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State of Utah
DEPARTMENT OF NATURAL RESOURCES
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Technical Analysis and Findings

Utah Coal Regulatory Program

August 18, 2015

PID: C0410002
TaskID: 4953
Mine Name: SUFCO MINE
Title: WASTE ROCK SITE EXPANSION

Summary

Canyon Fuel Company LLC. proposes to expand the area of the waste rock disposal site by approximately 46 acres (thus increasing the permitted area to a total of 87.8 acres). The site shall be developed in phases and contemporaneously reclaimed. The existing pond is proposed to be sufficient for treatment during the first phase of development and will be replaced by a larger pond for the second phase.

The application was originally submitted March 2, 2015 and was returned with deficiencies on April 28, 2015 and reviewed as task 4809. The application was resubmitted to address said deficiencies on July 15, 2015 and issued as task 4953.

lreinhart

Canyon Fuel Company LLC. proposes to expand the area of the waste rock disposal site by approximately 46 acres (thus increasing the permitted area to a total of 87.8 acres). The site shall be developed in phases and contemporaneously reclaimed. The existing pond is proposed to be sufficient for treatment during the first phase of development and will be replaced by a larger pond for the second phase.

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lreinhart

Environmental Resource Information

General

Analysis:

The application meets the minimum requirements of R645-301-510, -511, and -521 by including a description of the existing environmental within the proposed permit area and adjacent areas that may be impacted.

cparker

Permit Area

Analysis:

The application meets the minimum requirements of R645-301-521.140 due an updated Map 1 and Map 2 that were provided detailing that disturbance of the waste rock site will increase to 46.3 acres.

Historic and Archeological Resource Information

Analysis:

Appendix I (A) contains Cultural Resource Evaluations. According to report dated May 8, 2014, Antiquities Permit #U13SC0842p, Senco-Phenix conducted a cultural resource survey and inventory of the waste rock disposal area. There are two cultural resources located within the project boundaries. Neither site was recommended to SHPO for nomination to the National Register of Historic Places (NRHP) in letter dated March 17, 2015. SHPO concurred with the Divisions recommendation in letter dated March 20, 2015 (Case No.13-0654)

Information provided in the application meets the minimum requirements of the regulations R645-301-411.

lreinhart

Climatological Resource Information

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

There are numerous reports throughout the approved MRP that describe the climatological conditions around the Sufco mine. These reports are prepared by Peterson Hydrologic.

adaniels

Vegetation Resource Information

Analysis:

Appendix IV(A) is a report of the vegetation and sensitive species of the proposed area. The report was prepared by Mt. Nebo Scientific, Inc in February 2014 and consists of vegetation data from plant communities that may be affected. The report includes raw data along with summaries, photographs, and a map that delineates existing vegetation types and productivity. Reference areas were identified to be used to determine success standards when the site is reclaimed in the future.

Information provided in the application meets the minimum requirements of the regulations R645-301-321.

lreinhart

Fish and Wildlife Resource Information

Analysis:

The Vegetation & Sensitive Species report prepared by Mt. Nebo Scientific evaluates habitat and potential impacts to Canada lynx, Greater sage-grouse, Utah prairie-dog, and the brown (grizzly) bear. As noted on page 3-5, the habitat at the waste rock site does not meet the habitat requirements of the Yellow-Billed Cuckoo since they are riparian obligate species. The disposal site contains no perennial or intermittent streams. The only surface flow in the area is in the form of occasional storm runoff. Therefore, the site does not support habitat for fish or wetland species.

Additional fish and wildlife information for the general area is contained in Volume 3 and identifies the area is used for wintering deer and elk and by several non-game species of birds and mammals.

Information provided in the plan meets the minimum requirements of R645-301-322.210.

lreinhart

Soils Resource Information

Analysis:

Section 231.300 states that topsoil will be tested for N, P K at a rate of one sample /acre at the time of soil redistribution.

Deficiencies Details:

R645-301-222.400, Include in the pre-disturbance soil survey information the nutrient status of the topsoil (N:P:K) and other soil planned for salvage (subsoil). Please refer to Table 3 of the Division's January 2008 Guidelines for Topsoil and Overburden.

pburton

Land Use Resource Information

Analysis:

The land under consideration is adjacent to the existing waste rock site. Premining land use is livestock grazing and wildlife habitat. Sections 410 and 411 of the MRP adequately describe land use. Figure 7 is a map that shows land use within the area. There are no cemeteries, public parks, or units of the National System of Trails or the Wild and Scenic Rivers System located within the site boundary.

