

Farms for the Future

Bollinger Family Meadow Spring Farm Transformation Team Case Study



Bollinger Family Meadow Spring Farm

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Farm History and Executive Summary

Located in Lititz, Lancaster County, the Bollinger family has been farming since the 1940s. Tom and Sue Bollinger purchased the farm from Tom's dad in 1989. Tom and Sue's son, Andy, and his wife Andrea, began farming with Tom and Sue in the late 1990s. After dairy expansion projects, total milk cow numbers are 370. The family employs 15 people, full and part time. Andy and Andrea's four children also help on the farm, most notably caring for the young calves.

In 2010, the Bollinger Family began the transformation team process with four focus areas: 1) Retaining and Rewarding Employees; 2) Renewable Energy and the Environment; 3) Direct Marketing/Diversification; 4) Business Planning. In 2013, at the conclusion of the project, focus areas #1 and #2 were achieved, and ultimately, the operation also completed a succession plan and built a new parlor, as detailed in this case study.

To better understand their employees' needs, a transformation team member, who also is the farm's local veterinarian, interviewed all Meadow Spring Farm employees, for about 30 – 60 minutes. The veterinarian reported the key learnings back to the Bollingers, who in turn, implemented the following management changes:

- Posting easier to find and read schedules
- Exposing employees to training opportunities
- Spreading out the “lousy” jobs as identified in the surveys
- Planning employee safety programs
- Purchasing company t-shirts for employees to foster a team environment

Transformation team members also helped the Bollingers develop a successful Pennsylvania Infrastructure Investment Authority (PENNVEST) grant application that included covering cow lanes to address runoff; manure and mortality management; silage leakage; and storm water controls (Focus Area #2).

A new milking parlor, in a retrofitted facility, improved cow comfort and reduced labor and electric costs for the Bollinger family.

Finally, a succession plan process during the transformation team project allows Andy to continue farming, while providing a secure income for Tom and Sue through retirement. The plan transferred the business, preserved family relationships and in the words of their advisors, “was an ideal example of how to approach the succession process.”

Modernization and Technology

Situation Overview:

As shared by Andy Bollinger

- A. *Detail the farm's reasoning behind the decision to pursue a modernization plan.* Our previous modernization and expansion for Meadow Spring Farm was 16 years ago. On a weekend in February 2012, my dad was a substitute milker for me and realized some of our parlor's inefficiencies. By the time I returned from my vacation, he had started researching new parlor options. We realized that we could cut our labor costs, with less stress on our cows because we would reduce the time they spent in holding pens. There were times when our cows would spend two hours per milking in the holding pen, three milkings per day.
- B. *List the key variables that impacted the decision to move ahead with the plan.* We could fully pay for the new parlor, a Double-12 parlor, rapid exit, vertical lift, with labor cost cuts alone. We showed our plan to our lender, and he told us we could start without a formal approval. The new parlor reduced two hours, per shift, per day which equated to two employees or 12 labor hours per day. Total savings, with the new parlor, was approximately \$70,000 per year. This modernization plan also allowed us to milk 40 more cows an hour.
- C. *The following modernization areas apply to our farm and describe the incorporation of technology.*
- Young stock facilities – New barn with mechanical curtain, concrete and wood. Group hutches removed, but small hutches remain for our kids to feed calves.
 - Milking cow facilities – Double-12 parlor, rapid exit, and vertical lift.
 - Manure management and storage – Compost barn in 2012. With PENNVEST application, we added a roof over the compost pile.
 - Other – Improved storm water runoff.

Challenges and Opportunities:

- D. *What were the different options the transformation team considered as they worked together to pursue this plan? Please describe.* Adding a new parlor was not part of the original transformation plan, but once we realized the cow comfort advantages and cost savings, we decided to move forward. We already knew which parlor we wanted for our farm. We also knew we wanted to keep our variable speed pump and other energy efficient items. To ventilate the parlor, we wanted the fan to be in the ceiling, rather than hanging in the parlor. We built two chimneys, with fans pointing down vertically, instead of horizontally. Dan McFarland, Penn State, helped us with the design. Our previous parlor experience helped us know the corral gate and sort gate that would work best with the parlor.

