# Appendix 35.A

SEDCAD Model Results for Pinabete Tributary Part 10

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# Pinabete Post Mine Tributary "Part 10"

***50yr-6hr storm event 1.76 inches***

***Refer to Channel design on Exh. 35.2-2***

Ron Van Valkenburg, PE

BHP Navajo Coal Company
Navajo Mine
P.O. Box 1717
Fruitland, NM 87416

Phone: 505 598 4200

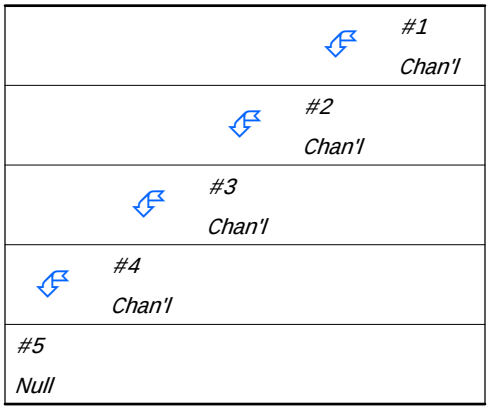
# General Information

## Storm Information:

| | |
|---|---|
| Storm Type: | NRCS TYPE II-70 |
| Design Storm: | 50 yr - 6 hr |
| Rainfall Depth: | 1.760 inches |

# *Structure Networking:*

| Type | Stru # | (flows into) | Stru # | Musk. K (hrs) | Musk. X | Description |
|---|---|---|---|---|---|---|
| Channel | #1 | ==> | #2 | 0.112 | 0.301 | Sta 85+00 |
| Channel | #2 | ==> | #3 | 0.452 | 0.290 | Sta 75+00 |
| Channel | #3 | ==> | #4 | 0.474 | 0.279 | Sta 37+00 |
| Channel | #4 | ==> | #5 | 0.172 | 0.304 | Sta 0+00 |
| Null | #5 | ==> | End | 0.000 | 0.000 | Part 10 |




# *Structure Routing Details:*

| Stru # | Land Flow Condition | Slope (%) | Vert. Dist. (ft) | Horiz. Dist. (ft) | Velocity (fps) | Time (hrs) |
|---|---|---|---|---|---|---|
| #1 | 8. Large gullies, diversions, and low flowing streams | 0.74 | 7.70 | 1,041.69 | 2.57 | 0.112 |
| **#1** | **Muskingum K:** | | | | | **0.112** |
| #2 | 8. Large gullies, diversions, and low flowing streams | 0.61 | 23.30 | 3,811.00 | 2.34 | 0.452 |
| **#2** | **Muskingum K:** | | | | | **0.452** |
| #3 | 8. Large gullies, diversions, and low flowing streams | 0.51 | 18.90 | 3,675.70 | 2.15 | 0.474 |
| **#3** | **Muskingum K:** | | | | | **0.474** |
| #4 | 8. Large gullies, diversions, and low flowing streams | 0.77 | 12.60 | 1,634.00 | 2.63 | 0.172 |
| **#4** | **Muskingum K:** | | | | | **0.172** |

## *Structure Summary:*

| | Immediate Contributing Area (ac) | Total Contributing Area (ac) | Peak Discharge (cfs) | Total Runoff Volume (ac-ft) |
|---|---|---|---|---|
| #1 | 96.000 | 96.000 | 69.48 | 3.53 |
| #2 | 124.300 | 220.300 | 145.15 | 8.09 |
| #3 | 402.600 | 622.900 | 228.30 | 22.79 |
| #4 | 168.400 | 791.300 | 244.66 | 28.94 |
| #5 | 97.500 | 888.800 | 254.92 | 32.51 |

# *Structure Detail:*

## *Structure #1 (Erodible Channel)*

*Sta 85+00*

Trapezoidal Erodible Channel Inputs:

Material: Graded loam to cobbles when noncolloidal

| Bottom Width (ft) | Left Sideslope Ratio | Right Sideslope Ratio | Slope (%) | Manning's n | Freeboard Depth (ft) | Freeboard % of Depth | Freeboard Mult. x (VxD) | Limiting Velocity (fps) |
|---|---|---|---|---|---|---|---|---|
| 4.00 | 5.0:1 | 3.0:1 | 0.8 | 0.0300 | 1.00 | | | 5.0 |

