QUESTION 15 - SOILS

NOTE: The information contained in the responses to Question 15 is for the entire Area 6 property; however, development order approval is only being requested for the Charlotte County portion of the property at this time. The Lee County property within area 6 will be developed at a later time. At this time, no changes to the existing land uses in Lee County are proposed.

A.1. Provide a description of each of the soils indicated on Map E utilizing the following format:

Table 15-1
Soil Descriptions and Interpretations – Charlotte County
(Soils Data from NRCS Soils Survey)

Soil Name	Map Symbol	Brief Soil Description	Seasonal High Water Table Depth (ft.)-Duration	Permeability Depth|Rate in|(in/hr)	Degree & Kind Limitation for Proposed Uses	Degree & Kind Limitation for Pond Embankments
Canaveral Fine Sand	2	Nearly level, moderately well drained and somewhat poorly drained soil on flat low ridges.	1.0-3.0|Jun-Nov	0-15|>20 15.80|>20	Dwellings - Severe, Wetness Roads - Moderate, Wetness	Severe: wetness cutbanks cave.
Hallandale Fine Sand	6	Nearly level, poorly drained soil on low, broad flatwoods areas. Slopes are smooth and range from 0 to 2 percent.	0-1.0|Jun-Nov	0-2|6.0-20 2-7|6.0-20 7-12|0.6-6.0	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness.
EauGallie Fine Sand	9	Nearly level, poorly drained soil on flatwoods. Slopes are smooth to convex and less than 1 percent.	0-1.0|Jun Oct	0-22|6.0-20 22-27|0.6-6.0 27-58|6.0-20 58-80|0.06-2.0	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Pompano Fine Sand	10	Nearly level, poorly drained soil on sloughs. Slopes are smooth to concave and range from 0 to 1 percent.	0-1.0|Jun-Nov	0-80|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Myakka Fine Sand	11	Nearly level, poorly drained soil on broad flatwoods areas. Slopes are smooth to slightly concave and range from 0 to 2 percent	0-1.0|Jun-Nov	0-26|6.0-20 26-63|0.6-6.0 63-80|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.

Soil Name	Map Symbol	Brief Soil Description	Seasonal High Water Table Depth (ft.)-Duration	Permeability Rate (in/hr)	Degree & Kind Limitation for Proposed Uses	Degree & Kind Limitation for Pond Embankments
Felda Fine Sand	12	Nearly level, poorly drained soil on broad, nearly level sloughs. Slopes are smooth to concave and renge from 0 to 2 percent.	0-1.0|Jul-Mar	0-22|6.0-20 22-38|0.6-6.0 38-8-|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Boca Fine Sand	13	Nearly level, poorly drained soil on flatwoods. Slopes are smooth and range from 0 to 2 percent.	0-1.0|Jun-Feb	0-3|6.0-20 3-25|6.0-20 25-30|0.6-2.0	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Valkaria Fine Sand	14	Nearly level, poorly drained soil on sloughs. Slopes are smooth to concave and range from 0 to 1 percent.	0-1.0|Jun-Feb	0-2|6.0-20 2-7|6.0-20 7-80|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness, flooding	Severe: wetness, cutbanks cave.
Terra Ceia Fine Sand	20	Nearly level, very poorly drained organic soil on freshwater marsh areas. Slopes range from 0 to 1 percent.	+1-1.0|Jan-Dec	0.53|6.0-20 53-80|6.0-20	Dwellings - Severe, Ponding, Low Strength Roads - Severe, Ponding, Low Strength	Severe: ponding, excess humus.
Piineda Fine Sand	26	Nearly level, poorly drained soil on sloughs. Slopes are smooth to slightly concave and range from 0 to 1 percent.	0-1.0|Jun-Nov	0-36|6.0-20 36-54|<0.2 54-80|2.0-6.0	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Pompano Fine Sand, Depressional	27	Nearly level, poorly drained soil in depressions. Slopes are concave and less that 1 percent	+2-1.0|Jun-Feb	0-80|6.0-20	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.
Immokalee Fine Sand	28	Nearly level, poorly drained soil in flatwoods area. Sloper are smooth to convex and range from 0 to 2 percent.	0-1.0|Jun-Nov	0-9|6.0-20 9-36|6.0-20 36-55|0.6-2.0 55-80|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.

Soil Name	Map Symbol	Brief Soil Description	Seasonal High Water Table Depth(ft.)-Duration	Permeability Rate (in/hr)	Degree & Kind Limitation for Proposed Uses	Degree & Kind Limitation for Pond Embankments
Oldsmar Fine Sand	33	Nearly level, poorly drained soil on low, broad flatwoods area. Slopes are smooth to slightly convex and range from 0 to 2 percent.	0-1.0|Jun-Feb	0-42|6.0-20 42-47|0.2-6.0 47-58|<0.2 58-80|0.2-6.0	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Malabar Fine Sand	34	Nearly level, poorly drained soil on sloughs. Slopes are smooth to concave and range from 0 to 1 percent.	0-1.0|Jun-Nov	0-17|6.0-20 17-42|6.0-20 42-59|<0.2 59-80|2.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Wabasso Fine Sand	35	Nearly level, poorly drained soil on flatwoods. Slopes are smooth to slightly convex and range from 0 to 1 percent.	0-1.0|Jun-Oct	0-24|6.0-20 24-28|0.6-2.0 28-62|<0.2 62-80|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Valkaria Fine Sand, Depressional	41	Nearly level, poorly drained soil in depressions. Slopes are smooth to concave and less than 1 percent.	+2-1.0|Jun-Sep	0-5|6.0-20 5-38|6.0-20 38-80|6.0-20	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.
Wabasso Fine Sand,	42	Nearly level, poorly drained soil on broad flatwoods. Slopes range from 0 to 2 percent.	0-1.0|Jun-Oct	0-19|6.0-20 19-23|0.6-2.0 23-37|6.0-20 37-51|0.06-0.2	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Malabar Fine Sand, Depressional	44	Nearly level, poorly drained soil in depressions. Slopes are concave and are less than 1 percent.	+2-1.0|Jun-Nov	0-7|6.0-20 7-28|6.0-20 28-44|6.0-20 44-67|<0.2 67-80|2.0-20	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.

Soil Name	Map Symbol	Brief Soil Description	Seasonal High Water Table Depth(ft.)-Duration	Permeability Rate (in/hr)	Degree & Kind Limitation for Proposed Uses	Degree & Kind Limitation for Pond Embankments
Copeland Fine Loamy Sand, Depressional	45	Low, nearly level, very poorly drained sol in depressions. Slopes are concave and less than 1 percent.	+2-1.0|Jul-Apr	0-8|6.0-20 8-20|0.6-2.0 20-28|0.6-6.0	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding
Felda Fine Sand, Depressional	49	Nearly level, poorly drained soil in depressions. Slopes are concave and are less than 1 percent.	+2-1.0|Jun-Dec	0-35|6.0-20 35-52|0.6-6.0 52-80|6.0-20	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.
Floridana Fine Sand, Depressional	51	Nearly level, very poorly drained soil in depression. Slopes are concave and less than 1 percent	+2-1.0|Jun-Feb	0-22|6.0-20 22-39|6.0-20 39-80|<0.2	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.
Myakka Fine Sand, Depressional	53	Nearly level, poorly drained soil in depressions. Slopes are concave and are less than 1 percent.	+2-1.0Jun-Feb	0-29|6.0-20 29-46|0.6-6.0 46-80|6.0-20	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.
Winder Sand, Depressional	62	Nearly level, poorly drained soil in depressions. Slopes are concave and range from 0 to 1 percent.	+2-1.0|Jun-Dec	0-16|6.0-20 16-23|0.06-0.2 23-80|6.0-20	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.
Malabar Fine Sand	63	Nearly level, poorly drained soil in the flatwoods. Slopes are smooth to slightly convex and range from 0 to 2 percent.	0-1.0|Jun-Oct	0.17|6.0-20 17-37|6.0-20 37-49|6.0-20 49-68|0.2-0.6 68-80|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.

Soil Name	Map Symbol	Brief Soil Description	Seasonal High Water Table Depth(ft.)-Duration	Permeability Rate (in/hr)	Degree & Kind Limitation for Proposed Uses	Degree & Kind Limitation for Pond Embankments
Heights Fine Sand	70	Nearly level, poorly drained soil in broad flatwoods. Slopes are smooth to concave and range from 0 to 1 percent.	0-1.0|Jun-Oct	0-29|6.0-20 29-36|0.6-6.0 36-42||0.2-2.0 42-80|0.06-0.2	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness.
Pineda Fine sand, Depressional	73	Nearly level, very poorly drained soil in depression. Slopes are concave and less than 1 percent	+2-1.0|Jun-Dec	0-30|6.0-20 30-55|<0.2 55-80|2.0-6.0	Dwellings-Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.
Chobee Fine Loamy Sand	78	Nearly level, very poorly drained soil in depression. Slopes are concave and less than 1 percent	+2.-1.0|Jun-Dec	0-4|6.0-20 4-16|2.0-6.0 16-53|<0.2 53-80|2.0-6.0	Dwellings-Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.

