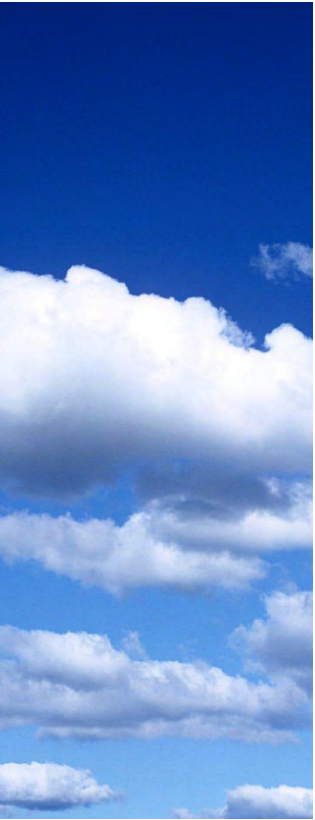


Partnership Success: Implementing Conservation on an Amish farm in Chester County, PA

TeamAg, Inc and Chester County CD

CWSRF for Agriculture Conservation Webinar
April 28th, 2022



Ag BMP Project on Amish Dairy Farm Chester County, PA

- Funding provided by EPA's Clean Water State Revolving Fund through PennVest to CCCD
- Chester County Conservation District as municipal sponsor
- TeamAg performed survey, design, and quality assurance throughout the project
- Brandywine Conservancy installed Riparian buffer at stream corridor
- Honey Brook Township provided local building and stormwater permits
- Landowner received \$363,000 in funds to make a series of improvements on his operation
 - concrete manure storage structure
 - streambank fencing
 - stream crossing
 - barnyard roof runoff controls



Approval Process for BMP Grant through PennVest: Team Effort

- Based on financial need and water quality benefit of the proposed project
- County CD Letter of Support and TeamAg prepare application and supporting documents
- PV BOD meets quarterly and reviews projects
- Prevailing wages, low bid, contracting, work can begin after settlement
- Contractors install BMP's, TeamAg perform QA, CCCD/DEP/PV certify



Project Description

- 60 Cow Herd
- A circular, concrete waste storage structure
 - Collects manure
 - Collects wastewater from the milk house
 - Collects Runoff from heavy use area
 - Provides 180 days of storage when combined with existing storage.
- New barnyard with curbing, fencing, and gates to move cattle and collect waste efficiently
- New heifer barn constructed at the landowner's expense



Barnyard Before Construction



Barnyard During Construction



Project Description cont'd

- Second concrete heavy use area constructed
 - Used for feeding silage
 - Collects manure and runoff
- Roofed stacking structure
- Stores the solid bed pack manure and bedding from cows, working horses, and mules
- Concrete access lane
 - connects lower to upper barnyard and stacking structure
 - used by the manure handling equipment when loading and unloading the structure
- Surface water controls
 - Roof gutters and spouting
 - Catch basins, conveyor belt diversions, and waterway for clean surface runoff from driveway and roofed structures



Project Description cont'd

- Grassed waterway
 - Conveys surface water around the roofed and circular manure storages, protecting structures from upslope runoff
 - Outlets into the grassed waterway below the barn.
- Reinforced gravel access roads installed through pasture, along with animal walkways
 - Access manure storage
 - Haul manure
 - Access the upper concrete lot
 - Move cattle efficiently for feed and water
- Slatted stream crossing installed for pasture access
- Stream bank fence installed to limit the animals' access to the stream only at the crossing.





“The cleanliness of my herd is noticeably better. This will also lead to better herd health.”
- Mr. Kauffman, Amish Dairy Farmer



