(c) Road, Conveyor and Rail System

Map 11 New Elk Mine Site Plan East Portal Sheet 3 Facilities, Map 12 Surface Facilities and Roads - West Portal, and Map 11-5 New Elk Mine Haul Road showing the locations of all roads necessary for operation of the New Elk Mine for the permit term. Roads within the permit boundary are classified as haul roads, access roads, or light use roads. These roads were constructed as the mine facilities were established in the 1950's. Road specifications, including typical cross-sections for access and haul roads were provided on Map 11. NECC has revised and updated the road system along with the surface drainage control plan. This revision has incorporated the road and drainage plan system to ensure road stability and prevention of additional sediment contribution to the receiving streams. The road system is part of the New Elk surface disturbance area; therefore, all ditches and culverts have been designed to handle runoff from the roads, which ultimately enter sediment ponds prior to discharge. The west-sloping portion of the RDA access road is maintained in accordance with the mine's Storm Water Monitoring Plan. The mine entrance road and roads that paralleled the railroad will remain for maintenance and access (see Maps 15 & 16) after mine reclamation. Roads classified as haul roads will be examined and certified under the direction of a Register Professional Engineer prior to their use as haul roads.

Map 11 Sheet 3 - East Portal Facilities shows the conveyor systems for coal and refuse handling. The conveyor in the belt slope will be re-established with 60-inch structure and belting. The details of the structure are included in Exhibit 28 - Bond Calculations. All other conveyor systems remain unchanged. Dimensions of the conveyors are contained in Exhibit 28, Bond Calculation. Coal is conveyed from the mine portal to the raw coal stockpile area or the clean coal stockpile area and/or the silos for load out. Coal is transferred from the raw coal stockpile to the Prep Plant for processing. From the Plant, clean coal is conveyed to the clean coal stockpile and/or the silos for load out. Refuse from the plant is conveyed to the RDA. Access for maintenance of the RDA belt is provided in the maintenance corridor as shown on Map 11.

The batch load out and all rail tracks were removed in the fall of 2003. The mainline grade is the property of the Trinidad Railroad, LLC and is located outside of the mine surface disturbance boundary. Current plans are to have the rail reinstalled as soon as coal production increases to warrant use of rail transportation and eliminate haul trucks on Highway 12 from the Mine to the Jensen Rail Yard.

A hoist will assist passage of men and materials in the rope slope. Rail (85 lb./yd.) will be installed in the rope slope (west slope) with surface turnouts as shown on Map 11 Sheet 1 East Portal Roads, Slope Track and Cut Areas. A typical slope rail section is included on Map 11 Sheet 1 East Portal Roads, Slope Track and Cut Areas. The 85 lb. ASCE rail spacing is planned at 42 inches. The rail will be set on ironclad steel ties (3" x 8" x 72") bedded in ballast/crushed rock.

The hoist sheave and the hoist are located as shown on Map 11 Sheet 3 East Portal Facilities. The main components of the single drum mine hoist are a 300 HP DC

motor, 60:1 gear reducer, hoist drum assembly, and brakes. The hoist will be placed on new foundation housed within a 20 Ft by 40 Ft metal building. The tower is designed to support a 7 Ft sheave wheel to deflect the 1.5-inch wire rope down the 17-degree slope. The details of the foundations are included in Exhibit 28 - Bond Calculations.

A discussion of the new access and new light use road that are associated with the Bates Portal follows. Typical cross sections are shown on Map 11 - Sheet 1 East Portal Roads, Slope Track, and Cut Areas. The roads are shown on Map 12 - West Portal Area Roads, Utilities, and Facilities.

A discussion of the haul road to the RDA associated with TR-66 and the haul road constructed on the existing rail bed associated with TR-76 follows. Typical sections are shown on Map 11 - Sheet 1 East Portal Roads, Slope Track and Cut Areas. Sedimentation control is shown on Map 13 - Site Plan East Portal Facilities.

Haul Road and Access Road Location
Haul roads and Access roads will to the extent practicable; be located on ridges or on the most stable available slopes to minimize erosion.

Haul Road and Access Road Design and Construction
The Bates Portal access road runs from the Bates Portal on the east to an existing access road to the west, a distance of about 410 feet at a constant grade of 10 percent. Cut slopes are not steeper than 1.5h:1v in unconsolidated materials or 0.25h:1v in rock. Embankment slopes are not steeper than 1.5h:1v. The north side of the access road is supported by retaining walls.

The approximate 2.7-mile haul road (TR-76) will be constructed on the existing rail bed and no new disturbance outside of the existing rail bed will be necessary for the construction and operation of the road. The road will be a maximum of 15 feet wide and have the necessary berms as required be MSHA. The permit boundary for TR-76 was extended to include the affected area of the railbed. This permit boundary extension represents 11.3 acres and the affected area that was historically disturbed in the railroad bed (including side slopes, culverts, and access trails). The disturbed area is the running surface of the new road (along with berms or other areas of disturbance associated with construction of the road) that represents 6.4 acres (Map 1 and Map 15a).

