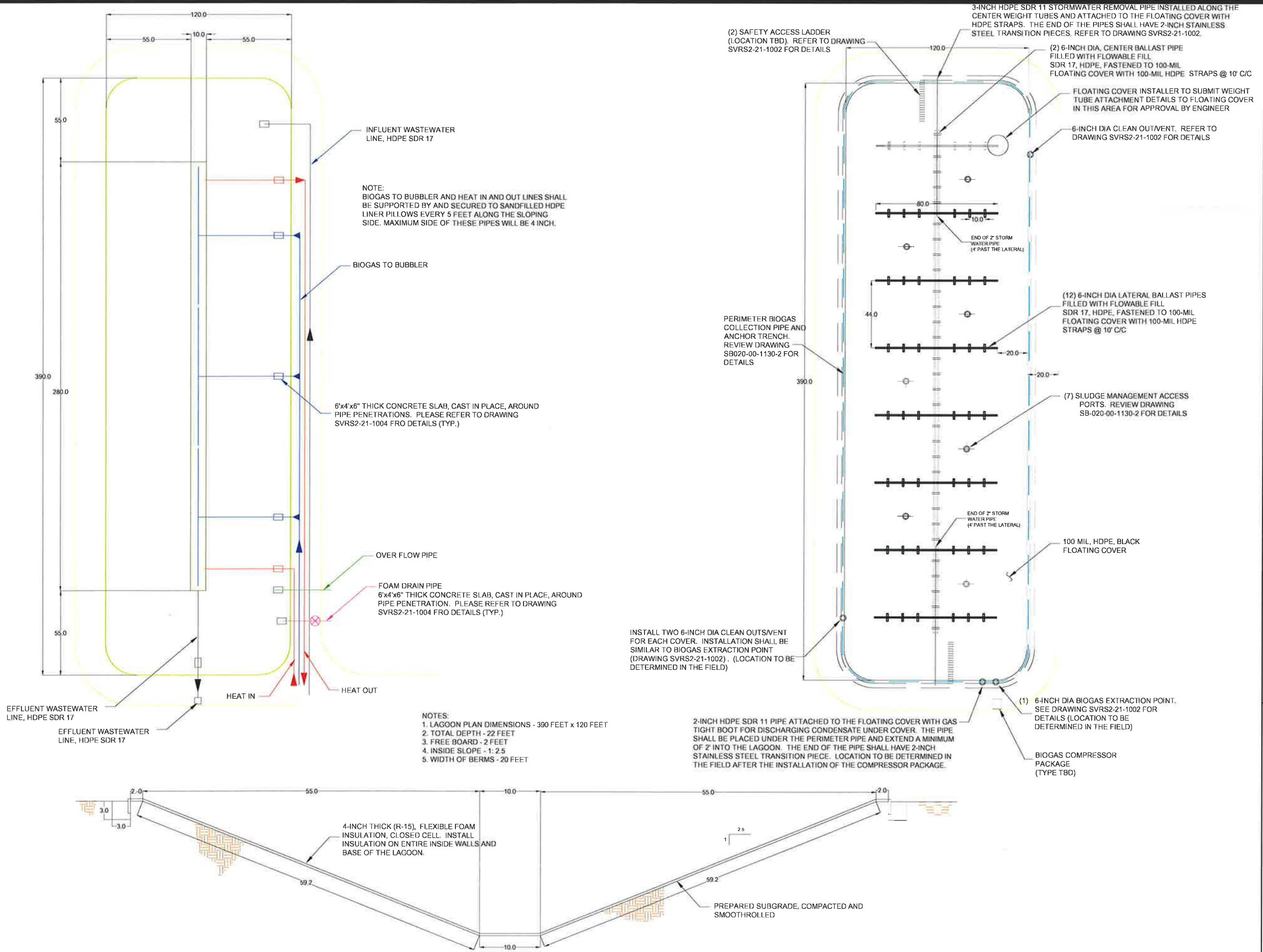
PREFER THIS WAY OF PIPE BOOTS. PREFABRICATED. NEED TO TALK TO THE LINER INSTALLERS WHETHER THEY COULD DO THIS WAY.

APPLY FLEXIBLE SILIC GASKET MATERIAL BE PLACING PIPE BOOT

STAINLESS STEEL STRAPS/BANDS

EXTRUDE WELD LINER TO PIPE

60 V.L HDPE BASELINER OVER GEOTEXTILE 80Z/SQ.YD



Scott County Scoring of Master Matrix for Sievers Family Farms LLC, 2022 Expansion

The Master Matrix has 44 possible scoring criteria:

The first 25 are listed under **Proposed Site Characteristics**,

The remaining 19 are listed under **Proposed Site Operation and Manure Management Practices**.

Applicants can choose amongst the various criteria in order to score points. Each criterion has a total point value which is then divided and weighted between any of the three subcategories of Air, Water, and Community.

The County can review each criterion upon which the applicant has scored and concur or not concur that the points are accurately taken. The County only reviews the criteria the applicant has used to score points, other criterion for which points are not taken are not evaluated, even though the application may meet that criterion. The selection of scoring criteria is the applicant's option. Evaluating that scoring is the County's option by adopting the Master Matrix.

Proposed Site Characteristics

Scoring Criteria	Total Score	Air	Water	Community
#2 Additional separation distance to the closest Public use area (greater than 1,500 feet)	30	12.00	0.00	18.00
#3 Additional separation distance from closest school, church or business (greater than 1,500 feet)	30	12.00	0.00	18.00
#4 Additional separation distance, above 500 foot minimum, to closest water source (751 - 1,000 feet)	15	0.00	15.00	0.00
#5 Separation distance of 300 feet or more from the Proposed confinement structure to the nearest Thoroughfare (300 feet or greater)	30	9.00	0.00	21.00
#6 Additional separation distance, above minimum Of 1,875 feet, from confinement to the closest critical public area (500 feet or greater)	10	4.00	0.00	6.00
#8 Additional separation distance over the minimum 1,000 feet from drainage well, known sink hole or major water source (greater than 2,500 feet)	50	5.00	25.00	20.00
#10 Separation distance from closest high quality waters or protected water area (2x the minimum separation distance of 500 feet)	30	0.00	22.50	7.50

Scoring Criteria	Total Score	Air	Water	Community
#12 Liquid manure storage structures are covered	30	27.00	0.00	3.00
#16 Enhancement, above minimum requirements, of structures used in stockpiling and composting activities, such as an impermeable pad and a roof or cover	30	9.00	18.00	3.00
#17 Proposed Manure Storage Structure is Formed	30	0.00	27.00	3.00
#19 Truck Turnaround	20	0.00	0.00	20.00
#20 No history of Administrative Orders in last five years	30	0.00	0.00	30.00
#22 Homestead Tax Exemption	25	0.00	0.00	25.00
#23 Family Farm Tax Credit	25	0.00	0.00	25.00
#25 Construction permit application includes livestock feeding and watering systems that significantly reduce manure volume	25	0.00	12.50	12.50

Proposed Site Operation and Manure Management Practices

Scoring Criteria	Total Score	Air	Water	Community
#26 Injection or incorporation of manure on the same date it is land applied	30	12.00	12.00	6.00
#32 Additional Separation distance of 200 feet for land application of manure to closest school, church, or business	5	2.00	0.00	3.00
#35 Additional separation distance of 400 feet above minimum requirements for the land application of manure to closest high quality waters or protected water area	10	0.00	7.50	2.50
#40 Construction permit application contains an emergency action plan	5	0.00	2.50	2.50
Total Scoring by Grandview Farms	460	92.00	142.00	226.00
Total Scoring by Scott County	460	92.00	142.00	226.00
<i>Minimum Score required to Pass Master Matrix</i>	<i>440</i>	<i>53.38</i>	<i>67.75</i>	<i>101.13</i>

PIN *	PropertyAc	DeedHold	DeedAddr1	DeedAddr3	DeedZip	MailName	MailAddr1	MailAddr3	MailZip
13317001	<Null>	VAN DEN BERGHE TRUST FBO STEVEN EUGENE VAN DEN BER	26789 20TH AV	STOCKTON, IA 52769	52769	VAN DEN BERGHE TRUST FBO STEVEN EUGENE VAN DEN BER	26789 20TH AV	STOCKTON, IA 52769	52769
13301003	26789 20T	VAN DEN BERGHE STEVEN E	26789 20TH AV	STOCKTON, IA 52769	52769	VAN DEN BERGHE STEVEN E	26789 20TH AV	STOCKTON, IA 52769	52769
13205001	<Null>	KRUSE GERALD D	2193 290TH ST	NEW LIBERTY, IA 52765	52765	KRUSE GERALD D	2193 290TH ST	NEW LIBERTY, IA 52765	52765
13207001	<Null>	SIEVERS BRYAN J	26618 20TH AVE	STOCKTON, IA 52769	52769	SIEVERS BRYAN J	26618 20TH AVE	STOCKTON, IA 52769	52769
13203001	<Null>	URMIE STEVEN	26761 10TH AV	STOCKTON, IA 52769	52769	URMIE STEVEN	26761 10TH AV	STOCKTON, IA 52769	52769
13219001	<Null>	URMIE STEVEN	26761 10TH AV	STOCKTON, IA 52769	52769	URMIE STEVEN	26761 10TH AV	STOCKTON, IA 52769	52769
13223004	26618 20T	SIEVERS BRYAN J	27135 1ST AVE	NEW LIBERTY, IA 52765	52765	SIEVERS BRYAN J	27135 1ST AVE	NEW LIBERTY, IA 52765	52765
13239001	<Null>	LIBERTY LAND ENTERPRISES LLC	26618 20TH AV	STOCKTON, IA 52769	52769	LIBERTY LAND ENTERPRISES LLC	26618 20TH AV	STOCKTON, IA 52769	52769
13237001	<Null>	LIBERTY LAND ENTERPRISES LLC	26618 20TH AV	STOCKTON, IA 52769	52769	LIBERTY LAND ENTERPRISES LLC	26618 20TH AV	STOCKTON, IA 52769	52769
13235001	<Null>	MARILYN STEFFEN LIVING TRUST	1750 STONE GATE CIR	DAVENPORT, IA 52807	52807	MARILYN STEFFEN LIVING TRUST	1750 STONE GATE CIR	DAVENPORT, IA 52807	52807
12951001	<Null>	AUGUST MICHAEL L	1535 NEW LIBERTY RD	NEW LIBERTY, IA 52765	52765	AUGUST MICHAEL L	1535 NEW LIBERTY RD	NEW LIBERTY, IA 52765	52765
12953001	<Null>	AUGUST MICHAEL L	1535 NEW LIBERTY RD	NEW LIBERTY, IA 52765	52765	AUGUST MICHAEL L	1535 NEW LIBERTY RD	NEW LIBERTY, IA 52765	52765
12955004	<Null>	KELTING JERRY H	13126 275TH ST	DONAHUE, IA 52746	52746	KELTING JERRY H	13126 275TH ST	DONAHUE, IA 52746	52746
13333002	<Null>	VAN DEN BERGHE TRUST FBO STEVEN EUGENE VAN DEN BER	26789 20TH AV	STOCKTON, IA 52769	52769	VAN DEN BERGHE TRUST FBO STEVEN EUGENE VAN DEN BER	26789 20TH AV	STOCKTON, IA 52769	52769
13221002	<Null>	SIEVERS BRYAN J	26618 20TH AVE	STOCKTON, IA 52769	52769	SIEVERS BRYAN J	26618 20TH AVE	STOCKTON, IA 52769	52769
13223006	<Null>	SIEVERS BRYAN J	26618 20TH AVE	STOCKTON, IA 52769	52769	SIEVERS BRYAN J	26618 20TH AVE	STOCKTON, IA 52769	52769
13223007	<Null>	GLENORA FEED YARD LLC	26618 20TH AVE	STOCKTON, IA 52769	52769	GLENORA FEED YARD LLC	26618 20TH AVE	STOCKTON, IA 52769	52769
13221003	<Null>	SIEVERS FAMILY FARMS LLC	26618 20TH AVE	STOCKTON, IA 52769	52769	SIEVERS FAMILY FARMS LLC	26618 20TH AVE	STOCKTON, IA 52769	52769
13333004	<Null>	VAN DEN BERGHE TRUST FBO STEVEN EUGENE VAN DEN BER	26789 20TH AV	STOCKTON, IA 52769	52769	VAN DEN BERGHE TRUST FBO STEVEN EUGENE VAN DEN BER	26789 20TH AV	STOCKTON, IA 52769	52769

ITEM 10

**COUNTY VERIFICATION RECEIPT
OF DNR CONSTRUCTION PERMIT APPLICATION**

This form provides proof that the County Board of Supervisors has been provided with a complete copy of the construction permit application documents (everything except the fees) for the confinement feeding operation or a complete MMP has been provided to the County because manure will be applied in that county:

Applicant: Sievers Family arms, L.L.C. Telephone: 563-340-6541
Name of operation: Glenora Feed Yard, L.L.C.
Location: S 1/2 NE 1/4 32 T-80-N, R-1-E Liberty Scott
(¼ ¼) (¼) (Section) (Tier & Range) (Name of Township) (County)

Documents being submitted to the county:

- Construction permit application form: submit items 1 to 9 (see Submittal Checklist No. 1 or 2)
- Attachment 1 - Aerial photos: Must clearly show the location of the proposed confinement feeding operation structure¹ and that all the separation distances are met, including those claimed for points in the master matrix (if applicable).
- Attachment 2 - Statement of design certification, submit any of the following (see Checklist No. 1 or 2):
 - Construction Design Statement form
 - Professional Engineer (PE) Design Certification form
 - Engineering report, construction plans and technical specifications
 - In addition, if proposing an unformed manure storage structure³ or an egg washwater storage structure submit documentation required in Addendum "A" of this construction application form.
- Attachment 3 - Manure management plan (MMP).
- Attachment 4 - Master Matrix (if required). You must include supporting documents (see Checklist No. 1 or 2)

Revised Documents: Application CDS Matrix MMP Other _____

THIS SECTION IS RESERVED FOR THE COUNTY

As soon as DNR receives a construction permit application, the DNR will fax your County Auditor a "Courtesy reminder letter" explaining what actions your County Board of Supervisors must complete and the deadlines.

Public Notice is required for **all** construction permit applications, including those applications not required to be evaluated with the master matrix and applications in counties not participating in the Master matrix.

Counties participating in the master matrix: the county's master matrix evaluation and county's recommendation is required for the following cases:

- A new confinement feeding operation that is applying for a construction permit
- An existing confinement feeding operation that was first constructed on or after April 1, 2002 that is applying for a construction permit.
- An existing confinement feeding operation that was first constructed prior to April 1, 2002 that is applying for a construction permit with an animal unit capacity (AUC) is 1,667 animal units (AU) or more.

I have read and acknowledge the county's duty with this construction permit application, as specified in 567 IAC 65.10 and Iowa Code 459.304. On behalf of the Board of Supervisors for:

COUNTY: _____

NAME: _____

TITLE: _____

(Member of the County Board of Supervisors or its designated official/employee)

Date: _____, 20____.

If you do not receive the courtesy reminder letter within a reasonable time, or if you have any questions, please contact the animal feeding operations (AFO) Program at (712) 262-4177 or visit www.iowaDNR.gov

**GLENORA FEED YARD, LLC.
IDNR FACILITY ID#66391
PROPOSED COVERED EARTHEN MANURE DIGESTER
SCOTT COUNTY, IOWA**

ProAg Job #09-074

March 2022

ProAg Engineering, Inc.

Nicholaus J. Rowe, P.E.

P.O. Box 181
Jackson, MN 56143
507-841-3269
nic@proageng.com

Justin D. Sprague, P.E.

302 Broadway
Audubon, IA 50025
507-329-2440
justin@proageng.com



ProAg Engineering, Inc.

Nicholaus J. Rowe, P.E.
P.O. Box 181
Jackson, MN 56143
507-841-3269
nic@proageng.com

Justin D. Sprague, P.E.
302 Broadway
Audubon, IA 50025
507-329-2440
justin@proageng.com

March 12, 2022

Mr. Paul Petitti, P.E.
IDNR – Field Office #3
1900 N. Grand Avenue
Gateway North Suite E17
Spencer, IA 51301

RE: Glenora Feed Yard, LLC, IDNR Facility ID#66391
Proposed Covered Earthen Digester
Scott County, Iowa
ProAg Project No: 09-074

Dear Paul:

Glenora Feed Yard, LLC, is an existing cattle confinement operation that was permitted for 4,888 head of cattle in four confinement barns along with an anaerobic digester and two earthen storage basins. Approximately half the site was built with two of the four confinement barns and one of the two earthen basins constructed. At this time the operation would like to build another anaerobic digester consisting of a covered earthen basin with an HDPE liner and cover along with all the associated manure pumps and pipelines.

There are no other changes proposed to the site. The site is not reapplying for the construction of the two additional confinement barns and therefore is reducing its permitted number of head down to 2,444 head of finishing cattle. The proposed covered earthen digester is located in the same location as the second earthen manure storage basin was previously permitted. The proposed covered earthen digester doesn't provide any additional storage volume to the site as it will be remain full at all times.

The existing site consists of two confinement barns, two concrete reception pits, a concrete circular manure storage tank, a solids separator, a concrete storage bunkers, two digester tanks, and one earthen manure storage basin. Each confinement barn holds 1,222 head and is 640' x 90' with a 12' wide slatted floor and 2' deep pits. All of the shallow pits are cleaned daily with underslat cable manure scrapers that push the manure into concrete reception pits (54' x 12' x 8' deep). A pump in each concrete reception pit supplies the anaerobic digesters. From the digesters the waste will be transferred to the concrete circular tank which will be heated and covered and turned into an additional digester tank. Effluent from this third digester tank will then be pumped to the proposed covered earthen digester. Liquid effluent will flow off the top of the covered earthen digester into the existing earthen storage basin while sludge in the bottom of the covered earthen digester will be pumped to the solids separator. The existing cattle confinement operation is located in NE¼, Section 32, T-80-N, R-1-E, approximately two miles south of New Liberty in Scott County, Iowa.

MASTER MATRIX

The Master Matrix was completed for the proposed covered earthen manure storage basin and it meets the minimum score requirements. All four categories have the minimum number of points required. Our figures show the following totals:

TOTAL SCORE = 455

AIR = 92.50

WATER = 116.50

COMMUNITY = 246

SEPARATION DISTANCES

The proposed covered earthen digester has no separation distance concerns. The proposed unformed covered earthen digester needs to meet the required 1,875 feet setback to residences. All of the other required separation distances are shown on the enclosed site plan drawing and mile radius map.

PROPOSED COVERED EARTHEN DIGESTER DESIGN

The proposed covered earthen basin will be operated as an anaerobic digester. Manure and wastewater will be pumped from the existing concrete circular tank to the proposed earthen digester. The earthen digester will be constructed with an eighteen (18) clay liner then four (4) inches of insulation and then an HDPE liner over the insulation. The bottom will have concrete floor poured over the HDPE liner to anchor the proposed bubbler aeration system. The earthen digester will be covered with HDPE in order to capture the methane gas.

The digestate is continually moved through the earthen digester so no additional storage volume is added to the site. An overflow pipe near the top of the dike elevation will send the effluent from the proposed earthen digester to the existing earthen basin. A pump and suction pipe will pull settled sludge from off the bottom of the proposed digester to feed the solids separation facility. The proposed earthen digester is designed according to the requirements of I.A.C. 567-65.15(12) for earthen manure storage basins.

SITE GEOLOGY & GROUNDWATER

The proposed site is located in the Tama soil series characterized by a silty clay loam. The depth to bedrock is approximately 50 feet and no sinkholes or other karst features are mapped in the area. Claire Hruby, IDNR Geologist, completed a karst determination (#2022) to verify the site is not in karst. The determination is enclosed.

TEAM Services completed a subsurface exploration for the previously permitted earthen basins. A couple of those borings did not extend to the required depth below the bottom of the proposed earthen digester. Additional borings were dug recently to the required depth and have been added to the previous geotechnical report. Loess soil was found above a small deposit of alluvium with glacial till below. The alluvium was found to hold groundwater perched above the glacial till and the earthen digester bottom is set in the glacial till and does not meet the required two (2) feet separation distance above the seasonal high groundwater elevation found in the alluvium. The firm massive glacial till is ideal for the clay liner however a perimeter drain tile must be installed to divert the perched groundwater away from the basin. A six (6) inch drain tile will be installed around the outside perimeter of the proposed earthen basin at a minimum elevation of two (2) feet below the basin bottom elevation. This drain tile will outlet into existing drain tile at the northeast corner of the existing basin and a tile isolation valve and monitoring port will be installed at the outlet location.

The normal maximum liquid level in the basin will be twenty (20) feet or less. The maximum allowable leakage according to the IDNR is 1.31×10^{-7} cm/sec. using a depth equivalent to the maximum liquid level in the basin. The excavated clay loam soil on site should be satisfactory to construct the dikes and liner and has been successfully used on other projects on site. A sample of the clay loam soil found at the proposed bottom elevation and what will be used for the compacted clay liner was tested with the coefficient of permeability meeting IDNR liner requirements. The soil testing results and completed subsurface investigation report are enclosed.

Enclosed please find four (4) copies of the following:

1. IDNR Confinement Construction Permit Application, including check for \$500.00
2. 1 mile radius map of site
3. Completed Master Matrix w/ supporting documents
4. Emergency Response Plan
5. Closure Plan
6. IDNR AFO Siting Map
7. IDNR Karst Map of Site
8. IDNR Karst Determination
9. Flood Plain Map of site
10. Operation and Maintenance Manual
11. Drainage Tile Certification
12. Technical Specifications
13. Soils Report from TEAM Services
14. Drawings showing proposed structures and details

Please note that there are no changes to the Manure Management Plan and therefore is not included in this submittal.

The location is on property owned by Sievers Family Farms, LLC. The location of the site is the NE $\frac{1}{4}$, Section 32, T80N, R1E, Scott County, Iowa. The contact person regarding this site during the site survey is Bryan Sievers at 563-340-6541.

We trust the above information is adequate for your review and approval. Should you have any questions, please do not hesitate to call me at 507-849-7200.

Respectfully Submitted,



Nicholaus J. Rowe, P.E.
ProAg Engineering, Inc.

Enclosures

cc: Sievers Family Farms, LLC



Iowa Department of Natural Resources

Construction Permit Application Form Confinement Feeding Operations

INSTRUCTIONS:

Prior to constructing, installing, modifying or expanding a confinement feeding operation structure¹, answer questions 1-8 on Item 3, Section A (page 2), to determine if a construction permit is required. To calculate the animal unit capacity (AUC) of the operation, complete Table 1 (page 4). If a construction permit is required, complete the rest of the form, have the applicant(s) sign it on pages 5 and 6. Mail to the DNR (see address on page 5) this application form, documents and fees requested in Checklist No. 1 or 2 (pages 10-15). See item 5 (page 5), to determine which checklist to use.

If a construction permit is not needed, some pre-construction requirements may still apply prior to the construction of a formed manure storage structure². See page 5 for additional DNR contact information.

THIS APPLICATION IS FOR:

1. A new confinement feeding operation
2. An existing confinement feeding operation (*answer all of the following questions*):
 - a) Facility ID No. (5 digit number): 66391
 - b) Date when the operation was first constructed: 2010 Separation distance table used: 6
 - c) Date when the last construction, expansion or modification was completed: 2014

(Not needed if the confinement operation has previously received a construction permit from DNR.)

- d) Is this also an ownership change? Yes No If yes box is checked additional fees apply. See page 8

ITEM 1 – LOCATION AND CONTACT INFORMATION (*See page 17 for instructions and an example*):

A) Name of operation: Glenora Feed Yard, L.L.C.

Location:	<u>S 1/2</u>	<u>NE 1/4</u>	<u>32</u>	<u>T-80-N, T-1-E</u>	<u>Liberty</u>	<u>Scott</u>
	($\frac{1}{4}$ $\frac{1}{4}$)	($\frac{1}{4}$)	(Section)	(Tier & Range)	(Name of Township)	(County)

B) Applicant information:

Name: Sievers Family Farms, L.L.C. Title: Owner

Address: 26618 20th Avenue, New Liberty IA 52765

Telephone: 563-893-2930 Fax: _____ Email: _____

C) Person to contact with questions about this application (if different than applicant):

Name: Bryan Sievers Title: President

Address: 27135 1st Avenue, New Liberty, IA 52765

Telephone: 563-340-6541 Fax: _____ Email: bryan.sievers@gmail.com

- Enclose aerial photo or engineering drawing showing the proposed location of the confinement feeding operation structure¹ and all applicable separation distances, as requested in Attachment 1 (pages 11-12 or 14-15). See example of aerial photo on pages 18 to 19, at the end of this form.

- I manage or have a 10% or more ownership interest in another confinement feeding operation located within 2,500 feet of the proposed site. Please contact the DNR AFO Program staff at (712) 262-4177 to verify site adjacency requirements.

¹ Confinement feeding operation structure = animal feeding operation structure (confinement building, manure storage structure or egg washwater storage structure) that is part of a confinement feeding operation. Manure storage structures include formed and unformed manure storage structures.

² Formed manure storage structure = covered or uncovered concrete or steel tanks, and concrete pits below the building.

ITEM 2 – SITING INFORMATION:

A) **Karst Determination:** Go to DNR AFO Siting Atlas at <http://programs.iowadnr.gov/maps/af/>. Search for your site by either scrolling into your location or entering an address or legal description in the bottom search bar. Left click on the location of your proposed structure. Make sure the karst layer box is checked on the map layers. If you cannot access the map, or if you have questions about this issue, contact the AFO Engineer at (712) 262-4177. Check one of the following:

- The site is not in karst or potential karst. Print and enclose the map with the name and location of the site clearly marked.
- The site is in karst. The upgraded concrete standards of 567 IAC 65.15(14)"c" must be used. Refer to "Applicant's submittal checklist" on page 10 for karst documentation.
- The site is within 1,000 feet of a known sinkhole, Secondary Containment Barrier is required in accordance with 567 IAC 65.15(17).

B) **Alluvial Soils Determination:** Go to the AFO Siting Atlas as described above. Make sure the alluvial layer box is checked on the map legend. If you cannot access the map, or if you have questions about this issue, contact DNR Flood Plain at (866) 849-0321. Check one of the following:

- The site is not in alluvial soils. Print and enclose the map with the name and location of the site clearly marked.
- The site is in alluvial soils. You will need to submit a request for a flood plain determination from DNR Flood Plain (866) 849-0321. After receiving determination submit one of the following:
 - Not in 100-year floodplain or does not require a flood plain permit. Include correspondence from the DNR Flood Plain Section.
 - Requires flood plain permit. Include flood plain permit.
 - Documentation has been submitted to determine site is not in alluvial soils. Refer to "Applicant's Submittal Checklist" on page 10 for alluvial soils documentation.

ITEM 3 – OPERATION INFORMATION:

A) A construction permit is required prior to any of the following:

1. Constructing or modifying any unformed manure storage structure³, constructing or modifying a confinement building that uses an unformed manure storage structure³, or increasing animal units in a confinement building that uses an unformed manure storage structure.
2. Constructing, installing or modifying a confinement building or a formed manure storage structure² at a confinement feeding operation if, after construction, installation or expansion, the AUC of the operation is 1,000 animal units (AU) or more. This also applies to confinement feeding operations that store manure exclusively in a dry form.
3. Initiating a change that would result in an increase in the volume of manure or a modification in the manner in which manure is stored in any unformed manure storage structure³, even if no construction or physical alteration is necessary. Increases in the volume of manure due to an increase in animal capacity, animal weight capacity or AUC up to the limits specified in a previously issued construction permit do not require a new construction permit.
4. Initiating a change, even if no construction or physical alteration is necessary, that would result in an increase in the volume of manure or a modification in the manner in which manure is stored in a formed manure storage structure² if, after the change, the AUC of the operation is 1,000 AU or more. Increases in the volume of manure due to an increase in animal capacity, animal weight capacity or AUC up to the limits specified in a previously issued construction permit do not require a new construction permit.
5. Constructing or modifying any egg washwater storage structure or a confinement building at a confinement feeding operation that includes an egg washwater storage structure.
6. Initiating a change that would result in an increase in the volume of egg washwater or a modification in the manner in which egg washwater is stored, even if no construction or physical alteration is necessary. Increases in the volume of egg washwater due to an increase in animal capacity, animal weight capacity or AUC up to the limits specified in a previously issued construction permit do not require a new construction permit.
7. Repopulating a confinement feeding operation if it was closed for 24 months or more and if any of the following apply:
 1. The confinement feeding operation uses an unformed manure storage structure³ or egg washwater storage structure;
 2. The confinement feeding operation includes only confinement buildings and formed manure storage structures² and has an AUC of 1,000 AU or more.
8. Installing a permanent manure transfer piping system, unless the department determines that a construction permit is not required.

³ Unformed manure storage structure = covered or uncovered anaerobic lagoon, earthen manure storage basin, aerobic earthen structure.