All BMP's installed on the farm

ELMER KAUFFMAN ESTIMATED QUANTITIES

ESTIMATED QUANTITIES - CONTRACTOR RESPONSIBLE FOR VERIFYING QUANTITIES			
ITEM	EXCAVATION	UNIT	QUANTITY
SEEDING AND MULCHING, E&S CONTROL		each	1
YOUNGHEIFER WALKWAY, 12' x 200'		sq.ft	2,400
Stone Base Material (#4s)		tons	60
Stone Topper (2RC)		tons	44
Geotextile		sq.yd	280
SLATTED CROSSING (GP Drawings)		sq. ft.	576
Pre-Cast slatted crossing (12' x 24')		sq. ft.	288
Gravel Animal Walkway Extensions, 12' x 42'		sq.ft	564
Stone Base Material (#4s)		tons	14
Stone Topper (2RC)		tons	20
Geotextile		sq.yd	66
YOUNGHEIFER GRAVEL PAD, 24' x 40'		sq.ft	960
Stone Base Material (#4s)		tons	24
Stone Topper (2RC)		tons	37
Geotextile		sq.yd	112
REINFORCED GRAVEL ACCESS ROAD		sq.ft	3,020
Stone Base Material (#4s)		tons	101
Stone Topper (2RC)		tons	73
Geotextile		sq.yd	352
LOWER CONCRETE HEAVY USE AREA			
Remove Existing Concrete HUA		sq.ft	2,800
Compacted Fill, Concrete HUA		cu.yds	141
#57 Stone under concrete lot HUA		tons	51
UPPER CONCRETE HEAVY USE AREA			
Compacted Fill, Concrete HUA		cu.yds	185
#57 Stone under concrete lot HUA		tons	47
CONCRETE ACCESS SLAB & CATTLE WALKWAY			
Compacted Fill		cu.yds	76
#57 Stone under concrete compost facilities HUA		tons	23
ROOFED STACKING STRUCTURE			
Cut - Common Excavation, Manure Stacking Structure and Loading Pad		cu.yds	100
#57 Stone under Stacking Struture		tons	22
MANURE STORAGE - 12' X 67'			
#57 Stone Stone Under Concrete Pad		tons	70
Cut - Common Excavation (Volume displaced by manure storage)		cu.yds	1,134
Compacted Backfill (Not including over-excavation)		cu.yds	120
Final Grading and Stockpile Excess Fill - On Site		cu.yds	1,014
GRASSED WATERWAY			
Diversion, Grading & Shaping	Ac.	0.6	
Erosion Control Netting	SF	11,280.0	
Seeding and Mulching	Ac.	0.7	
DIVERSION			
Lined Waterway, Grading & Shaping	LF	150.0	
Erosion Control Netting	SF	900.0	
Seeding and Mulching	Ac.	0.1	
UNDERGROUND PIPES			
4" Perf Pipe AND #57 Stone (Round Tank Perimeter Drain)	ft	225	
4" PVC SDR 35, Tank Perimeter Drain Outlet	ft	30	
4" PVC SDR 35, Roof Water Drain	ft	120	
6" PVC SDR 35, Roof Water Drains	ft	387	
Infiltration Trench, Heifer Barn	cu. Ft.	384	
Infiltration Trench, Roofed HUA	cu. Ft.	336	
6" SDR 26 PVC Waste Transfer Pipe	ft	120	
24" SDR 35 PVC Waste Transfer Pipe	ft	56	
Pre-Cast Manhole for Waste Transfer, 4' Dia.	depth	14	
4" SCH 40 PVC MH Gravity Line	ft	30	
500 Gallon Septic Tank	each	1	
Air Operated MH Waste Pump	each	1	
2" SCH 40 PVC MH Transfer Line	ft	60	
12" HDPE Smooth Interior	ft	215	
Surface Inlet with Grate - 2' x 4'	each	3	
Surface Inlet with Grate - 2' x 2'	each	2	
Conveyor Belt Diversions	ft	40	
Animal Guard	each	1	
Rock Lined Outlets	sq. ft.	2	
Pasture Amendment	Ac.	37	

