Dear students,

Below are the solutions to assignment #9.

1-

BVC Station = 2+85.000
BVC Elevation = 683.843

Station	x (Sta)	g1*x	r/2*x*x	Elevation
2+265.000	1.800	5.400	-4.500	684.743
2+250.000	1.650	4.950	-3.781	685.012
2+220.000	1.350	4.050	-2.531	685.362
2+190.000	1.050	3.150	-1.531	685.462
2+160.000	0.750	2.250	-0.781	685.312
2+130.000	0.450	1.350	-0.281	684.912
2+100.000	0.150	0.450	-0.031	684.262
2+085.000	0	0	0	683.843

Maximum elevation = 685.463 @ station 2+193.000

2-

L = 761.217 m
BVC Station = 5+919.391
BVC Elevation = 186.900

Station	x (Sta)	g1*x	r/2*x*x	Elevation
6+680.608	7.612	38.061	-13.321	211.639
6+600.000	6.806	34.030	-10.649	210.281
6+500.000	5.806	29.030	-7.750	208.180
6+400.000	4.806	24.030	-5.310	205.620
6+300.000	3.806	19.030	-3.330	202.600
6+200.000	2.806	14.030	-1.810	199.120
6+100.000	1.806	9.030	-0.750	195.180
6+000.000	0.806	4.030	-0.149	190.781
5+919.391	0	0	0	186.900

3- 685.463 @ station 2+193.000

4-

5

290.3 yd^3 = 7839 ft^3

x	y	−	+
−7.5	0		0
−2.4	10.8	−81	0
0	3	−7.2	40.2
13.4	3.1	0	23.25
7.5	0	0	0
−7.5	0	0	
		−88.2	63.45

x	y	−	+
−7.5	0		0
−14.2	3.1	−23.25	0
0	3.8	−54.0	54.0
14.2	4.1	0	30.75
7.5	0	0	0
−7.5	0	0	
		−77.2	84.7

End areas: 52 + 00 = 75.8 ft^2 and 53 + 00 = 81.0 ft^2

x	y	−	+
0	3.6		146.9
40.8	5.7	0	85.5
15	0	0	0.0
−15	0	0	0.0
−43.6	6.4	−96	0.0
0	3.6	−157	
		−253	232.4

x	y	−	+
0	4.9		172.5
35.2	4.3	0.0	64.5
15	0	0.0	0.0
−15	0	0.0	0.0
−30.4	3.1	−46.5	0.0
0	4.9	−149.0	
		−195.5	237.0

Area = 242.7 ft^2; Area = 216.2 ft^2

$$V_e = 13{,}766.7 \text{ ft}^3 = 509.9 \text{ yd}^3$$

$$C_P = \frac{60}{12(27)}(4.9-3.6)(65.6-84.4) = -4.5 \text{ yd}^3$$

Good luck,