Modernization and Technology...continued

E. *Did any barriers, or bottlenecks, occur during the project, and if yes, how did the team overcome those issues?* There were no big bottlenecks during this portion of our project. Our biggest challenge was continuing to milk in our old parlor, while building the new parlor. It was a step-by-step process. We moved the bulk tank first, and built a new milk house. Finally, we built the new parlor and the old parlor became a utility room.

Fisher & Thompson, our local equipment dealer, was a huge help to us. They worked through the logistics and how to overcome any obstacles in daily meetings. Everyone was communicating in those meetings – contractors, employees and the family.

Actions:

F. *How did the work done on a business plan or feasibility study impact the farm's final decisions?* There was no actual business plan. We pushed the pencil and our lender easily agreed with our decision. The lender's decision boosted our confidence and we trusted our business instincts.

G. *How long did the project take, start to finish?* We began talking about a new parlor in February 2012, and we paid our final bills and signed a loan in January 2013. Construction began in April 2012 and finished in November 2012.

Results:

H. *How did the modernization and new technology change the business as it relates to profitability? Can the farm quantify labor savings, energy savings or environmental impact?* As discussed earlier, we easily can quantify our labor savings. From an energy perspective, the new parlor does not run as long as our old parlor. We have the same exact vacuum pump, but the new cooling compressor is much more efficient. It cools the milk faster, with larger plate coolers. We estimate our electric bill is 10% less, as compared to previous year. From an environmental impact perspective, we do haul more manure because we added 20 cows and also the new parlor uses more water – more flushing of the floors, etc. – as compared to the old parlor.

Modernization and Technology...continued

I. *Did the modernization and new technology change management practices on the farm?* Yes. We now have fewer employees and changed our milking procedures. Employees charged with milkings stayed, but they log fewer hours. We trained our milkers that stayed with us to perform other jobs, before and after their milking shifts. As of January 2014, we have 15 total employees.

During the construction project, we also learned about the FutureCow™ Teatscrubber cow prep system and installed it in our parlor. FutureCow provides a mechanism to wash, disinfect, wipe dry and stimulate the cows' teats prior to milking.

J. *Have you learned anything that has influenced future decision making about technology or given you a new enthusiasm for some aspect of modernization?* The new parlor has improved our quality of life, making milking easier for our family and employees. While we are in the new parlor about the same amount of time as the old parlor during a shift, it's easier for us because there is much less walking and bending. We are consistently out of the barn by 5:30 p.m., instead of 6:45 p.m.

K. *Has the farm shared the new facilities or technology (milking facilities, manure management, etc.) with others in the community? If yes, what was the response from the community?* We hosted an Open House with the Center for Dairy Excellence on July 16, 2013. Despite the 95 degree heat and on-going wheat harvest, almost 200 people came to the farm. We had a positive response from those that attended the Open House, asking questions and thinking about their farming future.

In October 2013, State Representative Gordon Denlinger visited our farm. He was impressed with our farm's conservation efforts and interviewed our family for his ["Legislative Report" video series](#).



Site Survey

Situation Overview:

As shared by Andy Bollinger

A. *How did the team analyze potential sites for construction?* For our farm, the decision for this construction project was if we wanted to build new or remodel the existing facilities. Our transformation team leader helped us review the advantages and disadvantages with a smaller subset of our transformation team, along with representatives from White Horse Construction and Fisher & Thompson, a local contractor and service company.

To follow is a chart that our team helped us develop to weigh the opportunities and challenges of a remodel versus a new parlor:

	New Parlor	Remodel Parlor
PROS	Labor savings	Labor savings
	Better ventilation	Lower cost
	Freedom to design cow handling and sort	Leverages existing milkhouse /office
	Moves away from A and A's house	Easy permitting
	Forces MSF to address driveway issue	Utilizes existing buildings
	Can design to minimize holding pen time	
	Operations easier during construction	
	Potentially easier to expand	
	Larger bulk tank easier to integrate	

CONS	Cost	Operational challenges during construction
	Greater infrastructure needs (elec., etc.)	Ventilation not as good
	Requires permits/approvals	Potential design challenges-space limits, cow sort and handling, cow flow
	Takes up land	Some limits on expandability
	Displaces calves	
	Future feed storage area displaced	

B. *What variables did the team consider as they reviewed sites?* Our family was leaning toward a remodel because we didn't want to lose more land to a new construction project. We also didn't need any additional water lines and could reuse existing electric service that was re-done four years ago. A remodel saved us money on excavating and permitting costs too.

