



GRANT COUNTY SOUTH DAKOTA
PLANNING AND ZONING OFFICE
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Agenda for the meeting of Grant County Planning and Zoning/Board of Adjustment.

Members present: Nancy Johnson Lorelei Brandt Mike Mach Tom Pillatzki Tom Adler Richard Hansen

Alternates present: Dave Kruger

Members absent: Gary Lindeman

Others present: Dustin Holt Randal Holt Anna terDenge Gerhard terDenge Jody Kuper Tim Weber James Stahl Jason Mischel Erin Cortus

Meeting Date: Tuesday, April 12, 2016

Meeting Time: 4:30 P.M.

1. Call Meeting to Order by Nancy Johnson at 4:30 p.m.
2. Reading of Grant County Board of Adjustment Procedural and Rules of Conduct
3. Approval of Minutes: Tuesday, March 8, 2016 Motion to approve by Brandt second by Mach carries 7-0.
4. Plat Approvals
 - a. James Stahl is requesting the plat of Lots 1&2 of James & Audrey Stahl Addition, located in the S 1180 ft of the W 1218 ft of the SW1/4 of Section 4, Township 119 North, Range 50 West of the 5th P.M., Grant County, South Dakota. (Stockholm Township) Motion by Hansen second by Pillatzki carries 7-0.
 - b. Dustin & Sarah Holt request the plat of Tract 1 of Holt Addition in NE1/4 of the SE1/4 of Section 2, Township 120 North, Range 52 West of the 5th P.M., Sisseton & Wahpeton Indian Reservation, Grant County, South Dakota. (Lura Township) Motion by Adler second by Brandt carries 7-0.
5. Conditional Use/Variance Requests/Rezoning
 - a. Conditional Use Permit No. CAFO03162016 by Gerhard terDenge, Mill Valley, LLC, Applicant, of N1/2SE1/4 Section 22 Township 120 Range 49 West of the 5th P.M., Grant County, South Dakota (Grant Center Township) for an expansion of a Class A Dairy facility to expand to from 400 to 950 dry cows and 100 to 256 baby calves.

The meeting was opened for public comment of the presentation of the plans of expansion for Mill Valley Dairy, LLC in which P&Z Officer presented the information that is included in the proposal for the board and explained this was phase 3 of their planned expansions as it was presented before the dairy was built. Krista explained the permit and supplemental information showed the dairy to be in compliance with the rules and regulations of Grant County. Johnson called for opposition 3 times and hearing none she moved on with those in favor. Jody Kuper spoke on behalf of Valley Queen. Kuper reported terDenge to be a good producer and also reported he had spoken with township board members who are pleased with the efforts terDenge takes with the care of the road. Kuper and Valley Queen support the expansion and look forward to good milk from terDenge. Johnson opened the discussion to the board and a motion was made by Mach and seconded by Hansen to approve the expansion request and it carried 7-0.

- b. Variance Permit No. VAR03162016A, Mike & Nancy Johnson, Applicant in SW1/4 NE1/4 & Lots 1&2 exception Lot 1 Johnson's Farm Subdivision of Section 11, Township 120, Range 48 of the 5th Principal Meridian, Grant County, South Dakota. (Alban Township) The request, if granted, would, allow the placement of 6 rows of trees to run 25 feet from the 1/4 section lot line.

Johnson recused herself from the consideration of this permit as she is the owner of the property. Vice-Chair Brandt takes over the leadership of the board. Atyeo-Gortmaker presented the plan to plant trees on the line between fields and acknowledged permission by the adjoining landowner, Al Schneck to move ahead with the plans. Johnson stated this site location would be a future house for her son and his fiancée in the future and they would

like to get trees started. Motion by Hansen second by Adler carries 7-0 to allow the tree planting.

Brandt relinquishes chair back to Johnson

6. New Business

7. Old Business

8. Unfinished Business

- a. Dr. Erin Cortus Assistant Professor & SDSU Extension Environmental Quality Engineer SDSU Agricultural & Biosystems Engineering Department – Odor footprint tool

Presentation by Dr Cortus included a powerpoint presentation in which she educated the board about the Odor Footprint Tool that is meant to be an odor impact estimation tool to start conversation about location, etc of a new facility. Sensation of odor can change over time and what is normal may or may not be the same for the whole population because there are those who are nose blind as well as hypersensitive. In measurement of smell they use the analogy of sound to explain the 3 factors of odor release which are wind, area and source concentration.

