REQUEST FOR QUOTE (RFQ)

Chesapeake Conservancy is a non-profit organization that works with conservation partners and landowners to implement Best Management Practices (BMPs) on agricultural land. Chesapeake Conservancy and our Central PA Partnership were awarded a Regional Conservation Partnership Program (RCPP) grant through the USDA Natural Resources Conservation Service (NRCS). Funding for Technical Assistance for practice design and assistance with practice installation and verification is available through RCPP.

As part of the RCPP grant, Chesapeake Conservancy is soliciting quotes for the following services:

- Engineering Services to design a roofed heavy use area/waste storage facility and associated practices for a dairy operation.
- Project and Construction Oversight
- Quality Assurance Inspections and Final Certification with PE Stamp

RFQ OVERVIEW AND DESCRIPTION OF WORK

RFQ Release Date: October 1, 2024

Landowner Name: Ja-Char Farm LLC

Project Location: 10273 South Eagle Valley Road
Port Matilda, PA 16870
Centre County, Taylor Township

RFQ Issuing Office: Chesapeake Conservancy
Email: paprograms@chesapeakeconservancy.org
Phone: 570-372-4075

RCPP Partners: Natural Resources Conservation Service (NRCS) and Centre County Conservation District

RFQ Due Date: **All quotes must be submitted by:**
October 31, 2024 at 10:00 am EDT
Quotes will not be accepted after this date and time.

RFQ Submission: **All quotes must be submitted electronically, or hand delivered in-person.**
DO NOT MAIL QUOTES – QUOTES WILL NOT BE ACCEPTED THROUGH U.S. MAIL.

Email: paprograms@chesapeakeconservancy.org
Include "Ja-Char Farm RFQ Response – Engineering Services" in the subject line.

In Person: Chesapeake Conservancy
Attention: Kathy Rohrer/Ja-Char Farm RFQ Response – Engineering Services
Susquehanna University, Freshwater Research Institute Building
1250 West Sassafras Street, Selinsgrove, PA 17870
A drop box is located inside the main entrance and is accessible at any time.

Questions: All questions regarding this RFQ should be submitted to:
Email: paprograms@chesapeakeconservancy.org
Contact/Phone: Kathy Rohrer, 570-372-4075

Project Description:
The successful bidder will be responsible for providing engineering and professional services to design and oversee construction of a roofed heavy use area/waste storage facilities (bed pack #1) for dry cows and calves. The project involves construction of the new facility, access roads and other Best Management Practices (BMPs). The new facility will be a stand-alone structure that is not attached to existing building. Bald Eagle Creek flows through the property near the existing free stall barn.

The Inventory and Evaluation (I&E) completed by NRCS, addressed several resource concerns on the farm. **The only project being designed and constructed at this time is the dry cow/calf heavy use area/waste storage facility (bed pack #1) located on the southeast side of the road near the existing free stall barn. Bidders shall base their proposal on designing a heavy use area/waste storage facility (bed pack #1) for the dry cows and calves only.** The design shall include all components needed for constructing the facility identified in the I&E as bed pack #1 that will adequately address water quality. BMPs may include but are not limited to those identified in the landowner's I&E (Attachment A). Bidders should refer to the I&E for practices, estimated quantities and other important information regarding the project site. This information is provided for information purposes only.

The silage leachate system and heifer barn that are discussed in the I&E are not being implemented at this time, therefore the information in the I&E pertaining to these practices should be disregarded.

This contract will include the following services:

Project Design

- Site survey(s) and engineering of planned BMPs
- Provide a concept plan for approval by NRCS after pre-design meeting
- Coordinate and communicate with NRCS staff to incorporate NRCS comments into final design
- Provide final design and drawings to NRCS for review and approval
    - The Engineer shall prepare all necessary design plans, drawings and specifications to be used for the construction of the BMPs. All information provided shall be complete in detail and contain all necessary information. Drawings shall conform with standard professional practice, including site plans, profiles and sections, erosion and sediment control plan, quality assurance/inspection plan, operation and maintenance plan and all details necessary to illustrate the complete scope of the work.
    - The Engineer shall include design calculations, documentation and cost estimate.
    - The design and drawings shall be signed and sealed by a qualified, licensed professional, and shall meet Pennsylvania Technical Guide Standards and Specifications.
- Provide NRCS approved design and drawings to the Conservancy, RCPP Partner (Conservation District) and landowner
- Provide NRCS technical standards and specifications of planned BMPs
    - Planned BMPs and estimated quantities are found in Attachment A.
- Provide printed sets of 11"x17" or larger drawings and designs for the site showing. Quantity will be determined based on number of attendees.

Project Permits
The landowner will be responsible for applying for and obtaining all permits required for this project.

Project Meetings
Project meetings including but not limited to:

- Pre-design meeting on site
- Site showing for bids on site

- Bid opening or review of bids
- Pre-construction visit on site

Construction Oversight and Quality Assurance

The Engineer is expected to furnish customary engineering advice and assistance necessary to Chesapeake Conservancy, NRCS, landowner, contractors and other project partners to enable all parties to readily understand the project and design. The Engineer shall provide oversight of the project and shall coordinate with Chesapeake Conservancy, NRCS, landowner, contractors and other partners throughout the project. The Engineer is expected to work directly with NRCS and the landowner on such things as design reviews, edits and approvals, site visits and other aspects of the project. The Engineer shall visit the construction site to observe progress and quality of work, to determine if work is proceeding in accordance with the design, to keep Chesapeake Conservancy informed of progress, to guard against defects and deficiencies and to disapprove of work not in conformance with the design and NRCS specifications.

The Engineer will, at a minimum, conduct quality assurance inspections on site during construction for critical tasks including, but not limited to:

- Placing compacted fill or subgrade/stone preparation
- Checking materials (rebar, posts, etc.) before installation
- Check reinforcing steel before concrete pour (not same day as pour)
- Pouring any concrete
- Backfilling poured concrete walls or final grading
- Setting trusses and associated truss bracing (Trusses must be approved by the Engineer prior to ordering. Final truss design needs a P.E. seal.)
- Installing stormwater pipes and drop boxes
- Final inspection for conformity with design, concept and NRCS specifications

Contractor will complete a NRCS RCPP TA-I Practice Certification Sheet (included with Attachment B) for each practice (Contract Item Number-CIN) in the NRCS contract that is part of the engineering design. An example Practice Certification Sheet has been provided by NRCS. The Contractor shall send the completed Practice Certification Sheet(s) to the local NRCS District Conservationist (DC) for functional review and DC signature and copy the Conservancy. NRCS will complete its review and return the signed Practice Certification Sheet(s) to the Contractor. The signed Practice Certification Sheet(s) shall be submitted to the Conservancy with the Contractor's invoice.

When the project is complete, the Engineer will provide the following:

- "As Built" documentation consisting of final drawings of practices and quantities installed and certification statement signed by a professional engineer stating installed practices meet the PA Technical Guide Standards and Specifications.
    - One electronic copy to Chesapeake Conservancy and NRCS.

Bidding Process

The Centre County Conservation District (lead RCPP partner) will be required to utilize a competitive bidding process for the implementation phase of the project. The Conservation District will be responsible for compiling a bid package following their procurement policy. The Engineer and NRCS will review the final bid package for accuracy and completeness. The Engineer shall be available to answer contractors' questions pertaining to the design and supply the District with addenda, if required. The Engineer shall be prepared to provide printed sets of 11"x17" or larger of the designs and drawings for the site showing.

RFQ TERMS AND CONDITIONS

CONSTRUCTION TIMELINE:

Designs shall be completed as soon as possible. Contractors shall include with their response when they can begin working on the design and their projected completion date of the design. Preference shall be given to contractors who can complete the designs in a timeframe which could allow construction to be completed before June 2026 as funding from the RCPP partner for implementation/construction needs to be spent within this timeframe.

If the contracted services are not completed within the designated time period (as specified in the resulting contract from this RFQ), the contract can be extended if agreed to in writing by Chesapeake Conservancy and the contractor.

PA ONE CALL:

Contractor shall follow all laws and regulations relating to the Pennsylvania One-Call System including submitting all required design notifications to the Pennsylvania One-Call System.

COMMUNICATION:

Communication between the Contractor, NRCS, the District and the landowner is crucial to a successful project. Contractor shall work closely with NRCS, the District and the landowner during the design and implementation phases of the project to ensure the project is completely timely.

PAYMENT INFORMATION:

Chesapeake Conservancy will pay Contractor when the design is completed and approved by NRCS and as practices are certified and NRCS reporting requirements are met. Payment(s) will be issued on a Net 30 schedule upon submission of an approved invoice and a completed Application for Payment form.

NRCS REPORTING REQUIREMENTS:

NRCS requires Contractor to complete Attachment B with each invoice. Attachment B includes a RCPP TA-I Certification by Practice Sheet and a RCPP TA-I Reimbursement Summary Sheet.

RCPP TA-I Certification by Practice Sheet

Contractor shall include on the Certification by Practice Sheet basic information about the conservation practice, who was involved, brief description of activities, completion date and the charge by Activity Type (Design or Installation). A separate Certification Practice Sheet is to be completed for each practice in the producer's RCPP contract that is associated with the engineering design.

RCPP TA-I Reimbursement Summary Sheet

For each invoice the Contractor submits to the Conservancy, Contractor shall complete the Reimbursement Summary Sheet by compiling the total reimbursement request for all completed Conservation Practice Sheets for the invoice period. The Reimbursement Summary Sheet shall include the invoice period start and end date, details from the Certification Practice Sheet as well as the total cost being invoiced by conservation practice. The staff position, hours worked and hourly rate associated with each conservation practice should be broken out at the bottom of the form.

EQUAL EMPLOYMENT OPPORTUNITY:

Chesapeake Conservancy is an equal opportunity employer. The successful bidder shall comply with all federal, state, and local equal employment opportunity requirements. Additional information can be found at https://www.ecfr.gov and searching 41 CFR 60-1.4(b).

SMALL BUSINESS AND SMALL DIVERSE BUSINESS:

Chesapeake Conservancy encourages the use of small and small diverse businesses when soliciting Requests for Quotes. Contractors are encouraged to register with the federal government at www.sam.gov and with the Pennsylvania Department of General Services at www.dgs.pa.gov (search Small Diverse Business Verification). Please note Pennsylvania Department of General Service registration is only valid for three years. Contractors are encouraged to verify that their registration is current.

Contractors and any subcontractors who register on Sam.gov and with the PA Dept of General Services and who qualify as a small and/or small diverse business should check the applicable boxes on the Contractor Response Form.

DEBARMENT AND TAX LIABILITY:

Contractors will be required to certify that they and any subcontractors are not listed on the Debarment and Suspension List maintained by the Pennsylvania Department of General Services (https://www.dgs.internet.state.pa.us/debarmentsearch/debarment/index) and the General Services Administration's List of Parties Excluded from Federal Procurement or Nonprocurement Programs (www.SAM.gov) in accordance with Executive Orders 12549 and 12689, "Debarment and Suspension" and have no outstanding tax liabilities. Contractors will also be required to certify that they and any subcontractors are not in default of a loan or funding agreement administered by any Commonwealth agency.

INSURANCE REQUIREMENTS:

Bidders shall include a copy of their current Certificate of Insurance (COI) that reflects their existing levels of liability insurance coverage. Chesapeake Conservancy will work with the successful bidder to ensure adequate levels of insurance are in place for the project prior to finalizing a contract.

Preferred levels of coverage include the following:

Type of Insurance Coverage	***Limit Required***
Workers Compensation and Employer's Liability -	Statutory
Bodily Injury, Each Accident:	State Minimum
Bodily Injury By Disease, Each Employee:	State Minimum
Bodily Injury/Disease, Policy Limit:	State Minimum
General Liability -	
Each Occurrence (Bodily Injury and Property Damage):	$1,000,000
General Aggregate:	$1,000,000
Excess or Umbrella Liability -	
Per Occurrence:	$1,000,000
General Aggregate:	$2,000,000
Automobile Liability -	
Combined Single Limit (Bodily Injury and Property Damage):	$1,000,000
Professional Liability – covering negligent acts, errors, and omissions in performance of professional services	
Each Claim Made	$5,000,000
Annual Aggregate	$5,000,000

It is preferred that all policies (except workers compensation) include a waiver of subrogation and list "**Chesapeake Conservancy"** as additional insured.

Once Chesapeake Conservancy and the successful bidder have reached an agreement pertaining to insurance coverage, the successful bidder shall provide Chesapeake Conservancy with a current COI certified by a licensed insurance broker. The approved COI needs to be provided to Chesapeake Conservancy prior to signing a contract.

Note: Bidders do not need to add the additional insured to their policy when responding to the RFQ. Only the successful bidder will be required to name the additional insured on their policy after the bid is awarded. The Certificate Holder should be as follows: Chesapeake Conservancy, 1212 West Street, Suite 42, Annapolis, MD 21401.

GRANTS:

The terms and conditions of the RCPP Supplemental Agreement for Technical Assistance and Financial Assistance for Easement Due Diligence Entered Into By USDA Natural Resources Conservation Service and Chesapeake Conservancy apply to the contracts that result from this RFP. Copies of the Agreement are available upon request.

PREVAILING WAGE AND ENHANCED MINIMUM WAGE REQUIREMENTS:

Prevailing wage and enhanced minimum wage rates do not apply to this RFQ.

SUBMISSION OF QUOTES AND SELECTION CRITERIA

SUBMISSION OF QUOTES:

Quotes are requested for the items described in the Project Description. Any estimated quantities included in this RFQ are for information only. The successful bidder will be responsible for determining the final quantities and practices as part of the design process.

At a minimum each quote response must include:

- Contractor Quote Form
  - Price – Must follow NRCS Crosswalk format outlined below*
  - Proposed start date
  - Proposed completion date
  - List of exclusions and assumptions (if applicable)
  - Signed by authorized representative
- Contractor General Information Form and corresponding documents**
  - Three references
  - Debarment and tax liability certification
  - Current Certificate of Insurance
  - Signed by authorized representative

Contractors bidding on more than one 2024 RCPP Engineering Services RFQ, will only need to submit one Contractor General Information Form and corresponding documents. Contractors should note on the Contractor Quote Form whether they are including the Contractor General Information Form with this response or if they submitted it with a separate 2024 RCPP Engineering Services response.

All quotes must be submitted electronically, or hand-delivered to Chesapeake Conservancy by the RFQ due date specified on Page 1 of the RFQ.

***NRCS Crosswalk**

A Generalized Crosswalk: Aligning SA TA-I Practices to NRCS 9 Step Planning Process	
TA-I Practice Code and Name	**Implementation TA Tasks – Must be directly related to a potentially viable RCPP funded FA application or contract, and not be otherwise precluded like are TA-E items (per APF), and partner administrative expenses (per Statute.)**
RTIP001 – TA-I, Negotiated Pre-Application	Pre-application assistance may assistance to producers in completion of application, establishing FSA records, and or field work to support eligibility or screening. **(Reminder: this activity does NOT include outreach to producers or general meetings to raise producer awareness of project, which are TA-E or contribution tasks.)**
RTIP002 – TA-I, Negotiated Planning	Steps 1-7 Note: TA-I Planning, Design tasks require adherence to NRCS planning procedures and or practice standards as described for each agreement in Attachment 5 (and or valuation methods attached to individual deliverables). Where partners will not complete entity of a plan or design (e.g. partner will provide a range heath assessment in support of a grazing plan to be prepared by NRCS planner), Attachment 5 must also identify specific requirements of items partner will complete to earn payment.
RTIP003 – TA-I, Negotiated Design	Steps 5, 6, 8 (Design)
RTIP004 – TA-I, Negotiated Installation	Step 8 (Installation)
RTIP005 – TA-I, Negotiated Checkout	Step 8 (Checkout) Note: TA-I Checkout, requires NRCS job approval authority as checkout determines eligibility of completed work for FA payment. Not generally delegated to partners.
RTIP006 – TA-I, Negotiated Post-Application	For post-application assistance Note: Post application assistance is not outcome assessment or monitoring (which are TA-E/Contribution tasks); RTIP006 should be used only where NRCS FA policy requires follow-up e.g. easement monitoring, 5% spot checks (with appropriate separate of duties)

CONTRACTOR SELECTION CRITERIA:

Contractor will be evaluated on the following criteria:

- Quote price
- Proposed start date
- Proposed completion date
- References - Demonstrates experience by providing examples of at least three (3) similar projects in Pennsylvania. More than 3 references are allowed.
- Debarment and tax liability status
- Exclusions and assumptions (if applicable)
- Provided Certificate of Insurance with current levels of coverage

Quotes will be awarded to the most qualified economic bidder, as determined by Chesapeake Conservancy. Chesapeake Conservancy reserves the right to reject any or all quotes and/or cancel the quote for any reason.

CONTRACTOR QUOTE FORM

Contractor Name: _____

Project Name: Ja-Char Farm Engineering Services
Project Location: 10273 South Eagle Valley Road, Port Matilda, PA 16870, Centre County

1. Price– Complete Contractor Quote Form Page 2 – ***Required***

   RCPP funding for Technical Assistance is provided through NRCS therefore we are using their categories for defining technical service categories. Include all Staff Position Titles that will be involved with the implementation of this project and Range Rate of staff for those positions, Estimated Number of Hours Per Activity and the Total Cost per Activity. The range of rates should account for the current staff rates and the expected pay increases for those positions over the next 3 years (term of the RCPP producer contract). Bidders may include overhead/admin expenses as a component of their claimed rate but that rate should be customary and reasonable and will be subject to review by NRCS and the Conservancy. Any cost associated with the 6 categories must be broken out. Activities 2-4 are the most typical for this type of project since we have producers with RCPP contracts in place already. Please include additional documentation if you are proposing costs associated with activity 5-6.

2. Date on which design can be started - ***Required***: _____

3. Estimated completion date of the design - ***Required***: _____

4. List any exclusions and assumptions associated with your proposal - _____

   _____

   _____

   _____

5. Please check whether you are submitting the Contractor General Information Form and related supporting documents with this response or if you submitted them under a separate 2024 RCPP Engineering Services RFQ – ***Required:***

   ☐ I have included the Contractor General Information Form with this RFQ response.

   ☐ I submitted the Contractor General Information Form with a separate 2024 RCPP Engineering Services RFQ response.

This quote is submitted in response to the RFQ for the project described above. The quote is based on my knowledge of the plans and specifications identified within. This quote will remain valid for 90 days after submission. If awarded the RFQ, I agree to sign a contract with the Chesapeake Conservancy.

Company Name:_____ Company Tax ID (EIN):_____

Company Address:_____

Representative's Name:_____ Telephone:_____

Email Address:_____

Signature:_____ Title:_____ Date:_____

CONTRACTOR QUOTE FORM

Page 2 of 2

INSERT REQUIRED INFORMATION

(Staff Position Titles, Rate Range, Estimated Hours and Total Cost)

TA-I Activity Code	Activities	Tasks	Staff Position Title(s)	Rate Range $xx-$xx/hr	Estimated # of hours per activity	Total Cost (using avg rates)
RTIP-001	TA Implementation Payment Pre-Application Activity	RCPP related Farm Visits (Follow up visits with NRCS or the farmer to develop application, review documents prior to contract, updating CNMPs or I&Es during ranking, screening, and contracting)				
RTIP-002	Updates to CNMPs as Needed. Amount not to exceed $2,500/farm	Conservation and Nutrient Management Plan development according to NRCS planning procedures				
RTIP-003	TA Implementation Payment Design on FA Applications or Contracts	Design/Engineering (5. Form Alternatives, 6. Evaluate Alternatives, 8. Design to Std, permit design/app, land rights, surveys, final designs)				
RTIP-004	TA Implementation Payment Installation (TA) on FA Applications or Contracts	Installation (8. Installation, inspections for structural practices)				
					Total Cost	

CONTRACTOR GENERAL INFORMATION FORM

Chesapeake Conservancy released ten RFQs for RCPP Engineering Services. Each RFQ is for a different project within the Conservancy's central PA rapid stream delisting catchment areas.