Information provided in the plan meets the minimum requirements of R645-301-411.110.

lreinhart

Hydro Sampling and Analysis

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

There are no surface water sampling sites at the waste rock site since any surface drainage is directed around the site. There are water monitoring wells at the existing waste rock site that are regularly sampled. The well data reported to the division and submitted to the electronic water monitoring database.

adaniels

Hydro Baseline Information

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

Baseline data hasn't changed with the expansion of the waste rock site. There are also many years of groundwater data available from the water monitoring wells located throughout the waste rock site. Baseline data for the sampling of groundwater wells are located in Exhibit 6. The only surface flow through the site is limited to storm or snow melt runoff. Groundwater monitoring from the wells on site indicate that water is found at a depth of 23-48 feet below the surface.

adaniels

Hydro Baseline Cumulative Impact Area

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

Map 5 displays undisturbed watersheds near the site as well as proposed disturbed watersheds.

adaniels

Probable Hydrologic Consequences Determination

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

The previous deficiency related to possible impacts due to road salting activities on the county road near the waste rock site was met through additional text added to the proposed MRP. The Permittee clarified that any road salting is done at the direction of the county and is not a coal mine activity.

adaniels

Hydro GroundWater Monitoring Plan

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

The groundwater monitoring baseline data is from 4 wells located throughout the site. Water sampling information from these site is available at least as far back as 1983.

adaniels

Hydro SurfaceWater Monitoring Plan

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

There only surface water at the waste rock site is sourced from direct rainfall and snow melt. Storm-water from outside the site is directed around the waste rock facility. There is no surface water data to collect at the site.

adaniels

Maps Affected Area Boundary Maps

Analysis:

The application meets the minimum requirements of R645-301-521.100 through-521.130 by updating all the relevant maps for the entire area shown on the mine plan. Maps 4A and 5A were updated to include the expanded footprint of the waste rock site. References to maps and appendices were updated in section 536.100 to include the additional waste rock volume calculations.

cparker

Maps Cultural Resource

Analysis:

The cultural resource survey performed and reported by Senco-Phenix contains confidential maps of archeological and cultural resource sites.

lreinhart

Maps Existing Structures and Facilities

Analysis:

The application meets the minimum requirements of R645-301-521.120 which require a map clearly showing the location of all building in and within a1000 ft of the proposed permit area, along with identifying the current use of said building. Text was added with section 112 detailing the requirements of R645-301-521.100 that no buildings are located in and within 300 feet of the refuse pile. No surface or subsurface features are within, passing through or passing over the refuse pile area.

cparker

Maps Existing Surface Configuration

Analysis:

The application meets the minimum requirements of R645-301-521.150 as it includes no changes to the drawing labeled Site Plan, which details the existing surface prior to any waste placement at the site. The application included the existing surface contours as background surface in the existing Map 2 and in the updated Maps 2A through 8B in plan and profile views respectively. Text within Chapter 5 Section 521.100 details that the surrounding site has elevation ranging from 7,600 to 8,200 ft. The final reclamation surface of the refuse pile will be 7,850 to 8,000 which will blend in with the surrounding area.

cparker

Maps Permit Area Boundary

Analysis:

The application meets the minimum requirements of R645-301-521.140 as all relevant maps were updated within the application to detail the new permit boundary, lease boundary, and adjacent areas to the current mine plan. Map 1 was updated with surrounding surface ownerships within the application. The Permit boundary for the waste rock site remains within land owned by Canyon Fuel where the Permittee has legal right to enter and conduct mining related activities.

cparker

Maps Subsurface Water Resources

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

Map 2 displays groundwater monitoring well locations. Depth to water information is described in the MRP and is available through the Division's electronic water monitoring database.

adaniels

Maps Surface and Subsurface Manmade Features

Analysis:

