HYDRAULIC CALCULATIONS

Channel Flow: $v = \frac{1.486}{n} r \quad s$

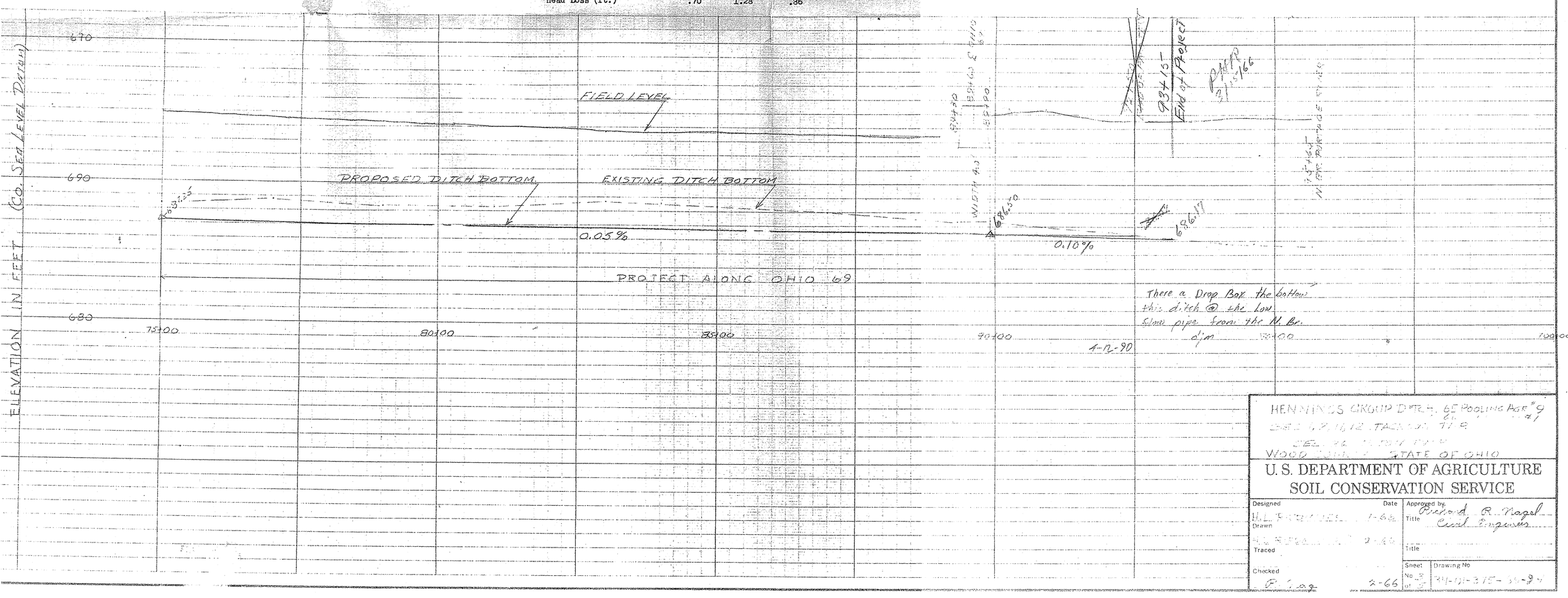
Soil Type: Hoytville Clay Minimum allowable side slope: $1\frac{1}{2}$:1

Maximum allowable velocity: 5.00 fps (bankfull stage)

Reach	Station to Station	92+50 89+90	89+30 59+00	59+00 0+00
Drainage Area (Ac.)		645	485	310
Qb flow (cfs)		82	69.5	50
"n"		.040	.040	.040
Slope - s (ft./ft.)		.0005	.0005	.0005
$s^{\frac{1}{2}}$		.0224	.0224	.0224
$Q/S^{\frac{1}{2}} = Kd$		3660	3103	2232
Kd Value Used		3715	3181	2293
Side Slope		2:1	2:1	$1\frac{1}{2}$:1
Bottom Width (ft.)		5.0	4.0	3.0
Depth (ft.)		4.2	4.1	4.1
Area (sq.ft.)		56.28	50.04	37.52
Velocity = Q/A (fps)		1.46	1.39	1.33

Head Loss in Culverts $h = \frac{V^2}{2g}(1+Ke+KpL)$

Station	66+00	51+30	37+00
Drainage Area (ac.)	460	280	250
Qb Flow (cfs)	67	45.0	41.0
Diameter (Inches)	48	36	36
Type	R/C	CMP	R/C
n	.013	.025	.013
Length (ft.)	20	20	20
X-Sectional Area (sq. ft.)	12.57	7.07	7.07
Kp	.0049	.027	.0072
KpL	.098	.54	.144
Ke	.5	.5	.5
Velocity (fps)	5.33	6.36	5.80
Head Loss (ft.)	.70	1.28	.86



HENNINGS GROUP DITCH, 65 POOLING AGR. #9
SEC. 1, 2, 11, 12 TAGGART TWP.
SEC. 36 [illegible] TWP.
WOOD COUNTY, STATE OF OHIO

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	Date	Approved by Richard R. Nagel
H.L. [illegible]	1-66	Title Civil Engineer
Drawn H.L. [illegible]	2-66	
Traced		Title
Checked R. [illegible]	2-66	Sheet No. 3 of [illegible] / Drawing No [illegible]