B) In your own words, describe in detail, the proposed construction, expansion, installation, modification or repair being proposed in this project. (Must be completed) Attach additional pages if necessary:

The existing cattle confinement operation is proposing to construct a covered earthen plug-flow digester.

C) Master Matrix (must check one). If any of boxes 1 to 3 are checked, the operation is required to be evaluated with the master matrix if the county, where the confinement feeding operation structure¹ is or would be located, has adopted a 'Construction Evaluation Resolution' (CER). Select the one that best describes your confinement feeding operation:

1. A new confinement feeding operation proposed in a county that has adopted a CER.
2. An existing operation constructed on or after April 1, 2002, in a county that has adopted a CER.
3. An existing operation constructed prior to April 1, 2002, with a current or proposed AUC of 1,667 AU or more, in a county that has adopted a CER.
4. None of the above. Therefore, the master matrix evaluation is not required.

D) Qualified Operation (must check one). If any of boxes 1 to 4 are checked, the operation is also a 'qualified operation'. A qualified operation is required to use a manure storage structure that employs bacterial action which is maintained by the utilization of air or oxygen, and which shall include aeration equipment. However, this requirement does not apply if box 5 is checked. Select the one that best describes your confinement feeding operation:

1. A swine farrowing and gestating operation with an AUC of 2,500 AU or more. If the replacement breeding swine are raised and used at the operation, the animal units for those replacement animals do not count in the operations total AUC for the purpose of determining a qualified operation.
2. A swine farrow-to-finish operation with an AUC of 5,400 AU or more.
3. A cattle confinement feeding operation (including dairies) with an AUC of 8,500 AU or more.
4. Other confinement feeding operations with an AUC of 5,333 AU or more.
5. This is not a qualified operation because:
 - a. It is below the limits shown on boxes 1 to 4.
 - b. It includes a confinement feeding operation structure¹ constructed prior to May 31, 1995.
 - c. It handles manure exclusively in a dry form (poultry).

ITEM 4 – ANIMAL UNIT CAPACITY (AUC) and, if applicable, ANIMAL WEIGHT CAPACITY (AWC):

A) Calculating AUC – Required for all operations

For each animal species, multiply the maximum number of animals that you would ever confine at one time by the appropriate factor, then add all AU together on Table 1 (page 4). Use the maximum market weight for the appropriate animal species to select the AU factor.

You must complete all applicable columns in Table 1. Use column a) to calculate the existing AUC, before permit for existing operations only. Use column b) to calculate the 'Total proposed AUC' (after a permit is issued) including new operations. The number obtained in column b) is the AUC of the operation and must be used to determine permit requirements. Use column c) to calculate the 'New AU' to be added to an existing operation. To calculate the indemnity fee (see page 7), also use column c), however, if the "Existing AUC" (column a) is 500 AU or less, enter the "Total proposed AUC" (column b) in the "New AU" (column c).

In calculating the AUC of a confinement feeding operation, you must include the AUC of all confinement buildings which are part of the confinement feeding operation, unless a confinement building has been abandoned. A confinement feeding operation structure¹ is abandoned if the confinement feeding operation structure¹ has been razed, removed from the site of a confinement feeding operation, filled in with earth, or converted to uses other than a confinement feeding operation structure¹ so that it cannot be used as a confinement feeding operation structure¹ without significant reconstruction. Therefore, in Table 1, enter the animal unit capacity of all the confinement buildings, including those that are from an "adjacent" operation located within 2,500 feet. For more information, contact the AFO Program at (712) 262-4177.

Table 1. Animal Unit Capacity (AUC): (No. HEAD) x (FACTOR) = AUC

Animal Species	a) Existing AUC (Before permit)			b) Total AUC (After permit)			
	(No. Head)	x (Factor)	= AUC	(No. Head)	x (Factor)	= AUC	
Slaughter or feeder cattle	2444	1.0	2444	2444	1.0	2444	
Immature dairy cattle		1.0			1.0		
Mature dairy cattle		1.4			1.4		
Gestating sows		0.4			0.4		
Farrowing sows & litter		0.4			0.4		
Boars		0.4			0.4		
Gilts		0.4			0.4		
Finished (Market) hogs		0.4			0.4		
Nursery pigs 15 lbs to 55 lbs		0.1			0.1		
Sheep and lambs		0.1			0.1		
Goats		0.1			0.1		
Horses		2.0			2.0		
Turkeys 7 lbs or more		0.018			0.018		
Turkeys less than 7 lbs		0.0085			0.0085		
Broiler/Layer chickens 3 lbs or more		0.01			0.01		
Broiler/Layer chickens less than 3 lbs		0.0025			0.0025		
Ducks		0.04			0.04		
Fish 25 grams or more		0.001			0.001		
Fish less than 25 grams		0.00006			0.00006		
TOTALS:		a) Existing AUC:	2444	b) Total proposed AUC:	2444	c) New AU = b) - a):	0

Note: If the "Existing AUC" (column a) is 500 AU or less, enter the "Total proposed AUC" (column b) in the "New AU" (column c)

(This is the AUC of the operation)

B) Calculating AWC - Only for operations first constructed prior to March 1, 2003

The AWC is needed for an operation that was first constructed prior to March 1, 2003, to determine some of the minimum separation distance requirements for construction or expansion.

The AWC is the product of multiplying the maximum number of animals that you would ever confine at any one time by their average weight (lbs) during the production cycle. Then add the AWC if more than one animal species is present (examples on how to determine the AWC are provided in 567 IAC 65.1(455B).)

If the operation was first constructed prior to March 1, 2003, you must complete all applicable columns in Table 2:

Table 2. Animal Weight Capacity (AWC): (No. head) * (Avg. weight, lbs) = AWC, lbs

Animal Species	a) Existing AWC (Before Permit)			b) Proposed AWC (After permit)			
	(No. head) x	avg weight	= AWC	(No. head) x	avg weight	= AWC	
Slaughter or feeder cattle	2444	1000	244000	2400	1000	244400	
Immature dairy cattle							
Mature dairy cattle							
Gestating sows							
Farrowing sows & litter							
Boars							
Gilts							
Finished (Market) hogs							
Nursery pigs 15 lbs to 55 lbs							
Sheep and lambs							
Goats							
Horses							
Turkeys 7lbs or more							
Turkeys less than 7 lbs							
Broiler/Layer chickens 3 lbs or more							
Broiler/Layer chickens less than 3 lbs							
Ducks							
Fish 25 grams or more							
Fish less than 25 grams							
TOTALS:		a) Existing AWC:	244400	b) Total proposed AWC:	244400	c) New AWC = b) - a):	0

(This is the AWC of the operation)

ITEM 5 – SUBMITTAL REQUIREMENTS Checklists No. 1 or 2 (pages 10-15) describe the submittal requirements, which are based on the type of confinement feeding operation structure¹ and AUC proposed. To determine which checklist to use, choose the option that best describes your confinement feeding operation:

- A) **Formed manure storage structures²:** The proposed confinement feeding operation structure¹ will be or will use a formed manure storage structure². Check one of the following boxes:
1. A swine farrowing and gestating operation with an AUC of 1,250 AU or more. Use Submittal Checklist No. 2 (page 13).
 2. A swine farrow-to-finish operation with an AUC of 2,750 AU or more. Use Submittal Checklist No. 2 (page 13).
 3. A cattle confinement feeding operation (including dairies) with an AUC of 4,000 AU or more. Use Submittal Checklist No. 2 (page 13).
 4. Other confinement feeding operations with an AUC of 3,000 AU or more. Use Submittal Checklist No. 2 (page 13).
 5. None of the above. Use Submittal Checklist No. 1 (page 10).

If any of boxes 1 to 4 are checked, the operation meets the threshold requirements for an engineer⁴ and a Professional Engineer (PE), licensed in Iowa, is required. For these cases, use Submittal Checklist No. 2 (page 13).

If you checked box 5, your operation is below threshold requirements for an engineer⁴ and a Professional Engineer (PE) is not required. Use Submittal Checklist No. 1 (page 10).

- B) **Unformed manure storage structure³:** The proposed confinement feeding operation structure¹, will be or will use an unformed manure storage structure³ or an egg washwater storage structure. A Professional Engineer (PE) licensed in Iowa must design and sign the engineering documents for any size of operation. Use Submittal Checklist No. 2 (page 13) and Addendum "A" (page 16).

ITEM 6- UTILIZING RURAL WATER SYSTEM FOR WATER SUPPLY

- The proposed facility will utilize rural water and the providing rural water system has been notified and is aware of the proposed increase in water use.

ITEM 7 – SIGNATURE:

I hereby certify that the information contained in this application is complete and accurate.

Signature of Applicant(s):

 Bryan J. Stevens, MANAGER
 STEVENS FAMILY FARMS, LLC
 GLENORA FEED YARD, LLC

Date:

 03/11/2022

MAILING INSTRUCTIONS:

To expedite the application process, follow the submittal requirements explained in Checklist No. 1 or 2 (pages 10 to 16), whichever applies. Page 1 of this form should be the first page of the package. Mail all documents and fees to:

**Iowa DNR
AFO Program
1900 N Grand Ave
Gateway North, Ste E17
Spencer, IA 51301**

(Note: Incomplete applications will be returned to the sender.)

Questions

Questions about construction permit requirements or regarding this form should be directed to an engineer of the animal feeding operations (AFO) Program at (712) 262-4177. To contact the appropriate DNR Field Office, go to <http://www.iowadnr.gov/fieldoffice>.

⁴ Threshold requirements for an engineer apply to the construction of a formed manure storage structure². Operations that meet or exceed the threshold requirements for an engineer are required to submit engineering documents signed by a professional engineer licensed in the state of Iowa. Please refer to Checklist No. 2 (pages 13-15).

ITEM 8

Interested Parties Form
Confinement Feeding Operation

Interest means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly or indirectly through a spouse or dependent child, or both.

INSTRUCTIONS:

Please list all persons (including corporations, partnerships, etc.) who have an interest in any part of the confinement feeding operation covered by this permit application.

Full Name	Address	City/State	Zip
Sievers Family Farms L.L.C.	27135 1st Avenue	New Liberty, IA	52765

For each name above, please list below all other confinement feeding operations in Iowa in which that person has an interest. Check box "None", below, if there are no other confinement feeding operations in Iowa in which the above listed person(s) has or have an interest.

Operation Name	Location (¼ ¼, ¼, Section, Tier, Range, Township, County)	City
<input checked="" type="checkbox"/> None	[There are no other confinements in Iowa in which the above listed person(s) has or have an interest].	

I hereby certify that the information provided on this form is complete and accurate.

Signature of Applicant(s): Bryan J. Sievers Date: 03/11/2022

ITEM 9

**Manure Storage Indemnity Fee Form
for Construction Permits**

CASHIER'S USE ONLY
0474-542-474A-0431
Facility ID #
County

Credit fees to: Glenora Feed Yard, L.L.C.

Name of operation: Glenora Feed Yard, L.L.C.

INSTRUCTIONS:

- 1) Use the 'Total Proposed AUC' from column b), Table 1 (page 4), to select the appropriate fee line in the table below. The 'Total Proposed AUC' is the AUC of the operation.
- 2) Select the animal specie and row number (see examples). Enter the 'New AU' from column c), Table 1 (page 4). The 'New AU' is the number of AU to be added to an existing operation or being proposed with a new operation. **Note:** If the "Existing AUC" (column a) is 500 AU or less, enter the "Total proposed AUC" (column b) in "New AU" (column c).
- 3) Multiply the 'New AU' by the appropriate 'Fee per AU'. The resulting number is the indemnity fee due.

- **Example 1:** An existing swine operation is expanding from an 'Existing AUC' of 1,000 AU to a 'Total Proposed AUC' of 1,800 AU, and has previously paid an indemnity fee for the existing 1,000 AU. Calculate the indemnity fee as follows: The 'Total Proposed AUC' is between 1,000 AU and 3,000 AU; the animal specie is other than poultry; enter 800 AU in the 'New AU' column, row 4, and multiply it by \$ 0.15:

$$(800 \text{ AU}) \times (\$ 0.15 \text{ per AU}) = \$ 120.00$$

- **Example 2:** An existing poultry operation is expanding from an 'Existing AUC' of 250 AU to a 'Total Proposed AUC' of 2,000 AU and has not paid the indemnity fee for animals housed in the existing buildings. Calculate the indemnity fee as follows: The 'Total Proposed AUC' is between 1,000 AU and 3,000 AU; the animal specie is poultry and the indemnity fee has not previously been paid, enter 2,000 AU in the 'New AU' column on row 3, and multiply it by \$0.06:

$$(2,000 \text{ AU}) \times (\$ 0.06 \text{ per AU}) = \$ 120.00$$

- **Example 3:** If you are proposing a new swine confinement feeding operation with a 'Total Proposed AUC' of 3,500 AU, enter 3,500 AU in the 'New AU' column, row 6 and multiply it by \$ 0.20:

$$(3,500 \text{ AU}) \times (\$ 0.20 \text{ per AU}) = \$ 700.00$$

- **Example 4:** If you are applying for a construction permit but you are not increasing the AUC of the operation, and has previously paid the applicable indemnity for the animals housed in the existing buildings, there is no indemnity fee due (\$ 0.00). If no indemnity fee is due, do not submit this page.

Indemnity Fee Table:

Total Proposed AUC (After Permit (from column B, Table 1))	Row	Animal species	New AU (from column C Table 1)	x	Fee per AU	Indemnity Fee
Less than 1,000 AU	1	Poultry		x	\$ 0.04 =	
	2	Other		x	\$ 0.10 =	
1,000 AU or more to less than 3,000 AU	3	Poultry		x	\$ 0.06 =	
	4	Other	0	x	\$ 0.15 =	0
3,000 AU or more	5	Poultry		x	\$ 0.08 =	
	6	Other		x	\$ 0.20 =	

ITEM 9 (Cont.)

Filing Fees Form
for Construction Permits

CASHIER'S USE ONLY
0473-542-473A-0431
0474-542-474A-0431
Facility ID #
County

Credit fees to: Glenora Feed Yard, L.L.C.

Name of operation: Glenora Feed Yard, L.L.C.

INSTRUCTIONS:

1. If the operation is applying for a construction permit enclose a payment for the following:
 - Construction application fee \$250.00.
(Note: This fee is non-refundable)
2. A manure management plan must be submitted with a filing fee.
 - Manure management plan filing fee \$250.00
(Note: This fee is non-refundable)
3. If this is a change in ownership then indemnity fees must also be paid on the current (existing) total AUC at the appropriate rate on page 7.
 - Indemnity fee due to ownership change \$ _____
4. Total filing fees: Add the fees paid in items 1, 2 and 3 (above): \$ 500.00

SUMMARY:	
- Manure Storage Indemnity Fee (see previous page) to be deposited in the Manure Storage Indemnity Fee Fund (474)	\$ <u>0</u>
- Total filing fees (see item 4 on this page) to be deposited in the Animal Agriculture Compliance Fund (473)	\$ <u>500.00</u>
TOTAL DUE:	\$ <u>500.00</u>

Make check payable to: Iowa Department of Natural Resources or Iowa DNR; and send it along with the construction application documents (See Submittal Checklist No. 1 or 2, pages 10-15.) Note: Do not send this fee to the county.

Table 6 567 IAC 65.11(455B)

Minimum separation distances for a new confinement feeding operation or expansion of an operation constructed on or after March 1, 2003

Type of Structure (liquid, semi-liquid and dry manure storage)	Total Animal Unit Capacity (AUC) (AU)	Residences, Businesses, Churches, Schools		Public use areas
		Unincorporated Areas	Incorporated Areas	
Anaerobic lagoons and uncovered earthen manure storage basins	500 AU or less	1,875 feet	1,875 feet	1,875 feet
	501 AU to <1,000 AU	1,875 feet	1,875 feet	1,875 feet
	1,000 AU to <3,000 AU	2,500 feet	2,500 feet	2,500 feet
	3,000 AU or more	3,000 feet	3,000 feet	3,000 feet
Covered earthen manure storage basins	500 AU or less	1,250 feet	1,875 feet	1,875 feet
	501 AU to <1,000 AU	1,250 feet	1,875 feet	1,875 feet
	1,000 AU to <3,000 AU	1,875 feet	2,500 feet	2,500 feet
	3,000 AU or more	2,375 feet	3,000 feet	3,000 feet
Uncovered formed manure storage structures	500 AU or less	None	None	None
	501 AU to <1,000 AU	1,500 feet	1,875 feet	1,875 feet
	1,000 AU to <3,000 AU	2,000 feet	2,500 feet	2,500 feet
	3,000 AU or more	2,500 feet	3,000 feet	3,000 feet
Confinement buildings and covered formed manure storage structures	500 AU or less	None	None	None
	501 AU to <1,000 AU	1,250 feet	1,875 feet	1,875 feet
	1,000 AU to <3,000 AU	1,875 feet	2,500 feet	2,500 feet
	3,000 AU or more	2,375 feet	3,000 feet	3,000 feet
Egg washwater storage structures	500 AU or less	None	None	None
	501 AU to <1,000 AU	1,000 feet	1,875 feet	1,875 feet
	1,000 AU to <3,000 AU	1,500 feet	2,500 feet	2,500 feet
	3,000 AU or more	2,000 feet	3,000 feet	3,000 feet

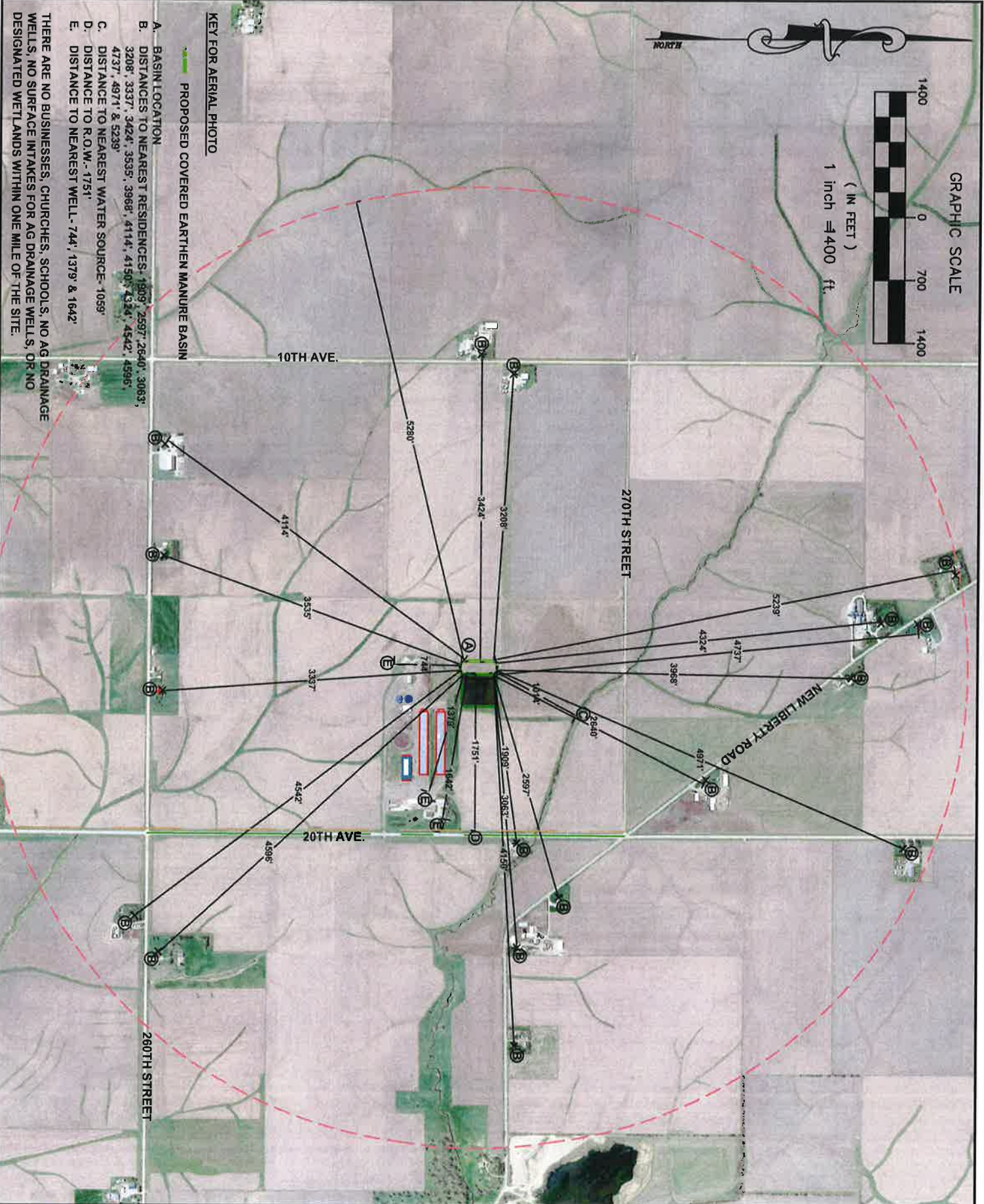
Distances to Wells - Applies to all Confinement Feeding Operations, regardless of animal unit capacity.

Type of Structure	Public well		Private well	
	Shallow	Deep	Shallow	Deep
Aerobic structure, anaerobic lagoon, earthen manure storage basin, egg washwater storage structure.	1,000 feet	400 feet	400 feet	400 feet
Formed manure storage structure, confinement building	200 feet	100 feet	200 feet	100 feet

Other Distances - Applies to all Confinement Feeding Operations, regardless of animal unit capacity

Surface intakes of an agricultural drainage well or water source other than major (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	500 feet*
Wellhead or cistern of an agricultural drainage well or known sinkhole or major water source (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	1,000 feet
Designated wetlands pursuant to subrule 65.11(4) and Iowa Code section 459.310	2,500 feet
Right-of-way of a thoroughfare maintained by the state or a political subdivision (Exemptions provided in subrule 65.12(2))	100 feet

*200 feet from a water source required for a dry bedded confinement feeding operation structure.



KEY FOR AERIAL PHOTO

- A. BASIN LOCATION
- B. DISTANCES TO NEAREST RESIDENCES. 1909', 2597', 2640', 3063', 3208', 3337', 3424', 3535', 3968', 4114', 4150', 4324', 4542', 4596', 4737', 4971' & 5239'
- C. DISTANCE TO NEAREST WATER SOURCE- 1059'
- D. DISTANCE TO R.O.W.- 1751'
- E. DISTANCE TO NEAREST WELL- 744', 1379' & 1642'

THERE ARE NO BUSINESSES, CHURCHES, SCHOOLS, NO AG DRAINAGE WELLS, NO SURFACE INTAKES FOR AG DRAINAGE WELLS, OR NO DESIGNATED WETLANDS WITHIN ONE MILE OF THE SITE.

ProAg Engineering, Inc.
 77402 Highway 71, P.O. Box 181
 Jackson, MN 56143
 (507) 849-7200

GLENORA FEED YARD, LLC
 PROPOSED COVERED EARTHEN BASIN
 NE 1/4, SECTION 32, T-80-N, R-1-E
 SCOTT COUNTY, IOWA

Date	3/12/2022	Checked By	N.J.R.	IDNR FACILITY	09-074	SHEET	1/1
Drawn	A.J.H.						

MASTER MATRIX-KEY FOR MILE RADIUS MAP

GLENORA FEED YARD, L.L.C.

PROPOSED COVERED MANURE BASIN

PROAG PROJECT 09-074

Matrix Item#	Actual Distance	Minimum Required Distance	Additional Distance Above Minimum	Qualifying Matrix Points
				Score/Air/Water/Community
2. Closest Public Use Area	>than 1 mile	3,000 ft.	-	30 / 12 /---/ 18
3. Closest Educational/ Religious/etc.	>than 1 mile	2,500 ft.	-	30 / 12 /---/ 18
4. Closest Water Source	1,014 ft.	500 ft.	514 ft.	10 / -- / 10 / --
5. Thoroughfare	1,751 ft.	300 ft.	1,451 ft.	30 / 9 / --- / 21
6. Closest Critical Public Use Area	>than 1 mile	2,500 ft.	-	10 / 4 /---/ 6
8. Closest Major Water Source	> than 1 mile	1,000 ft.	-	50 / 5 / 25 / 20
9. Closest Confinement	>than 1 mile	-	-	25 / 7.5 / 7.5 / 10
10. Closest High Quality Water	>than 1 mile	1,000 ft.	-	30 /---/ 22.5 / 7.5
12. Covered Manure Storage	-	-	-	30 / 27.0 / -- / 3
16. Stockpiling	-	-	-	30 / 9 / 18 / 3
19. Truck Turnaround	-	-	-	20 / --- / --- / 20
20. No History	-	-	-	30 / --- / --- / 30
22. Homestead Tax Exemption	-	-	-	25 / --- / --- / 25
23. Family Farm Tax	-	-	-	25 / --- / --- / 25
24. Facility Size	-	-	-	10 / --- / --- / 10
26. Methane Digester	-	-	-	10 / 3 / 3 / 4
29. No Manure App on HEL Farmland	-	-	-	10 / --- / 10 / ---
31. Manure Application to Public Use Area	-	-	-	5 / 2 / --- / 3
32. Manure Application to Educational/ Religious/etc.	-	-	-	5 / 2 / --- / 3
33. Manure Application to Nearest Well	-	-	-	10 / --- / 8 / 2
35. Manure Application to HQ Water	-	-	-	10 / --- / 7.5 / 2.5
39. Economic Value	-	-	-	10 / --- / --- / 10
40. Emergency Action Plan	-	-	-	5 / --- / 2.5 / 2.5
41. Closure Plan	-	-	-	5 / --- / 2.5 / 2.5

Total: 455 / 92.50 / 116.5 / 246

MASTER MATRIX, SUPPORTING STATEMENTS

GLENORA FEED YARD, L.L.C. PROPOSED COVERED MANURE STORAGE PROAG PROJECT 09-074

The following items have been claimed in the "Master Matrix" to accrue total points of 455 points (Total Score = 455, Air = 92.50, Water = 116.5, Community = 246). Master Matrix Criterion Number:

1. An additional setback of at least 34 feet will be established beyond the minimum setback of 1,875 feet from any residence, hospital, nursing home, or day care facility.
2. No public use areas exist within one mile of the proposed site (see map).
3. No schools, churches, or commercial enterprises exist within one mile of the proposed site (see map).
4. An additional separation distance of 514 ft. will be achieved above the minimum 500 ft. from water sources to the proposed site (see map).
5. An additional separation distance of 1,451 ft. will be achieved above the minimum 300 ft. from the nearest thoroughfare (see map).
6. No critical public areas exist within one mile of the proposed farm site (see map).
8. No agriculture drainage wells, known sinkholes or major water sources exist within one mile of the proposed site (see map).
9. No existing confinement facility exists within 3/4 mile of the proposed site (see map).
10. No HQ, HQR, or PWA exists within one mile of the proposed site (see map).
12. The proposed earthen basin will be covered.
16. The operation has a large concrete pad located near the solids separator. This pad is used for stacking and storing manure removed from the separator. All the runoff from this pad is contained. This pad was constructed to meet I.A.C. 567 65.15(14)b for dry manure storage structures. When the pad is emptied it is inspected for cracks and/or damage with the repairs occurring immediately.
19. The farm site has several areas where a semi-trailer truck can turn around easily as seen on the aerial site map. A large gravel area is located on the south and west side of the existing barns for trucks to operate without backing up onto the road. This area is inspected daily and all damage is repaired immediately.
20. Glenora Feed Yard, L.L.C. has not been cited with an Administrative Order in the past 5 years.
22. Sievers Family Farms, LLC is the closest resident to the proposed structures.
23. Sievers Family Farms, LLC qualifies for the Family Farm Tax Credit.
24. Sievers Family Farms, LLC houses 2,444 AU in confinement barns.
- 26c. A digester is used to generate energy on the farm and the liquid manure is injected on the same date it is land applied under the requirements of the manure management plan.
29. No manure applications will encroach upon highly erodible land.
31. No manure applications will encroach upon an additional separation of distance of 200 ft. from any public use areas.
32. No manure applications will encroach upon an additional separation of distance of 200 ft. from any school, church, or commercial enterprise.
33. No manure applications will encroach upon an additional separation of distance of 50 ft. from any wells.
35. No manure applications (injected) will encroach upon an additional separation of distance of 400 ft. from any HQ, HQR, PWA. These features do not exist in this immediately area.
39. The proposed structure increase the commercial property tax base in the county.
40. Glenora Feed Yard, L.L.C. has prepared an emergency action plan (enclosed).
41. Glenora Feed Yard, L.L.C. has prepared a closure plan (enclosed).

APPENDIX C MASTER MATRIX

Proposed Site Characteristics

The following scoring criteria apply to the site of the proposed confinement feeding operation. Mark **one** score under each criterion selected by the applicant. The proposed site must obtain a minimum overall score of 440 and a score of 53.38 in the "air" subcategory, a score of 67.75 in the "water" subcategory and a score of 101.13 in the "community impacts" subcategory.

1. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest:
 - * Residence not owned by the owner of the confinement feeding operation,
 - * Hospital,
 - * Nursing home, or
 - * Licensed or registered child care facility.

	Score	Air	Water	Community
<input type="checkbox"/> 250 feet to 500 feet	25	16.25		8.75
<input type="checkbox"/> 501 feet to 750 feet	45	29.25		17.50
<input type="checkbox"/> 751 feet to 1,000 feet	65	42.25		22.75
<input type="checkbox"/> 1,001 feet to 1,250 feet	85	55.25		29.75
<input type="checkbox"/> 1,251 feet or more	100	65.00		35.00

- (A) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567--Chapter 65 to determine minimum required separation distances.
- (B) The department will award points only for the single building, of the four listed above, closest to the proposed confinement feeding operation.
- (C) "Licensed child care center" – a facility licensed by the department of human services providing child care or preschool services for seven or more children, except when the facility is registered as a child care home.
- (D) "Registered child development homes" - child care providers certify that they comply with rules adopted by the department of human services. This process is voluntary for providers caring for five or fewer children and mandatory for providers caring for six or more children.
- (E) A full listing of licensed and registered child care facilities is available at county offices of the department of human services.

2. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest public use area.

	Score	Air	Water	Community
<input type="checkbox"/> 250 feet to 500 feet	5	2.00		3.00
<input type="checkbox"/> 501 feet to 750 feet	10	4.00		6.00
<input type="checkbox"/> 751 feet to 1,000 feet	15	6.00		9.00
<input type="checkbox"/> 1,001 feet to 1,250 feet	20	8.00		12.00
<input type="checkbox"/> 1,251 feet to 1,500	25	10.00		15.00
<input checked="" type="checkbox"/> 1,501 feet or more	30	12.00		18.00

- (A) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567--Chapter 65 to determine minimum required separation distances.
- (B) "Public use area" - a portion of land owned by the United States, the state, or a political subdivision with facilities which attract the public to congregate and remain in the area for significant periods of time. Facilities include, but are not limited to, picnic grounds, campgrounds, cemeteries, lodges, shelter houses, playground equipment, lakes as listed in Table 2 of 567--Chapter 65, and swimming beaches. It does not include a highway, road right-of-way, parking areas, recreational trails or other areas where the public passes through, but does not congregate or remain in the area for significant periods of time.

3. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest:

- * Educational institution,
- * Religious institution, or

Final Total 455 92.50 116.50 246.00

* Commercial enterprise.

	Score	Air	Water	Community
<input type="checkbox"/> 250 feet to 500 feet	5	2.00		3.00
<input type="checkbox"/> 501 feet to 750 feet	10	4.00		6.00
<input type="checkbox"/> 751 feet to 1,000 feet	15	6.00		9.00
<input type="checkbox"/> 1,001 feet to 1,250 feet	20	8.00		12.00
<input type="checkbox"/> 1,251 feet to 1,500	25	10.00		15.00
<input checked="" type="checkbox"/> 1,501 feet or more	30	12.00		18.00

- (A) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567--Chapter 65 to determine minimum required separation distances.
- (B) The department will award points only for the single building, of the three listed above, closest to the proposed confinement feeding operation.
- (C) "Educational institution" - a building in which an organized course of study or training is offered to students enrolled in kindergarten through grade 12 and served by local school districts, accredited or approved nonpublic schools, area educational agencies, community colleges, institutions of higher education under the control of the state board of regents, and accredited independent colleges and universities.
- (D) "Religious institution" - a building in which an active congregation is devoted to worship.
- (E) "Commercial enterprise" - a building which is used as a part of a business that manufactures goods, delivers services, or sells goods or services, which is customarily and regularly used by the general public during the entire calendar year and which is connected to electric, water, and sewer systems. A commercial enterprise does not include a farm operation.

4. Additional separation distance, above minimum requirement of 500 feet, from proposed confinement structure to the closest water source.

	Score	Air	Water	Community
<input type="checkbox"/> 250 feet to 500 feet	5		5.00	
<input checked="" type="checkbox"/> 501 feet to 750 feet	10		10.00	
<input type="checkbox"/> 751 feet to 1,000 feet	15		15.00	
<input type="checkbox"/> 1,001 feet to 1,250 feet	20		20.00	
<input type="checkbox"/> 1,251 feet to 1,500	25		25.00	
<input type="checkbox"/> 1,501 feet or more	30		30.00	

"Water source" - a lake, river, reservoir, creek, stream, ditch, or other body of water or channel having definite banks and a bed with water flow, except lakes or ponds without an outlet to which only one landowner is riparian.

5. Separation distance of 300 feet or more from the proposed confinement structure to the nearest thoroughfare.

	Score	Air	Water	Community
<input checked="" type="checkbox"/> 300 feet or more	30	9.00		21.00

- (A) "Thoroughfare" - a road, street, bridge, or highway open to the public and constructed or maintained by the state or a political subdivision.
- (B) The 300-foot distance includes the 100-foot minimum setback plus additional 200 feet.

6. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest critical public area.

	Score	Air	Water	Community
<input checked="" type="checkbox"/> 500 feet or more	10	4.00		6.00

- (A) All critical public areas as defined in 567--65.1(455B), are public use areas, and therefore subject to public use area minimum separation distances.
- (B) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567--Chapter 65 to determine minimum required separation distances.

7. Proposed confinement structure is at least two times the minimum required separation distance from all private and public water wells.

Final Total 455 92.50 116.50 246.00

expected internal and external load pressures.

(B) The design, operation and maintenance plan for the formed manure storage structure must be in the construction permit application and made a condition in the approved construction permit.

18. Manure storage structure is aerated to meet departmental standards as an aerobic structure, if aeration is not already required by the department.

	Score	Air	Water	Community
<input type="checkbox"/> Aerated manure storage structure(s)	10	8.00		2.00

(A) Aerobic structure - an animal feeding operation structure other than an egg wash water storage structure which relies on aerobic bacterial action which is maintained by the utilization of air or oxygen and which includes aeration equipment to digest organic matter. Aeration equipment shall be used and shall be capable of providing oxygen at a rate sufficient to maintain an average of 2 milligrams per liter dissolved oxygen concentration in the upper 30 percent of the depth of manure in the structure at all times.

(B) The design, operation and maintenance plan for the aeration equipment must be in the construction permit application and made a condition in the approved construction permit.

19. Proposed confinement site has a suitable truck turnaround area so that semitrailers do not have to back into the facility from the road

	Score	Air	Water	Community
<input checked="" type="checkbox"/> Truck turnaround	20			20.00

(A) The design, operation and maintenance plan for the truck turn around area must be in the construction permit application and made a condition in the approved construction permit.

(B) The turnaround area should be at least 120 feet in diameter and be adequately surfaced for traffic in inclement weather.

20. Construction permit applicant's animal feeding operation environmental and worker protection violation history for the last five years at all facilities in which the applicant has an interest.

	Score	Air	Water	Community
<input checked="" type="checkbox"/> No history of Administrative Orders in last five years	30			30.00

(A) "Interest" - means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly, indirectly through a spouse or dependent child, or both.

(B) An environmental violation is a final Administrative Order (AO) from the department of natural resources or final court ruling against the construction permit applicant for environmental violations related to an animal feeding operation. A Notice of Violation (NOV) does not constitute a violation.

21. Construction permit applicant waives the right to claim a Pollution Control Tax Exemption for the life of the proposed confinement feeding operation structure.

	Score	Air	Water	Community
<input type="checkbox"/> Permanent waiver of Pollution Control Tax Exemption	5			5.00

(A) Waiver of Pollution Control Tax Exemption is limited to the proposed structure(s) in the construction permit application.

(B) The department and county assessor will maintain a record of this waiver, and it must be in the construction permit application and made a condition in the approved construction permit.

22. Construction permit applicant can lawfully claim a Homestead Tax Exemption on the site where the proposed confinement structure is to be constructed

- OR -

the construction permit applicant is the closest resident to the proposed confinement structure.

	Score	Air	Water	Community
<input checked="" type="checkbox"/> Site qualifies for Homestead Tax Exemption or permit applicant is closest resident to proposed structure	25			25.00

Proof of Homestead Tax Exemption is required as part of the construction permit application.

(A) Applicant includes persons who have ownership interests. "Interest" - means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly, indirectly through a spouse or

Final Total 455 92.50 116.50 246.00

dependent child, or both.

23. Construction permit applicant can lawfully claim a Family Farm Tax Credit for agricultural land where the proposed confinement feeding operation is to be located pursuant to Iowa Code chapter 425A.

	Score	Air	Water	Community
<input checked="" type="checkbox"/> Family Farm Tax Credit qualification	25			25.00

(A) Applicant includes persons who have ownership interests. "Interest" - means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly, indirectly through a spouse or dependent child, or both.

24. Facility size.

	Score	Air	Water	Community
<input type="checkbox"/> 1 to 2,000 animal unit capacity	20			20.00
<input checked="" type="checkbox"/> 2,001 to 3,000 animal unit capacity	10			10.00
<input type="checkbox"/> 3,001 animal unit capacity or more	0			0.00

- (A) Refer to the construction permit application package to determine the animal unit capacity of the proposed confinement structure at the completion of construction.
- (B) If the proposed structure is part of an expansion, animal unit capacity (or animal weight capacity) must include all animals confined in adjacent confinement structures.
- (C) Two or more animal feeding operations under common ownership or management are deemed to be a single animal feeding operation if they are adjacent or utilize a common area or system for manure disposal. In addition, for purposes of determining whether two or more confinement feeding operations are adjacent, all of the following must apply:
- At least one confinement feeding operation structure must be constructed on and after May 21, 1998.
 - A confinement feeding operation structure which is part of one confinement feeding operation is separated by less than a minimum required distance from a confinement feeding operation structure which is part of the other confinement feeding operation. The minimum required distance shall be as follows:
 - 1,250 feet for confinement feeding operations having a combined animal unit capacity of less than 1,000 animal units.
 - 2,500 feet for confinement feeding operations having a combined animal unit capacity of 1,000 animal units or more.

25. Construction permit application includes livestock feeding and watering systems that significantly reduce manure volume.

	Score	Air	Water	Community
<input type="checkbox"/> Wet/dry feeders or other feeding and watering systems that significantly reduce manure volume	25		12.50	12.50

The design, operation and maintenance plan for the feeding system must be in the construction permit application and made a condition in the approved construction permit.

Proposed Site Operation and Manure Management Practices

The following scoring criteria apply to the operation and manure management characteristics of the proposed confinement feeding operation. Mark one score under each criterion that best reflects the characteristics of the submitted manure management plan.

26. Liquid or dry manure (choose only one subsection from subsections "a" - "e" and mark one

	Score	Air	Water	Community
<input type="checkbox"/> a. Bulk dry manure is sold under Iowa Code Chapter 200A and surface-applied	15		15.00	
<input type="checkbox"/> Bulk dry manure is sold under Iowa Code Chapter 200A and incorporated on the same date it is land-applied	30	12.00	12.00	6.00
<input type="checkbox"/> b. Dry manure is composted and land-applied under the requirements of a department manure management plan	10	4.00	4.00	2.00
<input type="checkbox"/> Dry manure is composted and sold so that no manure is applied under the requirements of a department manure	30	12.00	12.00	6.00

Final Total 455 92.50 116.50 246.00

	management plan				
--	-----------------	--	--	--	--

<input checked="" type="checkbox"/>	c.	Methane digester is used to generate energy from manure and remaining manure is surface-applied under the requirements of an approved department manure management plan	10	3.00	3.00	4.00
<input type="checkbox"/>		After methane digestion is complete, manure is injected or incorporated on the same date it is land-applied under the requirements of an approved department manure management plan	30	12.00	12.00	6.00
<input type="checkbox"/>	d.	Dry manure is completely burned to generate energy and no remaining manure is applied under the requirement of a manure management plan	30	9.00	9.00	12.00
<input type="checkbox"/>		Some dry manure is burned to generate energy, but remaining manure is land-applied and incorporated on the same date it is land applied	30	12.00	12.00	6.00
<input type="checkbox"/>	e.	Injection or incorporation of manure on the same date it is land-applied	30	12.00	12.00	6.00

- (A) Choose only ONE line from subsection "a", "b," "c," "d," or "e" above and mark only one score in that subsection.
- (B) The injection or incorporation of manure must be in the construction permit application and made a condition in the approved construction permit.
- (C) If an emergency arises and injection or incorporation is not feasible, prior to land application of manure the applicant must receive a written approval for an emergency waiver from a department field office to surface-apply manure.
- (D) Requirements pertaining to the sale of bulk dry manure under pursuant to Iowa Code chapter 200A must be incorporated into the construction permit application and made a condition of the approved construction permit.
- (E) The design, operation and maintenance plan for utilization of manure as an energy source must be in the construction permit application and made a condition in the approved construction permit.
- (F) The design, operation and maintenance plan for composting facilities must be in the construction permit application and made a condition in the approved construction permit.

27. Land application of manure is based on a two-year crop rotation phosphorus uptake level.

	Score	Air	Water	Community
<input type="checkbox"/> Two-year phosphorus crop uptake application rate	10		10.00	

- (A) Land application of manure cannot exceed phosphorus crop usage levels for a two-year crop rotation cycle.
- (B) The phosphorus uptake application rates must be in the construction permit application and made a condition in the approved construction permit.

28. Land application of manure to farmland that has USDA Natural Resources Conservation Service (NRCS) approved buffer strips contiguous to all water sources traversing or adjacent to the fields listed in the manure management plan.

	Score	Air	Water	Community
<input type="checkbox"/> Manure application on farmland with buffer strips	10		8.00	2.00

- (A) The department may request NRCS maintenance agreements to ensure proper design, installation and maintenance of filter strips. If a filter strip is present but not designed by NRCS, it must meet NRCS standard specifications.
- (B) The application field does not need to be owned by the confinement facility owner to receive points.
- (C) On current and future manure management plans, the requirement for buffer strips on all land application areas must be in the construction permit application and made a condition in the approved construction permit.

29. Land application of manure does not occur on highly erodible land (HEL), as classified by the USDA NRCS.

	Score	Air	Water	Community
<input checked="" type="checkbox"/> No manure application on HEL farmland	10		10.00	

Manure application on non-HEL farmland must be in the construction permit application and made a condition in the approved construction permit.

Final Total 455 92.50 116.50 246.00

30. Additional separation distance, above minimum requirements (0 or 750 feet, see below), for the land application of manure to the closest:

- * Residence not owned by the owner of the confinement feeding operation,
- * Hospital,
- * Nursing home, or
- * Licensed or registered child care facility.

	Score	Air	Water	Community
<input type="checkbox"/> Additional separation distance of 200 feet	5	3.25		1.75
<input type="checkbox"/> Additional separation distance of 500 feet	10	6.50		3.50

- (A) The department will award points only for the single building, of the four listed above, closest to the proposed confinement feeding operation.
- (B) Minimum separation distance for land application of manure injected or incorporated on the same date as application: 0 feet.
- (C) Minimum separation distance for land application of manure broadcast on soil surface: 750 feet.
- (D) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.
- (E) "Licensed child care center" – a facility licensed by the department of human services providing child care or preschool services for seven or more children, except when the facility is registered as a child care home.
- (F) "Registered child development homes" - child care providers certify that they comply with rules adopted by the department of human services. This process is voluntary for providers caring for five or fewer children and mandatory for providers caring for six or more children.
- (G) A full listing of licensed and registered child care facilities is available at county offices of the Department of Human Services

31. Additional separation distance, above minimum requirements (0 or 750 feet, see below), for land application of manure to closest public use area.

	Score	Air	Water	Community
<input checked="" type="checkbox"/> Additional separation distance of 200 feet	5	2.00		3.00

- (A) "Public use area" - a portion of land owned by the United States, the state, or a political subdivision with facilities which attract the public to congregate and remain in the area for significant periods of time. Facilities include, but are not limited to, picnic grounds, campgrounds, cemeteries, lodges, shelter houses, playground equipment, lakes as listed in Table 2 in 567--Chapter 65, and swimming beaches. It does not include a highway, road right-of-way, parking areas, recreational trails or other areas where the public passes through, but does not congregate or remain in the area for significant periods of time.
- (B) Minimum separation distance for land application of manure injected or incorporated on the same date as application: 0 feet.
- (C) Minimum separation distance for land application of manure broadcast on soil surface: 750 feet.
- (D) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.

32. Additional separation distance, above minimum requirements (0 or 750 feet, see below), for the land application of manure to the closest:

- * Educational institution,
- * Religious institution, or
- * Commercial enterprise.

	Score	Air	Water	Community
<input checked="" type="checkbox"/> Additional separation distance of 200 feet	5	2.00		3.00

- (A) Minimum separation distance for land application of manure broadcast on soil surface: 750 feet.
- (B) Minimum separation distance for land application of manure injected or incorporated on same date as application: 0 feet.
- (C) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.
- (D) "Educational institution" - a building in which an organized course of study or training is offered to students enrolled in kindergarten through grade 12 and served by local school districts, accredited or approved nonpublic schools, area educational agencies, community colleges, institutions of higher education under the control of the state board of regents, and accredited independent colleges and universities.
- (E) "Religious institution" - a building in which an active congregation is devoted to worship.
- (F) "Commercial enterprise" - a building which is used as a part of a business that manufactures goods, delivers

Final Total 455 92.50 116.50 246.00

- (A) The worker safety and protection plan must be in the construction permit application and made a condition in the approved construction permit.
- (B) The worker safety and protection plan and subsequent records must be kept on site with the manure management plan records.

38. Applicant signs a waiver of confidentiality allowing public to view confidential manure management plan land application records

	Score	Air	Water	Community
<input type="checkbox"/> Manure management plan confidentiality waiver	5			5.00

The waiver of confidentiality must be in the construction permit application and made a condition in the approved construction permit. The applicant may limit public inspection to reasonable times and places.

39. Added economic value based on quality job development (number of full time equivalent (FTE) positions), and salary equal to or above Iowa department of workforce development median (45-2093) -OR- the proposed structure increases commercial property tax base in the county.

	Score	Air	Water	Community
<input checked="" type="checkbox"/> Economic value to local community	10			10.00

The Iowa Department of Workforce Development regional profiles are available at <http://www.iowaworkforce.org/centers/regionalsites.htm>. Select the appropriate region and then select "Regional Profile."

40. Construction permit application contains an emergency action plan.

	Score	Air	Water	Community
<input checked="" type="checkbox"/> Emergency action plan	5		2.50	2.50

- (A) Iowa State University Extension publication PM 1859 lists the components of an emergency action plan. The emergency action plan submitted should parallel the components listed in the publication.
- (B) The posting and implementation of an emergency action plan must be in the construction permit application and made a condition in the approved construction permit.
- (C) The emergency action plan and subsequent records must be kept on site with the manure management plan records.

41. Construction permit application contains a closure plan.

	Score	Air	Water	Community
<input checked="" type="checkbox"/> Closure Plan	5		2.50	2.50

- (A) The closure plan must be in the construction permit application and made a condition in the approved construction permit.
- (B) The closure plan must be kept on site with the manure management plan records.

42. Adoption and implementation of an environmental management system (EMS) recognized by the department.

	Score	Air	Water	Community
<input type="checkbox"/> EMS	15	4.50	4.50	6.00

- (A) The EMS must be in the construction permit application and made a condition in the approved construction permit.
- (B) The EMS must be recognized by the department as an acceptable EMS for use with confinement operations.

43. Adoption and implementation of NRCS approved Comprehensive Nutrient Management Plan (CNMP).

	Score	Air	Water	Community
<input type="checkbox"/> CNMP	10	3.00	3.00	4.00

The implementation and continuation of a CNMP must be in the construction permit application and made a condition in the approved construction permit.

44. Groundwater monitoring wells installed near manure storage structure), and applicant agrees to provide data to the department.

	Score	Air	Water	Community
<input type="checkbox"/> Groundwater monitoring	15		10.50	4.50

- (A) Monitoring well location, sampling and data submission must meet department requirements.
- (B) The design, operation and maintenance plan for the groundwater monitoring wells, and data transfer to the

Final Total 455 92.50 116.50 246.00

department, must be in the construction permit application and made a condition in the approved construction permit.

Score to pass

Total Score	Air	Water	Community
880	213.50	271.00	404.50
440	53.38	67.75	101.13

Final Tot: 455 92.50 116.50 246.00

EMERGENCY RESPONSE PLAN

Glenora Feed Yard, LLC. is located in Scott County in southeastern Iowa. The cattle confinement operation has a capacity 2,444 of head of finishing cattle with an average weight of 900 lbs. The legal description of the livestock facility is as follows: NE ¼ of Section 32, T-80-N, R-1-E, Scott County, Iowa.

The following protocol will be used for any causes such as power failure, storms or extended wet periods, accidents, equipment failure, or failure of components of the livestock waste control facility.

1. Implement containment steps so that waters of the State of Iowa are not contaminated.
2. Assess the extent of the emergency and determine the amount of help needed.
3. Contact Bryan Sievers (cell phone 569-340-6541), the farm's emergency team leader and facility owner.
4. The following information will be given to the farm's emergency team leader:
 - Your name
 - Farm identification
 - Description of the emergency
 - Estimate of the amount, area covered and distance traveled from the site
 - Has manure reached waters of the State?
 - Is there any obvious damage: employee injury, fish kill or property damage?
 - What is currently in progress to contain the situation?
5. Available equipment/ supplies for responding to an emergency: McCleary Excavating Co., Inc. 563-381-2880, Eller Construction Co, Inc. 563-285-5155, Schwarz Excavating 563-785-6752.
6. The Iowa Department of Natural Resources (phone 515-281-8694) will be notified of a discharge or spill within 6 hours of the event and a written report to the department within seven days of the discharge or spill. If any employee is injured, medical personnel (Rescue Unit dial 911) will be notified as quickly as possible. Scott County Sheriff (563-326-8628), or the Bennett Police Department office (563-886-2121) will be notified if appropriate.
7. If a spill should occur on a state or county roadway, the spill will be contained so it does not cause an accident then the Iowa Department of Transportation (515-239-1101) will be notified if on a state highway, or if a spill should occur on a county road then Scott County Engineer will be notified (563-326-8640).

LIVESTOCK WASTE CONTROL FACILITY CLOSURE PLAN

Glenora Feed Yard, LLC.

Glenora Feed Yard, LLC. is located in Scott County in southeastern Iowa. The proposed cattle confinement operation will have a capacity of 2,444 head of finishing cattle with an average weight of 900 lbs. and the land available for manure application is listed in the Manure Management Plan. The legal description of the livestock facility is as follows: NE ¼ of Section 32 T-80-N R-1-E Scott County, Iowa.

When the decision is made to abandon the operation, the Iowa Department of Natural Resources (319-653-2135) will be notified a minimum of seven working days prior to this plan being implemented. The notice will outline the proposed schedule of events and a time estimate to complete the activities.

The confinement buildings, formed concrete, and earthen manure storage structures will remain intact and will have the surface drainage water diverted from them.

The confinement operation will have the option of leveling and cropping the site after the effluent and sediment/sludge have been removed. The manure storage facilities will have drainage water diverted from it, and the sediment will be removed as described in the manure management plan. Prior to application at a minimum the sludge/sediment and effluent will be analyzed for the following nutrients: organic nitrogen, nitrate-N, total nitrogen (TKN), phosphorus, and potassium. The sludge/sediment contained within the manure storage facilities will be removed using front-end loaders and applied at agronomic rates with pull type manure spreaders. The effluent contained within the manure storage facilities will be removed using a stinger and land applied using a pull type liquid manure applicator, high volume gun, umbilical cord, center pivot, or combination of these methods.



AFO Siting

Measure Basemaps Bookmarks Mail Map Info

Map Layers Legend

AFO Siting Data

Animal Feeding Operation

- Active, Confined/Open
- Active, Confinement
- Active, Open Feedlot
- Inactive

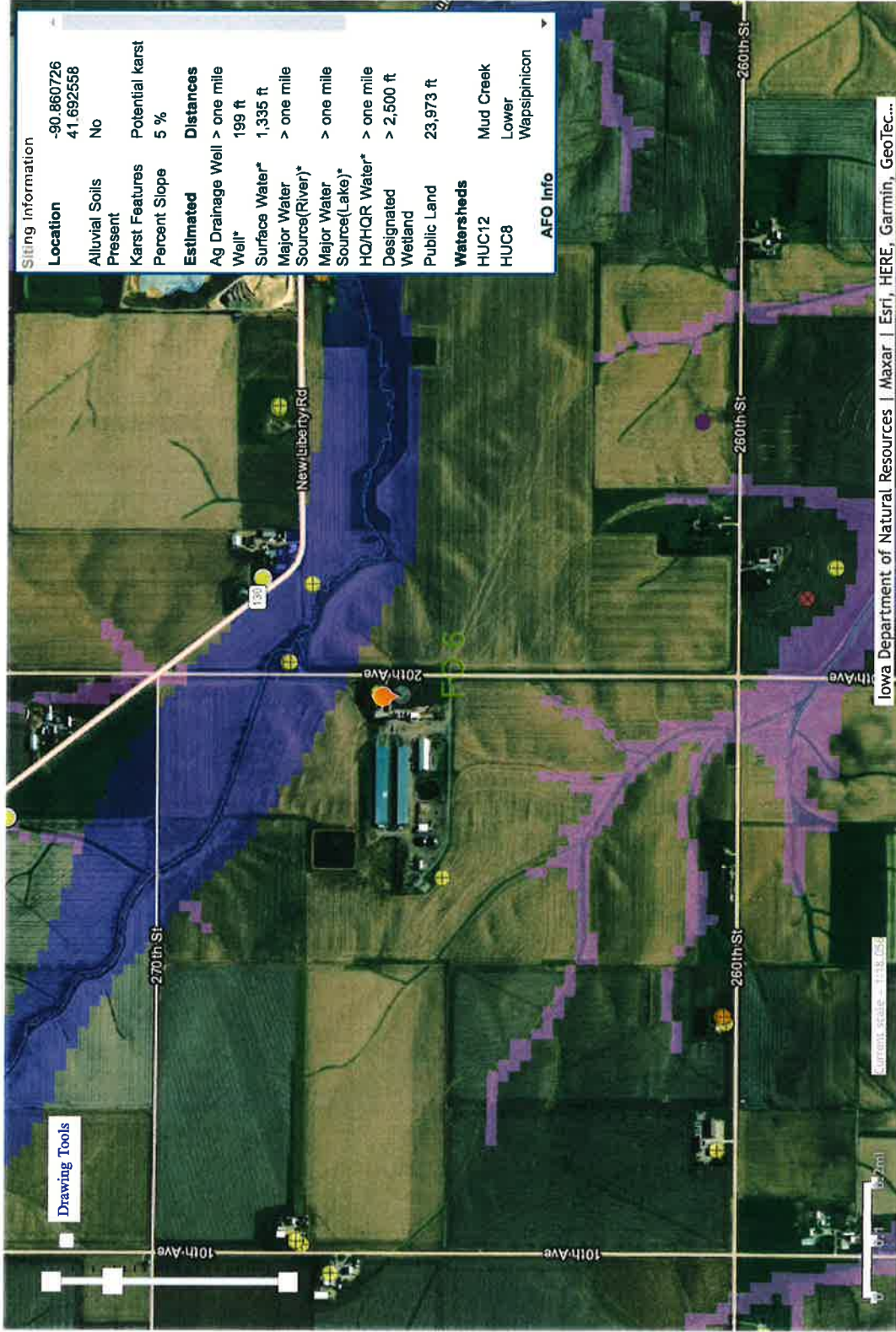
Designated Wetland Buffer

- Wetland Buffer(2500Ft)

DNR Field Office

Borders and Boundaries

DNR Field Offices



Siting Information	
Location	-90.860726 41.692558
Alluvial Soils Present	No
Karst Features	Potential karst
Percent Slope	5 %
Estimated Distances	
Ag Drainage Well	> one mile
Well*	199 ft
Surface Water*	1,335 ft
Major Water Source(River)*	> one mile
Major Water Source(Lake)*	> one mile
HQ/HQR Water*	> one mile
Designated Wetland	> 2,500 ft
Public Land	23,973 ft
Watersheds	
HUC12	Mud Creek
HUC8	Lower Wapsipinicon
AFO Info	

Iowa Department of Natural Resources | Maxar | Esri, HERE, Garmin, GeoTec...



