TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC.
HEADQUARTERS: P.O. BOX 33695 DENVER, COLORADO 80233-0695 303-452-6111

April 7, 2020

Mrs. Janet Binns
Environmental Protection Specialist
Colorado Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

RE: New Horizon Mine (Permit No. C-1981-008)
Technical Revision No. 9 (TR-99)
Pond 013 Limestone Inlet

Dear Mrs. Binns:

Tri-State Generation and Transmission Association Inc. (Tri-State), is the parent company to Elk Ridge Mining and Reclamation, LCC (ERMR), that owns and operates New Horizon Mine. The New Horizon Mine operates under the Division of Reclamation, Mining and Safety (DRMS) Permit No. C-1981-008. TR-98 proposes a limestone inlent in Pond 013 where the trench drain pipe discharges into Pond 013, and some surface baffles in the pond to utilized the entire flow path of the pond.

Also enclosed please find a revision application and a change of index sheet to ease incorporation of these materials in to the permit. If you have any questions about the enclosed technical revision, please contact Tony Tennyson at (970) 824-1232 or ttennyson@tristategt.org.

Sincerely,

DocuSigned by:
Daniel Casiraro
B70D69F114324DE...

Daniel J. Casiraro
Senior Manager
Environmental Services

DJC:TT:der

Enclosures

cc: Frank Ferris (via email)
Chris Gilbreath (via email)
Tony Tennyson (via email)
File: G474-11.3(21)b-4

PUBLIC NOTICE

Elk Ridge Mining and Reclamation, LLC, P.O. Box 628, Nucla, CO 81424 has filed with the Division of Reclamation, Mining and Safety an application for Technical Revision No. 98 (TR-98) to the New Horizon Mine Permit No. C-1981-008. TR-99 proposes a redesign of Pond 013 to accommodate a limestone pad on the inlet of the pond.

The New Horizon Mine office is located at 27646 West 5th Street, P.O. Box 628, Nucla, Colorado. The permit area contains tracts of land located in Section 6, Township 46 North; Range 15 West; Section 31, Township 47 North, Range 15 West; Section 1 Township 46 North, Range 16 West; Section 36 Township 47 North, Range 16 West, of the New Mexico Principal Meridian, Montrose County, Colorado. The above mentioned tracts of land are shown on USGS 7.5 minute Nucla Quadrangle map.

A copy of the complete technical revision application is available for public inspection at the Montrose County Courthouse Annex, Nucla, Colorado. Written comments or objections to the application may be submitted to the Division of Reclamation, Mining and Safety, Room 215, 1313 Sherman Street, Denver, Colorado 80203, Telephone (303) 866-3567. Written comments and objections must be received by the Division of Reclamation, Mining and Safety within 10 days after the publication of the above notice.

CHANGE SHEET FOR PERMIT REVISIONS, TECHNICAL REVISION, AND MINOR REVISIONS

Mine Company Name: **New Horizon Mine**
Date: **March 30, 2020**

Permit Number: **C-1981-008**
Revision Description: **TR-99 Pond 013 Limestone**

Volume Number	Page, Map or other Permit Entry to be REMOVED		Page, Map or other Permit Entry to be ADDED		Description of Change
1					No changes
2					No changes
3					No changes
4					No changes
5	Section 2.05.3(3) Pages 1, 2, and 9 (3 pages)		Section 2.05.3(3) Pages 1, 2, and 9 (3 pages)		Section 2.05.3(3) has been updated.
5	Map 2.05.3(3)-18		Map 2.05.3(3)-18		Pond 013 As-built as been revised with a proposed design.
6	Attachment 2.05.3(3)-6 All pages (29 pages)				Information presented in this attachment has been superceded by information presented in Attachment 2.05.3(3)-32.
6	Attachment 2.05.3(3)-21 All pages (61 pages)				Information presented in this attachment has been superceded by information presented in Attachment 2.05.3(3)-32.
7	Attachment 2.05.3(3)-32 Pages 1 through 31 (31 pages)		Attachment 2.05.3(3)-32 Pages 1 through 4 and SEDCAD output 25 pages (29 total pages)		Attachment 2.05.3(3)-32 has been updated due to the proposed change in capacity for Pond 013.
8					No changes
9					No changes
10					No changes

Table of Contents

LIST OF TABLES

LIST OF ATTACHMENTS

LIST OF MAPS

3. Sedimentation Ponds 009 through 018 Design Parameters

In accordance with Rule 4.05.2, Ponds 009 through 018 will be used to prevent, additional contributions of sediment to stream flow or runoff outside the permit area due to mining disturbance. Pond 011 has been fully reclaimed and some of the drainage area that was previously to be handled by these ponds is now handled by Pond 013. The pond designs and or run-off calculations for the sedimentation ponds are shown below:

Pond	Attachment	Maps
Pond 009	Attachment 2.05.3(3)-5 Attachment 2.05.3(3)-30	Map 2.05.3(3)-5-1 Attachment 2.05.3(3)-30, Map 1
Pond 012	Attachment 2.05.3(3)-12 Attachment 2.05.3(3)-13 Attachment 2.05.3(3)-31	Map 2.05.3(3)-12-1 Map 2.05.3(3)-12-2 Map 2.05.3(3)-12-3 Map 2.05.3(3)-12-4 Attachment 2.05.3(3)-31, Map 1
Pond 013	Attachment 2.05.3(3)-32	Map 2.05.3(3)-32
Pond 015	Attachment 2.05.3(3)-22 Attachment 2.05.3(3)-24 Attachment 2.05.3(3)-33	Map 2.05.3(3)-15 Map 2.05.3(3)-19 Attachment 2.05.3(3)-33, Map 1
Pond 016	Attachment 2.05.3(3)-29 Attachment 2.05.3(3)-36	Attachment 2.05.3(3)-29, Map 1 Attachment 2.05.3(3)-29, Map 2 Map 2.05.3(3)-36
Pond 018	Attachment 2.05.3(3)-28 Attachment 2.05.3(3)-35	Attachment 2.05.3(3)-28, Map 1 Attachment 2.05.3(3)-28, Map 2 Attachment 2.05.3(3)-28, Map 3 Map 2.05.3(3)-35