The parlor costs did exceed the budget estimate by about 25% because we did not consider converting the existing parlor to a utility room. Working under an old roof also was more involved than expected, with lots of concrete from many years of building additions. Plumbers and electricians undershot their estimate because of the toll on people and planning with the existing project.

Site Survey...continued

Challenges and Opportunities:

C. *During the site survey process, did the farm encounter any problems? If so, what were they?* No problems for site survey since this project was within the confines of a remodel. We also didn't have any issues with the composting barn or manure storage that was included in our PENNVEST project.

Actions:

D. *How long, from start to finish, was the site survey process?* While we did not have site survey work for the parlor construction project, we did for our PENNVEST project that included a composting barn and manure storage. The timeline, including PENNVEST application and approval time, was 12 months.

E. *Approximately, how much did the site survey work cost?* The cost for this project to be permitted and compliant with all PENNVEST requirements, including Township requirements was \$14,000. Fortunately, most of those expenses were recovered through PENNVEST, other than the Township stormwater permit fees.

Results:

F. *Can you provide a condensed project blue print to include with your case study?* Yes. Joe Zook, White Horse Construction, had the original parlor prints from 1996's step-up parlor to make notes and compare for the 2012 remodel. [Click here for a PDF of the blueprints.](#)



Permitting and Regulatory

Situation Overview:

As shared by Andy Bollinger

A. *What was the process the farm went through to prepare for necessary permits?* We had a preliminary meeting with the Township Zoning Officer, and subsequent development of an acceptable stormwater management plan as per the township ordinance. No other permits (other than the Stormwater Management Permit) aside from a Township Building Permit, were required for our project.

B. *Please list the necessary permits needed for your modernization and technology project. Please also include the approval agency (DEP, County Conservation District, or Township), time to receive permit and cost of permits.*

Stormwater Management – Small Project	Township	6 weeks	\$2,500
Building Permit	Township	4 weeks	\$585

Challenges and Opportunities:

C. *Were there setbacks during the permitting process?* No. According to our transformation team leader, this was a very easy process. He loves working with Ephrata Township!

D. *Which permit was the most challenging to secure?* The stormwater permit was more challenging than the building permit, but it was not very difficult.

E. *How did you resolve those challenges?* No real challenges because we followed the ordinances.

F. *What resources or resource people were used in addressing those challenges?* Red Barn Consulting Engineering Staff and Project Manager, Jeff Ainslie, for township meetings.

Results:

G. *Was the local township supportive of the permitting process? Please explain.* Yes. The township staff was very supportive and great to work with on this project.



Conservation and Environmental Stewardship

Situation Overview:

As shared by Andy Bollinger

A. *How does this farm view their environmental responsibilities for both the farm and land? Please describe.* For the last 20 – 25 years, my parents and I have taken care of the land we've been blessed with in Lancaster County. When we consider changes on the farm, we think of the greater community. We use cover crops to prevent soil erosion and do our part to keep the creeks clean that surround our farm. We've always believed in cover cropping, long before it became popular.

B. *What conservation and environmental best management practices (BMPs) have been incorporated into the farm plan the last 5 – 10 years?* We identified being good stewards of the environment as a goal during our transformation team project. Our responsibility to the environment is a high priority. With the help of our team, we secured a PENNVEST grant to help us clean-up run-off from the farm and cow walkways. The following BMPs apply to our farm:

- Crop residue management
- No-till
- Conservation till
- Contour strip cropping
- Filter strip
- Conservation buffers
- Crop rotations
- Cover crops
- Grassed waterways
- Terraces
- Stream bank protection
- Stream crossings
- Animal trails / Walkways
- Structure for water control
- Barnyard runoff controls / Heavy use area protection (i.e...Animal concentration areas)
- Water (manure) storages / Manure stacking
- Animal mortality handling facility
- Milk house waste diversion (Goes into regular manure storage)
- Roof runoff management
- Precision feeding / Feed management

C. *Does the farm have a Nutrient Management Plan (NMP) or Manure Management Plan? Did this project change the way the farm handles animal manure? Please describe.* Yes. We keep water out of manure run-off by covering cow walkways with our PENNVEST funding secured during this transformation team project.