Map layers Legend

AFO Siting Data

Sinkhole or Potential Karst

- Sinkhole w/ 1000 ft radius
- Karst and Potential Karst

Animal Feeding Operation

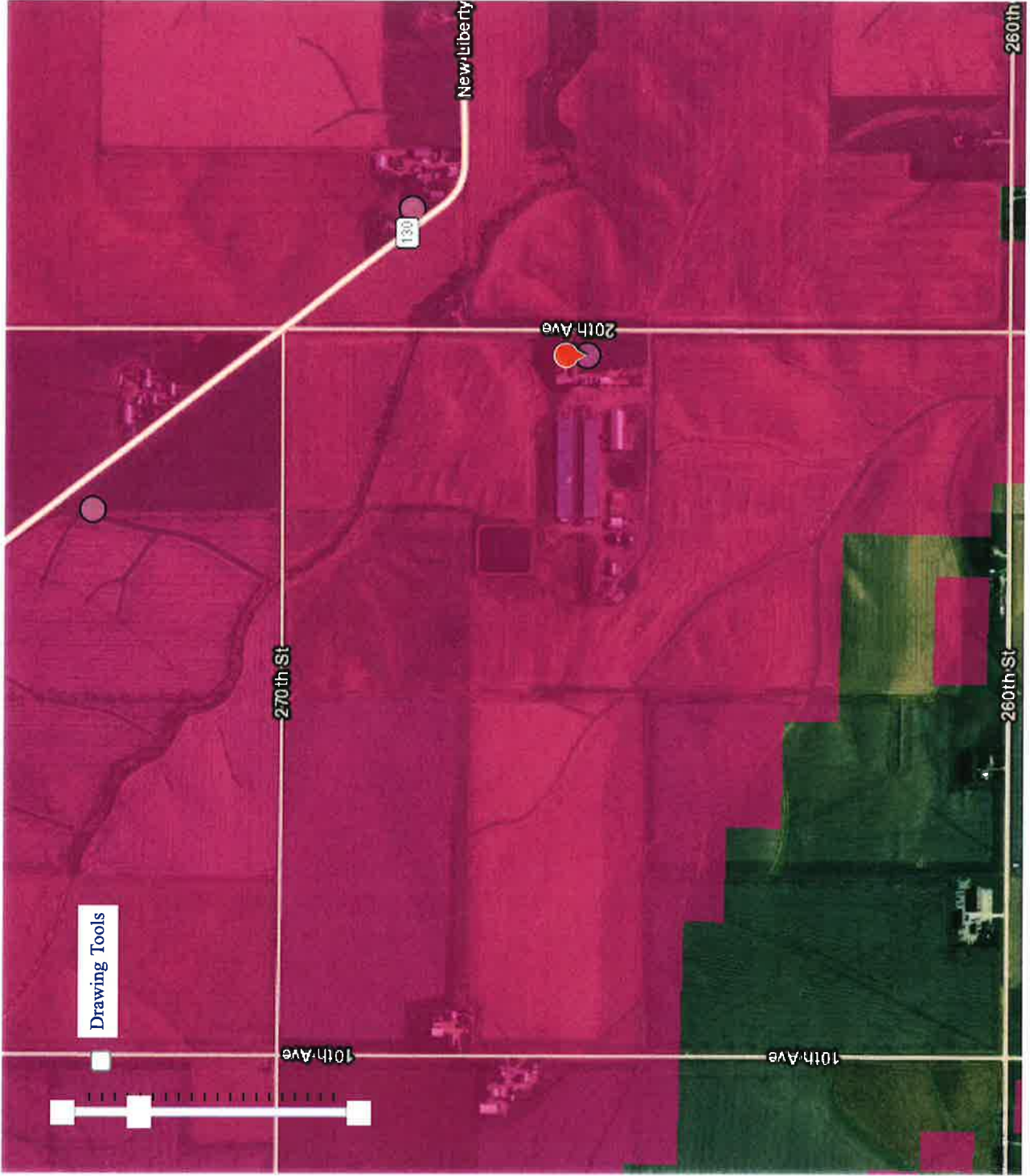
- Active, Confined/Open
- Active, Confinement
- Active, Open Feedlot
- Inactive

Designated Wetland Buffer

- Wetland Buffer(2500Ft)

Measure Basemaps Bookmarks Mail Map Info

Drawing Tools



proageng.com

From: "Hruby, Claire [DNR]" <Claire.Hruby@dnr.iowa.gov>
To: "proageng.com" <nic@proageng.com>
Cc: "Bryan & Lisa Sievers" <4isu@fbcom-wb.net>; "Ostwinkle, Dennis [DNR]" <Dennis.Ostwinkle@dnr.iowa.gov>
Sent: Saturday, February 20, 2010 12:41 PM
Attach: Site1-25-10.pdf
Subject: RE: Karst Determination for proposed cattle confinement and digester - Scott County

Determination# 2022

Location: NE 1/4, Section 32, T80N, R1E, Scott County

Nic,

I agree with your assessment of the site. This site is not in karst. Bedrock is likely to be well over 25 feet below the facility. In addition, there are no mapped sinkholes or other karst features in the area, indicating that the bedrock is not highly soluble. This determination is only valid for the area that you have indicated on the attached plans. Please include this determination with any materials you submit for construction approval. I am excited about the possibility of a digester. Good luck with your project.

-Claire

Claire Hruby, Geologist

IDNR - Wallace Building
 502 E. 9th St.
 Des Moines, IA 50319
 ph: 515-242-6848
claire.hruby@dnr.iowa.gov

From: proageng.com [mailto:nic@proageng.com]
Sent: Friday, February 19, 2010 3:58 PM
To: Hruby, Claire [DNR]
Cc: Bryan & Lisa Sievers
Subject: Karst Determination

Hi Claire,

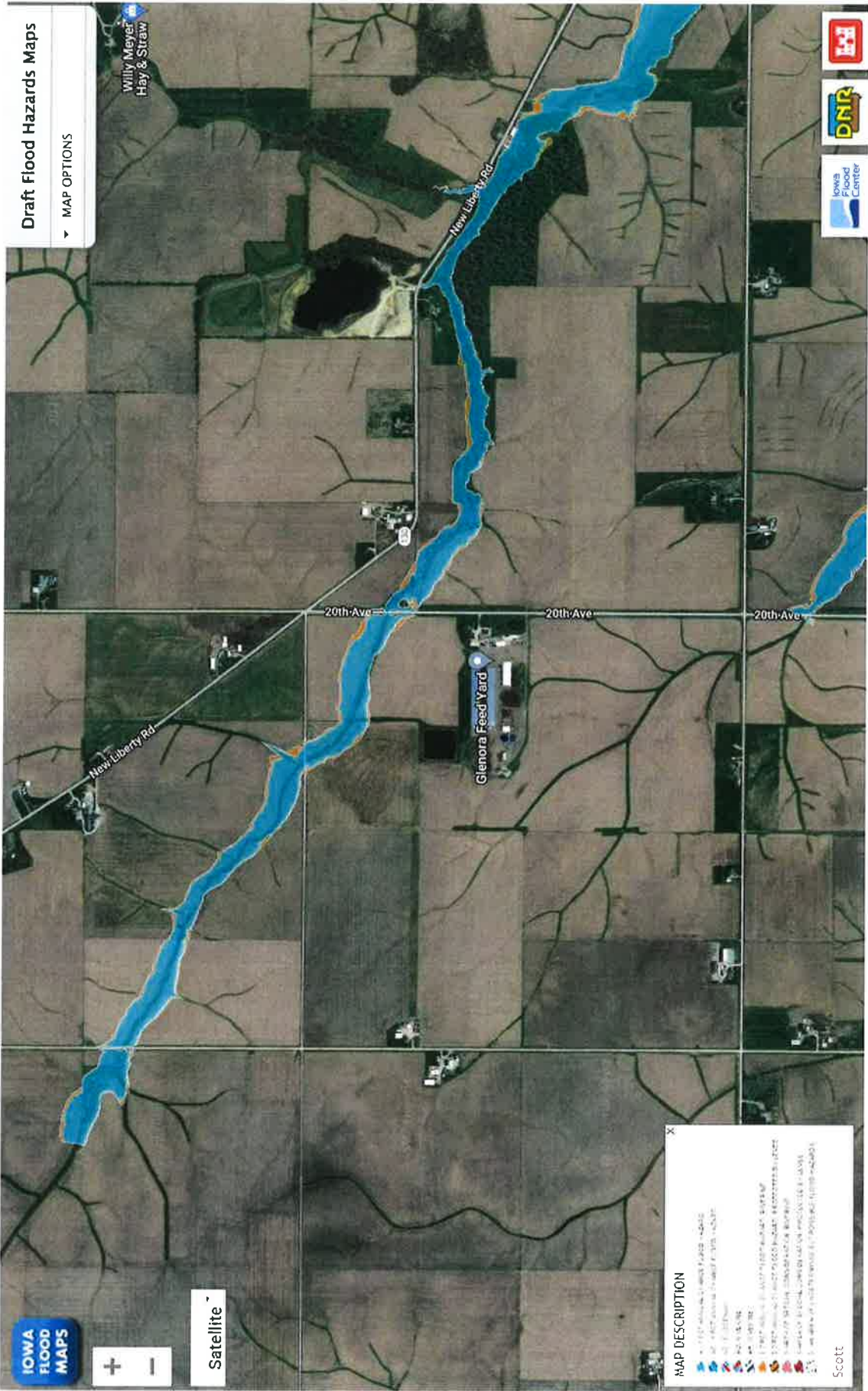
Attached is the preliminary design and layout of a proposed cattle feedlot and digester located in the NE 1/4, Section 32, T80N, R1E, Scott County, Iowa. I mentioned this project to you earlier and now we need you to verify the site is not in karst. I looked at the area well logs and it appears that the depth to bedrock is approximately 50 feet. It was shallower than that in the lower elevations but we are located on top of the hill and the residence with a well located to the south (IDNR Well #53523) is also located on the hill and the depth to bedrock was 50'. The lowest proposed elevation would be the bottom of the proposed concrete circular tank that would hold the liquid waste from the digester and that elevation is 770. Please review the site and let us know if the site is considered karst and if updated concrete standards are required. Feel free to contact me anytime with any other questions or concerns.

Thanks,

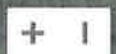
Nic Rowe, P.E.
 ProAg Engineering, Inc.
 507 Milwaukee Street
 P.O. Box 992
 Lakefield, MN 56150
 507-841-3269 cell
 507-662-5538 office
 507-662-5105 fax
nic@proageng.com

Draft Flood Hazards Maps
MAP OPTIONS

Willy Meyer
(Hay & Straw)



IOWA FLOOD MAPS



Satellite

MAP DESCRIPTION

- 1. 1:100,000 Scale Flood Hazard
- 2. 1:250,000 Scale Flood Hazard
- 3. 1:500,000 Scale Flood Hazard
- 4. 1:1,000,000 Scale Flood Hazard
- 5. 1:2,000,000 Scale Flood Hazard
- 6. 1:5,000,000 Scale Flood Hazard
- 7. 1:10,000,000 Scale Flood Hazard
- 8. 1:20,000,000 Scale Flood Hazard
- 9. 1:50,000,000 Scale Flood Hazard
- 10. 1:100,000,000 Scale Flood Hazard
- 11. 1:200,000,000 Scale Flood Hazard
- 12. 1:500,000,000 Scale Flood Hazard
- 13. 1:1,000,000,000 Scale Flood Hazard

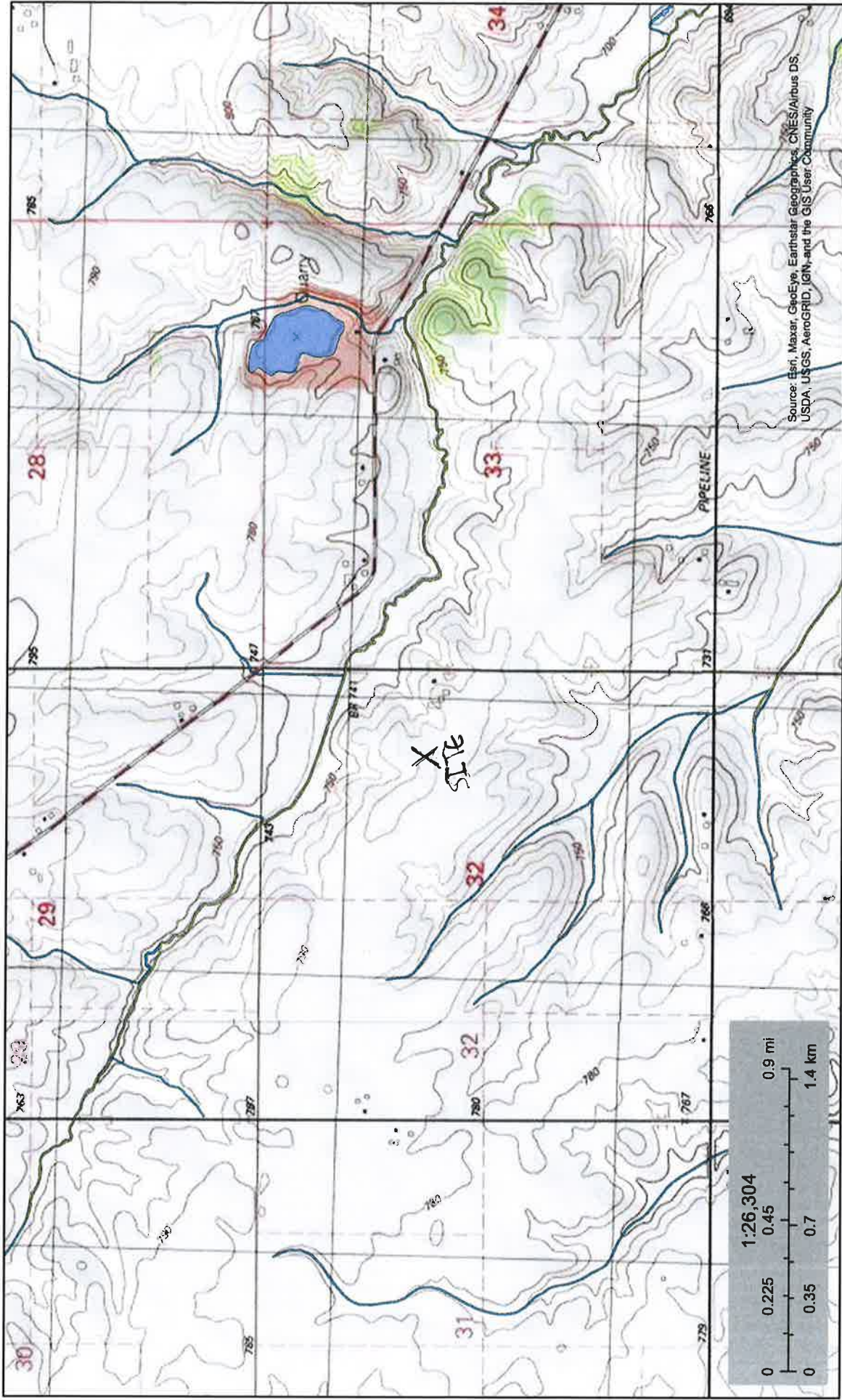
Scott



U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

February 25, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

OPERATION AND MAINTENANCE MANUAL

GLENORA FEED YARD, LLC

SCOTT COUNTY, IOWA

ProAg Project No: 09-074

INTRODUCTION

This facility is an existing 2,444 head cattle confinement operation. The existing site consists of two confinement barns, two concrete reception pits, a concrete circular manure storage tank, a solids separator, concrete storage bunkers, two concrete digester tanks and one earthen manure storage basin. The site is proposing to construct a covered earthen digester. There are no other changes proposed to the site.

OVERALL MANURE HANDLING OPERATION

Each confinement barn holds 1,222 head and is 640' x 90' with a 12' wide slatted floor and 2' deep pits. All of the shallow pits are cleaned daily with underslat cable manure scrapers that push the manure into concrete reception pits (54' x 12' x 8' deep). A pump in each concrete reception pit supplies the anaerobic digesters. From the digesters the waste will be transferred to the concrete circular tank which will be heated and covered and turned into an additional digester tank. Effluent from this third digester tank will then be pumped to the proposed covered earthen digester. Liquid effluent will flow off the top of the covered earthen digester into the existing earthen storage basin while sludge in the bottom of the covered earthen digester will be pumped to the solids separator. The proposed covered earthen digester is located in the same location as the second earthen manure storage basin was previously permitted. The proposed covered earthen digester doesn't provide any additional storage volume to the site as it will remain full at all times.

MASTER MATRIX

The Master Matrix was completed for the proposed confinement operation and it meets the minimum score requirements. Criteria numbers 16 and 19 were scored and they need design, operation and maintenance manuals. Number 16 deals with compost or stockpile enhancements. A large concrete pad exists near the manure separator. This pad is used for stacking and storing dry manure after it has passed through the solids separator. This pad was constructed to meet I.A.C. 567 65.15(14)b for dry manure storage structures. When the pad is emptied it is inspected for cracks and/or damage with the repairs occurring immediately. Number 19 deals with a truck turnaround. A large gravel area is located south and east of the confinement barns for trucks to operate without backing up onto the road. This area is inspected daily and all damage is repaired immediately. The enclosed Master Matrix has been checked in the appropriate boxes. All four categories have the minimum number of points required. Our figures show the following totals:

TOTAL SCORE = 455

AIR = 92.50

WATER = 116.50

COMMUNITY = 246

SEMI-ANNUAL INSPECTION OF MANURE STORAGE PITS AND HANDLING SYSTEMS

Establish a time each spring and fall for a thorough inspection of the manure storage and handling systems. **WARNING: DO NOT ENTER COVERED MANURE PITS & TANKS.**

All concrete storage pits and reception pits shall be inspected to evaluate the outside of structures for cracks and deterioration of concrete. Any cracks showing discharge of liquid manure shall be inspected by an engineer and repairs done as prescribed by the engineer.

Maintain the following in proper working order:

- Pumpout covers and grates to prevent accidental entry into a manure storage structure.
- Warning signs at entry points to pits and tanks.
- Rainwater diversions to direct 'clean' water away and 'dirty' water into storage facilities.
- Sewers and manure pumping systems.
- Perimeter tile, sump pumps, sampling ports and rodent guards at outlets.

INSPECT PERIMETER TILE AT LEAST ONE WEEK BEFORE EMPTYING STORAGE

All below ground waste storage structures require perimeter tile to relieve the hydrostatic pressures which would otherwise damage the sides of the concrete tanks and manure storage pits under barns. There is a serious problem if the water level in the sump or inspection port is above the pit floor.

It is very important that the ground water level be lowered prior to emptying the manure storage pit. It may take a week or more for the system to lower the ground water pressure once the problem has been corrected.

CHANGE IN TILE WATER COLOR OR ODOR

If visual observation of the tile water indicates a change in color or odor, then a more urgent response is necessary. A change in color or odor may be caused by either soil and/or manure water. If this should occur, immediately stop all discharge to field tile. Notify the IDNR or Engineer immediately.

Install a sump pump and discharge the tile water onto a vegetated filter strip area. If necessary, plug the line going to field tile with bentonite 'chips'. Bentonite chips may be obtained from your well driller.

SCHEDULED MAINTENANCE

INTRODUCTION FOR CONFINEMENT

This portion of the manual will provide guidance to employees as to what areas of the sit need regularly scheduled inspection and maintenance. This manual deals primarily with manure collection, transporting, and hauling.

DAILY

1. Verify all discharge pipes between storage structures are unobstructed
2. Inspect lift station pumps, piping, and controls in each structure
3. Visually inspect storage structures for levels as compared to prior day.
4. Check water lines and waterers for any signs of leakage

WEEKLY

1. Verify all exterior valve boxes are visible and fence post markers are adjacent to valve boxes.
2. Walk pipe routes and inspect for settling along pipe route and evidence of pipe breakage.
3. Inspect all pump intake manholes. Inspect pumps, floats, piping and vacuum valve for tightness. Verify isolation valve to vacuum valve is open.
4. Inspect and record liquid levels in each storage structure.

MONTHLY

1. Cycle all buried gate valves (open and close at least once).
2. Inspect the basin dikes both interior and exterior for erosion, rodent holes and visible leakage. Eroded areas should be filled in with black dirt, reseeded and mulched. Rodent holes shall be filled with granular bentonite and rodent traps used. Visible leakage should be reported to the Engineer to determine course of action and to local DNR office if manure is a potential immediate hazard.
3. Dike interior and exterior should be sprayed for weeds and any bare spots seeded and fertilized with grass seed mixture.
4. Check tile outlets for rodent guards and obstructions.
5. Manually run pump and check floats

AFTER SIGNIFICANT RAINFALL

1. Check general site drainage and condition of rock surfacing on roadways.
2. Inspect culverts for siltation.
3. Inspect tile intakes and culverts for debris.
4. Inspect feed area and open lots for proper drainage and containment.

AFTER PUMPING OF BASIN

1. Check earthen basin corners (riprap) for erosion and place additional riprap as required.
2. Check concrete pads on interior dike slopes for integrity.


3. Check dike inner slopes for agitator wheel ruts and repair by filling in with black dirt.
4. Upon emptying, inspect the sludge and sediment accumulation levels in the basins.
5. Record basin liquid levels after land application.
6. Check dike and bottom for erosion. Contact the Engineer if visible erosion has occurred and fill with granular bentonite until permanent measures can be made.

DRAINAGE TILE LINE CERTIFICATION

"I hereby certify that I am a licensed Engineer in the State of Iowa. To the best of my knowledge, information and belief, the construction of the animal feeding operation structures proposed by:

GLENORA FEEDYARD, L.L.C.
NE1/4, SECTION 32, T-80-N, R-1-E
SCOTT COUNTY, IOWA

will not impede the performance of established drainage tile lines and if construction disturbs drainage tile lines, I will recommend the necessary measures to be taken to reestablish drainage and, upon completion of construction, file a statement that those measures were taken to reestablish drainage."



NICHOLAUS J. ROWE, P.E.


Date: 3/16/22
Iowa Registration No. 18651

TECHNICAL SPECIFICATIONS

**GLENORA FEED YARD, LLC.
PROPOSED COVERED MANURE STORAGE BASIN
NE¹/₄, Section 32, T80N, R1E
SCOTT COUNTY, IOWA**

ProAg Project No. 09-074

March 2022

 <p>The seal is circular with a double-line border. The outer ring contains the text "LICENSED PROFESSIONAL ENGINEER" at the top and "IOWA" at the bottom, separated by two stars. The inner circle contains the name "NICHOLAUS J. ROWE" and the license number "18651".</p>	<p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.</p> <p><i>Nicholas J. Rowe</i> _____ Date <u>3/16/22</u></p> <p>Nicholaus J. Rowe, P.E. License number 18651 My license renewal date is December 31, 2023 Pages or sheets covered by this seal: <u>ALL</u></p>
---	---

ENGINEER:

ProAg Engineering, Inc.

77402 U.S. Highway 71

P.O. Box 181

Jackson, MN 56143

Phone: 507-849-7200

Fax: 507-849-7203

Table of Contents

SECTION	DESCRIPTION
200	Stormwater Pollution Prevention Plan
210	Erosion Protection
230	Seeding & Fertilizing
300	Excavation & Borrow
320	Trenching, Backfilling & Compacting
330	Utility Conflict Repairs
400	Cast-In-Place Concrete
500	Subdrains
510	Perimeter Tile System
610	Wastewater Pipelines

STORMWATER POLLUTION PREVENTION PLAN

(SWPPP)

SECTION 200

I. GENERAL

A. Construction Sequence and Best Management Practices (BMP's)

1. The construction site shall be planted to grass (or cover crop) prior to commencement of construction. See Grass Seeding Guidelines.
2. Areas not to be disturbed during construction shall be staked and marked. Considerable rain water and sediment can be trapped on areas planted to grass and not compacted by construction traffic.
3. Install silt fence as shown on the site plan or according to Engineer.
4. All drive entrances shall be protected with rock. Install road culvert(s) as per highway department specifications.
5. Build a berm to prevent field water from entering the construction site. Make berm 18-24" high with 3:1 side slopes. Use loose top soil from the barn area. A berm is an alternative to using silt fence. The loose soil will absorb a lot of water. Construct the berm on the contour with no channel on the up-hill side of the berm.
6. Temporary stockpiles shall have silt fence or other effective sediment controls and cannot be placed in stormwater conveyances, ditches or grass waterways.
7. Dewatering of pits and basins shall be done in a manner that does not cause nuisance conditions or discharge onto down-slope property. Rain and ground water in pit excavations shall not be allowed to flow direct into open tile, unless the tile inlet has silt fence or other protection or the perimeter tile is installed and covered with pea rock or crushed rock.
8. After backfilling and final grading is done, those areas shall be planted to grass. Slopes steeper than 5:1 shall be mulched. All seeding and mulching operations shall commence within 1 week after completion of each portion of the construction or as soon as soil conditions permit. See Grass Seeding Guidelines.
9. After berms are removed and backfill around barns is re-graded (the following spring) those areas shall be re-seeded to grass.
10. Final stabilization is achieved when soils have been stabilized by a uniform perennial vegetative cover over at least 70% of the pervious area, and all drainage ditches and grass waterways have been stabilized, then the silt fence may be removed.
11. The Owner shall keep the plans and records on file for a minimum of six (6) years.

STORMWATER POLLUTION PREVENTION PLAN

(SWPPP)

SECTION 200

B. Maintenance of BMP's

1. Owner shall inspect all BMP's weekly and within 24 hours after each rain event of 1/2" or more in 24 hours.
2. Silt shall be removed from behind silt fences within 24 hours of when the depth reaches 1/3 the height of the fence.
3. Mud and crushed rock are tracked onto public roads, it shall be removed within 24-hours.
4. If sediment escapes the site, off-site accumulations must be removed in a manner and frequency sufficient to minimize off-site impacts.

C. Assignment of Responsibilities for Execution of the SWPPP

1. Owner shall be responsible for execution, inspection, record keeping and updating The SWPPP as required.
2. Owner shall inspect all BMP's weekly and within 24 hours after each rain event of 1/2" or more in 24 hours and supervise proper maintenance of erosion and sediment control practices.
3. Earthwork Contractor shall be responsible for implement, manage and maintain both temporary and permanent erosion and sediment control BMP's (except seeding) until final grading has been completed on site.
4. Owner shall be responsible for seedbed preparation, planting, and mulching operations prescribed by the SWPPP.
5. Changes to the SWPPP shall be approved and recorded by Owner prior to implementation.

D. Grass Seeding Guidelines

1. All in-place topsoil shall be salvaged to the maximum extent possible. It is ideal to place 6 inches of top soil in areas to be seeded. Harrowing before and packing with roller after planting will help germination, make the ground smoother and easier to mow.
2. Seeding mixture and rates are recommendations based on DOT specs. Fertilizer is important for quick growth. Mixtures can be mowed.

STORMWATER POLLUTION PREVENTION PLAN

(SWPPP)

SECTION 200

a. Temporary seeding: Fertilizer 10-10-20 at 200 lbs/acre. Oats at 100 lbs/ac for spring/summer seeding of areas that will be left undisturbed for 21 days or more.

b. Winter wheat at 100 lbs/ac for fall seeding of areas that will be disturbed again in the spring, such as backfill around barns.

Turf and agricultural grasses: Fertilizer 20-10-20 at 350 lbs/acre.

General Roadside mix.

Brome grass, smooth	9.8 lbs/ac	14.0%
Bluegrass, Kentucky "Certified Park"	20.3	29.0
Bluegrass, Canada	9.8	14.0
Switch grass	2.1	3.0
Wheat-grass, slender	2.8	4.0
Rye-grass, perennial	14.7	21.0
Timothy	2.1	3.0
Redtop	2.1	3.0
Alfalfa, creeping	4.2	6.0
White clover	2.1	3.0
Total	70 lb/ac	

Agricultural Roadside mix.

Alfalfa, creeping	15 lb/ac	30.0%
Brome grass, smooth	10	20.0
Redtop	3	6.0
Rye-grass, perennial	15	30.0
Switch grass	2	4.0
Timothy	2	4.0
Wheat-grass, slender	3	6.0
Total	50 lb/ac	

EROSION PROTECTION

SECTION 210

I. GENERAL

A. SCOPE

1. This section covers the requirements, materials, installation and maintenance of erosion control features.
2. Furnish, install and maintain all erosion control improvements as shown, specified or required by governing agencies.
3. Perform work in accordance with best present day installation and construction practices.

B. APPROVALS AND PERMITS

1. Owner/Engineer shall obtain the following erosion control permits as required.
 - a. Joint 401 Construction Permit from the Iowa Department of Natural Resources (IDNR) and US Army Corps of Engineers.
 - b. NPDES Storm Water Discharge Permit administered by IDNR.
2. Contractor shall be responsible for applying for, paying all fees and obtaining any other erosion control permits including but not limited to:
 - a. Local silt screen or erosion control ordinance.
 - b. General building permits.
 - c. Any additional permits required.
3. Contractor shall notify Engineer and/or governing agency when erosion control measures are in place prior to commencing any land disturbing activities.

