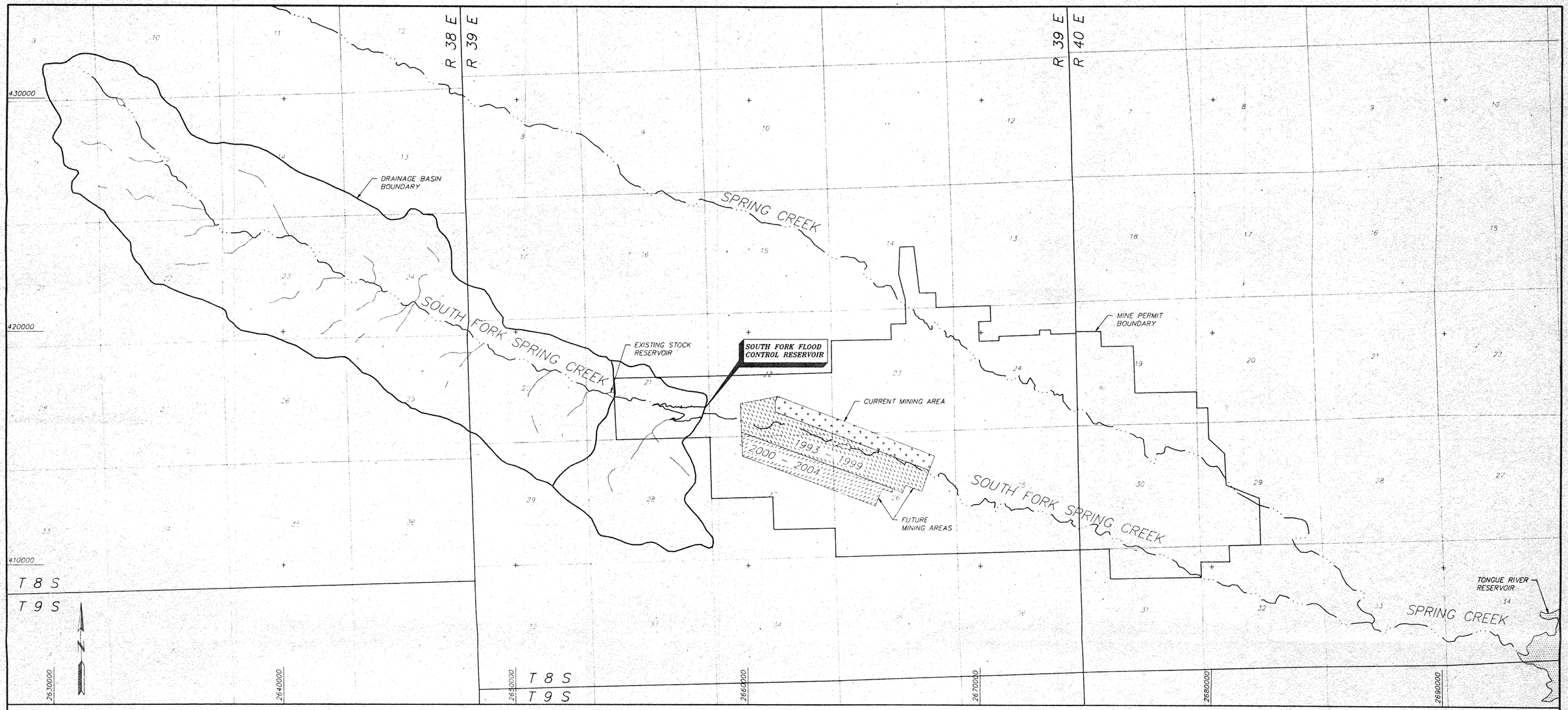

SOUTH FORK FLOOD CONTROL RESERVOIR
DRAINAGE BASIN LOCATION MAP

SCALE: 1" = 2000'

South Fork Reservoir

DESIGN STORM CALCULATIONS

DRAINAGE BASIN INPUT PARAMETERS

DRAINAGE AREA = 6.91 mi^2

STREAM LENGTH = 6.50 mi.

ELEVATION DIFFERENCE = 1055.00 ft.

RUNOFF CURVE NO. (CN) = 73

MIN. INFILTRATION LOSS = 0.256 in/hr

PRECIPITATION (100yr, 24hr) = 3.35 in.

