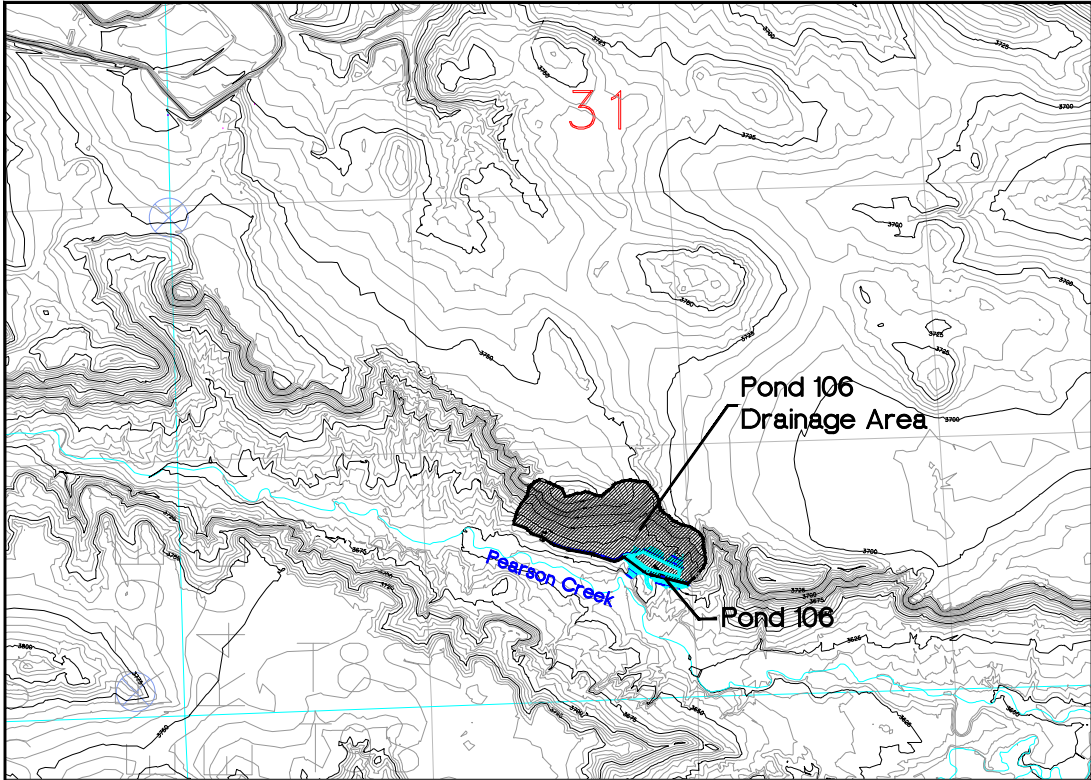
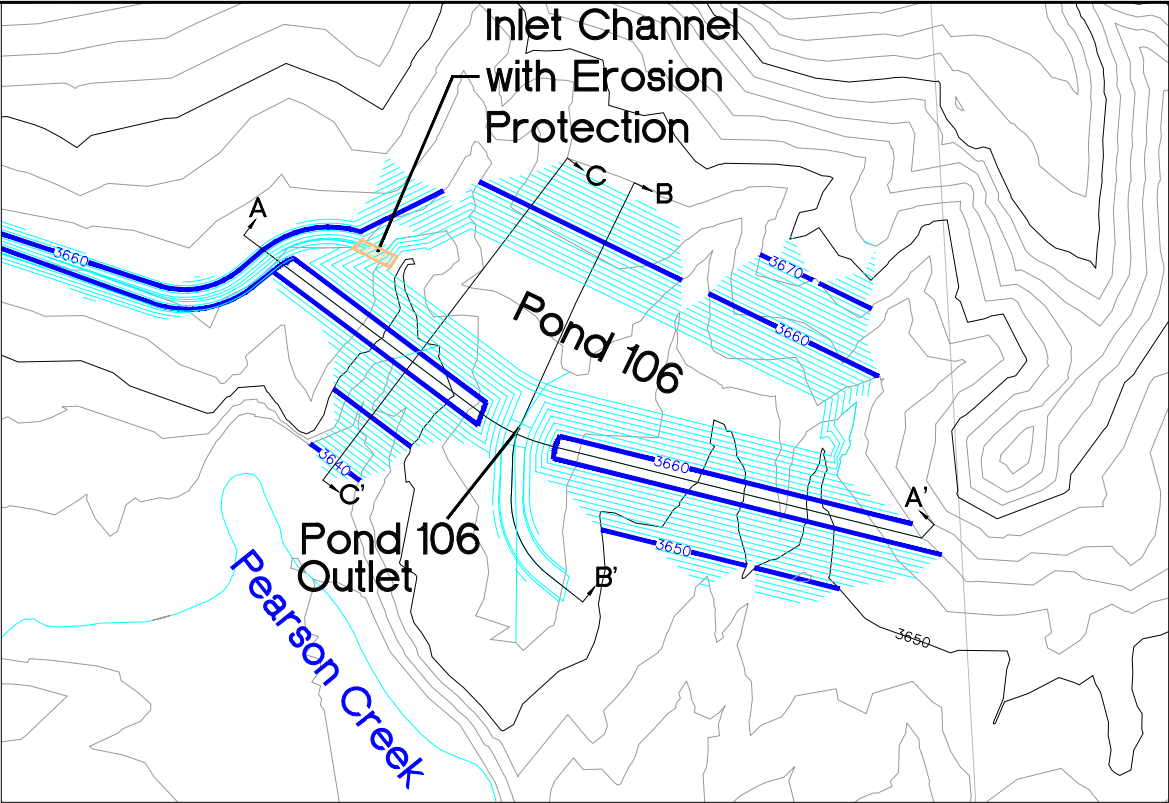