CONCRETE

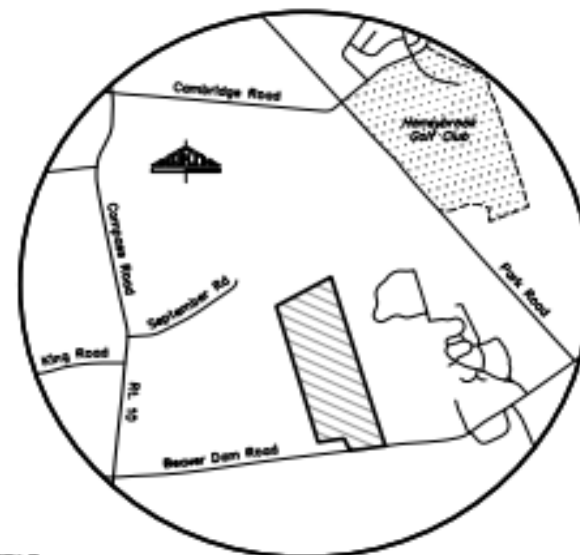
Concrete Testing - Manure Storage Walls and Footers, Stacking Struture wall and footer, See Concrete Test Protocol in Drawings	Structures	4
MANURE STORAGE - 12' X 67'		
Concrete Flatwork and Footers	sq.ft	3,959
12' High Walls	cu.yds	78
Chain Link Fence and Warning Signs	ft	216
Concrete Unloading Pad	sq.ft	144
LOWER CONCRETE HEAVY USE AREAS		
Concrete - Flatwork, HUA Lot	sq.ft	3,820
1' Curbs - formed (15 L.F.)	cu.yds	1
Concrete - Flatwork, Pushoff	sq.ft	112
2' Curbs - formed (86 L.F.)	cu.yds	5
Tractor Guard	each	1
Confinement Fence in Curb	ft	87
HUA Steel Tube Gate - 12' (Walkway)	each	1
HUA Steel Tube Gate - 8' (Pushoff)	each	1
UPPER CONCRETE HEAVY USE AREAS		
Concrete - Flatwork, HUA Lot	sq.ft	3,570
2' Curbs - formed (190 L.F.)	cu.yds	10
Confinement Fence in Curb	ft	190
HUA Steel Tube Gate - 8 ft (Scrape Hopper).	each	1
HUA Steel Tube Gate - 12 ft.	each	1
HUA Steel Tube Gate - 18 ft.	each	1
CONCRETE ACCESS SLAB AND CATTLE WALKWAY		
Concrete Flatwork and Footers	sq.ft	1,700
1' Curbs - formed (266 L.F.)	cu.yds	5
High Tensile Walkway Fence	ft	266
ROOFED STACKING STRUCTURE		
Concrete Flatwork	sq.ft	1,472
Wall Footers	cy	17
Concrete Wall - 6 ft. x 8 In.	cy	19
Roof Structure, 34'x48' with Overhangs	sq.ft	1,632
Loading Pad Concrete Flatwork and Footers	sq.ft	200
1' Curbs - formed (12 L.F.)	cu.yds	1
6" Rain Gutters and 3" x 4" Downspouts	ft	116



Serial No. 20172580044
Date: 9/15/17

PROPOSED MANURE STORAGE FOR JOHN AND ELMER KAUFFMAN 1373 BEAVER DAM ROAD HONEYBROOK, PA 19344

HONEYBROOK TOWNSHIP
CHESTER COUNTY, PA



Site Location Map
Scale: 1" = 3000'

ANDREW S. HIBBS, P.E.

TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, JUDGMENT AND BELIEF, THE DESIGN MEETS OR EXCEEDS THE PENNSYLVANIA TECHNICAL GUIDE STANDARDS AND SPECIFICATIONS AND THE DEP MANURE MANAGEMENT MANUAL.

NOTES

1. REGULATIONS: ALL FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS COVERING THE CONSTRUCTION OF THIS FACILITY SHALL BE STRICTLY FOLLOWED. THE OWNER IS RESPONSIBLE FOR OBTAINING ALL CONSTRUCTION PERMITS.
2. ACT 187: IT IS THE DUTY OF THE CONTRACTORS TO COMPLY WITH THE PROVISIONS OF THE 'PA ONE CALL' UTILITY CHECK BEFORE PERFORMING ANY EXCAVATION WORK. THE TOLL-FREE NUMBER OF THE ONE-CALL SYSTEM IS 1-800-242-1776.
3. PRE-CONSTRUCTION MEETING: A MEETING BETWEEN THE OWNER, CONTRACTOR AND ENGINEER SHALL BE REQUIRED PRIOR TO ANY CONSTRUCTION WORK.
4. CERTIFICATION OF PERFORMANCE: THE CERTIFICATION OF CONFORMANCE SHALL CERTIFY THAT ALL WORK HAS BEEN PERFORMED ACCORDING TO THE PENNSYLVANIA TECHNICAL GUIDE.
5. WARNING SIGN: INSTALL WARNINGS AT CLEARLY VISIBLE LOCATIONS. SIGNS SHALL STATE, "DANGER - DROWNING HAZARD" OR APPROVED EQUAL.
6. CAPACITY (GALLONS): 303,276 (AT 6" FREEBOARD)
7. THE ITEMS CHECKED BELOW ARE INCLUDED AS PART OF THIS CONTRACT PACKAGE:
 - X PA313 WASTE STORAGE STRUCTURE
 - X PA367 ROOFS AND COVERS
 - X PA382 FENCE
 - X PA482 GRASSED WATERWAY
 - X PA488 LINED WATERWAY OR OUTLET
 - X PA484 MULCHING
 - X P500 OBSTRUCTION REMOVAL
 - X PA533 PUMPING PLANT
 - X PA558 ROOF RUNOFF STRUCTURE
 - X PA561 HEAVY USE AREA PROTECTION
 - X PA575 TRAILS AND WALKWAYS
 - X PA578 STREAM CROSSING
 - X PA587 STRUCTURE FOR WATER CONTROL
 - X PA606 SUBSURFACE DRAIN
 - X PA620 UNDERGROUND OUTLET
 - X PA634 WASTE TRANSFER SYSTEM