D. *Are phosphorus levels in your soils rising to excessive levels [200 ppm of P] due to the application of manure generated on the farm? Please describe.* No. Phosphorus levels are not rising to excessive levels. We grow a lot of alfalfa, which also helps manage phosphorus. At Meadow Spring Farm, we have no fields that we aren't allowed to spread manure on.

Conservation and Environmental Stewardship...continued

E. *Is manure applied in the winter months (generally December – February)? Is the manure applied in winter due to not enough storage or for other reasons such as timing, field conditions in spring, etc.? [if yes, for what particular reason(s):]* Yes, where there are cover crops planted only, per farm conservation plan.

F. *Does the farm have a conservation plan or an agricultural erosion and sedimentation control plan? If yes, what are the key components?* Yes. Key components include staying away from streams with manure; track how much manure we haul; and work with crop consultants to track crop application rates.

G. *Can the farm quantify the environmental impact of the project?* We no longer have stream run-off because of the changes made during the project.

H. *What is the most significant environmental/conservation improvement made on this operation within the last 5 years, and what improvement(s) did it result in?* The PENNVEST project allowed us to fix our calf facilities. We concreted the calf barn area and also added a roof. Once calves are out of the hutches, they now go into the transition barn. PENNVEST calls it heavy use area.

[Click here for a video interview](#) with Representative Gordon Denlinger discussing more of our environmental and conservation practices.



Animal Care and Comfort

Situation Overview:

As shared by Andy Bollinger

- A. *Can you determine if cow comfort or care was limiting the productivity or profitability of your dairy operation? Yes. If yes, please list animal factor(s) that needed to be improved.* We needed to improve our cows' leg and hoof health. At times, our cows would spend two hours per milking in the holding pen, three milkings per day.
- B. *If you determined that cow comfort or care was a limiting factor, did you make structural and/or management changes to address the deficiencies? Please list structural and/or management changes.* With our new parlor, we've reduced the time cows spend in holding pens. Cows no longer need to jump 18 inches into the parlor, three times a day and we've improved our walkways. There are no longer steep slopes going into the parlor. The changes have had a positive impact, with steady increases in milk production, over time.
- C. *What did you learn that would be of interest to the broader dairy community?* We added 24 free stalls at the end of our walkways. We use deep bedded solids in those 24 stalls. Our cows love those stalls and there are always cows waiting to lie down. As compared to our stalls with mattresses, that are the same width and length, the cows are definitely more comfortable in deep bedded solids. We also have not seen any increase in mastitis with the deep bedded solids group, as compared to the mattress group.
- D. *What is your farm's approach to administration and documentation around the use of standard operating procedures (SOPs) for animal care?* We have nothing written down, but communicate with employees, as we work during the day. We have yearly employee meetings.



Other Unique Project Components

Situation Overview:

As shared by Andy Bollinger

A. *Please describe farm characteristics.*

	Before Project	After Project
Number of Cows	350	370
Number of Acres	585	670
Total Forage Needs (In Tons)	510 tons (cows only)	540 tons (cows only)
Storage Structure Facilities		Increased bunkers and looking to increase manure storage in the future

B. *Please detail additional areas that were part of the farm's project.* Human Resource Management planning, detailed below.

C. *How was the team instrumental in helping you think through available options? Please describe.* Our employee team has grown over time, without any formal training in managing people by me or my dad. We have been blessed with a great team, but we wanted to do better. Including a few summer hires, we have 15 total employees. Four are full-time employees and 11 are part-time employees.