The application meets the minimum requirement of R645-301-521.122 as all drawings show the existing surface and subsurface man made features within, passing through, or passing over the permit area. R645-301-521.120 through-521.125 requires maps to clearly show existing surface and subsurface facilities. The Country road that surrounds the waste rock site is shown all relevant maps as well as culverts associated with the road. There are no other manmade features at or below the surface of the waste rock site.

cparker

Maps Surface and Subsurface Ownershiip

Analysis:

The application meets the minimum requirements of R645-301-521.130 which requires landowners, right of entry, and public interest maps. The application includes updated text in section 112 detailing that the legal and equitable owner of the surface property affected by the waste rock expansion are owned by Canyon Fuel company, LLC. Chapter one details the contiguous owners that border the waste rock site as private and USFS land. Plate 5-6 and Map 1 detail the waste rock site ownership information.

cparker

Maps Surface Water Resource

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

Map 5 displays undisturbed watersheds near the site as well as proposed disturbed watersheds.

adaniels

Maps Vegetation Reference Area

Analysis:

The Vegetation & Sensitive Species of the Proposed Expansion at the Waste Rock Site report contains a vegetation map indicating plant communities, reference points, and sampling locations.

lreinhart

Maps Well

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

Map 2 displays groundwater monitoring well locations.

adaniels

Operation Plan

Mining Operations and Facilities

Analysis:

The application meets the minimum requirements of R645-301-523 and -526 by including
the addition of text to Chapter 1 Section 111, Chapter 5 Section 525, and Chapter 6 Section 624 detailing that no underground mining will or has occurred at the waste rock disposal site. Text within Chapter 5 section 523 was updated to reflect that that equipment will vary according to the quantity of waste to be process, hauled, and compacted at the site.

The application does not meet the minimum requirements of R645-301-528 due to lacking a narrative explaining the construction, modification, use, maintenance of the proposed Coal Waste Rock Disposal keying into the existing Waste Rock pile specifically:
• Maps 2A through 2E do not show the footprint of the corresponding Topsoil/subsoil pile as each phase proceeds. The only footprint that is displayed is the final configuration of the topsoil/subsoil pile on Map 2F. The Permittee will show or detail the topsoi/subsoil pile size as it will exist within the maximum disturbance at any given point of each phase to match the volumes shown in the tables on the top left of each corresponding map. See Figure 1 for example of minimum volume information that could be shown on each corresponding phase map to avoid misinformation. (Three phases text are shown on the single map just as an example.)
• The application does not detail how the various sequential phases of the waste rock pile will be tied into the existing waste rock pile in the narrative or on Maps 2A through 2E. Maps 2A through 2E, as shown, detail a channel between the existing and proposed waste rock piles as the topography abruptly ends before tying into the corresponding elevation on the existing waste rock pile. Based on the cross section detailed in Map 3A through 3C, the Division believes this is a simple error in the drawings representation of phase areas and the volumes shown on the maps account for the missing void shown on Maps 2A through 2E. The Permittee will amend Maps 2A through 2E to show the proposed operational map tying into existing contours on all sides, as shown on the condensed map on Figure 1 attached.
• Map 4A through 5E shows the approximate footprint area of each phase of the waste rock pile construction, however, they do not detail the area to be worked in the corresponding existing waste rock pile to tie the contours together to achieve a final surface as represented in Map 8. Maps 4A through 5E will be edited to show the complete footprint of where waste rock will be placed including in the proposed waste rock pile and over the existing waste rock pile. See Figure 1 for an approximation of contours.

The majority of text meets the minimum requirements of R645-301-528 as Chapter 5 Section 528 was updated to include a narrative explaining the basic cycle of how the waste will be conveyed to the site of the Coal Waste Rock Disposal. The application details the general plans and construction of the proposed waste rock pile in Chapter 5 Section 530. The text describes how the waste rock pile site will have the foundation area prepared, stages of construction of the sequential phases 1 through 6 in the proposed waste rock areas and how the previous phase's area will be contemporaneously reclaimed.

Deficiencies Details:

The application does not meet the minimum requirements of R645-301-528 due to lacking a narrative explaining the construction, modification, etc. of the proposed Coal Waste Rock Disposal keying into the existing Waste Rock pile specifically:

• Maps 2A through 2E do not show the footprint of the corresponding Topsoil/subsoil pile as each phase proceeds. The only footprint that is displayed is the final configuration of the topsoil/subsoil pile on Map 2F. The Permittee will show or detail the topsoi/subsoil pile size as it will exist within the maximum disturbance at any given point of each phase to match the volumes shown in the tables on the top left of each corresponding map. See Figure 1 for example of minimum volume information that could be shown on each corresponding phase map to avoid misinformation. (Three phases text are shown on the single map just as an example.)

