

S = 180' per mi.  
 S = 0.0034 per ft.  
 S<sup>1/2</sup> = 0.0583

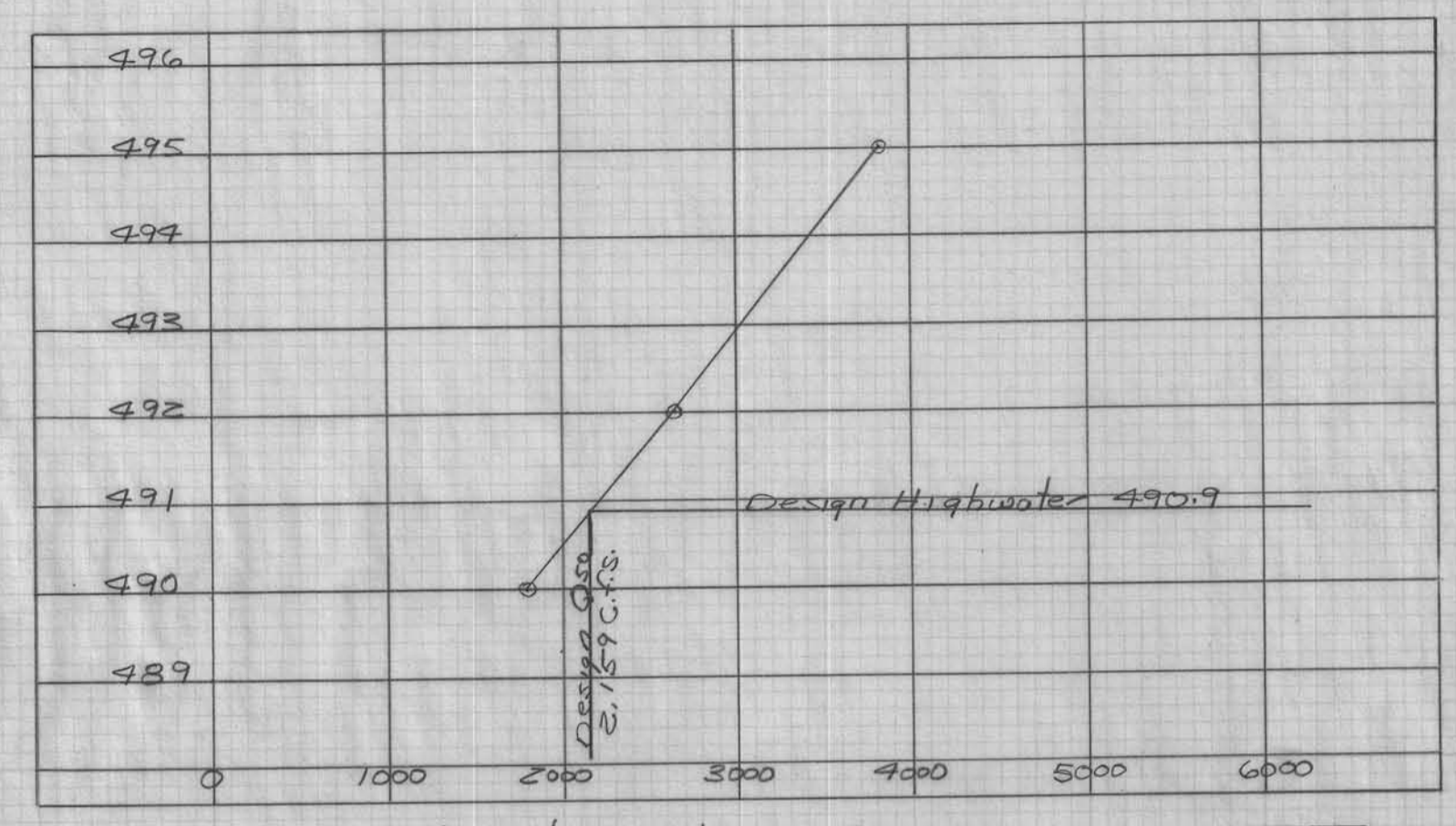
Highwater elev. - 495.0

W.P. - 70 ft.  
 A = 448 sq. ft.  
 E = 6.4 E<sup>2/3</sup> = 3.95  
 V = 1.486 (3.95) (0.0583) = 0.35  
 V = (42.46) (3.95) (0.0583) = 8.54 f.p.s.  
 Q = 3826 c.f.s.