Table 15-2
Soil Descriptions and Interpretations – Lee County
(Soils Data from NRCS Soils Survey)

Soil Name	Map Symbol	Brief Soil Description	Seasonal High Water Table Depth(ft.)-Duration	Permeability Rate (in/hr)	Degree & Kind Limitation for Proposed Uses	Degree & Kind Limitation for Pond Embankments
Hallandale Fine Sand	6	Nearly level, poorly drained soil on low, broad flatwoods areas. Slopes are smooth and range from 0 to 2 percent.	0-1.0|Jun-Nov	0-2|6.0-20 2-7|6.0-20 7-12|0.6-6.0	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness,
EauGallie Fine Sand	9	Nearly level, poorly drained soil on flatwoods. Slopes are smooth to convex and less than 1 percent.	0-1.0|Jun-Oct	0-22|6.0-20 22-27|0.6-6.0 27-58|6.0-20 58-80|0.06-2.0	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Pompano Fine Sand	10	Nearly level, poorly drained soil on sloughs. Slopes are smooth to concave and range from 0 to 1 percent.	0-1.0|Jun-Nov	0-80|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Felda Fine Sand	12	Nearly level, poorly drained soil on broad, nearly level sloughs. Slopes are smooth to concave and renge from 0 to 2 percent.	0-1.0|Jul-Mar	0-22|6.0-20 22-38|0.6-6.0 38-80|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Boca Fine Sand	13	Nearly level, poorly drained soil on flatwoods. Slopes are smooth and range from 0 to 2 percent.	0-1.0|Jun-Feb	0-3|6.0-20 3-25|6.0-20 25-30|0.6-2.0	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Valkaria Fine Sand	14	Nearly level, poorly drained soil on sloughs. Slopes are smooth to concave and range from 0 to 1 percent.	0-1.0|Jun-Sep	0-2|6.0-20 2-7|6.0-20 7-80|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness, flooding	Severe: wetness, cutbanks cave.

Soil Name	Map Symbol	Brief Soil Description	Seasonal High Water Table Depth(ft.)-Duration	Permeability Rate (in/hr)	Degree & Kind Limitation for Proposed Uses	Degree & Kind Limitation for Pond Embankments
Pineda Fine Sand	26	Nearly level, poorly drained soil on sloughs. Slopes are smooth to slightly concave and range from 0 to 1 percent	0-1.0|Jun-Nov	0-34|6.0-2.0 36-54|<0.2 54-80|2.0-6.0	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Pompano Fine Sand, Depressional	27	Nearly level, poorly drained soil in depressions. Slopes are concave and less that 1 percent	+2-1.0|Jun-Feb	0-80|6.0-20	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.
Immokalee Fine Sand	28	Nearly level, poorly drained soil in flatwoods area. Sloper are smooth to convex and range from 0 to 2 percent.	0-1.0|Jun-Nov	0-9|6.0-20 9-36|6.0-20 36-55|0.6-2.0 55-80|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Oldsmar Fine Sand	33	Nearly level, poorly drained soil on low, broad flatwoods area. Slopes are smooth to slightly convex and range from 0 to 2 percent.	0-1.0|Jun-Feb	0-42|6.0-20 42-47|0.2-6.0 47-58|<0.2 58-80|0.2-6.0	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Malabar Fine Sand	34	Nearly level, poorly drained soil on sloughs. Slopes are smooth to concave and range from 0 to 1 percent.	0-1.0|Jun-Nov	0-17|6.0-20 17-42|6.0-20 42-59|<0.2 59-80|2.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Wabasso Fine Sand	35	Nearly level, poorly drained soil on flatwoods. Slopes are smooth to slightly convex and range from 0 to 1 percent.	0-1.0|Jun-Oct	0-24|6.0-20 24-28|0.6-2.0 28-62|<0.2 62-80|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.

Soil Name	Map Symbol	Brief Soil Description	Seasonal High Water Table Depth(ft.)-Duration	Permeability Rate (in/hr)	Degree & Kind Limitation for Proposed Uses	Degree & Kind Limitation for Pond Embankments
Isles Fine Sand, Depressional	39	Nearly level, poorly drained soil in depressions. Slopes are smooth to concave and less than 1 percent.	+1.-1.0|Jun-Dec	0.5|6.0-20 5-21|6.0-20 21-47|0.6-2.0	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.
Valkaria Fine Sand, Depressional	41	Nearly level, poorly drained soil in depressions. Slopes are smooth to concave and less than 1 percent.	+2-1.0|Jun-Sep	0-5|6.0-20 5-38|6.0-20 38-80|6.0-20	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.
Wabasso Sand,	42	Nearly level, poorly drained soil on broad flatwoods. Slopes range from 0 to 2 percent.	0-1.0|Jun-Oct	0-19|6.0-20 19-23|0.6-2.0 23-37|6.0-20 37-51|0.06-0.2	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Malabar Fine Sand, Depressional	44	Nearly level, poorly drained soil in depressions. Slopes are concave and are less than 1 percent.	+2-1.0|Jun-Nov	0-7|6.0-20 7-28|6.0-20 28-44|6.0-20 44-67|<0.2 67-80|2.0-20	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.
Copeland Fine Loamy Sand, Depressional	45	Low, nearly level, very poorly drained sol in depressions. Slopes are concave and less than 1 percent.	+2-1.0|Jul-Apr	0-8|6.0-20 8-20|0.6-2.0 20-28|0.6-6.0	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding
Felda Fine Sand, Depressional	49	Nearly level, poorly drained soil in depressions. Slopes are concave and are less than 1 percent.	+2-1.0|Jun-Dec	0-35|6.0-20 35-52|0.6-6.0 52-80|6.0-20	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.

Soil Name	Map Symbol	Brief Soil Description	Seasonal High Water Table Depth(ft.)-Duration	Permeability Rate (in/hr)	Degree & Kind Limitation for Proposed Uses	Degree & Kind Limitation for Pond Embankments
Floridana Fine Sand, Depressional	51	Nearly level, very poorly drained soil in depression. Slopes are concave and less than 1 percent	+2-1.0|Jun-Feb	0-22|6.0-20 22-39|6.0-20 39-80|<0.2	Dwellings - Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.
Cocoa Fine Sand	55	Nearly level to gently sloping, moderately well drained soil on ridges. Slopes are smooth to slightly convex and range from 0 to 2 percent.	>6.0	0-17|6.0-20 17-31|6.0-20	Dwellings - Moderate, Depth to rock Roads - Moderate, Depth to rock	Severe: depth to rock, cutbanks cave.
Malabar Fine Sand	63	Nearly level, poorly drained soil in the flatwoods. Slopes are smooth to slightly convex and range from 0 to 2 percent.	0-1.0|Jun-Oct	0-17|6.0-20 17-37|6.0-20 37-49|6.0-20 49-68|0.2-0.6 68-80|6.0-20	Dwellings - Severe, Wetness Roads - Severe, Wetness	Severe: wetness, cutbanks cave.
Pineda Fine sand, Depressional	73	Nearly level, very poorly drained soil in depression. Slopes are concave and less than 1 percent	+2-1.0|Jun-Dec	0-30|6.0-20 30-55|<0.2 55-80|2.0-6.0	Dwellings-Severe, Ponding Roads - Severe, Ponding	Severe: ponding, cutbanks cave.

A.2. Describe the potential for subsidence and any unique geologic features (such as sand dunes, bluffs, sinkholes, springs, steepheads, etc.) on the site. Discuss what aspects of the site plan will be used to compensate for or take advantage of these features.

A review of soil borings and previous site construction does not indicate potential for subsidence or any unique geological features. Reference – "The Florida Geological Survey Sinkhole Data Base" downloaded Sept. 2006. It is recommended that site specific borings and foundation analysis be made for structures.

B. Where a soil presents a limitation to the type of use proposed in the development, state how the limitation will be overcome. Specify construction methods that would be used for building, road and parking lot foundations, and for lake or canal bank stabilization as relevant.

The proposed development is a large scale mixed use development consisting of the Urban Center "Town of Babcock Ranch" with residential, commercial, office, public, industrial and research park uses. In addition to the Town Center, residential areas will be located in four hamlets and four villages. Information from the preliminary soils investigations indicated there were no limitations to the type of proposed use. A Master Water Management Plan will provide flood control and water table depth regulation, which will assist in soils stabilization. Sand material should be confined by sodding, grassing or other means to prevent erosion from rain-fall. Standard construction techniques and practices will be used during site development.