Contractors may bid on one or more of the RFQs. Contractors bidding on multiple RFQs only need to complete and return the Contractor General Information Form and related supporting documents with one of their RFQ submissions.

Contractor Name: _____

Project Name: **2024 RCPP Engineering Services**

1. The following three references are provided with telephone numbers of projects completed of similar scope and size - ***Required***:

   Name:_____ Telephone:_____

   Name:_____ Telephone:_____

   Name:_____ Telephone:_____

2. Small Business or Small Diverse Business (See Terms and Conditions for details) - *Check all that Apply*
   I have registered with Sam.gov and my business (or any subcontractors listed above) qualifies as a ☐ Small Business and/or ☐ Small Diverse Business

   I have registered with the PA Dept of General Services and my business (or any subcontractors listed above) has been certified as a ☐ Small Business and/or ☐ Small Diverse Business.

3. Debarment and tax liability status (See Terms and Conditions for details) - ***Required***:
   ☐I certify that my business, and any subcontractors, are not debarred by the State of Pennsylvania or the federal government.
   ☐I certify that my business, and any subcontractors, have no tax liabilities and are not in default of a loan or funding agreement administered by the State of Pennsylvania.

6. Certificate of Insurance (See Terms and Conditions for details) - ***Required***:
   ☐I have included with my response a copy of my Certificate of Insurance with my current levels of coverage.

This quote is submitted in response to the RFQ for the project described above. The quote is based on my knowledge of the plans and specifications identified within. This quote will remain valid for 90 days after submission. If awarded the RFQ, I agree to sign a contract with the Chesapeake Conservancy.

Company Name:_____ Company Tax ID (EIN):_____

Company Address:_____

Representative's Name:_____ Telephone:_____

Email Address:_____

Signature:_____ Title:_____ Date:_____

ATTACHMENTS:

Attachment A – Ja-Char Farm Inventory and Evaluation (I&E)

Attachment B – NRCS Reporting Requirements (Certification by Practice Sheet and Reimbursement Summary Sheet)

Attachment A

JaChar Farm

I&E

10273 South Eagle Valley Rd.

Port Matlida, Pa 16870

Centre County

Prepared By: Adam Winey

NRCS Civil Engineer

United States Department of Agriculture

APPROVED: Robert G. Dunn III 10-18-23

Subject: Inventory & Evaluation
Ja Char Farm, Centre County

Date: October 2023

To: Mary Baker, Bryan Conklin

On March 27th, 2023 Colton Eiswerth, Bob Deecki, Bill Deitrick and myself visited the Ja-Char farm that is located at 10273 South Eagle Valley Rd. Port Matilda, Pa 16870. We met with Charlie Liner to observe an Animal Concentration Area (ACA), silage leachate problems and discussed with him practices to alleviate the resource concerns. After Charlie had some time to think about our discussions that day, we deemed it was best to have another visit on May 3rd to finalize the details of the project. This operation currently consists of 115 dairy cows, 25 dry cows, 100 heifers, and 20 calves.

Dairy Cows: The farm currently has 115 milking cows with 25 dry cows at a weight of 1,500#. The milking heard is in a free stall barn while the dry cows share the barn and get sent to pasture. Manure is pushed to a reception pit at the end of the barn and is then pumped to an existing Slurrystore that is 19' x 62'. Currently he gets approximately 6 months of storage. Charlie is interested in freeing up his free stall barn and pasture ACA by moving the dry cows to a separate bed pack structure. At the reception pit there are some gates/guards missing and would like to see these installed for safety measures as part of our project.

Heifers: The farm has 100 heifers ranging in weights from 400-1000# that are located in the pasture that is causing the ACA. Recently, Charlie has removed some of the heifers to other locations as he recognized that the pasture was not fit for grazing. He is planning to abandon the pasture as it is in the flood plain and move these heifers to a proposed bedded pack structure.

Calves: Approximately 20 calves around a weight of 300# are kept around the free stall barn in calf hutches. The calf area is one of the few areas that a bedded pack structure will be able to fit on the farm. So, this area would be replaced with a bedded pack structure and the calves would then be located with the dry cows.

Bed Pack #1: This bed pack structure is planned for the 25 dry cows and 20 calves. I also included a heavy use area as a scrape lane that also widens the footprint. No curb is planned between the bed pack structure and the scrape lane to allow the bedded pack to get mixed into the scrape lane to create a stackable manure that will be stacked at the end of the building. I planned for 6 months of storage because additional storage could be used in the bed pack and/or scrape lane area.

Bed Pack #2: This bed pack structure is planned for the 100 heifers. I also included a heavy use area as a scrape lane that also widens the footprint. No curb is planned between the bed pack structure and the scrape lane to allow the bedded pack to get mixed into the scrape lane to create a stackable manure that will be stacked at the end of the building. I planned for 6 months of storage because additional storage could be used in the bed pack and/or scrape lane area.

Bed Pack Information: The storage can be managed so the cows can bed in this area and the manure is not piled but evenly spread out. For a "bed pack" type storage structure to work

effectively, there needs to be enough bedding material used to mix with the manure. Manure cannot ooze or slough to the point where it leaves the structure or causes a problem on the heavy use areas. A lot of bedding will be required to make this a stackable manure for bedded pack. The landowner is aware of this and ensures that enough bedding will be used and that the cows will not be in a "sloppy mess". The building is for confinement when the pasture is not fit for grazing. The vegetation in the pastures must maintain a minimum height of 4". Animals will need to be rotated between pastures when vegetation gets below this height. The cows will need to be kept out of the pastures when the ground is wet and will be "punched up" with hoof prints. Animals will need to be fed and watered on the bed pack during the confinement times.

Silage Leachate System: Upon arrival of the visit and walking around the site there was evidence of silage leachate coming from Charlie's ag bags and bunk silo. About a year or two ago Charlie had excavated out an area into a bank to convert it into a bunk silo approximately 150' x 30'. Around the bunk silo, he then places his ag bags. Both situations are having silage leachate directly to water conveying areas. The plan is to replace this area with Bed Pack #2 and build concrete bunk silos in a more favorable area. He then plans to no longer use ag bags just the bunk silos. The high flow will get pumped to a sprinkler head and the low flow will be placed in the existing liquid storage or to another tank. Since Charlie has a Slurrystore there is the potential to add another ring to the Slurrystore to allow for the extra storage that is needed. The leachate portion will add roughly 2' of depth to his current 19' x 62' diameter tank. Or the other option is building another Slurrystore to just handle the silage leachate portion. However, silage leachate is very "hot" and should be mixed with other manure. So, by adding another storage I have it sized to handle adding manure to it as well (New Slurrystore size: 19' x 48'). When back calculating the current storage, the numbers he provided me only showed a 4-month storage. However, in his experience he is getting around 6 months of storage. In my calculations when adding the silage leachate, I was able to fit between his current Slurrystore and another Slurrystore 6 months of storage. The low flow line can go over the wall.

Setbacks/Floodplain Concerns: On this site there are many obstacles or items of concern throughout the farmstead. There are wells, drainage ways, utility lines, road and floodplain issues all over the farm. The layout of this I&E has tried to meet setback and floodplain requirements as best as possible. However, many practices in this I&E fall within some setback and floodplain requirements. Charlie will need to look into any waivers, permits, etc. before the design process. During design, a more accurate survey can be taken to get an updated 100-year floodplain that may put the small part of Bed pack #1 and the Slurrystore out of the floodplain. All practices to address the resource concern are farther away from the stream than where his current barn and liquid storage is located. Again, this was the best effort to address resource concerns and avoiding the floodplain. Other setbacks could not be met but the layout and locations of practices were taken into consideration to provide as far as possible away from the setbacks.

Soils: The soils in the proposed locations are Philo (Ph) and Atkins (At) with both having soil group classifications of B/D. (At) has a depth to water table of 0-6" and (Ph) is 14-31". (At) is also a hydric soil. A wetland determination will need to be completed prior to contracting.

Management: The "Agreed-To Management" document should be reviewed with and signed by the landowner. A PA One Call check should be made prior to starting design work on this site; note that there are several overhead utility lines present on this farm and setback distances shall be verified prior to drafting a contract. This site needs to be surveyed before starting design work. NRCS participation in the project would require animals to be confined to the building during the non-grazing months or when there is insufficient grass in the pastures to graze. Grass in the pastures shall never get lower than 4" in height.

Storm Water Management: This county may or may not have adopted PA Storm Water Management Act 167. Act 167 may require infiltration of storm runoff from any new roofs that are constructed. Costs that are associated with meeting Act 167 requirements are not covered in this report. However, these costs should be considered and incorporated into the overall cost of the project. Cost for consulting/engineering, and installation of Act 167 storm water management practices may approach costs upwards of $20,000.00. Contacting your local township supervisors and/or county planning commission and Conservation District for further information regarding Act 167 is recommended. Neither NRCS or PACD will develop stormwater management plans or design such practices; the cost for a consulting engineer and implementation of such practices can be included in state funding grant applications. A NPDES permit may be required if the area of disturbance is greater than 1 acre.

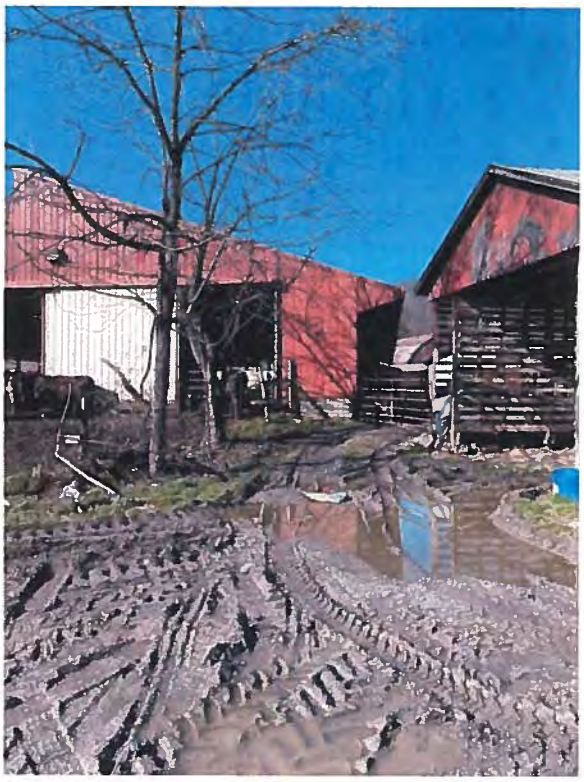
Cultural Resources: There should be a cultural resources check done prior to a contract.

Please discuss the sizes and arrangements of the proposed practices with the producer. I did not send him a copy of this I&E report. Also, please send this report to the Conservation District if state funding is being sought after for this project. State funding would be "Growing Greener" or "ACAP" funding sources. NRCS or PACD can provide a design of the structure (free of charge) if EQIP is the funding source or if EQIP is supplemented with one of the state funding sources. However, we can not provide design or inspection services if the sole funding source is ACAP. In that case, the Conservation District, should factor the cost for a consulting firm to do the design and construction inspection into the grant application.

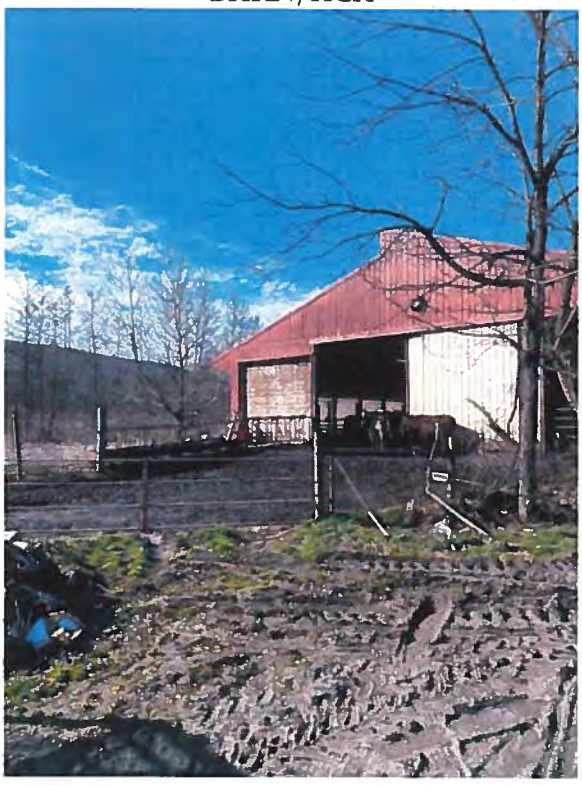
Included is an "engineer's estimate" and the possible EQIP payment that will be associated with the project. My estimates are only a guess, and he should get "real" estimates from contractors before making a decision on this project and ultimately a contract with the federal government. If you have any questions as to what I have sketched and/or proposed, please don't hesitate to reach out.