8. BENCHMARK INFORMATION:
 - BM-1 : MAG NAIL ON TOP OF WOOD FENCE POST; ELEV. = 696.13
 - BM-2 : MAG NAIL ON TOP OF WOOD FENCE POST; ELEV. = 679.60
 - BM-3 : MAG NAIL DRIVE BY GARDEN; ELEV. = 661.76
 - BM-4 : MAG NAIL DRIVE BY END OF FENCE; ELEV. = 653.87
9. THIS PROJECT HAS BEEN DESIGNED ACCORDING TO THE PENNSYLVANIA TECHNICAL GUIDE.
10. CONTRACTOR SHALL NOTIFY TEAMAG 48 HOURS PRIOR TO POURING CONCRETE.

SHEET INDEX

SHEET 1	OF 36	- TITLE SHEET
SHEET 2-6	OF 36	- PLAN VIEWS
SHEET 7	OF 36	- TANK SECTIONS A-A, B-B
SHEET 8	OF 36	- GRAVITY WASTE TRANSFER LINE PROFILE
SHEET 9	OF 36	- LOT SECTION C-C, CONCRETE WALKWAY PROFILE
SHEET 10	OF 36	- LOT SECTION D-D, ROOFED HUA SECTION E-E
SHEET 11	OF 36	- ROOFED HUA SECTION F-F, LOWER HUA SECTION G-G
SHEET 12	OF 36	- 12 INCH CULVERT PROFILE
SHEET 13	OF 36	- HEIFER BARN ROOF WATER DRAIN PROFILE
SHEET 14	OF 36	- PRESSURE TRANSFER LINE PROFILE
SHEET 15	OF 36	- CONSTRUCTION NOTES
SHEET 16	OF 36	- EROSION CONTROL & SEEDING NOTES
SHEET 17	OF 36	- EIS DETAILS
SHEET 18-19	OF 36	- ROUND TANK DETAILS
SHEET 20-21	OF 36	- CONCRETE HUA DETAILS
SHEET 22-24	OF 36	- WASTE TRANSFER DETAILS
SHEET 25-31	OF 36	- ROOFED STACKING STRUCTURE DETAILS
SHEET 32	OF 36	- REINFORCED GRAVEL DETAILS
SHEET 33-35	OF 36	- STORM WATER DETAILS
SHEET 36	OF 36	- ROOF WATER DETAILS

Existing Features Legend

---	Contour
---	Contour Index
---	LIDAR / GIS Contour
---	Building
---	Concrete
---	Edge of Pavement
---	Edge of Gravel
---	Centerline
---	Fence
---	Property Boundary
---	Property Adjoiner
---	Right-of-Way
---	Stormwater Pipe
---	Edge of Water
---	Treeline
---	Soil Boundary

PROPOSED FEATURES LEGEND

---	CONTOUR
---	CONTOUR INDEX
---	BUILDING
---	CONCRETE
---	EDGE OF PAVEMENT
---	EDGE OF GRAVEL
---	CENTERLINE
---	FENCE
---	EASEMENT
---	NPDES PERMIT BOUNDARY
---	SETBACK
---	INLET, STORMWATER PIPE, ENDWALL / HEADWALL
---	SUBSURFACE DRAIN
---	TOP OF BERM
---	MANURE TRANSFER PIPE

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EPHRATA, PA 17522 Fax: 717-721-9275
TeamAg@TeamAginc.com

JOHN AND ELMER KAUFFMAN
1373 BEAVER DAM ROAD
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(610) 283-8529
HONEYBROOK TOWNSHIP
CHESTER COUNTY, PA

