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October 3, 1979

Mr. Tom Paluso
Project Engineer
Soldier Creek Coal Co.
P.O. Box AS
Price, Utah 84501

Dear Tom:

Enclosed is the information which you requested concerning the submittal of archeological information for the upcoming permanent program. Please note that the guidelines prepared by Ms. Judy Shafer of Office of Surface Mining Region V are in draft form only and should therefore not be utilized as a fully sanctioned document. We regret that the guidelines are not finalized but we have been informed that final guidelines are forthcoming in the next several months. In the meantime, you are welcome to comment on these draft guidelines.

Should any questions arise, please contact me or Ms. Judy Shafer, Office of Surface Mining at (303) 837-5656.

Sincerely,

MARY ANN WRIGHT
RECLAMATION BIOLOGIST

Enclosure

MAW/te

Mine: Soldier Creek, Hidden Valley

Permit: ACT/

Structure: Sed. Pond - Refuse Pile

Date: 9/28/75

Kent's Formula

T_c = L/0.6, hours

L = watershed lag, hours

$$L = \frac{\ell^{0.8} \quad (S + 1)^{0.7}}{1900 \quad y^{0.5}}$$

ℓ = length of the longest stream channel (ft)

S = (1000/CN) - 10 , inches

y = average watershed slope in percent

Reference: Kent, K. M. 1973. A Method of Estimating Volume and Rate of Runoff in Small Watersheds. U.S.D.A., SCS-TP-149 (Revised April 1973). ca. 80 pp.

Curve Number	S	ℓ (ft)	y (%)	L (hrs)	Tc (hrs)
90	1.11	2200	9.77	0.134	0.223
95	0.526	2200	9.77	0.107	0.178

6225 - 6010 = 215

215/2200 = x/100 = 9.77

Mine: Soldier Creek, Hidden Valley

Permit: ACT /

Structure: Culvert under road serving Trib. to Ivie Ck, E. of Substa.

Date: 9/28/79

Kent's Formula

T_c = L/0.6, hours

L = watershed lag, hours

$$L = \frac{\ell^{0.8} \quad (S + 1)^{0.7}}{1900 \quad y^{0.5}}$$

ℓ = length of the longest stream channel (ft)

S = (1000/CN) - 10 , inches

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Reference: Kent, K. M. 1973. A Method of Estimating Volume and Rate of Runoff in Small Watersheds. U.S.D.A., SCS-TP-149 (Revised April 1973). ca. 80 pp.

Curve Number	S	ℓ (ft)	y (%)	L (hrs)	Tc (hrs)
80	2.50	2313	3.89	0.315	0.525
85	1.765	2313	3.89	0.267	0.445
90	1.111	2313	3.89	0.221	0.369

Mine: Soldier Creek, Hidden Valley

Permit: ACT/

Structure: Sed. Pond. - Sur. fac. Area

Date: 9/28/79

Kent's Formula

T_c = L/0.6, hours

L = watershed lag, hours

$$L = \frac{\ell^{0.8} \quad (S + 1)^{0.7}}{1900 \quad y^{0.5}}$$

ℓ = length of the longest stream channel (ft)

S = (1000/CN) - 10 , inches

y = average watershed slope in percent

Reference: Kent, K. M. 1973. A Method of Estimating Volume and Rate of Runoff in Small Watersheds. U.S.D.A., SCS-TP-149 (Revised April 1973). ca. 80 pp.

Curve Number	S	ℓ (ft)	y (%)	L (hrs)	Tc (hrs)
90	1.11	1275	4.71	0.125	0.208
95	0.526	1275	4.71	0.099	0.166

y 6160 - 6100 = 60

$\frac{60}{1275} = \frac{x}{100}$ $\frac{6000}{1275} = x = 4.71$

Mine: Soldier Creek, Hidden Valley
Permit: Act/
Structure: Sediment Pond - Portal Area
Date: 9/28/79

Kent's Formula

T_c = L/0.6, hours

L = watershed lag, hours

$$L = \frac{\ell^{0.8} \quad (S + 1)^{0.7}}{1900 \quad y^{0.5}}$$

ℓ = length of the longest stream channel (ft)

S = (1000/CN) - 10 , inches

y = average watershed slope in percent

Reference: Kent, K. M. 1973. A Method of Estimating Volume and Rate of Runoff in Small Watersheds. U.S.D.A., SCS-TP-149 (Revised April 1973). ca. 80 pp.