Pond 013 will remain for some time after the reclamation of the surrounding land but will not be permanent. Map 2.05.3(3)-1 shows the locations of all ponds. The sedimentation ponds are designed, constructed and maintained as follows:

a. Ponds 009, 012, and 013 have been designed to contain the 25-year, 24-hour event with no discharge from the emergency spillway. Ponds 015, 016, and 018 have been designed for a 100-year, 24-hour event with no discharge.
b. The sedimentation ponds are designed to provide adequate sediment storage volume in compliance with the DRMS regulations. Actual designs are based on a minimum 3 year sediment volume based on USLE calculations. Actual construction may cut more volume below the dam level (incised storage) to lessen expensive cleanout during the operation.
c. The principal spillway design is typically an 18-24" diameter CMP or other pipe which will have a valve on the entrance (see as-built for specific sizes). This pipe will be stopped down in the inlet side to a 6" valve which will be controlled by a wheel on the pond embankment. During normal conditions, the valve will be left slightly open to

Pond 013
Sediment Control Plan

This sediment control plan addresses the condition of the watershed tributary to Pond 013 which is assumed to be completely backfilled to the postmining topographic surface but only recently reclaimed and retopsoiled. As such the entire area will be in a "topsoiled and seeded" condition, which would be the worst case for a large volume of runoff to Pond 013 The system collects all runoff from the 66.96 acres into Pond 013 near the northwest corner of this area.

Except for a small (0.76) acre band of undisturbed land immediately adjacent to the C9 Ditch, and another 1.14 acre undisturbed area immediately south of the pond, the entire watershed is represented as "Topsoiled and Seeded" land.

In addition to the rainfall runoff inflow from the above described areas, there may also be inflow collected from the trench drain in the reclaimed area as well as inflow from various other sources such as Tuttle Draw and CCC irrigation ditch as described in detail later in this summary.

The design considerations used for this evaluation are described in the following paragraphs. The watershed boundaries, associated drainage areas, and runoff curve numbers are shown on Map 2.05.3(3)-32.

Hydrologic Methodology

The SCS method has been used to determine runoff volumes and runoff flow rates. The runoff is a factor relating the amount of rainfall to the amount of runoff for a given area. The best reference for application of this method to coal mine applications is Barfield, Warner, & Haan (1981) in *"Applied Hydrology and Sedimentology for Disturbed Areas",* Oklahoma Technical Press, Stillwater, OK. Tables are included in this reference, as well as several widely accepted NRCS (formerly SCS) publications, present the appropriate CN's (s) for specific land uses and conditions.

Although the volume of runoff can be calculated manually using the SCS method, for this evaluation the SEDCAD computer model, developed and marketed by Civil Software Design, was used to make the runoff calculations. In addition to its wide acceptance for use in coal mine permitting work, it also provides a consistent tabular output of all design assumptions and all calculated results.

Location Specific Hydrologic Parameters

The 10 year, 24 hour precipitation event for permitting efforts for this location has been identified as 2.0 inches. The 25 year, 24 hour precipitation event produces 2.4 inches of rain.

Site Specific Hydrologic Parameters

Curve numbers were designated on a land use basis as determined from field observations and are presented on Table 2.05.3(3)-1 in Section 2.05.3(3).

Other Inflow Sources

Currently, spoil spring flows and backfill drainage (ground water) is directed in an 18-inch HDPE pipe around the north side of Pond 013, as shown on Map 2.05.3(3)-21. Flows from the trench drains that gravity feed to this pipe are typically on the order of the 250 to 450 gpm, with seasonal variation mainly due to due to irrigation. These flows may be routed into Pond 013. Also, inflow from other sources such as Tuttle Draw and CCC irrigation ditch may be routed into Pond 013. These inflows will also vary seasonally and the total inflow from the trench drain and other sources will not exceed 1,000 gpm.

Modeling a constant inflow using SEDCAD is somewhat complex. The methodology suggested by SEDCAD's primary author, Pam Schwab, was used to model the impact of a constant inflow. In the current version of SEDCAD, a fixed flow can only be input by inserting a "dummy" upstream reservoir with a watershed large enough to produce a "tank" flow, and then setting the output of the dummy reservoir as a constant "User Defined" outflow curve, independent of pool elevation in the dummy reservoir. A flow of 2.228 cfs (1,000 gpm) was conservatively utilized, well in excess of the normal inflows. The synthesized 1,000 gpm flow was then dropped into directly into Pond 013.

SEDCAD allows the user to override the customary starting pool that is set by the lowest drain hole. In the case of the 10 year storm, where the starting pool is normally set by the twin 6-inch valves with invert at elevation 5552.0, the starting pool at the start of the design storm needs to be 1.43 feet higher, or elevation 5553.43 to account for the 1,000 gpm already flowing through the two orifices at the start of the storm. For the 25 year emergency spillway design storm, where it has been conservatively assumed that the twin 6-inch orifice holes are closed, the normal starting pool is the principal spillway elevation of 5555.0. This must be raised 0.23 feet to account for the 1,000 gpm over the riser lip, treated as a sharp-crested weir. The starting pool for the 25 year spillway design storm was thus set to elevation 5555.23.

Other System Components

An existing ditch, C9 Ditch, routes the easternmost part of the affected area runoff to the pond, as shown on Map 2.05.3(3)-32. It is modeled as vegetative lined trapezoidal ditches with a 3-foot bottom and 2H:1V sideslopes, and with gradient of 3.2% as determined from field surveys, as depicted on Map 2.05.3(3)-32. Several cross sections are also shown on Map 2.05.3(3)-32. The actual side slopes and bottom width may vary in the field, and the ditches may have a flatter side slope or a wider bottom in some locations. Some reaches may be cut in rock. As such, the actual ditch sections will be at least as hydraulically capable and erosion resistant as the modeled template described above for the modest runoff flows described below. As can be observed on Map 2.05.3(3)-32, the central and western portions of the watershed flow directly into the pond. Culvert C177 is located near the inlet of Pond 013 in Ditch C9 as shown on Map 2.05.3(3)-1. The design for this 18” HDPE pipe is included in the SEDCAD model for the 10 year, 24 hour precipitation event.

Up to three surface baffles will be installed in Pond 013 to route water through the pond, and ensure the entire flow path of the pond is utilized to treat water moving through to the outlet of the pond. The surface baffles do not change the capacity of the pond; therefore, they are not included in the modeling of the pond.

Pond Construction

Pond 013 was designed and constructed as a largely subgrade impoundment with a low (approximately 5 feet high) embankment along the northwestern end across a natural swale. The details can be observed on Map 2.05.3(3)-32. The primary, or "service" spillway consists of an 24-inch perforated riser connecting to an 24-inch CMP under the above described low embankment. The overflow lip is at elevation 5555.0. There is a pair of 6-inch diameter valves in the riser with invert at elevation 5552.0, which sets the maximum normal pool at this level. The pond is normally operated as a "pass through" design with both valves left in the open condition. In addition, there are three parallel 18-inch diameter 20-foot long horizontal corrugated metal pipes with upstream invert elevation 5557.0 which serve as an emergency spillway system.