Project Manager:
JEREMY T. HEAVER

Design By: ASH

Drawn By: ASH

PROPOSED MANURE STORAGE

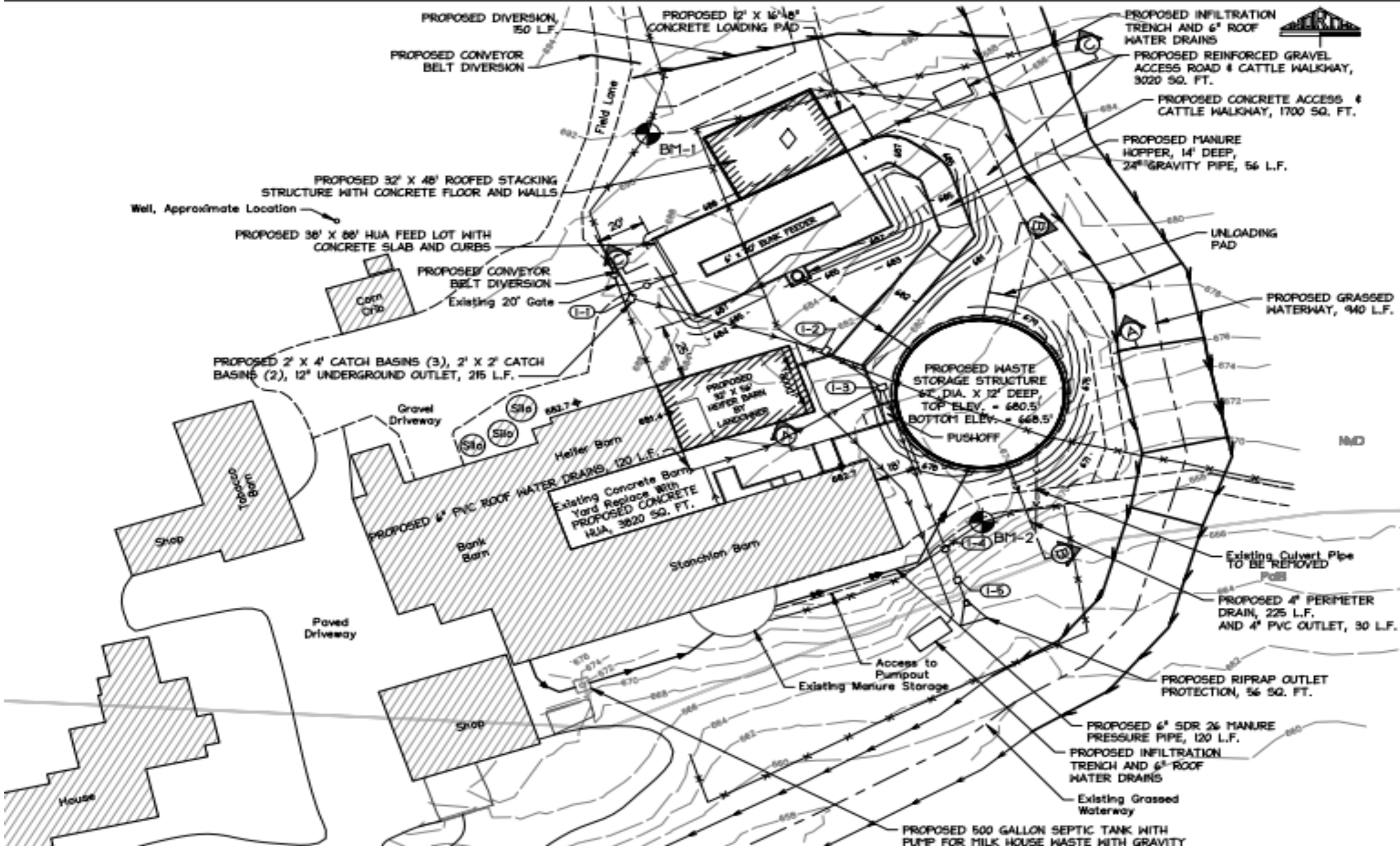



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Date: OCT. 24, 2017

Rev.:

Sheet 1 of 36





TeamAg INC

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HONEY BROOK TOWNSHIP
CHESTER COUNTY, PA

