Answer Key for Environmental Geology Lab 9

Soil Type	Northwest	Northeast	Southwest	Southeast
	Block	Block	Block	Block
Yellow	63.4 %	55.5 %	59.7 %	68.0 %
Green	0 %	14.2 %	0 %	2.1 %
Purple	0 %	17.9 %	3.0 %	6.7 %
Lt Blue	8.6 %	5.3 %	7.4 %	10.1 %
Orange	14.7 %	.5 %	19.7 %	4.5 %
Red	13.3 %	6.6 %	10.2 %	8.6 %

Answers for Table 2. Calculated percent abundances of soil type per block.

1.

Yellow:	Mostly sand with some gravel, silt and clay
Green:	Mostly clay with some silt
Purple:	Almost all caliche
Lt. Blue:	Almost all sand
Orange:	Mixed silt and sand
Red	Mostly sand with some clay

2.

Yellow:	Poorly sorted
Green:	Well sorted
Lt. Blue:	Well sorted
Orange:	Well sorted
Red	Poorly sorted

3.

Yellow:	Sand
Green:	Clay
Lt. Blue:	Sand
Orange:	Silt/Sand
Red	Sand

4. The poorly sorting of yellow lowers its permeability because finer grained material fills in the porosity. Light blue has no finer material and therefore the porosity is unclogged explaining the high permeability of this soil type.

5. Yellow

6. Green

7. No because the green soil has a high shrink-swell potential that can damage any structures built on this soil. Additionally, the low permeability of the green soil causes the potential for flooding to be greater associated with this soil type.

- 8. Yellow and red
- 9. Yellow

10. House is on yellow soil and stock pond is on green soil. Additionally, the house has to be within 200 m of the property gate and the stock pond has to be within 100 m of the house. Draw on map

- 11. Sand and caliche
- 12. Only one small area of calcihe (purple soil) is within 500 m of your house.

Answers for Table 5.

SOIL TYPE	WATER INFILTRATION (I, mm)
Yellow	30 mm
Green	1 mm
Purple	0 mm
Lt. Blue	32 mm
Orange	30 mm
Red	10 mm

Answers for Table 6.

SOIL	I (MM)	9/16/2002	9/17/2002	9/18/2002	9/19/2002	9/20/2002	9/21
TYPE		eve.	eve.	eve.	eve.	eve.	eve.
Yellow	30 mm	25 mm	20 mm	15 mm	10 mm	5 mm	0 mm
Green	1 mm	0 mm	0 mm	0 mm	0 mm	0 mm	0 mm
Purple	0 mm	0 mm	0 mm	0 mm	0 mm	0 mm	0 mm
Lt. Blue	32 mm	27 mm	22 mm	17 mm	12 mm	7 mm	2 mm
Orange	30 mm	25 mm	20 mm	15 mm	10 mm	5 mm	0 mm
Red	10 mm	5 mm	0 mm				

13. At the most six to seven days

14.	Most Suited	Yellow	Orange
	Least Suited (excluding caliche)	Green	Lt. Blue

15. Yes because yellow and orange soils are present in all four blocks of your ranch.

- 16. Orange
- 17. Draw an extended road on map.

18. It is complex. If you are interested in producing more runoff that can be stored in stock pond then brush clearing would be favored. However, with brush clearing you are also likely to increase soil erosion that will decrease the fertility of your land. Also you are disrupt local habitats where wildlife reside.