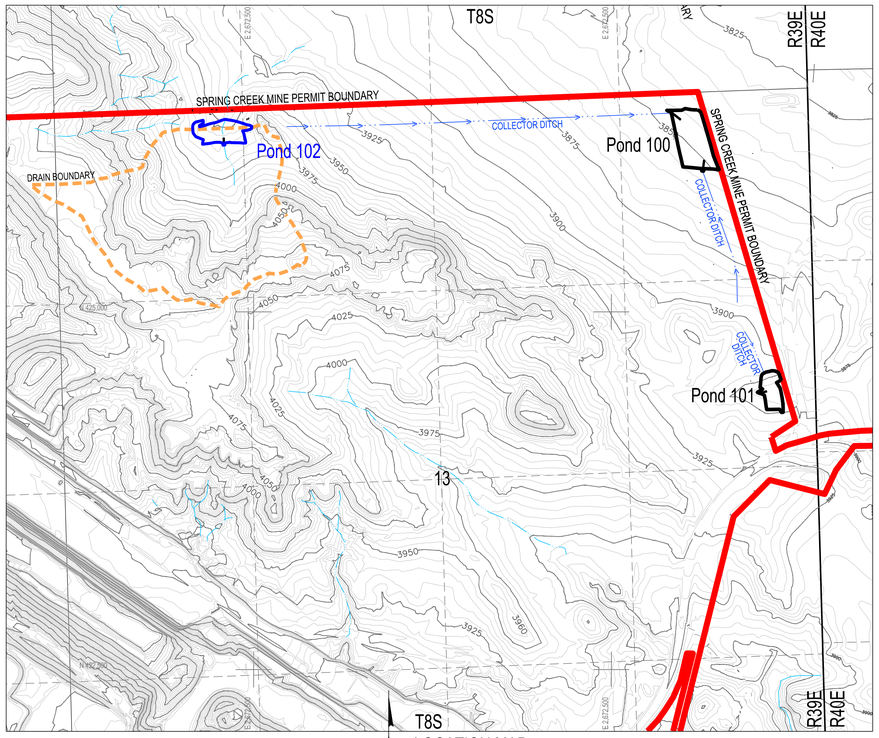
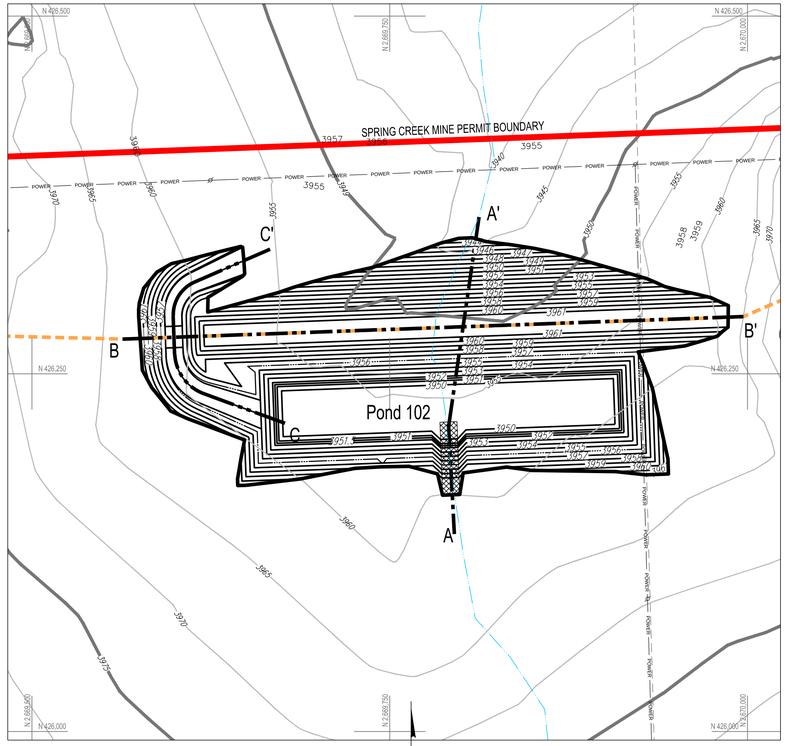


