



June 23, 2026

Mr. Stephen D. Miles, P.E.
Alabama Surface Mining Commission
P.O. Box 2390
Jasper, AL 35502-2390

RE: Mays Mining, Inc.
Kansas Mine No. 2, P-3936, R-4

Dear Mr. Miles:

I hereby certify the enclosed detailed design plans for Sediment Basin 004 for the above referenced mine are in accordance with the Regulations of the Alabama Surface Mining Commission as adopted by Act 81-435 of December 18, 1981 and as amended to date and that the information used in the enclosed design plans is true and correct to the best of my knowledge and belief.

If you have any questions or need additional information, please do not hesitate to contact our office.

Sincerely,

Simmons-Johnsey Engineering, LLC

Bradley K. Simmons, P.E.
Alabama Reg No. 33277

General Notes:

1. Once initial construction begins on each basin, it will be constructed and certified to the Regulatory Authority within 90 days unless an extension is approved by the Director.
2. The foundation material located within the footprint of the proposed embankment of Sediment Basin 004 was determined to be unsuitable. All unsuitable foundation material located within the footprint of the proposed embankment of Basin 004 will be removed. The depth to stiff base was estimated to be 10.0' in the foundation area of Sediment Basin 004.
3. The pool area of this basin is within spoil material/final pit. A clay liner is not proposed due to the pool area showing the ability to hold water for the past 10 years since mining occurred.

Sediment Basin 004

Elevation-Area-Capacity Table

Elevation (ft)	Area (ac)	Capacity (ac-ft)
548.00	0.000	0.000
548.50	0.047	0.008
549.00	0.190	0.063
549.50	0.228	0.168
550.00	0.270	0.292
550.50	0.299	0.434
551.00	0.330	0.592
551.50	0.350	0.762
552.00	0.370	0.941
552.50	0.390	1.131
553.00	0.410	1.331
553.50	0.430	1.541
554.00	0.450	1.761
554.50	0.475	1.992
555.00	0.500	2.236
555.50	0.525	2.492
556.00	0.550	2.761
556.50	0.584	3.044
557.00	0.620	3.345
557.50	0.655	3.664
558.00	0.690	4.000
558.50	0.729	4.355
559.00	0.770	4.730
559.50	0.814	5.126
560.00	0.860	5.544
560.50	0.895	5.983
561.00	0.930	6.439
561.50	0.960	6.911
562.00	0.990	7.399
562.50	1.025	7.903
563.00	1.060	8.424
563.50	1.090	8.961
564.00	1.120	9.514
564.50	1.145	10.080
565.00	1.170	10.658
565.50	1.205	11.252
566.00	1.240	11.863

Elevation (ft)	Area (ac)	Capacity (ac-ft)
566.50	1.270	12.491
567.00	1.300	13.133
567.50	1.330	13.791
568.00	1.360	14.463
568.50	1.375	15.147
569.00	1.390	15.838

SEDIMENT BASIN 004

UPSTREAM TOE ELEV.: 559.0'
INCISED TOE ELEV.: 548.0'
SEDIMENT REMOVAL ELEV.: 564.0'
EMERGENCY SPILLWAY ELEV.: 566.0'
** MAXIMUM WATER ELEV.: 569.23'
TOP OF DAM ELEV.: 570.23' DESIGN
TOP OF DAM ELEV.: 571.0' CONSTRUCTION