C. What steps will be taken during site preparation and construction to prevent or control wind and water soil erosion? Include a description of proposed plans for clearing and grading as related to erosion control.

The following steps will be adhered to in order to prevent or control wind and water erosion:

- During construction special attention will be given to the minimization of soil erosion to protect the sites vegetated areas.
- Hay bales or silt screens shall be installed prior to land clearing to protect water quality and to identify areas to be protected from clearing activities and maintained for the duration of the project until all soil is stabilized.
- Floating turbidity barriers shall be in place on flowing systems or in open water lake edges prior to initiation of earthwork and maintained for the duration of the project until all soil is stabilized.
- To preclude the direct discharge of sediment and other possible pollutants into the ground water system, the applicant will grout all existing agricultural wells, other than those intended for future use, to land surface as required by SFWMD.
- The installation of temporary erosion control barriers shall be coordinated with the construction of the permanent erosion control features to the extent necessary to assure effective and continuous control of erosion and water pollution throughout the life of the construction phase.
- Where pumps are to be used to remove turbid waters from construction areas, the water shall be treated prior to discharge to the wetlands. Treatment methods include, for example, turbid water being pumped into grasses, swales or appropriate

upland vegetated areas (other than upland preservation areas and wetland buffers), sediment basins, or confined by an appropriate enclosure such as turbidity barriers on low berms, and kept confined until turbidity levels meet State Water Quality Standards.

- The Applicant shall schedule operations such that the area of unprotected erodible earth exposed at any one time is not larger than the minimum area necessary for efficient construction operation, and the duration of exposed, uncompleted construction to the elements shall be as short as practicable. Segmental areas of construction will be scheduled to assist in these operations. Clearing and grubbing shall be so scheduled and performed such that grading operations can follow immediately thereafter. Grading operations shall be so scheduled and performed that permanent erosion control features can follow immediately thereafter if conditions on the project permit.
- Exposed soils shall be stabilized as soon as possible, especially slopes leading to wetlands. Stabilization methods include solid sod, seeding and mulching or hydromulching to provide a temporary or permanent grass cover.
- Energy dissipaters (such as rip rap, gravel beds, hay bales, etc.) shall be installed at the discharge point of pipes or swales if scouring is observed.
- Implementation of storm drain inlet protection (hay bales or gravel) to limit sedimentation within the stormwater system will occur. Perform inspections and periodic cleaning of sediments, which wash out into the streets until all soil is stabilized.
- If water clarity does not reduce to state standards rapidly enough in holding ponds, it may be possible to use chemical agents such as slum to flocculate or coagulate the sediment particles.

D. To what degree and in what location(s) will the development site be altered by fill material? If known, specify the source location and composition of the fill. Also identify the disposal location for any overburden or spoil.

The Town Center of Babcock Ranch, and the villages, will generally be filled approximately 2 feet with an additional one foot under roads and an additional two feet under houses. There will be generally a total of 3 feet of fill under the roads and four feet under houses. Fill material will be primarily sand with generally less than 20% passing the #200 sieve. Most of the fill will be generated on site by the construction of lakes. This fill material will consist of compaction enhanced soils. “On site material” has proven to be satisfactory road and development fill when properly compacted and confined.

QUESTION 16 - FLOODPLAINS

NOTE: The information contained in the responses to Question 16 is for the entire Area 6 property; however, development order approval is only being requested for the Charlotte County portion of the property at this time. The Lee County property within area 6 will be developed at a later time. At this time, no changes to the existing land uses in Lee County are proposed.

A. Identify any pre- and post-development flood prone areas.

The existing site is mixed in the land slope. The northern most portion of Area 6 has land slopes approaching five feet per mile. Through the Curry Lake region the land slopes flatten to about one foot per mile. Near the Charlotte County/Lee County Line the land slope steepens once again to a range between five and ten feet per mile.

During the wet season, the water table approaches the ground surface in the steeper areas. Standing water can be found in the flatter areas especially where there are roads or farm fields with dikes. The amount of time that there is standing water is limited if the ditches are clean as the fields are intermittently farmed using gravity drainage. Most of the farm fields south of Hercules Grade have no detention at this time.

The post-development design will include a storm water detention system that will control and attenuate the run-off from the site. The allowable discharge will be limited to the existing South Florida Water Management District (SFWMD) permit for the site, which is 39 cubic feet per second per square mile (csm). The site will be filled as necessary to provide for the water quality treatment and attenuation.

B. Is any development proposed within a 100-year flood prone area as identified by the Federal Emergency Management Agency? If so, indicate the appropriate Flood Insurance Rate Map (FIRM) zone designations and their locations, etc.

The subject parcel lies in both Charlotte County and Lee County. The Charlotte County portion has updated mapping dated May 5, 2003. The panels reviewed are under Community Number 12015C0 with Panel Numbers of 300F, 325F, 475F, and 500F to cover Area 6.

The Lee County portion of the site is covered by four panels also. The Lee County Community Number is 1251240 and the Panel Numbers are 100D, 125B, 225C and 250B per the Index Map. These are dated March 15, 1994; March 15, 1994 and September 19, 1984 respectively for Panels 100D, 225C and 250B. Panel 125B is not individually printed They are not as recent as the Charlotte County panels and show some differences due to the lack of mapping by the Federal Emergency Management Agency (FEMA).

C. If any structures, roadways or utilities are proposed within the post-development 100-year flood prone area, identify their location and indicate what measures will be taken to mitigate the potential flood hazard and to maintain the 100-year floodplain storage volume.

The majority of the proposed development will be in areas not impacted by the FEMA 100 year floodplain as now mapped. The development within the FEMA floodplain will have finished floors at or above the recommended levels. Without floodways, development will not be complicated. There are no floodways in either county at this time. There are now draft maps for Lee County that include floodways. The present plan makes relatively few impacts to the floodways based on the current master plan. There will be impacts due to the widening of SR 31 and CR 78. A revised analysis will be required when those facilities are designed. Compensating storage will be provided to replace lost storage as part of the SFWMD permit requirements. Most of the utilities will be underground and therefore will not be impacted by or impact the floodplain. Roadway crossings will be designed to minimize impacts to the floodplain by having adequate openings.

D. Discuss any potential increases in the off-site flooding due to the development of this project.

The proposed development will be designed such that the potential for offsite flooding will be mitigated. This will primarily be accomplished by maintaining the existing conveyances without additional control structures. Water management control will be accomplished by structures offline from these conveyances. Offsite discharges onto the property will be properly routed around or through the property to avoid offsite flooding. The South Florida Water Management District along with Charlotte County and Lee County will also review the respective development plans during permitting to ensure the design is in compliance with regulatory standards that prohibit offsite flooding. The primary mechanism for maintaining offsite flows is that the plan minimizes the amount of structures in the existing flow paths. No new water control structures are proposed in these conveyances. As stated above in the response to C, roadway crossings will be designed to minimize the water surface elevation in the immediate vicinity.

From SFWMD DRI Addendum Questions:

What is the developer's source and methodology used to derive flood prone area information? Has the developer sought the best available information from counties, cities, water management districts, etc. (in addition to, or in lieu of, the Federal Emergency Management Agency data), relative to flood prone areas.

The developer’s engineer has worked on this site for more than 30 years and understands the areas that flood based on observations and modeling accomplished for past work. In addition to that, backwater profiles available in the Lee County Surface Water Master Plan and the modeling done by the Soil Conservation Service, now known as the Natural Resources Conservation Service was used to establish the areas of flooding concern for the site in addition to the Federal Emergency Management Agency existing mapping and the draft maps by the same agency. The engineers have also coordinated with the WMD on modeling that is ongoing in the area for watershed analysis.

QUESTION 18 - WASTEWATER MANAGEMENT

NOTE: The information contained in the responses to Question 18 is for the entire Area 6 property; however, development order approval is only being requested for the Charlotte County portion of the property at this time. The Lee County property within area 6 will be developed at a later time. At this time, no changes to the existing land uses in Lee County are proposed.

Charlotte County:	
Existing Level of Service:	161.5 gpd/ERC
Adopted Level of Service Standard:	0 gpd/ERC
Level of Service After Project Buildout:	202.5 gpd/ERC

Lee County:	
Existing Level of Service:	200 gpd/ERC
Adopted Level of Service Standard:	0 gpd/ERC
Level of Service After Project Buildout:	202.5 gpd/ERC

A. Provide, in the table given below, the projected wastewater generation at the end of each phase of development and proposed wastewater treatment. Identify the assumptions used to project this demand.