LOCATION MAP
SCALE: 1" = 500, C.I. = 5'

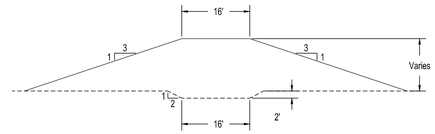


PLAN VIEW
SCALE: 1" = 50', C.I. = 5'

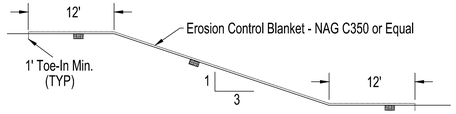
AREA CAPACITY TABLE

Elevation	Area (sf)	Area (ac)	Ave. Area (ac)	Incr. Cap. (ac-ft)	Cum. Cap. (ac-ft)	
3950	7,532	0.17			0.00	
			0.19	0.19		
3951	9,152	0.21			0.19	Inactive Capacity 0.30 ac-ft
			0.22	0.11		
3951.5	9,989	0.23			0.30	
			0.24	0.12		
3952	10,844	0.25			0.42	
			0.27	0.27		
3953	12,608	0.29			0.69	Normal Operating Pool 1.47 ac-ft
			0.31	0.31		
3954	14,444	0.33			1.00	
			0.35	0.35		
3955	16,352	0.38			1.35	
			0.41	0.41		
3956	19,755	0.45			1.77	HWL

Note: Active capacity to be used for pollution control (dust abatement)
Active capacity will be pump discharged to a water truck

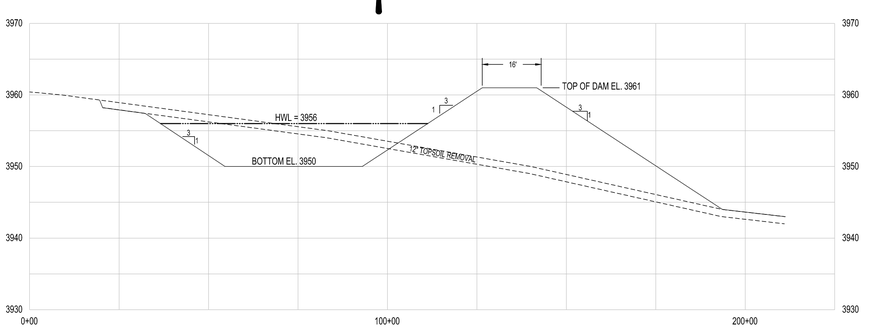


TYPICAL DAM SECTION
SCALE: 1" = 20'