EMERGENCY SPILLWAY: 10' WIDE TRAPEZOIDAL
CONCRETE LINED OPEN CHANNEL

EMBANKMENT

NORMAL POOL AREA

EXISTING CONTOUR

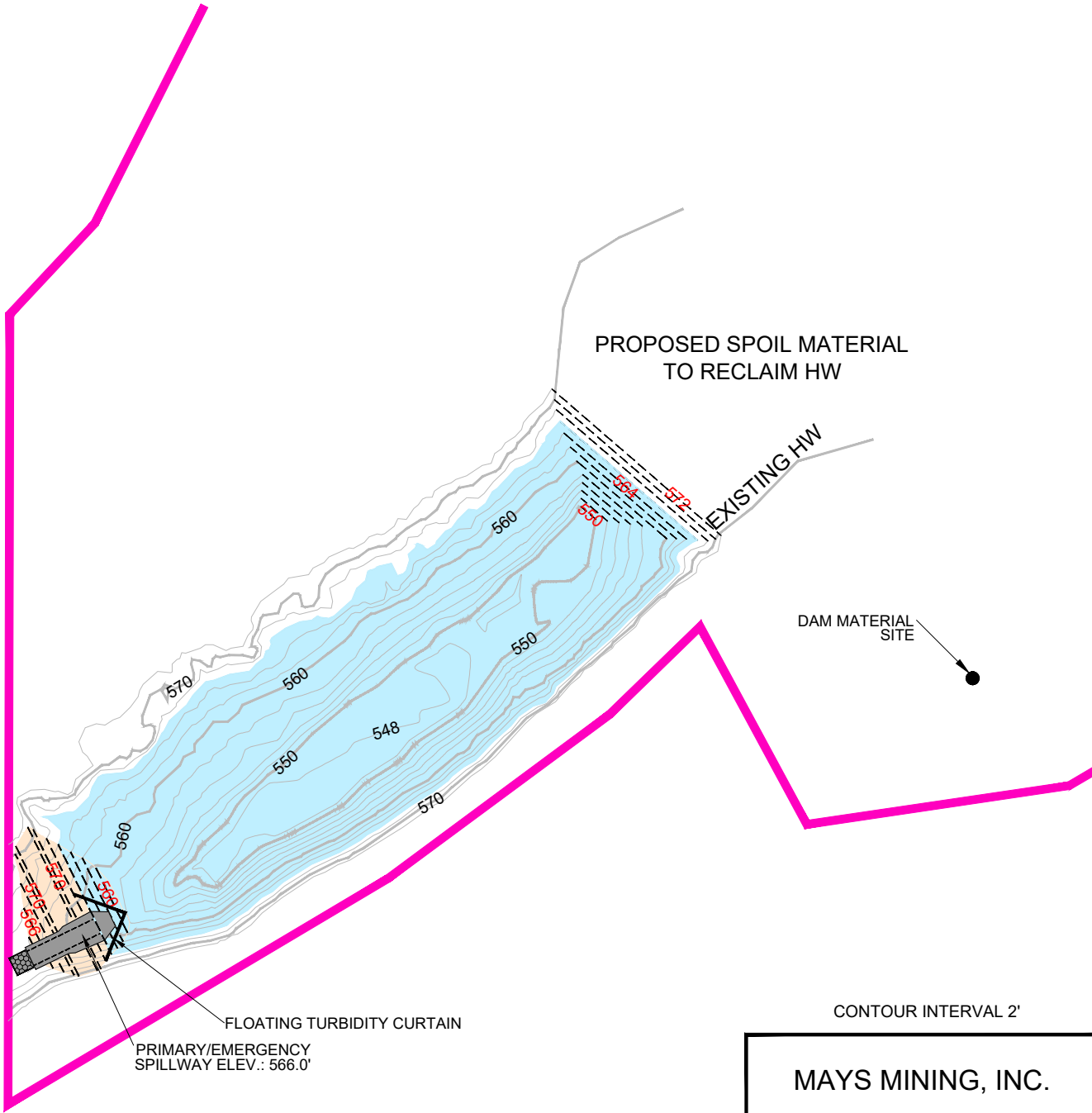
550

 EXISTING INDEX CONTOUR

550

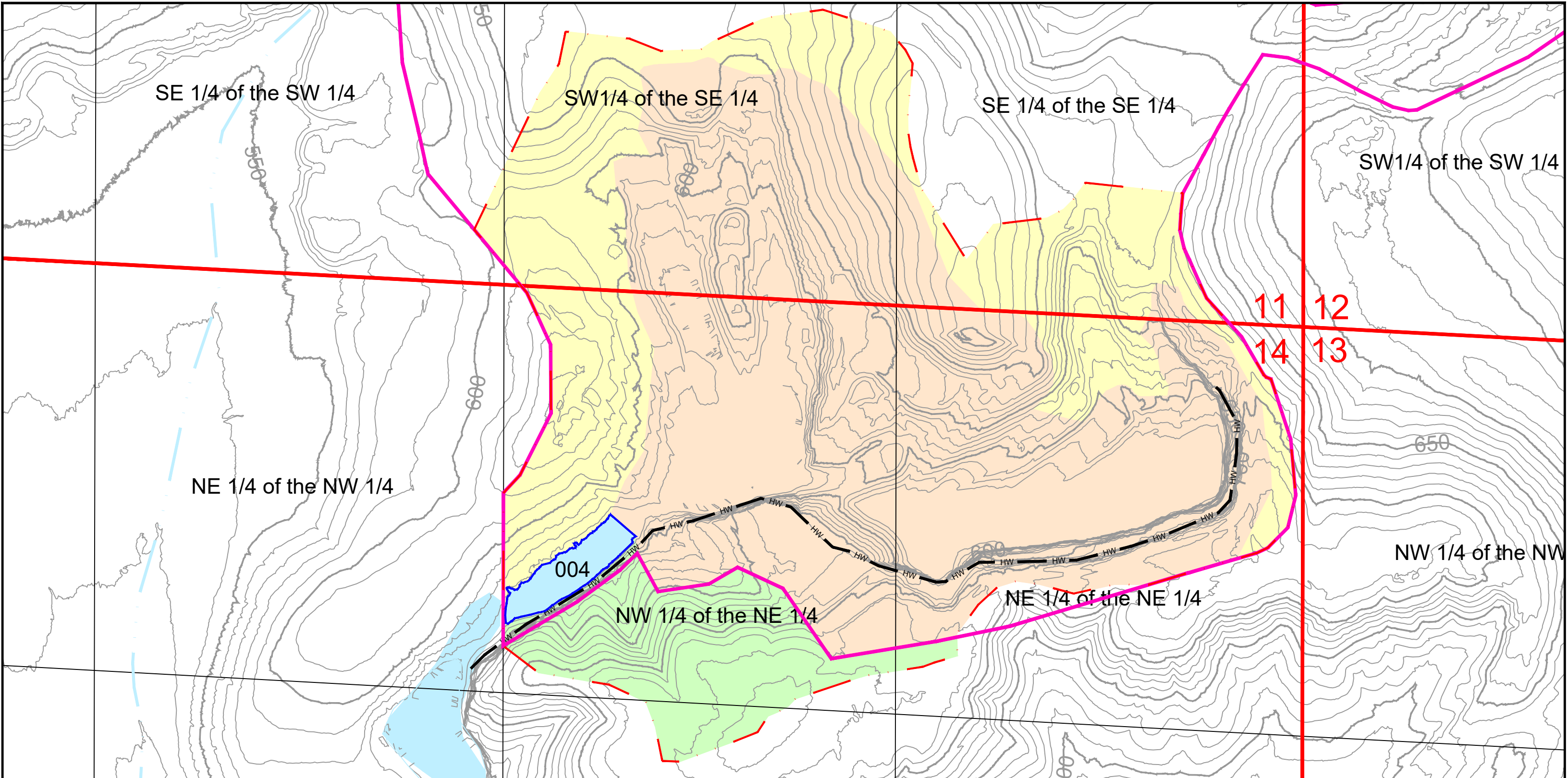
 PROPOSED CONTOUR

ENERGY DISSIPATOR CLASS 2 RIP-RAP
MIN, 12' x 12' x 16"




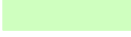





CONTOUR INTERVAL 2'

MAYS MINING, INC.			
KANSAS MINE NO. 2 P-3936, R-4			
SEDIMENT BASIN 004 PLANVIEW MAP			
DATE: 6/22/26	APPROVED BY: B.K.S.	SCALE: 1"=100'	SHEET: 1 OF 1



MAP LEGEND

-  ASMC PERMIT BOUNDARY
-  GRADED AND BARE, CN 81
-  RE-VEGETATED 2-12 MO., CN 74
-  MOSTLY FOREST, CN 60
-  SEDIMENT BASIN, CN 100
-  DRAINAGE DIVIDE
-  DIVERSION

CONTOUR INTERVAL 10'

MAY'S MINING, INC.

KANSAS MINE NO. 2
P-3936, R-4

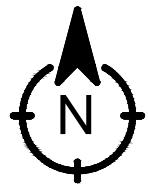
BASIN 004
WATERSHED MAP

DATE:
06/10/26

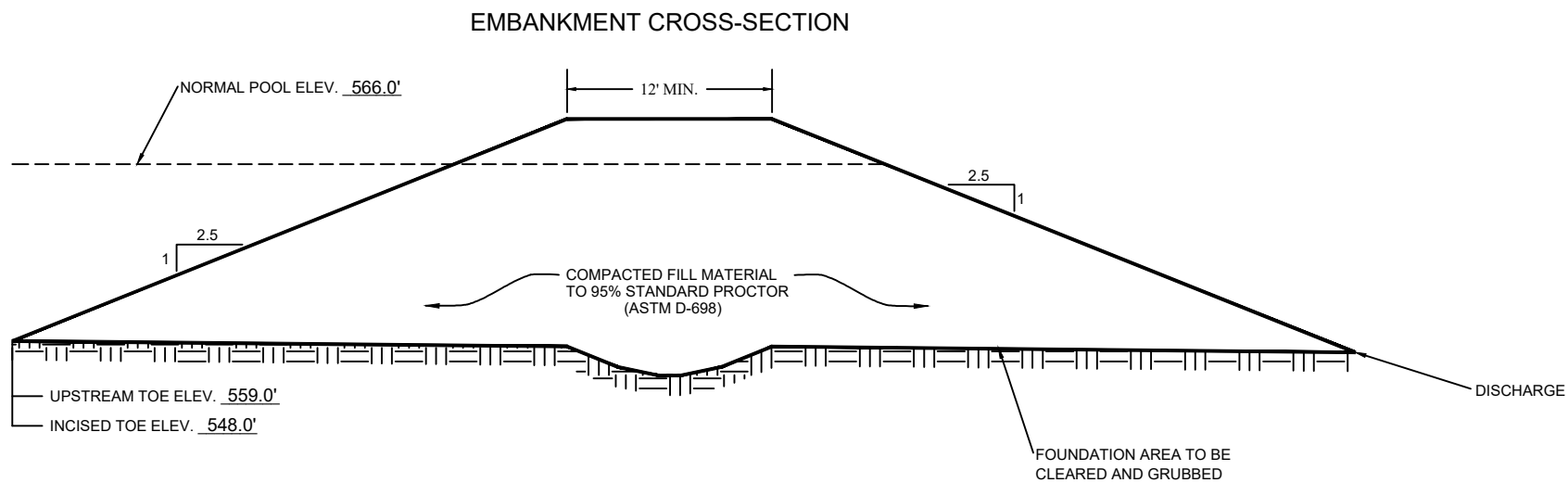
APPROVED BY:
J.P.J.