RESULTANT HYDROGRAPH VALUES

$VOLUME_{100-24}$ = 199.13 ac-ft

Q_{100-24} = 1250.89 cfs

NOTE: THE RUNOFF AND PEAK DISCHARGE VALUES WERE CALCULATED BY "TRIHYDRO", A COMPUTERIZED VERSION OF THE SCS TRIANGULAR HYDROGRAPH METHOD OF DETERMINING RUNOFF VOLUMES AND PEAK DISCHARGES. (SEE DESIGN REPORT APPENDIX A FOR DETAILS)

CERTIFICATE OF ENGINEER

STATE OF WYOMING) SS
COUNTY OF SHERIDAN)

I, DOYL M. FRITZ, OF SHERIDAN, WYOMING, HEREBY CERTIFY THAT THESE MAPS AND PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION, BASED ON TOPOGRAPHIC MAPS PROVIDED BY THE SPRING CREEK COAL COMPANY PREPARED FROM AERIAL PHOTOGRAPHY DATED 3-90 BY AEROGRAPHICS, INC. OF SALT LAKE CITY, UTAH, AND THAT THEY CORRECTLY REPRESENT THE FACILITIES DESCRIBED IN THE ACCOMPANYING APPLICATION.

Professional Engineer (Civil) Doyl M. Fritz 4101E 8-24-90 MONTANA

DOYL M. FRITZ, P.E. MONT. No. 4101E

SHEET 1 OF 3

SPRING CREEK COAL CO.

GENERAL LOCATION, DRAINAGE BASIN MAP AND DESIGN STORM CALCULATIONS

REVISIONS	
Date	By
8-24-90	RAM

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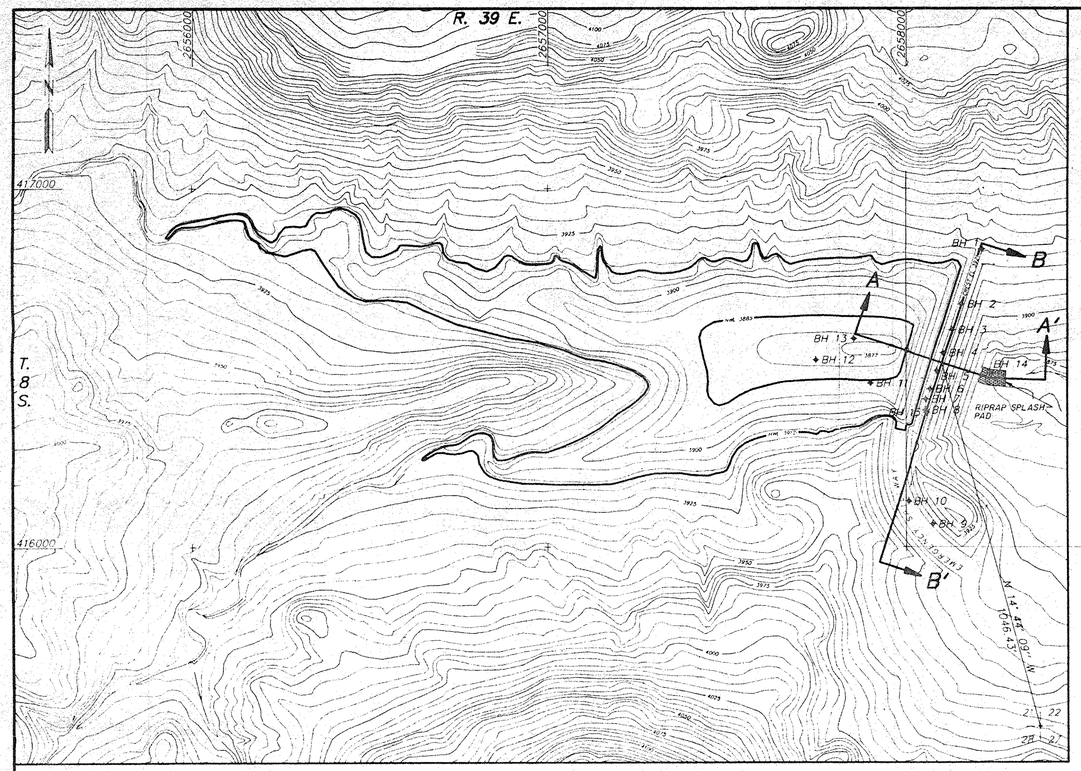
1949 SUGARLAND DR. SUITE 134 SHERIDAN, WY. 82801 (307) 672-0761

FILE: SFRESSH1 | Drawn By: RAM | Checked By: DMF | Date: 8-10-90 | Scale: 1" = 2000'