• The application does not detail how the various sequential phases of the waste rock pile will be tied into the existing waste rock pile in the narrative or on Maps 2A through 2E. Maps 2A through 2E present confusing information as the maps do not show how the proposed waste rock pile will tie into the existing waste rock pile. Maps 2A through 2E, as shown, detail a channel between the existing and proposed waste rock piles as the topography abruptly ends before tying into the corresponding elevation on the existing waste rock pile. Based on the cross section detailed in Map 3A through 3C, the Division believes this is a simple error in the drawings representation of phase areas. The Permittee amend Maps 2A through 2E to show the proposed operational map key into existing contours on all sides.

• Map 4A through 5E shows the approximate footprint area of each phase of the waste rock pile construction, however, the maps do not detail the area to be worked in the corresponding existing waste rock pile to tie the contours together to achieve a final surface as represented in Map 8. Maps 4A through 5E will be edited to show the complete footprint of where waste rock will be placed including in the proposed waste rock pile and over the existing waste rock pile. See Figure 1 for an approximation of contours.

The majority of text meets the minimum requirements of R645-301-528 as Chapter 5 Section 528 was updated to include a narrative explaining the basic cycle of how the waste will be conveyed to the site of the Coal Waste Rock Disposal. The application details the general plans and construction of the proposed waste rock pile in Chapter 5 Section 530. The text describes how the waste rock pile site will have the foundation area prepared, stages of construction of the sequential phases 1 through 6 in the proposed waste rock areas and how the previous phase's area will be contemporaneously reclaimed.

cparker

Protection Public Places

Analysis:

There are no publicly owned parks or any places listed on the National Register of Historic Places that may be adversely affected by the proposed operation.

Information provided in the application meets the minimum requirements of the regulations R645-301-411

lreinhart

Relocation or Use of Public Roads

Analysis:

The application meets the minimum requirements of R645-301-521.133 due to information detailing measure to be used such as a general mining method that will be employed under or within 100 ft of public roads to protect interest of the public. There is no change to the existing MRP for the Waste Rock Disposal Site that already describes the procedures for hauling on the public road, and procedures in the event of accidental spillage of coal mine waste during haulage in Chapter 5 Section 527.200.

cparker

Air Pollution Control Plan

Analysis:

As noted on page 4-5 in Section 420, "Sufco Mine made a request to the Division of Air Quality (DAQ) in 2011 to revise approval order BAQE-126-88 to increase the waste rock disposal activities from 10,000 tons per year to 40,000 tons per year at the waste rock disposal site. Following a review of the request, DAQ made the determination that the potential to emit (PTE) for each criteria pollutants were less than one ton per year for activities involving 40,000 tons per year, therefore DAQ chose to cancel the Approval Order and issued the small source registration on March 31, 2011."

Information provided in the application meets the minimum requirements of the regulations R645-301-420

lreinhart

Subsidence Control Plan Subsidence

Analysis:

The minimum requirements of R645-301-525.400 are met in the application as the Permittee presented a clear subsidence plan for protected areas. No underground mining will occur beneath the Waste Rock Disposal Site so there will be no effects on the site from coal mining related subsidence.

cparker

Subsidence Control Plan Slides and Other Damage

Analysis:

The application meets the minimum requirements of R645-301-515.100 by including an updated slope stability analysis the Geotechnical Report by Earthfax, located in Appendix II of the application. The report shows the slide analysis, slide geometry inputs/outputs a, and construction recommendations to prevent slope failure. The waste will be placed in one foot lifts, compacted to 95% Standard Proctor with moisture added as need to maintain optimum moisture.

cparker

Fish and Wildlife Protection and Enhancement Plan

Analysis:

The Operation plan outlined in the MRP (Section 3.30) adequately describes measures taken to minimize disturbance and adverse impacts on fish and wildlife.