SCALE:
1" = 200'

SHEET:
1 OF 1

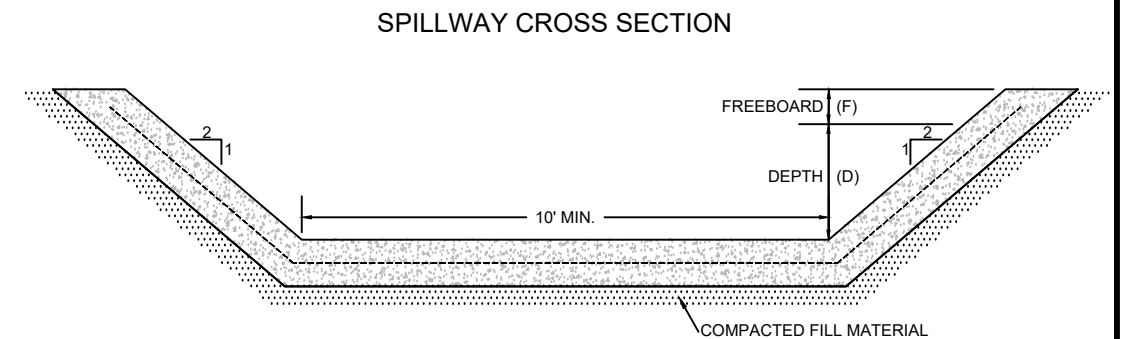
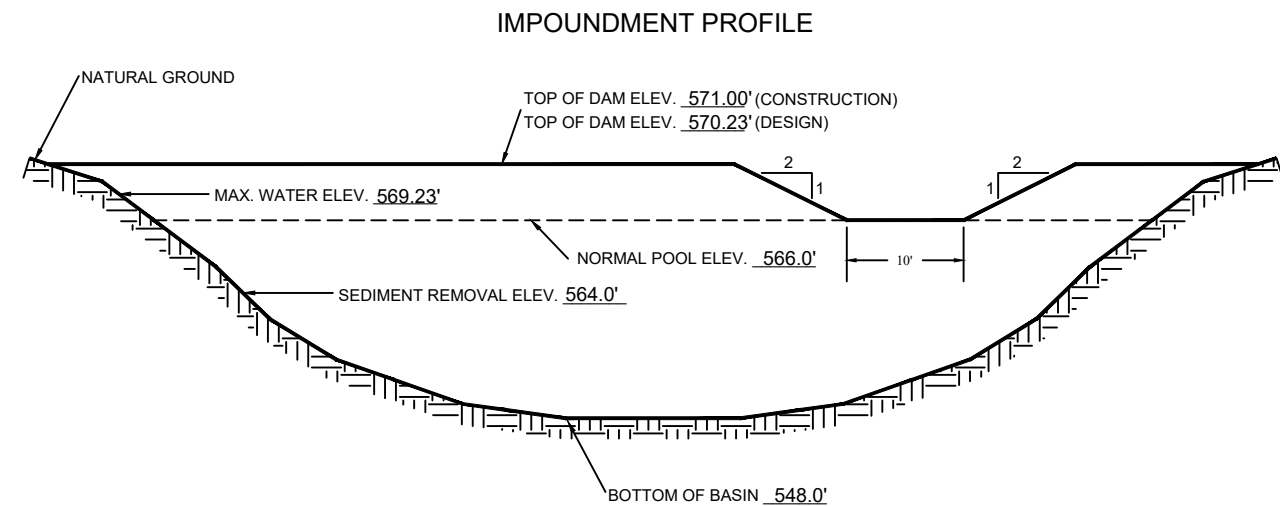


407 9th Ave., Jasper AL, 35501
(205) 275-0689 (205) 522-2057

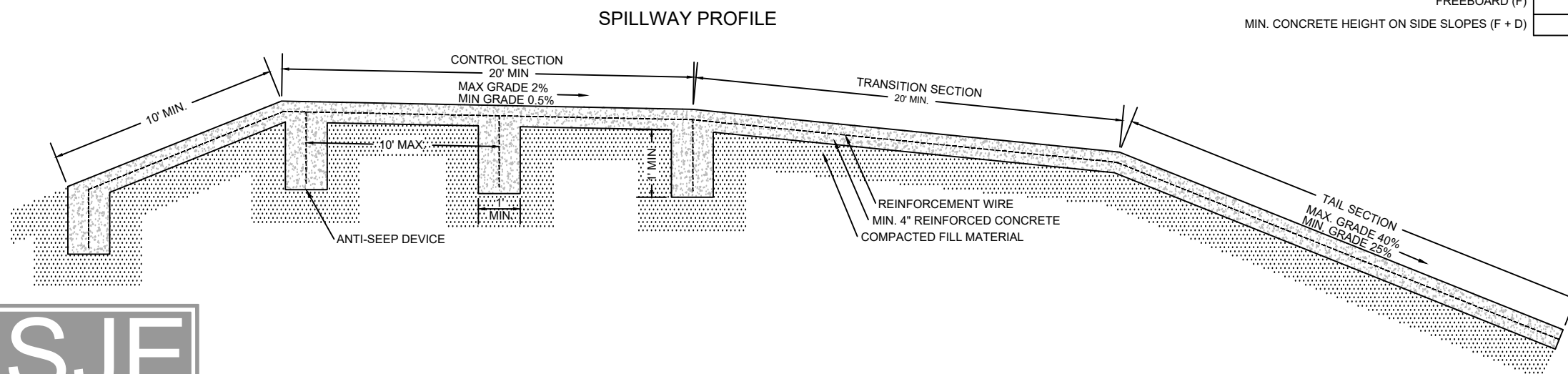


KEY BASIN PARAMETERS

TOTAL DRAINAGE AREA	<u>94.9</u>	ACRES
DISTURBED AREA	<u>85.4</u>	ACRES
SEDIMENT STORAGE	<u>9.55</u>	AC-FT
DETENTION STORAGE	<u>2.36</u>	AC-FT
PERMANENT POOL CAPACITY	<u>11.91</u>	AC-FT
*TOTAL BASIN STORAGE CAPACITY	<u>14.56</u>	AC-FT
** PEAK INFLOW	<u>280.84</u>	C.F.S.
** PEAK OUTFLOW	<u>233.47</u>	C.F.S.
* 10 YEAR - 24 HOUR EVENT		
** 25 YEAR - 6 HOUR EVENT		



	BEGINNING OF CONTROL SECTION	END OF CONTROL SECTION	END OF TRANSITION SECTION	ENTIRE TAIL SECTION
MAXIMUM FLOW DEPTH (D)	3.23'	2.35'	0.78'	0.78'
FREEBOARD (F)	1.0'	1.0'	1.0'	1.0'
MIN. CONCRETE HEIGHT ON SIDE SLOPES (F + D)	4.23'	3.35'	1.78'	1.78'



407 9th Ave., Jasper AL, 35501
(205) 275-0689 (205) 522-2057

MAYS MINING, INC.