Inflow Calculation Results

The results of the runoff calculations and synthesized constant inflow are presented in the attached SEDCAD model outputs. The system was modeled using SEDCAD for its response to a 10 year, 24 hour storm of 2.0 inches for the sediment control analysis, and the 25 year, 24 hour storm of 2.4 inches for the spillway evaluation. In both cases, a constant base case inflow of 1,000 gpm was also included. For continuity, the results of these models are presented below along with the discussion of the physical dimensions and properties of the pond.

The volume of the pond was inputted into the SEDCAD model, along with its spillway details. The model watersheds were inputted as a series of sub-watersheds, each with its own acreage, its own flow response parameters (slope, distance, time of concentration), and the specific runoff Curve Numbers from Table 2.05.3(3)-1. The 10 year, 24 hour storm was then applied to the composite watershed, and routed down to the sediment pond. SEDCAD allows the user to override the customary starting pool that is set by the lowest drain hole. In the case of the 10 year storm, where the starting pool is normally set by the twin 6-inch valves with invert at elevation 5552.0, the starting pool at the start of the design storm needs to be 1.43 feet higher, or elevation 5553.43 to account for the 1,000 gpm flowing through the two orifices at the start of the storm. It can be observed in the SEDCAD outputs that the storm and fixed inflow generate runoff of 6.12 ac ft of inflow and that the pool rises to 5554.32 feet during the routing of this event. The SEDCAD results show the pond has a trap efficiency of 65.7%, and it releases water with a 24-hour weighted settleable solids concentration of 0.14 ml/l, well below the 0.50 ml/l standard.

The 25 year, 24 hour storm has also been modeled as the spillway design event. For this analysis, it has been conservatively assumed that the twin 6-inch orifice holes are closed, and normal starting pool is the principal spillway elevation of 5555.0. This must be raised 0.23 feet to account for the 1,000 gpm over the riser lip. The starting pool for the 25 year spillway design storm was thus set to elevation 5555.23. The runoff combined with the constant inflow produce a total runoff volume of 9.14 ac-ft. In the attached SEDCAD printout for that storm it can be observed that the pool only rises to elevation. 5556.36, or 1.36 feet above the riser pipe overflow. As such, the routed 25 year storm does not raise the pool high enough to engage the three horizontal CMPs at El 5557.0, which are the emergency spillway.

SEDCAD model allows for an estimate of the annual sediment collected in the pond. The methodology is described on page 64 of the SEDCAD User's Manual, and requires an Annual R factor (rainfall-erosivity factor). The value of R at 27 can be interpolated from Figure 5.3 presented in Barfield, Warner and Haan (1981). In addition the total tonnage of sediment from the modeled storm, in this case 10 year, 24 hour storm, is required. This is obtained from the SEDCAD output by subtracting from tons flowing into the pond (63.7 tons) the sediment tonnage into the null below the pond (21.2 tons).

The net 42.5 tons from a single 10 year, 24 hour storm is converted to annual tons via the method described in the SEDCAD User's Manual to 60.9 tons. This weight is then converted to volume, using a density of 78 lb/cu ft, to arrive at the projected annual volume collected in the pond of 0.036 ac-ft. According to the stage-storage curve, there are 2.40 ac ft of available storage between the pond floor (elevation 5549) and the invert of the twin 6-inch valves on the riser. Thus, over a period of 10 years approximately 0.36 ac-ft of sediment would be accumulated in the pond bottom with the watershed in its current revegetated condition. This is small enough to not significantly affect the trap efficiency of this pond.

The SEDCAD printout shows the 10 year, 24 hour storm flows in Ditch C9 to be 4.65 cfs in the 10 year storm, and flowing at a velocity of 1.4 fps, well below the allowable velocity of 7 fps for the grass lined channels at these conditions.

Following establishment of the postmining topography to final grade, an inlet ditch into the pond will be excavated as shown on Map 2.05.3(3)-32. Details of this inlet channel, along with dimensions and erosion protection details and other information is also provided for this feature.

REFERENCES

Barfield, Warner, & Haan (1981). "*Applied Hydrology and Sedimentology for Disturbed Areas*". Oklahoma Technical Press, Stillwater, OK.

Renard, K.G., G.R. Foster, G.A. Weesies, D.K. McCool, and D.C. Yoder (1996). "Predicting Soil Erosion by Water: A Guide to Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE)". *Agricultural Handbook No. 703*. U.S. Department of Agriculture. Washington, DC.

Schwab and Warner (1998). "*SEDCAD4 Users Manual*". Civil Software Design. Lexington, KY.

Soil Conservation Service (1986). "*Urban Hydrology for Small Watersheds (TR-55)*". Soil Conservation Service. Washington, DC.

Striffler and Rhodes (1981). "Hydrologic and Erosional Characteristics of Regraded Surface Coal Mined Lands in Colorado", Dept. of Earth Resources, Colorado State University, Ft. Collins, CO.

USDA (January 2009), National Resources Conservation Service, National Engineering Handbook (NEH), Chapter 7, "Hydrologic Soil Groups"

Pond 013

10-Yr 24-Hour Effluent Demonstration

Flow Through Design Both 6" Valves Open and Constant 1000 gpm Flow

Tony Tennyson

Tri-State Generation & Transmission Association, Inc.
1100 West 116th Avenue
Westminster, CO 80234

Phone: (970) 824-1232
Email: ttennyson@tristategt.org

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	10 yr - 24 hr
Rainfall Depth:	2.000 inches

Particle Size Distribution:

Size (mm)	New Horizon 2
4.0000	100.000%
2.0000	100.000%
1.0000	80.000%
0.1000	65.000%
0.0500	55.000%
0.0020	25.000%
0.0001	0.000%

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	Null Below Pond 013
Pond	#2	==>	#1	0.000	0.000	Pond 013
Channel	#3	==>	#5	0.000	0.000	Ditch C-9
Pond	#4	==>	#2	0.000	0.000	Continous flow 1000 gpm
Culvert	#5	==>	#2	0.000	0.000	Culvert C177 at Sta 0+25 in C-9 Ditch