II. PRODUCTS

- A. Silt Screen: Synthetic Monofilament Woven material, 36 inches tall meeting IDOT 4196.01-A.
- B. Fence Post: Steel "T" posts with lugs to prevent vertical slipping. Length to be minimum six feet.
- C. Jute Mesh: Non-toxic, single jute, plain weave meeting IDOT 4169.10-A.
- D. Wood Excelsior Mat: Interlocking wood fiber or straw with plastic netting on one side. Matting shall meet IDOT 4169.10-C.
- E. Manufactured Surface Intake Covers: Fabric covers with rigid frame as manufactured by Silt Saver, Inc. or equal.
- F. Manufactured Curb Intake Filter: Tube form as manufactured by Mirafi Geosynthetic or Gutterbuddy by ACF Environmental.

EROSION PROTECTION

SECTION 210

- G. Compost: Controlled production compost consisting of yard trimmings, sewage sludge, animal manure or food processing residue. Compost shall meet the following AASHTO specifications:
- 1) Carbon to Nitrogen Ratio – minimum 30:1
 - 2) Organic Matter – 30-60%
 - 3) Moisture Content – 40% Target
 - 4) Particle Size – 1/4" – 5/8" for turf area, 1 1/4" for mulch
 - 5) pH – 5.0 – 8.5
 - 6) Soluble Salts – maximum 4 mmhos/cm
 - 7) Heavy Metals – as regulated by US EPA, Class A 40 CFR 503.13, Tables 1 & 3

Compost facility shall comply with U.S. Composting Councils Seal of Testing Assurance (STA) Program.

III. EXECUTION

- A. Prior to any site disturbing activities all required silt fence, compost fences, temporary detention ponds and hay bale silt checks shall be installed and approved.
- B. A copy of an approved permit from all governing agencies shall be kept on site or with the responsible individual.
- C. Installation:
1. Silt fence shall be installed in accordance with IDOT Standard Road Plan. Location of silt fence shall be according to approved plans.
 2. Compost erosion control measures shall be installed in accordance with current installation practices.
 3. Jute Mesh or Wood Excelsior Mat shall be installed according to IDOT Section 2601.15.
 4. After installation of storm intakes, field drains or culverts, adequate erosion and sediment control shall be installed in accordance with the standard details shown in the specification or on the drawing.
- D. Monitoring:
1. The Contractor shall designate an individual, including name, title, address and phone number, to be responsible for the following duties throughout the duration of the project.
 - a. Initial installation of the erosion control measures.

EROSION PROTECTION

SECTION 210

- b. Site inspections on a weekly basis and after rains greater than ¼" to assess the effectiveness of existing erosion control measures and to direct installation of additional erosion control measures in response to problems noted during said inspections. The designated individual will keep a log of the inspections and any corrective measures taken. No inspections are required while the ground is frozen or there is snow cover. Inspection will resume when the snow begins to melt. Inspections will continue until adequate ground cover is established to control erosion.

E. Maintenance:

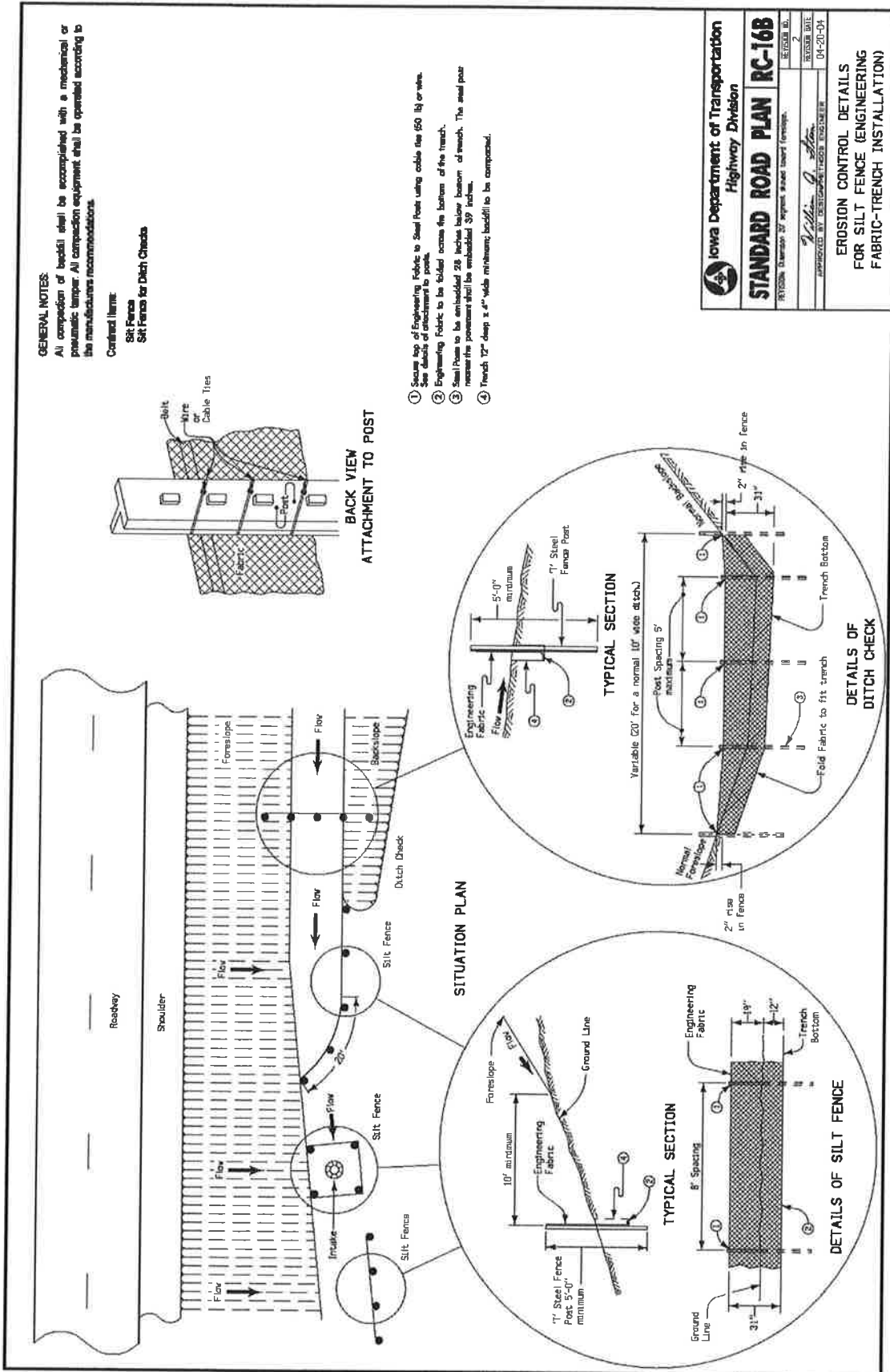
1. Silt fences, intake protection devices and straw bales shall be kept in proper working condition until all land disturbing activities are complete, all turf re-establishment is complete and final inspections are performed.

F. Removal:

1. Contractor shall be responsible for complete removal of silt fence, posts, or any non-biodegradable items used for installation of erosion control measures after Owner, Engineer or governing agency indicates they are no longer needed.

EROSION PROTECTION

SECTION 210



STANDARD ROAD PLAN RC-16B

REVISION 04-20-04

APPROVED BY: *[Signature]*

DESIGNED BY: *[Signature]*

REVISION NO. 2

REVISION DATE 04-20-04

**EROSION CONTROL DETAILS
FOR SILT FENCE (ENGINEERING
FABRIC-TRENCH INSTALLATION)**

SEEDING & FERTILIZING

SECTION 230

I. GENERAL

A. SCOPE

1. Work involves seeding and fertilizing all disturbed grass areas as shown on drawings.
2. All work shall conform to IDOT Section 2601.

II. PRODUCTS

A. MATERIALS

1. Urban Seed Mixture: IDOT Sec. 2601 for Urban Areas. Application Rate: 4 lbs./1000 S.F.

Kentucky Bluegrass	70%
Perennial Ryegrass	10%
Creeping Red Fescue	20%

Rural Seed Mixture: IDOT Sec. 2601 for Rural Areas.

Fescue, Kentucky 31 or Fawn	25 lbs./acre
Ryegrass (perennial)	15 lbs./acre
Sideoats Grama (Butte or Trakway)	5 lbs. Pure Live Seed (PLS) per acre
Switchgrass (Neb. 28, Blackwell, Pathfinder or Cave-in Rock)	3 lbs. PLS/acre
Birdsfoot Trefoil (Empire)	5 lbs./acre

Native Seed Mixture: IDOT 2601

Temporary Cover or Nurse Crop Seed Mixture: IDOT Section 2601.05. Seed mixture shall be based on time of year nurse crop is to be planted.

2. Fertilizer: IDOT Sec. 2601 for Urban and Rural Areas (13-13-13) or equivalent.
Application Rate: 750 lbs. per acre.
3. Mulch: IDOT Section 2601. No mulching is required unless specifically noted on plans or bid item. Any areas to be mulched shall be at a rate of 3000 lbs./acre
4. Silt Fencing: IDOT Section 4196, 01A, Trevira, Spunbound Fabric Type 1114 or equal.
5. Furnish seed analysis labels meeting IDOT 4169.02 for all seed mixtures.

III. EXECUTION

A. INSTALLATION

1. Prepare seeding bed as per IDOT Sec. 2601.04 (A).
2. Apply fertilizer at the rate specified in IDOT 2601.04(B).
3. Furnish and spread seed at the rate called for in IDOT Sec. 2601.04(C) depending on mixture specified.

SEEDING & FERTILIZING

SECTION 230

4. Normal seeding periods shall be March 1 through May 31 and August 10 through September 30. Deviation from these seeding periods will be considered by the Engineer upon written request from the Contractor.
5. Seed all disturbed areas with rural seed mixture except residential type lawns shall be urban mixture.
6. Mulch all seeded areas in accordance with IDOT 2601.06.
7. Install silt fencing as shown on the drawings or as directed by the Engineer.
8. Contractor shall fence or rope off areas seeded which may be disturbed during turf establishment.
9. Contractor shall be responsible for keeping soil moist during germination and watering lawns a minimum weekly for 45 days.
10. Contractor shall regrade and reseed disturbed or unestablished turf areas.

END OF SECTION

EXCAVATION & BORROW

SECTION 300

I. GENERAL

A. SCOPE

1. All excavation to be performed shall be considered as Unclassified Excavation and shall consist of either topsoil stripping, site grading, pond excavation or building excavation.
2. Includes all required excavation, stockpiling, placement, compaction and fine grading.

B. EXISTING UTILITIES

1. Cooperate with Owner and utility companies for maintaining service.
2. Repair damage to existing utilities as directed by utility company.

II. PRODUCTS

A. FILL MATERIALS

1. Suitable clay material from grading and excavation operations on the site may be used upon approval from the Engineer.
2. Pit run gravel as approved by Engineer.
3. Do not use black earth or topsoil as fill in dikes or under proposed paving, structures or pads.

III. EXECUTION

A. EXCAVATION

1. All areas to be excavated or filled shall have vegetation removed prior to excavating.
2. Excavation consists of removal and disposal of materials encountered when establishing required grade elevations.
3. Topsoil shall be stockpiled separate from other materials to be used later for earth slope finishing.
4. Stockpiling of stripped topsoil shall be as shown on the drawings or within the site limits as directed by the Engineer.
5. Any wood, piping, rubble or deleterious materials encountered during excavation shall be disposed of by the Contractor.
6. "Topsoil Removal":
 - a. Strip topsoil as directed below unless shown on plans otherwise or as directed by Engineer.

EXCAVATION & BORROW

SECTION 300

- b. Earthen Ponds:* Strip all topsoil from proposed pond bottom areas and off any dike areas to receive fill.
 - c. Buildings:* Strip top six (6) inches of topsoil and vegetation beneath building structures.
 - d. Roadways/Parking Area:* Strip top six (6) inches to remove vegetation.
 - e. Areas to have Grade Lowered:* Strip top six (6) inches to remove vegetation
7. If the grade is inadvertently cut below proposed subgrade elevation, provide acceptable clay or granular material from the site for fill, free of rock or gravel larger than 2 inches in diameter, debris, waste, frozen materials, vegetable and other deleterious matter.
 8. Pond Side Slope Excavation: When an earthen pond is being constructed wholly or partially into existing soil the existing exposed side slope shall be overexcavated, material replaced and compacted to provide a minimum 12" recompacted liner. The interior side slopes will be staked by the Engineer to provide a one-foot overexcavation on all existing interior side slopes.
 9. Pond Bottom Excavation: The perimeter drain tile and/or tile inspection trench shall be installed prior to excavation of the pond. As the pond is excavated near the bottom elevation it is recommended that suitable excavated material is placed on the interior side slopes in areas where the side slopes were cut into the existing ground. This placed material will become the 12-inch compacted liner for the interior side slopes. Once the pond bottom is excavated to grade the pond bottom shall be over-excavated a minimum of six (6) inches below the proposed bottom of pond. If unsuitable material, as determined by the Engineer, is encountered an additional eighteen (18) inches shall be over-excavated for a total over-excavation of twenty-four (24) inches. The Contractor shall be responsible for controlling rainwater during construction (i.e. pumping, grading to sump, diversion ditch, etc.). It is anticipated that pond excavation would be performed with scrapers, however the Contractor is responsible for his means and methods of construction. Pond will be staked by Engineer prior to construction. Finished grade shall be within 0.1 feet plus or minus.
 10. Cast In Place Concrete Structures: Excavate to firm subgrade and place granular base. Remove unsuitable material and replace with stabilization rock.

B. FILL

1. Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil, obstructions and deleterious materials from ground surface prior to placement of fills. Disk surfaces (minimum 8" deep) so that fill material will bond with existing surface.
2. Place fill in layers not more than 8 inches in loose depth. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content. Compact as described in Paragraph 3.C below.
3. Do not place fill on surfaces that are muddy, frozen or contain frost.
4. Additional fill required in roadways or building pads shall be suitable clay obtained from on site or borrow source.
5. Top 6" of final grade shall be replaced topsoil in areas where seeding is shown or specified.

EXCAVATION & BORROW

SECTION 300

6. Pond Dike Construction: After topsoil has been removed the underlying material shall be prepared as specified in paragraph A above. Suitable fill material shall be placed in maximum 8" lifts and compacted as specified in Section 3.C.

7. Pond Side Slope Liner Construction: After excavation is complete down to the designed pond bottom elevation along any interior dike sides that were formed by excavation, the side slopes shall be inspected for unsuitable material. If unsuitable material is encountered, as determined by the Engineer, it shall be removed to a minimum depth of twelve (12) inches. This would provide for a total of 24 inches of overexcavated material on the interior side slopes because the slopes were overexcavated 12 inches to start with (Refer to Section 3.A.8. above). If no unsuitable material is encountered on the excavated side slope then 12 inches of suitable material from the remaining pond bottom excavation shall be placed on the side slopes in two 6-inch lifts and compacted to produce a minimum 12-inch compacted liner.

8. Pond Bottom Construction: After all over-excavation has been performed, in accordance with Section 3.A.9. above, the underlying material shall be scarified by disking to a minimum depth of 6 inches. This disked material shall be inspected by the Engineer to determine if it is suitable material. If it is considered unsuitable additional over-excavation shall be performed as specified in POND EXCAVATION above. If the disked material is suitable the disked material shall be recompacted as specified. The original 6 inches of over-excavated material shall be replaced and compacted as specified. The initial over-excavation and disking of suitable material shall provide for a 12 inch compacted soil liner in the pond bottom. If more than the initial six inches of overexcavated material was removed, suitable fill material shall be placed and compacted to bring pond bottom up to proposed elevation and to provide a 24" compacted soil liner in pond bottom. If any sand seams, gravel, organic or unsuitable material is encountered during pond bottom overexcavation or disking these soils shall be removed to a minimum depth of 24 inches and suitable fill placed and compacted.

9. Bentonite Liner Construction: If the Engineer determines soil liner is not acceptable or will not meet permeability requirements a bentonite liner shall be required as described below:

- a. The top 6 inches of soil shall contain soil additives to obtain the necessary seal. Bentonite or an equivalent polymer-bentonite mixture shall be placed.
- b. Base soil shall be free of all organic material. Disk to a minimum depth of 6 inches using a minimum of three passes in different directions and permitted to become relatively dry before proceeding.
- c. If the surface is irregular, level with a suitable drag.
- d. Spread the soil additive (bentonite) uniformly over the area at a rate to be determined by the Engineer, but estimated to be 2.0 pounds per square foot. Spread in at least two passes at right angles with lime spreader.
- e. Blend the sealant with the top 4 inches of soil, using a PTO driven power tiller, making not less than one pass. (Disc not acceptable)
- f. If the surface is irregular, level with a drag. Final elevations shall not be more than ± 3 inches from the average elevation of the bottom.
- g. Roll the area with a steel-wheeled or rubber-tired roller to attain a minimum 95% Standard Proctor Density.

EXCAVATION & BORROW

SECTION 300

h. Spreading shall not be conducted during windy weather or where compacting cannot be finished before a rain.

i. Bentonite shall be Wyoming grade sodium bentonite with 90% montmorillonite content. The particle size must range from 20% maximum + #20 mesh to 20% maximum - #40 mesh with a maximum moisture content of 10% as shipped. The free swell minimum is 24cc and a typical water absorption of 900% is required. An equivalent polymer-bentonite mixture may be used as approved by Engineer.

10. I.D.N.R. Design Criteria: Contractor shall be responsible for conforming to IDNR specifications for pond seal and construction. Copy of IDNR specifications is available from Engineer upon request.

C. COMPACTION

1. All disked materials and fill materials shall be placed in lifts not exceeding 8 inches and compacted to a minimum of 95% of the maximum density as determined by the Standard Proctor Test. Material shall be placed when it exhibits a moisture content at or above the optimum content as determined by the Standard Proctor Test. Engineer will conduct soil density tests as needed. Contractor to assist Engineer with tests by leveling grades, etc.

2. Moisture Control:

a. Material shall be compacted at or above the optimum moisture content.

b. Remove and replace, or scarify and air dry, soil that is too wet to permit compaction to specified density.

c. Soil that has been removed, because it is too wet to permit compaction, may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing, until moisture content is reduced to a satisfactory value, as determined by moisture density tests.

d. Add water uniformly to soil that is too dry to compact to specified density.

e. Contractor shall supply his own water. It may be obtained from the Owner if well is installed.

D. TESTING

1. Once the pond bottom and dikes are completed permeability tests shall be performed on undisturbed core samples from the pond bottom and interior dikes. At least two bottom samples shall be tested up to one bottom sample per acre of surface area. One sample shall also be obtained from each interior dike below the maximum manure level. The undisturbed samples shall be tested for permeability in accordance with ASTM D-1587. The coefficient of permeability shall not exceed the IDNR criteria of 1.08×10^{-7} cm/sec. If permeabilities fall below the IDNR criteria the pond bottom or dike shall be reworked to achieve proper compaction and successful retesting of permeabilities. Sample holes shall be filled with granular bentonite. Well abandonment forms shall be filled out for each monitoring well abandoned.

E. MAINTENANCE

1. Protection of Graded Areas: Protect newly graded areas from traffic and erosion and keep free of trash and debris.

EXCAVATION & BORROW

SECTION 300

2. Protection of Pond Liners: If construction of ponds precede use of ponds such that dry conditions will dry out pond bottoms or dikes, Contractor shall be responsible for filling ponds to maintain seal or redisking bottom and sides and recompacting prior to use.

3. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

4. Install erosion protection rock on inside corners of earthen ponds as shown. Rock to be native fieldstone, crushed limestone or crushed concrete.

F. DISPOSAL OF EXCESS AND WASTE MATERIALS

1. Excess clay material shall be hauled to the pad areas. Excess clay remaining after final grading shall be placed on pond dike exterior.

2. Excess topsoil shall be left in designated stockpile area.

END OF SECTION

TRENCHING, BACKFILLING & COMPACTING

SECTION 320

I. GENERAL

A. SCOPE

1. This section covers the labor and materials relating to excavation, backfilling and compaction of backfill.
2. Contractor shall perform all necessary excavation, shoring, bracing, dewatering, bottom stabilization, utility protection, pipe bedding, initial backfill, trench backfill, compaction, grading and cleanup as required to install utilities and structures as shown on plans or specified herein.
3. Perform all work in accordance with best present day construction practices.

B. WORK BY OTHERS

1. Engineer shall perform all soil compaction testing. Contractor shall assist Engineer during testing and notify Engineer when new areas are being backfilled.
2. Reference to percent maximum density shall mean a soil density not less than the stated percent of maximum density for soil as determined by ASTM D698 "Moisture-Density Relations of Soils using 5.5 lb. Hammer and 12" Drop (Standard Proctor).

C. PROTECTION OF EXISTING UTILITIES

1. Contractor shall be responsible for making an Iowa One call to have utility companies field locate existing utilities before the start of any excavation.
2. Contractor shall be responsible for verifying location and existence of all underground utilities. Omission from or inclusion of located utility items does not constitute non-existence or definite location. Secure and examine local utility records for available location data.
3. Take necessary precautions to protect existing utilities from damage due to any construction activity. Repair all damages to utility items at sole expense. Assess no cost to Owner, Engineer or auxiliary party for any damages.

D. JOB CONDITIONS

1. Contractor shall accept site in condition at time of construction. Notify Engineer or Owner immediately if site conditions are significantly different than during solicitation of construction bids. Surface water or groundwater level fluctuation shall not be considered change in site condition.
2. Contractor shall make provisions if working in wet or frozen conditions to prevent installation on frozen ground or backfilling with excessively wet or frozen material.

E. SAFETY

1. Nothing as indicated in these specifications or drawings shall relieve the Contractor from complying with appropriate safety regulations including OSHA Standards or state and local building codes.
2. Pile excavated material suitable for backfill in an orderly manner sufficient distance back from edge of excavation to avoid rollbacks, slides or cave-ins.

TRENCHING, BACKFILLING & COMPACTING

SECTION 320

3. Erect sheeting, shoring and bracing as necessary for protection of persons, improvements and excavations.

II. PRODUCTS

A. EXCAVATION CLASSIFICATION

1. Earth: All materials not classified as rock or rubble; includes clay, silt, sand, gravel, hardpan, disintegrated shale and rock debris, junk, brick, loose stones and boulders less than ½ cubic yard in volume.
2. Rock: Buried boulders larger than ½ cubic yard in volume or solid deposits so firmly cemented together that they cannot be removed with a ½ cubic yard rated backhoe.
3. Rubble: Buried concrete foundations, beams, walls and other materials which required continuous use of pneumatic tools or blasting.

B. TRENCH STABILIZING MATERIAL

1. 2" coarse, sharp, clean crushed stone. Material shall be crushed to 100% passing a 2" sieve, 10%-50% passing a ¾" sieve and less than 5% passing a No. 8 sieve or other material approved by the Engineer.

C. PIPE OR STRUCTURE BEDDING

1. Crushed stone or gravel meeting IDOT Section 4115 Gradation No. 3 or 5 for coarse aggregate for concrete.

D. INITIAL BACKFILL

1. IDOT Section 4120 Gradation No. 10 (Class "C" Road Gravel).

E. POROUS BACKFILL

1. IDOT Section 4131 Gradation No. 29 (washed pea gravel).

F. GRANULAR BACKFILL

1. Pit run material subject to approval of Engineer.

G. CONTROLLED DENSITY FILL

1. High slump mixture of Portland Cement, flyash and fine aggregate shall meet IDOT Section 2506 requirement for flowable mortar.

III. EXECUTION

A. INSPECTION

1. Verify that preceding work affecting work of this section has been satisfactorily completed.
2. Correct conditions adversely affecting work of this section.

TRENCHING, BACKFILLING & COMPACTING

SECTION 320

3. Verify that existing utilities are marked prior to excavation.
4. Perform any exploratory excavation as shown or specified.

B. EXCAVATION FOR STRUCTURES AND APPURTENANCES

1. Includes excavation for manholes and other appurtenances.
2. Strip suitable topsoil or granular surfacing materials for later replacement.
3. Excavate as required to firm, undisturbed soil. If excavation is carried below bottom of foundations as shown on plans, fill with 3,000 psi concrete or stabilizing material as directed by Engineer at no expense to Owner.
4. When unstable material is encountered which will not provide suitable foundation, fill with 3,000 psi concrete or stabilizing material specified hereinafter or as directed by Engineer. Extra work provisions shall apply.

C. TRENCH EXCAVATION

1. Excavate trenches by open cut method. Permission to tunnel under crosswalks, driveways or utility lines may be granted by Engineer or Owner.
2. Limit open trench to 300 lineal feet at any one time.
3. Keep width of trench as narrow as possible. See utility specification for the maximum trench width.
4. Keep sides of trench as nearly vertical as practicable within the limits of excavating safety and applicable codes. Maintain vertical walls of excavation below top of pipe.
5. Provide access to operable fire hydrants, driveways and accesses unless specifically noted otherwise.
6. When unstable material is encountered which may not provide a suitable foundation for pipe:
 - a. Notify Engineer immediately.
 - b. Engineer will investigate questionable material to determine its suitability for pipe foundation.
 - c. If material is considered unsuitable for foundations, Engineer will specify and authorize remedial measures in writing.
 - d. If removal of unsuitable material is authorized:
 1. Replace with trench stabilizing material.
 2. Authorized over-excavation and trench stabilizing material will be paid for as trench stabilizing material.
 3. Provide minimum of 4" of bedding material on top of stabilizing material to prevent point load. Bedding material shall be graded sufficiently coarse to prevent movement and loss of bedding into trench stabilizing material.

TRENCHING, BACKFILLING & COMPACTING

SECTION 320

- e. Authorized remedial measures not covered by contract unit prices will be paid for as Extra Work.

7. Excavate by hand:

- a. Under and around utilities.
- b. Where overhead clearance prevents use of machine.
- c. Under trees and shrubs that are shown to remain.

D. ROCK AND RUBBLE EXCAVATION

1. Excavate to provide 2" of granular bedding for pipe, structures and appurtenances.
2. Use of explosives: Submit detailed plans outlining all proposed blasting operations, locations, methods and use of mats and other safety measures.
 - a. Obtain written approval from municipal authority and Engineer before using explosives.
 - b. Provide Special Hazard Insurance covering liability for all blasting operations. Cost is incidental to cost of rock excavation.
 - c. Use experienced demolition personnel.
3. Remove excavated rock or rubble not suitable for backfill to an acceptable disposal area. Disposal is incidental to cost of rock excavation.
4. Trench bottom carried below required elevations: Replace with pipe bedding material.

E. DEWATERING

1. Perform all work in the dry to satisfaction of Engineer.
2. Lay no pipe in, and pour no concrete on, excessively wet soil.
3. Prevent surface water from flowing into excavation. Remove water as it accumulates.
4. Divert stream flow away from areas of construction.
5. Contractor's method of managing water encountered during construction shall conform to all laws and permits in effect.
6. Contractor shall obtain approval from Engineer prior to any dewatering.
7. Do not pump water onto adjacent property without approval of Engineer and adjacent property owner. Do not use sanitary sewers for disposal of ground water.

F. SHEETING, SHORING AND BRACING

1. Construct sheeting, shoring and bracing required to hold walls of excavation and to provide safety for workmen; to protect existing utilities or structures; or to permit construction in the dry.

TRENCHING, BACKFILLING & COMPACTING

SECTION 320

2. Wood sheeting driven below level of pipe: Leave in place to a level 5' below finish grade.
3. Pull steel sheeting except where shown on plans.
4. When moveable trench shield is used below spring-line of pipe, it shall be lifted prior to any forward movement to avoid pipe displacement.

G. BEDDING

1. Place specified bedding after excavation or trench has been excavated to proper grade.
2. Place, compact and shape bedding material to uniformly support structure or full length of piping.
3. Provide bedding as shown on plans or specified in utility sections.

H. BACKFILL FOR STRUCTURES

1. Backfill after poured-in-place concrete or masonry has cured for 48 hours.
2. Backfill with material removed from excavation except where sand or granular backfill is specified. Use no debris, frozen earth, large clods, stones or other unsuitable material.
3. Backfill simultaneously on all sides of structure. Save structure from damage at all times.
4. Compact backfill at structures to density not less than specified for adjacent trench.

I. INITIAL PIPE BACKFILL

1. Place specified initial backfill after pipe has been placed, checked for grade and alignment and pipe bedding is fully supporting pipe.
2. Place initial backfill in maximum 8" lifts. Spread backfill uniformly and hand compact to 12" above pipe as specified.

J. TRENCH BACKFILL

1. Backfill with material removed from excavation except where sand or granular backfill is specified. Use no debris, frozen earth, large clods, stones or other unsuitable material.
2. Place backfill into the trench at an angle so that impact on installed pipe is minimized.
3. Install cushion of 4 feet of backfill above pipe envelope before using heavy compacting equipment.
 - a. Trenches where "granular" is shown on plans.
 1. Backfill with pit run up to bottom of specified surface restoration.
 2. Compact to 95% minimum standard proctor density under and within six feet of pavement; 90% minimum density in other areas.
 3. Hydraulic compaction permitted only upon approval by Engineer.
 4. Top 12 inches of backfill shall match soil equivalent to adjacent excavation.