KANASAS MINE NO. 2
P-3936, R-4

SEDIMENT BASIN 004
DETAIL PLAN SHEET

DATE:
6/26/26

APPROVED BY:
B.K.S.

SCALE:
NA

SHEET:
1 OF 1

SEDIMENT BASIN CONSTRUCTION SPECIFICATIONS

Sediment basins (temporary or permanent) will be designed and constructed using the following as minimum specifications:

EMBANKMENT REQUIREMENTS

1. The minimum width of the top of the embankment shall be no less than twelve (12) feet.
2. The embankment will have a minimum front and back slope no steeper than the slopes shown on the detailed design sheet.
3. The foundation area of the embankment will be cleared and grubbed of all organic matter with no surface slope steeper than 1 horizontal to 1 vertical. The entire wet area, as measured from the upstream toe of the embankment to the normal pool level, will be cleared of trees and large brush.
4. A core will be constructed in a cutoff trench along the centerline of the embankment. The cutoff trench will be of suitable depth and width to attain relatively impervious material.
5. The embankment construction material will be free of sod, roots, stumps, rocks, etc., which exceed six (6") inches in diameter. The embankment material will be placed in layers of twelve (12") inches or less and compacted to ninety-five (95%) percent of the standard proctor density, as set forth in ASTM.
6. The embankment, foundation and abutments will be designed and constructed to be stable under normal construction and operating conditions, with a minimum static safety factor of 1.3 at normal pool level with steady seepage saturation conditions.
7. The actual constructed height of the embankment will be a minimum of five (5%) percent higher than the design height to allow for settling over the life of the embankment.
8. The design embankment height for temporary impoundments will be a minimum of one (1') foot above the maximum water level anticipated from the 10 Year-24 Hour or the 25 Year-6 Hour precipitation event (whichever is greater). The design embankment height for permanent impoundments will be a minimum of one (1') foot above the maximum water level anticipated from the 10 Year-24 Hour or the 25 Year-6 Hour precipitation event (whichever is greater).
9. For embankments constructed as point source discharges, the embankment will be constructed and keyed into undisturbed, virgin, ground if at all possible. In the event that this cannot be achieved, additional design and construction specifications will be submitted in the detailed design plans.

MAYS MINING, INC.
KANSAS MINE NO. 2, P-3936, R-4

10. The embankment and all areas disturbed in the construction of the embankment will be seeded with a mixture of perennial and annual grasses, fertilized and mulched to prevent erosion and ensure re-stabilization. Hay dams, silt fences, rock check dams, etc. will be installed, where deemed necessary, as additional erosion prevention methods.

DISCHARGE STRUCTURE REQUIREMENTS

11. The primary spillway will be designed to adequately carry the anticipated peak runoff from the 10 Year-24 Hour precipitation event. The combination primary and secondary (emergency) spillway system will be designed to safely carry the anticipated peak runoff from a 25 Year-6 Hour precipitation event. When sediment basins are proposed in the drainage course of a public water supply, the spillway system will be designed and constructed to adequately carry the runoff from the 50 Year-24 Hour precipitation event.
12. Channel linings, for secondary (emergency) spillways will be a trapezoidal open channel constructed in natural ground and planted with a mixture of both annual and perennial grasses being predominantly fescue and Bermuda. In the event that the spillway cannot be constructed in natural ground, the spillway will be lined with riprap, concrete, asphalt or durable rock (See Detailed Design Plans for Spillway Lining).
13. When consisting of pipe, the primary spillway will be installed according to Class "C" pipe installation for embankment bedding.
14. Sediment basins with a single spillway system, such as a skimmer board, will be a trapezoidal open channel constructed in consolidated, nonerodable material and lined with rip-rap, concrete, asphalt or durable rock (See Detailed Design Plans for Spillway Lining).
15. The primary spillway will be designed and constructed with device to eliminate floating solids from leaving the impoundment. This device will consist of a turned down elbow when using pipe or a skimmer system when using an open channel spillway.
16. When necessary, to prevent erosion of the embankment or discharge area, a splash pad of rip-rap, durable rock, sacrete, etc. will be installed at the discharge end of the primary spillway.
17. The combined spillway systems, for sediment basins constructed in series, will be designed to adequately accommodate the entire drainage area.

INSPECTION, MAINTENANCE AND CERTIFICATION REQUIREMENTS

18. Inspections will be conducted regularly during construction of the sediment basin by a qualified registered professional engineer or other qualified person under the direction of a professional engineer. Upon completion of construction, the sediment basin will be certified, by a qualified registered professional engineer, to the Regulatory Authority as having been constructed in accordance with the approved detailed design plans.
19. Sediment basins will be inspected semi-monthly for erosion, instability, etc., with maintenance performed as necessary, until the removal of the structure or until a Phase III Bond Release is granted.
20. Sediment basins will be examined quarterly for structural weakness, instability, erosion, slope failure, or other hazardous conditions with maintenance performed as necessary.
21. Formal inspections will be made annually, by a qualified registered professional engineer or other qualified person under the direction of a professional engineer, including any reports or modifications, in accordance with 880-X-10C-.20[1(j)] of the Alabama Surface Mining Regulations.
22. Retained sediment will be removed from each sediment basin when the accumulated sediment reaches the maximum allowable sediment volume as set forth in the detailed design plans.
23. The basin will be certified as constructed to the Regulatory Authority within 90 days after the start of construction of the respective basin unless an extension is granted by the Director.

BASIN REMOVAL REQUIREMENTS

24. Upon completion of mining, reclamation, re-stabilization and effluent standards being met, each sediment basin not proposed as a permanent water impoundment will be dewatered in a controlled manner by either pumping or siphoning. Upon successful dewatering, a determination will be made as to the retained sediment level in the basin. After determining the retained sediment level, a channel will be cut into the embankment down to the retained sediment level on the side of the embankment deemed most suitable to reach natural ground without encountering prohibited rock. The embankment material removed from this newly constructed channel will be spread and compacted over the previous impoundment (pool area) to prevent erosion and ensure re-stabilization. The newly constructed channel will be designed to safely carry the anticipated peak runoff from a 10 Year-6 Hour precipitation event. The channel will be lined with riprap, concrete, asphalt or durable rock. Upon removal of the embankment section, all disturbed areas will be graded in such a manner to ensure slope stability, successful re-stabilization and to minimize erosion. All disturbed areas will be seeded with a mixture of annual and perennial grasses, fertilized and mulched.

MAYS MINING, INC.
KANSAS MINE NO. 2, P-3936, R-4

No slope, existing or created in the removal of the sediment basin, will be left on a grade that will slip or slough.

PERMANENT WATER IMPOUNDMENT REQUIREMENTS

25. Prior to a request for a Phase II Bond Release, all sediment basins being left as permanent water impoundments will have supplemental data submitted to the Regulatory Authority concerning water quality, water quantity, size, depth, configuration, postmining land use, etc.
26. Final graded slopes of the entire permanent water impoundment area will not exceed a slope of 2 Horizontal to 1 Vertical to provide for safety and access for future water users.