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)
#3		6.710	6.710	4.65	0.34	17.9	74,702	35.18	17.66
#5		0.000	6.710	4.65	0.34	17.9	74,702	35.18	17.66
#4	In	100.000	100.000	40.62	2.91	0.1	47	0.02	0.01
	Out			2.23	2.91	0.0	16	0.00	0.00
#2	In	60.250	166.960	34.18	6.12	63.7	29,122	12.12	3.16
	Out			2.88	8.18	21.9	4,031	0.21	0.14
#1		0.000	166.960	2.88	8.18	21.9	4,030	0.21	0.14

Particle Size Distribution(s) at Each Structure

Structure #3 (Ditch C-9):

Size (mm)	In/Out
4.0000	100.000%
2.0000	100.000%
1.0000	80.000%
0.1000	65.000%
0.0500	55.000%
0.0020	25.000%
0.0001	0.000%

Structure #5 (Culvert C177 at Sta 0+25 in C-9 Ditch):

Size (mm)	In/Out
4.0000	100.000%
2.0000	100.000%
1.0000	80.000%
0.1000	65.000%
0.0500	55.000%
0.0020	25.000%
0.0001	0.000%

Structure #4 (Continous flow 1000 gpm):

Size (mm)	In	Out
4.0000	100.000%	100.000%
2.0000	100.000%	100.000%
1.0000	80.000%	100.000%
0.1000	65.000%	100.000%
0.0500	55.000%	100.000%
0.0020	25.000%	80.297%
0.0001	0.000%	0.000%

Structure #2 (Pond 013):

Size (mm)	In	Out
4.0000	100.000%	100.000%
2.0000	100.000%	100.000%
1.0000	89.540%	100.000%
0.1000	76.212%	100.000%
0.0500	64.493%	100.000%
0.0020	29.328%	85.536%
0.0001	0.000%	0.000%

Structure #1:

Size (mm)	In/Out
4.0000	100.000%
2.0000	100.000%
1.0000	100.000%
0.1000	100.000%
0.0500	100.000%
0.0020	85.536%
0.0001	0.000%

Structure Detail:

Structure #3 (Vegetated Channel)

Ditch C-9

Trapezoidal Vegetated Channel Inputs:

Material: Smooth brome

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Retardance Classes	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)	Limiting Velocity (fps)
3.00	20.0:1	2.0:1	3.2	D, B	0.30			7.0

Vegetated Channel Results:

	Stability Class D w/o Freeboard	Stability Class D w/ Freeboard	Capacity Class B w/o Freeboard	Capacity Class B w/ Freeboard
Design Discharge:	4.65 cfs		4.65 cfs	
Depth:	0.43 ft	0.73 ft	0.81 ft	1.11 ft
Top Width:	12.48 ft	19.08 ft	20.91 ft	27.51 ft
Velocity:	1.39 fps		0.48 fps	
X-Section Area:	3.34 sq ft		9.73 sq ft	
Hydraulic Radius:	0.266 ft		0.464 ft	
Froude Number:	0.48		0.12	
Roughness Coefficient:	0.0789		0.3341	

Structure #5 (Culvert)

Culvert C177 at Sta 0+25 in C-9 Ditch

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
20.00	2.50	0.0140	1.50	1.00	0.90

Culvert Results:

Design Discharge = 4.65 cfs

Minimum pipe diameter: 1 - 15 inch pipe(s) required

Structure #4 (Pond)

Continous flow 1000 gpm

Pond Inputs:

Initial Pool Elev:	90.01 ft
Initial Pool:	0.00 ac-ft
*Sediment Storage:	0.00 ac-ft
Dead Space:	20.00 %

**No sediment capacity defined*

Pond Results:

Peak Elevation:	95.21 ft
H'graph Detention Time:	4.69 hrs
Pond Model:	CSTRS
Dewater Time:	0.04 days
Trap Efficiency:	68.87 %

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)	
90.00	0.050	0.000	0.000		Top of Sed. Storage
90.01	0.051	0.001	0.000		
90.50	0.077	0.032	2.228		
91.00	0.110	0.078	2.228		
91.50	0.147	0.142	2.228		
92.00	0.190	0.226	2.228		
92.50	0.224	0.330	2.228		
93.00	0.260	0.450	2.228		
93.50	0.303	0.591	2.228		
94.00	0.350	0.754	2.228		
94.50	0.394	0.940	2.228		
95.00	0.440	1.148	2.228		
95.21	0.461	1.243	2.228		
95.21	0.461	1.245	2.228	1.05	Peak Stage
95.50	0.489	1.381	2.228		
96.00	0.540	1.638	2.228		
96.50	0.594	1.921	2.228		
97.00	0.650	2.232	2.228		
97.50	0.704	2.571	2.228		
98.00	0.760	2.937	2.228		
98.50	0.819	3.331	2.228		

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
99.00	0.880	3.756	2.228	
99.50	0.949	4.213	2.228	
100.00	1.020	4.705	2.228	
100.50	1.127	5.242	2.228	
101.00	1.240	5.833	2.228	
101.50	1.319	6.473	2.228	
102.00	1.400	7.153	2.228	
102.50	1.498	7.877	2.228	
103.00	1.600	8.651	2.228	

Detailed Discharge Table

Elevation (ft)	User-input discharge (cfs)	Combined Total Discharge (cfs)
90.00	0.000	0.000
90.01	0.000	0.000
90.50	2.228	2.228
91.00	2.228	2.228
91.50	2.228	2.228
92.00	2.228	2.228
92.50	2.228	2.228
93.00	2.228	2.228
93.50	2.228	2.228
94.00	2.228	2.228
94.50	2.228	2.228
95.00	2.228	2.228
95.21	0.000	2.228
95.50	0.000	2.228
96.00	0.000	2.228
96.50	0.000	2.228
97.00	0.000	2.228
97.50	0.000	2.228
98.00	0.000	2.228
98.50	0.000	2.228
99.00	0.000	2.228
99.50	0.000	2.228
100.00	0.000	2.228
100.50	0.000	2.228
101.00	0.000	2.228

Elevation (ft)	User-input discharge (cfs)	Combined Total Discharge (cfs)
101.50	0.000	2.228
102.00	0.000	2.228
102.50	0.000	2.228
103.00	0.000	2.228

Structure #2 (Pond)

Pond 013

Pond Inputs:

Initial Pool Elev:	5,553.43 ft
Initial Pool:	3.72 ac-ft
*Sediment Storage:	0.00 ac-ft
Dead Space:	20.00 %