To facilitate our human resource plan, we worked with Dr. Barton, our veterinarian. We had two meetings, and we developed employee questions with the guidance of our transformation team and Dr. Barton. Dr. Barton conducted the interviews and surveys with our employees, spending about 20 minutes to 1 hour with every employee. We learned that our employees felt valued because we asked their opinions on the business. We were transparent and made employees feel included and part of the team. [Click here to view the survey questions.](#)

As a result of the interview process, one employee started a custom spraying business with my dad. We noticed his potential, and my dad went 50/50 on the business with him. In 2011, the first year, the new business sprayed 10,000 acres. In the second year, the business sprayed 13,000 acres. My dad provided the equity and the employee provided the labor.

With the success of the business, our former employee merged the business with another spraying business in the county at the end of 2012, and bought out my dad's portion of the business. It was a great fit for all involved parties.

D. *Did any of these additional components result in added profitability or a change in management style?* We learned that it's important to make sure your employees are valued.

Succession Plan

Situation Overview:

As shared by Andy Bollinger

A. *Why did the farm need a succession plan?* I wanted to continue to do what I love for a career. My parents were proactive in facilitating the plan, encouraged by Mike Peachey, Acuity Advisors. They realized how fast time flies for the next generation and my parents felt that they should start looking at end of life planning. Another goal was to provide a secure income for my parents through retirement. The favorable tax year in 2012 encouraged us to proceed with the process.

B. *What resource people did the team use to build the plan?* Mike Peachey, Acuity Advisors, and Brian Black, an attorney specializing in estate law.

Challenges and Opportunities:

As shared by Tom and Sue Bollinger

C. *What challenges, if any, developed during the succession plan process?* The biggest challenge was coming up with a plan that was fair to all members of the family. We have four children and at this point, only one of our children is involved in the family farm. We also wanted to make a plan that would allow other family members to participate in the farm operation in the future.

D. *How did the team overcome those challenges?* We followed advice from our attorney in setting up some of the real estate in a Family Partners LLC, which will allow some income to flow to the children via rent money in the future. Tom retained partnership interest which can someday be transferred to Andy or another family member.

Actions:

As shared by Andy Bollinger

E. *What are the key components to the final plan?* My parents transferred the home farm to me and my wife, Andrea. We determined a purchase price and gift amount that was based on monthly payments to my parents over the next 20 years. Ultimately, the final price was not quite market value. The difference between the price for the sale of the farm to us, and the fair market value, was gifted to us.

We also transferred the partnership assets. My parents had been gifting a percent to Andrea and me each year. The succession plan included my parents transferring an additional 21%, making Andrea and I the

Succession Plan...continued

majority farm stakeholders at 51% in the farm business LLC. We also left the door open for the three siblings to buy into the business, if they worked in the business first, for a set amount of time.

The second farm my parents own was transferred to the three siblings in a family limited partnership (FLP). From the limited partnership, my parents can gift to my siblings. The FLP allows the siblings into the limited partnership, but the only person allowed to make decisions is the general manager. In our family's case, I am appointed the general manager, giving me decision making rights for the property. It assures that we can transfer assets without siblings selling the farm without my and Andrea's consent.

As long as the farming enterprise stays intact, Meadow Spring Farm rents the farm. That money goes into the FLP. Once the siblings are in the limited partnership, they will receive money out of the limited partnership. The rent money will increase, in correlation to market value over time.

F. *Approximately how much did the succession plan cost?* \$7,500 - \$10,000

G. *Approximately how long did it take to develop the plan?* January 2012 – December 31, 2012.

Results:

As shared by Andy Bollinger

H. *What benefits, if any, has the farm operation derived from engaging in a succession planning process?* My siblings were pleased with the succession process. They never felt that they were owed anything from my parents, as they were paid while they worked on the farm. Most importantly, the farm will continue to operate today and in the future.