Table 18-1
Wastewater Generation and Treatment

Phase	Wastewater Generation (mgd)	On-Site Wastewater Treatment (mgd)	Off-Site Wastewater Treatment (mgd)
Phase 1			
Single Family	0.526	0.526	0.000
Multi-Family	0.283	0.283	0.000
Retail	0.062	0.062	0.000
Office	0.026	0.026	0.000
Medical Office	0.000	0.000	0.000
Industrial	0.009	0.009	0.000
Golf Course	0.000	0.000	0.000
Hotel	0.022	0.022	0.000
Schools	0.021	0.021	0.000
Churches	0.002	0.002	0.000
Parks	0.014	0.014	0.000
Hospital	0.000	0.000	0.000
Assisted Care Living Facility	0.000	0.000	0.000
Civic Uses	0.014	0.014	0.000
Phase 1 Total	0.981	0.981	0.000

Phase	Wastewater Generation (mgd)	On-Site Wastewater Treatment (mgd)	Off-Site Wastewater Treatment (mgd)
Phase 1 & 2			
Single Family	1.314	1.314	0.000
Multi-Family	0.708	0.708	0.000
Retail	0.136	0.136	0.000
Office	0.068	0.068	0.000
Medical Office	0.036	0.036	0.000
Industrial	0.036	0.036	0.000
Golf Course	0.016	0.016	0.000
Hotel	0.101	0.101	0.000
Schools	0.051	0.051	0.000
Churches	0.011	0.011	0.000
Parks	0.035	0.035	0.000
Hospital	0.040	0.040	0.000
Assisted Care Living Facility	0.075	0.075	0.000
Civic Uses	0.020	0.020	0.000
Phase 1 & 2 Total	2.648	2.648	0.000

Phase	Wastewater Generation (mgd)	On-Site Wastewater Treatment (mgd)	Off-Site Wastewater Treatment (mgd)
Phase 1, 2 & 3			
Single Family	1.949	1.949	0.000
Multi-Family	1.038	1.038	0.000
Retail	0.505	0.505	0.000
Office	0.247	0.247	0.000
Medical Office	0.090	0.090	0.000
Industrial	0.120	0.120	0.000
Golf Course	0.024	0.024	0.000
Hotel	0.135	0.135	0.000
Schools	0.081	0.081	0.000
Churches	0.019	0.019	0.000
Parks	0.048	0.048	0.000
Hospital	0.040	0.040	0.000
Assisted Care Living Facility	0.075	0.075	0.000
Civic Uses	0.025	0.025	0.000
Phase 1, 2 & 3 Total	4.396	4.396	0.000

Phase	Wastewater Generation (mgd)	On-Site Wastewater Treatment (mgd)	Off-Site Wastewater Treatment (mgd)
Phase 1, 2, 3 & 4			
Single Family	2.393	2.393	0.000
Multi-Family	1.267	1.267	0.000
Retail	0.527	0.527	0.000
Office	0.252	0.252	0.000
Medical Office	0.090	0.090	0.000
Industrial	0.120	0.120	0.000
Golf Course	0.024	0.024	0.000
Hotel	0.135	0.135	0.000
Schools	0.100	0.100	0.000
Churches	0.022	0.022	0.000
Parks	0.054	0.054	0.000
Hospital	0.040	0.040	0.000
Assisted Care Living Facility	0.075	0.075	0.000
Civic Uses	0.027	0.027	0.000
Phase 1, 2, 3 & 4 Total	5.124	5.124	0.000

As noted above, Table 18-1 Wastewater Generation and Treatment is a projection of wastewater generation based upon the land uses, density and intensities for the site, which will be developed in four phases. The flows shown in Table 18-1 Wastewater Generation and Treatment, were calculated by assuming that 90% of potable water use (see Table 17-1) will return to the wastewater treatment plant. This high percentage of

return flow is due to planned dual lines that will provide irrigation water (from non-potable sources) to each residence and business. The table below (Table 18-2) further illustrates the wastewater generation projections.

Table 18-2: Wastewater Generation and Generation Type Quantities

Type	Wastewater Generation	Phase 1 Qty.	Phase 2 Qty.	Phase 3 Qty.	Phase 4 Qty.	Total Qty.
Single Family (units)	202.5 gpd per unit	2,599	6,490	9,624	11,816	11,816
Multi-Family (units)	202.5 gpd per unit	1,399	3,494	5,128	6,254	6,254
Retail (feet^2)	0.18 gpd per feet^2	344,640	758,280	2,804,903	2,925,943	2,925,943
Office (feet^2)	0.18 gpd per feet^2	146,160	377,860	1,374,740	1,400,000	1,400,000
Medical Office (feet^2)	0.18 gpd per feet^2	0	200,000	500,000	500,000	500,000
Industrial (feet^2)	0.18 gpd per feet^2	50,000	200,000	664,057	664,057	664,057
Golf Course (feet^2)	450 gpd per golf hole	0	36	54	54	54
Hotel (feet^2)	0.37 gpd per feet^2	60,000	270,000	360,000	360,000	360,000
Schools (students)	19.8 gpd per student	1,036	2,587	4,089	5,053	5,053
Churches (feet^2)	0.18 gpd per feet^2	10,000	60,000	105,000	120,000	120,000
Parks (acres)	180 gpd per acre	80	195	265	300	300
Hospital (feet^2)	225 gpd per bed	0	177	177	177	177
Assisted Care Living Facility (units)	180 gpd per unit	0	418	418	418	418
Civic Uses (feet^2)	0.18 gpd per feet^2	80,000	110,000	140,000	150,000	150,000

B. If applicable, generally describe the volumes, characteristics and pre-treatment techniques of any industrial or other effluents prior to discharge from proposed industrial-related use(s).

The project does not include any industrial uses requiring discharge.

C.1. If off-site treatment is planned, identify the treatment facility and attach a letter from the agency or firm providing the treatment outlining present and projected excess capacity of the treatment and transmission facilities through buildout, any other commitments that have been made for this excess and a statement of ability to provide service at all times during or after development.

No off-site treatment is planned for this project.

C.2. If service cannot be provided, identify the required capital improvements, cost, timing, and proposed responsible entity necessary to provide service at all times during and after development.

No off-site treatment is planned for this project.

D. If septic tanks will be used on site, indicate the number of units to be served, general locations and any plans for eventual phase-out.

A practicable and feasible solution to wastewater treatment and disposal appears to be a single plant system (constructed in phases) within the overall Babcock Ranch Community. Options are being considered to utilize decentralized systems in some of the development pods as an alternate means of treatment. Septic tank/drain fields or other alternatives may be utilized at selected locations for start-up facilities such as construction trailers, sale centers and other locations where the permanent sewer is not available due to development phasing and timing.

E. Indicate whether proposed wastewater service will be provided within an established service area boundary.

Town and Country Utilities Company, an affiliate of Applicant, has applied for and has received a waste water certificate from the Florida Public Service Commission. Certificate was issued in January, 2007.

QUESTION 19 - STORMWATER MANAGEMENT

NOTE: The information contained in the responses to Question 19 is for the entire Area 6 property; however, development order approval is only being requested for the Charlotte County portion of the property at this time. The Lee County property within area 6 will be developed at a later time. At this time, no changes to the existing land uses in Lee County are proposed.

Existing Level of Service: The level of service across the Babcock Ranch Community is varied. The portion north of Hercules Grade and three fields at the south end have storm water systems that provide the water quality and quantity attenuation to meet the requirements of South Florida Water Management District (SFWMD). Those include the 25 year-3 day storm event for the allowable discharge and detention of the first inch of runoff for water quality treatment. The majority of the farm fields where development will occur have no storm water detention or water quality facilities. The only buildings are in the mine area, the fire station and one private residence. The mine buildings have been sufficiently elevated to be well above flood levels by FEMA or as required under the ERP requirements. The fire station is elevated, but predates the current rules so it does not have a surface water management system. The private residence was elevated to utilize an elevated drainfield on septic tank system and so is higher than would be required by storm water flooding of the building alone. Finish floor elevations have not been established for other portions of the proposed Babcock Ranch Community since there are no habitable structures elsewhere.