Erodible Channel Results:

| | w/o Freeboard | w/ Freeboard |
|---|---|---|
| Design Discharge: | 69.48 cfs | |
| Depth: | 1.59 ft | 2.59 ft |
| Top Width: | 16.75 ft | 24.75 ft |
| Velocity: | 4.20 fps | |
| X-Section Area: | 16.54 sq ft | |
| Hydraulic Radius: | 0.965 ft | |
| Froude Number: | 0.74 | |

## *Structure #2 (Erodible Channel)*

*Sta 75+00*

Trapezoidal Erodible Channel Inputs:

Material: Graded loam to cobbles when noncolloidal

| Bottom Width (ft) | Left Sideslope Ratio | Right Sideslope Ratio | Slope (%) | Manning's n | Freeboard Depth (ft) | Freeboard % of Depth | Freeboard Mult. x (VxD) | Limiting Velocity (fps) |
|---|---|---|---|---|---|---|---|---|
| 6.50 | 5.0:1 | 3.0:1 | 0.7 | 0.0300 | 1.00 | | | 5.0 |

Erodible Channel Results:

| | w/o Freeboard | w/ Freeboard |
|---|---|---|
| Design Discharge: | 145.15 cfs | |
| Depth: | 2.04 ft | 3.04 ft |
| Top Width: | 22.79 ft | 30.79 ft |
| Velocity: | 4.87 fps | |
| X-Section Area: | 29.83 sq ft | |
| Hydraulic Radius: | 1.281 ft | |

| | w/o Freeboard | w/ Freeboard |
|---|---|---|
| Froude Number: | 0.75 | |

## *Structure #3 (Erodible Channel)*

*Sta 37+00*

Trapezoidal Erodible Channel Inputs:

Material: Graded loam to cobbles when noncolloidal

| Bottom Width (ft) | Left Sideslope Ratio | Right Sideslope Ratio | Slope (%) | Manning's n | Freeboard Depth (ft) | Freeboard % of Depth | Freeboard Mult. x (VxD) | Limiting Velocity (fps) |
|---|---|---|---|---|---|---|---|---|
| 9.10 | 5.0:1 | 3.0:1 | 0.5 | 0.0300 | 1.00 | | | 5.0 |

Erodible Channel Results:

| | w/o Freeboard | w/ Freeboard |
|---|---|---|
| Design Discharge: | 228.30 cfs | |
| Depth: | 2.44 ft | 3.44 ft |
| Top Width: | 28.66 ft | 36.66 ft |
| Velocity: | 4.95 fps | |
| X-Section Area: | 46.16 sq ft | |
| Hydraulic Radius: | 1.577 ft | |
| Froude Number: | 0.69 | |

## *Structure #4 (Erodible Channel)*

*Sta 0+00*

Trapezoidal Erodible Channel Inputs:

Material: Graded loam to cobbles when noncolloidal

| Bottom Width (ft) | Left Sideslope Ratio | Right Sideslope Ratio | Slope (%) | Manning's n | Freeboard Depth (ft) | Freeboard % of Depth | Freeboard Mult. x (VxD) | Limiting Velocity (fps) |
|---|---|---|---|---|---|---|---|---|
| 12.10 | 4.0:1 | 4.0:1 | 0.5 | 0.0300 | 1.00 | | | 5.0 |

Erodible Channel Results:

| | w/o Freeboard | w/ Freeboard |
|---|---|---|
| Design Discharge: | 244.66 cfs | |
| Depth: | 2.36 ft | 3.36 ft |
| Top Width: | 30.95 ft | 38.95 ft |
| Velocity: | 4.82 fps | |
| X-Section Area: | 50.74 sq ft | |
| Hydraulic Radius: | 1.609 ft | |