Adam Winey
Civil Engineer

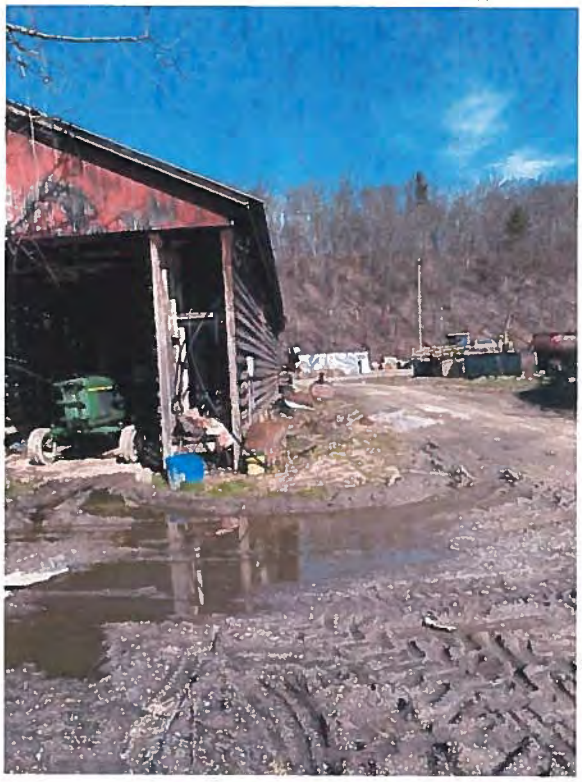
BARN



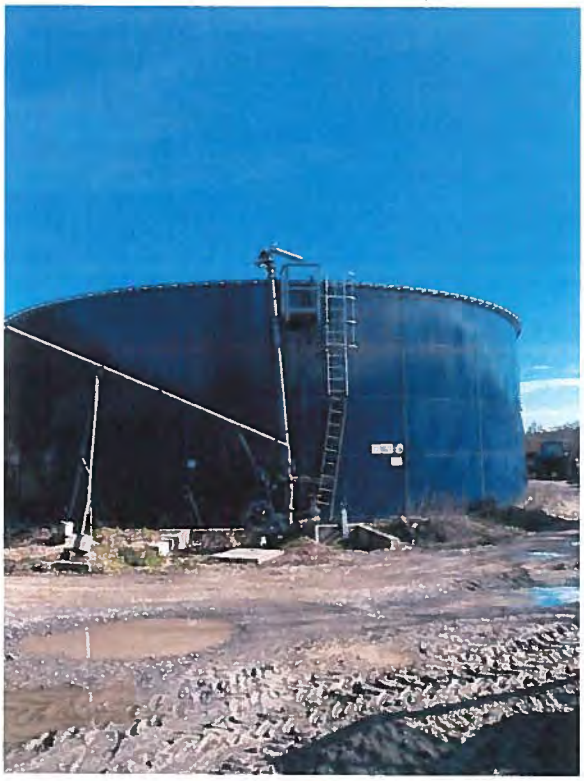
BARN/ACA



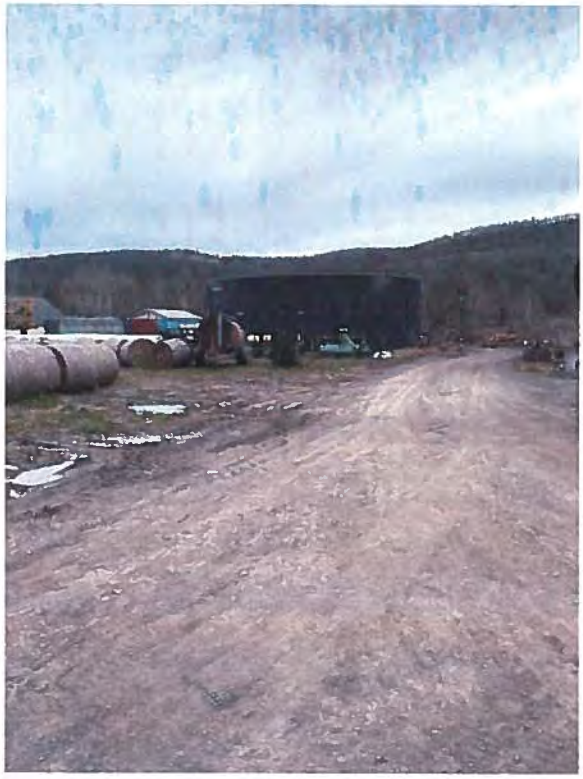
LOCATION FOR BEDPACK #1



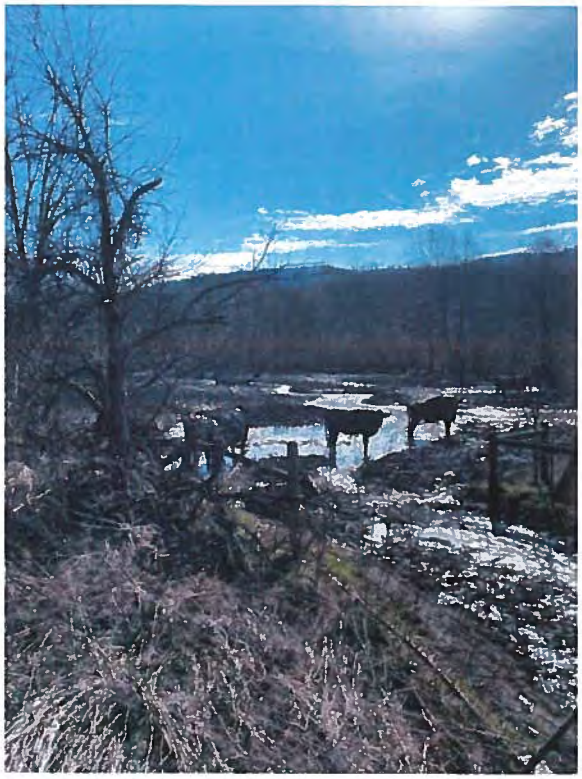
CURRENT SLURRYSTORE



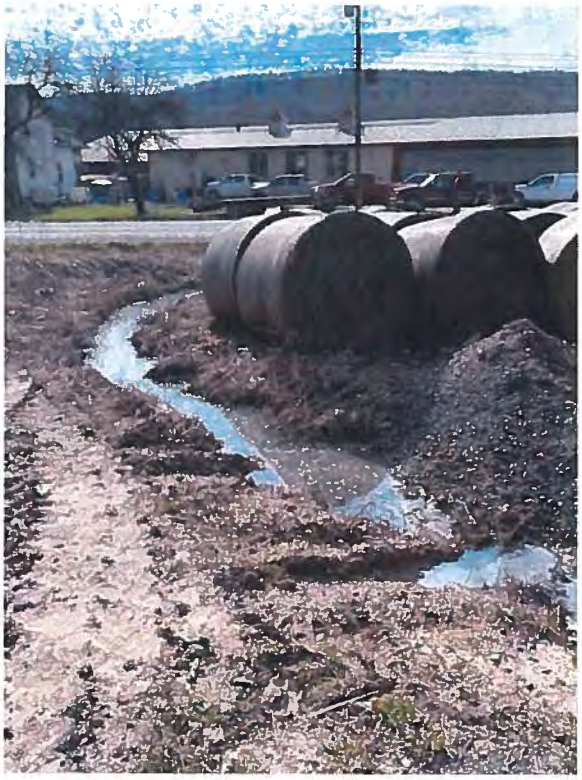
CURRENT SLURRYSTORE/LOCATION FOR BUNK SILO



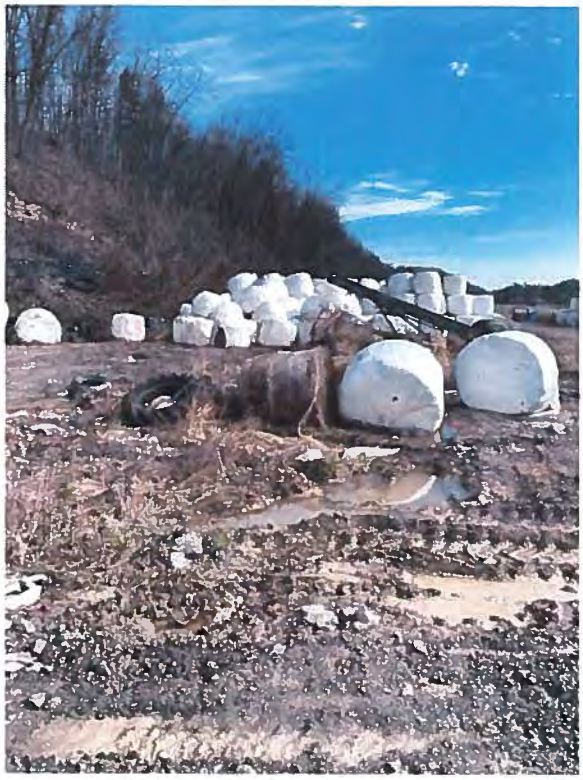
ACA



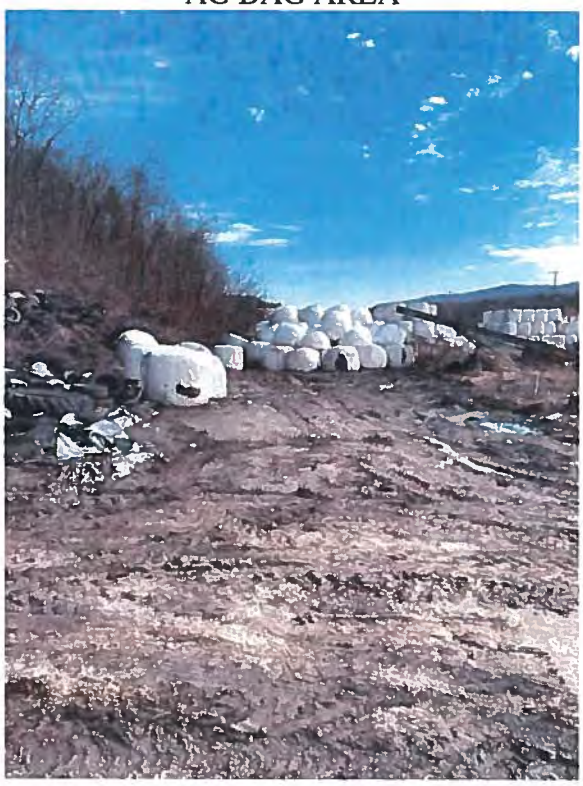
SILAGE LEACHATE



AG BAG AREA



AG BAG AREA



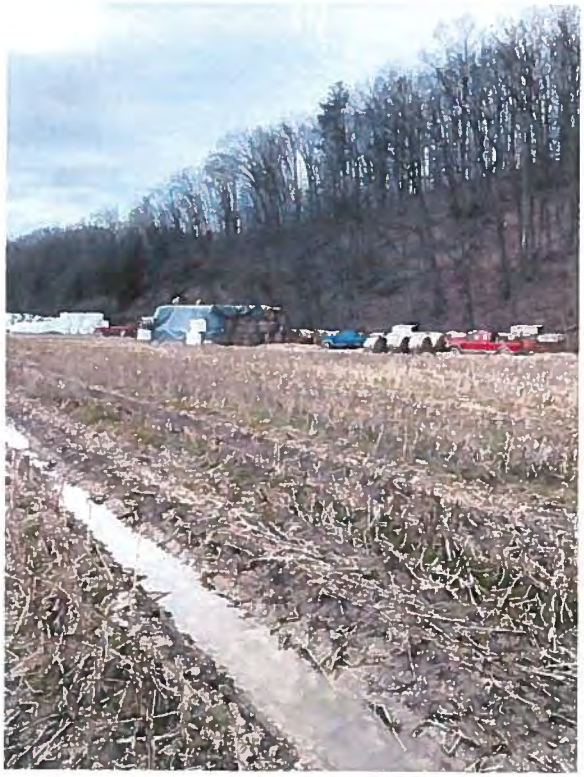
EXISTING BUNK SILO

SILAGE LEACHATE

SILAGE LEACHATE

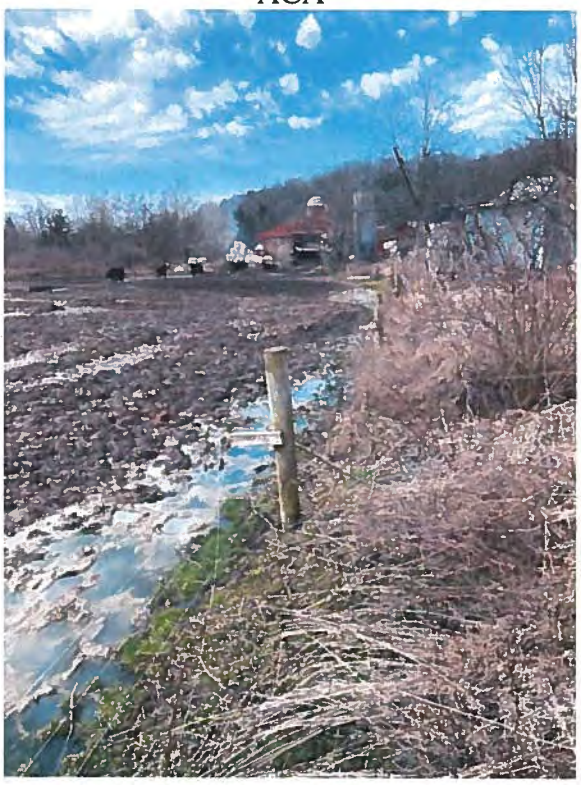
SILAGE LEACHATE

LOCATION FOR BEDPACAK #2

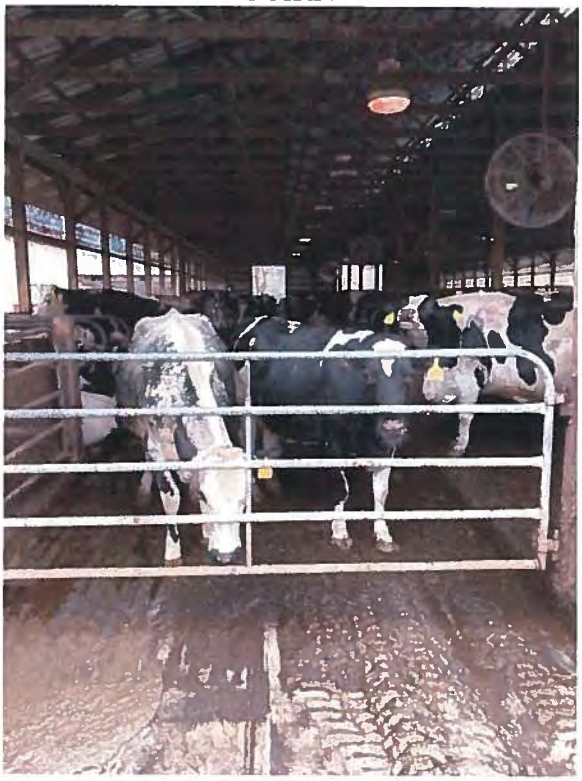


HIGHFLOW SPRINKLER LOCATION

ACA



BARN



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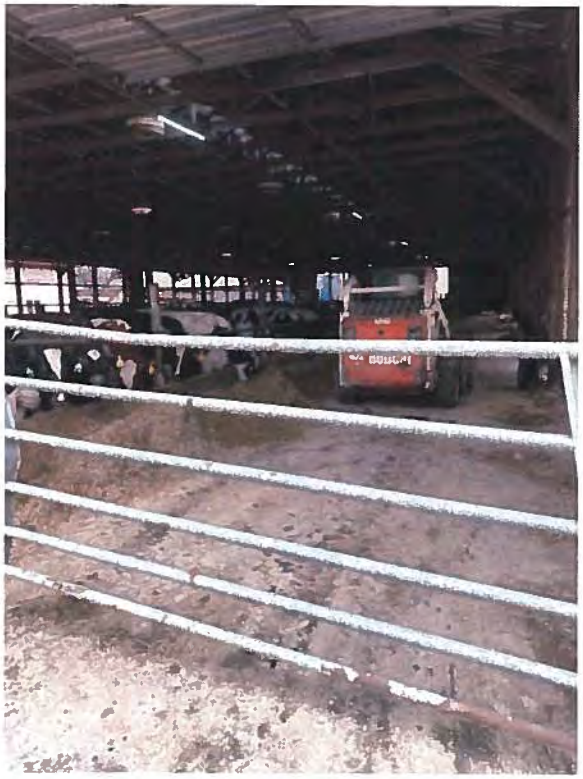
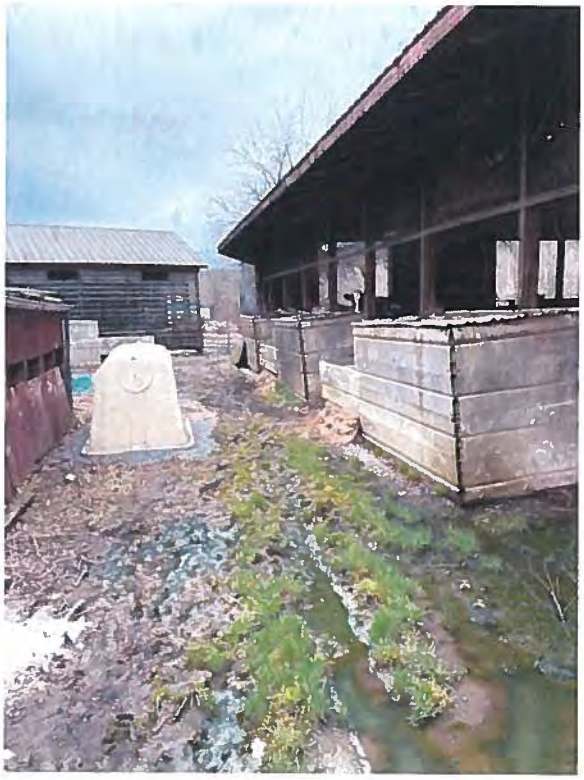


EXISTING PUMP/RECEPTION PIT

RECEPTION PIT

CALF AREA



Map Scale: 1:2,050 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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

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

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

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

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

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

Soil Survey Area: Centre County, Pennsylvania
Survey Area Data: Version 22, Sep 6, 2022

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

Date(s) aerial images were photographed: Nov 8, 2020—Nov 9, 2020

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

Centre County, Pennsylvania

At—Atkins silt loam, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2sfsp
Elevation: 550 to 2,790 feet
Mean annual precipitation: 38 to 50 inches
Mean annual air temperature: 45 to 49 degrees F
Frost-free period: 126 to 165 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Atkins and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Atkins

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Acid fine-loamy alluvium derived from sandstone and shale

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oe - 1 to 2 inches: moderately decomposed plant material
A - 2 to 8 inches: silt loam
Bg - 8 to 26 inches: loam
BCg - 26 to 38 inches: silt loam
Cg - 38 to 80 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F127XY004WV - Wet Alluvial Lands
Hydric soil rating: Yes

Minor Components

Philo

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Basher

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Linden

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

BMF—Berks and Weikert soils, 25 to 70 percent slopes

Map Unit Setting

National map unit symbol: 2xtjn
Elevation: 610 to 2,000 feet
Mean annual precipitation: 39 to 45 inches
Mean annual air temperature: 47 to 53 degrees F
Frost-free period: 148 to 192 days
Farmland classification: Not prime farmland

Map Unit Composition

Berks and similar soils: 60 percent
Weikert and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berks

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Acid brown residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 5 inches: channery silt loam
Bw1 - 5 to 15 inches: very channery loam
Bw2 - 15 to 22 inches: very channery silt loam
C - 22 to 37 inches: extremely channery silt loam
R - 37 to 47 inches: bedrock

Properties and qualities

Slope: 25 to 70 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland
Other vegetative classification: Not Suited (NS)
Hydric soil rating: No

Description of Weikert

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gray and brown acid residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

Oi - 0 to 4 inches: slightly decomposed plant material
A - 4 to 7 inches: channery silt loam
Bw - 7 to 14 inches: very channery silt loam
C - 14 to 18 inches: extremely channery silt loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 25 to 70 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland
Other vegetative classification: Droughty Shales (SD2)
Hydric soil rating: No

Minor Components

Bedington

Percent of map unit: 10 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

BrB—Brinkerton silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: l22x
Elevation: 300 to 3,000 feet
Mean annual precipitation: 30 to 65 inches
Mean annual air temperature: 46 to 59 degrees F
Frost-free period: 120 to 217 days
Farmland classification: Not prime farmland

Map Unit Composition

Brinkerton and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brinkerton

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Local fine-silty colluvium derived from sedimentary rock

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 18 inches: silty clay loam
H3 - 18 to 46 inches: silty clay loam
H4 - 46 to 65 inches: channery silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 15 to 34 inches to fragipan
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Ecological site: F147XY005PA - Poorly Drained Mixed Sedimentary Toeslope
Hydric soil rating: Yes

Minor Components

Ernest

Percent of map unit: 10 percent
Hydric soil rating: No

Laidig

Percent of map unit: 5 percent
Landform: Mountains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Lower third of mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Berks

Percent of map unit: 5 percent
Landform: Valleys, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex

Hydric soil rating: No

Atkins

Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Philo

Percent of map unit: 2 percent
Hydric soil rating: No

Ph—Philo loam, 0 to 3 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2sft9
Elevation: 950 to 2,460 feet
Mean annual precipitation: 38 to 50 inches
Mean annual air temperature: 45 to 49 degrees F
Frost-free period: 126 to 165 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Philo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Philo

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy alluvium derived from sandstone and shale

Typical profile

Oi - 0 to 0 inches: slightly decomposed plant material
Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: loam
BA - 4 to 13 inches: loam
Bw1 - 13 to 18 inches: loam
Bw2 - 18 to 25 inches: loam
C1 - 25 to 37 inches: sandy loam
2C2 - 37 to 80 inches: stratified gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 2.00 in/hr)
Depth to water table: About 14 to 31 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F127XY005WV - Alluvial Land
Hydric soil rating: No

Minor Components

Ernest

Percent of map unit: 8 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: No

Atkins

Percent of map unit: 7 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Centre County, Pennsylvania														
Map unit symbol and soil name	**Pct. of map unit**	**Hydrologic group**	**Depth**	**USDA texture**	**Classification**		**Pct Fragments**		**Percentage passing sieve number—**				**Liquid limit**	**Plasticity index**
					Unified	**AASHTO**	**>10 inches**	**3-10 inches**	**4**	**10**	**40**	**200**		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
At—Atkins silt loam, 0 to 3 percent slopes, frequently flooded														
Atkins	85	B/D	0-1	Slightly decomposed plant material	PT	A-8	0- 0- 0	0- 0- 0	—	—	—	—	—	—
			1-2	Moderately decomposed plant material	PT	A-8	0- 0- 0	0- 0- 0	—	—	—	—	—	—
			2-8	Silt loam	MH, ML	A-7-5, A-7-6, A-4	0- 0- 0	0- 0- 0	92-100-100	83-100-100	67-95-100	53-77-89	22-41-53	3-15-22
			8-26	Sandy loam, silty clay loam, silt loam, loam	SC-SM, CH, CL	A-7-6, A-4, A-6	0- 0- 0	0- 0- 0	90-96-100	79-92-100	63-89-100	49-72-92	20-37-55	5-16-28
			26-38	Silty clay loam, silt loam, sandy loam	CL-ML, CH, CL	A-7-6, A-4, A-6	0- 0- 0	0- 0- 0	89-96-100	78-92-100	62-89-100	53-79-99	20-37-54	5-16-28
			38-80	Extremely gravelly sandy loam, gravelly sandy loam, sandy loam, loam, clay loam	SP-SC, SC, CL	A-2-6, A-1-a, A-7-6	0- 0- 0	0- 0- 0	66-84-100	32-68-100	22-53-89	10-28-53	20-29-42	5-12-21

Engineering Properties–Centre County, Pennsylvania														
Map unit symbol and soil name	**Pct. of map unit**	**Hydrologic group**	**Depth**	**USDA texture**	**Classification**		**Pct Fragments**		**Percentage passing sieve number—**				**Liquid limit**	**Plasticity index**
					Unified	**AASHTO**	**>10 inches**	**3-10 inches**	**4**	**10**	**40**	**200**		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
BMF—Berks and Weikert soils, 25 to 70 percent slopes														
Berks	60	B	0-1	Slightly decomposed plant material	PT	A-8	0- 0- 0	0- 0- 0	—	—	—	—	—	—
			1-5	Channery silt loam	SC, ML	A-4	0- 0- 0	0-13- 20	67-71-82	42-58-78	32-46-64	29-42-58	25-30-34	6-8 -10
			5-15	Very channery loam, channery silt loam, very channery silt loam, extremely channery loam, extremely channery silt loam, channery loam	GP-GM, CL, SC	A-2-6, A-1-a, A-7-6	0- 0- 0	0-12- 19	53-67-87	17-47-75	13-42-72	10-33-58	18-33-41	3-13-18
			15-22	Channery loam, channery silt loam, very channery loam, extremely channery loam, extremely channery silt loam, very channery silt loam	GP-GM, CL, SC	A-2-6, A-1-a, A-7-6	0- 0- 0	0-12- 18	53-68-87	17-48-76	13-42-73	10-35-62	16-30-41	1-11-18
			22-37	Extremely channery silt loam, very channery loam, very channery silt loam, extremely channery loam	SC-SM, GC, SP	A-1-a, A-6	0- 0- 0	0-13- 13	53-60-73	7-21- 46	5-17- 41	4-15- 36	16-23-32	1-6 -12