MAYS MINING, INC.
KANSAS MINE NO. 2, P-3936, R-4

DETAILED DESIGN PLANS
SEDIMENT BASIN 004

SPILLWAY CHANNEL REQUIREMENTS
SEDIMENT BASIN 004

1. The entire control section and tail section of the spillway will be lined with a minimum of four (4") inches of reinforced concrete with a minimum compressive strength of 3,000 psi.
2. All concrete will be reinforced with 10 gauge, 6" x 6" welded wire. Additional reinforcement may be added to the concrete for additional strength, however, the additional reinforcement cannot be used in place of the required 6" x 6" welded wire.
3. A floating turbidity curtain will be installed near the entrance to the spillway to provide sub-surface withdrawal. The floating turbidity curtain will be anchored at the 10 Year-24 Hour precipitation event with t-posts or steel posts. See attached floating turbidity curtain specifications.

See enclosed SEDCAD 4 spillway control and tail section design and attached Spillway Cross-Section for minimum and maximum emergency spillway construction requirements.

Basin 004 Spillway Control Section

Material: Concrete, Rubble

Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Manning's n	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
10.00	2.0:1	2.0:1	0.5	0.0220	1.00		

	w/o Freeboard	w/ Freeboard
Design Discharge:	233.47 cfs	
Depth:	2.35 ft	3.35 ft
Top Width:	19.38 ft	23.38 ft
Velocity:	6.77 fps	
X-Section Area:	34.47 sq ft	
Hydraulic Radius:	1.682 ft	
Froude Number:	0.90	

Basin 004 Spillway Tail Section

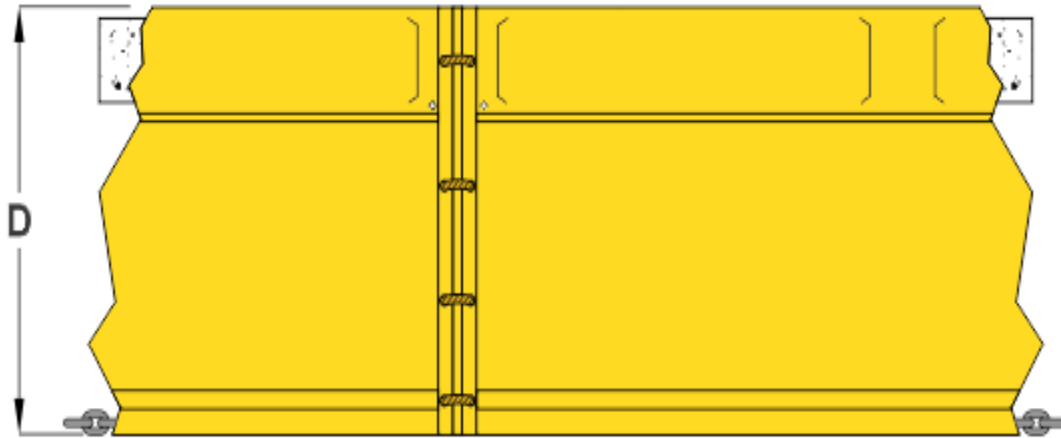
Material: Concrete, Rubble

Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Manning's n	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
10.00	2.0:1	2.0:1	25.0	0.0220	1.00		

	w/o Freeboard	w/ Freeboard
Design Discharge:	233.47 cfs	
Depth:	0.78 ft	1.78 ft
Top Width:	13.12 ft	17.12 ft
Velocity:	25.89 fps	
X-Section Area:	9.02 sq ft	
Hydraulic Radius:	0.669 ft	
Froude Number:	5.50	

SUBSURFACE WITHDRAWAL – FLOATING TURBIDITY CURTAIN



Specifications:

- Curtain to be anchored at the maximum anticipated peak stage (10 Year 24 Hour Precipitation Event).
- Fabric – Polyester reinforced vinyl high visibility yellow
- Connector – Sections are laced together through grommets and load lines are bolted
- Floatation – 6” expanded polystyrene over 9 lbs./ft buoyancy
- Ballast – ¼” galvanized chain (0.7 lbs./ft)

MAYS MINING, INC.
KANSAS MINE NO. 2, P-3936, R-4

SEDCAD 4 HYDROLOGY AND SEDIMENTOLOGY REPORT
10 YR – 24 HR PRECIPITATION EVENT
SEDIMENT BASIN 004

May's Mining Inc.
Kansas Mine No. 2, P-3936, R-4
Sediment Basin 004 Design

10 Year 24 Hour Storm Event

Jared P. Johnsey, P.E.

Simmons-Johnsey Engineering, LLC
407 9th Ave
Jasper, AL 35501

Phone: 205-522-2057
Email: jared@simmonsjohnsey.com

General Information

Storm Information:

Storm Type:	DRN-58
Design Storm:	10 yr - 24 hr
Rainfall Depth:	5.900 inches

Particle Size Distribution:

Size (mm)	Topsoil	Spoil
3.0000	91.000%	87.000%
2.0000	86.000%	84.000%
1.0000	80.000%	75.000%
0.5000	71.000%	64.000%
0.3000	63.000%	56.000%
0.2000	56.000%	49.000%
0.1000	44.000%	39.000%
0.0500	34.000%	31.000%
0.0300	25.000%	27.000%
0.0200	19.000%	25.000%
0.0100	13.000%	17.000%
0.0050	9.000%	10.000%
0.0030	6.000%	7.000%
0.0010	1.000%	1.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	=>	End	0.000	0.000	Sediment Basin 004

#1 Pond

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1 In	94.900	94.900	100.71	25.96	1,344.7	68,691	44.65	24.34
Out			96.61	25.96	234.2	13,350	0.47	0.26

Particle Size Distribution(s) at Each Structure***Structure #1:***

Size (mm)	In	Out
3.0000	89.578%	100.000%
2.0000	86.491%	100.000%
1.0000	77.227%	100.000%
0.5000	65.904%	100.000%
0.3000	57.666%	100.000%
0.2000	50.458%	100.000%
0.1000	40.161%	100.000%
0.0500	31.922%	100.000%
0.0300	27.801%	100.000%
0.0200	25.740%	100.000%
0.0100	17.503%	100.000%
0.0050	10.297%	59.115%
0.0030	7.208%	41.380%
0.0010	1.030%	5.912%

Structure Detail:***Structure #1 (Pond)******Sediment Basin 004*****Pond Inputs:**

Initial Pool Elev:	566.00 ft
Initial Pool:	2.36 ac-ft
*Sediment Storage:	9.55 ac-ft
Dead Space:	20.00 %

Sediment capacity was entered by user*Emergency Spillway**

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
566.00	20.00	2.00:1	2.00:1	10.00

Pond Results:

Peak Elevation:	568.04 ft
H'graph Detention Time:	0.80 hrs
Pond Model:	CSTRS
Dewater Time:	1.53 days
Trap Efficiency:	82.58 %

*Dewatering time is calculated from peak stage to lowest spillway***Elevation-Capacity-Discharge Table**

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
564.00	1.120	0.000	0.000	Top of Sed. Storage
564.00	1.120	0.002	0.000	
564.50	1.149	0.569	0.000	
565.00	1.179	1.152	0.000	
565.50	1.209	1.749	0.000	
566.00	1.240	2.361	0.000	Spillway #1
566.50	1.269	2.988	1.830	24.50
567.00	1.299	3.631	25.483	10.60
567.50	1.329	4.288	53.905	1.10
568.00	1.360	4.960	93.036	0.40
568.04	1.364	5.010	96.608	0.10 Peak Stage
568.50	1.394	5.649	141.972	
569.00	1.429	6.355	200.972	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
569.50	1.464	7.078	270.364	
570.00	1.500	7.819	350.507	