Project Manager:
JEREMY T. WEAVER

Design By: **ASH**

Drawn By: **ASH**

PROPOSED MANURE STORAGE

PLAN VIEW

Proj: 2743-17-04

Date: OCT. 24, 2017

Rev.:





5 Minutes for Questions





Virginia's Agricultural BMP Loan Program & AgBMP Success Stories

Lars Bolton
AgBMP Program Coordinator
Virginia Department of Environmental Quality
April 28, 2022

Philip Davis
AgBMP Project Manager

DEQ AgBMP Loan Program Basics

- Direct lending to agricultural producers to implement VACS and NRCS water quality agricultural best management practices
- 0% interest for up to 10 years dependent on lifespan of practices and useful life (No Till Drill up to 7 years)
- Cost-share, financial assistance and other grant funds go directly to pay down the principal



• DEQ AgBMP Loan Program Basics

- DEQ
 - Evaluates and authorizes projects
 - Provides “boots on the ground”
 - Work directly with farmers (loan applicants/recipients), SWCD, and NRCS
- Virginia Resources Authority
 - Conduct credit reviews
 - Underwrite loans
 - Disbursements during construction
 - Collection of payments

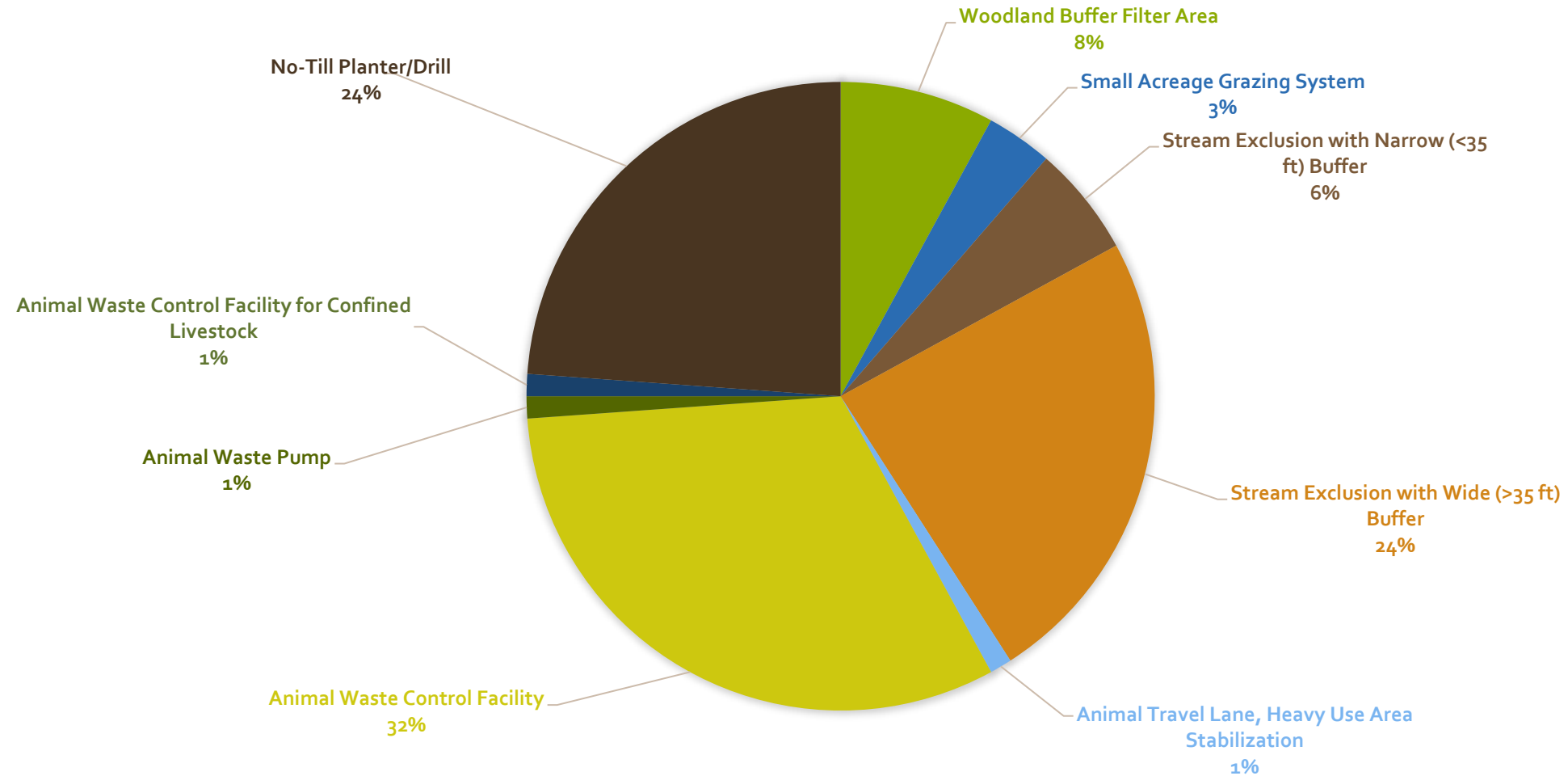


AgBMP Loan Program- Projects since July 1, 2019

- 203 total applications
 - \$12.87M in 88 loans closed (50 completed projects)
 - \$2.1 M in principal forgiveness given
 - 69 structural practice loans
 - 19 no till drill loans
 - 55 VACS
 - 6- DuPont Mercury Settlement
 - 33 Federal \$ (CREP/EQIP)
 - 14 co-funded with VACS
 - \$3.8M in cost-share repayments

AgBMP Loan Program- Projects since July 1, 2019