TRENCHING, BACKFILLING & COMPACTING

SECTION 320

5. Refer to Paving Section for subbase requirements beneath pavements.
- b. Trenches where "Compacted Backfill" is shown on plans:
1. Backfill with suitable excavated material up to bottom of specified surface restoration.
 2. Dry or moisten if required; compact to 95% minimum standard proctor density under and within two feet of pavement; 90% minimum density in other areas. Engineer will conduct soil compaction tests as needed. Contractor shall rework all areas not meeting compaction specification.
 3. Top 12 inches of backfill shall match soil equivalent to adjacent excavation.
 4. Refer to paving section for subbase requirement beneath pavements.
 5. Maximum lift of compacted backfill shall be 12".
- c. "Ordinary Backfill":
1. Use unless otherwise shown on plans.
 2. Backfill trench with excavated material and compact to same density as adjoining soils.
 3. Top 12 inches of backfill equivalent to adjacent topsoil.
 4. Mound up or level off to original surface as directed by Engineer.
- d. Where select earth backfill is required to replace unsuitable excavated material, Extra Work provisions shall apply.
4. If settlement above compacted or sand backfill occurs within period of guarantee and bond, refill, compact, level off and resurface.
 5. If new pipe is installed below existing utilities (i.e. water, sewer, gas, electric, etc.) then Contractor shall backfill beneath utility to satisfaction of utility owner.

END OF SECTION

UTILITY CONFLICT REPAIRS

SECTION 330

I. GENERAL

A. SCOPE

1. This section covers the requirements for materials to furnish and install all pipe, fittings, structures and accessories required for moving existing utility mains and services out of the way of new storm, sanitary sewer, water main or other construction to be installed as specified or shown on the plans.
2. Before installation of new facilities, verify sizes, measurements, type and location of existing piping and appurtenances at points of connection to existing system.
3. Make necessary field measurements to determine piping laying lengths; work pipe into place without forcing or springing.
4. Do work in accordance with best present-day installation and construction practices.

II. PRODUCTS

A. MATERIALS

1. Ductile Iron Pipe (water main):
 - a. AWWA C151, Class 52, unless specified otherwise
2. PVC C900 or C909 (water main or sanitary sewer main)
3. PVC SCH40 (sanitary sewer service lines):
 - a. ASTM D2665
 - b. Joints and Fittings, solvent weld
4. Copper Pipe (water service lines): ASTM B88, Type K, annealed
5. Fittings: AWWA C153 compact, restrained, mechanical joint for water main.
6. Repair Sleeves: Clow Band-Seal or approved equal meeting ASTM C-594
7. Coupling: "Dresser" style coupling with gaskets to suit pipe encountered.
8. Concrete: IDOT Section 2301, Class B Mix or solid concrete block as directed by the Engineer.
9. Field Tile:
 - a. PVC Plastic, ASTM C900, Class 150. Use Fernco rubber adapters as necessary.
 - b. HDPE, Heavy Duty, perforated with connecting bands.

UTILITY CONFLICT REPAIRS

SECTION 330

III. EXECUTION

A. PIPE INSTALLATION

1. Ductile Iron Pipe: AWWA C600
2. PVC C900 or C909: ASTM D2321
3. PVC SCH 40 Pipe: ASTM D2774
4. Minimum depth to top of water line pipe: 6.0 feet or as directed by the Engineer.
5. The width of the trench shall be ample to permit the pipe to be laid and joined properly but should be no more than 12 inches on either side of the pipe.
6. Lay pipe in the dry and thoroughly compacted backfill.
7. Clean pipe interior of foreign material before lowering into trench; keep clean at all times by securely closing open ends of pipe and fittings with watertight plug to prevent ingress of foreign material at all times when pipe jointing operation is not in progress. If water is in the trench, the seal shall remain in place until the trench is pumped dry.
8. Place in trench in sound, undamaged conditions. Do not injure pipe coating or lining. Do not use end hooks to install or move pipe.
9. Cut pipe in neat and workmanlike manner without damage to pipe; mechanical pipe cutters subject to approval of Engineer; bevel cut ends of push-on type pipe.
10. Before installation, visually inspect for cracks or defects; damaged or unsound pipe will be rejected.
11. Deflect pipe joints, as shown on plans, in accordance with pipe manufacturer's recommendations.
12. Plug or cap and block all pipe ends or fittings left for future connections.
13. Uncover existing mains a sufficient time ahead of pipe laying operations to determine fittings required to make connections; make connections between existing and new water mains with specials and fittings as required.

B. WATER MAIN AND SERVICE LOWERING OR RAISING WITH ELBOWS OR PIPE EXTENSIONS

1. Locate valves and shut off line.
2. Cut and install necessary elbows, pipe restrained fitting and thrust blocks.
3. Provide a minimum of two inch clearance between water line and storm sewers.
4. Refer to water main or sanitary sewer specifications for clearances.
5. Maintain uniform, thoroughly compacted trench bottom to support piping.
6. Secure pipe and return pressure to the line and inspect all joints for leaks before completion of backfilling and compaction.

UTILITY CONFLICT REPAIRS

SECTION 330

7. Backfill with granular material if directed by the Engineer.

8. Use 45° elbows on mains 4" and larger.

C. SEWER SERVICE LINE RECONSTRUCTION

1. Where sewer service lines cannot be supported across the proposed storm sewer trench, the lines may be temporarily removed and reconstructed. Keep length to be replaced to a minimum.

2. Prevent service lines from being plugged during construction.

3. Backfill and compact sewer trench to maximum density under all sewer services. Use granular material if directed by the Engineer.

4. Cut pipe and place watertight repair sleeve on firm, undisturbed soil. Contractor may use PVC or DIP across sewer trench.

5. Backfill and compact granular material around sewer repair to 24" above pipe with hand tamper.

6. Complete backfilling and compaction as directed by the Engineer.

7. Reference sewer repair location and depth for future location.

END OF SECTION

CAST-IN-PLACE CONCRETE

SECTION 400

I. GENERAL

A. SCOPE

This section covers the requirements for cast-in-place reinforced concrete on the project including form work and reinforcing.

B. WORK BY OTHERS

1. The Engineer may conduct additional testing of concrete during placement in addition to tests required by Contractor.
2. Contractor is responsible construction staking for location and elevation. Contractor shall coordinate any staking requirements with Engineer.

C. REFERENCES

1. Comply with the latest published edition of the American Concrete Institute (ACI) and American O of Testing and Materials (ASTM) standards and codes:
 - a. ACI 318-05/ACI 318R, "Building Code Requirements for Reinforced Concrete and Commentary"
 - b. ACI 350/350R-01, "Code Requirements for Environments for Environmental Engineering Concrete and Commentary."
 - c. ACI 350R-01, "Environmental Engineering Concrete Structures"
 - d. ACI 347R-04, "Guide to Formwork for Concrete"
 - e. ASTM A615 – Deformed Billet Steel Bars for Concrete Reinforcement
 - f. ASTM C94 – Ready-Mixed Concrete
 - g. ASTM C150 – Portland Cement
 - h. ASTM C309 – Liquid Membrane-Forming Compounds for Curing Concrete
 - i. ASTM C260 – Air-Entraining Admixtures

II. PRODUCTS

A. MATERIALS

1. Formwork:
 - a. Exposed Surfaces: Metal, smooth fiberglass, hardboard, premium grade plywood or architectural forms as specified.
 - b. Concealed Surfaces: Plywood or No. 2 lumber.
 - c. Columns: Metal, fiberglass or cardboard (SONOTUBE or equal).
 - d. Insulated: Lite form or equal.

CAST-IN-PLACE CONCRETE

SECTION 400

e. Form Release Agent: Non-staining mineral oil to prevent bonding to concrete and not affect bonding of curing and sealing agents

f. Form Ties: Plastic snap cone ties with neoprene waterproof washer at center.

2. Reinforcement:

a. Deformed Bars: ASTM A615 Grade 60. Deformations to meet ASTM A305,

b. Welded Wire Fabric: ASTM A185

c. Bar Supports: Plastic tipped non corrosive manufactured support.

3. Ready-Mixed Concrete: Class C, IDOT Sec. 2403.

walls
a. Compressive Strength: 3500 psi minimum at 28 days for footing and slabs, 4000 psi for and roof.

b. Portland Cement: ASTM C150 Type I or II.

c. Admixtures: Only when specified or authorized by Engineer

d. Fine Aggregate: IDOT Sec. 4110

e. Coarse Aggregate: IDOT Sec. 4115, Class 2 Durability

f. Water to Cement Ratio = .5 by weight

g. Air Content: 6.5% target value; range 5.5% to 7.5%

h. Fly Ash, maximum 20% of cementitious material. Silica Fume, maximum 20% of cementitious material. The combination of fly ash and silica fume shall not exceed 35% of total cementitious materials. Fly ash and silica fume will increase resistance to sulfates and reduce permeability. CAUTION: fly ash slows curing, especially in cold water and shall not be used after October 15th without permission from the Engineer.

i. To minimize shrinkage cracks in floors, minimize the amount of cement-water paste and maximize the amount of large aggregate. Contractor may order water reducing or other admixtures, except calcium chloride shall not be used.

4. Curing Material: Liquid membrane, non staining. Sonneborn Kure and Seal or equal.

5. Expansion Joint Fillers: IDOT Sec. 4136.03. Sonneborn Sonolastic SL1 or equal.

6. Waterstop: Ribbed PVC or Bentonite Roll.

B. SUBMITTALS

1. Contractor shall submit proposed ready mix design along with test results to Engineer prior to placement of any ready mix concrete.

CAST-IN-PLACE CONCRETE

SECTION 400

2. Submit two (2) copies of reinforcing steel shop drawings to Engineer for review.

III. EXECUTION

A. INSPECTION

1. Verify that earthwork is completed to correct line and grade.
2. Check that subgrade is smooth, compacted and free of frost or excessive moisture before each concrete pour. Also inspect forms, waterstop, placement and grade of reinforcing steel.
3. Do not commence work until conditions are satisfactory.

B. WEATHER LIMITATIONS

1. Do not place concrete during rain, sleet or snow or on excessively wet subgrade.
2. Exposed concrete surfaces shall be kept continuously wet for at least 24 hours or until a curing compound is applied.
3. Allowable concrete temperatures:
 - a. Cold Weather: Minimum air temperature 40°F and rising
 - b. Hot Weather: Maximum concrete temperature 90°F

C. INSTALLATION

1. Formwork:
 - a. Install formwork to tolerances specified in ACI 301 Section 4.3.
 - b. Contractor shall coordinate tolerances allowed with subsequent construction requirements.
 - c. All formwork shall be adequately supported to prevent displacement and free of gaps or holes to prevent loss of mix.
 - d. Forms shall have form release agent applied prior to placement of reinforcing steel.
 - e. Formwork removal:
 1. Minimum of 24 hours at 50°F for footings or slab edges.
 2. Minimum of 48 hours at 50°F for walls. No backfill allowed for seven days.
 3. Minimum of fourteen days at 50°F for self supported floors or beams.

2. Reinforcing:

CAST-IN-PLACE CONCRETE

SECTION 400

- a. All reinforcing shall be free of mud, rust, oil and grease prior to placement.
 - b. Field bending cold is allowed on reinforcing bars #5 and smaller. Heating and bending is not allowed.
 - c. All reinforcing shall have 3" minimum cover when placed against earth. All other locations 2" minimum.
 - d. Refer to drawings for splice lengths.
 - e. No reinforcing shall be cut for any opening unless approved by Engineer.
 - f. All reinforcing shall be supported off forms, earth and tied adequately to prevent displacement during construction.
 - g. Notify Engineer when reinforcing is installed. Contractor shall obtain Engineer's approval prior to placing concrete or covering up steel with formwork.
3. Cast-in-Place Concrete:
- a. Verify forms are installed to line and grade and are secure.
 - b. Prior to placement of concrete, the forms and subgrade shall be free of wood chips sawdust, debris, standing water, ice, snow, extraneous oil, mortar and other harmful substances or coatings. Placement of concrete on mud, dried earth, un-compacted fill or frozen subgrade will not be permitted.
 - c. Moisten subgrade, forms or existing concrete prior to placement.
 - d. Install 3/4" chamfer strips at corners of all exposed concrete.
 - e. Place concrete in position without separation of concrete materials. Dropping of concrete more than five feet is prohibited.
 - f. Place concrete continuously so that each pour unit will be monolithic in construction and will terminate at expansion, contraction or construction joint. permit not more than 30 minutes between depositing adjacent batches.
 - g. Consolidate concrete with mechanical vibrators operating at not less than 3500 vibrations per minute.
 - h. Finishing:
 1. Exposed floors shall be floated and power trowelled or broom finished for non skid surface.
 2. Concrete to receive additional concrete shall have rough or raked finish.
 3. Concrete to be concealed shall have float finish.

CAST-IN-PLACE CONCRETE

SECTION 400

4. Exposed walls shall have burrs removed, surfaces cleaned and all honeycomb and form tie holes filled with non shrink grout. If grout rub finish is shown on plans then entire surface shall be wetted and non shrink grout mixture rubbed on entire surface.
5. Use edger on all slabs.
6. Coordinate all surface finishes with Engineer.
 - i. Curing:
 - a. Exposed slabs shall have liquid membrane curing and sealing agent applied in accordance with manufacturer's recommendation.
 - b. Walls shall be cured with liquid membrane curing agent.
 - c. Burlap continuously wetted for seven days is an acceptable curing method for all concrete.
 - j. Backfilling: See Material Specification for Cast-in-Place Concrete
 - k. All concrete shall be protected at Contractor's expense. Owner shall incur no expense for concrete repairs caused by the Contractor's operations.
 - l. Tolerances: Elevation of floor slabs, top of walls, slab ledges, beam pockets and top of columns $\pm 1/4"$. Horizontal length and width of top of wall, location of beam pockets and columns $\pm 1/2"$. Straightness of top of wall $\pm 1/4"$. Anchor bolt spacing $\pm 1"$, centered in stem wall $\pm 1/2"$. Thickness of floor slab shall not be less than 5 inches at any point.

D. TESTING

1. Contractor shall submit ready mix design and test results to Engineer prior to any concrete placement.
2. Engineer will conduct all on site testing of concrete during placement.
3. Failure of any ready mix concrete to achieve specified air content or to exceed specified slump shall be cause to reject ready mix.
4. Engineer will cast compression test specimens, three each, for every major pour. Cylinders will be cast and stored at project site. Contractor shall furnish secure location for test cylinders. Engineer will transport cylinders to testing lab where one cylinder will be broke in seven days, one cylinder broke in 28 days and one cylinder held in reserve for 90 days. Engineer shall notify testing lab if third cylinder needs to be tested.
5. If Contractor desires placed concrete to have forms removed early, traffic applied, backfill placed or loads applied prematurely Contractor shall conduct additional testing at his expense (cylinders, beams, time-temperature curves, etc.) and furnish results to Engineer for consideration.
6. All lab test results shall be on proper forms and distributed to Contractor, Engineer and Owner.
7. Engineer may request core samples be taken for any concrete of questionable strength or quality. All such concrete found to be defective shall be removed and replaced by Contractor.

SUBDRAINS

SECTION 500

I. GENERAL

A. SCOPE

1. This section covers installation of subdrain piping and accessories required for subdrains or drain tile as shown on the plans and/or specified herein.
2. Before installation of new tile, verify sizes, measurements, type and location of existing piping and appurtenances at point of connection to the existing system and other utilities in the area.
3. Do work in accordance with the best present-day installation and construction practices.

II. PRODUCTS

A. TILE

Single Wall HDPE: Perforated corrugated polyethylene, heavy-duty, meeting IDOT Sec. 4143, AASHTO M252 size per plan.

B. POROUS BACKFILL MATERIAL

IDOT Sec. 4131, Gradation No. 29 (washed pea gravel).

C. TILE VALVE

Valterra Slide Gate (Agri-Drain Corp.), or equal.

D. INTAKE

Hickenbottom style, size as shown, 3' below ground section, 3' perforated riser top.

E. RODENT GUARD

Size per plan. AgriDrain Rat Guard or equal.

III. EXECUTION

A. INSPECTION

1. Examine areas to receive tile for:
 - a. Completion of excavation to elevations and slopes indicated.
 - b. Obstructions which would interfere with subdrainage system installation and other utility lines.
2. Begin work only when conditions are corrected satisfactorily.

B. INSTALLATION

1. Subdrain: Place pipe sections on shaped bottom and complete joints with factory couplings.
2. Knife Gate: Per manufacturer's recommendations. Provide couplings, adaptors, reducers, etc., to match pipe furnished.

END OF SECTION

PERIMETER TILE SYSTEM

SECTION 510

I. GENERAL

- A. **IDNR Rules:** Where a perimeter tile system is required to control the elevation of the water table or saturated soils, it must lower the water table or saturated soils to below the bottom of the storage liner. Perimeter drainage tile shall be located at least two feet below the finished liner top elevation. Each manure storage area shall have a dedicated drain tile system with a dedicated riser, manhole or other access for collection of tile-water samples.
- B. **PERIMETER TILE:** Shall be 4 inch (unless shown otherwise on plans) heavy duty perforated corrugated polyethylene plastic agricultural drain pipe. Tile shall be bedded and covered with pea rock or 1/4" 1/2" crushed rock.
- C. **EXISTING TILE LINES:** Existing tiles shall be connected to a suitable by-pass tile system. Do NOT connect existing area tile lines to the perimeter tile system, unless authorized by the Engineer.
- D. **GRAVITY OUTLET FOR PERIMETER TILE:** Shall not be used where flood water may backup into the tile and contaminate the dedicated sampling port. The tile outlet shall have a rodent guard. The tile outlet may serve as dedicated sampling port, when it is easily accessible and will never be inundated and contaminated by flood water.
- E. **SUMP PUMPS:** Shall be required when ever a gravity outlet is not available and must be authorized by the Engineer. On sites with more than one below ground manure storage structure, only one common sump pump system is required, but each structure must have an individual sampling port.
- F. **PUMP:** Shall be submersible type with 20' heavy duty electrical cord. Pump shall have an adjustable piggy back float switch. Pump shall be capable of 25 GPM at 15 ft head. Pump shall be fitted with a discharge hose or pipe equal or larger than the discharge of the pump. Furnish and install fused weatherproof disconnect switch, plug and receptacle for each pump. Plug type connections should be used for quick exchange of pumps by farm workers.
- G. **CLEAN BACKFILL TRENCH:** All organic material, card board, wood, paper, straw, etc shall be removed from trench before backfilling. These materials will decay and contaminate the perimeter tile system.

END OF SECTION

WASTEWATER PIPELINES

SECTION 610

I. GENERAL

A. SCOPE

1. This section covers the requirements for the materials, installation and testing of wastewater pipelines.
2. Furnish and install all pipe, fittings, structures and accessories required for sanitary sewer construction as shown on plans and/or specified herein.
3. Before installation of new facilities, verify sizes, measurements, type and location of existing piping and appurtenances at joints of connection to existing system.
4. Do work in accordance with best present-day installation and construction practices.

B. WORK BY OTHERS

1. Engineer will stake out sanitary sewer for line and grade. Contractor to coordinate with Engineer on any staking preferences.
2. Engineer/Owner will obtain any necessary IDNR construction permits.
3. Contractor is responsible for any local building or sewer permits.

C. SUBMITTALS

1. Contractor shall submit two (2) copies of manufacturer's specifications or catalog data for piping, wyes, saddles, etc. to Engineer for review.

II. PRODUCTS

A. MATERIALS

1. Gravity Pipe and Force Main Pipe:
 - a. Pipe: PVC, AWWA C-900, Class 150 (DR 18) ASTM D1784. 20 foot lengths or PVC C909 Class 150 (molecularly oriented).
 - b. Push on gasketed joints with bell and spigot pipe meeting ASTM D3212.
2. PVC Pipe Gravity Main Pipe:
 1. Pipe: PVC, ASTM D3034 SDR 26 (Main)
 2. Push-on Elastomeric Gasketed Joint: ASTM D3212
3. Directionally bored pipe
 - a. Refer to Section 620
4. Gravity Service Laterals:

WASTEWATER PIPELINES

SECTION 610

- a. Pipe: PVC Schedule 40 DWV meeting ASTM 2665, NSF listed. Minimum 20 feet length.
 - b. Joints: PVC Schedule 40 solvent weld couplings using purple primer and rain or shine glue.
 - c. Fittings: PVC Schedule 40 solvent weld pre-manufactured fittings.
 - d. Service Saddles: Saddle Type with Stainless Steel Straps, "O" Ring Seat. Outlet suitable for SCH 40 PVC. ROMAX, GENCO or equal.
 - e. Service Wye: wye fittings to be same material as gravity main. Wye inlet to be 4" minimum.
 - f. Couplings: One-piece rubber with s.s. bands. FERNO brand or equal.
5. Granular Bedding shall be crushed stone and/or gravel meeting IDOT Section 4115 Gradation No. 3 or 5 for coarse aggregate for concrete.
 6. Initial backfill shall be IDOT Section 4120 Gradation No. 10 (Class C Road Gravel) or pit run sand at approval of Engineer.

B. SHIPMENT AND STORAGE

1. Do not telescope small pipe inside large pipe. Pipe shall be delivered on original skids and stored to protect from damage.
2. Handle by use of slings, hoists, skids or other approved methods.
3. Dropping or rolling is not permitted. Pipe with damage will be rejected; field patching not permitted.

III. EXECUTION

A. PIPE INSTALLATION

1. Gravity Pipelines:
 - a. Polyvinyl Chloride Pipe: Install according to ASTM D2321.
 - b. Begin pipe laying at lowest point with spigot ends pointing in direction of flow.
 - c. Keep interior of sewers clean and free of dirt.
 - d. Do not use sanitary sewers as a storm sewer. Plug the pipe at the end of each day's work.
 - e. Use no defective pipe; check for defects and hairline cracks at ends prior to lowering into trench.
 - f. Minimum depth of bury; four (4) feet to top of pipe.
 - g. Contractor shall maintain alignment and grade by use of pipe laser or acceptable methods approved by Engineer. Contractor shall coordinate with Engineer staking requirements.

WASTEWATER PIPELINES

SECTION 610

h. Connection to existing manhole shall be done by core drilling appropriate size hole, installing expansion type fitting (Link Seal or equal) and installing sewer pipe to form a watertight connection.

i. All holes for pipes passing through floors and walls shall be sealed water tight.

B. TRENCH WIDTH

Keep the width of trench as narrow as possible. The maximum trench width from 12" above the top of the pipe to the bottom of the trench shall be as follows:

<u>Pipe Size</u>	<u>Maximum Trench Width</u>
4", 6"	24"
8", 10"	28"
12"	30"
15"	36"

C. BEDDING

1. All pipelines shall be bedded in granular material as specified for granular bedding. Minimum of 6" below pipe.
2. Initial backfill requirements are dependent upon locations. Refer to Standard Details.

D. WASTEWATER PIPELINE SEPARATION FROM WATER MAIN

1. New wastewater pipeline paralleling existing water main:
 - a. Minimum horizontal separation: 10' clear
 1. If conditions prevent relocation of new pipe or existing water main to obtain 10' separation, minimum may be reduced to no less than 3' clear by placing the top of the sewer at least 18" below the bottom of the existing water main.
 2. If impossible to obtain 18" clearance, construct new pipe of cast iron or ductile iron pipe until separation or clearance condition is met.
2. New wasteline pipeline crossing existing water main:
 - a. Minimum vertical clearance: Top of sewer at least 18" below the bottom of the existing water main.
 - b. If 18" clearance below a water main cannot be obtained, or if pipe must pass over water main, place 20' length of PVC C900 pipe centered on the water main.
 - c. In no case shall the pipeline be placed closer than 6" below a water main or 18" above a water main.
3. Adequately support existing water main to prevent settling or breakage.

E. JOINT RESTRAINT

1. All buried fittings shall be restrained by restraining flanges. Buried M.J. fittings shall also be

WASTEWATER PIPELINES

SECTION 610

protected against thrust by cast in place concrete or precast concrete block fitted tightly to flush undisturbed trench wall. Refer to standard details.

F. TESTING (GRAVITY PIPING)

1. Alignment Test: After backfilling, alignment will be checked by lamping by the Engineer. The completed installation shall be so nearly perfect in line and grade that the light from an ordinary flashlight will be wholly visible through the pipe from manhole to manhole. If construction of pipeline was performed using an internal pipe laser, the alignment test will be considered successful if laser "dot" is visible from manhole to manhole.

2. Deflection Test:

a. Deflection (Mandrel) test shall not be required if PVC C900 or C909 piping material is used and alignment test is satisfactory

3. Leakage Test:

a. All wastewater pipelines shall be successfully air tested to ensure proper installment.

b. Follow ASTM C828, Low-Pressure Air Test of Sewer Line (4" to 15"), to test for leakage.

c. Use extreme care and safety precautions, especially in the manholes. Plugs should be installed in accordance with manufacturer's recommendations. No one shall be allowed in the manholes during testing.

d. The line may need to be flushed to produce consistent results.

e. Plug all inlets and outlets to resist the test pressure. Special attention must be given to stoppers and laterals.

f. Contractor shall utilize proper gauges and test equipment specifically for low pressure air tests.

g. The line will be accepted if the time required for the pressure to drop from 3.5 to 2.5 psig is not less than the time on the following table:

<u>Pipe Size</u>	<u>Time in Minutes</u>
8"	4.0
10"	5.0
12"	6.0
15"	7.0

h. If the line fails, the leaks shall be repaired at the Contractor's expense and the line retested until it passes.

i. Testing shall include any lateral service connections installed.

j. Test entire sections of pipe between manholes.

G. TESTING (PRESSURE PIPING)

1. Test all pipe after installation in accordance with AWWA C600.

WASTEWATER PIPELINES

SECTION 610

2. Contractor may test all segments or valved segments at his option.
3. Hydrostatic test:
 - a. Contractor shall provide water for hydrostatic test.
 - b. Flush out main before testing to remove air; insert taps or corporation stops to release trapped air and plug after test.
 - c. Line shall be filled slowly to prevent any damage to piping or valves.
 - e. Test at 150% of maximum operation pressure or 100 psig maximum for two hours; allowable pressure drop during test period shall be 10% of test pressure.
 - f. Owner or Engineer shall witness test

4. Leakage Test:

- a. Conduct after pressure test is successfully completed; maintain 100 psi pressure for two hours; measure water loss by pumping from drum or by similar means.
- b. Maximum allowable leakage (l) in gallons per hour:

$$L = \frac{ND\sqrt{P}}{7,400}$$

N = Number of joints in pipe section under test

D = Pipe diameter in inches

P = Average test pressure, psig

- c. Provide all test pumps, test plugs, pipe and gauges, and make all required temporary piping connections for testing (incidental).

November 13, 2014

AgriReNew
26618 20th Ave
Stockton, IA 52765

Attn: Bryan Sievers

Re: Subsurface Exploration
Proposed Storage Basin - Glenora Feed Yard
Scott County, Iowa
TEAM Project No. 1-3609

Dear Mr. Sievers:

We have completed the subsurface exploration for the proposed storage basin project near Stockton, Iowa. The accompanying geotechnical report presents the findings of the subsurface exploration and our recommendations concerning the construction of the proposed basin.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service to you in any way, please do not hesitate to contact us.

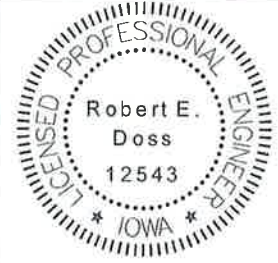

Sincerely yours,
TEAM Services



Nicholas Gilles, P.E.
Project Engineer



Robert E. Doss, P.E.
Principal Engineer

	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. 
	Robert E. Doss, P.E. License Number 12543 Date: 11/13/14 My license renewal date is December 31, 2014. Pages covered by this seal: <u>All Pages</u>

CC: Justin Sprague, E.I. – ProAg Engineering, Inc.

*Subsurface Exploration
Proposed Storage Basin – Glenora Feed Yard
Scott County, Iowa
TEAM No. 1-3609
November 13, 2014*

TEAM Services

TABLE OF CONTENTS

PROJECT INFORMATION 1
SITE CONDITIONS 1
FIELD EXPLORATION 1
LABORATORY TESTING 2
 Natural Moisture Content 2
 Unit Weight 3
 Unconfined Compressive Strength 3
 Standard Proctor 3
 Remolded Permeability Test 3
SUBSURFACE CONDITIONS 4
GROUNDWATER CONDITIONS 5
KARST EVALUATION 6
CONCLUSIONS AND RECOMMENDATIONS 6
 Liner Suitability and Groundwater Considerations 6
 Site Preparation and Earthwork Construction 7
 Synthetic Liner System 8
 Permanent Groundwater Control 8
 Temporary Excavation Support 9
 Dike Slopes 10
 Erosion Control 10
QUALIFICATION OF REPORT 10

APPENDICES

- SITE BORING PLAN
- LOGS OF BORINGS No.1-4
- SUBSURFACE SOIL PROFILE SP-1
- MOISTURE-DENSITY RELATIONSHIP TEST REPORT (1)
- PERMEABILITY TEST RESULTS (1)
- UNIFIED SOIL CLASSIFICATION SYSTEM
- GENERAL NOTES

*Subsurface Exploration
Proposed Storage Basin – Glenora Feed Yard
Scott County, Iowa
TEAM No. 1-3609
November 13, 2014*

TEAM Services

PROJECT INFORMATION

Project information has been provided by Mr. Justin Sprague, E.I. of ProAg Engineering through an email to our Mr. Nick Gilles, P.E. on September 30, 2014. Included with the email was a site plan showing the proposed basin and boring locations. The project will include construction of a new storage basin at the Glenora Feed Yard facility at 26604 Glenn Street near Stockton, Iowa. It appears that the basin will have a bottom elevation of 774.0 feet and a capacity of approximately 10.9 million gallons.

