WORKSHEET 3.05 - SITUATION FIVE

Compile existing data and determine existing site imperviousness (I_{EXIST}). For the purposes of these calculations, site area (A_{SITE}) is defined as the entire parcel. A_{EXIST} represents the actual amount of existing impervious cover on the site.

A_{SITE} = _____ acres

A_{EXIST} structures = _____ acres
parking lot = _____ acres
roadway = _____ acres
other = _____ acres
Total A_{EXIST} = _____ acres

I_{EXIST} = (Total A_{EXIST} ÷ A_{SITE}) x 100

I_{EXIST} = _____ % (expressed in whole numbers)

A_{EXIST} x 0.10 = _____ acres

Compile post-development data and determine post-development project imperviousness ($I_{PROJECT}$). For the purposes of these calculations, project area ($A_{PROJECT}$) is defined as the area of proposed impervious cover associated with this project (additional impervious cover and impervious cover that will replace existing impervious cover). A_{POST} represents the actual amount of impervious cover on the site once the proposed development is complete.

$A_{PROJECT}$: structures = _____ acres
parking lot = _____ acres
roadway = _____ acres
other = _____ acres
Total $A_{PROJECT}$ = _____ acres

Total $A_{PROJECT}$ ≤ A_{EXIST} x 0.10

_____ ≤ _____

If I_{EXIST} > 16% and $A_{PROJECT}$ ≤ [0.1 x A_{EXIST}], proceed with calculation of pollutant loadings. Otherwise, refer to Section 3.4 of the Manual for correct development situation determination.

Calculate the pre and post-development pollutant loadings for the site using the Simple Method.

$$L = P \times P_J \times [0.05 + (0.09 \times I)] \times C \times A \times 2.72 / 12$$

Where:
- P_J = unitless rainfall correction factor = 0.9 for all of Tidewater, Virginia
- P = annual rainfall depth in inches = 43 for the Richmond Metropolitan Area
- C = flow weighted mean concentration of total phosphorus = 0.26 mg/l for the entire County
- $I_{WATERSHED}$ = average land cover condition of the Bay watershed = 16 percent

Calculate the load produced by this project ($L_{PROJECT}$):

$L_{PROJECT} = [0.05 + (0.009 \times I_{PROJECT})] \times 2.28 \times A_{PROJECT}$

$= [0.05 + (0.009 \times \underline{\quad 100 \quad})] \times 2.28 \times A_{PROJECT}$

$L_{PROJECT} = 2.166 \times A_{PROJECT}$

$= 2.166 \times \underline{\qquad\qquad}$

$L_{PROJECT} =$ _____ pounds per year

Calculate the pollutant removal requirement (RR):

$RR = L_{PROJECT}$

RR = _____ pounds per year