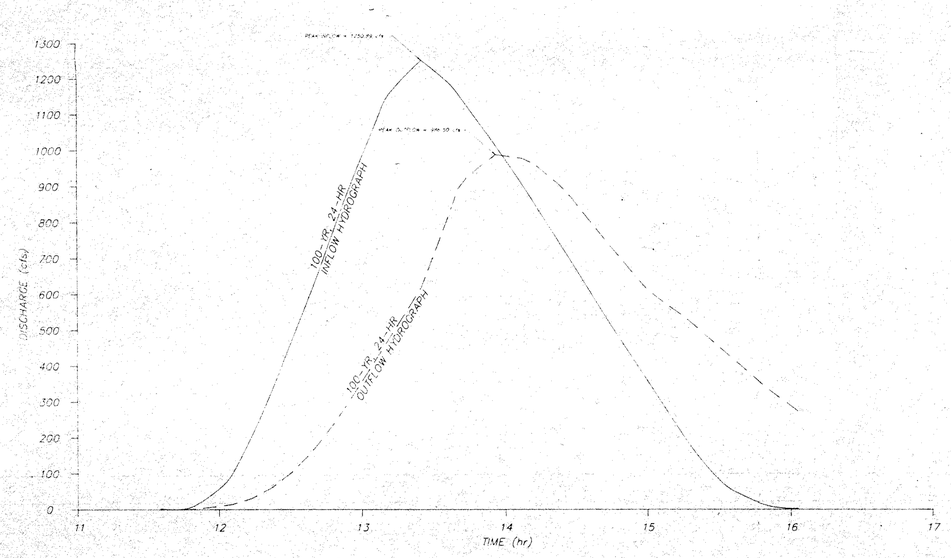
PLAN VIEW SOUTH FORK FLOOD CONTROL RESERVOIR

SCALE: 1" = 200'
C.I. = 5'

NOTE: ALL CONTOURS BELOW HWL 3912 REPRESENT GROUND SURFACE FOLLOWING TOPSOIL STRIPPING AND EMBANKMENT BORROW

+BH 2 BOREHOLE LOCATION AND NUMBER

A A' CROSS SECTION LOCATION (SEE SHEET 3)

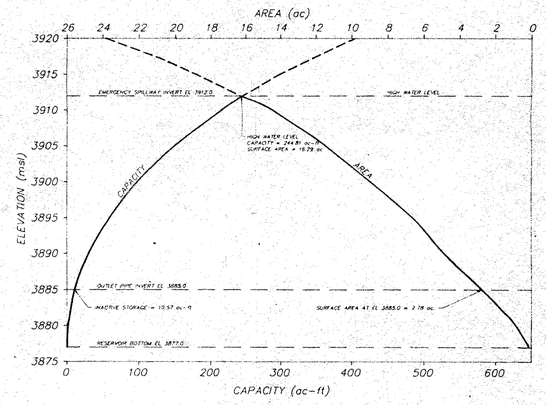


EMERGENCY SPILLWAY ROUTING STUDY

NOTE: ROUTING STUDY WAS PERFORMED BY A COMPUTERIZED VERSION OF THE MODIFIED PULS RESERVOIR ROUTING METHOD

AREA CAPACITY TABLE

	ELEV. (ft)	AREA (ac)	AVG. AREA (ac)	CAPACITY (ac-ft) INCR.	CAPACITY (ac-ft) ACCUM.
INACTIVE CAPACITY 10.57 ac-ft	3877.0	0.12			0.00
	3880.0	0.86	0.49	1.47	1.47
	3885.0	2.78	1.82	9.10	10.57
	3890.0	5.02	3.90	19.50	30.07
	3895.0	6.63	5.83	29.15	59.22
	3900.0	8.97	7.80	39.00	98.22
ACTIVE CAPACITY 234.24 ac-ft	3905.0	11.46	10.22	51.10	149.32
	3910.0	14.44	12.95	64.75	214.07
	3912.0	16.29	15.37	30.74	244.81
TOTAL AVAILABLE CAPACITY = 244.81 ac-ft					



AREA CAPACITY CURVE

EMERGENCY SPILLWAY HYDRAULICS

CONTROL SECTION

$Q = CLH^{3/2}$

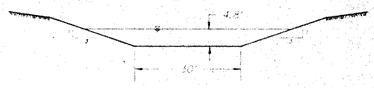
Q_{100-yr} = 986.5 cfs
C = 3.1
L = 30 ft
Hp = 4.8 ft

