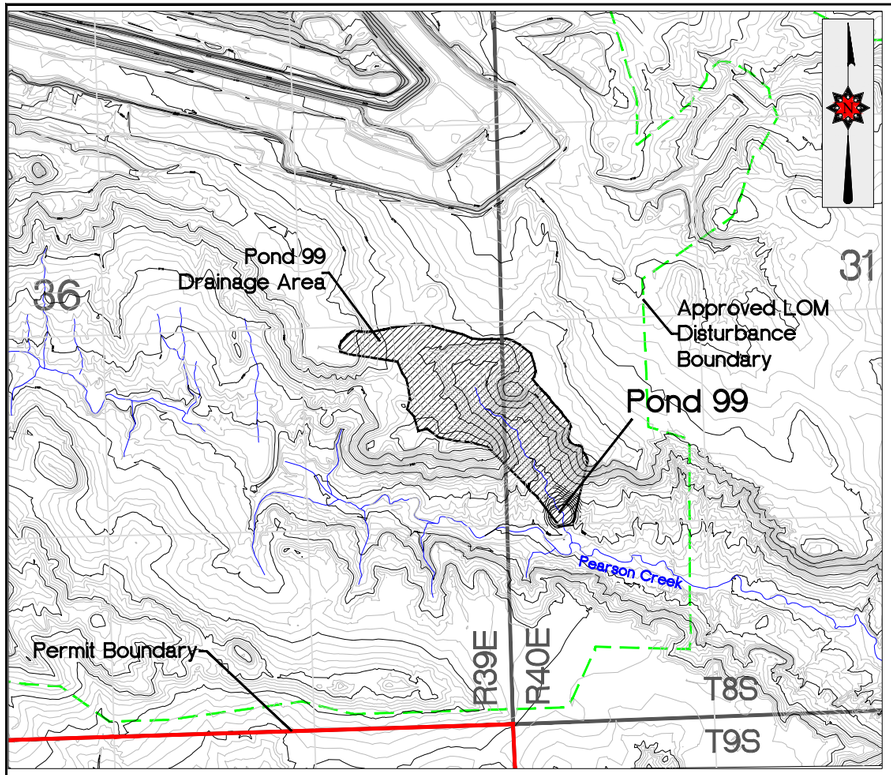
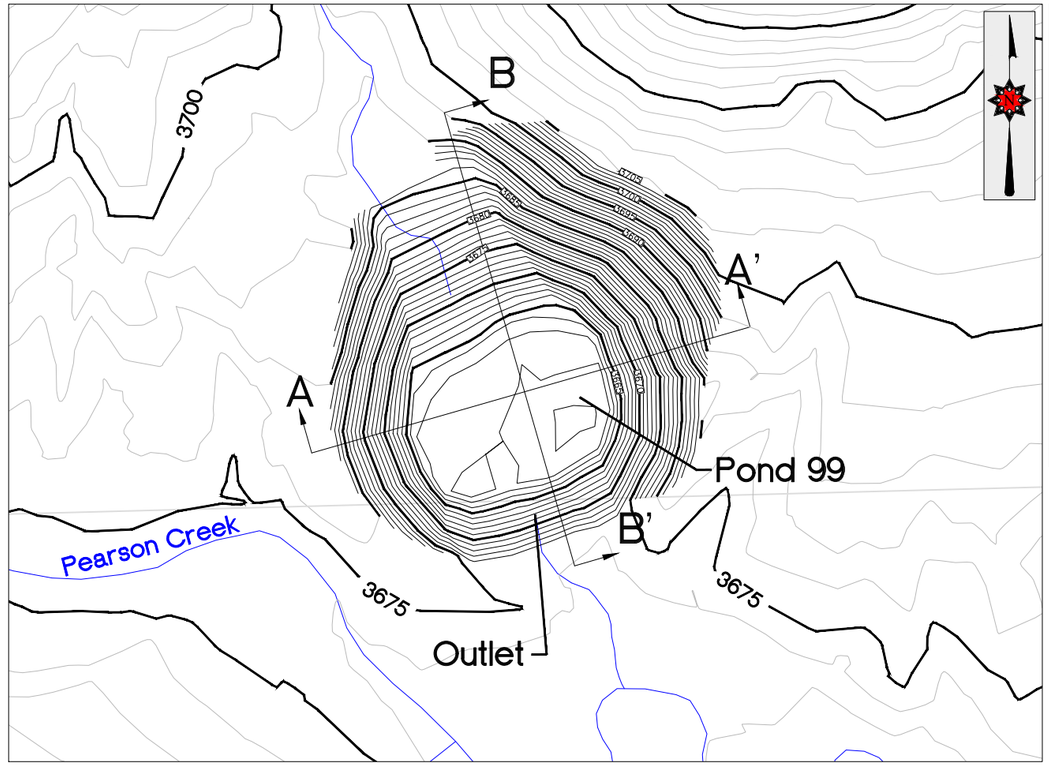


LOCATION MAP

SCALE: 1" = 1,000', C.I. = 5'

POND IS LOCATED PRIMARILY IN NWSW OF SECTION 31, T8S, R40E.