Engineering Properties–Centre County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
			37-47	Bedrock	—	—	—	—	—	—	—	—	—	—
Weikert	30	D	0-4	Slightly decomposed plant material	PT	A-8	0-0-0	0-0-0	—	—	—	—	—	—
			4-7	Channery silt loam	CL, GC-GM	A-7-6, A-1-b, A-6	0-0-0	0-4-6	58-78-83	36-69-74	27-58-66	24-53-60	22-35-42	6-13-17
			7-14	Very channery silt loam, very channery loam	GC-GM, GC	A-2-6, A-1-b, A-6	0-0-0	7-7-7	53-55-71	29-36-55	21-30-49	19-27-44	20-30-35	6-13-17
			14-18	Extremely channery loam, extremely channery silt loam	GW-GC, GC	A-2-6, A-1-a	0-0-0	24-29-37	48-57-59	14-32-35	10-27-31	9-25-28	20-31-35	6-14-17
			18-28	Bedrock	—	—	—	—	—	—	—	—	—	—
BrB—Brinkerton silt loam, 3 to 8 percent slopes														
Brinkerton	75	D	0-9	Silt loam	ML	A-7-6, A-4, A-6	0-0-0	0-5-10	90-95-100	85-93-100	85-93-100	75-88-100	30-38-45	5-10-15
			9-18	Silty clay loam, silt loam	ML	A-7, A-4, A-6	0-0-0	0-5-10	90-95-100	85-93-100	85-93-100	65-83-100	30-38-45	5-10-15
			18-46	Silt loam, channery loam, channery silty clay loam, silty clay loam	ML	A-7, A-4, A-6	0-0-0	0-5-10	75-88-100	60-80-100	60-80-100	55-78-100	30-38-45	5-10-15
			46-65	Channery silt loam, channery clay loam	SC, CL, SM, ML	A-1, A-2, A-4, A-6	0-0-0	0-25-50	70-80-90	25-55-85	25-55-85	20-48-75	30-35-40	5-10-15

Engineering Properties–Centre County, Pennsylvania														
Map unit symbol and soil name	**Pct. of map unit**	**Hydrologic group**	**Depth**	**USDA texture**	**Classification**		**Pct Fragments**		**Percentage passing sieve number—**				**Liquid limit**	**Plasticity index**
					Unified	**AASHTO**	**>10 inches**	**3-10 inches**	**4**	**10**	**40**	**200**		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
Ph—Philo loam, 0 to 3 percent slopes, occasionally flooded														
Philo	85	B/D	0-0	Slightly decomposed plant material	PT	A-8	0- 0- 0	0- 0- 0	—	—	—	—	—	—
			0-2	Moderately decomposed plant material	PT	A-8	0- 0- 0	0- 0- 0	—	—	—	—	—	—
			2-4	Loam	MH, CL, ML	A-7-5, A-4, A-6	0- 0- 0	0- 0- 0	80-100-100	79-100-100	76-99-100	54-72-76	29-36-50	9-11-14
			4-13	Loam	CL	A-4, A-6	0- 0- 0	0- 0- 0	80-100-100	79-100-100	76-99-100	54-72-76	26-31-37	9-11-14
			13-18	Silt loam, loam	SC, CL	A-4	0- 0- 0	0- 0- 0	81-96-100	80-95-100	76-92-100	53-65-76	24-27-36	8-10-15
			18-25	Loam, silt loam	SC-SM, CL	A-4, A-6	0- 0- 0	0- 0- 0	81-96-100	80-95-100	73-93-100	50-66-75	21-28-35	5-10-14
			25-37	Sandy loam, loam	SC-SM, CL	A-2-4, A-6	0- 0- 0	0- 0- 0	81-93-100	80-93-100	64-77-90	26-34-43	21-26-32	4-8 -12
			37-80	Stratified very gravelly sand, stratified very gravelly loamy sand, stratified gravelly loamy sand, stratified gravelly sand, stratified very gravelly sandy loam	SC-SM, GP-GM, SM	A-2-4, A-1-a	0- 0- 0	0- 0- 0	32-73-79	30-72-79	22-55-63	6-17- 21	15-18-22	1-3 -6

40

I + E	ABW	Gachar	RGD

Total animals:

115 milkers @ # 1,500

25 dry cows @ # 1,500

100 heifers @ 400 - 1,000 #

20 calves @ 300 #

Calves + Dry cows in one structure Bed pack #1

25 dry cows @ 1,500 # · 90 sf = 2,250 sf

20 calves @ 300 # · 35 sf = 700 sf

2,950 sf ✓

for spacing:

25 dry @ 3 per 8' space = 9 post spacings

20 calves @ 6 per 8' space = 4

13 post spaces

13 x 8 = 104' long ✓

12' scrape lane = 12' x 104' = 1,248 sq ft

BED PACK #1

1

I & E	HBW	Dachar

LRGD

BP #7

FEED TABLE # of 8' spacings

Heifers: 25 @ 1,000 · 70 sf = 1,750 96/22 = 4 → 7 (6.25)

25 @ 800 · 60 sf = 1,500 96/19 = 5 → 5

25 @ 600 · 50 sf = 1,250 96/17 = 5.64 ⑤ → 5

25 @ 400 · 40 sf = 1,000 96/15 = 6.4 ⑥ 4.17 → 5

5,500 sf ✓ — 22 post spacings

Post spacing: 25 @ 4 per 8' space = 7 posts

75 @ 5 per 8' space = 15 posts

22 posts = 176' building ✓

Bed pack #1 = 104' x 46'

Bed pack #2 = 176' x 50'

BP #1 AL

26 · 1.5 = 37.5

20 · .3 = 6

43.5 ✓

Manure: 37.5 · .84 = 31.5 cuft/day

6 · 1.3 = 7.8 cuft/day

≈ 39.3 cuft/day ✓

2

RGD
10-7-23

Ja ChAR

BEDPACK FACILITY #1
(25 DRY + 20 CALVES)

TRIAL #1 – 6 MONTHS BEDPACK
6 MONTHS SCRAPE LANE WASTE STORAGE

39.3 CUFT/DAY (MANURE) X 183 days = 7191.9 CUFT X .5 = 3596 CUFT
50% IN BED ↑
50% IN SCRAPE LANE

BEDDING FOR 50% SOLIDS CONTENT = 4020 CUFT X .4 = 1608 CUFT
CORN FODDER Reduction FACTOR

TOTAL VOLUME IN BED = 3596 + 1608 = 5204 CUFT

BED PACK

BED AREA = 2340 + 1045 = 3385 SF
BED PACK DEPTH = 5204 / 3385 = 1.54' + INITIAL "SPONGE" (.75 X .4)
= 1.84'
≈ 2' ADJ ✓

DEPTH OF BED IN DRY COW SIDE:
31.5 CUFT/DAY X 183 = 5764.5 CUFT X .5 = 2882 CUFT MANURE
1020 CUFT BEDDING
3902

BED DEPTH = 3902 / 2340 SF
= 1.7' / .3 = 2' ≈ 2.25' ✓

SCRAPE LANE

BEDDING FOR 30% SOLIDS CONTENT = 1200 CUFT X .4 = 480 CUFT
TOTAL TO STORE = 3596 (MANURE) + 480 (BEDDING) = 4076 CUFT

There is NOT A 3RD SIDE (WALL) IN STORAGE TO STACK AGAINST

½ (3 X 3) X 32.33' BED = 146 CUFT
TOTAL = 4076 + 146 = 4222 CUFT

THIS IS THE BEST SCENARIO UNLESS HE CAN SPREAD MANURE IN WINTER

RBD
10-7-23

Jo Char

BEDPACK FACILITY #2

100 Heifers

25 x .1 = 25 AU's
25 x .8 = 20
25 x .6 = 15
25 x .4 = 10
70 AU's x .9 $\frac{\text{CUFT}}{\text{Day}}$ = 63 $\frac{\text{CUFT}}{\text{DAY}}$ MANURE PRODUCTION

TRIAL #1 - 6 MONTHS BEDPACK
6 MONTHS SCRAPE LANE WASTE STORAGE

63 $\frac{\text{CUFT}}{\text{Day}}$ x 183 days = 11529 CUFT x .5 = 5764.5 CUFT
(50% IN BED, 50% IN SCRAPE LANE)

BEDPACK

BEDDING FOR 50% SOLIDS CONTENT = 6450 CUFT x .4 = 2580 CUFT
(FODDER Reduction FACTOR)

TOTAL VOLUME IN BED = 5764.5 + 2580 = 8344.5 CUFT
BED AREA = 6438 SF
BED PACK DEPTH = 8344.5 / 6438 = 1.3' + .3' INITIAL BEDDING
= 1.6' ≈ 2' with TAPER TO SCRAPE LANE

BEDDING FOR 30% SOLIDS CONTENT = 1922 CUFT x .4 = 769 CUFT

TOTAL TO STORE = 5764.5 (manure) + 769 (BEDDING)
= 6533.5 CUFT

ADDITIONAL LOSS DUE TO NOT HAVING A 3RD STORAGE WALL

$\frac{1}{2}$(3x3) x 36.33' BED = 164 CUFT

TOTAL = 6533.5 + 164 = **6697.5 CUFT**

BEST SCENARIO unless HE CAN Spread MANURE IN WINTER

IS THE PRODUCT STACKABLE?

STACKABLE = GREATER THAN OR EQUAL TO 30% SOLIDS CONTENT
NOT STACKABLE = LESS THAN 30% SOLIDS CONTENT

MOISTURE CONTENT OF MANURE %		SOLIDS CONTENT %
Dairy =	88	12
Veal =	96	4
Beef =	86	14

MOISTURE CONTENT OF BEDDING %		SOLIDS CONTENT %
Corn Tops (Shredded) =	16	84
Ground Limestone =		
Hay (Chopped) =	14	86
Hay (Loose) =	14	86
Hay (Bailed) =	14	86
Sand =		
Sawdust =	39	61
Newspaper =	8	92
Straw (Chopped) =	10	90
Straw (Loose) =	10	90
Straw (Bailed) =	10	90

MANURE VOLUME (Cu.Ft.)
3596

* BEDDING VOLUME (Cu.Ft.)
1200

ANIMAL TYPE
Dairy

BEDDING TYPE
FODDER

MANURE SOLIDS CONTENT (%)
12

BEDDING SOLIDS CONTENT (%)
84

Building #1
Scrape Lane

* NO REDUCTION FACTOR SHALL BE APPLIED TO BEDDING VOLUME, THIS IS THE TOTAL VOLUME OF BEDDING BEING USED .

SOLIDS CONTENT = $\frac{\text{(Volume of Manure Solids) + (Volume of Bedding Solids)}}{\text{Total Volume of Manure + Bedding}}$ x 100

= 30.02%
= STACKABLE

IS THE PRODUCT STACKABLE?

STACKABLE = GREATER THAN OR EQUAL TO 30% SOLIDS CONTENT
NOT STACKABLE = LESS THAN 30% SOLIDS CONTENT

MOISTURE CONTENT OF MANURE %		SOLIDS CONTENT %
Dairy =	88	12
Veal =	96	4
Beef =	86	14

MOISTURE CONTENT OF BEDDING %		SOLIDS CONTENT %
Corn Tops (Shredded) =	16	84
Ground Limestone =		
Hay (Chopped) =	14	86
Hay (Loose) =	14	86
Hay (Bailed) =	14	86
Sand =		
Sawdust =	39	61
Newspaper =	8	92
Straw (Chopped) =	10	90
Straw (Loose) =	10	90
Straw (Bailed) =	10	90

MANURE VOLUME (Cu.Ft.)
3596

* BEDDING VOLUME (Cu.Ft.)
4020

ANIMAL TYPE
Dairy

BEDDING TYPE
FODDER

Building #1
BEDPACK

MANURE SOLIDS CONTENT (%)
12

BEDDING SOLIDS CONTENT (%)
84

* NO REDUCTION FACTOR SHALL BE APPLIED TO BEDDING VOLUME,
THIS IS THE TOTAL VOLUME OF BEDDING BEING USED .

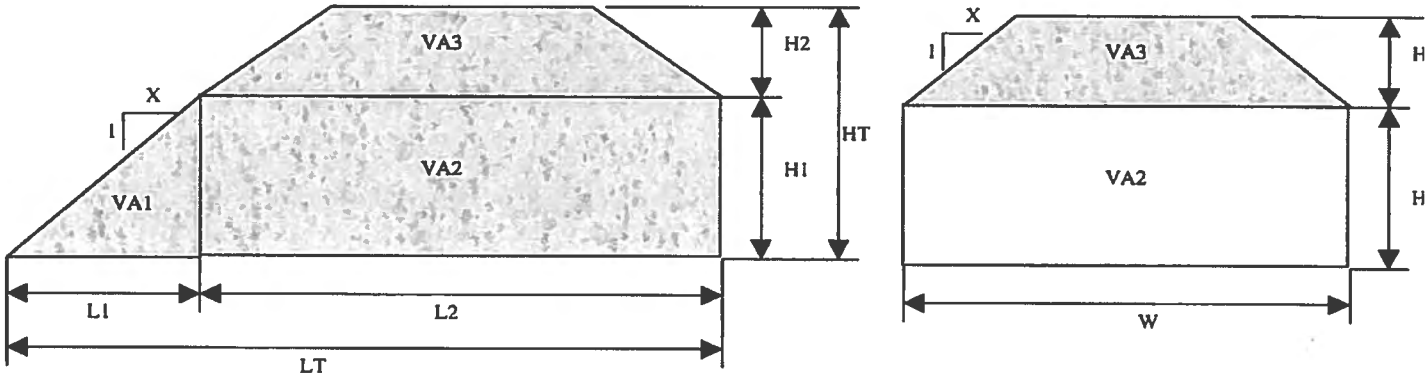
$$\text{SOLIDS CONTENT} = \frac{\text{(Volume of Manure Solids) + (Volume of Bedding Solids)}}{\text{Total Volume of Manure + Bedding}} \times 100$$

= 50.00%
= STACKABLE

RGD

STACKING STRUCTURE CALCULATION SHEET
STRUCTURE WITH ONE END OPEN

COUNTY		DATE			
OWNER		ADDRESS			
PREPARER		TITLE		DATE	
CHECKED		TITLE		DATE	



Storage Volume Required	4222	cu. ft.
Storage Duration	180	days

STRUCTURE DIMENSIONS

X - Angle of repose for manure	1	:1 ratio, (1:1 suggested)
HT - Total Manure Height	5	ft.
H1 - Structure Wall Height -4 Ft. max.	4	ft.
H2 - Stackable Height above wall	1	ft.
LT - Total Structure Length	24	ft. (Recommend making length divisible by 8')
L1 - Length for VA1	4	ft.
L2 - Length for VA2	20	ft.
W - Structure Width	44.66	ft.

CALCULATED VOLUMES

VA1 =	357.3	cu. ft.	(V=.5*L1*W*H1)
VA2 =	3,572.8	cu. ft.	(V=L2*W*H1)
VA3 =	829.9	cu. ft.	(V=(L2*W*H2)-(X*L2*H2^2)-(X*W*H2^2)+(1.33*X^2*H2^3))
TOTAL VOLUME =	4,760.0	cu. ft.	4222 cu. Ft. = Required volume

CONCLUSION

Structure Length:	24 ft.
Structure Width:	44.66 ft.
Height of Manure Pile:	5 ft.
Storage Volume:	4,760 cu. ft.

Building #1 Storage

IS THE PRODUCT STACKABLE?

STACKABLE = GREATER THAN OR EQUAL TO 30% SOLIDS CONTENT
NOT STACKABLE = LESS THAN 30% SOLIDS CONTENT

MOISTURE CONTENT OF MANURE %		SOLIDS CONTENT %
Dairy =	88	12
Veal =	96	4
Beef =	86	14

MOISTURE CONTENT OF BEDDING %		SOLIDS CONTENT %
Corn Tops (Shredded) =	16	84
Ground Limestone =		
Hay (Chopped) =	14	86
Hay (Loose) =	14	86
Hay (Bailed) =	14	86
Sand =		
Sawdust =	39	61
Newspaper =	8	92
Straw (Chopped) =	10	90
Straw (Loose) =	10	90
Straw (Bailed) =	10	90

MANURE VOLUME (Cu.Ft.)
5764.5

* BEDDING VOLUME (Cu.Ft.)
1922

ANIMAL TYPE
Dairy

BEDDING TYPE
FODDER

BUILDING #2
SCRAPE LANE

MANURE SOLIDS CONTENT (%)
12

BEDDING SOLIDS CONTENT (%)
84

* NO REDUCTION FACTOR SHALL BE APPLIED TO BEDDING VOLUME,
THIS IS THE TOTAL VOLUME OF BEDDING BEING USED .

$$\text{SOLIDS CONTENT} = \frac{\text{(Volume of Manure Solids) + (Volume of Bedding Solids)}}{\text{Total Volume of Manure + Bedding}} \times 100$$

= 30.00%
= STACKABLE

IS THE PRODUCT STACKABLE?

STACKABLE = GREATER THAN OR EQUAL TO 30% SOLIDS CONTENT
NOT STACKABLE = LESS THAN 30% SOLIDS CONTENT

MOISTURE CONTENT OF MANURE %		SOLIDS CONTENT %
Dairy =	88	12
Veal =	96	4
Beef =	86	14

MOISTURE CONTENT OF BEDDING %		SOLIDS CONTENT %
Corn Tops (Shredded) =	16	84
Ground Limestone =		
Hay (Chopped) =	14	86
Hay (Loose) =	14	86
Hay (Bailed) =	14	86
Sand =		
Sawdust =	39	61
Newspaper =	8	92
Straw (Chopped) =	10	90
Straw (Loose) =	10	90
Straw (Bailed) =	10	90

MANURE VOLUME (Cu.Ft.)
5764.5

* BEDDING VOLUME (Cu.Ft.)
6450

ANIMAL TYPE
Dairy

BEDDING TYPE
FODDER

BUILDING #2
BEDPACK

MANURE SOLIDS CONTENT (%)
12

BEDDING SOLIDS CONTENT (%)
84

* NO REDUCTION FACTOR SHALL BE APPLIED TO BEDDING VOLUME,
THIS IS THE TOTAL VOLUME OF BEDDING BEING USED .

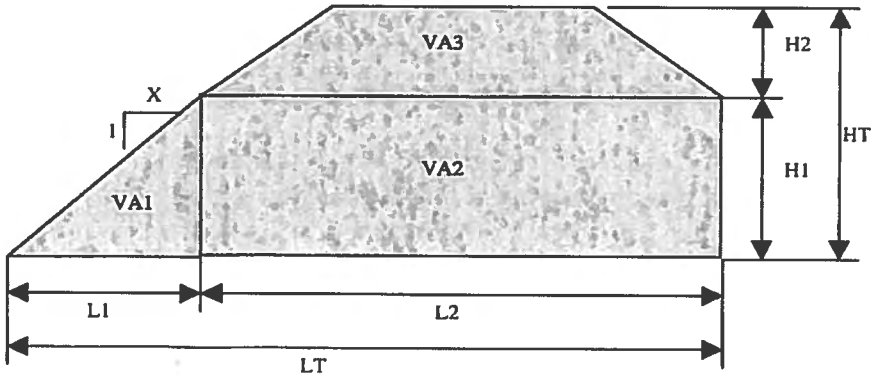
$$\text{SOLIDS CONTENT} = \frac{\text{(Volume of Manure Solids) + (Volume of Bedding Solids)}}{\text{Total Volume of Manure + Bedding}} \times 100$$

= 50.02%
= STACKABLE

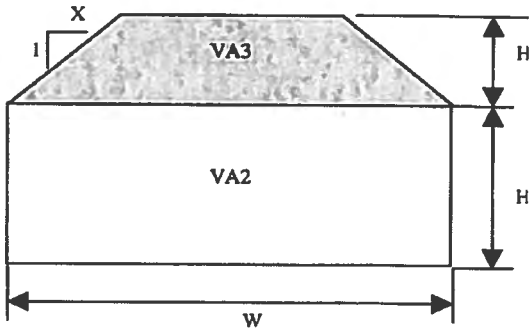
RGD

STACKING STRUCTURE CALCULATION SHEET
STRUCTURE WITH ONE END OPEN

COUNTY		DATE			
OWNER		ADDRESS			
PREPARER		TITLE		DATE	
CHECKED		TITLE		DATE	



SIDE VIEW



FRONT VIEW

Storage Volume Required	6698	cu. ft.
Storage Duration	180	days

STRUCTURE DIMENSIONS

X - Angle of repose for manure	1	:1 ratio, (1:1 suggested)
HT - Total Manure Height	5	ft.
H1 - Structure Wall Height -4 Ft. max.	4	ft.
H2 - Stackable Height above wall	1	ft.
LT - Total Structure Length	32	ft. (Recommend making length divisible by 8')
L1 - Length for VA1	4	ft.
L2 - Length for VA2	28	ft.
W - Structure Width	48.66	ft.