As shared by Tom and Sue Bollinger

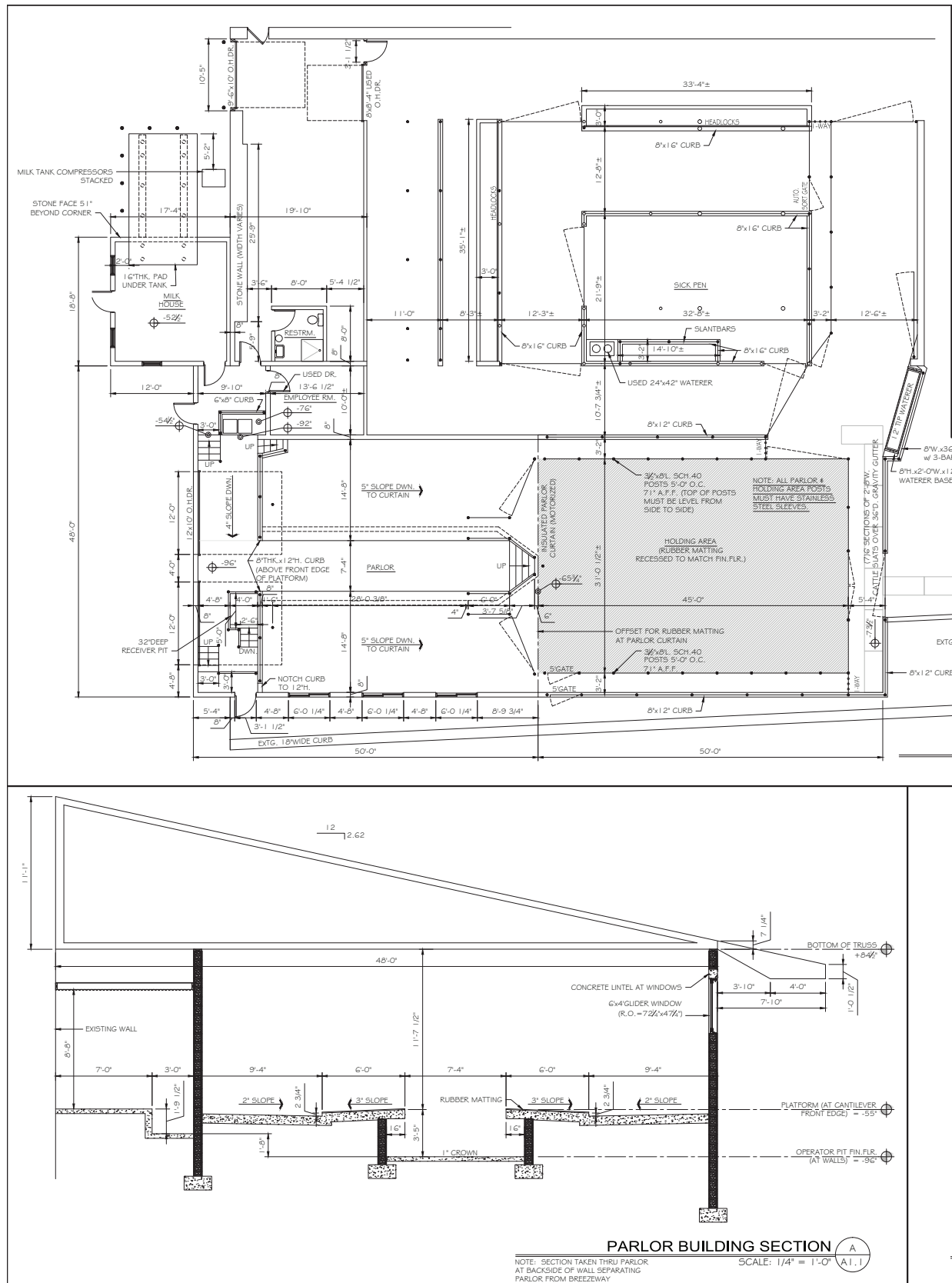
I. *Was there anything uncovered during the succession planning process that helped family members to better understand other members of the family?* The children not involved in the farm expressed a desire to see the farm continue to operate and to see Andy have the opportunity to continue doing what he loves and does so well – manage Meadow Spring Farm. They also expressed gratitude to us for sharing our hopes and plans openly with all of them at several family meetings facilitated by Brian and Mike.