**No sediment capacity defined*

Perforated Riser

Riser Diameter (in)	Riser Height (ft)	Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Number of Holes per Elev
24.00	5.50	24.00	100.00	3.40	0.0240	5,555.00	2

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
18.00	20.00	3.40	0.0240	5,557.00	0.90	0.00

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
18.00	20.00	3.40	0.0240	5,557.00	0.90	0.00

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
18.00	20.00	3.40	0.0240	5,557.00	0.90	0.00

Pond Results:

Peak Elevation:	5,554.34 ft
H'graph Detention Time:	6.39 hrs
Pond Model:	CSTRS
Dewater Time:	0.77 days
Trap Efficiency:	65.71 %

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)	
5,549.00	0.356	0.000	0.000		Top of Sed. Storage
5,550.00	0.533	0.441	0.000		
5,551.00	0.796	1.102	0.000		
5,552.00	1.105	2.048	0.000		Low hole SPW #1
5,553.00	1.191	3.196	1.891	7.35*	
5,553.43	1.228	3.717	2.261	3.05	
5,554.00	1.276	4.430	2.674	3.50	
5,554.34	1.306	4.878	2.878	4.70	Peak Stage
5,555.00	1.363	5.750	3.275		Spillway #1
5,556.00	1.457	7.160	15.127		
5,557.00	1.541	8.659	21.392		Spillway #2 Spillway #3 Spillway #4
5,558.00	1.627	10.243	35.625		
5,559.00	1.714	11.913	55.528		
5,560.00	1.805	13.672	70.343		

**Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation (ft)	Perf. Riser (cfs)	Straight Pipe (cfs)	Straight Pipe (cfs)	Straight Pipe (cfs)	Combined Total Discharge (cfs)
5,549.00	0.000	0.000	0.000	0.000	0.000
5,550.00	0.000	0.000	0.000	0.000	0.000
5,551.00	0.000	0.000	0.000	0.000	0.000
5,552.00	6.00>0.000	0.000	0.000	0.000	0.000
5,553.00	1.891	0.000	0.000	0.000	1.891
5,553.43	2.261	0.000	0.000	0.000	2.261
5,554.00	2.674	0.000	0.000	0.000	2.674
5,555.00	3.275	0.000	0.000	0.000	3.275
5,556.00	15.127	0.000	0.000	0.000	15.127
5,557.00	21.392	0.000	0.000	0.000	21.392
5,558.00	26.200	(3)>3.142	(3)>3.142	(3)>3.142	35.625
5,559.00	30.253	(5)>8.425	(5)>8.425	(5)>8.425	55.528
5,560.00	33.824	(5)>12.173	(5)>12.173	(5)>12.173	70.343

Structure #1 (Null)

Null Below Pond 013

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)
#3	1	5.950	0.043	0.000	0.000	83.000	M	4.65	0.344
	2	0.760	0.000	0.000	0.000	57.000	M	0.00	0.000
	Σ	**6.710**						**4.65**	**0.344**
#5	Σ	**6.710**						**4.65**	**0.344**
#4	1	100.000	0.000	0.000	0.000	74.000	M	40.62	2.911
	Σ	**100.000**						**40.62**	**2.911**
#2	1	30.900	0.291	0.000	0.000	83.000	M	13.06	1.429
	2	7.110	0.118	0.000	0.000	83.000	M	5.56	0.411
	3	17.760	0.174	0.000	0.000	83.000	M	8.77	0.835
	4	3.340	0.031	0.000	0.000	83.000	M	2.61	0.193
	5	1.140	0.006	0.000	0.000	57.000	M	0.00	0.000
	Σ	**166.960**						**34.18**	**6.123**
#1	Σ	**166.960**						**2.88**	**8.176**

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)
#3	1	0.300	200.00	8.80	0.8000	0.3800	1	17.9	74,702	35.18	17.66
	2	0.300	200.00	8.80	0.7000	0.3800	1	0.0	1	0.00	0.00
	Σ							**17.9**	**74,702**	**35.18**	**17.66**
#5	Σ							**17.9**	**74,702**	**35.18**	**17.66**
#4	1	0.300	200.00	0.10	0.0100	0.3800	1	0.1	47	0.02	0.01
	Σ							**0.1**	**47**	**0.02**	**0.01**
#2	1	0.300	200.00	2.30	0.8000	0.3800	1	17.6	17,015	5.80	3.08
	2	0.300	200.00	3.70	0.8000	0.3800	1	7.4	26,329	12.40	6.19
	3	0.300	200.00	2.90	0.8000	0.3800	1	12.8	21,603	8.17	4.22
	4	0.300	200.00	7.90	0.8000	0.3800	1	8.0	59,648	28.09	14.08
	5	0.300	108.00	32.30	0.8000	0.3800	1	0.0	1	0.00	0.00
	Σ							**63.7**	**29,122**	**12.12**	**3.16**
#1	Σ							**21.9**	**4,030**	**0.21**	**0.14**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#2	1	5. Nearly bare and untilled, and alluvial valley fans	2.32	37.05	1,597.03	1.520	0.291
#2	**1**	**Time of Concentration:**					**0.291**
#2	2	5. Nearly bare and untilled, and alluvial valley fans	3.68	30.00	815.21	1.910	0.118
#2	**2**	**Time of Concentration:**					**0.118**
#2	3	5. Nearly bare and untilled, and alluvial valley fans	2.85	30.00	1,052.63	1.680	0.174
#2	**3**	**Time of Concentration:**					**0.174**
#2	4	5. Nearly bare and untilled, and alluvial valley fans	7.86	25.00	318.06	2.800	0.031
#2	**4**	**Time of Concentration:**					**0.031**
#2	5	3. Short grass pasture	32.41	35.00	107.99	4.550	0.006
#2	**5**	**Time of Concentration:**					**0.006**
#3	1	5. Nearly bare and untilled, and alluvial valley fans	8.75	40.00	457.14	2.950	0.043
#3	**1**	**Time of Concentration:**					**0.043**

Pond 013

25-Yr 24-Hour Emergency Spillway Evaluation

Both 6" Valves Closed

Constant 1000 gpm Flow Inflow

Tony Tennyson

Tri-State Generation & Transmission Association, Inc.
1100 West 116th Avenue
Westminster, CO 80234

Phone: (970) 824-1232
Email: ttennyson@tristategt.org

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	2.400 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	End	0.000	0.000	Null Below Pond 013
Pond	#2	==>	#1	0.000	0.000	Pond 013
Channel	#3	==>	#5	0.000	0.000	Ditch C-9
Pond	#4	==>	#2	0.000	0.000	Continous flow 1000 gpm
Culvert	#5	==>	#2	0.000	0.000	Culvert C177 at Sta 0+25 in C-9 Ditch

Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#3		6.710	6.710	6.43	0.49
#5		0.000	6.710	6.43	0.49
#4	In	100.000	100.000	64.25	4.60
	Out			2.23	4.60
#2	In	60.250	166.960	48.05	9.14
	Out			5.04	12.83
#1		0.000	166.960	5.04	12.83

Structure Detail:

Structure #3 (Vegetated Channel)

Ditch C-9

Trapezoidal Vegetated Channel Inputs:

Material: Smooth brome

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Retardance Classes	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)	Limiting Velocity (fps)
3.00	20.0:1	2.0:1	3.2	D, B	0.30			7.0

Vegetated Channel Results:

	Stability Class D w/o Freeboard	Stability Class D w/ Freeboard	Capacity Class B w/o Freeboard	Capacity Class B w/ Freeboard
Design Discharge:	6.43 cfs		6.43 cfs	
Depth:	0.48 ft	0.78 ft	0.88 ft	1.18 ft
Top Width:	13.63 ft	20.23 ft	22.43 ft	29.03 ft
Velocity:	1.60 fps		0.57 fps	
X-Section Area:	4.02 sq ft		11.23 sq ft	
Hydraulic Radius:	0.294 ft		0.499 ft	
Froude Number:	0.52		0.14	
Roughness Coefficient:	0.0734		0.2924	

Structure #5 (Culvert)

Culvert C177 at Sta 0+25 in C-9 Ditch

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
20.00	2.50	0.0140	1.50	1.00	0.90

Culvert Results:

Design Discharge = 6.43 cfs

Minimum pipe diameter: 1 - 21 inch pipe(s) required

Structure #4 (Pond)

Continous flow 1000 gpm

Pond Inputs:

Initial Pool Elev:	90.01 ft
Initial Pool:	0.00 ac-ft

Pond Results:

Peak Elevation:	97.53 ft
Dewater Time:	0.04 days

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)	
90.00	0.050	0.000	0.000		
90.01	0.051	0.001	0.000		
90.50	0.077	0.032	2.228		
91.00	0.110	0.078	2.228		
91.50	0.147	0.142	2.228		
92.00	0.190	0.226	2.228		
92.50	0.224	0.330	2.228		
93.00	0.260	0.450	2.228		
93.50	0.303	0.591	2.228		
94.00	0.350	0.754	2.228		
94.50	0.394	0.940	2.228		
95.00	0.440	1.148	2.228		
95.21	0.461	1.243	2.228		
95.50	0.489	1.381	2.228		
96.00	0.540	1.638	2.228		
96.50	0.594	1.921	2.228		
97.00	0.650	2.232	2.228		
97.50	0.704	2.571	2.228		
97.53	0.708	2.594	2.228	1.05	Peak Stage
98.00	0.760	2.937	2.228		
98.50	0.819	3.331	2.228		
99.00	0.880	3.756	2.228		
99.50	0.949	4.213	2.228		
100.00	1.020	4.705	2.228		
100.50	1.127	5.242	2.228		
101.00	1.240	5.833	2.228		
101.50	1.319	6.473	2.228		
102.00	1.400	7.153	2.228		
102.50	1.498	7.877	2.228		
103.00	1.600	8.651	2.228		

Detailed Discharge Table

Elevation (ft)	User-input discharge (cfs)	Combined Total Discharge (cfs)
90.00	0.000	0.000
90.01	0.000	0.000
90.50	2.228	2.228
91.00	2.228	2.228
91.50	2.228	2.228
92.00	2.228	2.228
92.50	2.228	2.228
93.00	2.228	2.228
93.50	2.228	2.228
94.00	2.228	2.228
94.50	2.228	2.228
95.00	2.228	2.228
95.21	2.228	2.228
95.50	2.228	2.228
96.00	2.228	2.228
96.50	2.228	2.228
97.00	2.228	2.228
97.50	2.228	2.228
98.00	2.228	2.228
98.50	2.228	2.228
99.00	2.228	2.228
99.50	2.228	2.228
100.00	2.228	2.228
100.50	2.228	2.228
101.00	2.228	2.228
101.50	0.000	2.228
102.00	0.000	2.228
102.50	0.000	2.228
103.00	0.000	2.228

Structure #2 (Pond)

Pond 013

Pond Inputs:

Initial Pool Elev:	5,555.23 ft
Initial Pool:	6.07 ac-ft

Perforated Riser

Riser Diameter (in)	Riser Height (ft)	Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Number of Holes per Elev
24.00	5.50	24.00	100.00	3.40	0.0240	5,555.00	2

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
18.00	20.00	3.40	0.0240	5,557.00	0.90	0.00

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
18.00	20.00	3.40	0.0240	5,557.00	0.90	0.00

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev (ft)	Entrance Loss Coefficient	Tailwater Depth (ft)
18.00	20.00	3.40	0.0240	5,557.00	0.90	0.00

Pond Results:

Peak Elevation:	5,555.36 ft
Dewater Time:	1.74 days

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)	
5,549.00	0.356	0.000	0.000		
5,549.50	0.440	0.199	0.000		
5,550.00	0.533	0.441	0.000		
5,550.50	0.658	0.739	0.000		
5,551.00	0.796	1.102	0.000		
5,551.50	0.944	1.536	0.000		
5,552.00	1.105	2.048	0.000		Low hole SPW #1
5,552.50	1.148	2.612	1.337	5.10*	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
5,553.00	1.191	3.196	1.891	3.74*	
5,553.43	1.228	3.717	2.261	2.78*	
5,553.50	1.234	3.803	2.316	0.75	
5,554.00	1.276	4.430	2.674	4.45	
5,554.50	1.319	5.079	2.990	3.45	
5,555.00	1.363	5.750	3.275	9.10	Spillway #1
5,555.23	1.385	6.066	3.398	3.60	
5,555.36	1.397	6.244	5.043	8.90	Peak Stage
5,555.50	1.410	6.443	6.886		
5,556.00	1.457	7.160	15.127		
5,556.50	1.499	7.899	18.526		
5,557.00	1.541	8.659	21.392		Spillway #2 Spillway #3 Spillway #4
5,557.50	1.584	9.440	27.251		
5,558.00	1.627	10.243	35.625		
5,558.50	1.670	11.067	45.621		
5,559.00	1.714	11.913	55.528		
5,559.50	1.759	12.782	63.505		
5,560.00	1.805	13.673	70.343		

**Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation (ft)	Perf. Riser (cfs)	Straight Pipe (cfs)	Straight Pipe (cfs)	Straight Pipe (cfs)	Combined Total Discharge (cfs)
5,549.00	0.000	0.000	0.000	0.000	0.000
5,549.50	0.000	0.000	0.000	0.000	0.000
5,550.00	0.000	0.000	0.000	0.000	0.000
5,550.50	0.000	0.000	0.000	0.000	0.000
5,551.00	0.000	0.000	0.000	0.000	0.000
5,551.50	0.000	0.000	0.000	0.000	0.000
5,552.00	6.00>0.000	0.000	0.000	0.000	0.000
5,552.50	1.337	0.000	0.000	0.000	1.337
5,553.00	1.891	0.000	0.000	0.000	1.891
5,553.43	2.261	0.000	0.000	0.000	2.261
5,553.50	2.316	0.000	0.000	0.000	2.316
5,554.00	2.674	0.000	0.000	0.000	2.674
5,554.50	2.990	0.000	0.000	0.000	2.990
5,555.00	3.275	0.000	0.000	0.000	3.275

Elevation (ft)	Perf. Riser (cfs)	Straight Pipe (cfs)	Straight Pipe (cfs)	Straight Pipe (cfs)	Combined Total Discharge (cfs)
5,555.23	3.398	0.000	0.000	0.000	3.398
5,555.50	6.886	0.000	0.000	0.000	6.886
5,556.00	15.127	0.000	0.000	0.000	15.127
5,556.50	18.526	0.000	0.000	0.000	18.526
5,557.00	21.392	0.000	0.000	0.000	21.392
5,557.50	23.917	(3)>1.111	(3)>1.111	(3)>1.111	27.251
5,558.00	26.200	(3)>3.142	(3)>3.142	(3)>3.142	35.625
5,558.50	28.299	(3)>5.774	(3)>5.774	(3)>5.774	45.621
5,559.00	30.253	(5)>8.425	(5)>8.425	(5)>8.425	55.528
5,559.50	32.089	(5)>10.472	(5)>10.472	(5)>10.472	63.505
5,560.00	33.824	(5)>12.173	(5)>12.173	(5)>12.173	70.343

Structure #1 (Null)

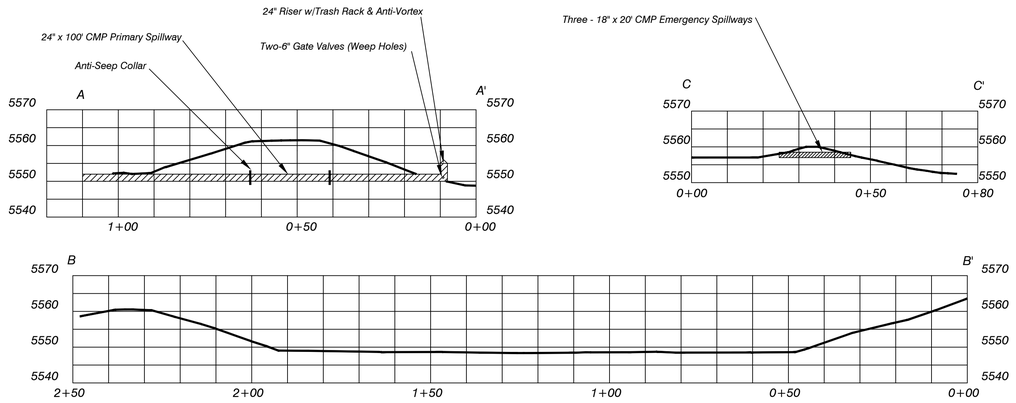
Null Below Pond 013

Subwatershed Hydrology Detail:

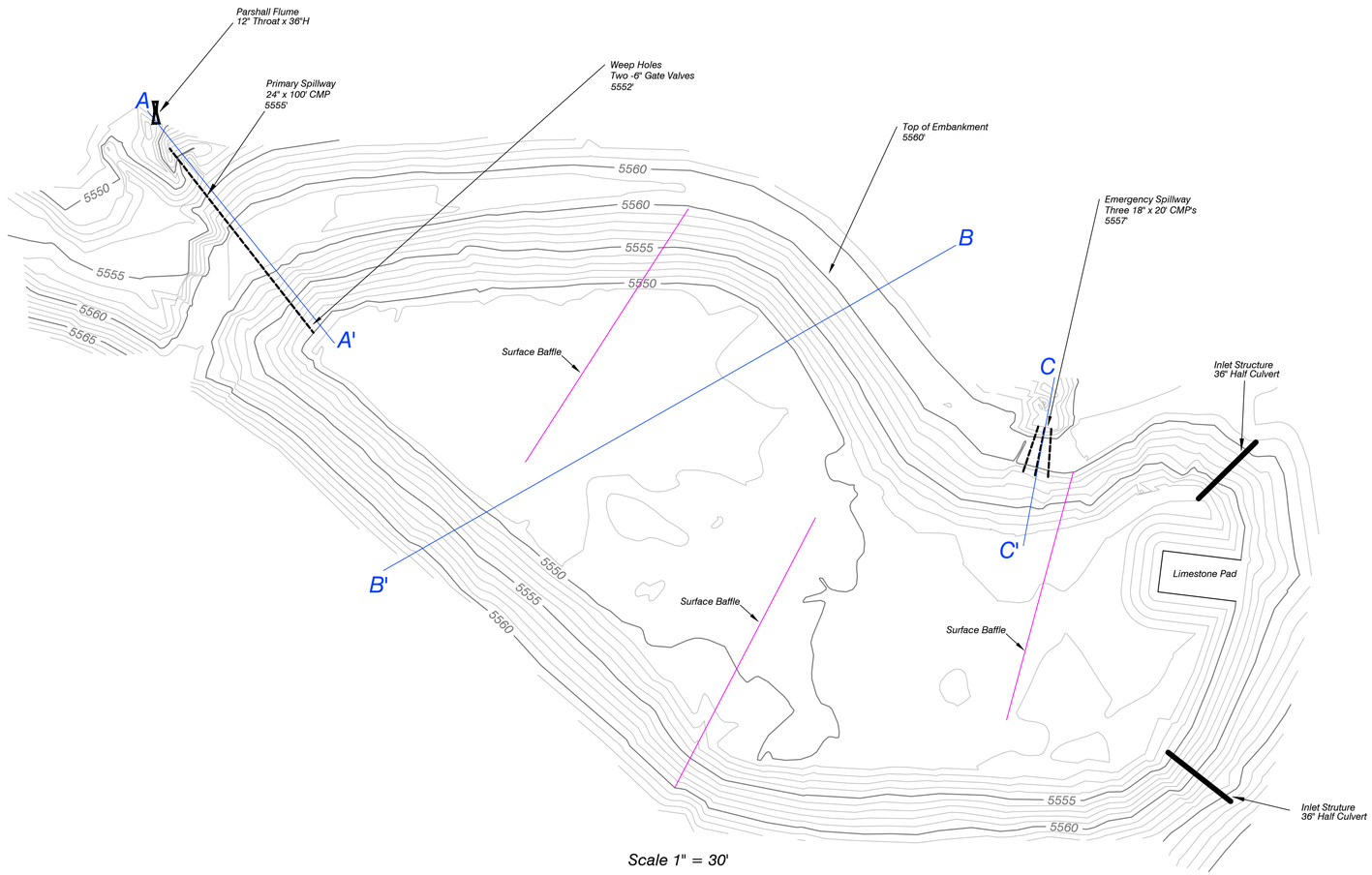
Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#3	1	5.950	0.043	0.000	0.000	83.000	M	6.41	0.486
	2	0.760	0.000	0.000	0.000	57.000	M	0.02	0.001
	Σ	**6.710**						**6.43**	**0.486**
#5	Σ	**6.710**						**6.43**	**0.486**
#4	1	100.000	0.000	0.000	0.000	74.000	M	64.25	4.601
	Σ	**100.000**						**64.25**	**4.601**
#2	1	30.900	0.291	0.000	0.000	83.000	M	18.77	2.017
	2	7.110	0.118	0.000	0.000	83.000	M	7.66	0.580
	3	17.760	0.174	0.000	0.000	83.000	M	12.42	1.178
	4	3.340	0.031	0.000	0.000	83.000	M	3.60	0.273
	5	1.140	0.006	0.000	0.000	57.000	M	0.02	0.004
	Σ	**166.960**						**48.05**	**9.139**
#1	Σ	**166.960**						**5.04**	**12.829**