Adopted Level of Service Standard: The level of service adopted by Charlotte County is as follows:

Policy 1.3.2: Charlotte County adopts the following level of service standards for storm water management facilities:

a. New arterial and collector roadways will be designed and constructed to enable not less than one lane of traffic in each direction above the design high water elevation resulting from a 25-year frequency, 24-hour duration rainfall event distributed in accordance with methodologies approve by the appropriate water management district;

b. Storm water management facilities for structures in all new subdivisions will manage storm water resulting from a 25-year frequency, 24-hour rainfall event distributed in accordance with methodologies approved by the appropriate water management district; by either providing individual on-site facilities or a central facility(s).

c. New parking facilities will be designed and constructed with a maximum temporary detention depth of nine (9) inches resulting from a 5-year frequency, 24-hour duration rainfall event distributed in accordance with methodologies approved by the appropriate water management district;

d. All new development on existing platted lots (except single-family, duplex, and tri-plex dwelling units within Charlotte County) is required to provide on-site storm water management for runoff resulting from a 25-year, 24-hour rainfall event distributed in accordance with methodologies approved by the appropriate water management district;

e. New local residential streets will be designed and constructed with the pavement center line at or above the design high water elevation resulting from a 5-year, 24-hour rainfall event distributed in accordance with methodologies approved by the appropriate water management district.

The level of service adopted by Lee County is as follows:
Policy 60.3.1: The following surface water management standards are adopted as minimum acceptable levels of service for unincorporated Lee County (see Policy 95.1.3).

A. Existing Infrastructure/Interim Standard
The existing surface water management system in the unincorporated areas of the county will be sufficient to prevent the flooding of designated evacuation routes (see Map 15) from the 25-year, 3-day storm event (rainfall) for more than 24 hours.

B. Six Mile Cypress Watershed (see Map 18)
Not applicable since none of the Babcock Ranch Community is in the Six Mile Cypress Watershed.

C. Other Watersheds (see Map 18)
Not applicable since none of the Babcock Ranch Community is within the listed watersheds. Babcock Ranch Community will meet or exceed these as stated below in the Table under the standard question B for a DRI.

D. Regulation of Private and Public Development
Surface water management systems in new private and public developments (excluding widening of existing roads) must be designed to SFWMD standards (to detain or retain excess storm water to match the pre-development discharge rate for the 25-year, 3-day storm event {rainfall}). Storm water discharges from development must meet relevant water quality and surface water management standards as set forth in Chapters 17-3, 17-40 and 17-302, and rule 40E-4, F.A.C. New developments must be designed to avoid increased flooding of surrounding areas. Development must be designed to minimize increases of discharge to public water management infrastructure (or to evapotranspiration) that exceed historic rates, to approximate the natural surface water systems in terms of rate, hydroperiod, basin and quality, and to eliminate the disruption of wetlands and flow-ways, whose preservation is deemed in the public interest. (Amended by Ordinance No. 92-35, 94-29, 00-22)

Level of Service After Project Buildout: The level of service is described in the table with in the response to item B below. The proposed level of service for this community will meet or exceed that of Charlotte and Lee County along with the requirements of state and federal agencies. The table provides the requirements for water quality, roads, allowable discharge, finish floor elevations for buildings and other features of the community.

A. Describe the existing drainage patterns on-site as shown on Map I, including any potential flooding and erosion problems.

Topography

The general topography of this area ranges from a high of approximately 37-ft. NGVD 1929 north of Tucker's Grade to just less than elevation 10 ft. NGVD along County Road 78 at the south end of the property. The Topographic Map illustrates this well (see Map C). The drop in elevation from north to south is not constant. The Charlotte County portion of the community decreases in elevation at a rate of about two feet per mile. Land slopes in Lee County are steeper with an average of about seven feet per mile. This northern area has a higher

percentage of wetland ponds and sloughs whereas the steeper southern portion has smaller isolated ponds for wetlands and well-defined streams.

The upper ends of the streams are sloughs or broad pond areas. The northern portion of Area 6 wraps around the headwater area for Trout Creek, known as Curry Lake. This is a broad shallow pond area that exhibits heavy amounts of wetland vegetation while the majority of the surrounding vegetation is upland. It is the focal point in lands purchased by the State of Florida where a large percentage of the land cover is uplands. Water flows from this area south through the Curry Lake Canal/Trout Creek System down to the main part of Trout Creek in Section 9, which is at the south end of Area 6. Owl Creek is the prominent water management feature in the southwest corner of Area 6. There is a small portion of the Owl Creek Watershed within Area 6 and Telegraph Cypress Water Management District. This stream is well defined with steep banks and relatively high slopes. There is very little of the Babcock Ranch that goes directly into Owl Creek. A branch of Owl Creek picks up another portion of the Ranch. To the east of Trout Creek, and a tributary to Trout Creek within the Ranch and adjacent property owned by Benderson (Argo Ranch) is a watercourse known as Stricklin Gully. This travels south from just south of South Pasture Grade to the south boundary of Area 6, through Argo Ranch, and then turns west and reenters Area 6. The gully within Area 6 is a wetlands slough system; predominantly isolated ponds connected by overflow.

The majority of Area 6 drains from north to south. Water flow starts as sheet flow and then enters wetland ponds or sloughs that change into incised conveyances prior to leaving the site. The exception to this is the northeastern portion that drains east into Telegraph Swamp prior to moving south. Most of this area will remain in agriculture based on the settlement agreement with the Sierra Club.

The land is relatively stable with little erosion. Most of the erosion potential exists within the actively farmed fields. Water erosion is controlled by regulating the water discharged from the fields and by cleaning the ditches on an annual basis. Once farming is ceased and the field is returned to pasture, the entire area is disked to remove the ditches and planted with pasture grass and legumes to stabilize the soil and to enhance the food source for foraging/grazing animals.

Land Use

In between these watercourses are a large number of farm fields. These fields are either in pasture or a higher level of farming activity such as sod or vegetables. The entire property, other than the mining operation, is in some type of active agricultural operation, with 50% being in some type of agricultural operation other than cattle grazing. There are well-defined fields that are in different states of operation over this area. Only a small percentage of these fields, at the southern end, have been developed recently and have modern storm water detention facilities. The majority of the fields operate under the original operations permit issued by South Florida Water Management District in 1980. These fields can be farmed in a multitude of ways so long as a discharge pump is not used to remove storm water during any time of the year. Irrigation pumps and wells are allowed in this area. The only prohibition on the management of water is to remove the water by pumps. Gravity discharge from

the area is the only means available to the farmers. Even with this restriction, there are many fields that are well drained by the natural and man-made watercourses so these fields do receive truck crop cultivation on a regular basis.

Hydrology

Discharges from this property have been modeled in several different efforts. One of the earlier efforts was by Rene' Beccat, working for Johnson Engineering, Inc. in the mid 1970s. This work was used in the early permitting a few years later and was done in conjunction with the establishment of the weirs in Telegraph Cypress at the north end and at the Big Island Structures. Runoff rates lower than this initial work were established later through permitting and subsequent modeling efforts in the Lee County Surface Water Master Plan. The current rate of runoff from this property by permit is 39 cubic feet per second per square mile (csm). All of the permitting work that has been done recently for design of storm water management systems has been based on the 39 csm. This is an average rate across the site. It is easily shown that in the area of steep slope at the south extreme end of the community, runoff rates are much higher.

Much of Area 6 is above the mapped Federal Emergency Management Agency (FEMA) 100-year floodplain as currently mapped. There is an area in Charlotte County that is an undesignated A Zone. Elevations will have to be established for this area. There is an effort being conducted that will update the FEMA maps for Lee County. It is anticipated that the draft maps will be adopted in the third quarter of 2007.

B. Describe the various elements of the proposed drainage system shown on Map I, including any wetlands to be used as part of the system, and discuss the design criteria (including stage-storage discharge assumption) to be used for the various elements. Provide typical cross-sections (showing dimensions, slopes and control elevations) for any proposed lakes or swales. Identify the control elevation for all drainage structures. Include information as to what design storm will be used for what portions of the system.

Proposed Facilities

The total area within Babcock Ranch (Area 6) is 17,787.83 acres. The allowable discharge has been established at a rate of 39 csm as discussed above. The undeveloped areas between the development pods will remain much as they are today and not have controlled discharge. There are offsite areas that will also contribute flow through the system. These are primarily the SR 31 present and future R/W and state lands north of Area 6. The density, intensity and type of development will alter the amount of detention required to meet this allowable discharge limitation, but will not change the allowable discharge. It is estimated on a preliminary basis that about 4,300 acre-feet of volume would be required to provide the attenuation to meet the above peak rate for the developed areas, which are less than half of the total area. This would translate into a combination of lakes and wetlands totaling between 1,470 acres and 1,780 acres. The range of area needed is affected by configuration and depth of storage. The values provided anticipate a storage depth of 2.5 feet to 3 feet. The depth of storage is

affected by wetland health maintenance, land slope, depth to the wet season water table, fill depths, etc. The land slopes will require intermediate control structures within the water management systems so that the downstream areas do not receive a disproportionate share of the runoff.