SITE CONDITIONS

The proposed project is located at 26618 20th Ave in Scott County, Iowa. The site is located in a farm field north of the existing buildings. Based on the elevations of our borings, there is approximately 3 feet of relief across the area of the proposed basin. Surface soils were able to support our ATV-mounted drill rig without difficulty.

FIELD EXPLORATION

A total of 4 borings were drilled at the site on October 17, 2014. Boring locations were determined by our drill crew by referencing dimensions on the provided site plan. Ground surface elevations at the boring locations were determined by referencing contour lines on the provided site plan. The approximate boring locations are indicated on the Boring Plan in the Appendix and the elevations are provided on the respective boring logs. The locations and elevations of the borings should be considered accurate only to the degree implied by the means and methods used to define them.

Our drilling equipment consisted of an ATV-mounted auger drill rig. The borings were made by mechanically twisting a continuous flight hollow stem steel auger into the soil. At assigned intervals, the center drive bit of the auger was removed and soil samples were obtained. Following the drilling

of each boring, a temporary piezometer well was placed down the boreholes to allow for the collection of extended groundwater readings without concern for hole cave-in.

Representative samples were obtained using thin-walled (Shelby) tube and split-barrel sampling procedures in general accordance with ASTM Specifications D 1587 and D 1586, respectively. In the thin-walled tube sampling procedure, a thin-walled, seamless steel tube with a sharp cutting edge is pushed hydraulically into the ground to obtain relatively undisturbed samples of cohesive or moderately cohesive soils. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon is driven into the ground with a 140-pound hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the standard penetration resistance value. These values are indicated on the Boring Logs at the depths of occurrence. Bag samples of auger cuttings were obtained for potential Proctor compaction and permeability testing. The samples were tagged for identification, sealed and returned to the laboratory for testing and classification.

Field logs of the borings were prepared by the drill crew. These logs included visual classifications of the materials encountered during drilling, as well as the driller's interpretation of the subsurface conditions between samples. Final boring logs included with this report represent an interpretation of the field logs and include modifications based on laboratory observation and tests of the samples.

LABORATORY TESTING

Based on the driller's field records and examination of the samples in the laboratory, a soil testing program was developed to collect more information about the soil conditions at the site. The following is a brief description of the specific tasks completed for this project.

Natural Moisture Content -- The natural moisture content of selected samples was determined in accordance with ASTM D 2216. The moisture content of the soil is the ratio, expressed as a percentage,

of the weight of water in a given mass of soil to the weight of the soil particles. The results are presented on the Boring Logs at the depths from which the samples were obtained.

Unit Weight -- In the laboratory, selected undisturbed samples of the site soils were measured and weighed to determine gross weight and volume of the samples. Where possible, the samples are placed in a template and trimmed at each end to fit the template. The moisture content of each specimen was then determined, and the dry unit weight was calculated. The results of these tests are also presented on the Boring Logs at the appropriate sample depths.

Unconfined Compressive Strength -- A calibrated hand penetrometer was used to estimate the approximate unconfined compressive strength of select samples. The calibrated hand penetrometer has been correlated with unconfined compression tests and provides a better estimate of soil consistency than visual examination alone.

Standard Proctor -- Samples from the project site were collected for compaction testing. A standard Proctor compaction test (ASTM D 698) was performed on a selected sample to determine its compaction characteristics, including maximum dry density and optimum moisture content. Test results are presented on the attached Moisture Density Relationship test sheet.

Remolded Permeability Test -- A bulk cohesive soil sample was remolded and compacted to approximately 95% of the dry unit weight determined by Standard Proctor compaction tests (ASTM D 698). The remolded sample was then tested in the laboratory to determine its permeability in general accordance with ASTM D 5084. In this procedure, a sample was compacted into a cylindrical mold. A falling head (pressure difference) was then applied to a sample end. The volume of water flowing through the sample was recorded through burette readings. The permeability of the soil was then calculated using Darcy's Law. Detailed information of the permeability test is presented on the Permeability Test Results sheet attached to this report.

As part of the testing program, the samples were classified in the laboratory based on visual observation, texture and plasticity. The descriptions of the soils indicated on the boring logs are in

accordance with the enclosed *General Notes* and the *Unified Soil Classification System*. Estimated group symbols according to the *Unified Soil Classification System* are given on the boring logs. A brief description of this classification system is attached to this report.

SUBSURFACE CONDITIONS

Subsurface conditions encountered during this exploration are indicated on the individual boring logs. Based on the results of the borings, subsurface conditions on the project site can be generalized as follows.

Topsoil was encountered at the ground surface of our borings. The topsoil consisted of lean clay with trace amounts of organic matter and extended to depths of about 8 to 12 inches below existing grades.

Loess (wind-blown soil) was encountered beneath the existing fill in Borings 2 and 3 and at the ground surface in Boring 1. The loess soils at the site were typically lean clay (CL), although some higher plasticity fat clay (CH) loess was present beneath the existing fill in Boring 3. The loess soils extended to depths of about 8 to 17 feet below existing grades and exhibited medium stiff to stiff consistency.

Alluvium (water-deposited soil) was encountered beneath the loess deposits in our borings. The granular alluvium encountered at this site consisted of medium dense fine to medium sand. The cohesive alluvium consisted of medium stiff silt. The alluvial soils extended to depths of about 15 to 18½ feet below existing grades.

Glacial soils were encountered beneath the loess deposits in all the borings. This material, which is usually called glacial till, was deposited during the advance or retreat of continental glacial ice sheets which covered this area. The glacial till soils are more or less unsorted soil deposits consisting of a mixture of sand, silt and clay, with the engineering properties of the soil being controlled by the clay fraction. Glacial till soils encountered included sandy lean clay (CL) exhibiting stiff to very stiff

consistencies. Borings terminated in the glacial deposits at depths of 20 to 38 feet below existing grades.

Cobbles and boulders were not noted in our borings. However, glacial soils were encountered at the site, and these materials often contain cobbles and boulders. The possibility of their presence should be considered where excavations or grading operations at the site advance into the glacial soils.

The above descriptions provide a general summary of the subsurface conditions encountered. The attached Test Boring Records contain detailed information recorded at each boring location. These Test Boring Records represent our interpretation of the field logs based on engineering examination of the field samples. The lines designating the interfaces between various strata represent approximate boundaries and the transition between strata may be gradual. It should be noted that the soil conditions will vary between the boring locations. The generalized Subsurface Soil Profile presented in the Appendix (Figure SP-1) depicts the relative deposit elevations in the borings.

GROUNDWATER CONDITIONS

The borings were monitored while drilling and approximately 3 weeks after completing drilling operations for the presence and level of groundwater. Water levels observed in the borings are noted on the boring logs. During and immediately following drilling, groundwater seepage was not encountered in our boreholes. Piezometers consisting of 2" PVC casing and screen were installed in Boring 1 through 3. Extended groundwater levels in these borings were rechecked on November 7, 2014. At this time, groundwater was encountered at depths ranging from about 13 to 14 feet below existing grades.

These groundwater level observations provide an approximate indication of the groundwater conditions existing on this site at the time of drilling operations. Fluctuation of groundwater levels can occur due to seasonal variations in the amount of rainfall, runoff, surface drainage, subsurface drainage, site topography, irrigation practices, ground cover (pavement or vegetation), and other

*Subsurface Exploration
Proposed Storage Basin – Glenora Feed Yard
Scott County, Iowa
TEAM No. 1-3609
November 13, 2014*

TEAM Services

factors not evident at the time the borings were conducted. Normally, the highest groundwater levels occur in late winter and spring time while the lowest levels occur in late summer and fall time. The fluctuation of the groundwater levels should be considered when developing the design and construction plans for this project.

KARST EVALUATION

Based on a review of Iowa DNR data, there are no known sinkholes related to karst topography within 5 miles of the site. Also, no bedrock was encountered in the subsurface exploration. Therefore, karst topography is not likely a concern for construction at this site.

CONCLUSIONS AND RECOMMENDATIONS

Liner Suitability and Groundwater Considerations

A remolded permeability test was performed on the lean clay loess soils encountered in the upper 8 feet of Borings 2 and 3. Test results indicated that these soils are suitable for use as a soil liner. It is our opinion that the sandy lean clay glacial soils encountered at the site would be satisfactory basin liner materials, as well. However, alluvial sands, which are unsuitable clay liner materials, dominated the soils typically encountered at the proposed bottom-of-basin elevation at the site. Options for construction of soil liners for basins where sands are prevalent include collecting and placing a clay liner of suitable cohesive soils at least 2 feet thick over the sand soils, amending the existing sands with bentonite to form an amended soil liner at least 2 feet thick, or installing a synthetic liner. Synthetic liners are covered in more detail in the **Synthetic Liner System** section of this report. If an amended soil liner consisting of bentonite is desired, TEAM Services should be contacted to provide additional recommendations.

The Iowa Department of Natural Resources requires the installation of a permanent groundwater control system if the seasonal high groundwater level is above the basin bottom elevation and recommends a permanent groundwater control system if the seasonal high groundwater level is within 4 feet of the basin bottom. Based on our extended groundwater level readings, it appeared that seasonal high groundwater levels will be at or above the proposed bottom of basin elevation of 774.0 feet. Therefore, installation of a permanent groundwater control system should be performed. Additional recommendations for this system are presented in the **Permanent Groundwater Control** section of this report.

Site Preparation and Earthwork Construction

Cut and fill construction will be required to achieve the desired final grades for this project. Site preparation should begin with the removal of any organic-laden soils, vegetation and any loose, soft, or otherwise unsuitable materials. For planning purposes, we expect an average stripping depth of about 6 inches for undisturbed soil areas. The actual depth of stripping may vary depending upon vegetation cover and stability of the subgrade and the actual depth should be determined in the field in consultation with TEAM Services personnel. A four inch thick layer of topsoil strippings may be placed at the ground surface above the berm erosion protection to substantiate a grass stand. Otherwise, the site strippings and any near surface soils with organics should be used for landscaping purposes in non-critical support areas outside of the basin cells and berms.

The on-site soils can be excavated utilizing conventional excavation equipment. Fill placed for basin construction should consist of approved materials which are free of rocks larger than 3 inches, organic matter and debris. Fill for basin construction should be placed and compacted in a loose lift thickness of 12 inches or less and at a thickness compatible with the compaction equipment being used. The exposed surface soils between lifts should be lightly scarified, such as with a spike tooth harrow, to ensure proper adhesion between lifts. Compaction of granular soils can generally be suitably compacted with vibratory compaction equipment. Proper compaction of cohesive soils can be achieved with sheepsfoot or pneumatic type compactors. Sufficient density tests should be performed on each lift of engineered compacted fill placed to verify that adequate compaction is achieved.

*Subsurface Exploration
Proposed Storage Basin – Glenora Feed Yard
Scott County, Iowa
TEAM No. 1-3609
November 13, 2014*

TEAM Services

Cohesive fill placed for the basin and berm should be compacted to at least 95% of the material's maximum standard Proctor dry density (ASTM D-698) while granular fill should be compacted to 98% maximum standard Proctor dry density. A lesser degree of compaction is appropriate for trench backfill in areas outside the basin area where it is improbable that future roads or structures will be constructed. We suggest that the trench backfill outside of the basin be compacted to at least 90% of the material's maximum dry density as determined by the standard Proctor (ASTM D-698) test.

Moisture control is important to achieve adequate compaction. For cohesive soils, moisture contents within a range of -2 to +3 percent of the material's optimum moisture content (as determined by Standard Proctor ASTM D 698) are necessary to achieve the desired fill qualities while granular soils should be placed within 3 percent of the material's optimum moisture content.

Synthetic Liner System

As an alternative to the above referenced soil liner construction, the basin may be provided with a synthetic liner. The synthetic liner should be designed to reduce percolation to less than 1/16 inch per day at the design depth of the basin. If the basin is proposed to extend below existing grades, a drainage system will likely be necessary to aid in synthetic liner placement and to provide liner stability against excessive hydrostatic pressures during periods when the basin is empty.

Permanent Groundwater Control

It is recommended that the groundwater table be maintained below the bottom of the basin at all times. Iowa Administrative Code requires a 2 foot separation between the maximum seasonal groundwater level and the bottom of the basin. Based on our groundwater observations the approximate seasonal high groundwater levels are likely near the proposed basin bottom elevation. Therefore, we recommend that a permanent groundwater drainage system be constructed at the site to lower the groundwater table.

The groundwater may be permanently controlled by using trench drains. The bottom of trenches should be at least 2 feet below the bottom of the basin but can be no more than 4 feet below the seasonal high groundwater level in accordance with Iowa Administrative Code Environmental Protection Commission (567) Chapter 65.109(3)c.

The drain tiles and trench backfill should be constructed as follows. Four-inch or larger perforated pipes leading to an appropriate gravity outfall should be installed on the bottoms of trenches which are dug to a minimum 2 feet, 4 inches below the proposed pond bottom elevation. The pipes should be encapsulated with relatively freely draining granular materials (less than 5 percent material passing the No. 200 sieve). The perforations in the pipe should either be sized to keep the drainable material out of the pipe or a suitable filter fabric should be installed around the pipes. Where slots or perforations are concentrated on one side of the pipe, the pipe should be oriented with the perforations or slots on the bottom of the pipe. The radial thickness of drainable material around the pipes should not be less than 4 inches, and at least a 1-foot wide section of free-draining granular fill should be used for backfill above the drain line and should extend to within 2 feet of final grade. The granular backfill should be capped with 2 feet of compacted cohesive fill to help prevent infiltration of surface water into the drain system. The granular material should be encapsulated with a suitable filter fabric to avoid clogging the granular backfill with fines.

Temporary Excavation Support

All excavations should comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches" and other applicable codes. This document states that excavation safety is the responsibility of the contractor. Reference to this OSHA requirement should be included in the job specifications.

Dike Slopes

Sideslopes for basin dikes in both cut and fill areas should be 3 horizontal to 1 vertical or flatter. The crest of the dikes should be at least 10 feet in width to allow enough room for construction equipment at the site.

Erosion Control

A dense, well-maintained grass stand is recommended on the dry dike slope. Rip rap should be considered to protect the wet dike slope where wave action can cause erosion. Using angular rip-rap with a variety of rock weight ranging from 75 pound up to 2,250 pounds should provide optimal performance.

QUALIFICATION OF REPORT

Our evaluation of basin construction conditions has been based on our understanding of the site, Iowa Administrative Code, the project information, and the data obtained in our exploration. The general subsurface conditions utilized in our evaluation have been based on interpolation of subsurface data between the borings. In evaluating the boring data, we have examined previous correlations between soil properties observed in soil conditions similar to those at your site. The discovery of any site or subsurface conditions during construction which deviate from the data outlined in this exploration should be reported to us for our evaluation. The assessment of site environmental conditions or the presence of pollutants in the soil, rock, and groundwater of the site was beyond the scope of this exploration.

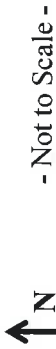
It is recommended that the geotechnical engineer be retained to review the plans and specifications so that comments can be provided regarding the interpretation and implementation of the geotechnical recommendations in the design and specifications. It is further recommended that the geotechnical

Subsurface Exploration
Proposed Storage Basin – Glenora Feed Yard
Scott County, Iowa
TEAM No. 1-3609
November 13, 2014

TEAM Services

engineer be retained for testing and observation during the basin construction phase to help determine that the design requirements are fulfilled.

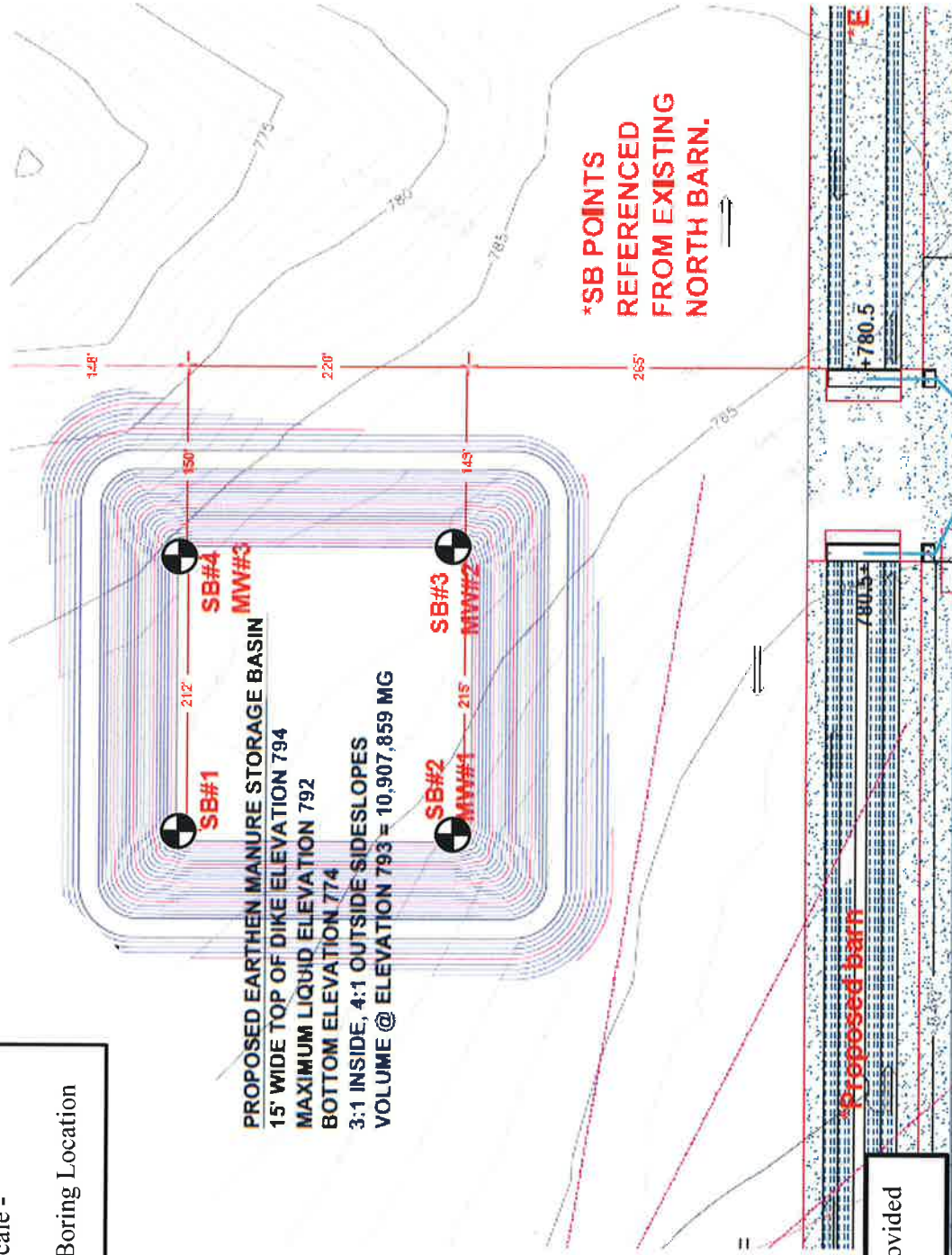
This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranty is provided. In the event that any changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer.



- Not to Scale -



Approximate Boring Location



Referenced Site Plan provided by ProAg Engineering.

TEAM Services, Inc.

717 SE 6th Street
Des Moines, IA 50309

Proposed Storage Basin

Scott County, Iowa

BORING PLAN

Project No. 1-3609

November 12, 2014

LOG OF BORING NO. 1

OWNER		ARCHITECT/ENGINEER										
SITE		PROJECT										
Scott County, Iowa		Proposed Storage Basin - Glenora Feed Yard										
GRAPHIC LOG	DESCRIPTION	DEPTH (ft.)	SAMPLES			TESTS						
			USCS SYMBOL	NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	MOISTURE, %	DRY DENSITY PCF	UNCONFINED STRENGTH PSF		
			Approx. Surface Elev.: 786.7 ft.									
			0.8	786.0	CL	1	ST	19"		23.9	92	4000*
			Topsoil -- Lean CLAY, trace organic matter, very dark brown		CL					29.1	91	2500*
			Loess -- Lean CLAY, light olive brown, stiff									
			5									
					SP	2	ST	14"		28.3	93	2000*
			8.0	778.7								
			Alluvium -- Fine to medium SAND, trace silt, brown									
-- with silt and becomes medium dense @ about 11'												
10		SP-SM	3	ST	12"		11.7					
		SP-SM	4	SS	12"	17	8.6					
15	771.7	SP-SM	5	SS	14"	13	13.8					
Glacial Till -- Sandy lean CLAY, trace gravel, yellowish brown, very stiff												
-- becomes stiff @ about 18'												
15		CL	6	SS	18"	20	16.3					
20		CL	7	SS	18"	14	15.9					
25		CL	8	SS	18"	12	16.4					

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL. Calibrated Hand Penetrometer*

WATER LEVEL OBSERVATIONS			TEAM Services, Inc.	BORING STARTED		10-17-14		
WL	▽	None		WD	▽	BORING COMPLETED		10-17-14
WL				AD		RIG	ATV	FOREMAN DC
WL						APPROVED	RED	JOB # 1-3609

LOG OF BORING NO. 1

OWNER		ARCHITECT/ENGINEER								
SITE		PROJECT								
Scott County, Iowa		Proposed Storage Basin - Glenora Feed Yard								
GRAPHIC LOG	DESCRIPTION	DEPTH (ft.)	SAMPLES			TESTS				
			USCS SYMBOL	NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	MOISTURE, %	DRY DENSITY PCF	UNCONFINED STRENGTH PSF
			30	CL 9	SS	18"	20	14.8		
			35	CL 10	SS	18"	26	15.4		
38.0	CL 11	SS	18"	26	17.9					
Bottom of Boring		748.7								

Glacial Till -- Sandy lean CLAY, trace gravel, yellowish brown, stiff
 -- becomes very stiff @ about 27'

-- color changes to dark yellowish brown @ about 36'

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL. Calibrated Hand Penetrometer*

WATER LEVEL OBSERVATIONS			TEAM Services, Inc.	BORING STARTED		10-17-14					
WL	∇	None		WD	∇	13.5'	11/7/14	BORING COMPLETED		10-17-14	
WL		None		AD				RIG	ATV	FOREMAN	DC
WL								APPROVED	RED	JOB #	1-3609

LOG OF BORING NO. 2

OWNER		ARCHITECT/ENGINEER							
SITE		PROJECT							
Scott County, Iowa		Proposed Storage Basin - Glenora Feed Yard							
GRAPHIC LOG	DESCRIPTION	DEPTH (ft.)	SAMPLES				TESTS		
			USCS SYMBOL	NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	MOISTURE, %	DRY DENSITY PCF
	Approx. Surface Elev.: 783.8 ft.								
	0.7 Topsoil -- <u>Lean CLAY</u> , trace organic matter, very dark brown	783.1	CL	1	ST	17"			
	Loess -- <u>Lean CLAY</u> , dark grayish brown, stiff		CL				24.0		
							28.0	91	2500*
	-- color changes to gray and light olive brown @ about 4'	5							
			CL	2	ST	14"			
							29.4	88	500*
		10	CL	3	SS	12"	2	28.4	
	11.0 Alluvium -- <u>Fine to medium SAND</u> , trace silt, brown, medium dense	772.8	SP	4	SS	14"	14	7.6	
	13.5 Alluvium -- <u>SILT</u> , light olive brown, medium stiff	770.3	ML	5	SS	14"	3	24.5	
			CL	6	SS	16"	15	17.0	
	15.0 Glacial Till -- <u>Sandy lean CLAY</u> , trace gravel, gray and yellowish brown, very stiff	768.8	CL	7	SS	18"	15	14.5	
	20.0 Bottom of Boring	763.8							

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL. Calibrated Hand Penetrometer*

WATER LEVEL OBSERVATIONS			TEAM Services, Inc.	BORING STARTED 10-16-14							
WL	∇	None		WD	∇	13'	11/7/14	BORING COMPLETED 10-16-14			
WL		None		AD				RIG	ATV	FOREMAN	DC
WL								APPROVED	RED	JOB #	1-3609

LOG OF BORING NO. 3

OWNER		ARCHITECT/ENGINEER								
SITE		PROJECT								
Scott County, Iowa		Proposed Storage Basin - Glenora Feed Yard								
GRAPHIC LOG	DESCRIPTION	DEPTH (ft.)	SAMPLES				TESTS			
			USCS SYMBOL	NUMBER	TYPE	RECOVERY	SPT-N BLOWS / FT.	MOISTURE, %	DRY DENSITY PCF	UNCONFINED STRENGTH PSF
	<p style="text-align: center;">Approx. Surface Elev.: 786.8 ft.</p> <p>1.0 Topsoil -- Lean CLAY, trace organic matter, very dark brown 785.8</p> <p>Loess -- Lean CLAY, light olive brown, medium stiff</p> <p style="text-align: center;">-- becomes soft @ about 7.5'</p> <p>9.5 777.3</p> <p>Alluvium -- Fine to medium SAND, with silt, brown, medium dense</p> <p style="text-align: center;">▼</p> <p>16.0 770.8</p> <p>Alluvium -- SILT, light olive brown, medium stiff</p> <p>18.5 768.3</p> <p>Glacial Till -- Sandy lean CLAY, trace gravel, gray and yellowish brown, very stiff</p> <p>23.0 763.8</p> <p style="text-align: center;">Bottom of Boring</p>	5	CL	1	ST	11"		22.5	96	4500*
		10	CL	2	SS	14"	6	29.3		
		15	CL	3	ST	17"		24.1		500*
		20	SP-SM	4	SS	17"	13	7.9		
		25	SP-SM	5	SS	16"	10	7.0		
		30	ML	6	SS	18"	4	22.0		
		35	CL	7	ST	22"		18.5	108	
		40	CL	8	SS	18"	20	15.0		
		45						12.2		

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL. Calibrated Hand Penetrometer*

WATER LEVEL OBSERVATIONS			TEAM Services, Inc.	BORING STARTED 10-16-14				
WL	∇	None		WD	∇	14'	BORING COMPLETED 10-16-14	
WL		None		AD			RIG	ATV
WL							FOREMAN	DC
			APPROVED RED		JOB # 1-3609			

LOG OF BORING NO. 4

OWNER	ARCHITECT/ENGINEER
SITE Scott County, Iowa	PROJECT Proposed Storage Basin - Glenora Feed Yard
GRAPHIC LOG	DESCRIPTION
	Approx. Surface Elev.: 785.7 ft.
0.8	<p>Topsoil -- Lean CLAY, trace organic matter, very dark gray 784.9</p> <p>Loess -- Lean CLAY, dark brown, stiff</p> <p>-- color changes to light olive brown and becomes medium stiff @ about 3'</p>
10.5	<p>Alluvium -- Fine to medium SAND, trace silt, brown, medium dense 775.2</p>
13.5	<p>Alluvium -- SILT, light olive brown, medium stiff 772.2</p>
16.0	<p>Glacial Till -- Sandy lean CLAY, trace gravel, yellowish brown and gray, very stiff 769.7</p> <p>-- becomes stiff @ about 19'</p>
22.0	<p>Bottom of Boring 763.7</p>
DEPTH (ft.)	USCS SYMBOL
	SAMPLES
	TESTS
	NUMBER
	TYPE
	RECOVERY
	SPT - N BLOWS / FT.
	MOISTURE, %
	DRY DENSITY PCF
	UNCONFINED STRENGTH PSF
5	CL 1 ST 17" 24.7 90 6000*
5	CL 2 SS 18" 6 28.4 2500*
10	CL 3 SS 10" 8 21.5
10	SP 4 SS 14" 23 6.0
15	ML 5 SS 14" 7 22.4
15	CL 6 ST 13" 12.6 121 5000*
20	CL 7 ST 18" 17.2 111 3000*

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL. Calibrated Hand Penetrometer*

WATER LEVEL OBSERVATIONS			TEAM Services, Inc.	BORING STARTED 10-17-14		
WL	∇ None	WD		∇ None	AD	BORING COMPLETED 10-17-14
WL						RIG ATV FOREMAN DC
WL						APPROVED RED JOB # 1-3609