CALCULATED VOLUMES

VA1 =	389.3	cu. ft.	(V=.5*L1*W*H1)
VA2 =	5,449.9	cu. ft.	(V=L2*W*H1)
VA3 =	1,287.2	cu. ft.	(V=(L2*W*H2)-(X*L2*H2^2)-(X*W*H2^2)+(1.33*X^2*H2^3))
TOTAL VOLUME =	7,126.4	cu. ft.	6698 cu. Ft. = Required volume

CONCLUSION

Structure Length:	32	ft.
Structure Width:	48.66	ft.
Height of Manure Pile:	5	ft.
Storage Volume:	7,126	cu. ft.

Building #2 Storage

I & E	ABW	Ja char

Bunk silo storage:

Existing Bunk: 150' x 30' x 10'

Ag bag Area: 15,635 + 6,175 = 21,810 sq ft

Existing bunk holds about 1,200-1,500 ton of corn silage

Charlie uses around 800 ton of hayledge

His plan is to now have (4) bunks 30'x90' = 10,800 sq ft

8' High will pay for (3) 30'x90' bunks

150'x30'x10' = 45,000 ÷ (30'·8') = 187.5 of bunk = (2) bunks

45,000 cuft ÷ 1500 ton = 30 cuft/ton · 800 · 30 = 24,000 cuft

24,000 ÷ (30'x8') = 100' (1 bunk)

Total equip pay = 30' x 290' = 8,700 sq ft

EXISTING BUNK: 150 x 30 x 10 = 45,000 CUFT

✓ 4500 SF

45,000 cuft

1500 ton x 2000#/Ton = 3,000,000#

3,000,000# / 45,000 cuft = 66.7 #/cuft

1200 ton x 2000#/Ton = 2,400,000

2,400,000# / 45000 cuft = 53.3 #/cuft

60#/cuft AVG Seems High

45#/cuft is typical

NEW BUNK: 1500 ton corn + 800 ton Hay = 2300 ton storage required = 4,600,000 #'s

Bunk Sizing continued:

$4{,}600{,}000^{\#} \times \frac{\text{CUFT}}{66.7^{\#}} = 68966 \text{ CUFT req.}$

1200 TON CORN + 800 TON Hay = 2,000 TON STORAGE REQD
= 4,000,000#

$4{,}000{,}000 \times \frac{\text{CUFT}}{53.3^{\#}} = 75{,}047 \text{ CUFT req}$

75,047 CUFT required TOTAL Bunk size (volume)

28.67 ~~36~~ × 89.33 ~~80~~ × 8' AVG Depth proposed Bunk = ~~21,600~~ 20489 CUFT

Loss @ 3:1 Entrance/Face = $\frac{1}{2}(24 \times 8) \times 28.67' = 2752$ CUFT

EACH Bunk @ 90' LONG HOLDS: 20489 − 2752 = 17,737 CUFT

75047 CUFT req / 17,737 CUFT per Bunk = 4.23 Bunks @ 90' LONG

OR

45,000 CUFT ÷ 1500 TON / 30 CUFT/TON + 800 TON more × 30 CUFT/TON = 69,000 CUFT req

24,000 CUFT ✓

30 CUFT/TON × 2300 TON TOTAL = 69,000 CUFT req

69,000 CUFT

Bunk size: 28.67' inside × 8' High × ? LONG

$\frac{69{,}000 \text{ CUFT}}{28.67 \times 8} = 300.8' \text{ long}$

✓ 229.36

TRY (3) Bunks: 28.67' inside × 89.33' inside × 8' Depth = ~~20489~~

Each Bunk holds 17,737 CUFT

69,000 / 17,737 = 3.9 Bunks @ 90' LONG

+ (4) Bunks 30'w × 90' LONG

45#/CUFT is more TYPICAL: $4{,}600{,}000^{\#} \times \frac{\text{CUFT}}{45^{\#}} = 102{,}222 \text{ CUFT req}$

$\frac{102{,}222}{17{,}737} = 5.8$ banks

LOW FLOW COLLECTION

MAX LOW FLOW (PEAK) = 2300 GAL/DAY (from (B) above) × 1 DAY/24 HRS × HR/60 min = 1.6 gpm

1.6 GAL/min × CUFT/7.48 GAL × 1 min/60 sec = .0036 cfs

* ASSUME 1" ORIFICE W/ .5' HEAD Area of orifice = .0055 SF

$Q = CA(2gh)^{1/2}$

$= .61(.0055)\sqrt{2(32.17)(.5)'} = .019$ cfs

= 8.53 gpm

OR 4.26 gpm w/ 50% Blockage of orifice

RAINFALL (MAY-OCT) = 24.68" × .93% RUNOFF = 23"

23" × HR/.069" = 333 HRS ← SUMMER & WINTER AVG

OR .098"/HR (SUMMER)

23" × HR/.098 = 235 HRS

RUNOFF STORAGE = 333 HRS × 8.53 GAL/min × 60 min/HR = 170429 GAL ← ASSUMING NO BLOCKAGE

OR

235 × 8.53 × 60 = 120,116 GAL

TOTAL STORAGE REQ = RUNOFF + LEACHATE

170429 + 17204 GAL = 187633 GAL

IF USING 4.5 gpm: (EDUCATED GUESS W/ 4" HORIZ PIPE OUTLETTING INTO 4" VERT. PIPE)

333 HRS × 4.5 GAL/min × 60 min/HR = 89910 GAL

OR

235 × 4.5 × 60 = 63450 GAL

TOTAL STORAGE REQ = RUNOFF + LEACHATE

89910 + 17204 = 107114 GAL * USE THIS

OR

TOTAL STORAGE REQ = RUNOFF + LEACHATE

63450 + 17204 = 80654 GAL

107114 GAL / 183 DAYS = 585.32 GAL/DAY *

RBD
10/7/23

JA CHAR

LEACHATE SYSTEM

(4) Bunks @ 30'x90' = 10800 SF + (20 x 120) Aprons = 13,200 SF
= .3 Acres

DESIGN GUIDE #10:

SETTLING VOLUME = resulting volume from creation of Screen Device
BUFFER AREA = $\frac{1}{4}$ of DA = .25 x 13,200 SF = 3300 SF

LEACHATE:

A) TOTAL LEACHATE over TIME = $\frac{1 \text{ CUFT}}{\text{TON}}$ x 2300 TON = 2300 CUFT
⇒ 2300 CUFT x $\frac{7.48 \text{ GAL}}{\text{CUFT}}$ = 17204 GAL

B) PEAK LEACHATE: (1 DAY VOLUME)
$\frac{1 \text{ GAL (LEACHATE)}}{\text{TON}}$ x 2300 TON = 2300 GAL

2300 GAL x $\frac{\text{CUFT}}{7.48 \text{ GAL}}$ = 307.5 CUFT

HIGH FLOW COLLECTION

Q_i = (1.17" x 13,200 SF) / (12 x 3600) = .358 cfs
(2 yr-60 min)

.358 cfs x $\frac{448.8 \text{ gpm}}{\text{cfs}}$ = 160.76 gpm

Q_o = pump output = 160 gpm x $\frac{\text{cfs}}{448.8 \text{ gpm}}$ = .22 cfs

$\frac{Q_o}{Q_i} = \frac{.22}{.302} = .728$ ← 4" orifice capacity

$\frac{V_s}{V_r} = .195$

$V_s = .195 \times V_r$
$= .195(1650 \text{ CUFT})$
$= 321.8$ CUFT ≃ 2500 GAL tank

V_r = Volume of Runoff = 13,200 SF x $\frac{1.5"}{12}$ = 1650 CUFT

↑ This is the required STORAGE when routed with 100 gpm pump (A portion of which can come from Settling volume on Apron)

RGD 10-18-23 | JACHAR

IF THERE IS NOT AN ORIFICE PLATE and JUST USING A 4" PIPE THRU FLOOR:

4" ORIFICE w/ 6" HEAD : $Q = C_A (2gh)^{1/2}$

$= .61(.0873)\sqrt{2 \times 32.174 \times .5}$

$= .302 cfs$

$= 135.6 GPM$

$A_{4"} = \frac{\pi (4/12)^2}{4}$

$= .0873 FT^2$

$h = .5'$

$g = 32.174$

$g_C = .61$

RGD

Animal Waste Management Plan Report

prepared for Jachar

Designed By: ABW

Date: 10/19/2023

Checked By: _____

Date: _____

Farm Information

# of Operating Periods: 1 **State:** PA **Data Source:** NRCS-2008

Operating Period: January - December

Climate Data

County: Centre

Station: Tyrone

25 Yr - 24 Hr Storm Event: 4.51 inches

Lagoon Loadings:

Rational Design Method:

Barth KVAL: 0

Load Rate for Odor, OCV: 0 lbs VS/cu. ft/day

LRV Max: 0 lbs VS/cu. ft/day

NRCS Design Method:

Anaerobic Load Rate: 0 lbs VS/1000 cu. ft/day

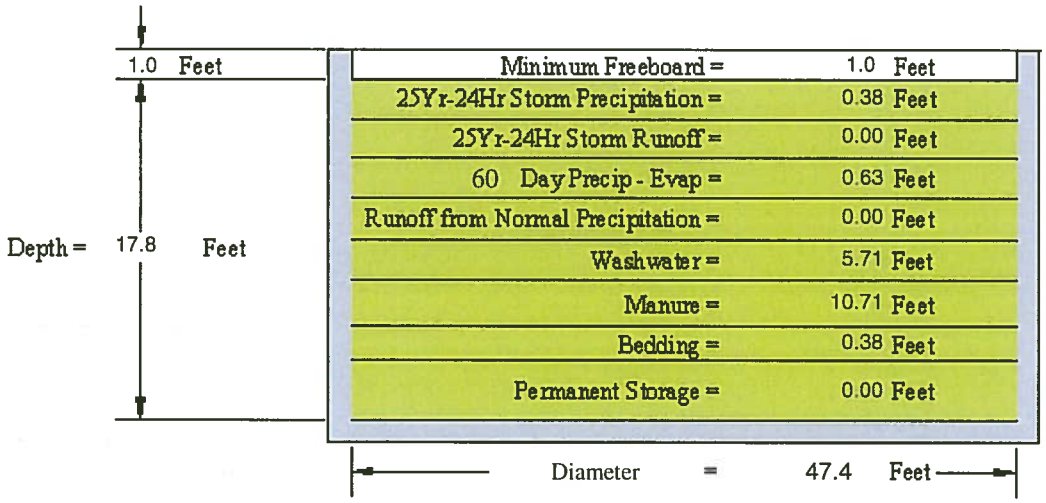
Month	Prec. (in)	Evap. (in)
January	2.68	0.00
February	2.80	0.00
March	3.28	0.00
April	3.62	0.00
May	4.35	0.00
June	4.61	0.00
July	4.04	0.00
August	3.55	0.00
September	3.81	0.00
October	4.32	0.00
November	2.58	0.00
December	3.91	0.00
Total	43.55	0.00

AWM
Tank Data for: Jachar

RGD

Designed by: ABW

Facility	**Uncovered Circular**	**Storage Tank #1**	
Storage Period	2 *Months*		
WashWater	10,097 *Cubic Feet*	75,529 *Gallons*	
Manure & Extr Precip.....	18,931 *Cubic Feet*	141,601 *Gallons*	
Bedding	669 *Cubic Feet*	5,004 *Gallons*	
FlushWater	0 *Cubic Feet*	0 *Gallons*	
Normal Rain and 25Yr-24Hr Storm Runoff from Drainage Area	0 *Cubic Feet*	0 *Gallons*	
Normal Rain less Evap plus 25Yr-24Hr Storm on tank surface area	1,773 *Cubic Feet*	13,258 *Gallons*	
Total Volume to Store	31,470 *Cubic Feet*	235,392 *Gallons*	
Ramp Volume (if present)...	0 *Cubic Feet*		
Structural Volume (includes ramp if present)	33,369 *Cubic Feet*		



18.8' x 48' new slurrystore NEEDED for 2 months OF manure + Leachate + parlor water

Animal Waste Management Plan Report
prepared for Jachar

RBD

Designed By: ABW
Date: 10/19/2023

Checked By: _____
Date: _____

Farm Information

# of Operating Periods: 1 **State:** PA **Data Source:** NRCS-2008

Operating Period: January - December

Climate Data

County: Centre

Station: Tyrone

25 Yr - 24 Hr Storm Event: 4.51 inches

Lagoon Loadings:

Rational Design Method:

Barth KVAL: 0

Load Rate for Odor, OCV: 0 lbs VS/cu. ft/day

LRV Max: 0 lbs VS/cu. ft/day

NRCS Design Method:

Anaerobic Load Rate: 0 lbs VS/1000 cu. ft/day

Month	Prec. (in)	Evap. (in)
January	2.68	0.00
February	2.80	0.00
March	3.28	0.00
April	3.62	0.00
May	4.35	0.00
June	4.61	0.00
July	4.04	0.00
August	3.55	0.00
September	3.81	0.00
October	4.32	0.00
November	2.58	0.00
December	3.91	0.00
Total	43.55	0.00

Animal Data

RHA = 24,300 #

LROD

Animal	Type	Quantity	Weight	Manure	VS	TS	Manure	Manure	VS	TS
			lbs	cu.ft/day/AU	lbs/day/AU	lbs/day/AU	cu.ft/day	lbs/day	lbs/day	lbs/day
Milker (100 lb	Dairy	115	1500	1.77	12.00	15.00	305.33	18319.8	2070.00	2587.50
Totals		115	N/A	N/A	N/A	N/A	305.33	18319.8	2070.00	2587.50

Location Data

Percent of Manure Deposited in Each Location:

Period 1

Barn	Animal Name	Percent Manure
	Milker (100 lb Milk)	100
Totals	**Animal Name**	**Percent Manure**
	Milker (100 lb Milk)	100

Additions Data

Waste Water VS Loading: 12.9

Operating Period: 1

Location	Wash Water	Flush Water	Bedding	Amount
	gal/day	gal/day		lbs/day
Barn	633.00	0.00	Sawdust - Shavings	170.00

115 x 5.5 Gpm/cow/day

Runoff Data

Runoff Volume Method:	Calculate Monthly Runoff Volumes with AWM
Pervious Watershed Area:	0 acres
Pervious Curve Number Storm:	90
Pervious Curve Number Monthly:	90 (1 day), 77 (30 day)
Impervious Area:	0 sq. ft
25 Year Pervious:	0.00 cu. ft
25 Year Impervious:	0.00 cu. ft
25 Year Total:	0.00 cu. ft

Runoff Volumes (1000 cu. ft.)

Month	Pervious	Impervious	Month Total
January	0.00	0.00	0.00
February	0.00	0.00	0.00

RGD

March	0.00	0.00	0.00
April	0.00	0.00	0.00
May	0.00	0.00	0.00
June	0.00	0.00	0.00
July	0.00	0.00	0.00
August	0.00	0.00	0.00
September	0.00	0.00	0.00
October	0.00	0.00	0.00
November	0.00	0.00	0.00
December	0.00	0.00	0.00
Total	0.00	0.00	0.00

Management Train

Facility Volume Data (cf/day)

Operating Period 1

Facility	Manure	Wash Water	Flush Water	Bedding	Total Vol
Storage Tank #1	305.33	84.62	0.00	10.79	400.74

Waste Facilities

Storage Tank #1

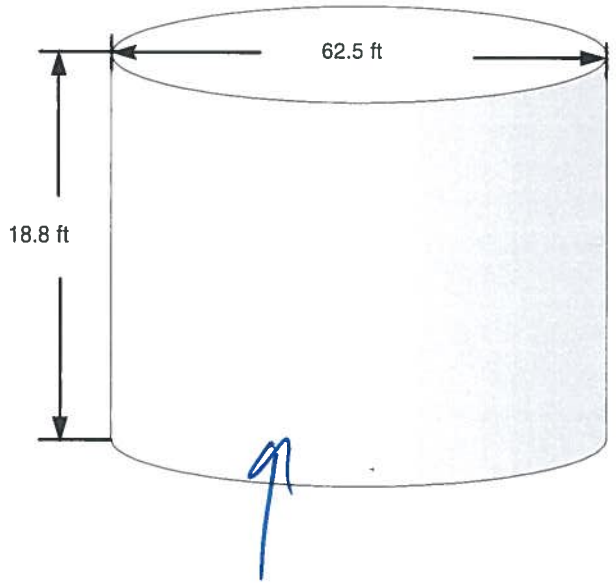
Max. Storage Vol. Method: Storage Volume
Covered: No
Storage Months: 4 months
Critical Months: May - Aug

Design Dimensions

Shape: Circle
Top Diameter: 62.5 ft
Bottom Diameter: 62.5 ft
Storage Depth: 17.8
Freeboard: 1.0 ft
Permament Additional Storage 0.00 ft

Design Quantities

25Yr24Hr Storm Depth: 4.5 in
Prec Minus Evap Depth: 1.38 ft
Volume Required (Wastes): 49291 cu. ft



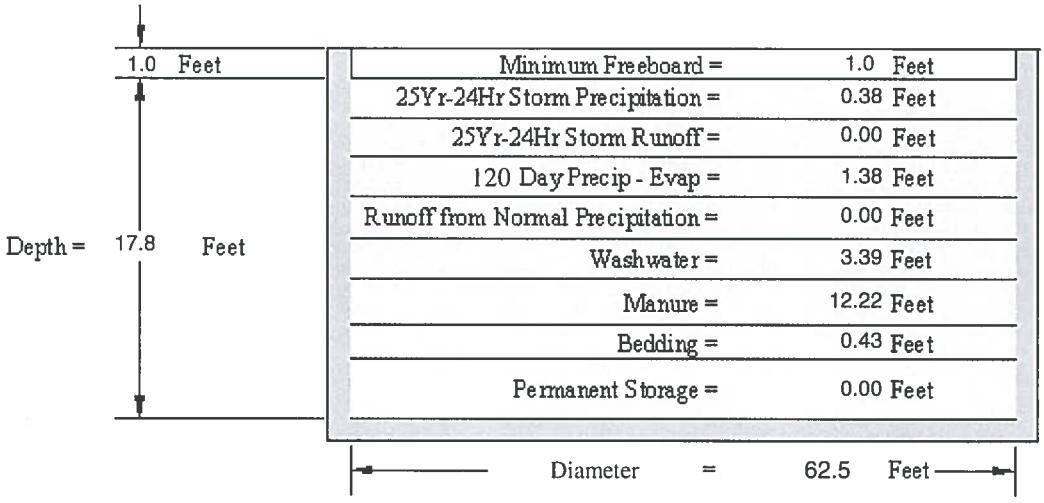
This shows that EX. slurry store gives ≈ 4 months of storage (not including Leachate)