As noted on page 3-4 in section 322.200, “In 2013 and 2014 the WRDS and immediate adjacent areas were part of the mine's annual raptor survey. The surveys are confidential and part of Sufco's annual reports to the UDOGM. No nests were found within the WRDS (T22S R4E, Section 18) during the surveys.

As noted on page 3-8, Section 333, “Vehicular traffic will not increase with the expansion of the WRDS. Trucks carrying coal have historically used the road surrounding the WRDS at a rate of a truck every three minutes. With a change in coal clients, the number of trucks taking the eastern route (towards Emery, UT) has increase with the construction of the Quitchupah road and the western route (towards Salina, UT) towards the WRDS has decreased…”

Information provided in the plan meets the minimum requirements of R645-301-330

lreinhart

Topsoil and Subsoil

Analysis:

Analysis:
Estimated topsoil and subsoil salvage volumes for each phase of the expansion are provided in the WRDS EXPANSION (2015-2016) TOPSOIL/SUBSOIL SALVAGE Table, found on page 2-4 of the application. These volumes match those provided on Maps 2A - 2F for each of the six phases of expansion. Phase 1 will disturbed 6.14 acres to construct the sediment pond and access road and a small additional waste area to the east of the existing disturbed area. Phase 2 will disturb an additional 4.2 acres for waste rock storage in the ben d of the County road. Phase 3 will disturb an adjacent 4.38 acres just south. Phase 4 will disturb 4.18 acres adjacent. Phase 5 will disturb4.6 acres. Phase 6 will disturb 2.58 acres. The disturbance sequence for waste rock placement is from north to south. In all cases, between 4 and 5 feet of soil will be removed and stockpiled in either the topsoil or subsoil stockpile.

Plates 2A - 2F show a static topsoil/subsoil stockpile capable of holding 144,000 CY. However, the Division does not believe the narrative or the phased drawings support this size of pile. Phase 1 will generate 53,078 CY that will be stored for the life of mine. Phase 2 will generate approximately 26,730 CY, which approximately may be live hauled to Phase 1. So that the topsoil subsoil stockpile will likely only be half the size shown on all Maps 2 (A-E).

Several ambiguities remain as outlined below.

Deficiencies Details:

R645-301-234, Section 234 Topsoil storage must provide a reference to the topsoil location map.

R645-301-234.230, Operation Plan Topsoil Pile Protection
1) The narrative states that topsoil that is expected to be stored for less than two years will not be revegetated. This statement does not meet with the topsoil handling rules. Please remove this statement. All topsoil will be protected through

the establishment of vegetative cover (R645-301-234.230).
2) The narrative describes topsoil stockpile construction at the end of Section 231.100. The statements look like notes appended to The table preceeding. Please call this information out with a heading.
3) The narrative describes separate topsoil and subsoil stockpiles, but the Maps 2A - 2F show a single stockpile. Please differentiate between subsoil and topsoil on the maps.
4) As recent inspection reports have noted, grazing animals have reduced establishment on stockpiles at the waste rock site. The narrative should describe protection of the soil stockpiles from grazing animals, especially during vegetation establishment. 3) Section 234.100 describes seeding the topsoil with the interim mix described in WRDS Chap 3 Section 341.200. This is a mix of grasses and forbes. Since yellow sweet clover has been removed, another nitrogen fixing legume should be added. The Division suggests Timp Utah Sweetvetch (Hedysarum boreale).

R645-301-231.100, Operation Plan
1) Describe the method of monitoring the distinction between topsoil and subsoil. 2) Describe record keeping for soil salvage volumes and its reporting in the annual report. 3) Describe record keeping for soil replacement volumes and its reporting in the annual report.

R645-301-231.400, Operation Plan Narrative
1) Please state whether the stockpile protection plan described in Section 234.100 includes surface roughening of the stockpile slopes during mulch application.
2) Section 234.200 refers to berms around the stockpiles and references Appendix VII (design drawing). This drawing could not be found with the application. Please provide the referenced drawing.
3) The use of mulch on soil stockpiles is now stated in the narrative. However, the amount to be applied per acre should also be stated, in addition to the method of application. Will there be 1 ton/ac incorporated with surface roughening, followed by 1,500 lbs wood fiber applied at seeding with tackifier?

pburton

Vegetation

Analysis:

Section 341.200 describes the seed mixes to be used in final reclamation and interim reclamation. The interim seed mix will be planted to stabilize all areas not actively being utilized on the waste rock pile site. The practice will continue until final reclamation grading begins.