Highwater elev. - 490.0

W.P. - 43 ft.  
 A = 236 sq. ft.  
 E = 5.49 E<sup>2/3</sup> = 3.11  
 V = 1.486 (3.11) (0.0583) = 0.26  
 V = (42.46) (3.11) (0.0583) = 7.70 f.p.s.  
 Q = 1817 c.f.s.

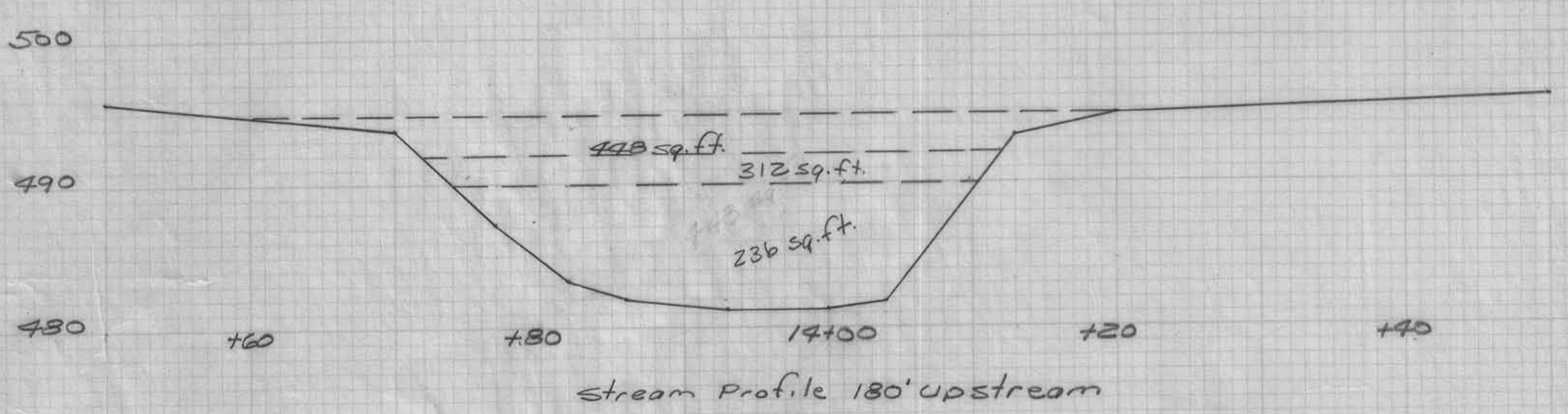
Highwater elev. - 492.0  
 W.P. = 49 ft.  
 A = 312 sq. ft.  
 E = 6.37 E<sup>2/3</sup> = 3.44  
 V = 1.486 (3.44) (0.0583) = 0.35  
 V = (42.46) (3.44) (0.0583) = 8.52 f.p.s.  
 Q = (8.52) (312) = 2658 c.f.s.



Stage to Discharge Curve

Present Opening  
 Q<sub>50</sub> @ elev. 490.9 (Design Highwater)