This tool was developed using science based models for emission and it provides annoyance free but not odor free comparisons according to South Dakota's 3 areas from April to October with summer being the highest emissions time. terDenge asked about the highest emissions point would it be the lagoon or the barn and Cortus explained she was just getting into explaining that. Johnson asked if there was a correlation of odor intensity that it would equal the rate of emissions. Cortus explained the emissions rate directly matters what the source is and the amount it is dispersed and the intensity of the wind related to what is downwind but there isn't really a direct correlation. This is why the odor footprint tool is intended as a starting point for discussion to show initial impact and how it can be affected.

An example for use in the footprint tool would be 2400 head of swine in a finish deep pit to change the emitting factor and a footprint of 200x100 equals a factor of 330. Percentages will not show a perfect circle because the impact to the North is greater because of the wind and this tool uses the 10 year average of weather data. This plume can change with trees or shelterbelts and topography which isn't shown accurately by the odor footprint tool. You may deduct an evening smell shift because of the cooling air coming down and the calm winds. It was noted by P&Z Board that there was no smell at the site all the way around the facility when the wind was blowing last week. It was asked if there was a static threshold number they should use and there was also a reminder that what might be annoying to me may not be to others. Cortus explained there is a concept in the frequency curves at a certain point they level off and more odor and more barns doesn't mean there should be a larger setback because the odor produced does not increase incrementally.

Adding conditions or tools to the facilities can help but it will never encompass all air from a facility. Adding a biofilter can decrease odor emissions 80 to 90 percent for a well-run biofilter. Not all air is included and a percentage will be unable to run in the tool. For instance, pit run fans but not air flow fans would decrease the percentage of treated air and it would not run at 80-90 percent efficiency. The question was raised about the geotextile controls versus the organic matter and Cortus explained if they are well managed there is really not a difference in the effectiveness but keep in mind they do not promise zero odor.

A dairy run with 2500 head which is typical in Grant County used the tool to show the most likely effects. Freestall of 1466x133 with earthen storage with 2000 ft of surface area and no controls. The first step would be to locate the largest impact in putting controls on it that would make the best impact. Cortus cautioned again the earthen storage number only uses 1 number and it could be impacted by diet and solid separation as well as salts and nutrients removal. Kuper pointed out as well the emissions uses July numbers for instance. terDenge asked about the impacts of using straw pack versus a costly geotextile cover as they did in Europe. Addition of organic matter is good for the fields but it is difficult to get out to the middle of the large lagoons. A question was asked about enzymes and additives and whether they really work.

Cortus explains there is not real hard evidence for full facility usage, but it is best to identify the location and source of the worst case scenario for the facility.

Kruger explained he visited directly with Dr Nicolai about odor and the tool he developed. Kruger reported Dr Nicolai explained it takes daily maintenance for a biofilter to work properly and when it is maintained it does a tremendous job. Tree plantings are great at the neighbor's house and they conducted an experiment with haybales on a road in which they made the smell go up and over for the traffic on the road to live annoyance free.

Cortus spoke a bit about biocurtain research and she also explained that these facilities are the protein provider to the world and odor is an easy scapegoat for stopping these facilities. Pillatzki stated there was research ongoing in Minnesota that was providing new data. Cortus was quick to point out that these tools should only provide a starting point for discussion and it is not going to hold up litigiously as well as common sense and individual site analysis. Mach pointed out diet which could affect source and waste. Cortus answered nitrogen and phosphorus could be decreased 10-20 percent for emissions numbers but that would not correlate to a setback distance. It is more the productivity and the process used by a manager that affects emissions.

Cortus elaborated that she is working on odor management plan research that will include additives, fly and pest control, biofilters and other mitigation such as covers and that should be published over the course of the next year.

9. Next meetings:

a. Regular meeting: Tuesday, May 10, 2016 4:30 pm

10. Adjournment Motion by Mach second by Brandt carries 7-0 at 6:05 p.m.

Krista Atyeo-Gortmaker
Planning and Zoning Officer
Grant County