AWM
Tank Data for: Jachar

RGD

Designed by: ABW

Facility	**Uncovered Circular**	**Storage Tank #1**
Storage Period	4 *Months*	
WashWater	10,408 *Cubic Feet*	77,854 *Gallons*
Manure & Extr Precip.....	37,556 *Cubic Feet*	280,916 *Gallons*
Bedding	1,327 *Cubic Feet*	9,927 *Gallons*
FlushWater	0 *Cubic Feet*	0 *Gallons*
Normal Rain and 25Yr-24Hr Storm Runoff from Drainage Area	0 *Cubic Feet*	0 *Gallons*
Normal Rain less Evap plus 25Yr-24Hr Storm on tank surface area	5,382 *Cubic Feet*	40,254 *Gallons*
Total Volume to Store	54,673 *Cubic Feet*	408,951 *Gallons*
Ramp Volume (if present)...	0 *Cubic Feet*	
Structural Volume (includes ramp if present)	58,016 *Cubic Feet*	



EX. TANK

Slurrystore has a Size to Fit Your Specific Needs

NUMBER OF SHEETS	NOMINAL DIA. (FT.)	EXACT DIA. (FT.)	STRUCTURE HEIGHTS 2 RING 9.64 FT.	3 RING 14.22 FT.	4 RING 18.8 FT.	5 RING 23.39 FT.	6 RING 27.97 FT.	7 RING 32.55 FT.
7	20	19.58	21,717	32,034	42,352	52,692	63,009	73,327
8	22	22.38	28,384	41,840	55,316	68,822	82,298	95,774
9	25	25.18	35,899	52,954	70,010	87,103	104,158	121,214
10	28	27.92	44,319	65,376	86,432	107,534	128,591	149,647
11	31	30.77	53,626	79,105	104,583	130,116	155,595	181,073
12	34	33.57	63,820	94,141	124,462	154,849	185,170	215,492
13	36	36.37	74,900	110,485	146,070	181,733	217,318	252,903
14	39	39.16	86,866	128,136	169,407	210,767	252,038	293,308
15	42	41.96	99,719	147,093	194,472	241,952	289,329	336,706
16	45	44.76	113,458	167,362	221,266	275,288	329,192	383,096
17	48	47.56	128,083	188,936	249,788	310,774	371,627	432,480
18	50	50.35	143,595	211,817	280,040	348,411	416,634	484,856
19	53	53.15	159,993	236,006	312,020	388,199	464,212	540,225
20	56	55.95	177,278	261,503	345,728	430,137	514,362	598,588
21	59	58.75	195,449	288,307	381,163	474,226	567,085	659,943
22	62	61.54	214,506	316,418	418,331	520,466	622,378	724,291
23	64	64.34	234,450	345,837	457,225	568,856	680,244	791,632
24	67	67.14	255,280	376,564	497,848	619,397	740,682	861,966
25	70	69.94	276,995	408,598	540,200	672,089	803,691	935,293
26	73	72.73	299,599	441,940	584,280	726,932	869,272	1,011,613
27	76	75.53	323,088	476,589	630,089	783,925	937,425	1,090,026
28	78	78.33	347,464	512,545	677,627	843,069	1,008,150	1,173,232
29	81	81.13	372,726	549,810	726,893	904,363	1,081,447	1,258,530
30	84	83.92	398,875	588,381	777,886	967,809	1,157,315	1,346,822
31	87	86.72	425,909	628,260	830,612	1,033,404	1,235,758	1,438,107
32	90	89.52	453,831	669,447	885,064	1,101,151	1,316,768	1,532,384
33	92	92.32	482,638	711,941	941,245	1,171,048	1,400,352	1,629,655
34	95	95.11	512,332	755,743	999,154	1,243,096	1,486,507	1,729,918
35	98	97.91	542,913	800,852	1,058,792	1,317,295	1,575,235	1,833,125
36	101	100.71	574,379	847,269	1,120,159	1,393,644	1,666,534	1,939,424
37	104	103.51	606,732	894,993	1,183,254	1,472,144	1,760,405	2,048,666
38	106	106.30	639,972	944,025	1,248,078	1,552,795	1,856,848	2,160,901
39	109	109.10	674,098	994,364	1,314,631	1,635,596	1,955,863	2,276,129
40	112	111.90	709,110	1,046,011	1,382,912	1,720,549	2,057,449	2,394,350
41	115	114.70	745,009	1,098,965	1,452,922	1,807,651	2,161,608	2,515,564
42	117	117.49	781,794	1,153,227	1,524,661	1,896,905	2,268,338	
43	120	120.29	819,466	1,208,797	1,598,128	1,988,309	2,377,640	
44	123	123.09	858,023	1,265,673	1,673,324	2,081,864	2,489,514	
45	126	125.89	897,468	1,323,858	1,750,248	2,177,569	2,603,959	
46	129	128.68	937,798	1,383,350	1,828,901	2,275,425	2,720,977	
47	131	131.48	979,015	1,444,149	1,909,293	2,375,432	2,840,566	
48	134	134.28	1,021,119	1,506,256	1,991,393	2,477,590	2,962,727	
49	137	137.08	1,064,109	1,569,670	2,075,232	2,581,898		
50	140	139.87	1,107,985	1,634,392	2,160,800	2,688,357		
51	143	142.67	1,152,747	1,700,422	2,248,096	2,796,967		
52	145	145.47	1,198,396	1,767,759	2,337,121	2,907,727		
53	148	148.27	1,244,932	1,836,403	2,427,875	3,020,638		
54	151	151.06	1,292,353	1,906,355	2,520,357	3,135,700		
55	154	153.86	1,340,662	1,977,615	2,614,568	3,252,912		
56	157	156.66	1,389,856	2,050,182	2,710,508	3,372,275		
57	159	159.46	1,439,937	2,124,056	2,808,176	3,493,789		
58	162	162.25	1,490,904	2,199,238	2,907,573	3,617,453		
59	165	165.05	1,542,758	2,275,728	3,008,698			
60	168	167.85	1,595,498	2,353,525	3,111,552			
61	171	170.65	1,649,124	2,432,630	3,216,135			
62	173	173.44	1,703,637	2,513,042	3,322,446			
63	176	176.24	1,759,037	2,594,761	3,430,486			
64	179	179.04	1,815,322	2,677,789	3,540,255			
65	182	181.84	1,872,494	2,762,123	3,651,752			
66	185	184.63	1,930,553	2,847,765	3,764,978			
67	187	187.43	1,989,497	2,934,715	3,879,933			
68	190	190.23	2,049,329	3,022,972	3,996,616			
69	193	193.03	2,110,046	3,112,537	4,115,028			
70	196	195.82	2,171,650	3,203,409	4,235,168			
71	199	198.62	2,297,517	3,389,076	4,480,635			
72	201	201.42	2,297,517	3,389,076	4,480,635			
73	204	204.22	2,361,780	3,483,871	4,605,961			

Bold = Models 90A/96A. NRCS approved.
All other models = Site specific, NRCS approval can be obtained.
NOTE: Does not include freeboard
* US Gallons

Site Specific

Model 90A Slurrystore® Structure

The 90A SERIES Slurrystore Structure has been designed to state-of-the-art engineering design standards. Shorter models are expandable up to 28 in height, and because they're expandable, they're able to handle the demands created in the future when your herd size or production increases.

With 21 models, there's a size to fit nearly every operation. If you now haul manure to the field on a daily basis, you can pick a size that will drastically cut your investment in time as well as wear and tear on machinery. You'll be able to plan your manure hauling interval based on a yearly timetable. Every Slurrystore structure is designed to be an integral part of your Manure Storage System. Using state-of-the-art pumps and agitation systems, manure handling is nearly 100% "hands off" automated. From the reception pit to the field, you can build a system engineered for efficient waste management.

Model 96A Slurrystore® Structure

These Model 96A structures are non-expandable and use the most efficient configuration of glass-fused-to-steel panels possible for the precise height and diameter at the time of construction, eliminating the need for thicker sheets at the base, and a heavier foundation normally installed to support the expandable Model 90A, and are thus available at a lower cost.

The model 96A still offers traditional Slurrystore structure benefits like the positive, above-ground containment of livestock manure, higher sidewalls and smaller exposed surface area than other conventional manure storage methods which aid in your odor management efforts, and the convenience of recycling stored manure as fertilizer when desired. You can equip your 96A Slurrystore structure with your choice of agitation packages.

SLURRYSTORE

345 Harvestore Drive,
DeKalb, Illinois 60115
Phone: 815-756-1551
Fax: 815-756-1659
www.slurrystore.com

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Current Location: Elev: 890 ft. Lat: 40.6644° N Lon: -78.2192° W
Station: **TYRONE, PA US USC00369022**

Summary of Monthly Normals
2006-2020
Generated on 08/22/2023

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Precipitation (in.)								
	Totals	Mean Number of Days				Precipitation Probabilities Probability that precipitation will be equal to or less than the indicated amount		
	Means	Daily Precipitation				Monthly Precipitation vs. Probability Levels		
Month	Mean	>= 0.01	>= 0.10	>= 0.50	>= 1.00	0.25	0.50	0.75
01	2.68	11.1	6.2	1.7	0.3	2.31	2.64	3.19
02	2.80	10.1	7.1	2.0	0.3	1.64	2.42	3.73
03	3.28	9.9	7.4	2.1	0.5	1.98	2.83	4.24
04	3.62	12.0	8.1	2.6	0.5	2.96	3.50	4.16
05	4.35	14.3	9.6	2.7	0.8	2.70	4.22	5.30
06	4.61	12.9	9.3	3.1	1.1	3.19	3.85	5.58
07	4.04	11.9	8.1	2.4	0.8	2.28	3.02	5.08
08	3.55	10.7	7.5	2.5	0.5	2.61	3.13	4.57
09	3.81	9.7	7.0	2.7	1.0	1.95	2.96	4.22
10	4.32	13.0	7.8	2.9	0.9	3.49	4.64	5.03
11	2.58	9.5	5.4	1.7	0.7	1.57	2.68	3.47
12	3.91	11.8	7.4	3.1	0.7	3.79	4.10	4.50
Summary	43.55	136.9	90.9	29.5	8.1	30.47	39.99	53.07

Empty or blank cells indicate data is missing or insufficient occurrences to compute value

NOAA Atlas 14, Volume 2, Version 3
Location name: Taylor Twp, Pennsylvania, USA*
Latitude: 40.7747°, Longitude: -78.0969°
Elevation: 1115 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.312 (0.281-0.348)	0.373 (0.336-0.415)	0.455 (0.409-0.505)	0.519 (0.465-0.574)	0.604 (0.537-0.666)	0.669 (0.592-0.735)	0.735 (0.646-0.807)	0.802 (0.701-0.880)	0.897 (0.775-0.982)	0.968 (0.829-1.06)
10-min	0.485 (0.437-0.540)	0.582 (0.524-0.647)	0.707 (0.635-0.784)	0.801 (0.717-0.886)	0.924 (0.821-1.02)	1.01 (0.898-1.12)	1.11 (0.973-1.21)	1.20 (1.05-1.31)	1.32 (1.14-1.44)	1.41 (1.21-1.54)
15-min	0.595 (0.535-0.662)	0.712 (0.641-0.792)	0.868 (0.780-0.963)	0.986 (0.882-1.09)	1.14 (1.01-1.26)	1.26 (1.11-1.38)	1.37 (1.21-1.51)	1.49 (1.30-1.63)	1.65 (1.42-1.80)	1.76 (1.51-1.93)
30-min	0.787 (0.708-0.876)	0.953 (0.857-1.06)	1.19 (1.07-1.32)	1.37 (1.22-1.51)	1.61 (1.43-1.78)	1.79 (1.59-1.97)	1.98 (1.74-2.18)	2.17 (1.90-2.38)	2.44 (2.11-2.67)	2.64 (2.26-2.89)
60-min	0.961 (0.865-1.07)	1.17 (1.05-1.30)	1.49 (1.34-1.66)	1.74 (1.56-1.93)	2.09 (1.86-2.30)	2.36 (2.09-2.60)	2.65 (2.33-2.91)	2.95 (2.58-3.23)	3.37 (2.92-3.69)	3.71 (3.18-4.06)
2-hr	1.11 (0.985-1.25)	1.34 (1.19-1.51)	1.71 (1.52-1.93)	2.01 (1.78-2.25)	2.42 (2.13-2.71)	2.76 (2.42-3.08)	3.12 (2.71-3.47)	3.51 (3.02-3.89)	4.06 (3.46-4.50)	4.51 (3.81-5.01)
3-hr	1.19 (1.06-1.34)	1.44 (1.29-1.62)	1.82 (1.62-2.04)	2.13 (1.89-2.38)	2.57 (2.27-2.86)	2.93 (2.56-3.25)	3.32 (2.89-3.67)	3.73 (3.22-4.12)	4.34 (3.69-4.78)	4.83 (4.08-5.32)
6-hr	1.47 (1.32-1.64)	1.77 (1.59-1.98)	2.21 (1.98-2.47)	2.57 (2.30-2.86)	3.09 (2.74-3.42)	3.52 (3.11-3.88)	3.97 (3.48-4.38)	4.46 (3.88-4.90)	5.16 (4.44-5.67)	5.74 (4.88-6.30)
12-hr	1.82 (1.64-2.05)	2.19 (1.97-2.46)	2.72 (2.44-3.04)	3.16 (2.83-3.53)	3.80 (3.38-4.23)	4.34 (3.83-4.81)	4.92 (4.31-5.44)	5.55 (4.82-6.12)	6.48 (5.54-7.12)	7.24 (6.12-7.94)
24-hr	2.18 (2.01-2.38)	2.62 (2.41-2.86)	3.24 (2.98-3.55)	3.76 (3.45-4.12)	4.51 (4.12-4.92)	5.13 (4.66-5.59)	5.79 (5.22-6.30)	6.50 (5.82-7.07)	7.51 (6.66-8.18)	8.35 (7.34-9.10)
2-day	2.53 (2.34-2.75)	3.03 (2.81-3.29)	3.74 (3.46-4.07)	4.34 (4.00-4.71)	5.19 (4.76-5.62)	5.90 (5.37-6.38)	6.65 (6.03-7.20)	7.46 (6.71-8.08)	8.63 (7.67-9.34)	9.59 (8.44-10.4)
3-day	2.67 (2.47-2.89)	3.19 (2.96-3.46)	3.93 (3.64-4.26)	4.54 (4.19-4.92)	5.42 (4.98-5.86)	6.14 (5.61-6.64)	6.91 (6.28-7.47)	7.74 (6.98-8.36)	8.91 (7.95-9.64)	9.87 (8.72-10.7)
4-day	2.81 (2.60-3.04)	3.35 (3.11-3.63)	4.12 (3.82-4.46)	4.75 (4.39-5.13)	5.65 (5.20-6.10)	6.39 (5.86-6.90)	7.18 (6.54-7.74)	8.01 (7.25-8.65)	9.19 (8.24-9.94)	10.2 (9.01-11.0)
7-day	3.32 (3.11-3.56)	3.96 (3.71-4.25)	4.80 (4.49-5.15)	5.48 (5.11-5.86)	6.41 (5.95-6.86)	7.16 (6.62-7.65)	7.92 (7.30-8.48)	8.72 (7.97-9.34)	9.81 (8.90-10.5)	10.7 (9.60-11.5)
10-day	3.86 (3.62-4.13)	4.59 (4.30-4.91)	5.49 (5.15-5.87)	6.21 (5.81-6.64)	7.20 (6.72-7.69)	7.98 (7.42-8.53)	8.78 (8.12-9.39)	9.60 (8.83-10.3)	10.7 (9.78-11.5)	11.6 (10.5-12.5)
20-day	5.32 (5.04-5.66)	6.27 (5.93-6.66)	7.32 (6.91-7.76)	8.12 (7.66-8.61)	9.17 (8.62-9.72)	9.97 (9.35-10.6)	10.7 (10.1-11.4)	11.5 (10.7-12.2)	12.5 (11.6-13.3)	13.2 (12.2-14.0)
30-day	6.69 (6.34-7.05)	7.84 (7.43-8.26)	9.00 (8.52-9.48)	9.88 (9.35-10.4)	11.0 (10.4-11.6)	11.9 (11.2-12.5)	12.7 (11.9-13.4)	13.4 (12.6-14.2)	14.4 (13.5-15.2)	15.1 (14.1-16.0)
45-day	8.51 (8.10-8.95)	9.95 (9.47-10.5)	11.3 (10.7-11.9)	12.3 (11.7-12.9)	13.5 (12.8-14.2)	14.3 (13.6-15.1)	15.1 (14.3-15.9)	15.9 (15.0-16.7)	16.7 (15.8-17.7)	17.3 (16.3-18.3)
60-day	10.2 (9.74-10.7)	11.9 (11.4-12.5)	13.3 (12.7-14.0)	14.4 (13.8-15.1)	15.7 (15.0-16.4)	16.6 (15.8-17.4)	17.4 (16.5-18.2)	18.1 (17.2-19.0)	18.9 (18.0-19.9)	19.5 (18.5-20.5)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