Information provided in the application meets the minimum requirements of the regulations R645-301-330

lreinhart

Road Systems Classification

Analysis:

The application meets the minimum requirements of R645-301-527.100 by classify each road as primary or ancillary. Text within Chapter 5: Section 521.100 and Section 527.100 was updated to detail that no permanent roads are currently anticipated at the site. The text also details that an operation typical road cross section can be seen in Figure 6. The application includes plan view of the roads thought the different phases of construction of the refuse pile in Maps 4 through 5.

cparker

Road System Plans and Drawings

Analysis:

The application meets the minimum requirements of R645-301-534.100 by submitting plans and drawing for each road to be maintained within the permit area. Figure 6 was provided detailing a typical cross section of the primary road. Map series 4 and 5 provided within the application detail the plan view location of the road at various phases of the refuse pile. When the haul roads are no longer need, the roads will be promptly reclaimed and seed with the permanent reclamation seed mix.

cparker

Road System Performance Standards

Analysis:

The application meets the minimum requirements of R645-301-534.150 by submitting plans and drawing for each road to be maintained within the permit area to prevent and control erosion. The application includes text added to Chapter 5 Section 527.200 detailing that the road will be approximately 16 ft wide with a gentle slope towards the Existing Ditch No. 2. The roads throughout the Waste Rock Disposal Site do not cross any natural drainage. The specific designs information for the hydrologic/sediment controls that receive the road drainage are located in Appendix VII.

cparker

Spoil Waste Disposals of Noncoal Mine Wastes

Analysis:

The application meets the minimum standards or R645-301-528.330 due to not changes in the MRP text noncoal mine waste disposal located in the current MRP.

cparker

Spoil Waste Coal Mine Waste

Analysis:

The application meets the minimum standards or R645-301-528.320 by stating that coal mine underground development waste resulting in mining activities at the Sufco Mine will be disposed of at the refuse pile in a stable manor and compacted as described in section 531 of the MRP. Section 536 was updated to reflect the proposed waste rock pile and how at the completion of Lift 5, the final lift of the existing waste rock pile, the base of the proposed waste rock pile will be surveyed and constructed. The approximate volumes of waste to be placed in each lift are shown on Maps 2A through 2F. The volume of waste placed within each year will be submitted to the Division annual in the Sufco Annual Reports. This section also details the QA/QC procedures gathered such as Photo documentation of clearing and grubbing, proof of lift thickness testing, compaction results for each phased area and quarterly compaction tests of waste placed within in the quarter.

cparker

Spoil Waste Impounding Structures

Analysis:

The application meets the minimum standards or R645-301-533 by supplying the Earthfax geotechnical report of the embankment stability and construction standards. The existing pond will remain in place until Phase 6 of the waste rock pile construction. The new pond will be constructed in Phase 1 to account for the additional 43.6 acres of disturbance for the expanded waste rock pile prior to the increases disturbance area. All ponds will be reclaimed at final reclamation of the waste rock site, as shown on Map 8.

cparker

Hydrologic Ground Water Monitoring

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

The previous deficiency under task ID 4809 was address by adding text to page 7-13 state that monitoring well casings will be extended as waste is placed so that monitoring can continue to take place throughout the life of the waste rock site.

adaniels

Hydro Surface Water Monitoring

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

The previous deficiency identified in task ID 4809 was address by adding a statement on page 7-14 that if the proposed total containment sediment pond were ever to discharge, the discharge would be sampled for Total Iron, TDS, TSS, pH and flow.

Hydrologic Diversion General

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

The previous deficiency identified in task ID 4809 was address by adding a table to page 7-30 detailing the expected life and timing of the diversion ditches.

Diversion ditch DD-1 will be in operation throughout the entire waste rock expansion. DD-2 will be removed after DD-3 is constructed. DD-3 will be removed after DD-4 is constructed. This will continue with ditches DD-4 through DD-9. DD-10 will be constructed once drainage is needed to be routed to the proposed sediment pond and will remain in place throughout the operation of the waste rock site.