Map 11-5 shows the location of the road and culverts passing clean water from the south to the Purgatoire River. Land uses and environmental resources as described in this permit document along the road corridor will not change as a result of construction and operation of the haul road.

Maps 11-6, 11-7, and 11-8 show the plan and profile for the Haul Road. NECC plans are to use the Haul Road one way which will leave it open for traffic using the road for access in both directions.

The RDA haul road runs from Highway 12 to the RDA, a distance of 1830 feet. The road will have a 0 percent grade for the first 40 feet per CDOT Access Code requirements, and then remain at a constant grade of 10 percent until tying into original ground. The haul road width will vary from 24-30'. Cut slopes are not steeper than 1.5h:1v in unconsolidated materials or 0.25h:1v in rock. Embankment slopes are not steeper than 2h:1v or 1.35h:1v where embankment is 85% rock.

The existing RDA road will be converted to a haul road by TR-70 as per Plan and Profile Drawing Map 11 - Sheet 4. The road begins north of SH 12 and traverses a side slope up to the RDA. The road is approximately 2,300 feet long. The road meets the cut and file requirements of Rule 4.03.1(3)(d&e). The cut slopes are no steeper than 1.5h:lv except in rock where the cut slopes may be 0.25h:lv. The fill slopes are no

stepper than 2h:1v except where there is 85% rock in the fill where the fill slopes may be steepened to 1.35h:1v. The Haul Road has an overall grade of less than 10%. The maximum grade on the road is less than 15%. The road is out of compliance with Rule 4.03.1(3)(a) because there is an 800 foot long segment of the road that exceeds 10%. Steep grades on haul roads can have adverse effects on safety and the environment. NECC has adopted the following rules and operating procedures to mitigate safety and environmental concerns. The width of the haul road varies with a minimum width of 15 feet. The road is plated with gravel. NECC plans to utilize up to 30 ton capacity articulating haul trucks to haul coal mine waste to the RDA. These trucks are approximately 10 feet wide and have a tight turning radius. The width of the road is suitable for its intended use as long as the following rules and procedures are followed.

Rules

- The RDA haul road may be used by ATV (gators), light vehicles, dozers, graders and haul trucks and other vehicles suitable for road conditions.
- The RDA haul road may only be used by haul trucks and water trucks during dry conditions (no rain or snow) and only during daylight hours.
- Only one vehicle is to use the RDA access road at a time.
- Signs must clearly be visible at the top and bottom of the haul road. The sign is to show "Single vehicle on road only. Radio on channel 1 prior to entry and following exit."
- Berms and guards on outer banks on elevated roadways must be intact (as per 30 CFR 77.1605(k).

Procedure

- Prior to crossing Highway 12 or entering the top of the RDA haul road (at the RDA end), vehicle operators must advise radio channel I that they are entering the RDA haul road. Words to be used are: "haul truck/light vehicle/gator entering RDA haul road".
- The equipment operator must wait at least 30 seconds to allow time for a response from anyone on the RDA haul road.
- After clearing the RDA haul road at either end, the equipment operator must advise on radio channel 1 that the RDA haul road is clear. Words to be used are: "RDA haul road is now clear".
- Any defects in the RDA haul road must be reported immediately with an assessment made as to what vehicles may use the road prior to remediation of any defects.

All vegetation material and topsoil will be removed from the design roadbed, shoulders, and surfaces where associated structures will be placed. Topsoil will be placed in one of the topsoil stockpiles located on site. No vegetation material or topsoil will be placed beneath or in any road embankment.

The material for the embankment shall be reasonably free of organic material, coal or coal blossom, frozen materials, wet or peat material, natural soils containing organic matter, or any other material considered unsuitable for use in embankment construction by the DRMS.

In the placement of embankment for the access road, materials will be spread in layers approximately 12 inches deep before compaction, and such lifts made uniformly over long stretches and for the full width of the embankment. Each layer

of the embankment shall be completed, leveled, and compacted before the succeeding layer is placed. Embankment material shall be leveled as placed and kept smooth. Compaction shall be performed to the extent necessary to ensure stability. Where the embankment is placed against the existing slopes, the slopes will be benched and scarified down to a firm dense base as the new fill is being placed. Material so loosened will be mixed with the new fill and the resultant mix blended firmly into the slope.

When rock or rocky material is used for embankment, placement shall be in layers not exceeding the maximum size of the rock present, and in no case shall lifts exceed 36 inches in depth. Rock shall be placed in a manner that will ensure proper placement in the embankment, so that voids, pockets, and bridging will be reduced to a minimum.

Temporary erosion control measures shall be implemented during embankment construction to control sedimentation and minimize erosion until permanent control measures can be established. After construction is complete the area disturbed will be seeded and mulched to reduce the rate and volume of run-off.

Haul Road and Access Road Drainage
The Bates Portal access road and the RDA Haul road are designed, and shall be maintained to have adequate drainage, using ditches and culverts. The water control systems are designed to safely pass peak runoff from a 10-year, 24-hour precipitation event. The drainage design for the RDA Haul Road and Bates Portal access road are shown on Map 13 and Map 13A, respectively.