Curve Number	S	ℓ (ft)	y (%)	L (hrs)	Tc (hrs)
90	1.11	1125	22.22	0.052	0.087
95	0.526	1125	22.22	0.041	0.069

Y = slope %

6150 - 5900 = 250

$\frac{250}{1125} = \frac{X}{100}$

$X = \frac{25000}{1125}$

Mine: Soldier CK., Hidden Valley

Permit: ACT/

Structure: Buried Culvert diversion under Portal Area

Date: 9/28/75

Kent's Formula

T_c = L/0.6, hours

L = watershed lag, hours

$$L = \frac{\ell^{0.8} \quad (S + 1)^{0.7}}{1900 \quad y^{0.5}}$$

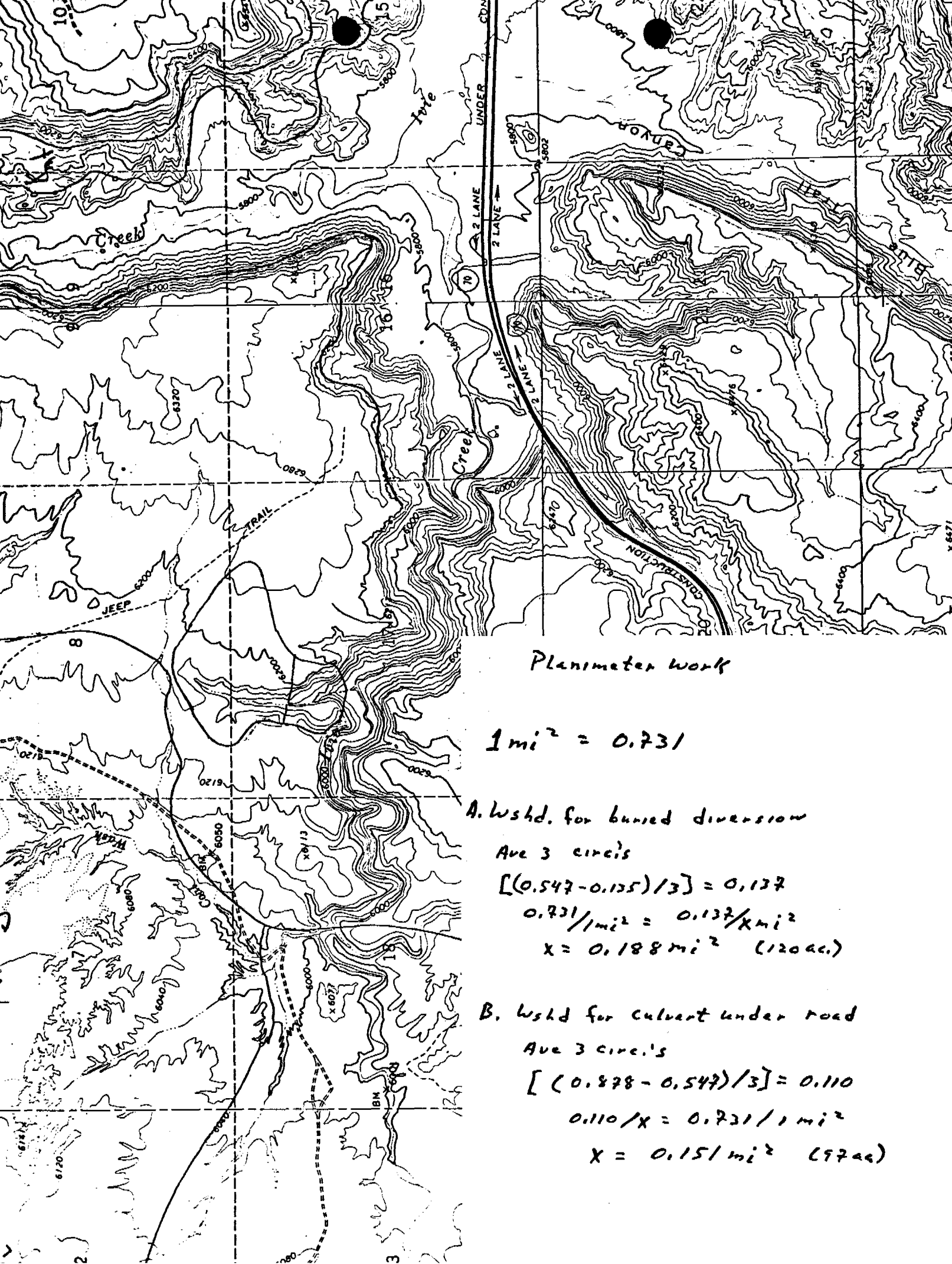
ℓ = length of the longest stream channel (ft)

S = (1000/CN) - 10 , inches

y = average watershed slope in percent

Reference: Kent, K. M. 1973. A Method of Estimating Volume and Rate of Runoff in Small Watersheds. U.S.D.A., SCS-TP-149 (Revised April 1973). ca. 80 pp.