TRANSPORT SECTION

$Q = \frac{1.49}{n} AR^{2/3} S^{1/2}$

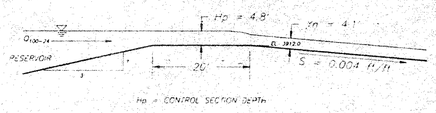
n = 0.035
S = 0.004 ft/ft
Z = 3H:1V
Q = 986.5 cfs
b = 30 ft
A = 173.0 ft²
WP = 55.9 ft
R = 3.1 ft
V = 5.7 fps
Yn = 4.1 ft

NOTE: SLOPES WILL BE EROSION PROTECTED BY PLANTING MIXED GRASSES ON BOTH EMBANKMENT AND EMERGENCY SPILLWAY.



EMERGENCY SPILLWAY CROSS SECTION

SCALE: 1" = 20'



Hp = CONTROL SECTION DEPTH

EMERGENCY SPILLWAY PROFILE

NOT TO SCALE

SHEET 2 OF 3

SPRING CREEK COAL CO.

DESIGN CONTOURS, BOREHOLE LOCATIONS AREA-CAPACITY INFORMATION AND EMERGENCY SPILLWAY HYDRAULICS

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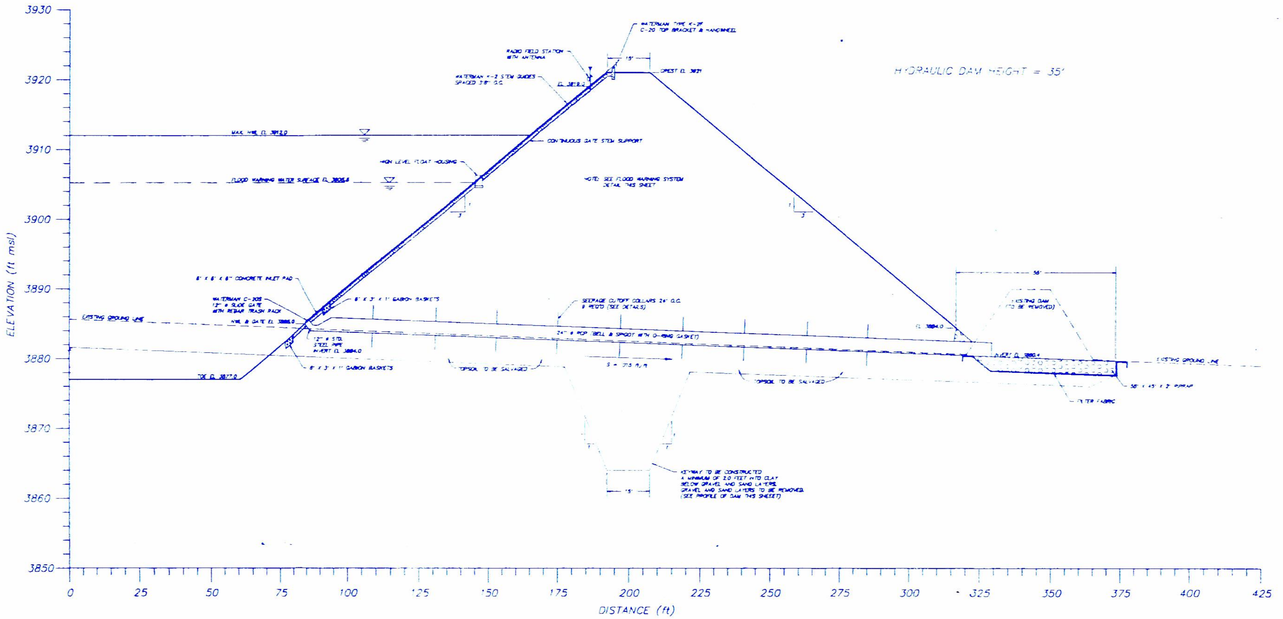
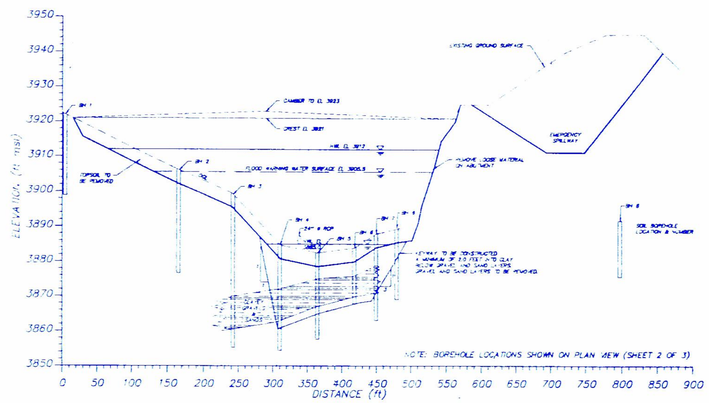