LOG OF BORING NO. 5

OWNER		ARCHITECT/ENGINEER						
SITE		PROJECT						
Scott County, Iowa		Glenora Feed Yard - Additional Borings						
GRAPHIC LOG	DESCRIPTION	DEPTH (ft.)	SAMPLES			TESTS		
			USCS SYMBOL	NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	MOISTURE, %
Approx. Surface Elev.: 780.5 ft.								
1.0	Topsoil -- Lean CLAY, with organic matter, very dark brown	779.5						
	Loess -- Lean CLAY, light olive brown		CL	1	AS		25.3	
			CL	2	ST	12"	29.3	92 3000*
			CL	3	AS		28.5	
10.0	Alluvium -- Fine to medium SAND, with silt, brown	770.5	CL	4	ST	19"	27.4	97 1000*
			SP-SM				8.3	
			SP-SM	5	AS			
13.5	Glacial Till -- Sandy lean CLAY, trace gravel, yellowish brown	767.0						
			CL	6	ST	19"	16.8	113 3000*
16.5	Bottom of Boring	764.0						

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL. Calibrated Hand Penetrometer*

WATER LEVEL OBSERVATIONS			TEAM Services, Inc.	BORING STARTED 3-6-15					
WL	▽ None	WD		▽ None	AD	BORING COMPLETED 3-6-15			
WL						RIG	Simco	FOREMAN	NG
WL						APPROVED	NMG	JOB #	1-3700

TCGE03 1-3700.GPJ GEO.GDT 3/16/15

LOG OF BORING NO. 6

OWNER		ARCHITECT/ENGINEER							
SITE		PROJECT							
Scott County, Iowa		Glenora Feed Yard - Additional Borings							
GRAPHIC LOG	DESCRIPTION	DEPTH (ft.)	SAMPLES			TESTS			
			USCS SYMBOL	NUMBER	TYPE	RECOVERY	SPT - N BLOWS / FT.	MOISTURE, %	DRY DENSITY PCF
Approx. Surface Elev.: 784.0 ft.									
1.0	Topsoil -- <u>Lean CLAY</u> , with organic matter, very dark brown	783.0							
	Loess -- <u>SILT</u> , light olive brown and gray		ML	1	ST	8"	28.8	94	3500*
5			ML	2	ST	20"	28.3	91	2000*
8.0	Loess -- <u>Lean CLAY</u> , light olive brown	776.0							
			CL	3	ST	16"	28.9	91	1000*
10									
11.0	Alluvium -- <u>Fine to medium SAND</u> , with silt, brown	773.0							
13.5	Glacial Outwash -- <u>Clayey SAND</u> , brown	770.5							
			SC	4	SS	16"	5	11.4	
15									
17.0	Bottom of Boring	767.0							

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL. Calibrated Hand Penetrometer*

WATER LEVEL OBSERVATIONS			TEAM Services, Inc.	BORING STARTED 3-6-15			
WL	▽ None	WD		▽ None	AD	BORING COMPLETED 3-6-15	
WL						RIG Simco	FOREMAN NG
WL						APPROVED NMG	JOB # 1-3700

TC0603 1-3700.GPJ GEO.GDT 3/16/15

BORING LOG No. 7

PROJECT Proposed Feed Lot Expansion	SITE New Liberty, IA
---	--------------------------------

GRAPHIC LOG	DESCRIPTION	USCS SYMBOL	DEPTH (ft.)	SAMPLES				TESTS			
				NUMBER	TYPE	RECOVERY	SPT - N (BLOWS / FT.)	MOISTURE, %	DRY DENSITY (PCF)	UNCONFINED STRENGTH (PSF)	OTHER
2.0	Topsoil -- Lean CLAY, trace organic matter, brown 784.0	CL	0	1	AS			27			Sample frozen
				2	AS			25.4			Sample frozen
	Loess -- Lean CLAY, brown and gray, medium stiff to stiff	CL	5	3	SS	16	10	26			
				4	ST	16		28.3	96	2000*	
11.0			10	5	SS	18	3	29.2			
	Eolian -- Silty fine SAND, brown, medium dense	SM		6	SS	18	17	6.1			
14.0											
	Loess -- SILT, yellowish brown, medium stiff	ML	15	7	SS	18	6	24.5			
17.0											
	Glacial till -- Sandy lean CLAY, trace gravel, yellowish brown, stiff to very stiff	CL	20	8	SS	18	15	15.5			
			25	9	SS	18	17	17.6			
30.0			30	10	SS	18	14	17.3			
	Bottom of boring										

Notes: * Calibrated hand penetrometer
Hammer Type: Manual

Water Level:

None Ft. While Drilling
 None Ft. After Drilling
 Ft.



Boring Started: 2/18/22	
Boring Completed: 2/18/22	
Rig: ATV	Foreman: DC
Approved: NG	Job #: 1-5112

1-5112.gso TSBOR16 (01/4/25/2017)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES; IN-SITU, THE TRANSITION MAY BE GRADUAL.

BORING LOG No. 8

PROJECT Proposed Feed Lot Expansion	SITE New Liberty, IA
---	--------------------------------

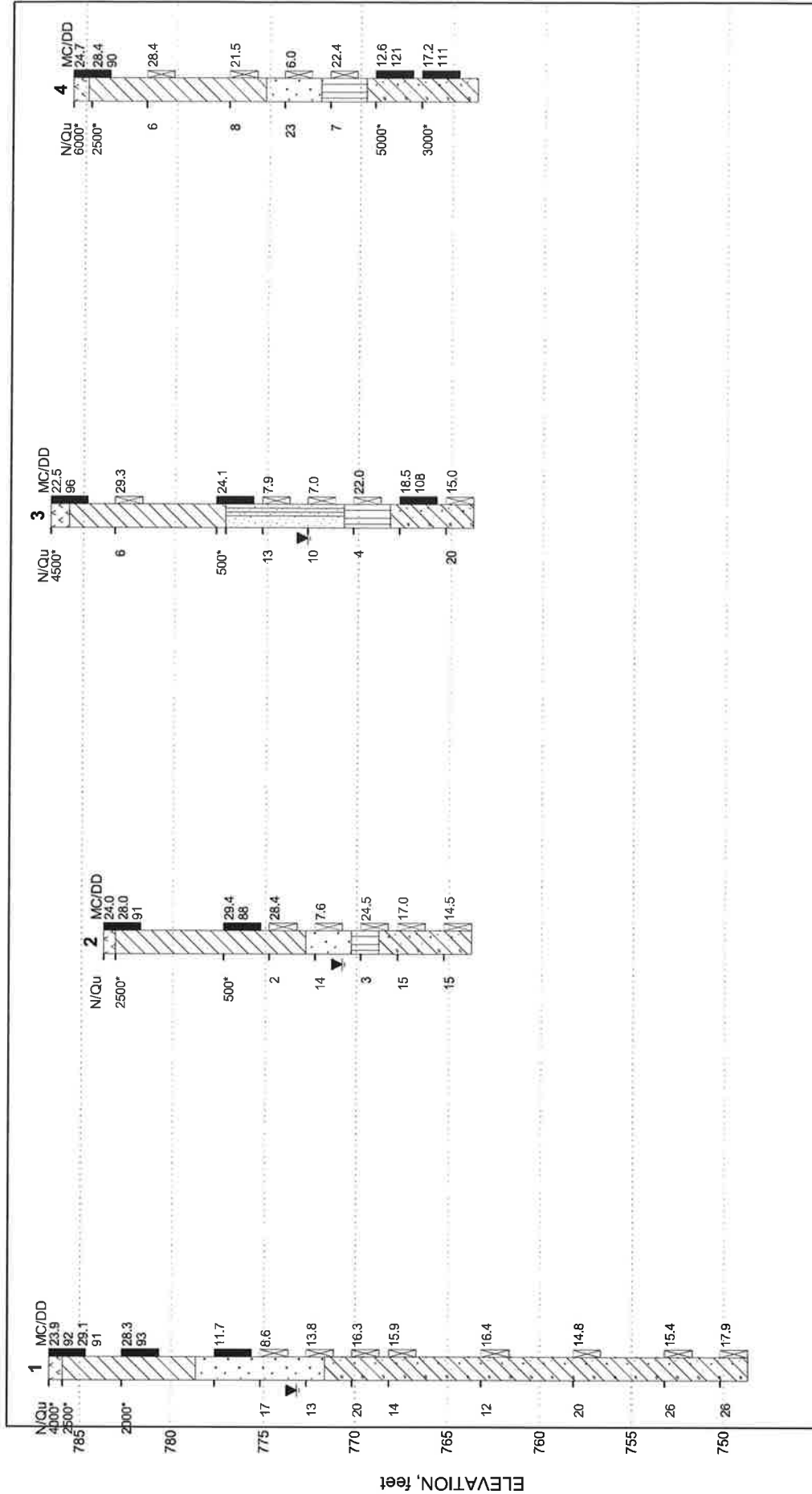
GRAPHIC LOG	DESCRIPTION	USCS SYMBOL	DEPTH (ft.)	SAMPLES				TESTS			OTHER
				NUMBER	TYPE	RECOVERY	SPT - N (BLOWS / FT.)	MOISTURE, %	DRY DENSITY (PCF)	UNCONFINED STRENGTH (PSF)	
0	Topsoil -- Lean CLAY, trace organic matter, brown	CL	0								
3.0	778.9			1	AS			18.5			Sample frozen
5	Loess -- Lean CLAY, yellowish brown and gray, medium stiff	CL	5	2	ST	12		26.4	98	6000*	
10			10	3	SS	18	7	28			
11.0	770.9			4	ST	14		29.4			
14.0	Eolian -- Silty fine SAND, brown, medium dense	SM		5	SS	14	12	14.6			
14.0	767.9										
15	Loess -- SILT, trace sand, brown, stiff	ML	15	6	SS	16	11	20			
17.0	764.9										
20	Glacial till -- Sandy lean CLAY, trace gravel, yellowish brown, very stiff to hard	CL	20	7	SS	18	18	13.4			
25			25	8	SS	18	24	11.8			
29.0	752.9										
30.0	Bedrock -- Severely weathered LIMESTONE, yellowish brown, moderately hard Auger Refusal		30	9	SS	4	50/4"	8			
30.0	751.9										

Notes: * Calibrated hand penetrometer
Hammer Type: Manual

Water Level: None Ft. While Drilling None Ft. After Drilling Ft.	 <small>Geotechnical and Construction Material Consultants</small>	Boring Started: 2/19/22 Boring Completed: 2/19/22 Rig: ATV Foreman: DC Approved: NG Job #: 1-5112
--	---	--

1-5112.gcc TSBORER15.fst 4/25/2017

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES; IN-SITU, THE TRANSITION MAY BE GRADUAL.



Vertical Scale: 1" = 8.0'

APPROXIMATE HORIZONTAL DISTANCE, feet

Legend:

- Lean clay
- USCS Poorly-graded Sand with Silt
- Silt
- Topsoil
- Sandy lean clay
- Fine to medium sand
- Split Spoon
- Shelby Tube
- Water level observed during drilling operations
- Water level observed after the completion of drilling operations

MC - Moisture Content (%N) - SPT - Blows per Foot
 DD - Dry Density (pcf) - Qu - Unconfined Compression Strength or Pocket Penetrometer* (psf)

TEAM Services

TEAM No.: 1-3609

Proposed Storage Basin - Glenora Feed Yard
 Scott County, Iowa

SUBSURFACE SOIL PROFILE

FIGURE SP-1

TEAM Services, Inc.

MOISTURE-DENSITY RELATIONSHIP

Job No. 1-3609 Date Rec'd 10/16/14 Date Tested 10/16/14

Project Proposed Storage Basin - Glenora Feed Yard -
Scott County, Iowa

Source of Material B-2 & B-3 Combination

Description of Material Lean CLAY, trace sand, brown
and dark brown

Material Designation 1

Test Method ASTM D-698, Method A

TEST RESULTS

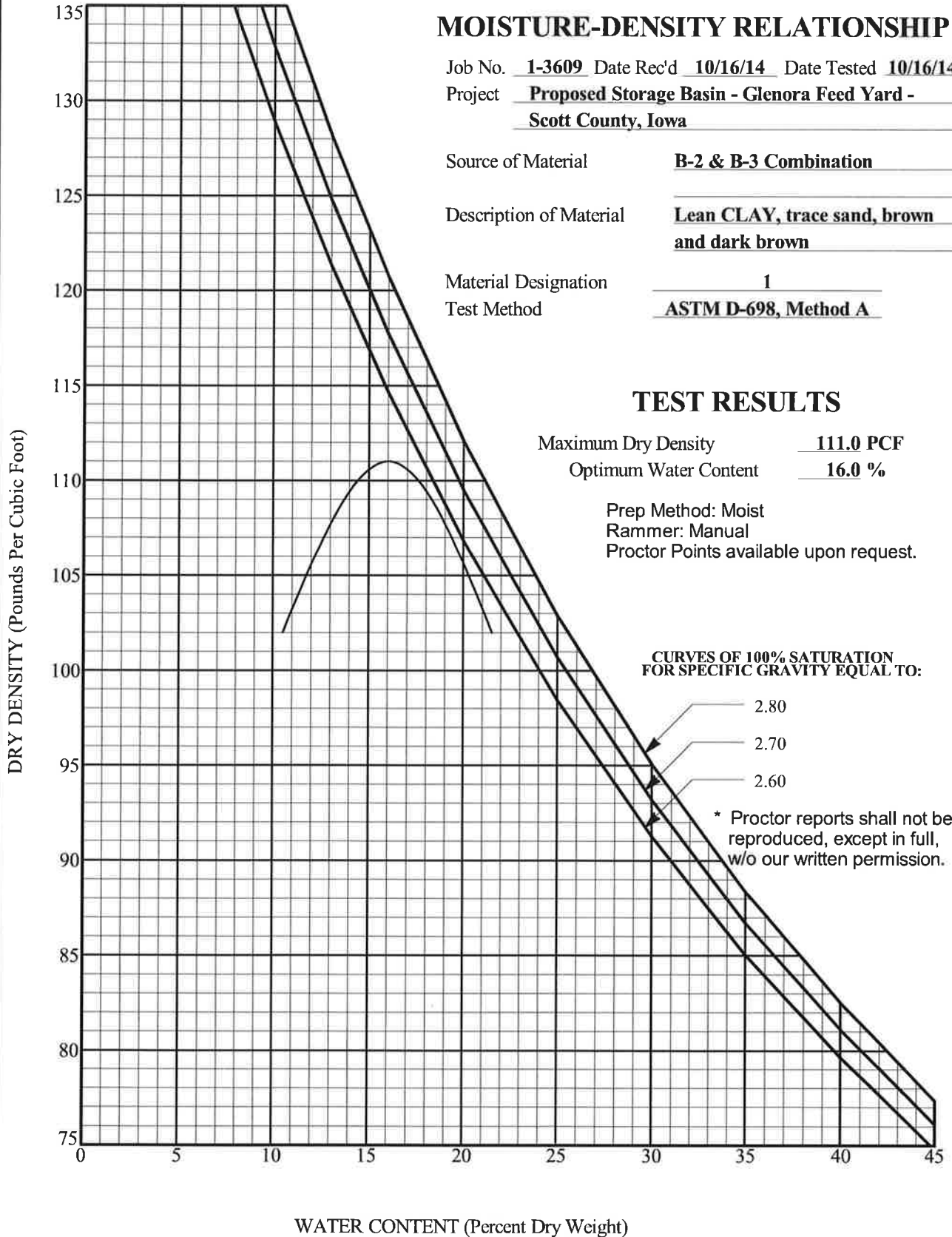
Maximum Dry Density 111.0 PCF

Optimum Water Content 16.0 %

Prep Method: Moist

Rammer: Manual

Proctor Points available upon request.



WATER CONTENT (Percent Dry Weight)

PERMEABILITY TEST RESULTS
Falling Head (Method B)



Project Name: Proposed Storage Basin - Glenora Feed Yard
Project No.: 1-3609
Sample: 1 **Date Received:** _____
Sample Location: B-2, B-3 Combination
Test Started: 10/28/2014 **Test Completed:** 11/6/2014
Test Procedure: General accordance with ASTM D 5084 - 90 Falling Head (Method B)
Sample Description: Lean CLAY, trace sand, brown and dark brown

INITIAL SAMPLE DATA

Wet Weight (g)	1268
Height (in)	5.58
Diameter (in)	2.875
Moisture Content (%)	16.0
Dry Unit Weight (pcf)	105.5

FINAL SAMPLE DATA

Weight (g)	1164.9
Height (in)	5.58
Diameter (in)	2.875
Moisture Content (%)	16.2
Dry Unit Weight (pcf)	105.5

TEST DATA

Elapsed Time (hr)	Initial Head (in)	Final Head (in)	Coefficient of Permeability, k (cm/s)
25.50	114.00	106.00	1.9E-07
19.25	114.00	112.88	3.5E-08
23.08	112.88	112.00	2.3E-08
71.17	112.00	108.88	2.7E-08
8.17	108.88	108.50	2.8E-08
15.83	108.50	107.88	2.4E-08
24.00	107.88	106.75	2.9E-08
24.00	106.75	105.75	2.6E-08
Average of last 4 readings			2.7E-08

Proctor Data		
Maximum Dry Density	111.0	pcf
Optimum Moisture	16	%

Remolded Compaction		
Compaction	95.0	%
Moisture Deviation	0.0	%

UNIFIED SOIL CLASSIFICATION SYSTEM

TEAM Services

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification		
				Group Symbol	Group Name ^B	
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3^E$	GW	Well-graded gravel ^F	
			$Cu < 4$ and/or $1 > Cc > 3^E$	GP	Poorly graded gravel ^F	
		Gravels with Fines More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}	
			Fines classify as CL or MH	GC	Clayey gravel ^{F, G, H}	
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines ^E	$Cu \leq 6$ and $1 \leq Cc \leq 3^E$	SW	Well-graded sand ^I	
			$Cu < 6$ and/or $1 > Cc > 3^E$	SP	Poorly graded sand ^I	
		Sands with Fines More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G, H, I}	
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}	
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silt and Clays Liquid limit less than 50	inorganic	$PI > 7$ and plots on or above "A" line ^J	CL	Lean clay ^{K, L, M}	
			$PI < 4$ or plots below "A" line ^J	ML	Silt ^{K, L, M}	
		organic	Liquid limit – oven dried	< 0.75	OL	Organic clay ^{K, L, M, N}
			Liquid limit – not dried			Organic silt ^{K, L, M, O}
	Silt and Clays Liquid limit 50 or more	inorganic	PI plots on or above "A" line	CH	Fat clay ^{K, L, M}	
			PI plots below "A" line	MH	Elastic silt ^{K, L, M}	
		organic	Liquid limit – oven dried	< 0.75	OH	Organic clay ^{K, L, M, P}
			Liquid limit – not dried			Organic silt ^{K, L, M, Q}
Highly Organic Soils	Primarily organic matter, dark in color, and organic odor			PT	Peat	

^A Based on the material passing the 3-in. (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols:

GW-GM well-graded gravel with silt
 GW-GC well-graded gravel with clay
 GP-GM poorly graded gravel with silt
 GP-GC poorly graded gravel with clay

^D Sands with 5 to 12% fines require dual symbols:

SW-SM well-graded sand with silt
 SW-SC well-graded sand with clay
 SP-SM poorly graded sand with silt
 SP-SC poorly graded sand with clay

For classification of fine-grained soils and fine grained fraction of coarse-grained soils.

Equation of "A" Line:

Horizontal at $PI = 4$ to $LL + 25.5$.
 then $PI = 0.73 (LL - 20)$

^E

$$Cu = D_{60}/D_{10} \quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $> 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plots in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel", whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

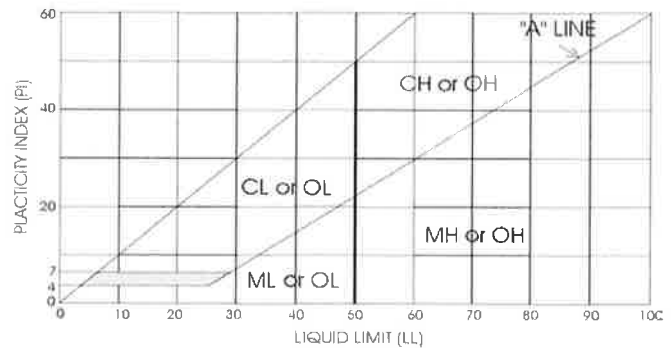
^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI > 4$ and plots on or above "A" line.

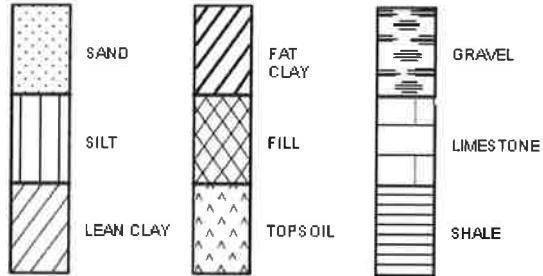
^O $PI < 4$ or plots below "A" line.

^P PI plots on or above "A" line.



^Q PI plots below "A" line.



GENERAL NOTES

SOIL and ROCK TYPES	DRILLING & SAMPLING SYMBOLS
	<p>SS Split Spoon - 1 1/2" I.D., 2" O.D., unless otherwise noted ST Thin-Walled Tube - 3" O.D., unless otherwise noted PA Power Auger HA Hand Auger DB Diamond Bit - 4", N, B AS Auger Sample HS Hollow Stem Auger WS Wash Sample RB Rock Bit BS Bulk Sample DC Dutch Cone WB Wash Bore AR Air Rotary</p>

CONSISTENCY OF FINE-GRAINED SOILS (major portion passing No. 200 sieve)	RELATIVE DENSITY OF COARSE-GRAINED SOILS																																						
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Consistency</th> <th style="width: 30%;">Unconfined Compressive Strength, Qu, psf</th> <th style="width: 40%;">N-Blows/ft* (Approx. Correlation)</th> </tr> </thead> <tbody> <tr> <td>Very Soft</td> <td>< 500</td> <td>0 - 2</td> </tr> <tr> <td>Soft</td> <td>500 - 1,000</td> <td>3 - 4</td> </tr> <tr> <td>Medium</td> <td>1,001 - 2,000</td> <td>5 - 8</td> </tr> <tr> <td>Stiff</td> <td>2,001 - 4,000</td> <td>9 - 15</td> </tr> <tr> <td>Very Stiff</td> <td>4,001 - 8,000</td> <td>16 - 30</td> </tr> <tr> <td>Hard</td> <td>8,001 - 16,000</td> <td>31 - 50</td> </tr> <tr> <td>Very Hard</td> <td>> -16,000</td> <td>50 +</td> </tr> </tbody> </table>	Consistency	Unconfined Compressive Strength, Qu, psf	N-Blows/ft* (Approx. Correlation)	Very Soft	< 500	0 - 2	Soft	500 - 1,000	3 - 4	Medium	1,001 - 2,000	5 - 8	Stiff	2,001 - 4,000	9 - 15	Very Stiff	4,001 - 8,000	16 - 30	Hard	8,001 - 16,000	31 - 50	Very Hard	> -16,000	50 +	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Relative Density</th> <th style="width: 50%;">N-Blows/ft. *</th> </tr> </thead> <tbody> <tr> <td>Very Loose</td> <td>0 - 4</td> </tr> <tr> <td>Loose</td> <td>5 - 10</td> </tr> <tr> <td>Medium Dense</td> <td>10 - 29</td> </tr> <tr> <td>Dense</td> <td>30 - 49</td> </tr> <tr> <td>Very Dense</td> <td>50 - 80</td> </tr> <tr> <td>Extremely Dense</td> <td>80 +</td> </tr> </tbody> </table>	Relative Density	N-Blows/ft. *	Very Loose	0 - 4	Loose	5 - 10	Medium Dense	10 - 29	Dense	30 - 49	Very Dense	50 - 80	Extremely Dense	80 +
Consistency	Unconfined Compressive Strength, Qu, psf	N-Blows/ft* (Approx. Correlation)																																					
Very Soft	< 500	0 - 2																																					
Soft	500 - 1,000	3 - 4																																					
Medium	1,001 - 2,000	5 - 8																																					
Stiff	2,001 - 4,000	9 - 15																																					
Very Stiff	4,001 - 8,000	16 - 30																																					
Hard	8,001 - 16,000	31 - 50																																					
Very Hard	> -16,000	50 +																																					
Relative Density	N-Blows/ft. *																																						
Very Loose	0 - 4																																						
Loose	5 - 10																																						
Medium Dense	10 - 29																																						
Dense	30 - 49																																						
Very Dense	50 - 80																																						
Extremely Dense	80 +																																						
<p>* Standard "N" Penetration Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch OD split spoon, except where noted.</p>																																							

RELATIVE PROPORTIONS OF SAND AND GRAVEL		RELATIVE PROPORTIONS OF FINES		GRAIN SIZE TERMINOLOGY	
Descriptive Term(s) (of components also present in sample)	Percent of Dry Weight	Descriptive Term(s) (of components also present in sample)	Percent of Dry Weight	Major Component of Sample	Size Range
Trace	< 15	Trace	< 5	Boulders	Over 12 in. (300 mm)
With	15 - 29	With	5 - 12	Cobbles	12 in. to 3 in. (300 mm to 4.75 mm)
Modifier	> 30	Modifier	> 12	Gravel	3 in. to #4 sieve (75 mm to 4.75 mm)
WATER LEVELS: WD = While Drilling AD = After Drilling				Sand	#4 to #200 sieve (4.75 mm to 0.075 mm)
	Depth groundwater first encountered during drilling			Silt or Clay	Passing #200 sieve (0.075 mm)
	Groundwater level after 24 hours (unless otherwise noted, i.e. "AD" -- after drilling)				

TERMS DESCRIBING SOIL STRUCTURE			
Parting:	paper thin in size	Fissured:	containing shrinkage cracks, frequently filled with fine sand or silt, usually more or less vertical.
Seam:	1/8" to 3" in thickness	Interbedded:	composed of alternate layers of different soil types.
Layer:	greater than 3" in thickness	Laminated:	composed of thin layers of varying color and texture.
Ferrous:	containing appreciable quantities of iron	Slickensided:	having inclined planes of weakness that are slick and glossy in appearance.
Well-Graded:	having wide range in grain size and substantial amounts of all intermediate sizes.	NOTE:	Clays possessing slickensided or fissured structure may exhibit lower unconfined strength than indicated above. Consistency of such soil is interpreted using the unconfined strength along with pocket penetrometer results.
Poorly-Graded:	predominately one grain size or having a range of sizes with some intermediate sizes missing.		

THE COUNTY AUDITOR'S SIGNATURE CERTIFIES THAT
THIS RESOLUTION HAS BEEN FORMALLY APPROVED BY
THE BOARD OF SUPERVISORS ON _____
DATE

SCOTT COUNTY AUDITOR

RESOLUTION
SCOTT COUNTY BOARD OF SUPERVISORS
April 14, 2022
ADOPTING A RECOMMENDATION TO THE IOWA DEPARTMENT OF NATURAL
RESOURCES TO APPROVE THE CONSTRUCTION PERMIT APPLICATION OF
SIEVERS FAMILY FARMS LLC FOR THE EXPANSION OF AN EXISTING CONFINED
ANIMAL FEEDING OPERATION IN SECTION 32 OF LIBERTY TOWNSHIP

BE IT RESOLVED by the Scott County Board of Supervisors as follows:

- Section 1. Sievers Family Farms LLC in the S ½ of NE ¼ of Section 32, T80N, R1E (Liberty Township) has submitted an application to the Iowa Department of Natural Resources (IDNR) for a construction permit for the expansion of an existing confined animal feeding operation at 26618 20th Avenue in unincorporated Scott County.
- Section 2. The Scott County Health Department and the Scott County Planning and Development Department have reviewed the construction permit application and the manure management plan and determined that both appear to be in compliance with the requirements of the Master Matrix, Iowa Code Section 459 and Iowa DNR rules.
- Section 3. The Scott County Board of Supervisors has determined that there are not any additional objects or locations not included in the application that are within the required separation distances, the soils and hydrology of the site appear to be suitable for the proposed expansion, and the applicant has adequate land for the application of manure originating from this confinement feeding operation available.
- Section 4. The Scott County Board of Supervisors published public notice of the receipt of said application, accepted written and electronic comments on the application and held a public hearing on March 31, 2022 during its regularly scheduled meeting to receive public comments on the application.
- Section 5. The Scott County Board of Supervisors will submit to the Iowa DNR the written reports it received from the Scott County Planning and Development and Health Departments on which its determination is based, and the documentation of publication of the required public notices. The Board will also submit all the written or electronic comments from the general public it received on this application.
- Section 6. The Scott County Board of Supervisors would recommend that the construction permit application of Sievers Family Farms LLC be approved based on its compliance with the requirements of the Master Matrix, Iowa DNR rules and Iowa Code regulations for such applications.
- Section 7. This resolution shall take effect immediately.