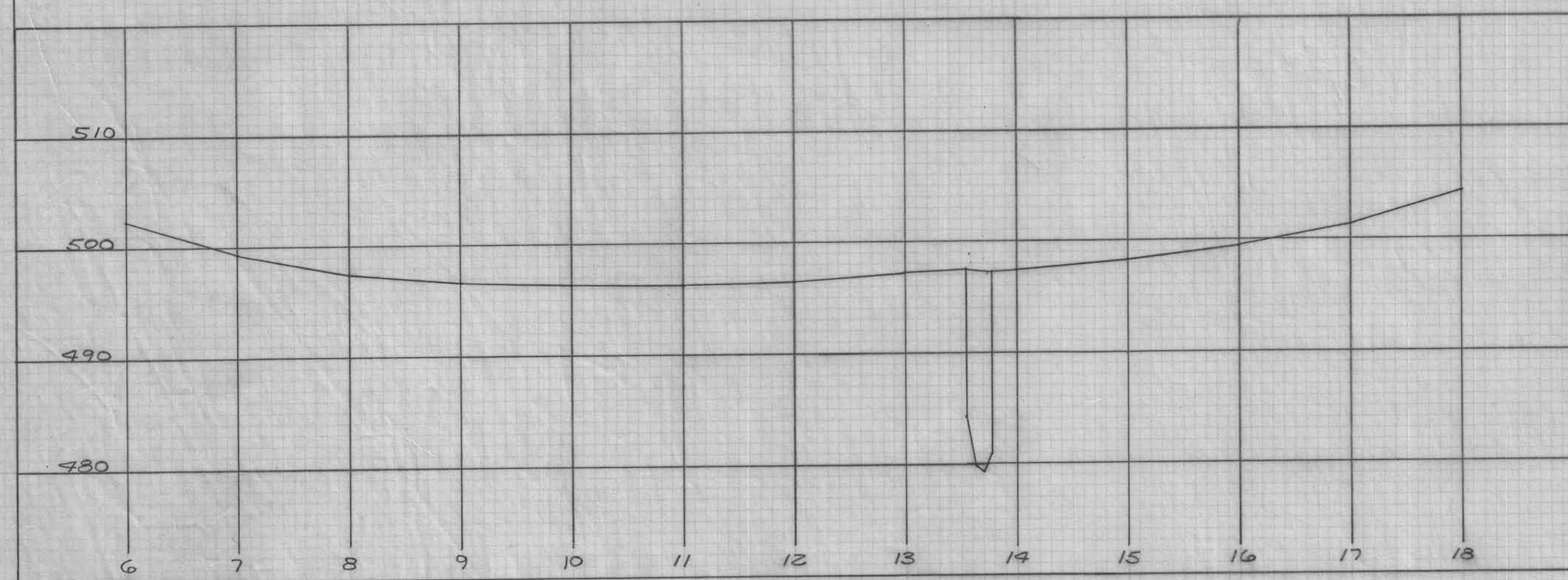
W.P. - 42 ft.  
 A = 248 sq. ft.  
 E = 5.90 E<sup>2/3</sup> = 3.27  
 V = 1.486 (3.27) (0.0583) = 0.28  
 V = (42.46) (3.27) (0.0583) = 8.09 f.p.s.  
 Q = (8.09) (248) = 2,006 c.f.s.