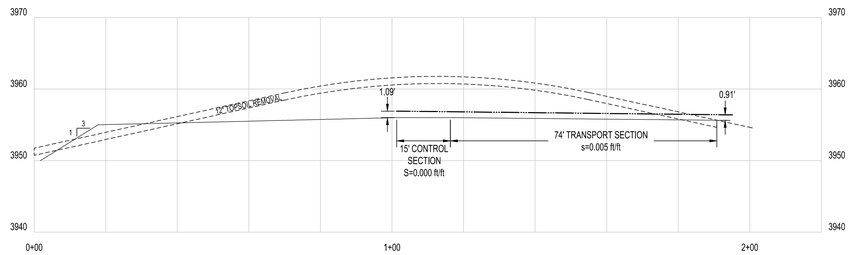


TYPICAL INLET CHANNEL PROFILE
NO SCALE

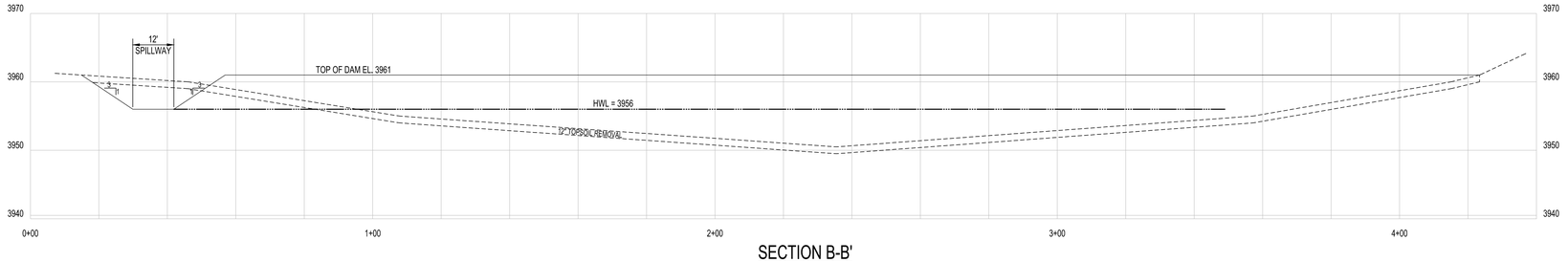
TYPICAL INLET CHANNEL SECTION
NO SCALE



SECTION A-A'
SCALE: H: 1"=20', V: 1"=10'



SECTION C-C'
SCALE: H: 1"=20', V: 1"=10'



SECTION B-B'
SCALE: H: 1"=20', V: 1"=10'

SEDIMENT YIELD CALCULATIONS

DISTURBED AREA (ac)	SEDIMENT VOL/AC (ac-ft)	REQUIRED STORAGE (ac-ft)
10.80	0.02	0.22

HYDROLOGIC DESIGN CALCULATIONS

HYDROLOGIC DESIGN PARAMETERS					100-YR, 24-HR STORM			25-YR, 24-HR STORM		
SOURCE AREA (sq mi)	WATERCOURSE LENGTH (mi)	ELEVATION DIFFERENCE (ft)	INFILTRATION RATE (in/hr)	CURVE NUMBER (CN)	100-YR, 24-HR PRECIPITATION (in)	PEAK INFLOW (cfs)	RUNOFF VOLUME (ac-ft)	25-YR, 24-HR PRECIPITATION (in)	PEAK INFLOW (cfs)	RUNOFF VOLUME (ac-ft)
0.051	0.286	162	0.72	77.40	3.35	60.83	1.39	2.65	39.10	0.83

EMERGENCY SPILLWAY CONTROL SECTION HYDRAULICS

$Q = CLH3/2$

$Q_{25\text{-}24}$ = 39.1	cfs
C = 2.85	
L = 12	ft
H = 1.09	ft
V = 2.98	fps

EMERGENCY SPILLWAY TRANSPORT SECTION HYDRAULICS

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

$Q_{25\text{-}24}$ = 39.1	cfs	A = 13.44	ft^2
n = 0.030		WP = 17.77	ft
S = 0.005	ft/ft	R = 0.76	ft
Z = 3	H:1V	V = 2.91	fps
b = 12	ft	Y_n = 0.91	ft

CERTIFICATE OF ENGINEER

I, Owen Lindblom of Gillette, Wyoming, hereby certify that this map and drawings were prepared by myself or under my direct supervision using topographic maps prepared for Spring Creek Coal LLC dated 09/17 and that they correctly represent the facilities and conditions described in the accompanying application.

MONTANA
OWEN D. LINDBLOM 36748PE
LICENSED PROFESSIONAL ENGINEER

OWEN D. LINDBLOM, P.E. No. 36748PE

Legend

- Permit Boundary
- Drainage Boundary
- Collector Ditch
- Overhead Powerline

NOTARY PUBLIC

SUBSCRIBED AND SWORN BEFORE ME THIS _____ DAY OF _____, _____

NOTARY PUBLIC _____

RESIDING IN _____

MY COMMISSION EXPIRES _____

SPRING CREEK MINE
P.O.BOX 67
DECKER, MT 59025
(406) 757-2581

CLOUD PEAK ENERGY®
GILLETTE, WYOMING

DATE	BY	REVISION
8/28/18	ODL	Increase Capacity to Hold 100-YR, 24-HR Runoff

Sediment Control
Spring Creek Mine Pond # 102

DRAWN BY RWC SHEET 1 OF 1 DATE 12/04/17
SCALE as shown FILE NUMBER NE P4 Sediment Ponds.dwg