BMP TYPES FUNDED





Garber Farms, Inc.- Stream Exclusion and Grazing Land Management with Riparian Buffers

Project Details

- Approx. 375 acre farm
 - Approx. 77 acres of riparian buffers both herbaceous and forested
- 2 alternative watering systems with approx. 2.2 miles of pipeline and 11 troughs
- Approx. 4.3 miles of exclusion fence
- Approx. 5.1 miles of streambank excluded





Garber Farms, Inc.- Stream Exclusion and Grazing Land Management with Riparian Buffers

Project Details

- Reduced Annually
 - ❑ Approx. 3,481 lbs of Total P
 - 9,713 lbs of Total N
 - 1,056 tons of TSS
- Total project cost of \$229,412.20
 - ❑ Approx. \$66/lb of P
 - \$24/lb of N
 - \$217/ton of TSS
- Great example of funding and conservation partnerships!



Garber Farms, Inc.- Stream Exclusion and Grazing Land Management with Riparian Buffers

BEFORE



AFTER



Spring Valley Dairy- Animal Waste Control Facility

Project Details

- Approx. 160 Animal Units
- Bedded Pack Facility with manure collection and dry stack
- Exclusion fencing and watering trough
- Livestock walkway
- Covered manure collection area and manure pumping infrastructure



Spring Valley Dairy- Animal Waste Control Facilityv

Project Details

Approximate Annual Reductions:

- Manure (NRCS): 1,000,000lbs
- N (NRCS): 7,000lbs
- P (NRCS): 2,900lbs
- Fecal Coliform (lbs X cfu/lb manure) (DEQ):
2.13x 10¹⁴ cfu
- Total project cost of \$590,271.91
 - \$411,200 (NRCS) and \$179,071.91 (DEQ PF)
 - Approx. \$203/lb of P
 - \$84/lb of N
 - \$0.59/lb of Manure