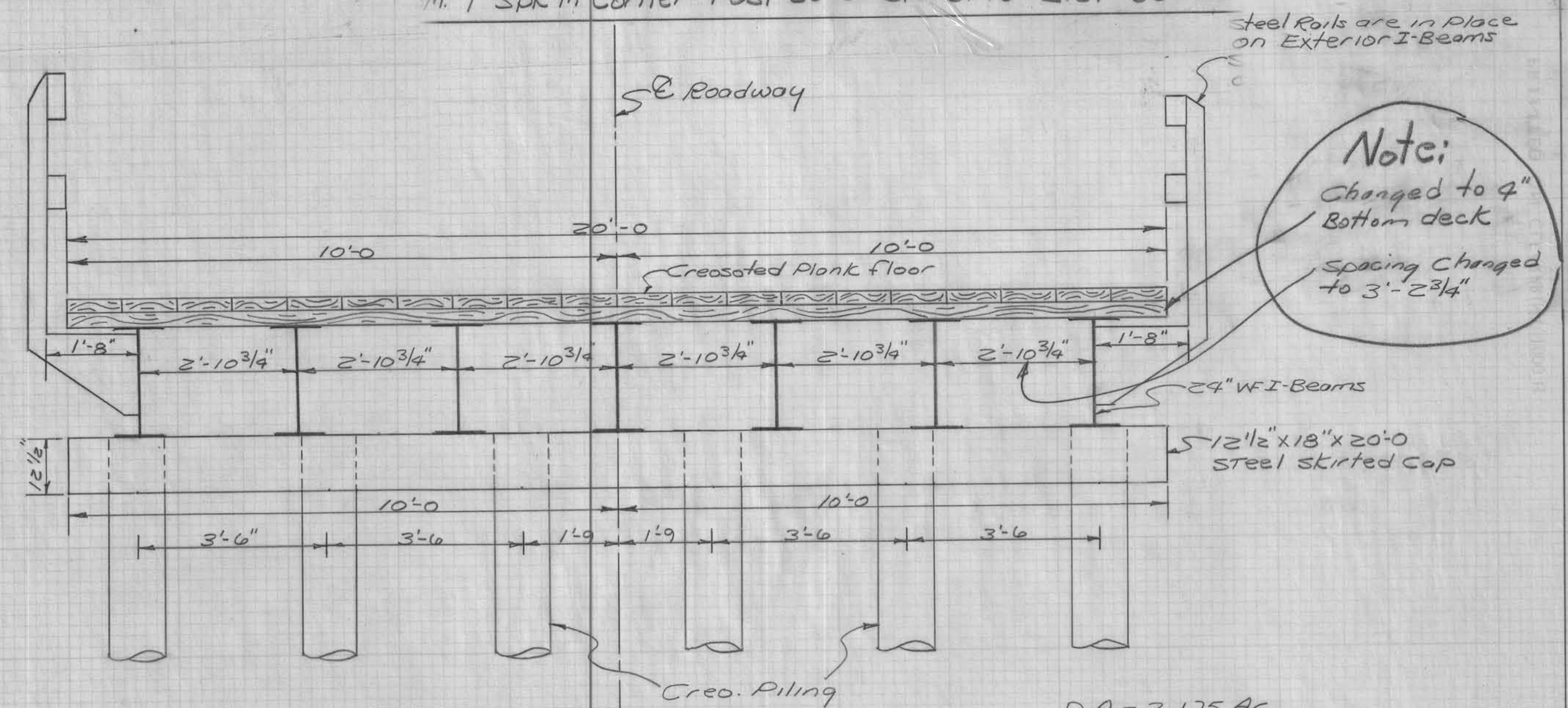
Stream Profile 180' upstream

ESTIMATE OF QUANTITIES

ITEM	No.	Lin. FT.
24'x41' WF I-Beams @ 94" interior	5	205
24'x41' WF I-Beams @ 74" exterior	2	82
Steel Railing	2	82
Steel diaphragms	24	
Steel Caps	2	40
Crossed Piling 12 @ 35'	12	420
Crossed Planks (used)		1504



Road Profile Scale 1" = 100' Horiz. 1" = 10' Vert.