Curve
88

Runoff for inches of rainfall—Curve no. 88

Inches	Tenths									
	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0	0.00	0.00	0.00	0.00	0.01	0.03	0.06	0.10	0.15	0.20
1	0.25	0.31	0.38	0.44	0.51	0.58	0.66	0.73	0.81	0.89
2	0.97	1.05	1.13	1.21	1.30	1.38	1.47	1.56	1.64	1.73
3	1.82	1.91	2.00	2.09	2.18	2.27	2.36	2.45	2.55	2.64
4	2.73	2.82	2.92	3.01	3.11	3.20	3.29	3.39	3.48	3.58
5	3.67	3.77	3.86	3.96	4.05	4.15	4.24	4.34	4.44	4.53
6	4.63	4.73	4.82	4.92	5.02	5.11	5.21	5.31	5.40	5.50
7	5.60	5.69	5.79	5.89	5.99	6.08	6.18	6.28	6.38	6.47
8	6.57	6.67	6.77	6.87	6.96	7.06	7.16	7.26	7.36	7.45
9	7.55	7.65	7.75	7.85	7.94	8.04	8.14	8.24	8.34	8.44
10	8.53	8.63	8.73	8.83	8.93	9.03	9.13	9.22	9.32	9.42
11	9.52	9.62	9.72	9.82	9.92	10.01	10.11	10.21	10.31	10.41
12	10.51	10.61	10.71	10.81	10.91	11.00	11.10	11.20	11.30	11.40
13	11.50	11.60	11.70	11.80	11.90	11.99	12.09	12.19	12.29	12.39
14	12.49	12.59	12.69	12.79	12.89	12.99	13.09	13.19	13.28	13.38
15	13.48	13.58	13.68	13.78	13.88	13.98	14.08	14.18	14.28	14.38
16	14.48	14.58	14.67	14.77	14.87	14.97	15.07	15.17	15.27	15.37
17	15.47	15.57	15.67	15.77	15.87	15.97	16.07	16.17	16.27	16.37
18	16.46	16.56	16.66	16.76	16.86	16.96	17.06	17.16	17.26	17.36
19	17.46	17.56	17.66	17.76	17.86	17.96	18.06	18.16	18.26	18.36
20	18.46	18.56	18.65	18.75	18.85	18.95	19.05	19.15	19.25	19.35
21	19.45	19.55	19.65	19.75	19.85	19.95	20.05	20.15	20.25	20.35
22	20.45	20.55	20.65	20.75	20.85	20.95	21.05	21.15	21.25	21.35
23	21.44	21.54	21.64	21.74	21.84	21.94	22.04	22.14	22.24	22.34
24	22.44	22.54	22.64	22.74	22.84	22.94	23.04	23.14	23.24	23.34
25	23.44	23.54	23.64	23.74	23.84	23.94	24.04	24.14	24.24	24.34
26	24.44	24.54	24.64	24.74	24.84	24.94	25.03	25.13	25.23	25.33
27	25.43	25.53	25.63	25.73	25.83	25.93	26.03	26.13	26.23	26.33
28	26.43	26.53	26.63	26.73	26.83	26.93	27.03	27.13	27.23	27.33
29	27.43	27.53	27.63	27.73	27.83	27.93	28.03	28.13	28.23	28.33
30	28.43	28.53	28.63	28.73	28.83	28.93	29.03	29.13	29.23	29.33
31	29.43	29.53	29.63	29.73	29.82	29.92	30.02	30.12	30.22	30.32
32	30.42	30.52	30.62	30.72	30.82	30.92	31.02	31.12	31.22	31.32
33	31.42	31.52	31.62	31.72	31.82	31.92	32.02	32.12	32.22	32.32
34	32.42	32.52	32.62	32.72	32.82	32.92	33.02	33.12	33.22	33.32
35	33.42	33.52	33.62	33.72	33.82	33.92	34.02	34.12	34.22	34.32
36	34.42	34.52	34.62	34.72	34.82	34.92	35.02	35.12	35.22	35.32
37	35.42	35.52	35.62	35.72	35.82	35.92	36.02	36.12	36.22	36.32
38	36.42	36.52	36.62	36.71	36.81	36.91	37.01	37.11	37.21	37.31
39	37.41	37.51	37.61	37.71	37.81	37.91	38.01	38.11	38.21	38.31
40	38.41	38.51	38.61	38.71	38.81	38.91	39.01	39.11	39.21	39.31

Note: Runoff value determined by equation $Q = \frac{(P - 0.2S)^2}{P + 0.8S}$

Bp 1, Silo, Leach

Engineering Estimates:

		Item	*Unit*	*Quantity*	*Cost*		*Total*
HUA/Storage:	Yes	Excavation	CY	244.44	$ 30.00	$	7,333.33
		Fill	CY	0.00	$ 30.00	$	-
Length	128	Stone	Ton	129.65	$ 30.00	$	3,889.60
Width	46						

Excavation/Fill			Backcut:		Backfill:	
Under Pad:	Percentage	Length		Length		
Cut Depth	1	100%	Width		Width	
Fill Depth		100%	Height		Height	

Roof & Concrete	SF	5888	$ 28.00	$	164,864.00
			Total	$	176,086.93

Bunk Silo:	Yes	Under Pad:		Percentage
		Cut Depth	1	100%
Length	110	Fill Depth		100%
Width	120			
*Include Apron		Backcut:		
*Assuming 6" Concrete		Length		
		Width		
Height of Walls	8	Height		
Length of Walls	300 Perimeter			
Length of Walls	270 Interior	Backfill:		
*Based off 5.67' for footing width		Length	300	
		Width	6	
		Height	4	

Excavation	CY	523.56	$ 30.00	$	15,706.67
Fill	CY	266.67	$ 30.00	$	8,000.00
Stone	Ton	293.71	$ 30.00	$	8,811.44
Walls	CY	259.88	$ 425.00	$	110,448.06
Flatwork	CY	202.21	$ 325.00	$	65,716.81
			Total	$	208,682.97

Bpl, Silo, Leach

Practice	Input	Item	Unit	Quantity	Cost		Total	
342		Critical Area Planting	AC	0.25	$	1,200.00	$	300.00
382	Fence	Head Gates	LF	104	$	78.00	$	8,112.00
382	Fence	Woven Wire Fence	LF	215	$	5.00	$	1,075.00
500	Ob Rem	Timber Structures	SF	4630	$	2.00	$	9,260.00
533		Pump	EA	2	$	3,500.00	$	7,000.00
558		Roof Gutters	LF	256	$	15.00	$	3,840.00
# Downs	6	Downs	LF	60	$	10.00	$	600.00
560		Access Road	Ton	445.69	$	30.00	$	13,370.67
Area	7521.00	Geotextile	SY	835.67	$	3.50	$	2,924.83
606		Perimeter Drain	LF	660	$	8.00	$	5,280.00
614		Water Facility	EA	1	$	1,600.00	$	1,600.00
620	UGO	4" SCH-40	LF	55	$	8.00	$	440.00
620	UGO	6" SCH-40	LF	324	$	14.00	$	4,536.00
620	UGO	8" SCH-40	LF	55	$	20.00	$	1,100.00
	Waste	2" SCH-40						
634	Transfer		LF	405	$	6.00	$	2,430.00
	Waste							
	Transfer							
634		Box,Screens,Pump Tank	EA	1	$	5,000.00	$	5,000.00
	Waste							
634	Transfer	Waste Water Tank	EA	1	$	2,500.00	$	2,500.00
Additional								
Practice	313	Slurry Store	EA	1	$	300,000.00	$	300,000.00

	Total Sheet2	$ 369,368.50
	Total Sheet1	$ 384,769.90
Total All Practices		$ 754,138.40

BP #2

Engineering Estimates:			Item	Unit	Quantity	Cost	Total
HUA/Storage:	Yes		Excavation	CY	848.00	$ 30.00	$ 25,440.00
			Fill	CY	250.67	$ 30.00	$ 7,520.00
Length	208		Stone	Ton	226.89	$ 30.00	$ 6,806.80
Width	50						
Excavation/Fill			Backcut:		Backfill:		
Under Pad:		Percentage	Length		Length	282	
Cut Depth	2	100%	Width		Width	6	
Fill Depth		100%	Height		Height	4	
			Roof & Concrete	SF	10400	$ 28.00	$ 291,200.00
						Total	$ 330,966.80

BP#2

Practice	Input	Item	Unit	Quantity	Cost	Total
342		Critical Area Planting	AC	0.25	$ 1,200.00	$ 300.00
362		Diversion	LF	299	$ 14.00	$ 4,186.00
382	Fence	Head Gates	LF	176	$ 78.00	$ 13,728.00
382	Fence	Woven Wire Fence	LF	282	$ 5.00	$ 1,410.00
468		Lined Outlet	Ton	1.78	$ 30.00	$ 53.33
516		Livestock Pipe Line: 2"	LF	200	$ 6.00	$ 1,200.00
533		Pump	EA	1	$ 3,500.00	$ 3,500.00
558		Roof Gutters	LF	416	$ 15.00	$ 6,240.00
# Downs	12	Downs	LF	120	$ 10.00	$ 1,200.00
560		Access Road	Ton	498.25	$ 30.00	$ 14,947.56
Area	8408.00	Geotextile	SY	934.22	$ 3.50	$ 3,269.78
606		Perimeter Drain	LF	524	$ 8.00	$ 4,192.00
614		Water Facility	EA	2	$ 1,600.00	$ 3,200.00
620	UGO	6" SCH-40	LF	514	$ 14.00	$ 7,196.00
620	UGO	8" SCH-40	LF	198	$ 20.00	$ 3,960.00
642		Well 6"	LF	200	$ 35.00	$ 7,000.00

Total Sheet2	$ 75,582.67
Total Sheet1	$ 330,966.80
Total All Practices	$ 406,549.47

From BP#1, Bunk, slurry: 754,138.40

Total project = $1,160,687.87

I+E	ABW	Jachar

Eqip Quantities

BP #1: 313 BP = 104' x 34' = 3,536 sq ft (under 100sf/au) 313 storage: 24'x46' = 1,104

561 = 104' x 12' = 1,248 sq ft

367 = Regular = 104' x 46' ÷ 2 = 2,392 + (1,104) = 3,496 sq ft

Complex = 104' x 46' ÷ 2 = 2,392

BP #2: 313 BP = 176' x 38' = 6,688 sq ft (under 100sf/au) 313 storage: 32'x50' = 1,600 sq ft

561 = 176' x 12' = 2,112 sq ft

367 = Regular = 1,600 + (176' x 50' ÷ 2) = 6,000

Complex = 176' x 50' ÷ 2 = 4,400

Bunk silo = 30' x 290' = 8,700 sq ft (Buckwall)

+ Apron = 20' x 120' = 2,400 sq ft (Reinforced)

Slurry store: 313 = (18.8)(11)(24'²) = 34,020 cf

EQIP Practice Check List

Press Ctrl r to reset

Name: County:

Completed By: Date: 11/1/2023

Code	Practice	Componet Name	Quantity	Units	Payment per Unit	Incentive Payment		ENGINEERS ESTIMA Quantity	Units	Unit Cost
313	Waste Storage Facility					[redacted]	Total			
313		HU-Composted Bedded Pack, Concrete Floor, Concrete Wall (BP#1)	3536	SF	[redacted]	[redacted]				
313		HU-Composted Bedded Pack, Concrete Floor, Concrete Wall (BP#2)	6688	SF	[redacted]	[redacted]				
313		HU-Dry Stack, <2K Concrete Fl walls (BP#1)	1104	SF	[redacted]	[redacted]				
313		HU-Dry Stack, <2K Concrete Fl walls (BP#2)	1600	SF	[redacted]	[redacted]				
313		HU-Tank, 25K<40K CF	34020	CF	[redacted]	[redacted]				
342	Critical Area Planting					[redacted]	Total			
342		HU-Native or Introduced Vegetation - Moderate Grading (Organic and Non-Organic)	0.5	AC	[redacted]	[redacted]				
362	Diversion					[redacted]	Total			
362		HU-Diversion, small, less than or equal to 300 feet	299	LF	[redacted]	[redacted]				
367	Roofs and Covers					[redacted]	Total			
367		HU-Timber Frame Roof (BP#1)	3496	SF	[redacted]	[redacted]				
367		HU-Timber Frame Roof (BP#2)	6000	SF	[redacted]	[redacted]				
367		HU-Timber Frame Roof, complex foundation (BP#1)	2392	SF	[redacted]	[redacted]				
367		HU-Timber Frame Roof, complex foundation (BP#2)	4400	SF	[redacted]	[redacted]				
382	Fence					[redacted]	Total			
382		HU-Exclusion Fence (BP#1)	172	LF	[redacted]	[redacted]				
382		HU-Exclusion Fence (BP#2)	252	LF	[redacted]	[redacted]				
468	Lined Waterway or Outlet					[redacted]	Total			
468		HU-Rock Lined - 12 inch	32	SF	[redacted]	[redacted]				
500	Obstruction Removal					[redacted]	Total			
500		HU-Removal and Disposal of Wood Structures (House)	1200	SF	[redacted]	[redacted]				
500		HU-Removal and Disposal of Wood Structures (Shed)	2355	SF	[redacted]	[redacted]				
500		HU-Removal and Disposal of Wood Structures (Calf Facility)	1075	SF	[redacted]	[redacted]				
516	Livestock Pipeline					[redacted]	Total			
516		HU-2 inches or less buried by LF (BP#2)	100	LF	[redacted]	[redacted]				
533	Pumping Plant					[redacted]	Total			
533		HU-Electric Powered Pump 3 Hp or less (Leachate)	2	EA	[redacted]	[redacted]				
533		HU-Electric Powered Pump 3 HP or less with Pressure Tank (Well)	1	EA	[redacted]	[redacted]				
558	Roof Runoff Structure					[redacted]	Total			
558		HU-Roof Gutter (BP#1)	256	LF	[redacted]	[redacted]				
558		HU-Roof Gutter (BP#2)	416	LF	[redacted]	[redacted]				
560	Access Road					[redacted]	Total			
560		HU-Constructed road with Heavy Stone Base and Geotextile	400	LF	[redacted]	[redacted]				
561	Heavy Use Area Protection					[redacted]	Total			
561		HU-Concrete Slab with Curbs & Buckwall (Bunk)	8700	SF	[redacted]	[redacted]				
561		HU-Concrete Slab with Curbs, Reinforced (BP#1 Scrape)	1248	SF	[redacted]	[redacted]				
561		HU-Concrete Slab with Curbs, Reinforced (BP#2 Scrape)	2112	SF	[redacted]	[redacted]				

561		HU-Concrete Slab with Curbs, Reinforced (Bunk Apron)	2400	SF					
606	Subsurface Drain						Total		
606		HU-Enveloped Corrugated Plastic Pipe, Single Wall, Less than or equal to 6 inches (BP#1)	348	LF					
606		HU-Enveloped Corrugated Plastic Pipe, Single Wall, Less than or equal to 6 inches (BP#2)	524	LF					
606		HU-Enveloped Corrugated Plastic Pipe, Single Wall, Less than or equal to 6 inches (Bunk)	304	LF					
614	Watering Facility						Total		
614		HU-Frost Proof Trough (2 Ball) (BP#1)	1	EA					
614		HU-Frost Proof Trough (2 Ball) (BP#2)	1	EA					
620	Underground Outlet						Total		
620		HU-UO 6 inch or less (BP#1)	379	LF					
620		HU-UO 6 inch or less (BP#2)	514	LF					
620		HU-UO 6 inch or less (Bunk)	15	LF					
620		HU-UO 8 to 12 inch (BP#1)	55	LF					
620		HU-UO 8 to 12 inch (BP#2)	198	LF					
634	Waste Transfer						Total		
634		HU-Lot runoff, inlet box, pipe and pump tank	1	EA					
634		HU-Transfer line, pressure, 4 inch or less (Leachate High Flow)	340	LF					
634		HU-Transfer line, pressure, 4 inch or less (Leachate Low Flow)	65	LF					
642	Water Well						Total		
642		HU-Typical Well, 6 inch	200	LF					
Totals					**Estimated Payment**				Estimated Installation Cost

Disclaimer: The above tool uses strictly estimates. Encouraging landowners to work closely with contractors for more accurate costs is recommended. When prevailing wage is required, consider increasing cost estimates by at least 40%.

LEGEND:

SETBACKS

UTILITY LINE

WELLS

EXISTING BUNK SILO

AG BAG AREA

AG BAG AREA

1025

1023

1023

S EAGLE VALLEY RD

EXISTING DITCH

HOUSE

SHED

SHED (TO BE REMOVED)

HOUSE (TO BE REMOVED)

EXISTING TANK

SHED

EXISTING DITCH

EXISTING DITCH

1020

BALD EAGLE CREEK

CALF FACILITY (TO BE REMOVED)

1025

1024

1022

EXISTING ACA

FREE STALL BARN

BARN

N

100 0 100 200 300

Scale in Feet

74

DESIGNED ABW DATE #

DRAWN ABW #

CHECKED

APPROVED

JA-CHAR I&E

EXISTING PLAN VIEW

10273 S EAGLE VALLEY RD. PORT MATILDA 16870 CENTRE COUNTY, PA

United States Department of Agriculture

Natural Resources Conservation Service

FILE NO. JA-CHAR I&E.DWG

DRAWING NO.

SHEET OF

LEGEND:

SETBACKS

UTILITY LINE

ACCESS ROAD

WELLS

S EAGLE VALLEY RD

EXISTING DITCH

PROPOSED WELL

1025

1023

1024

1022

1020

BED PACK 50' x 208'

DIVERSION

HUA PAD 20' x 120'

BUNK SILOS (4) 30' x 90'

LEACHATE SYSTEM

HOUSE

HIGH FLOW PIPE

HIGH FLOW BUFFER

SHED

SLURRYSTORE 48' x 19'

EXISTING TANK

BED PACK 46' x 128'

FREE STALL BARN

BARN

EXISTING ACA

BALD EAGLE CREEK

N

100 0 100 200 300

Scale in Feet

DESIGNED ABW DATE #

DRAWN ABW #

CHECKED

APPROVED

JA-CHAR I&E

PROPOSED PLAN VIEW 100 SCALE

10273 S EAGLE VALLEY RD. PORT MATILDA 16870 CENTRE COUNTY, PA

United States Department of Agriculture

Natural Resources Conservation Service

FILE NO. JA-CHAR I&E.DWG

DRAWING NO.

SHEET OF

60 0 60 120 180

Scale in Feet

N

S EAGLE VALLEY RD

EXISTING DITCH

PROPOSED WELL

LIVESTOCK PIPELINE

1025

1023

HIGH FLOW BUFFER

HOUSE

HIGH FLOW PIPE

BED PACK 50′ × 208′

HUA PAD 20′ × 120′

BUNK SILOS (4) 30′ × 90′

SHED

ROCK DISSIPATER

LEACHATE SYSTEM

SLURRYSTORE 48′ × 19′

EXISTING DITCH

DIVERSION

EXISTING TANK

SHED

BED PACK 46′ × 128′

1025

1024

1022

EXISTING ACA

FREE STALL BARN

BARN

LEGEND:

SETBACKS

UTILITY LINE

PERIMETER DRAIN

UGO

ACCESS ROAD

WELLS

DESIGNED ABW DATE #

DRAWN ABW #

CHECKED

APPROVED

JA–CHAR I&E

PROPOSED PLAN VIEW 60 SCALE

10273 S EAGLE VALLEY RD. PORT MATILDA CENTRE COUNTY, PA 16870

United States Department of Agriculture

Natural Resources Conservation Service

FILE NO. JA–CHAR I&E.DWG

DRAWING NO.

SHEET OF

60 0 60 120 180

Scale in Feet

N

S EAGLE VALLEY RD

EXISTING DITCH

PROPOSED WELL

LIVESTOCK PIPELINE

HIGH FLOW BUFFER

HOUSE

HIGH FLOW PIPE

SHED

BED PACK 50′ × 208′

HUA PAD 20′ × 120′

BUNK SILOS (4) 30′ × 90′

ROCK DISSIPATER

LEACHATE SYSTEM

SLURRYSTORE 48′ × 19′

SHED

EXISTING DITCH

DIVERSION

EXISTING TANK

BED PACK 46′ × 128′

EXISTING ACA

FREE STALL BARN

BARN

LEGEND:

SETBACKS

UTILITY LINE

PERIMETER DRAIN

UGO

ACCESS ROAD

WELLS

77

DATE # #

DESIGNED ABW

DRAWN ABW

CHECKED

APPROVED

JA-CHAR I&E

PROPOSED PLAN VIEW 60 SCALE

10273 S EAGLE VALLEY RD. PORT MATILDA 16870 CENTRE COUNTY, PA

United States Department of Agriculture

Natural Resources Conservation Service

FILE NO. JA-CHAR I&E.DWG

DRAWING NO.