The final outfall structures will be placed to deliver water to similar locations as it is delivered to under the existing conditions to maintain flow patterns. The modification to the community to incorporate a modern water management system in place of the uncontrolled gravity release from many of the farm fields should decrease the peak rate of runoff delivered to the downstream properties. For those areas already served by detention and control structures, there should be no change to the peak rate of runoff.

The current plan is to construct wetlands for about 25% of the needed water management storage area. Open storm water ponds will be used for the primary volume attenuation and wet detention for water quality. This will be preceded by pretreatment as required and the use of best management practices as outlined in the SFWMD draft rules for water quality improvement. Onsite wetlands within the development areas will be incorporated into the system. Those wetlands outside the development pods will continue to store and transmit water as they do today.

Some of the fields have storm water discharge pumps. It is not anticipated that pumps will be used for this project to discharge storm water from within the developed areas to a detention area. Although not planned at this time, a pumped system might be considered for wetland restoration if a gravity source of water is deemed not practical. Pumps may still be used for those areas that continue in agricultural use after development is complete.

Structures

Map I-2 shows the preliminary control elevations of water control structures. The control elevations shown are based on the existing ground elevations, existing permitting, onsite observations and soils data. It is anticipated that these numbers will be modified as data is obtained from vegetative sources and the piezometers that have been established. Due to more than 20 feet of elevation change on the site, there must be many water control structures of varying elevation.

The water control structures are planned to set water levels in the developed portions of the site. The water courses that convey water through and out of Area 6 are not proposed to have control structures beyond those that exist today. This will allow the streams and wetland systems to continue to function as they do today.

Water Quality

The storm water treatment system will include a backbone system consisting of wet detention areas and dry detention areas. Dry detention areas will not be used as the primary detention/retention component but will be utilized in combination with wet detention/retention facilities. The storm water treatment system will be

designed in accordance with SFWMD Rule 40E-41.421 - 40E-41.463, known as the Southwest Florida Basin Rule Criteria, and will provide 50% retention/detention water quality treatment above that required by Section 5.2.1(a) of the SFWMD Basis of Review. To achieve this level of treatment, Best Management Practices (BMPs) related to source controls, storm water conveyance and pretreatment, and storm water management system design enhancements, will be employed within the Babcock Ranch Community.

These BMPs will include, but not limited to some or all of the following: reduced turf coverage, native landscaping, created wetlands, filter marshes, phyto-zones, extended hydraulic residence times, and increased flow paths. The final storm water treatment system will be designed to provide an efficient, aesthetic and sustainable treatment train to achieve the desired level of treatment.

Table 19-1
Permitting for Babcock Ranch

EVENT	CHARLOTTE	LEE	SFWMD	ACOE	BABCOCK
Water Quality	Follow SFWMD	Follow SFWMD	First inch of runoff or 2.5 inches times the percent of impervious cover expressed as a decimal. Commercial areas shall provide one half inch of dry pretreatment.	Compute the existing conditions to determine annual loads from the site. Provide a treatment system for the proposed land use changes that keep the post development loadings at or below the existing conditions.	First inch of runoff or 2.5 inches times the percent impervious cover expressed as a decimal times 1.5. A. Provide monitoring similar to lands in DRGR area of Lee County. B. Establish baseline water quality for surface water and ground water. See question 14 for details. C. Runoff water quality goal is to meet or exceed present condition or state standard, which ever is better for the environment. D. Adopt adaptive management procedures that will adjust design of future portions or guidelines based on monitoring results. E. The proposed treatment factor will

					consist of source control, pretreatment, primary in lakes and end with filter marshes.
Roads and Parking lots	Minimum swale flowline gradient shall be one-tenth of one (0.1) percent for grassed swales. For curb and gutter, minimum flowline gradient will be based on hydraulic capacity analysis for a five-year design storm. The minimum elevation of road centerline shall be five (5) feet above mean sea level National Geodetic Vertical Datum (NGVD), or as determined in the SFWMD permits.	The road center line or minimum parking lot elevation is to be at or above the peak of the 5 year-1 day event. Arterial and collector roads are to have one lane passable in a 25 year-3 day event.	The road center line or minimum parking lot elevation is to be at or above the peak of the 5 year-1 day event, two feet above the control elevation, or the minimum local criteria.		The low edge of pavement for local roads to be at or above the peak stage for the 5 year-1 day event. The arterials and collectors will have one lane above the 25 year-3 day event peak stage. Parking lots are to be at or above the 5 year-1 day event. Minimum swale grades in urban and suburban areas will have a minimum longitudinal slope of 0.2%. Ditches may have a flatter longitude and slopes. The minimum longitudinal slope on roads with curb and gutter is 0.3%.
Allowable Discharge	Drainage facilities within the limits of the subdivision, plus all off-site facilities necessary to fully and finally	Follow SFWMD. Lee County and SFWMD had a surface water master plan done that has peak	25 year-3 day event for peak rate. This requires a perimeter rim elevation control of at least that		25 year-3 day event for peak rate. Use existing peak rate of 39 csm as maximum rate for the design event.

	discharge all runoff of the twenty-five year frequency, twenty-four-hour duration design storm.	allowable discharge rates in it for properties that do not already have a permitted discharge rate.	elevation. The peak rate will be established by the published rate in the Lee County Surface Water Management Plan or a pre-vs. post analysis and use, whichever is less.		The perimeter berm elevation will be 0.3 feet above the peak stage for the 25 year-3 day event and the 100 year-1 day event.
Compensating Storage			Provide equal pre-development and post development volume for 100 year-3 day event based on historical storage provided by the site.		Provide equal pre-development and post development volume for 100 year-3 day event.
Stream conveyance	Fill may be used to raise land in areas subject to flooding provided fill does not restrict the flow of water and unduly increase flood heights as determined by the county engineer.	Allowable rise in a 100 year event is from 0 to 1 foot. Determination of this is site dependant based on past flooding.	Allowable rise is not to create adverse impact.		No rise offsite unless requested by the upstream land owner. Allow onsite rise of up to 0.5 feet. Create a map for Babcock Ranch Community that identifies flood plain extents for 5, 25 and 100 year storm events.

Finish Floor Elevation	The finish floor elevation shall be a minimum of eighteen (18) inches above road centerline at the building site as defined in (1) above or as required by floodplain data or the SFWMD permit.	100 year-3 day event.	100 year-3 day event.		100 year-3 day event peak stage plus 0.5 feet.

C. From Map I, indicate the total number of acres in each drainage area and specify the acreage of any portions of drainage areas outside the site boundaries. Complete the following table for on-site drainage areas.

Map I-1, Existing Drainage Patterns and I-2, Proposed Drainage Patterns show the existing drainage and the proposed drainage conditions. Table 19-2, Drainage Areas provides the drainage area characteristics.

Table 19-2
Drainage Areas

Description	Impervious Surface (Acres)	Surface Detention (Acres)1	Open Space (Acres)	Total (Acres)
Existing	3.88	100.00	17683.95	17787.83
Proposed	3360.7	1588.42	12838.71	17787.83

1 Category includes lakes, ponds, storage, areas, etc.

D. Specify and compare the volume and quality of run-off from the site in its existing condition to the anticipated run-off at the end of each phase of development. (The parameters to be used to define "quality" and methodology should be agreed to by the regional planning council and other reviewing agencies at the preapplication conference stage.) Identify any changes in timing or pattern of waterflows between pre- and post-development conditions. Indicate major points of discharge and ultimate receiving water body(ies). Indicate what provisions will be incorporated in the design of the drainage system, including a summary description of any Best Management Practices to be utilized, to minimize any increase in run-off from the site and to minimize any degradation of water quality in the ultimate receiving body over that occurring in its pre-development state.

The appropriate water quality volume will be detained and treated as required by Chapter 40E-4. In addition, the rate of discharge under post-development conditions will be attenuated at or below predevelopment rates. The major points of discharge are indicated on Map I-2, Proposed Drainage Patterns. Please see the table in part C above.

Best management practices will be incorporated and utilized throughout the design and construction process. Area disturbed will be stabilized upon completion of final grading. In general, drainage patterns under pre-development conditions will be followed under post development conditions. Localized sub-basins will be modified to reflect a future detailed site plan, and to minimize erosion potential.

Further, by separate agreement between the Sierra Club and MSKP III (Kitson), a privately enforceable commitment has been made for additional treatment. Although not part of the environmental methodology, the excerpt from that July 18, 2006 Settlement Agreement is set forth below for information purposes. The specific design and features of the storm water treatment system will be included in the application materials.