These ditches are shown on map 5A.

adaniels

Hydrologic Impoundments

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

The previous deficiency identified in task ID 4809 was address by adding a commitment on page 7-29 that a marker will be placed in the pond that will designate the 60% sediment clean-out level.

adaniels

Support Facilites and Utility Installations

Analysis:

The application meets the minimum requirements of R645-301-521.180 and -526 the require the description, plans, and drawing for each support facility to be constructed, used, or maintained within the proposed permit area. A small portion of the pad northwest of the waste rock pile will be used to store snow from the Sufco mine during winter operations.

cparker

Signs and Markers

Analysis:

The application meets the minimum requirements of R645-301-521.200 by the general discussion of signs updated within Chapter 5 Section 521.200. All pertinent mine boundary, perimeter markers, buffer zone markers, and topsoil marks will be maintained throughout the Waste Rock Disposal Site.

cparker

Maps Affected Area

Analysis:

The application does not meet the minimum requirements of R645-301-521.100 through-521.130 by providing updated text and maps detailing the operational contours and grading plan for each phase of construction of the expanded waste rock site, specifically:

• Maps 2A through 2E fail to show grading of the operational surface tying into the existing ground. The Permittee will show the total area were waste rock will be place to achieve the final operational surface shown on Map 2F and Map 8 with cover placed.

• Maps 4A through 4E also fail to show the full extent of the area where waste rock is to be place if the final grade is to be achieved as show in Map 8. The Permittee will edit the shaded areas shown on Map 4A through 4E to cover the entire area

affected as requested in Maps 2A through 2E.
See 521 Operations for further details.

Deficiencies Details:

The application does not meet the minimum requirements of R645-301-521.100 through-521.130 by providing updated text and maps detailing the operational contours and grading plan for each phase of construction of the expanded waste rock site, specifically:

• Maps 2A through 2E fail to show grading of the operational surface tying into the existing ground. The Permittee will show the total area were waste rock will be place to achieve the final operational surface shown on Map 2F and Map 8 with cover placed.

• Maps 4A through 4E also fail to show the full extent of the area where waste rock is to be place if the final grade is to be achieved as show in Map 8. The Permittee will edit the shaded areas shown on Map 4A through 4E to cover the entire area affected as requested in Maps 2A through 2E.
See 521 Operations for further details.

cparker

Reclamation Plan

General Requirements

Analysis:

The minimum requirements of R645-301-540 are met within the application as an updated narrative was added to the MRP. Chapter 5 Section 542 details how the site will be reclaimed. Section 542.100 states the Permittee's commitment to reclamation at the permanent cessation of coal mining. Section 542.200 details that the existing sediment pond will remain until 2018 and that the new pond, which meets the design requirements for the entirely of the new and old site will remain in place a minimum of two years after the last augmented seeding.

cparker

PostMining Land Use

Analysis:

The postmining land use shall be consistent with premining land use (wildlife habitat and livestock grazing). The proposed reclamation will restore the land and vegetation to as near a natural and productive condition as possible.

Information provided in the application meets the minimum requirements of the regulations R645-301-412

lreinhart

WildLife Protection

Analysis:

The proposed final seed mix provides plant species which will provide sufficient food and cover for the wildlife of the area. Page 3-12 of Section 342 describes enhancement measures to develop terrestrial habitat.

Information provided in the application meets the minimum requirements of the regulations R645-301-333

lreinhart

Approximate Original Contour Restoration

Analysis:

The application meets the minimum requirements by addressing R645-301-533.100 by addressing that the proposed configuration of the site will comply with the post-mining land use and blend into the surrounding area. Sediment control measure will be implemented during and following reclamation activities such as silt fences, berms, straw bales, surface roughening, and re establish the vegetative cover.

cparker

Backfill and Grading General

Analysis:

The minimum requirements of R645-301-553 are not met within the application due to missing information presented in Maps 2A through 2E and Maps 4a through 4E. As detailed previously in section 521 and 542, said maps are missing information of how the proposed operational surface will be tied into the exiting waste rock pile and ground surface. The volume of total waste place is affected by this and is assumed by the Division at already be accounted for in the volumes estimated for the Chapter 8 but just missing from the above specified maps.