LOCATION MAP

SCALE: 1" = 1,000', C.I. = 5'
POND IS LOCATED IN SESW 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
3,652.00	0.23		0.00	INACTIVE CAPACITY VOLUME = 0.14 AC-FT. sediment storage
3,652.56	0.25	0.14	0.14	
		0.12		ACTIVE CAPACITY VOLUME = 0.74 AC-FT. 10-YEAR / 24-HOUR RUNOFF VOLUME = 0.62 AC-FT.
3,653.00	0.27	0.29	0.25	
3,654.00	0.31	0.33	0.54	
3,655.00	0.36		0.88	
HIGH WATER LINE = 3,655.00 FT. AMSL, TOTAL CAPACITY = 0.88 AC-FT.				

POND 106 DRAINAGE AREA DATA

TOTAL DRAINAGE AREA = 7.22 acres
LONGEST WATERCOURSE = 1064 ft
AVERAGE LAND SLOPE = 37.01%
CURVE NUMBER = 87 (Disturbed Mine Land)
SOILS = Hydrologic Soils Group C
TIME OF CONCENTRATION = 0.06 Hours

RUNOFF ESTIMATE TO POND 106

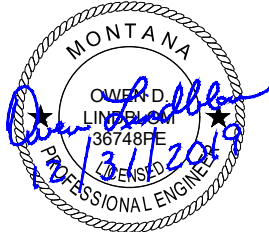
RAINFALL DISTRIBUTION = SCS TYPE II
PRECIPITATION (10YR-24HR) = 2.19 in
PEAK Q (10YR-24HR) = 10.61 cfs
VOLUME (10YR-24HR) = 0.62 ac-ft
DESIGN METHOD = SCS RUNOFF CURVE NUMBER
METHOD AND SCS TRIANGULAR
HYDROGRAPH METHOD
(TRIHEDRO)