Excerpt from Sierra Club Settlement:

Storm Water Treatment

The development will feature the use of natural systems either through preservation, restoration, or other integrative strategies and avoid the more energy-intensive approaches. Kitson shall implement the use of natural solutions for flow ways, water management and landscaping. The storm water treatment system shall include a combination of ponds, filter marshes, buffers, manmade storm water ponds, golf course ponds, created wetland treatment systems, wetland buffers or other appropriate storage and treatment methods, based upon site specific conditions. Golf courses tees and greens shall be designed with underdrains. Seepage from these underdrains will be collected and treated in the storm water treatment system. The water management system shall be subjected to South Florida Water Management District rules and regulations.

Kitson shall also establish water quality background to facilitate determinations of existing quality compared to post-development quality.

Man-made landscapes and storm water treatment areas will enhance the existing native systems and a native plant nursery will be built to provide the native trees and landscape plants for the community. Kitson and/or its agent shall pre-approve landscape materials and xeriscape plants which will be used throughout the community.

E. Who will operate and maintain the drainage system after completion of the development?

The storm water management system will be operated and maintained by a Community Development District, Independent Special District, or similar district as established under State of Florida laws.

From SFWMD DRI Addendum Questions:

1. The concept plan of the complete drainage system, including the method of conveyance of runoff, proposed outfall and off-site impacts (upstream and downstream).

A detailed description of the Babcock Ranch Community is given in the answers above. A summary of the drainage system follows. The existing conveyances will remain. Each development pod will provide its own detention ponds and wetland scrubber system. Controlled discharge from the outfall structure(s) will deliver water to one of the existing outfalls for delivery south from the overall site.

The offsite area upstream of the community is owned by the State of Florida. Water levels will be maintained at their present range or above to fit the ultimate management plan for that property. Downstream areas should see some reduction in peak flows since much of the area has been farmed without the use of detention ponds. The land slopes in some areas are relatively steep for this area and produce much higher peak runoff rates than are permitted for the current uses or anticipated for the proposed uses.

Storm water treatment ponds will be used to attenuate the runoff to meet these requirements.

2. An analysis of the drainage system response (functional capabilities) to the 25-year, 3-day storm.

The surface water management system for each development pod will be designed to control the discharge to the permitted rate of 39 csm. This peak rate is lower than the existing conditions for two reasons. One is that the land slopes are five to ten feet per mile and will generate higher discharge rates than this. The second is that over half the area is in farm fields with little to no detention. More than 80 percent of the development will occur in these fields. The use of storm water treatment ponds and created wetlands will attenuate the peak runoff rate to lessen the peak rate experienced downstream. It will also provide some additional base flow to the outfall conveyances, which will in turn increase the base flow to the Caloosahatchee during the dry season and assist in returning the estuarine portion of the river to a more balanced system as is the goal of SFWMD under the Minimum Flows and Levels program.

3. A breakdown of acreages: impervious, water bodies, green area, types of land use, etc.

A table showing the area of impervious, water bodies and green area is shown in the response to Item C above. There are planned to be 19,500 residential units and 6,000,000 square feet of non-residential uses. These will be placed in various combinations in the Town Center, Villages and Hamlets within the overall Babcock Ranch Community.

4. Stage-storage and stage-discharge information for the project.

The total volume of storage needed to provide adequate water quality treatment and water quantity attenuation is shown above in the response to Item B above. The land elevations vary more than 20 feet across The Babcock Ranch Community. The control elevations will range from near ground level to two feet below existing ground. The depth of storage is estimated to be between 2.5 feet and 3 feet above control in a 25 year-3 day storm event. The discharge from each development pod will be controlled by a fixed structure. There are no pumps planned for the control of water within or removal from the pods. A backwater profile analysis of the streams will be used to set the tailwater information to model for the development area calculations.

5. Typical proposed development elevations.

As described in the topography section above, the land elevations vary from below 10 feet NGVD to above 37 NGVD. Control elevations are anticipated to be zero to three feet below ground level and the finish floor elevations are usually four to five feet above the control elevation. Road elevations will vary with the size and use, but will generally be between two and four feet above the control elevation.

6. For those projects being reviewed under the Coordinated Review/Concurrent Processing for drainage permits, the data requested for a Surface Water Management Permit is required.

This project is not proposed to be reviewed under the Coordinated Review/Concurrent Processing.

Option a. What regional effect will post-development land use have on water table and depression storage in comparison to pre-development storage and drainage patterns? This should include any regional impacts to lake levels or stream flows whether regulated by SFWMD or not.

Option b. Compare pre- and post-development hydrology and hydraulics of the watershed (i.e., runoff characteristics, flow hydrographs, low flow, flood elevations) and what regional effects this development will have.

The present hydrology is affected by farm fields, and roads that cross the proposed Babcock Ranch Community. These are all part of the active ranch that it is. Hydrology is also affected by the harvesting of trees and their regrowth in a cycle that is 30 years to 40 years long. Areas are not clear cut. Seed trees are left with each harvest to allow for natural regeneration. Fire is also used as a management tool for both the grassed areas and the forested areas. The burning is done on a three year cycle across the entire ranch. Farm fields are rotated in and out of crops and sod is lifted from the fields before planting another crop in the field. All of these activities adjust the hydrology of the site from year to year. The fields are gravity drained with the exception of three at the south end of the community. These three are permitted to pump water from the field into a diked detention area and release water through a gravity control structure.

Land slopes vary from 2 feet per mile to 10 feet per mile across the community. The use of gravity drainage without control structures provides greater peak rates of discharge than the overall permit allows. Since these have been in existence for many years, continued farming of the fields is allowed without any use of discharge pumps. The direction of flow for primary conveyances is from north to south. The secondary conveyances generally move water east or west to one of the conveyances.

The western portion of the site in general has been more highly modified in drainage facilities than the eastern portion. Ditches and enlarged creeks provide more rapid drainage than occurred historically on the site. The major ditches have been on the site for more than 60 years. Minor ditching has been done since then to facilitate the farming activities. Control structures have been installed in Trout Creek's upward extension across Hercules Grade, also known as Curry Lake Canal, and in the Telegraph Swamp to the east. These structures were added after the conveyance construction to limit the discharge.

The post development conditions will include a storm water system that has about 20 percent of the area in storage. About three fourths of that will be in storm water ponds of varying sizes, shapes and depths. Large marsh areas near the downstream end of the system will be constructed to further polish and treat the runoff. These will provide about 25 percent of the water management storage area. Since the created marshes are going to be part of the system, treatment depths are planned between 2.5 feet and 3 feet. This will allow the depth increase in the storm water ponds in a five year-1 day rainfall event to be less than two feet.

Storm water runoff from the areas outside the development pods will remain much the same as it is today. The use of fire will continue and selective harvesting of trees will be

done to maintain the health and vitality of the preserve areas. The maintenance of these areas much as they are today will provide similar hydrology and hydraulics from these areas in the post development condition as experienced in the pre-development condition.

Water within the development pods will be moved through the treatment pond system and marshes with ultimate release to one of the primary conveyances. In this way, the storm water treatment ponds replace the secondary conveyances. The release from these detention/treatment systems will be to the existing primary conveyances so that the downstream receiving bodies will have water delivered to the same general locations as the existing ditches. The difference will be the treatment and attenuation that will be received within the water management system. The allowable discharge is already set by the present permit at 39 cubic feet per second per square mile (csm). This is lower than the actual runoff from this portion of the site. The system will still deliver from the undeveloped areas at the same rate as the existing system. The net result will be lower peak rates of discharge and more treatment of the water from the system prior to release from the site to downstream receiving waters.

There are no proposed control structures in the primary conveyances beyond the one existing structure at Hercules Grade on Curry Lake Canal. There is a possibility to raise the control elevation on this structure to restore the hydroperiod of Curry Lake. Curry Lake is not a lake. It is a large seasonal pond surrounded by a mix of uplands and isolated wetlands. Many of the isolated wetlands have been interconnected by shallow ditches. Raising the control elevation for Curry Lake will require acceptance by the State of Florida since it is on their property and not part of the Babcock Ranch Community.

The regional effects of the surface water management plan will be an increase in base flow/low flow from this site to the Caloosahatchee while decreasing the peak flow rate. These two functions help SFWMD achieve the goals of Minimum Flows and Levels for the estuarine portion of the river as reflected in correspondence with the District during the Charlotte County comprehensive plan amendment process. The water quality of the runoff should improve with the higher level of treatment proposed for those areas than they have now.

From FGFWFC Guidelines for Completion:

1. On a vegetation map of the site, show the location of all proposed retention/detention lakes and ponds, swales, water control structures, and other water management system facilities.

The proposed development pods have about 90 percent of the vegetation coverage as active or fallow farm fields. Areas outside the development pods where lakes or filter marshes are to be constructed are primarily in farm fields also. The control elevations for each pod or portions of pods is shown on the proposed water management map (I-2) The hydrology of the native vegetation will be maintained or improved by the water management system design.