Detailed Discharge Table

Elevation (ft)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
564.00	0.000	0.000
564.00	0.000	0.000
564.50	0.000	0.000
565.00	0.000	0.000
565.50	0.000	0.000
566.00	0.000	0.000
566.50	1.830	1.830
567.00	25.483	25.483
567.50	53.905	53.905
568.00	93.036	93.036
568.50	141.972	141.972
569.00	200.972	200.972
569.50	270.364	270.364
570.00	350.507	350.507

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	56.400	0.170	0.000	0.000	81.000	F	67.95	17.204
	2	9.500	0.150	0.000	0.000	60.000	S	3.76	0.991
	3	27.800	0.070	0.380	0.221	74.000	M	30.38	7.172
	4	1.200	0.010	0.000	0.000	100.000	F	1.86	0.589
Σ		94.900						100.71	25.957

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.240	200.00	7.00	0.9000	1.0000	2	1,316.3	95,630	62.16	35.58
	2	0.320	400.00	7.00	0.0030	1.0000	1	0.4	520	0.34	0.19
	3	0.240	200.00	7.00	0.0500	1.0000	2	28.0	5,027	3.29	1.87
	4	0.001	400.00	0.01	0.0001	1.0000	1	0.0	0	0.00	0.00
Σ								1,344.7	68,691	44.65	24.34

MAYS MINING, INC.
KANSAS MINE NO. 2, P-3936, R-4

SEDCAD 4 HYDROLOGY AND SEDIMENTOLOGY REPORT
25 YR – 6 HR PRECIPITATION EVENT
SEDIMENT BASIN 004

May's Mining Inc.
Kansas Mine No. 2, P-3936, R-4
Sediment Basin 004 Design

25 Year 6 Hour Storm Event

Bradley K. Simmons, P.E.

General Information

Storm Information:

Storm Type:	SCS-6
Design Storm:	25 yr - 6 hr
Rainfall Depth:	4.900 inches

Particle Size Distribution:

Size (mm)	Topsoil	Spoil
3.0000	91.000%	87.000%
2.0000	86.000%	84.000%
1.0000	80.000%	75.000%
0.5000	71.000%	64.000%
0.3000	63.000%	56.000%
0.2000	56.000%	49.000%
0.1000	44.000%	39.000%
0.0500	34.000%	31.000%
0.0300	25.000%	27.000%
0.0200	19.000%	25.000%
0.0100	13.000%	17.000%
0.0050	9.000%	10.000%
0.0030	6.000%	7.000%
0.0010	1.000%	1.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	=>	End	0.000	0.000	Sediment Basin 004

#1 Pond

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc. (ml/l)	24VW (ml/l)
#1 In	94.900	94.900	280.84	19.57	2,177.8	133,943	86.20	50.63
Out			233.47	19.57	482.3	29,561	4.49	2.80

Particle Size Distribution(s) at Each Structure***Structure #1:***

Size (mm)	In	Out
3.0000	93.859%	100.000%
2.0000	90.624%	100.000%
1.0000	80.916%	100.000%
0.5000	69.052%	100.000%
0.3000	60.423%	100.000%
0.2000	52.872%	100.000%
0.1000	42.082%	100.000%
0.0500	33.449%	100.000%
0.0300	29.131%	100.000%
0.0200	26.972%	100.000%
0.0100	18.341%	82.820%
0.0050	10.789%	48.720%
0.0030	7.552%	34.103%
0.0010	1.079%	4.872%

Structure Detail:***Structure #1 (Pond)******Sediment Basin 004*****Pond Inputs:**

Initial Pool Elev:	566.00 ft
Initial Pool:	2.36 ac-ft
*Sediment Storage:	9.55 ac-ft
Dead Space:	20.00 %

Sediment capacity was entered by user*Emergency Spillway**

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
566.00	20.00	2.00:1	2.00:1	10.00

Pond Results:

Peak Elevation:	569.23 ft
H'graph Detention Time:	0.52 hrs
Pond Model:	CSTRS
Dewater Time:	1.18 days
Trap Efficiency:	77.85 %

*Dewatering time is calculated from peak stage to lowest spillway***Elevation-Capacity-Discharge Table**

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
564.00	1.120	0.000	0.000	Top of Sed. Storage
564.00	1.120	0.002	0.000	
564.50	1.149	0.569	0.000	
565.00	1.179	1.152	0.000	
565.50	1.209	1.749	0.000	
566.00	1.240	2.361	0.000	Spillway #1
566.50	1.269	2.988	1.830	24.50
567.00	1.299	3.631	25.483	2.00
567.50	1.329	4.288	53.905	1.00
568.00	1.360	4.960	93.036	0.35
568.50	1.394	5.649	141.972	0.20
569.00	1.429	6.355	200.972	0.15
569.23	1.446	6.693	233.474	0.10 Peak Stage

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
569.50	1.464	7.078	270.364	
570.00	1.500	7.819	350.507	

Detailed Discharge Table

Elevation (ft)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
564.00	0.000	0.000
564.00	0.000	0.000
564.50	0.000	0.000
565.00	0.000	0.000
565.50	0.000	0.000
566.00	0.000	0.000
566.50	1.830	1.830
567.00	25.483	25.483
567.50	53.905	53.905
568.00	93.036	93.036
568.50	141.972	141.972
569.00	200.972	200.972
569.50	270.364	270.364
570.00	350.507	350.507

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	56.400	0.170	0.000	0.000	81.000	F	210.47	13.142
	2	9.500	0.150	0.000	0.000	60.000	S	8.30	0.664
	3	27.800	0.070	0.380	0.221	74.000	M	101.14	5.273
	4	1.200	0.010	0.000	0.000	100.000	F	6.38	0.489
Σ		94.900						280.84	19.567

Subwatershed Sedimentology Detail:

Stru #	SWS #	Soil K	L (ft)	S (%)	C	P	PS #	Sediment (tons)	Peak Sediment Conc. (mg/l)	Peak Settleable Conc (ml/l)	24VW (ml/l)
#1	1	0.240	200.00	7.00	0.9000	1.0000	2	2,132.1	169,501	109.06	72.64
	2	0.320	400.00	7.00	0.0030	1.0000	1	0.5	889	0.54	0.34
	3	0.240	200.00	7.00	0.0500	1.0000	2	46.3	9,831	6.43	4.21
	4	0.001	400.00	0.01	0.0001	1.0000	1	0.0	0	0.00	0.00
Σ								2,177.8	133,943	86.20	50.63

STABILITY ANALYSIS
SEDIMENT BASIN 004

The computer program LEAME (Limit Equilibrium Analysis of Multilayered Earthworks) developed by Dr. Yang H. Huang, University of Kentucky was used to perform the slope stability analysis.

The foundation material located within the footprint of the proposed embankment of Sediment Basin 004 was determined to be unsuitable. All unsuitable foundation material located within the footprint of the proposed embankment of Basin 004 will be removed. The depth to stiff base was estimated to be 10.0' in the foundation area of Sediment Basin 004.

The sample that is representative of the material to be used in the construction of the proposed embankment of Sediment Basin 004 was sampled by personnel of Simmons-Johnsey Engineering, LLC. The lab analysis and soil classification was performed by Simmons-Johnsey Engineering, LLC. The sample was taken on a ridgetop adjacent to the Sediment Basin 004 pool area.

