Use Mannings Equation to Iteratively Determine the Size of Storm drain in Los Volcanes to drain future developed flows from subbasins C-1D and C-2D.1 to Pond 4 Assuming Pipe Flowing Full		
Mannings Equation [a]	Q=(1.49/n)*A*R^2/3*S^1/2	
Paramters		Comments
Diameter (ft)	3.00	Guess diameter (d) until Qcalculated is > Qdesign
n value	0.013	Assumes new RCP pipe conditions
Constant	1.49	From Manning's Equation
Radius (ft)	**1.50**	Computes r = d/2
Perimeter (ft)	**9.44**	Computes P = 2*π*r
Area (ft^2)	**7.08**	Compute A= (π/4)*d^2
Hyraulic Radius (R) (ft)	**0.75**	Computes R= A/P
Slope (S) (ft/ft)	0.020	Assumes SD slope will approximte Los Volcanes Rd slope
Elevation 1	5218.00	From LiDAR
Elevation 2	5150.00	From LiDAR/ Unser Diversion As-built drawing for Pond 4
Length (ft)	1400.00	From LiDAR
Q Calculated (cfs)	**94.7**	Uses equation Listed above to compute Q
Q (cfs) Design	69.00	From HEC-HMS DEVEX Model AP-6 west of FEDEX Site
Q (cfs) Design	72.00	From HEC-HMS DEVEX Model AP-7
Since Q calculated is less then Q design, 36 inch storm drain should have adequate capacity to carry DEVEX flows		
[a] Handbook for Hydraulics by Brater/King, page 7.22 Eqn 7.34		
Indicates cell that need data input		
Indicates cell that performs calculations		