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Continuing Education Course #189
A Guide to Low Impact Development

1. Which of the following is not a typical detrimental impact of land development?
 - a. An increase in stormwater rate & volume.
 - b. An increase in runoff velocity.
 - c. An increase in downstream pollutant load.
 - d. An increase in the downstream water quality.

2. Low impact development techniques consist solely of non-structural measures.
 - a. True.
 - b. False.

3. Which of the following are ways that rainfall can be utilized as a resource?
 - a. It can be caught in rain barrels and used for irrigation.
 - b. It can be collected from rooftops and used for non-potable water within a building.
 - c. It can be directed into small rain gardens.
 - d. All of the above.

4. The terms “Low Impact Development”, “Green Infrastructure”, and “Better Site Design” all describe a similar suite of techniques.
 - a. True.
 - b. False.

5. Which of the following will contribute to maximizing both land development potential and preservation of natural areas.
 - a. Cluster subdivisions.
 - b. Underground parking.
 - c. The use of multi-story buildings.
 - d. All of the above.

6. In a low impact development the amount of lawn should be which of the following?
 - a. Minimizing lawn area.
 - b. Maximizing lawn area.
 - c. Replacing lawn area with macadam.

7. In order to be effective a vegetated filter strip should have which parameters?
 - a. A minimum slope of 8% and a minimum length of 25 feet.
 - b. A maximum slope of 8% and a minimum length of 25 feet.
 - c. A minimum slope of 8% and a maximum length of 25 feet.
 - d. A maximum slope of 8% and a maximum length of 25 feet.

8. Karst topography is a geologic formation underlain by soluble bedrock.

- a. True.
 - b. False.
9. Reducing impervious surfaces can have which of the following beneficial effects:
- a. Provide for better traffic flow around a site.
 - b. Reduce the peak rate and volume of runoff.
 - c. Increase the parking efficiency on a site.
 - d. Increase the overall site development potential.
10. Curbs tend to concentrate runoff.
- a. True.
 - b. False.
11. Sidewalks can be eliminated if the following is true.
- a. They are not needed for safety.
 - b. They will increase the runoff.
 - c. They will cause a concentration of the runoff.
 - d. They will be constructed of wood chips.
12. Banked parking refers to what?
- a. Parking provided for a bank building.
 - b. An area set aside for parking if needed in the future.
 - c. The edge of the parking area.
 - d. Parking which is constructed of porous pavement.
13. Shared parking represents what?
- a. Parking spaces that are used at different times of the day by different uses.
 - b. Parking which is shared between two different lots.
 - c. Parking which is constructed of more than one material.
14. What is the void ratio of the sand in porous pavement?
- a. 10-25%.
 - b. <10%.
 - c. >25%.
 - d. 25-50%.
15. Using the Rational Method calculate the peak rate of runoff given the following:
Area = 1.5 acres
Runoff coefficient = 0.5
Rainfall intensity = 4"/hour
- a. 6 CFS.
 - b. 9 CFS.
 - c. 3 CFS.
 - d. 12 CFS.
16. Which of the following is a good location for grass pavers?
- a. An interstate highway.
 - b. An overflow parking area.
 - c. A trucking yard.
 - d. A heavily-used parking area.
17. The actual volume of runoff stored on a "green roof" depends on which of the following?

- a. The size & porosity of the planting bed.
- b. The size and number of the plantings.
- c. The types of plants utilized.
- d. All of the above.

18. What is the time of concentration?

- a. The amount of time runoff is stored within a detention facility.
- b. The time for runoff to travel from the most hydraulically distant point of the watershed to the point of interest within the watershed.
- c. The time it takes for runoff to recharge into the ground.
- d. The time required for evapotranspiration.

19. Reducing the slope of an area will generally affect the time of concentration (T_c) in what way?

- a. It will increase the T_c .
- b. It will decrease the T_c .
- c. It will not affect the T_c in any way.

20. Using the Mannings Equation find the flow through a channel with the following parameters.

$n=0.03$

Area = 5 SF

Wetted Perimeter = 10 Feet

Slope = 0.01

- a. 10CFS.
- b. 42CFS.
- c. 3CFS.
- d. 16CFS.

21. If rainwater caught on the rooftop is used for non-potable water within a building, which of the following must be done?

- a. It must be dyed to show that it is non-potable.
- b. It must be recharged into ground.
- c. It must be used for outdoor purposes only.
- d. It must not be flushed into the public wastewater system.

22. Why are deed restrictions necessary for on-lot stormwater management systems?

- a. They increase the value of the property.
- b. They ensure that the stormwater facility will continue to be operational in the long-term.
- c. They warn potential buyers not to purchase the property.

23. Calculate the value of S given a CN value of 65.

- a. 5.3846.
- b. 15.3846.
- c. 0.53846.
- d. 3.9333.

24. Which Hydrologic Soil group yields the most runoff?

- a. Group A.
- b. Group B.
- c. Group C.
- d. Group D.

25. Low impact development techniques can be used in a wide variety of geographic regions.

- a. True.
- b. False.

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