2. Provide design detail for proposed lakes, ponds, swales, etc., including depths, sideslopes, littoral zone creation, proposed wetland vegetation to be planted, high and low water elevations and inundation duration, and hydrologic connections to native wetlands or other stormwater management facilities.

The lakes/storm water ponds will have side slopes that provide littoral areas equal to or greater than the SFWMD requirements. The soils in the subsurface should allow stable slopes of 2H:1V below the littoral area as evidenced by the slopes in the active onsite mine pits. The storm water ponds are planned to be twenty (20) feet deep from the control elevation or until reaching a depth that is within two (2) feet above a confining layer. Mining pits are anticipated to be between 35 and 50 feet deep. The confining layer is anticipated to be 25 to 50 feet below land surface. Should the borings on the site determine that the confining layer is shallower, the depth of excavation for storm water ponds or mining pits will be adjusted to not encroach upon the confining layer.

Water levels in the proposed system will be maintained similar to levels now experienced. More than 60 piezometers have been installed and will be used to monitor the surficial ground water system. Data from these and biological indicators will be used to maintain or improve the hydrology of the systems that are outside the development pods. Upstream lands will be routed through or around the development pods. Waters could be diverted to other areas, but this is not being proposed or recommended. Determination of control elevations that will affect upstream lands will be coordinated with the State of Florida, which is not the current owner. These will be included in the site design and the conceptual water management plan for submittal to SFWMD for a Conceptual ERP approval. Native vegetation areas will be included in the landscape and incorporated into the system via ditch or pipe system with control structures to maintain appropriate water levels.

There is more than 20 feet of elevation change across the Babcock Ranch Community. As shown on Map I-2, there are many control elevations. The proposed storm water pond slopes, ditch slopes and littoral zones will all be tied to the appropriate control elevation to allow the system to take advantage of the existing system.

3. Discuss the proposed functioning of the stormwater management system with emphasis on impacts to native plant communities and mechanisms to ensure continued viability of these communities.

The native vegetation areas will be provided equal or greater water than they receive now. Some of these systems are now adjusted to the lower water levels. Adjustment of the water levels will need to be carefully considered. The water management system will be a series of interconnected lakes controlled by weirs to maintain water levels. There is considerable elevation change at this site and will require multiple weirs to maintain the water levels appropriate for the site. The anticipated weir locations are shown on the Proposed Water Management Facilities Map (I-2).

An integrated surface and ground water model will be used to look at the existing conditions and propose adjustments to the system for appropriate restoration. The interrelationship between the surface water system and the surficial aquifer are readily modeled using this program. AdICPR and HEC-RAS will be used to satisfy the permitting design calculations for sizing treatment ponds and dry areas.

QUESTION 20 - SOLID WASTE/HAZARDOUS WASTE/MEDICAL WASTE

NOTE: The information contained in the responses to Question 20 is for the Charlotte County portion of the Area 6 property only. Development order approval is only being requested for the Charlotte County portion of the property at this time. The Lee County property within Area 6 will be developed at a later time. At this time, no changes to the existing land uses in Lee County are proposed.

Existing Level of Service: No less than 7.2 pounds of MSW per permanent resident per day

Adopted Level of Service Standard: No less than 7.2 pounds of MSW per permanent resident per day

Level of Service After Project Buildout: No less than 7.2 pounds of MSW per permanent resident per day

A. Provide a projection of the average daily volumes of solid waste generated at the completion of each phase of development. Use the format below and identify the assumptions used in the projection.

Solid waste generation estimates are shown in Table 20-A.1. These generation rates do not account for anticipated reductions in the disposal rate through source reduction and recycling. Table 20-A.2 demonstrates the anticipated benefits of the recycling program assuming 30% recycling.

Criteria:

Residential population calculated for the Year 2030 included 11,616 single family units and 6,254 multi family units.

Non-residential calculations included the following: retail space 2,925,943 square feet, office space 1,900,000 square feet, industrial space 664,057 square feet, hotel rooms 600 rooms, civic center space 150,000 square feet, hospital 177 beds, assisted living units 418 units.

Recreational calculations included a golf course (54-holes) and 275 acres parks area.

Detailed Generation Rates are provided in Table 20-A.2.

Table 20-A.1
Estimated Solid Waste Generation

Phase	Domestic Solid Waste Cubic Yards/Day	Domestic Solid Waste Tons/Day
Existing	**0**	**0**
Proposed	**616**	**154**

Table 20-A.2
Anticipated Benefits of the Recycling Program

Description	Quantity	Unit	SW Generation Rate	Unit	Solid Waste Generated lb/day
Residential					
Single Family	11,616	D.U.	10.5	lb/day	121,968
Multi Family	6,254	D.U.	10.5	lb/day	65,667
Non-Residential					
Retail	2,925,943	SF	0.013	lb/sf/day	38,037
Medical Office	500,000	SF	0.06	lb/sf/day	30,000
General Office	1,400,000	SF	0.01	lb/sf/day	14,000
Industrial	664,057	SF	0.006	lb/sf/day	3,984
Hotel/Motel	600	Rooms	4	lb/room/day	2,400
Civic	150,000	SF	0.13	lb/sf/day	19,500
Elementary School	1,937	Students	1	lb/student/day	1,937
Middle School	1,061	Students	1	lb/student/day	1,061
High School	1,615	Students	1	lb/student/day	1,615
Churches (10)	120,000	SF	0.007	lb/sf/day	840
Hospital	177	Beds	16	lb/bed/day	2,832
ALF	418	Units	5	lb/unit/day	2,090
Recreation					
Golf Course (54 Holes)	200	Golfers	0.5	lb/golfer/day	100
Parks (275 Acres)	1,000	Visitors	2	lb/v/day	2,000
	Total Before Recycling (tons/day)				**154**
	Total After 30% Recycling (tons/day)				**108**

B.1. Please specify the extent to which this project will contain laboratories, storage facilities, and warehouse space where hazardous materials may be generated or utilized. What types of hazardous waste or toxic materials are likely to be generated? Will a hazardous materials management plan be prepared covering all uses of hazardous materials on-site? If so, please discuss contents and enforcement provisions.

Waste generated by the uses proposed for Babcock Ranch does not involve the facilities listed above. Retail, service and community activity solid wastes are included under the Domestic Solid Waste category.

B.2. Please discuss what measures will be taken to separate hazardous waste from the solid waste stream. What plans and facilities will be developed for hazardous or toxic waste handling, generation, and emergencies?

Any business within the development that generates hazardous wastes shall be responsible for the temporary storage, siting, and proper disposal of the hazardous waste generated by such business. There shall be no hazardous waste treatment, storage, or disposal facilities within the development.

B.3. Please identify off-site disposal plans for hazardous waste generated by this development and provide assurance of proper disposal by a qualified contractor.

Any off-site disposal of hazardous waste will be the responsibility of the business that has generated the hazardous waste. All local, state, and federal regulations would be followed in the proper off-site disposal of hazardous waste.

B.4. What local and state regulations, permits and plans will regulate the generation and handling of hazardous waste at this development?

Any business found within the development that generates hazardous waste shall be responsible for following all local and state regulations pertaining to the generation and handling of hazardous waste at this development.

C. For all waste disposal planned (on or off site), attach a copy of the letter from the developer describing the types and volumes of waste and waste disposal areas requested, and attach a letter from the agencies or firms providing services outlining:

1. The projected excess capacity of the facilities serving the development at present and for each phase through completion of the project,

It is anticipated that the municipal solid waste from the development will go to Charlotte County's Zemel Road Landfill. This landfill is projected to serve Charlotte County until 2021 at the current filling rate (700 tons/day). Charlotte County also has an additional 250 acres of future landfill area, which will add 50-60 years to the life expectancy of the landfill.

Discussions with Charlotte County Solid Waste Management Department indicate sufficient capacity at the Zemel Road Landfill for the next 50 years.

There is also a new private landfill under design/permitting phase in Charlotte County. This new landfill will have approximately 4,000 tons/day capacity. The total area of this future landfill is approximately 1,276 acres.

2. Any other commitments that have been made for this excess capacity,

The developer is not aware of any other contractual obligations for the disposal of solid waste from the development.

3. A statement of the agency's or firm's ability to provide service at all times during and after development (the agency or firm must be supplied with the solid waste generation table in (A) above).

Waste Management of Charlotte County has indicated its ability to provide franchise hauling services for both MSW and C&D waste in throughout the development. Please refer to Attachments 20-1 and 20-2 for letters from Waste Management to this response. Additionally, the Applicant is establishing an Independent Special District under Florida Statutes, Chapter 189, which may provide these services.