J. *Is there anything you would have done differently with your succession plan?* Not really. We are very pleased with how well the plan came together. We are very grateful to the advice given by the transformation team (funded by the Center for Dairy Excellence grant) and Brian Black and Mike Peachey.

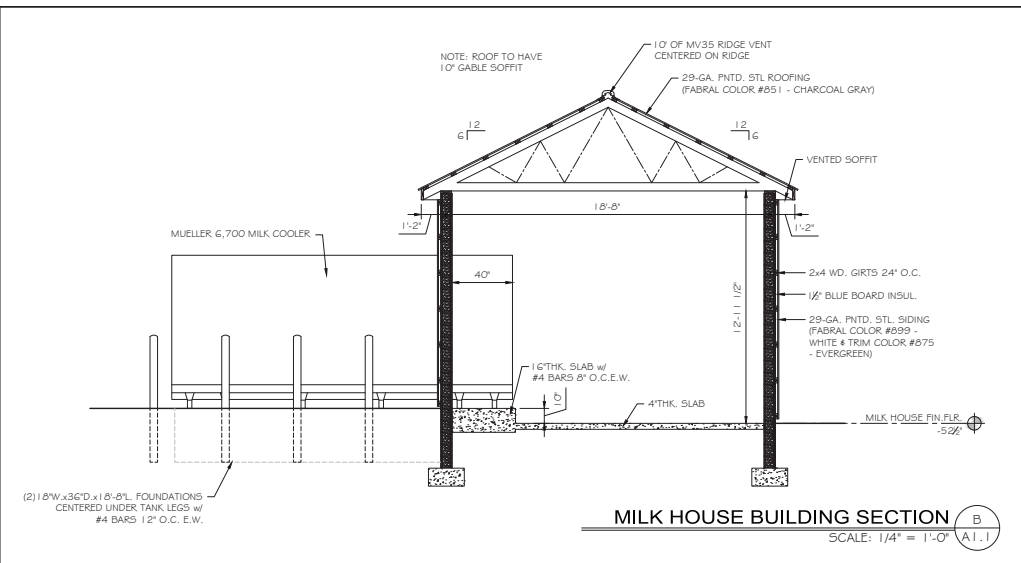


Resources and Contact Information

Blueprints:



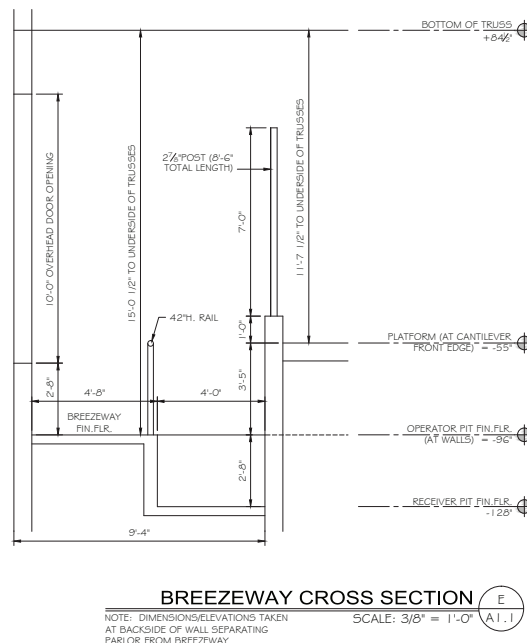
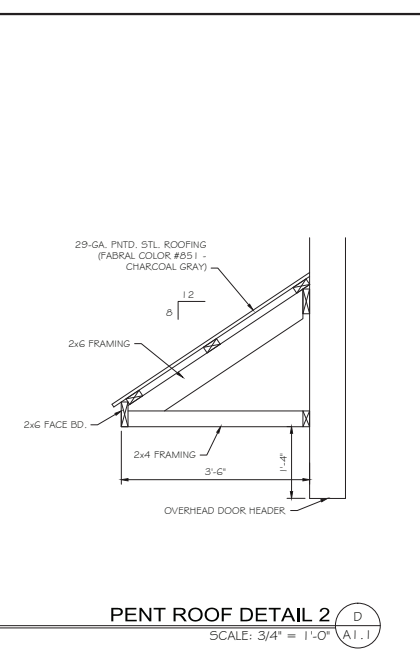
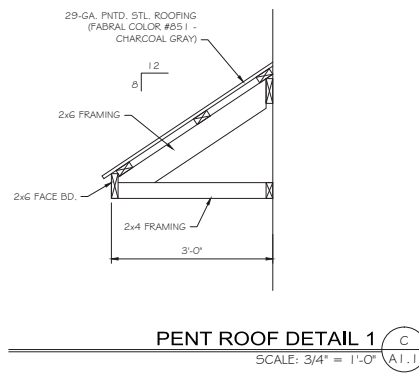
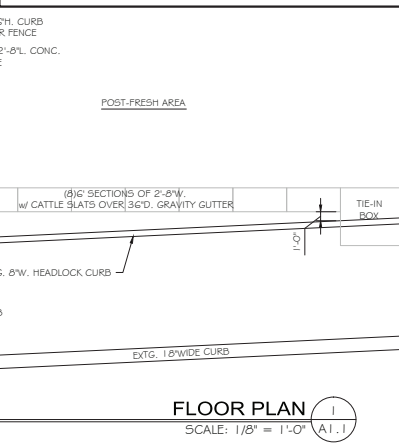
Resources and Contact Information...continued