Spring Valley Dairy- Animal Waste Control Facility

BEFORE



AFTER



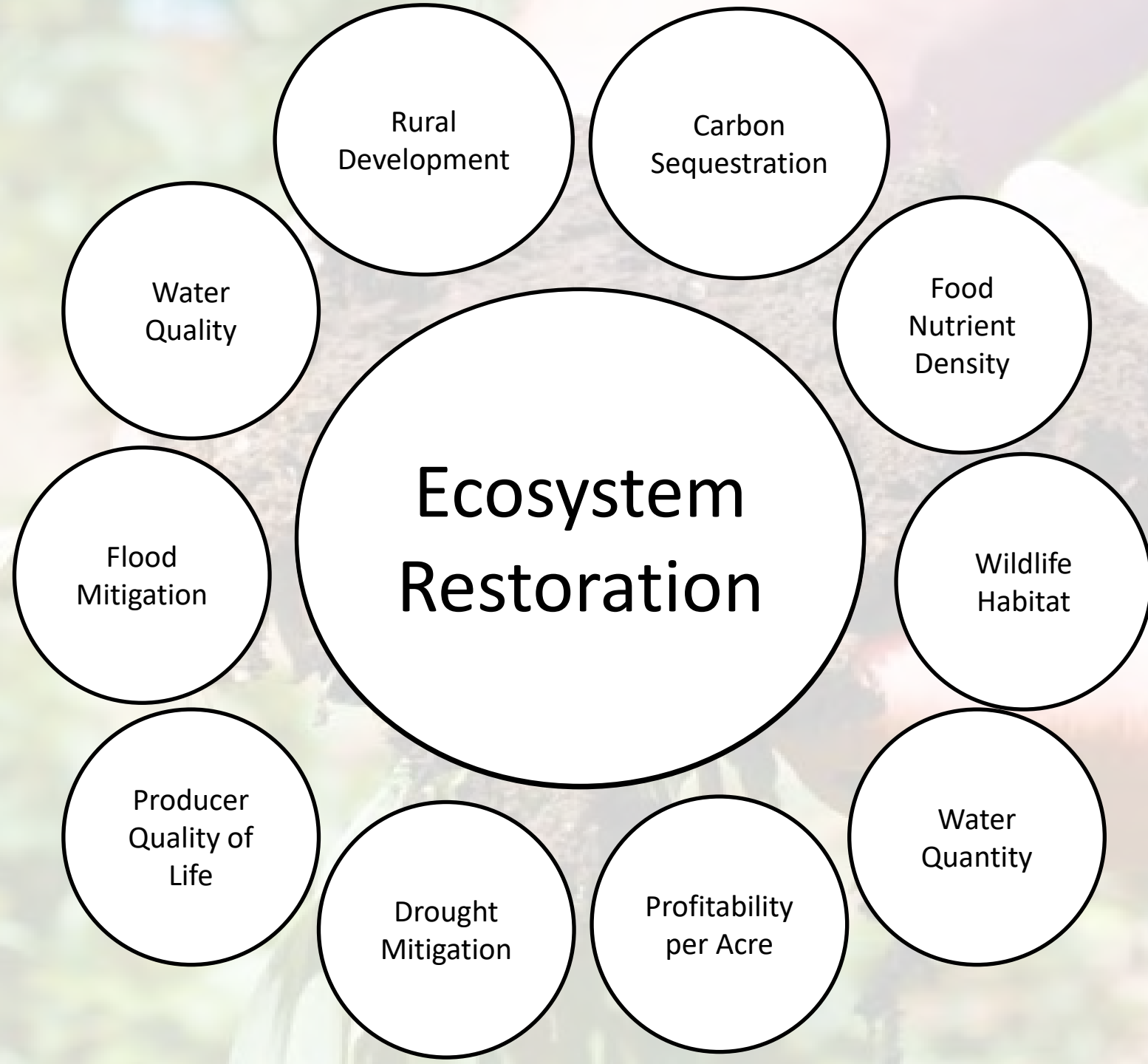
5 minutes Questions?



Clean Water State Revolving Fund for Agricultural Conservation in Kansas

Amanda Reed
EPA Region 7

CWSRF for Agricultural Conservation Webinar
April 28, 2022



NPS Tool Box



The Question Became:

How can we?

Build relationships with Agricultural Service Providers?



Partner with Implement Manufacturers?



Global Food & Ag Companies



Ecosystem Services







Kansas CWSRF Loan

- Local Municipality
 - \$3.5M
 - GPR
 - Principal Forgiveness
 - Sole source bid award
- Glacial Hills RC&D
 - Go between for Municipality and KDHE
 - Managing Contracts with Local Retailers

Retailer Agreements

- Recruitment
- 5,000 Acres in targeted areas – minimum
- Provide Operators
- Soil Health Education for Operators
- Customize seed mixes for each producer
- Charge Reasonable seeding rate

Load Reductions

- Interseeders are required to plant at least 10,000 acres of cover crop each year.
- 5,000 in targeted areas, remaining 5,000 in watershed as whole.

156,000
Pounds of
Nitrogen

78,160 Pounds
of Phosphorus

53,440 tons of
Sediment

Progress and Adjustments

- 8 machines ordered from John Deere in February 2020
 - 7 machines placed with retailers by July 1, 2020
 - 1 machine used as a demonstration
- Most had overwhelming positive response but had limited success hitting targets
- Some machines will be rehoused with different retailers or with independent custom planters in the future



Thank You!

Amanda Reed

U.S Environmental Protection Agency, Region 7

Water Division

11201 Renner Blvd. Lenexa, KS 66219

1-913-551-7893

reed.amanda@epa.gov

5 minutes for questions