POND 106 DESIGN CAPACITY

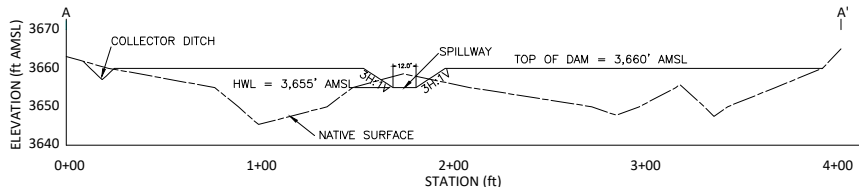
SEDIMENT CAPACITY (0.02 ac-ft per acre) = 0.14 ac-ft
10YR-24HR RUNOFF VOLUME = 0.62 ac-ft
SURPLUS VOLUME = 0.12 ac-ft
TOTAL DESIGN CAPACITY = 0.88 ac-ft

CERTIFICATE OF ENGINEER

I, Owen Lindblom, hereby certify that this map and drawings were prepared by myself or under my direct supervision and that they correctly represent the facilities and conditions described in the accompanying application.

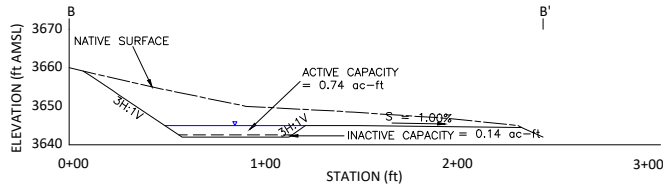


OWEN LINDBLOM, P.E. No. 36748PE



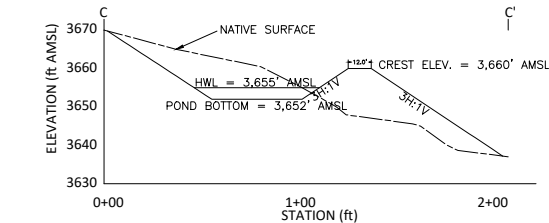
PROFILE A-A'

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



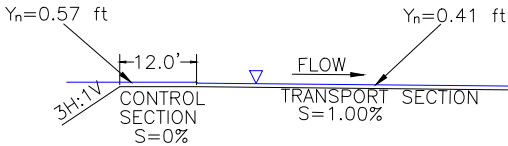
PROFILE B-B'

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



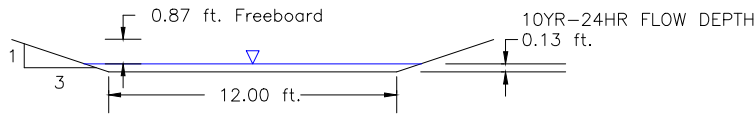
PROFILE C-C'