Subwatershed Time of Concentration Details:

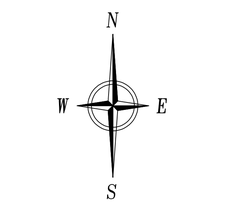
Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#2	1	5. Nearly bare and untilled, and alluvial valley fans	2.32	37.05	1,597.03	1.520	0.291
#2	**1**	**Time of Concentration:**					**0.291**
#2	2	5. Nearly bare and untilled, and alluvial valley fans	3.68	30.00	815.21	1.910	0.118
#2	**2**	**Time of Concentration:**					**0.118**
#2	3	5. Nearly bare and untilled, and alluvial valley fans	2.85	30.00	1,052.63	1.680	0.174
#2	**3**	**Time of Concentration:**					**0.174**
#2	4	5. Nearly bare and untilled, and alluvial valley fans	7.86	25.00	318.06	2.800	0.031
#2	**4**	**Time of Concentration:**					**0.031**
#2	5	3. Short grass pasture	32.41	35.00	107.99	4.550	0.006
#2	**5**	**Time of Concentration:**					**0.006**
#3	1	5. Nearly bare and untilled, and alluvial valley fans	8.75	40.00	457.14	2.950	0.043
#3	**1**	**Time of Concentration:**					**0.043**

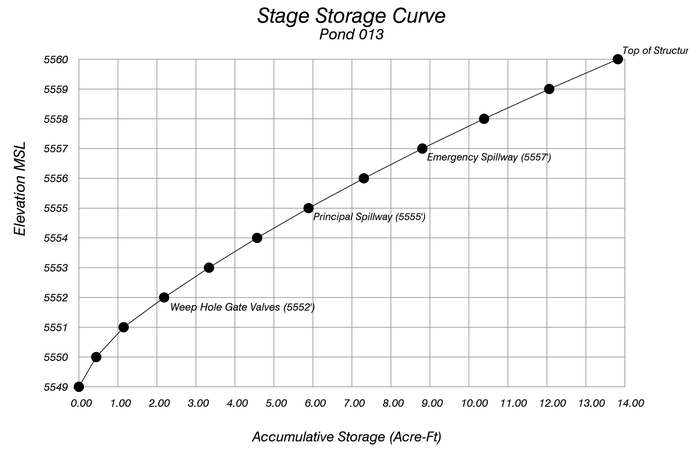


Scale 1" = 20'



Scale 1" = 30'





Storage Volume Computations
Permit No, C-1981-008
Pond 013

ELEV. (ft)	Width (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
5549.0	N/A	N/A	0.36					
				0.45	1.00	0.45	0.45	1.00
5550.0	N/A	N/A	0.53					
				0.67	1.00	0.70	1.15	2.00
5551.0	N/A	N/A	0.80					
				0.95	1.00	1.04	2.19	3.00
5552.0	N/A	N/A	1.11					
				1.15	1.00	1.15	3.34	4.00
5553.0	N/A	N/A	1.19					
				1.23	1.00	1.23	4.57	5.00
5554.0	N/A	N/A	1.28					
				1.32	1.00	1.32	5.90	6.00
5555.0	N/A	N/A	1.36					
				1.41	1.00	1.42	7.31	7.00
5556.0	N/A	N/A	1.46					
				1.50	1.00	1.50	8.81	8.00
5557.0	N/A	N/A	1.54					
				1.58	1.00	1.58	10.40	9.00
5558.0	N/A	N/A	1.63					
				1.67	1.00	1.67	12.06	10.00
5559.0	N/A	N/A	1.71					
				1.76	1.00	1.76	13.82	11.00
5560.0	N/A	N/A	1.81					

Pond 013 Design

NEW HORIZON MINE
Permit C1981008
P.O Box 828, Nucla, CO. 81424

SCALE: As Shown
ORIGINAL DATE: NOVEMBER 2007
DWG. BY: RLG
APPROVED BY: FKF

MAP NO.
MAP 2.05.3(3)-18

No.	REVISION	DATE	BY	CHK
PR-06	Change in Title Block	10/1/10	GL	DA
TR-70	Added SE Inlet, Correced Flume Size, and a New Profile to Show Emergency Spillway Correctly	12/21/15	RLG	FKF
TR-99	Revised Drawing Layout, Added Limestone Pad, and Updated Stage Storage Curve, Revised Scale	3/30/20	Tony	FKF