PLAN MAP

SCALE: 1" = 100', POND C.I. = 1', OUTER C.I. = 5'

AREA-ELEVATION-CAPACITY TABLE

ELEVATION (FT AMSL)	AREA (ACRES)	INCREMENTAL CAPACITY (ACRE-FEET)	CUMULATIVE CAPACITY (ACRE-FEET)	USE
3,660.75	0.00		0.00	
		0.00		INACTIVE CAPACITY
3,661.00	0.01		0.00	VOLUME = 0.43 AC-FT.
		0.25		
3,663.00	0.24		0.26	sediment storage
		0.18		
3663.70	0.27		0.43	
		0.39		
3,665.00	0.33		0.83	
		0.74		
3,667.00	0.41		1.56	ACTIVE CAPACITY
		0.88		VOLUME = 5.05 AC-FT.
3,669.00	0.48		2.45	
		1.03		10-YEAR / 24-HOUR
3,671.00	0.55		3.48	RUNOFF VOLUME
		1.19		= 1.87 AC-FT.
3,673.00	0.63		4.66	
		0.65		
3,674.00	0.67		5.32	
		0.16		
3,674.24	0.68		5.48	

POND 99 DRAINAGE AREA DATA

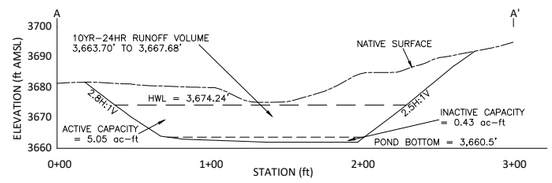
TOTAL DRAINAGE AREA	=	21.3 acres
LONGEST WATERCOURSE	=	2,283 ft
AVERAGE LAND SLOPE	=	24.78%
CURVE NUMBER	=	87 (Disturbed Mine Land)
SOILS	=	Hydrologic Soils Group C
TIME OF CONCENTRATION	=	0.162 Hours

RUNOFF ESTIMATE TO POND 99

RAINFALL DISTRIBUTION	=	SCS TYPE II
PRECIPITATION (10YR-24HR)	=	2.19 in
PEAK Q (10YR-24HR)	=	29.85 cfs
VOLUME (10YR-24HR)	=	1.87 ac-ft
DESIGN METHOD	=	SCS RUNOFF CURVE NUMBER METHOD AND SCS GRAPHICAL PEAK DISCHARGE METHOD (NRCS TR-55 METHOD)

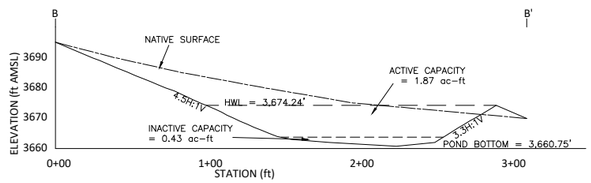
POND 99 DESIGN CAPACITY

SEDIMENT CAPACITY (0.02 ac-ft per acre)	=	0.43 ac-ft
10YR-24HR RUNOFF VOLUME	=	1.87 ac-ft
TOTAL DESIGN CAPACITY	=	2.30 ac-ft



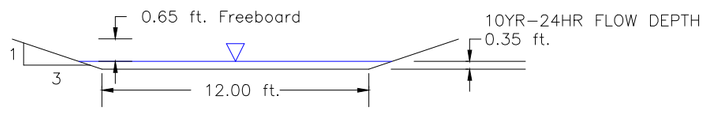
POND PROFILE A-A'

SCALE: H: 1" = 100', V: 1" = 50'



POND PROFILE B-B'

SCALE: H: 1" = 100', V: 1" = 50'



Trapezoidal Channel
Equal Side Slopes

Channel Lining: NAG Erosion Control Blanket P300 or Equivalent

INLET CHANNEL AND EROSION PROTECTION

SCALE: AS SHOWN

INLET CHANNEL HYDRAULICS

CHANNEL TYPE	=	TRAPEZOIDAL, EQUAL SIDE SLOPES	RETARDANCE CLASS	=	C
BOTTOM WIDTH	=	12 ft	VEGETATION TYPE	=	BUNCH TYPE
SIDE SLOPES	=	3H:1V	VEGETATION DENSITY	=	FAIR (50-75%)
MAXIMUM SLOPE	=	33% (POND FACE SLOPE)	SOIL TYPE	=	SILT LOAM
10YR-24HR PEAK FLOW	=	28.85 cfs	VELOCITY	=	6.61 ft/s
CHANNEL LINING	=	N.A.G. P300 EROSION CONTROL BLANKET (PERMANENT) WITH VEGETATION	NORMAL DEPTH	=	0.35 ft
			MANNING'S N	=	0.06
			PERMISSIBLE SHEAR STRESS	=	8 lbs/ft^2
			CALCULATED SHEAR STRESS	=	7.13 lbs/ft^2

CERTIFICATE OF ENGINEER

I, Owen Lindblom, hereby certify that this map and drawing was prepared by myself or under my direct supervision 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

CLOUD PEAK ENERGY

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

DATE	REVISION
BY	
6/08/20	As-Built Conditions
ODL	

Sediment Control
Pond 99 Design

As-Built

DESIGN EMD DRAWN EMD DATE 11/17 SHEET 1 OF 1
SCALE As Shown CONTOUR INTERVAL As Shown FILE NUMBER AppKb_Pond_99_MR257_20200526.dwg