| | w/o Freeboard | w/ Freeboard |
|---|---|---|
| Froude Number: | 0.66 | |

## *Structure #5 (Null)*

### *Part 10*

## 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 | 96.000 | 0.246 | 0.000 | 0.000 | 83.300 | M | 69.48 | 3.531 |
| | Σ | **96.000** | | | | | | **69.48** | **3.531** |
| #2 | 1 | 124.300 | 0.257 | 0.000 | 0.000 | 83.300 | M | 88.23 | 4.559 |
| | Σ | **220.300** | | | | | | **145.15** | **8.091** |
| #3 | 1 | 231.200 | 0.307 | 0.000 | 0.000 | 83.300 | M | 151.85 | 8.460 |
| | 2 | 171.400 | 0.624 | 0.000 | 0.000 | 83.300 | M | 74.72 | 6.242 |
| | Σ | **622.900** | | | | | | **228.30** | **22.792** |
| #4 | 1 | 168.400 | 0.486 | 0.000 | 0.000 | 83.300 | M | 86.31 | 6.149 |
| | Σ | **791.300** | | | | | | **244.66** | **28.942** |
| #5 | 1 | 97.500 | 0.352 | 0.000 | 0.000 | 83.300 | M | 59.94 | 3.568 |
| | Σ | **888.800** | | | | | | **254.92** | **32.510** |

## Subwatershed Time of Concentration Details:

| Stru # | SWS # | Land Flow Condition | Slope (%) | Vert. Dist. (ft) | Horiz. Dist. (ft) | Velocity (fps) | Time (hrs) |
|---|---|---|---|---|---|---|---|
| #1 | 1 | 5. Nearly bare and untilled, and alluvial valley fans | 12.50 | 10.00 | 80.00 | 3.530 | 0.006 |
| | | 8. Large gullies, diversions, and low flowing streams | 1.16 | 29.00 | 2,502.50 | 3.220 | 0.215 |
| | | 8. Large gullies, diversions, and low flowing streams | 0.75 | 1.80 | 240.50 | 2.590 | 0.025 |
| **#1** | **1** | **Time of Concentration:** | | | | | **0.246** |
| #2 | 1 | 5. Nearly bare and untilled, and alluvial valley fans | 12.50 | 10.00 | 80.00 | 3.530 | 0.006 |
| | | 8. Large gullies, diversions, and low flowing streams | 2.46 | 87.60 | 3,565.60 | 4.700 | 0.210 |
| | | 8. Large gullies, diversions, and low flowing streams | 0.70 | 2.60 | 372.60 | 2.500 | 0.041 |
| **#2** | **1** | **Time of Concentration:** | | | | | **0.257** |
| #3 | 1 | 5. Nearly bare and untilled, and alluvial valley fans | 12.50 | 10.00 | 80.00 | 3.530 | 0.006 |
| | | 8. Large gullies, diversions, and low flowing streams | 5.13 | 106.20 | 2,069.20 | 6.790 | 0.084 |
| | | 8. Large gullies, diversions, and low flowing streams | 0.57 | 10.10 | 1,769.13 | 2.260 | 0.217 |
| **#3** | **1** | **Time of Concentration:** | | | | | **0.307** |
| #3 | 2 | 5. Nearly bare and untilled, and alluvial valley fans | 12.50 | 10.00 | 80.00 | 3.530 | 0.006 |

| Stru # | SWS # | Land Flow Condition | Slope (%) | Vert. Dist. (ft) | Horiz. Dist. (ft) | Velocity (fps) | Time (hrs) |
|---|---|---|---|---|---|---|---|
| | | 8. Large gullies, diversions, and low flowing streams | 0.90 | 56.90 | 6,325.60 | 2.840 | 0.618 |
| **#3** | **2** | **Time of Concentration:** | | | | | **0.624** |
| #4 | 1 | 5. Nearly bare and untilled, and alluvial valley fans | 3.17 | 21.40 | 675.70 | 1.770 | 0.106 |
| | | 8. Large gullies, diversions, and low flowing streams | 2.20 | 50.60 | 2,300.70 | 4.440 | 0.143 |
| | | 8. Large gullies, diversions, and low flowing streams | 0.51 | 9.20 | 1,820.90 | 2.130 | 0.237 |
| **#4** | **1** | **Time of Concentration:** | | | | | **0.486** |
| #5 | 1 | 5. Nearly bare and untilled, and alluvial valley fans | 1.32 | 10.00 | 757.30 | 1.140 | 0.184 |
| | | 8. Large gullies, diversions, and low flowing streams | 4.33 | 88.70 | 2,049.20 | 6.240 | 0.091 |
| | | 8. Large gullies, diversions, and low flowing streams | 0.74 | 5.30 | 720.20 | 2.570 | 0.077 |
| **#5** | **1** | **Time of Concentration:** | | | | | **0.352** |