SOIL PROPERTIES

LOCATION	SOIL TYPE	EFFECTIVE DENSITY (pcf)	INTERNAL ANGLE OF FRICTION	COHESION (psf)
004 EMBANKMENT	CL-ML	123.90	29.00	460

ANALYSIS RESULTS

BASIN	SAFETY FACTOR (STATIC)
004	4.891



SIEVE ANALYSIS

(ASTM C136-96a)

Company Name: Mays Mining, Inc.
Location: Kansas Mine No. 2
Sample I.D.: Basin 004 Dam
Description:

Sample Date: 5/27/26
Analyzed By: J.Y.
Date Analyzed: 5/28/26
Requested By: B. Simmons

Weight of Oven Dry Sample: 1798.5 Grams

Sieve No.	Sieve + Sample Weight	Sieve Weight	Sample Weight Retained	Percent of Total Retained	Cumulative Weight Percent	Percent Retained	Percent Finer
1"	775.0	775.0	0.0	0.0	0.0	0.0	100.0
3/4"	786.5	774.5	12.0	0.7	0.7	0.7	99.3
1/2"	849.5	782.5	67.0	3.7	4.4	4.4	95.6
4	1039.5	769.0	270.5	14.9	19.3	19.3	80.7
10	833.5	681.0	152.5	8.4	27.8	27.8	72.2
40	667.0	557.5	109.5	6.0	33.8	33.8	66.2
200	705.0	501.0	204.0	11.3	45.1	45.1	54.9
Pan	1352.5	358.0	994.5	54.9	100.0	100.0	0.0
Total Weight:			1810.0				

SOIL CLASSIFICATION

Unified System (ASTM D-2487)

Liquid Limit: 25.7
Plastic Limit: 18.7
Plasticity Index: 7.0

Soil Classification: **CL-ML**

Fine Grained
Silty Clay

Effective Cohesion: 3.1944 psi
Total Cohesion: 6.670 psi
Permeability: 0.20 ft/yr
Maximum Dry Density: 111.0 pcf
Optimum Moisture: 17.5 %
Effective Cohesion: 460.0 psf
Angle of Internal Friction: 29.00 degrees
Mass Unit Weight: 123.90 pcf

COMPUTER OUTPUT
SEDIMENT BASIN 004 – STATIC/STEADY STATE SEEPAGE CONDITIONS

LEAME (LIMIT EQUILIBRIUM ANALYSIS OF MULTILAYERED EARTHWORKS)

NO. OF STATIC AND SEISMIC CASES (NCASE) = 1

NO. OF NONCIRCULAR FAILURE SURFACES (NNS) = 0

TWO-DIMENSIONAL ANALYSIS (THREED = 0)

ANALYSIS BY DETERMINISTIC METHOD (PROB = 0)

CASE NO. 1 SEISMIC COEFFICIENT (SEIC) = 0.000

NO. OF BOUNDARY LINES (NBL) = 4

NO. OF POINTS ON BOUNDARY LINE 1 = 4

1	X COORD.= 0	Y COORD.= 547.95
2	X COORD.= 49.9	Y COORD.= 552.05
3	X COORD.= 73.92	Y COORD.= 554.05
4	X COORD.= 96.02	Y COORD.= 556.92

NO. OF POINTS ON BOUNDARY LINE 2 = 3

1	X COORD.= 0	Y COORD.= 557.97
2	X COORD.= 48.92	Y COORD.= 562
3	X COORD.= 63.94	Y COORD.= 563.25

NO. OF POINTS ON BOUNDARY LINE 3 = 2

1	X COORD.= 0	Y COORD.= 557.97
2	X COORD.= 20.08	Y COORD.= 566

NO. OF POINTS ON BOUNDARY LINE 4 = 7

1	X COORD.= 0	Y COORD.= 566
2	X COORD.= 20.08	Y COORD.= 566
3	X COORD.= 32.58	Y COORD.= 571
4	X COORD.= 44.58	Y COORD.= 571
5	X COORD.= 63.94	Y COORD.= 563.25
6	X COORD.= 72.86	Y COORD.= 564
7	X COORD.= 96.02	Y COORD.= 567

LINE NO. AND SLOPE OF EACH SEGMENT ARE:

1	0.082	0.083	0.130
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2 0.082 0.083
3 0.400
4 0.000 0.400 0.000 -0.400 0.084 0.130

MIN. DEPTH OF TALLEST SLICE (DMIN) = 0
NO. OF RADIUS CONTROL ZONES (NRCZ) = 1

RADIUS DECREMENT (RDEC) FOR ZONE 1 = 0
NO. OF CIRCLES (NCIR) FOR ZONE 1 = 5
NO. OF BOTTOM LINES (NOL) FOR ZONE 1 = 1
LINE NO. (LINO) BEG. NO. (NBP) END NO. (NEP)
1 1 4

ENGLISH UNITS ARE USED WITH DISTANCE IN FEET AND FORCE IN POUND.

	SOIL	ENVELOPE	COHESION	FRIC. ANGLE	UNIT WEIGHT
No.	(TSSE)	(C)	(PHID)	(G)	
1	1	460.000	29.000	123.900	
2	1	460.000	29.000	123.900	
3	1	0.000	0.000	62.400	

USE PHREATIC SURFACE
USE GRID
NO. OF SLICES (NSLI) = 10
NO. OF ADD. CIRCLES (NAC) = 3
ANALYSIS BY SIMPLIFIED BISHOP METHOD (MTHD=2)
NUMBER OF FORCES (NFO)= 0
SOFT SOIL NUMBER (SSN)= 0

NO. OF POINTS ON WATER TABLE (NPWT) = 7
1 X COORD.= 0 Y COORD.= 566
2 X COORD.= 14.06 Y COORD.= 566
3 X COORD.= 38.48 Y COORD.= 565.23
4 X COORD.= 62.91 Y COORD.= 563.67
5 X COORD.= 63.94 Y COORD.= 563.25
6 X COORD.= 72.86 Y COORD.= 564
7 X COORD.= 96.02 Y COORD.= 567

NO. OF SOILS WITH DIFFERENT WATER TABLE (NSDW) = 0
NO. OF SOILS WITH DIFFERENT PORE PRESSURE RATIO (NSDP) = 0

INPUT COORD. OF GRID POINTS 1,2,AND 3

POINT 1 X COORD. = 16 Y COORD. = 578
POINT 2 X COORD. = 16 Y COORD. = 568
POINT 3 X COORD. = 24 Y COORD. = 568

X INCREMENT (XINC) = 0.8 Y INCREMENT (YINC) = 0.8
NO. OF DIVISIONS BETWEEN POINTS 1 AND 2 (ND12) = 5
NO. OF DIVISIONS BETWEEN POINTS 2 AND 3 (ND23) = 4

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ONLY A SUMMARY TABLE IS PRINTED (NPRT = 0)
SLICES WILL BE SUBDIVIDED