SHEET OF

60 0 60 120 180

Scale in Feet

N

FLOODPLAIN

	DATE
DESIGNED	ABW / #
DRAWN	ABW / #
CHECKED	
APPROVED	

JA-CHAR I&E

FLOODPLAIN PLAN VIEW 60 SCALE

10273 S EAGLE VALLEY RD. PORT MATILDA 16870 CENTRE COUNTY, PA

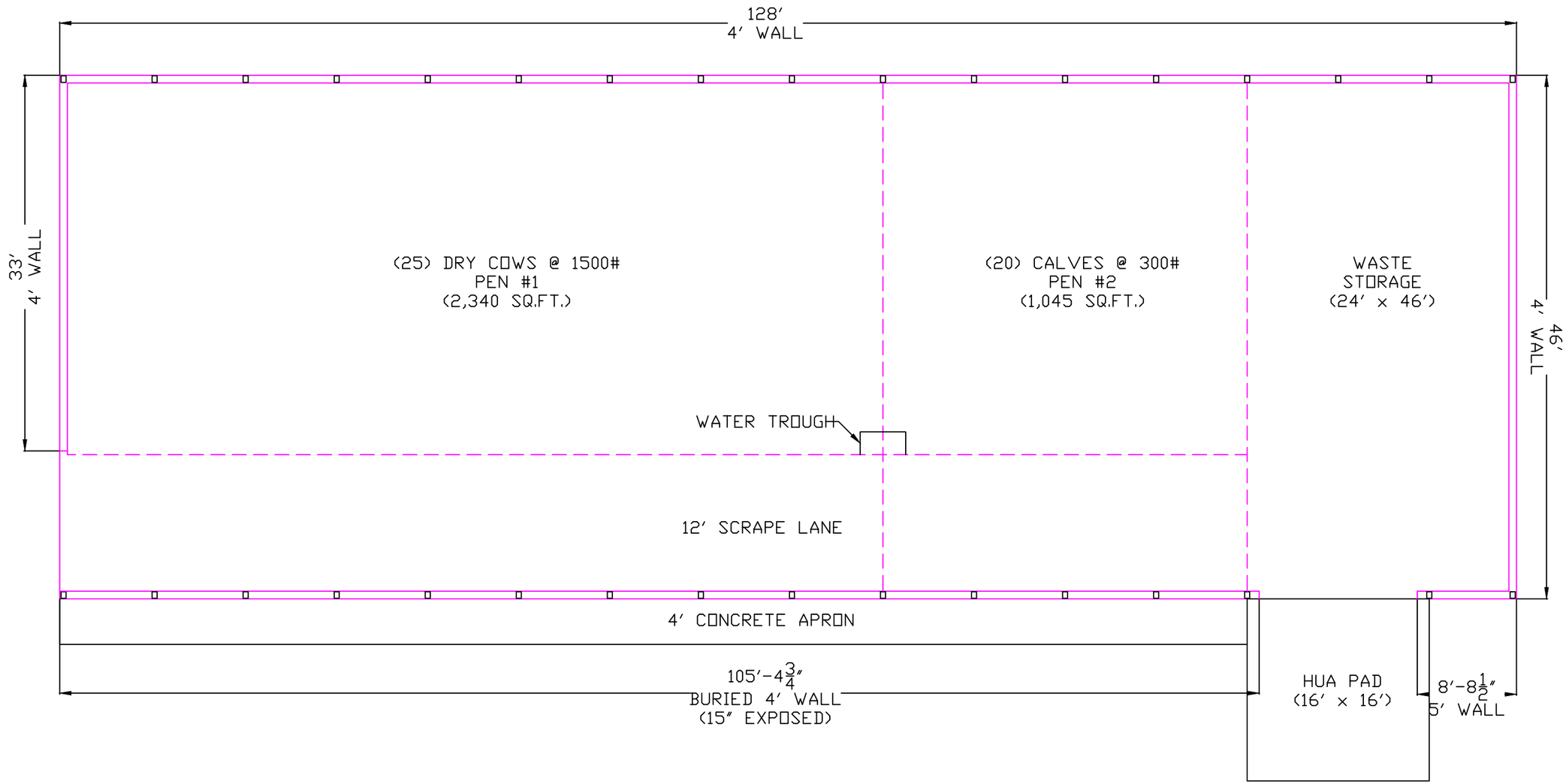
United States Department of Agriculture

Natural Resources Conservation Service

FILE NO. JA-CHAR I&E.DWG

DRAWING NO.

SHEET OF



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APPROVED
DATE / /

JA-CHAR I&E
BED PACK #1

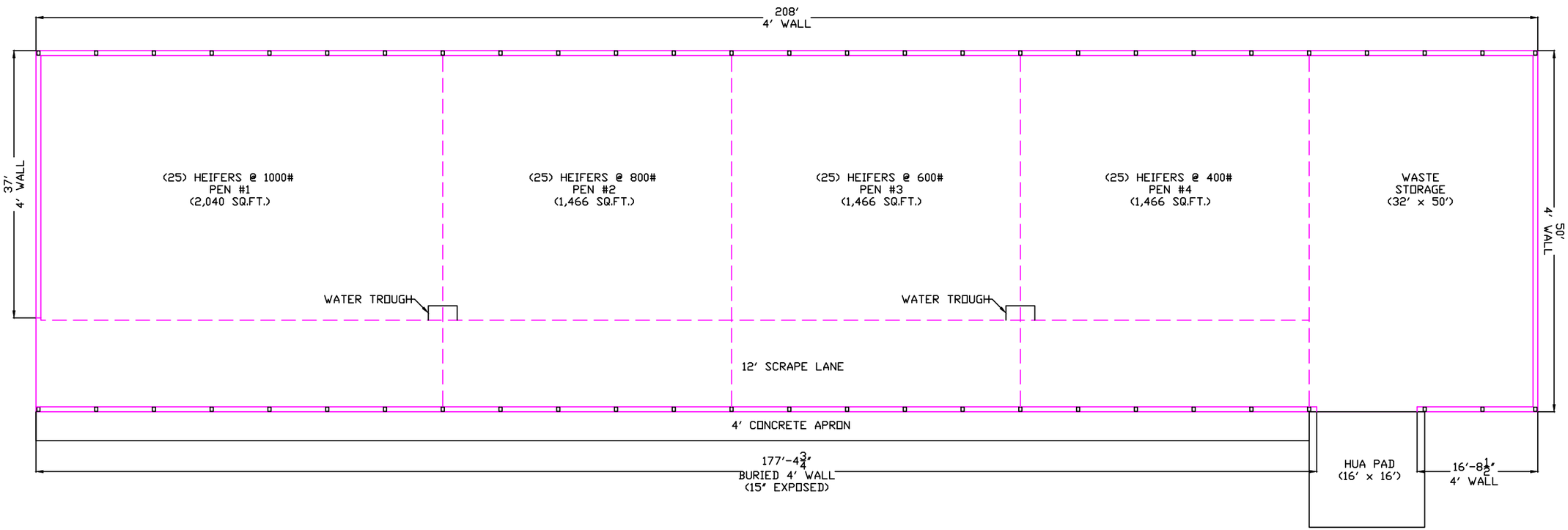
10273 S EAGLE VALLEY RD. PORT MATILDA 16870
CENTRE COUNTY, PA

United States Department of Agriculture
Natural Resources Conservation Service

FILE NO.
JA-CHAR I&E.DWG

DRAWING NO.

SHEET OF



DESIGNED ABW DATE #
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JA-CHAR I&E
BED PACK #2

10273 S EAGLE VALLEY RD. PORT MATILDA 16870 CENTRE COUNTY, PA

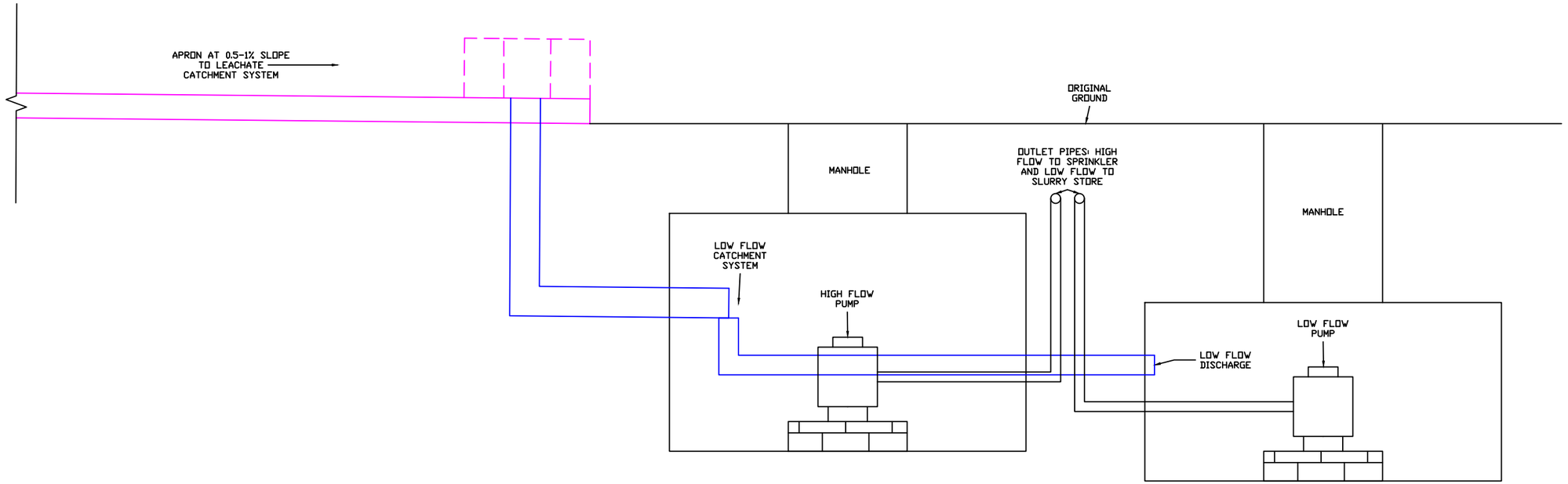
United States Department of Agriculture
Natural Resources Conservation Service

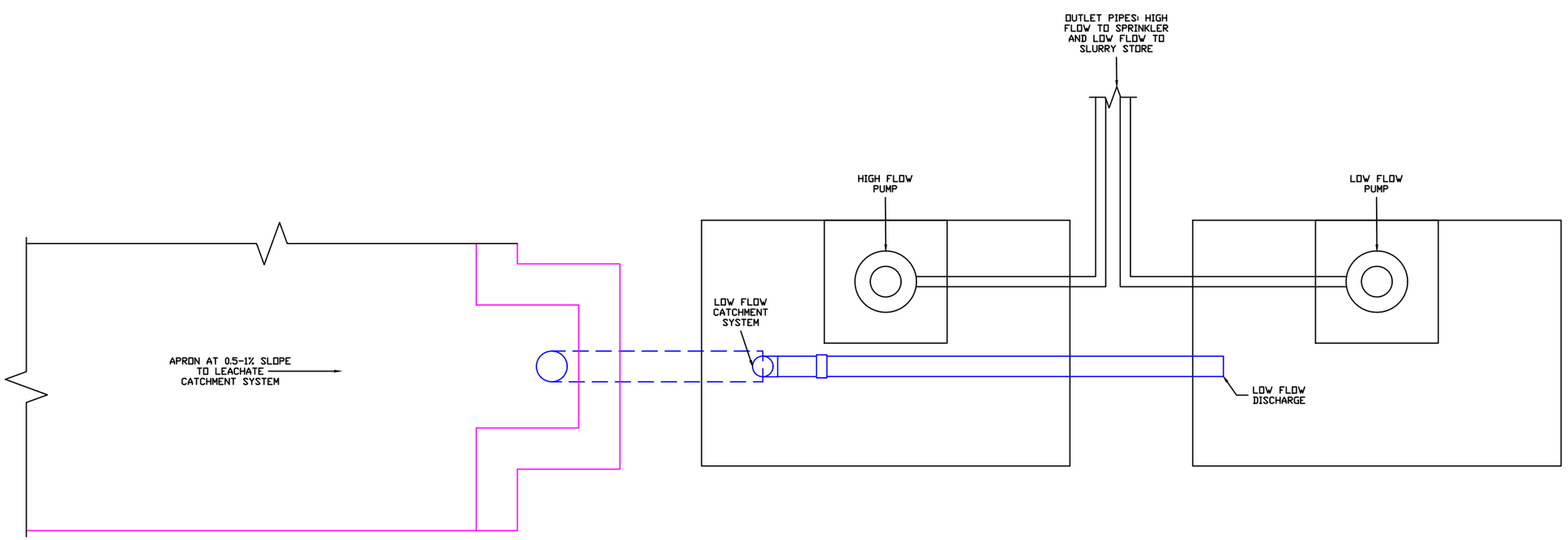
FILE NO. JA-CHAR I&E.DWG

DRAWING NO.

SHEET OF

PROFILE VIEW- LEACHATE CATCHMENT SYSTEM





PLAN VIEW- LEACHATE CATCHMENT SYSTEM

DATE #
DESIGNED ABW
DRAWN ABW
CHECKED
APPROVED #

JA-CHAR I&E
LEACHATE DETAIL
10273 S EAGLE VALLEY RD. PORT MATILDA 16870
CENTRE COUNTY, PA

United States Department of Agriculture
Natural Resources Conservation Service

FILE NO. JA-CHAR I&E.DWG
DRAWING NO.
SHEET OF

Attachment B

RCPP TA-I Practice Certification Sheet

RCPP Project Name: Delisting Ag-Impaired Streams in Central PA
RCPP Project Number: 2761
RCPP Contract Participant and Contract Number:

Technical Assistance - Implementation (TA-I) Verification of Certification for Payment

Date:

					Activity Type ($)					Travel Expenses			
CIN	**Practice Code and Name**	**Certified by:**	**Description**	**Completed**	**Pre-Application**	**Planning**	**Design**	**Installation**	**Checkout**	**Mileage**	**IRS Rate**	**Total Travel Expenses**	**Reimbursement Request**

**Attach all invoices and travel logs (if applicable) associated with this practice, showing appliable hourly staff rates and detailed travel records (if applicable), and Design Cover Sheet showing certification*
Complete a separate sheet for each practice

I hereby certify that to the best of my knowledge this practice has been completed fully and to NRCS standards.

_____ _____

Functional Review w/JAA (if certified by consultant) Printed Name and Title:

_____ _____

NRCS DC - (signature, date) Printed Name:

EXAMPLE - RCPP TA-I Practice Certification Sheet

RCPP Project Name: XXXXXXXXXXXXXXX
RCPP Project Number: 1111
RCPP Contract Participant and Contract Number: Joe Smith, 111222333444

Technical Assistance - Implementation (TA-I) Verification of Certification for Payment

Date: 1/1/2024

					Activity Type ($)					Travel Expenses			
CIN	**Practice Code and Name**	**Certified by:**	**Description**	**Completed**	**Pre-Application**	**Planning**	**Design**	**Installation**	**Checkout**	**Mileage**	**IRS Rate**	**Total Travel Expenses**	**Reimbursement Request**
1	340 - Cover Crop	Joe Planner - Partner xyz	Cover crops planted on planned land units per conservation plan. Establishment verified.	12/1/23	$0.00	$0.00	$0.00	$0.00	$79.00	23	$0.63	$14.49	$93.49

*Attach all invoices and travel logs (if applicable) associated with this practice, showing appliable hourly staff rates and detailed travel records (if applicable), and Design Cover Sheet showing certification

I hereby certify that to the best of my knowledge this practice has been completed fully and to NRCS standards.

Functional Review w/JAA (if certified by consultant)

Printed Name and Title:

NRCS DC - (signature, date)

Printed Name:

Technical Assistance - Implementation (TA-I) Verification of Certification for Payment

Date: 1/1/2024

					Activity Type ($)					Travel Expenses			
CIN	**Practice Code and Name**	**Certified by:**	**Description**	**Completed**	**Pre-Application**	**Planning**	**Design**	**Installation**	**Checkout**	**Mileage**	**IRS Rate**	**Total Travel Expenses**	**Reimbursement Request**
2	313 - Waste Storage Facility	Ag, Inc	XXXX gallon waste storage completed. Supporting practices complete. Inspection and redline docs completed.	11/15/23			$4,000.00	$5,200.00	$2,200.00	0	$0.63	$0.00	$11,400.00

*Attach all invoices and travel logs (if applicable) associated with this practice, showing appliable hourly staff rates and detailed travel records (if applicable), and Design Cover Sheet showing certification

I hereby certify that to the best of my knowledge this practice has been completed fully and to NRCS standards.

Functional Review w/JAA (if certified by consultant)

Printed Name and Title:

NRCS DC - (signature, date)

Printed Name:

Technical Assistance - Implementation (TA-I) Verification of Certification for Payment

Date: 1/1/2024

					Activity Type ($)					Travel Expenses			
CIN	**Practice Code and Name**	**Certified by:**	**Description**	**Completed**	**Pre-Application**	**Planning**	**Design**	**Installation**	**Checkout**	**Mileage**	**IRS Rate**	**Total Travel Expenses**	**Reimbursement Request**
4	102 - CNMP	Ag, Inc	I&E, NMP, Conservation Plan components complete, CNMP done.	10/6/23		$3,252.50				0	$0.63	$0.00	$3,252.50

*Attach all invoices and travel logs (if applicable) associated with this practice, showing appliable hourly staff rates and detailed travel records (if applicable), and Design Cover Sheet showing certification

I hereby certify that to the best of my knowledge this practice has been completed fully and to NRCS standards.

Functional Review w/JAA (if certified by consultant)

Printed Name and Title:

NRCS DC - (signature, date)

Printed Name:

RCPP TA-I Reimbursement Summary Sheet

RCPP Project Name: Delisting Ag-Impaired Streams in Central PA
RCPP Project Number: 2761
RCPP Contract Participant and Contract Number:

Technical Assistance - Implementation (TA-I) Reimbursement Request Summary Sheet

Period Start: **Period End:**

					Activity Type ($)					Mileage ($)	
CIN	**Practice Code and Name**	**Certified by:**	**Description**	**Certification Date**	**Pre-Application**	**Planning**	**Design**	**Installation**	**Checkout**	**Total Travel Expenses**	**Reimbursement Request**
TOTAL					**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**

3rd Party or Partner Staff Information for Reimbursement				
Position	Organization	CIN	# of Hours	$/hr rate

*Staff rates must match rates in current TA-I Supplemental Agreement

EXAMPLE - RCPP TA-I Reimbursement Summary

RCPP Project Name: XXXXXXXXXXXXXXX
RCPP Project Number: 1111
RCPP Contract Participant and Contract Number: Joe Smith, 111222333444

Technical Assistance - Implementation (TA-I) Reimbursement Request Summary Sheet

Period Start: 1/1/2023 **Period End: 12/31/2023**

					Activity Type ($)					Mileage ($)	
CIN	**Practice Code and Name**	**Certified by:**	**Description**	**Certification Date**	**Pre-Application**	**Planning**	**Design**	**Installation**	**Checkout**	**Total Travel Expenses**	**Reimbursement Request**
1	340 - Cover Crop	Partner xyz	RCPP related Farm Visits (certification of practice)	12/1/23					$79.00	$14.49	$93.49
2	313 - Waste Storage Facility	Ag, Inc	RCPP related Farm Visits (Follow up visits for design and installation of contracted practices)	11/15/23			$4,000.00	$5,200.00	$2,200.00		$11,400.00
4	102 - CNMP	Ag, Inc	IE, NMP, Conservation Plan, CNMP attachments	10/6/23		$3,252.50					$3,252.50
TOTAL					**$0.00**	**$3,252.50**	**$4,000.00**	**$5,200.00**	**$2,279.00**	**$14.49**	**$14,745.99**

3rd Party or Partner Staff Information for Reimbursement				
Position	Organization	CIN	# of Hours	$/hr rate
Engineer	Team Ag	2	76	150
Conservation Planner	Team Ag	4	26.25	102
Drafter	Team Ag	4	5.75	100

*Staff rates must match rates in current TA-I Supplemental Agreement