The watersheds for the haul road on the existing rail bed are shown on Map 11-6 and the details of the culverts are shown in Table 19a. No new culverts or ditches are proposed along the rail bed and existing vegetation along the side slopes of the embankment is sufficient to prevent erosion. Empirical observation indicates that the existing rail bed is not eroded, which would imply the existing culverts are adequate to pass the 10-year, 24-hour storm and other typical and frequent storm events.

Haul Road and Access Road Surfacing
Access roads and haul roads will be plated with 6 to 12 inches gravel. This will be adequate for the traffic, weight, and speed of the vehicles to be used. Acid or toxic forming substances will not be used in road surfacing.

Haul Road and Access Road Maintenance
Road surfaces will be patched as necessary, and potholes will be filled. Gravel road surfaces will be periodically watered and maintained with a motor grader. Ditches along the roadways will be periodically cleaned with a motor grader and the road shoulders will be smoothed to conform to the road surface. If an access road is damaged by a catastrophic event such as a flood or earthquake, it will be repaired as soon as practicable after the damage has occurred. Gravel will be added to the road surfaces as necessary.

Haul Road and Access Road Reclamation
The Bates Portal access road will be reclaimed in conjunction with the reclamation and backfilling of the Bates Portal. As shown on Map 15, the RDA haul road will not be reclaimed. The 2.7-mile haul road along the existing rail bed will remain following closure of the mine.

Light Use Road Location
Light-use roads shall be located on ridges or on the most stable available slopes to minimize erosion.

Table 19a TR-76 Haul Road Culverts

Culvert ID	Watershed ID	Drainage Area (acres)	Curve Number	10-year, 24-hour peak flow (CFS)	Culvert Size (in)	Culvert Max Discharge (CFS)
Culvert 1A, 1A[1]	1	45.84	85	94.5	60	121.6
Culvert 2A, 2B[2]	2	54	85	111.3	60	275.1
Culvert 3	3	12.55	85	27.0	48	103.2
Culvert 4	4	20.12	85	41.5	12	6.2
Culvert 5	5	50.85	85	108.6	48	56.1
Culvert 6	6	15.62	85	33.6	42	58.2
Culvert 7A, 7B[2]	7	27.02	85	57.7	36	61.1
Culvert 8A, 8B[2]	8	11.12	85	23.8	14	25.7
Culvert 9A, 9B[2]	9	19.4	85	41.4	14	5.3
Culvert 10	10	9.81	85	21.1	14	4.8
Culvert 11A, 11B[1]	11	18.81	85	40.2	14	4.8
Culvert 12A, 12B, 12C[3]	12	10.49	85	22.5	18	14.5
Culvert 13[4]	13	5.54	86	12.5		
Culvert 14	14	3.71	86	8.4	18	4.8
Total 13-14				**20.9**		**4.8**
Culvert 15	15	3.54	86	8.0	18	4.8
Culvert 16	16	3.54	86	8.0	26	15.8
Culvert 17[4]	17	2.41	85	5.2		
Culvert 18	18	2.26	88	5.6	18	4.8
Total 17-18				**10.8**		
Culvert 19	19	1.62	88	4.0	18	4.8
Culvert 20 + 21[5]	20-23 (Apache Canyon)	7,601	86	817.9	18	47.8
Culvert 22[5]						26.4
Culvert 23[6]						
Total (Apache Canyon)[1]		**7,601**	**-**	**817.9**	**-**	**74.2**
Culvert 24	24	25.54	87	58.4	18	22.1
Culvert 25[4]	25	18.32	87	41.9		
Culvert 26A, 26B[1]	26	34.28	86	67.1	18	18.3
Total 25-26				**109.0**		
Culvert 27A, 27B, 27C[1]	27	29.82	83	49.5	18	31.6

Notes:

1 Culverts are in series the Culvert Max Discharge is the smaller of the culverts as calculated.
2 Culverts show a combined capacity for Culvert Max Discharge
3 Culverts are a combination of in series and multiple culverts and Culvert Max Discharge is calculated per notes 1 and 2 as applicable
4 Culvert does not appear to exist for this watershed. The Culverts in the next watershed downstream are assumed to convey the flow.
5 Culverts 20, 21, and 22 provide outlet one large watershed (Apache Canyon) which is much larger than the other watersheds. The existing culverts may be adequate if there is sufficient detention. Insufficient data for detention evaluation. Further evaluation of flooding may be needed if culverts are replaced with larger structures.
6 Culvert 23 drains water from the rail bed to Culvert 22.

Assumptions:

- Curve Numbers for hydrologic analysis range from 83 to 88 depending on the soils present in the USGS online soil survey.
- Shape of existing culverts is assumed to be circular.
- Culverts are Corrugated Metal Pipe (CMP), with a Manning's n of 0.024.
- Culvert inlets are assumed to be projecting with kinetic energy (Ke) of 0.90.
- Head Water, invert elevations, and culvert lengths roughly estimated using topography provided by Allegiance in AutoCAD.
- Empirical observation indicates that the rail bed is not eroded, which would imply the existing culverts are adequate for typical and frequent storms.
- Culverts may be silted in analysis did not account for this factor.