Geologic investigations (Appendix D) revealed that the in-situ soils are adequate to allow the construction of the proposed new facilities. All earth and concrete work has been and will be done in accordance with NRCS specifications. Figure 4 shows the general layout of the new facilities.

Crop fields

The crop fields (Field 1- Field 58) will continue to be irrigated with fresh water as needed. An irrigation water management plan is provided in Appendix G. A well located at each pivot point provides water to each center pivot. Effluent will be also be applied to Fields 2-21 and 27-37, while settled solids will be land applied at agronomic rates to Fields 38-42 and Hay Field 43.

Crop rotations for individual pivots will vary from year to year, but in general the following crops will be grown peanuts, snap beans, carrots, sweet corn, field corn, potatoes, oat, cotton, and sorghum.

Composting of Collected Bedding Materials

SCOE composts manure and bedding materials collected from the stacked-bed confinement barns on the farm. The bedding materials, such as sawdust, woodchips, and other dried plant materials, are added to the barns daily to adsorb the liquid fraction of the manure to maintain animal comfort. After a few weeks of accumulation these manure laden bedding materials are removed from the barns and placed into windrows (long continuous piles) in the composting area shown in Figure 10. The windrows are turned periodically to ensure that uniform composting takes place. The compost will reach temperatures of 160°F resulting in rapid moisture loss. This means the windrows have a high capacity to hold large amounts of rainfall before any leaching will occurs out the bottom of the compost. In addition to the limited amount of leaching, the hyper-active aerobic bacteria quickly take up the soluble nutrients in the compost, which results in low nutrient concentrations in the water that does leach. Therefore, windrow composting is considered an environmentally friendly process. As shown in Figure 10, the composting area is also graded to ensure that any runoff that might occur will remain onsite. The amount of runoff between the windrows is also anticipated to be small because the soils at the site are very well-drained sands.

Once a windrow has finished the composting process, which typically takes two to four weeks, the composted materials are taken offsite for use as an organic soil amendment by others.

Mortality Disposal

Dead animals will be disposed of according to Florida Statutes 823.041 and local laws in a manner that does not adversely affect ground or surface water or create public health concerns. Composting will be the primary means of mortality disposal and will be done in accordance with UF-IFAS recommendations. However, burial will remain as a backup option. The farmer anticipates about 10 beef cattle and 20 dairy cows will parish per year. The dead animal composting site is located in the SW corner of pivot 43 (Figure 3). The University of Florida procedure for dead animal composting as presented by Dr. Shearer (http://dairy.ifas.ufl.edu/drs/2006/Shearer.pdf, UF College of Veterinary Medicine) is:

"The Procedure for Composting is described as a 2-stage process. In the first stage, carcasses are placed into a compost area with carbon bulking agents (wood chips, straw, sawdust, dead leaves and/or other bedding material). When composting smaller animals such as calves one may use a bin or area with alternating layers of the carbon bulking material. Always begin with a base layer of dry material approximately one foot deep under the animal to act as a sponge for fluids that seep from the carcass. The bigger the animal the deeper the base layer that is required. The base layer should extend at least two feet beyond all sides of the animal. The animal should be covered with compost ingredient material to form a peaked pile such that a minimum of one foot of cover exists all around the animal. Frequently, it is convenient to compost large animals such as cattle or horses in individual piles or windrows.