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



EMERGENCY SPILLWAY DETAILS

NOT TO SCALE



Channel Lining: NAG Erosion Control Blanket C350 or Equivalent

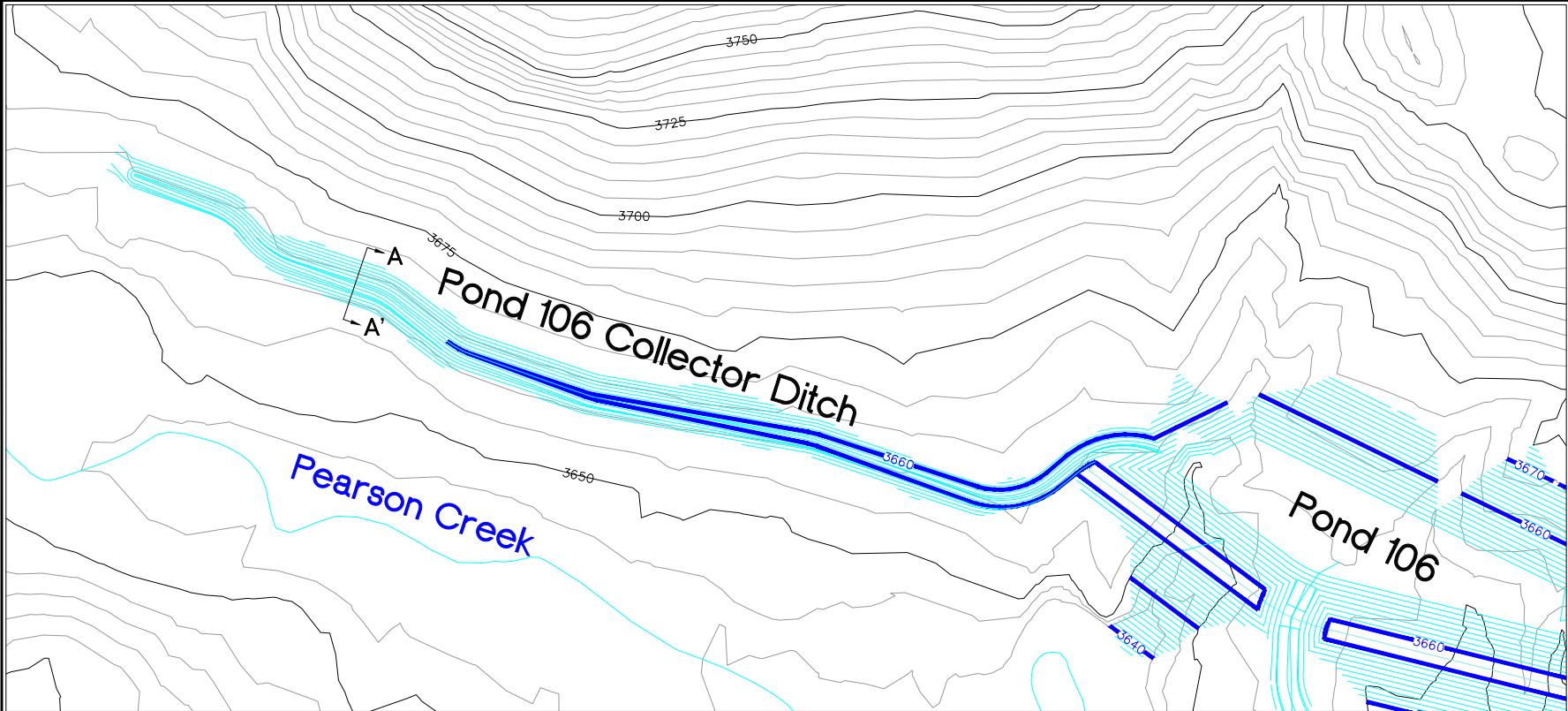
INLET CHANNEL AND EROSION PROTECTION

NOT TO SCALE

INLET CHANNEL HYDRAULICS

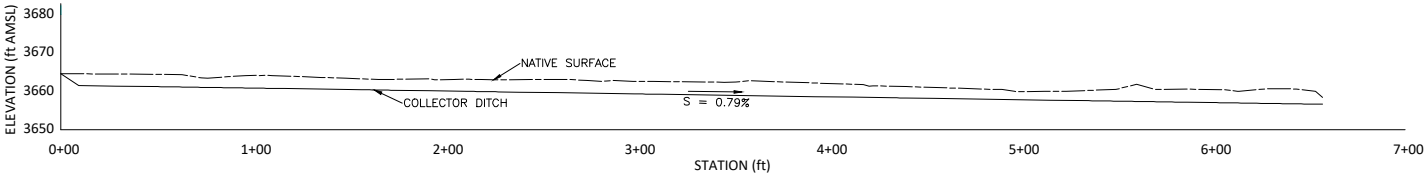
CHANNEL TYPE	=	TRAPEZOIDAL, EQUAL SIDE SLOPES	RETARDANCE CLASS	=	C
BOTTOM WIDTH	=	12 ft	VEGETATION TYPE	=	BUNCH TYPE
SIDE SLOPES	=	3H:1V	VEGETATION DENSITY	=	FAIR (50-75%)
MAXIMUM SLOPE	=	33% (POND FACE SLOPE)	SOIL TYPE	=	SILT LOAM
10YR-24HR PEAK FLOW	=	4.84 cfs	VELOCITY	=	4.49 ft/s
CHANNEL LINING	=	N.A.G. C350 EROSION CONTROL BLANKET (PERMANENT) WITH VEGETATION	NORMAL DEPTH	=	0.09 ft
			MANNING'S N	=	0.037
			PERMISSABLE SHEAR STRESS	=	12.0 lbs/ft ²
			CALCULATED SHEAR STRESS	=	1.83 lbs/ft ²