Curve Number	S	ℓ (ft)	y (%)	L (hrs)	T_c (hrs)
80	2.50	3438	7.27	0.316	0.527
85	1.765	3438	7.27	0.268	0.447
90	1.11	3438	7.27	0.222	0.370



Planimeter work

$1\ mi^2 = 0.731$

A. Wshd. for buried diversion

Ave 3 circ's

$[(0.547 - 0.135)/3] = 0.137$

$0.731/1\ mi^2 = 0.137/x\ mi^2$

$x = 0.188\ mi^2$ (120 ac.)

B. Wshd for culvert under road

Ave 3 circ's

$[(0.878 - 0.547)/3] = 0.110$

$0.110/x = 0.731/1\ mi^2$

$x = 0.151\ mi^2$ (97 ac)

CN	S	ℓ (ft)	y %	L (hrs)	Tc (hrs)	Area (mi²)	Storm Frequency	P (in)	Q (in)	qp (cfs)
Culvert under road, serving tributary to Iris Ck., E. of substation.										
80	2.50	2313	3.89	0.315	0.525	0.151	10yr 6hr	1.20	0.153	6.54
80	2.50	2313	3.89	0.315	0.523	0.151	10yr 24hr.	1.69	0.384	5.04
80	2.50	2313	3.89	0.315	0.523	0.151	50yr 6hr.	1.64	0.357	15.29
80	2.50	2313	3.89	0.315	0.523	0.151	50yr 24hr.	2.32	0.767	10.32
85	1.765	2313	3.89	0.267	0.445	0.151	10yr 6hr	1.20	0.275	12.15
85	1.765	2313	3.89	0.267	0.445	0.151	10yr 24hr	1.69		
85	1.765	2313	3.89	0.267	0.445	0.151	50yr 6hr	1.64	0.543	25.30
85	1.765	2313	3.89	0.267	0.445	0.151	50yr 24hr.	2.32	1.037	13.92
90	1.11	2313	3.89	0.221	0.369	0.151	10yr 6hr	1.20	0.458	22.21
90	1.11	2313	3.89	0.221	0.369	0.151	10yr 24hr.	1.69		
90	1.11	2313	3.89	0.221	0.369	0.151	50yr 6hr	1.64	0.795	38.89
90	1.11	2313	3.89	0.221	0.369	0.151	50yr 24hr.	2.32		
Buried culvert diversion under Portal area										
80	2.50	3438	7.27	0.316	0.527	0.188	50yr-6hr	1.64		
80	2.50	3438	7.27	0.316	0.527	0.188	50yr-24hr	2.32		
85	1.765	3438	7.27	0.268	0.447	0.188	50yr-6hr	1.64	0.543	31.49
85	1.765	3438	7.27	0.268	0.447	0.188	50yr-24hr	2.32	1.037	17.31
90	1.11	3438	7.27	0.222	0.370	0.188	50yr 6hr	1.64	0.795	48.35
90	1.11	3438	7.27	0.222	0.370	0.188	50yr-24hr	2.32		
Sediment pond serving Portal Area										
90	1.11	1125	22.22	0.052	0.087	0.009	25yr 6hr	1.45	0.645	2.08
90	1.11	1125	22.22	0.052	0.087	0.009	25yr 24hr.	2.04	1.128	0.95
95	0.526	1125	22.22	0.041	0.069	0.009	25yr 6hr	1.45	0.966	3.39
95	0.526	1125	22.22	0.041	0.069	0.009	25yr-24hr	2.04	1.521	1.43

CN	S	ℓ (ft)	y %	L (hrs)	Tc (hrs)	Area (mi²)	Storm Frequency	P (in)	Q (in)	qp (cfs)
Sediment Pond Serving surface facilities										
90	1.11	1275	4.71	0.125	0.208	0.029	25yr 6hr	1.45	.6458	6.41
90	1.11	1275	4.71	0.125	0.208	0.029	25yr 24hr	2.04	1.13043	2.96
95	0.526	1275	4.71	0.099	0.166	0.029	25yr 6hr	1.45	.96840	10.21
95	0.526	1275	4.71	0.099	0.166	0.029	25yr 24hr	2.04	1.52401	4.54
Sediment Pond Serving Refuse Pile										
90	1.11	2200	9.77	0.134	0.223	0.092	25yr 6hr	1.45	0.6458	20.23
90	1.11	2200	9.77	0.134	0.223	0.092	25yr 24hr	2.04	1.13043	9.35
95	0.526	2200	9.77	0.107	0.178	0.092	25yr 6hr	1.45	0.9684	32.12
95	0.526	2200	9.77	0.107	0.178	0.092	25yr 24hr	2.04	1.5240	14.40