AUTOMATIC SEARCH WILL FOLLOW AFTER GRID

FACTORS OF SAFETY BASED ON GRID

IN THE FOLLOWING TABLE WARNING INDICATES HOW MANY TIMES THE
MAXIMUM RADIUS IS LIMITED BY THE END POINTS OF GROUND LINES

CENTER X COORDINATE	CENTER Y COORDINATE	NO. OF CIRCLE TOTAL		CRITIC. RADIUS	LOWEST RADIUS	WARNING F.S.
16.0	578.0	5	1	20.000	5.323	1
16.0	576.0	5	1	18.868	5.379	1
16.0	574.0	5	1	17.889	5.476	1
16.0	572.0	5	1	17.088	5.621	1
16.0	570.0	5	1	16.492	5.733	1
16.0	568.0	5	1	16.125	6.334	1
18.0	578.0	5	1	21.633	4.934	1
18.0	576.0	5	1	20.591	4.960	1
18.0	574.0	5	1	19.698	5.049	1
18.0	572.0	5	1	18.974	5.165	1
18.0	570.0	5	1	18.439	5.504	1
18.0	568.0	5	1	18.111	6.001	1
20.0	578.0	5	1	23.324	4.958	1
20.0	576.0	5	1	22.361	5.020	1
20.0	574.0	5	1	21.541	5.101	1
20.0	572.0	5	1	20.881	5.282	1
20.0	570.0	11	6	19.508	5.616	0
20.0	568.0	5	1	18.345	6.134	0
22.0	578.0	11	7	23.597	5.148	1
22.0	576.0	11	7	22.607	5.210	1
22.0	574.0	11	7	21.740	5.301	1
22.0	572.0	11	2	18.706	5.449	0
22.0	570.0	11	9	15.881	5.788	0
22.0	568.0	5	1	18.181	6.371	0
24.0	578.0	11	7	21.689	5.449	1
24.0	576.0	11	8	19.634	5.509	0
24.0	574.0	11	2	20.392	5.610	0
24.0	572.0	11	2	18.426	5.743	0
24.0	570.0	11	9	15.572	6.097	0
24.0	568.0	5	1	18.017	6.753	0

GRID IS EXPANDED AS FOLLOWS SO MINIMUM FACTOR OF SAFETY FALLS WITHIN THE
GRID

16.0	580.0	5	1	21.260	5.336	1
18.0	580.0	5	1	22.804	4.938	1
20.0	580.0	5	1	24.413	4.924	1
22.0	580.0	11	8	24.008	5.131	1

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24.0	580.0	11	10	22.912	5.476	1
16.0	582.0	5	1	22.627	5.405	1
18.0	582.0	5	1	24.083	4.982	1
20.0	582.0	5	1	25.613	4.954	1
22.0	582.0	5	1	27.203	5.170	1
24.0	582.0	11	2	25.755	5.506	1

LOWEST FACTOR OF SAFETY AT EACH GRID POINT IS TABULATED BELOW

COORDINATE	16.000	18.000	20.000	22.000	24.000
582.000	5.405	4.982	4.954	5.170	5.506
580.000	5.336	4.938	4.924	5.131	5.476
578.000	5.323	4.934	4.958	5.148	5.449
576.000	5.379	4.960	5.020	5.210	5.509
574.000	5.476	5.049	5.101	5.301	5.610
572.000	5.621	5.165	5.282	5.449	5.743
570.000	5.733	5.504	5.616	5.788	6.097
568.000	6.334	6.001	6.134	6.371	6.753

MINIMUM FACTORS OF SAFETY OCCUR AT THE FOLLOWING 2 CENTERS

FACTOR OF SAFETY = 4.924 AT (20.000,580.000)

FACTOR OF SAFETY = 4.934 AT (18.000,578.000)

AUTOMATIC SEARCH WILL BE MADE ONLY ON THE CENTER WITH THE SMALLEST F.S.

FACTORS OF SAFETY BASED ON SEARCH

IN THE FOLLOWING TABLE WARNING INDICATES HOW MANY TIMES THE
MAXIMUM RADIUS IS LIMITED BY THE END POINTS OF GROUND LINES

CENTER X COORDINATE	CENTER Y COORDINATE	NO. OF CIRCLE TOTAL	CRITIC. RADIUS	LOWEST F.S.	WARNING F.S.	
20.0	580.0	5	1	24.413	4.924	1
20.8	580.0	5	1	25.073	4.978	1
19.2	580.0	5	1	23.762	4.906	1
18.4	580.0	5	1	23.121	4.918	1
19.2	580.8	5	1	24.242	4.916	1
19.2	579.2	5	1	23.300	4.899	1
19.2	578.4	5	1	22.856	4.897	1
19.2	577.6	5	1	22.432	4.916	1
20.0	578.4	5	1	23.532	4.948	1
18.4	578.4	5	1	22.188	4.900	1
19.4	578.4	5	1	23.024	4.908	1
19.0	578.4	5	1	22.688	4.894	1
18.8	578.4	5	1	22.521	4.891	1
18.6	578.4	5	1	22.354	4.894	1
18.8	578.6	5	1	22.632	4.891	1
18.8	578.2	5	1	22.412	4.891	1

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AT POINT (18.8 , 578.4) RADIUS 22.521

THE MINIMUM FACTOR OF SAFETY IS 4.891

SUMMARY OF SLICE INFORMATION FOR MOST CRITICAL FAILURE SURFACE

SL. NO.	SOIL NO.	SLICE WIDTH	SLICE HEIGHT	WATER HEIGHT	BOTTOM SINE	TOTAL WEIGHT	EFFEC. WEIGHT	RESIS. MOMENT	DRIVING MOMENT
1	2	2.464	6.646	6.646	-.534	.122E+04	.201E+03	.323E+05	-.318E+05
2	1	0.988	7.632	7.632	-.457	.653E+03	.183E+03	.135E+05	-.672E+04
3	1	3.452	8.625	8.625	-.358	.289E+04	.104E+04	.504E+05	-.234E+05
4	1	3.452	9.642	9.638	-.205	.362E+04	.155E+04	.554E+05	-.167E+05
5	1	3.452	10.091	9.978	-.052	.411E+04	.196E+04	.602E+05	-.480E+04
6	1	0.722	10.102	9.924	.041	.897E+03	.450E+03	.131E+05	.825E+03
7	1	2.730	10.511	9.732	.117	.356E+04	.190E+04	.520E+05	.940E+04
8	1	3.452	11.161	9.048	.255	.477E+04	.282E+04	.711E+05	.274E+05
9	1	3.452	11.325	7.722	.408	.484E+04	.318E+04	.754E+05	.445E+05
10	1	2.866	10.862	5.896	.548	.386E+04	.280E+04	.648E+05	.476E+05
11	2	0.586	10.183	4.589	.625	.740E+03	.572E+03	.134E+05	.104E+05
12	2	3.452	8.355	2.698	.715	.357E+04	.299E+04	.773E+05	.575E+05
13	2	3.452	3.790	0.000	.868	.162E+04	.162E+04	.820E+05	.317E+05
SUM						.661E+06	.146E+06		

AT CENTER (18.800 , 578.400) WITH RADIUS 22.521 AND SEIS. COEFF. 0.00
FACTOR OF SAFETY BY NORMAL METHOD IS 4.531
FACTOR OF SAFETY BY SIMPLIFIED BISHOP METHOD IS 4.891

SUMMARY OF STABILITY ANALYSIS

FACTOR OF SAFETY IS DETERMINED BY SIMPLIFIED BISHOP METHOD
NUMBER OF CASES = 1

CASE 1 SEISMIC COEFFICIENT = 0
FACTOR OF SAFETY BASED ON 2D ANALYSIS = 4.891