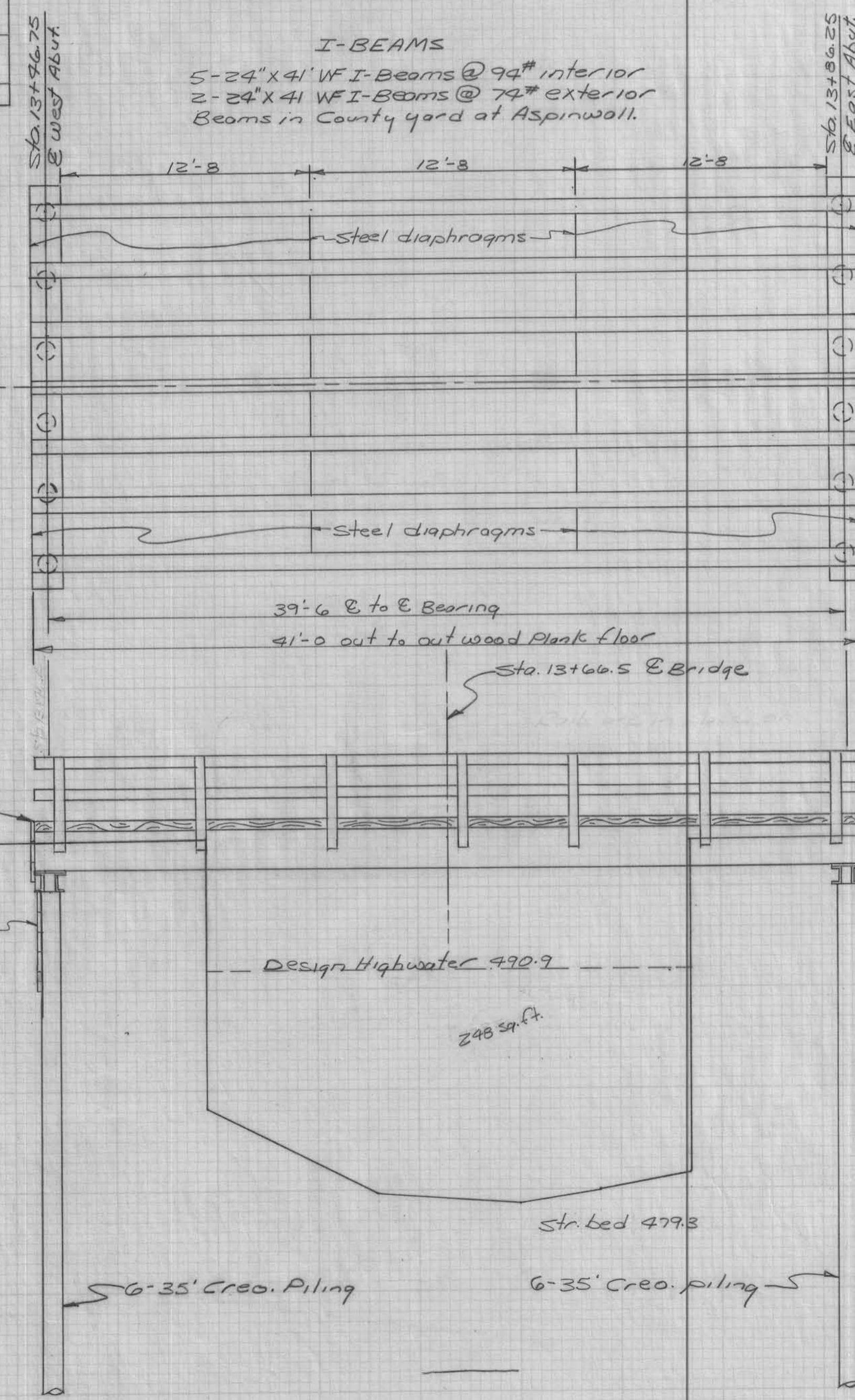


Note:  
 Changed to 4" Bottom deck  
 Spacing Changed to 3'-2 3/4"

D.A. = 3,175 AC.  
 Design Q<sub>50</sub> S.H.C. Run off Chart (2600) (1.0) (0.8) = 2080 c.f.s.  
 Log Pierson Method  
 Q<sub>50</sub> = 344 A<sup>.572</sup> S<sup>.318</sup>  
 (344) (4.96)<sup>.572</sup> (.13)<sup>.318</sup>  
 (344) (2.50) (2.51) = 2159 c.f.s.

Sta. 13+66.5 E present 24'x18' wood Bridge. To be removed by County.

Note:  
 20'-0" x 20'-0" Approach Added to east side of planned Bridge. Same construction except for five piling.



Grade 498.50

Grade 498.50

Present Grade Line

Built by Crawford County 5-75  
 98.50  
 79.30  
 19.20

DESIGN FOR  
 39'-6" x 20'-0" I-BEAM BRIDGE  
 WOOD PLANK FLOOR - WOOD PILING  
 STUB ABUTMENTS  
 STEEL RAILING

Located Between Sec's 4 and 9 Hanover Township