		SPRING CREEK MINE P.O. BOX 67, DECKER, MT 59025 PHONE: (406) 757-2581	
DATE	REVISION	Sediment Control Pond 106 Design	
BY			
DESIGN	ODL	DRAWN	ODL
DATE	12/31/2019	SHEET	1 OF 2
SCALE	As Shown	CONTOUR INTERVAL	As Shown
FILE NUMBER	Pond 106.dwg		



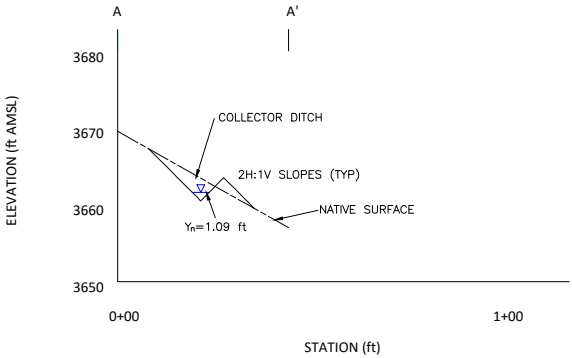
COLLECTOR DITCH PLAN VIEW

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



POND 106 COLLECTOR DITCH PROFILE

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



SECTION A-A'

SCALE: H: 1" = 50'
V: 1" = 25'

POND 106 COLLECTOR DITCH

DRAINAGE AREA DATA

TOTAL DRAINAGE AREA = 3.30 acres
LONGEST WATERCOURSE = 963 ft
AVERAGE LAND SLOPE = 41.01%
CURVE NUMBER = 87 (Disturbed Mine Land)
SOILS = Hydrologic Soils Group C
TIME OF CONCENTRATION = 0.06 Hours

RUNOFF ESTIMATE TO POND 106

RAINFALL DISTRIBUTION = SCS TYPE II
PRECIPITATION (10YR-24HR) = 2.19 in
PEAK Q (10YR-24HR) = 4.84 cfs
PEAK Q (25YR-24HR) = 6.44 cfs
DESIGN METHOD = SCS RUNOFF CURVE NUMBER
METHOD AND SCS TRIANGULAR
HYDROGRAPH METHOD
(TRIHYDRO)

COLLECTOR DITCH

HYDRAULICS

$$Q_{25-24} = \frac{1.487}{n} AR^{2/3} S^{1/2}$$

$Q_{25-24} = 6.44$ cfs $A = 2.37$ ft²
 $n = 0.03$ $WP = 4.86$ ft
 $S = 0.008$ $R = 0.49$ ft
 $Z = 2H:1V$ $V = 2.72$ ft/s
 $b = 0$ ft $Y_n = 1.09$ ft



		SPRING CREEK MINE P.O. BOX 67, DECKER, MT 59025 PHONE: (406) 757-2581	
DATE	REVISION	Sediment Control Pond 106 Design	
BY			
DESIGN	ODL	DRAWN	ODL
SCALE	As Shown	CONTOUR INTERVAL	As Shown
DATE	12/31/2019	FILE NUMBER	Pond_106.dwg
SHEET	2	OF	2