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SEAL:



RENOVATION FOR MEADOW SPRINGS FARM

340 MEADOW VALLEY ROAD, LITITZ, PA 17543
EPHRATA TOWNSHIP, LANCASTER COUNTY

REVISIONS

DATE	REVISIONS
4/17/12	PLAN 4 SECTION
4/30/12	PLAN 4 SECTION UPDATES
5/9/12	PLAN 4 SECTION UPDATES
5/10/12	PLAN 4 SECTION UPDATES
5/17/12	PLAN 4 SECTION UPDATES
6/20/12	PLAN 4 SECTION UPDATES PER J2
G	
H	
I	
J	
K	
L	
M	
N	

DRAWN BY: NLM DATE: 3/27/12
CHECKED BY: SCALE: AS NOTED

NUMBER:

SHEET NAME
FLOOR PLAN
SHEET NUMBER

A1.1

PRELIMINARY DRAWING

Resources and Contact Information...*continued*

Employee Interview Questions:

Meadow Spring Farm Employment Evaluation Tool

1. What factors **motivate** you to working at Meadow Spring Farm?
2. In what ways would you like to be **recognized** for your efforts at work?
(Monetary/benefits, verbal, other)
3. How satisfied are you with the overall spirit of **teamwork** with the working environment? How could people improve the teamwork?
(Meeting structure/frequency, everyone vs. smaller area of focus team)
4. How satisfied are you with the quality and frequency of our **training/team meeting programs**?
5. How satisfied are you with the **safety** of your work environment? Do you have suggestions for any improvements?
6. Please share any suggestions you may have on how to improve work **scheduling**?
7. What do you particularly appreciate about your work?
8. What possible changes could you suggest to improve you work experience?

Resources and Contact Information...continued

Video Links:

Legislator Video at the Farm:

<http://www.repdenlinger.com/youtubevideo.aspx>

Lancaster Farming Article, Summer 2013 Open House Video:

<http://www.lancasterfarming.com/-Dairy-Farm-Upgrade-Paves-Way-for-Family-Transition-#.U17LclcvCTI>

Seth Bollinger's Videos:

<http://www.youtube.com/watch?v=BSYgS2VrDQk>

http://www.youtube.com/watch?annotation_id=channel%3A52fdc646-0-21f5-96c120cf3010e841&feature=iv&src_vid=BSYgS2VrDQk&v=INisoEJ5UAg

Contacts:

Please call the Center for Dairy Excellence to make contact with any of these individuals to learn more about their role in successfully completing this project.

Jeff Ainslie, Red Barn Consulting

Chris Stoltzfus, White Horse Construction

Amos Fisher, Fisher & Thompson

Dr. Barton, Veterinarian and Human Resources Consultant

Joe Zook, Dairy Industry Consultant

Brian Black, Estate Attorney

Mike Peachy, Acuity Advisors and CPAs



CENTER FOR
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