MAXIMUM DAM CROSS-SECTION A – A'

(SEE SHEET 2 OF 3 FOR LOCATION OF CROSS SECTION)

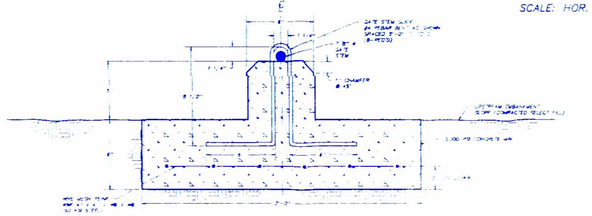
SCALE: HOR. 1" = 25', VERT. 1" = 10'



PROFILE OF DAM SITE B – B'

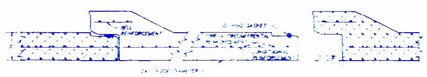
(SEE SHEET 2 OF 3 FOR LOCATION OF DAM PROFILE)

SCALE: HOR. 1" = 100', VER. 1" = 20'



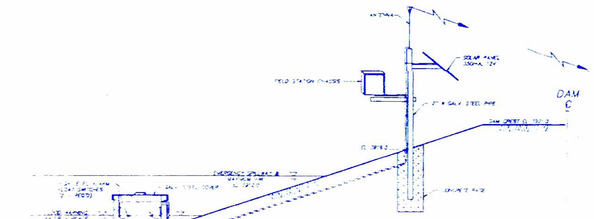
CONTINUOUS GATE STEM SUPPORT

SCALE: 2" = 1'-0"



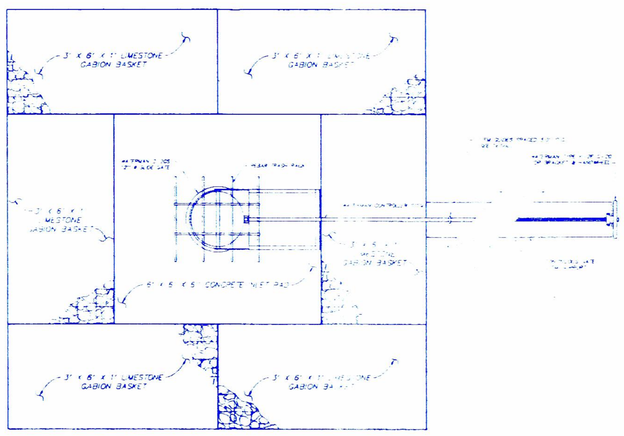
TYPICAL 24" RCP JOINT DETAIL

NOT TO SCALE



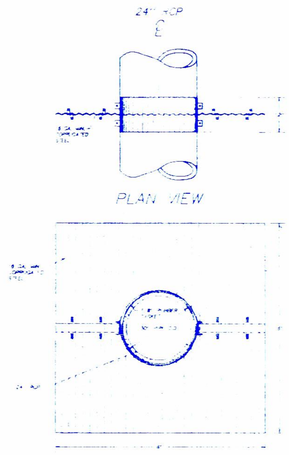
FLOOD WARNING SYSTEM DETAIL

NOT TO SCALE



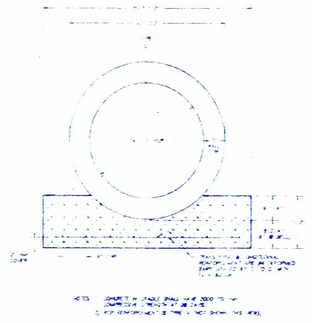
HEADWALL AND INLET GATE DETAIL

NOT TO SCALE



CUTOFF COLLAR DETAIL

NOT TO SCALE



RCP CONCRETE CRADLE

TYPICAL CROSS SECTION

NOT TO SCALE

SHEET 3 OF 3

SPRING CREEK COAL CO.

MAXIMUM DAM CROSS SECTION, PROFILE AND DETAILS

REVISIONS		
Date	By	
4-30-91	PAM	

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