The text within Chapter 2, on page 2-4 and 2-5, details the various volumes of sub and top soil to be removed specific to each phase. Phase one soil type one likely contains a typo within the MRP text. Map 2A shows that 3484 CY of topsoil will be removed, while the table within Chapter 2 shows 3184 CY. The Map 2A is likely correct but should be verified that 3484 CY is indeed the volume of topsoil removal in Phase one and the corresponding tables or figures corrected throughout the application.

Deficiencies Details:

The minimum requirements of R645-301-553 are not met within the application due to missing information presented in Maps 2A through 2E and Maps 4a through 4E. As detailed previously in section 521 and 542, said maps are missing information of how the proposed operational surface will be tied into the exiting waste rock pile and ground surface. The volume of total waste place is affected by this and is assumed by the Division at already be accounted for in the volumes estimated for the Chapter 8 but just missing from the above specified maps.

The text within Chapter 2, on page 2-4 and 2-5, details the various volumes of sub and top soil to be removed specific to each phase. Phase one soil type one likely contains a typo within the MRP text. Map 2A shows that 3484 CY of topsoil will be removed, while the table within Chapter 2 shows 3184 CY. The Map 2A is likely correct but should be verified that 3484 CY is indeed the volume of topsoil removal in Phase one and the corresponding tables or figures corrected throughout the application.

cparker

Topsoil and Subsoil

Analysis:

Analysis:
Based upon the area stripped in each of the six phases, the Division has calculated that the waste rock placement will cover approximately 21 acres. The plan describes the stockpile having a 65 ft height (p. 5-29). The pile is relatively level except on its western face where it slopes steeply at an angle of 2h:1v and a run of about 100 ft. . The storage capacity of the pile will be 938,207 CY of refuse (p. 5-29). To cover this size pile with 3 ft of subsoil will require more than 101,640 CY of subsoil (additional is required for the outslope) and 33,880 CY of topsoil (placed at one foot depth).

The plan states in Section 242.100 that 4.34 acres of the site will receive one foot of cover at final reclamation. The plan does not directly state, the remaining area in the waste disposal site to receive greater depths of cover. The plan discusses alternatives to the four feet of cover requirement in Section 242.100, but does not provide the results of a demonstration or chemical or physical analysis of the waste. The plan also describes ripping the first foot of subsoil into the waste to allow good contact and eliminate a compaction layer. This practice will reduce the amount of cover by six inches, theoretically.

Several questions on redistribution and reclamation remain.

Deficiencies Details:

R645-301-121.100, Clear and Concise and R645-301-233.100 Topsoil substitutes and Supplements
In Section 234.100, 240, Section 242.100, Section 541 and 542.100 the term growth medium has been reduced to medium in response to the the Division's comment that there is ample topsoil and subsoil to provide the best available material in the permit area. Where it is used to reference topsoil and subsoil, please replace the word medium with topsoil/subsoil in the plan.

R645-301-242, Soil Redistribution
1) The application implies that less than four feet of cover will be required for final reclamation (Section 242.100 Contemporaneous Reclamation and Soil Thickness). If there is the potential for achieving success with less than four feet of cover, than it would be wise to make that case now, in order to reduce the amount of subsoil cover required to be

salvaged and stockpiled. Otherwise, remove the ambiguity and clearly state that a combined depth of subsoil and topsoil cover equal to four feet will be applied to the waste at final reclamation.
2) Section 242.100 states that one foot of topsoil will be placed n 4.34 acres at the site during final reclamation. Please also state in the text the acreage that will receive 4 ft of cover in each Phase of reclamation.
3) Section 242.200 describes surface ripping of roads and perimeter ditches. this statement should indicate ripping on all operational areas surrounding the waste rock pile prior to soil redistribution, which in these locations will be only one foot deep.

R645-301-251, Soil Performance Standards
Map 8 appears to show a stockpile remaining after reclamation in the location of the operational topsoil/subsoil stockpile. The performance standards require that all topsoil and subsoil be redistributed on the site. There should be no soil remaining in a stockpile with steep slopes at final reclamation.

R645-301-244.100 Stabilization of exposed surface areas
The reader is referred to Chapter 5 for detailed discussion regarding soil protection during and after final reclamation. Chapter 5 is approximately 40 pages long. Please be more specific and provide a plan for stabilization of exposed areas during OPERATIONS.

R645-301-244.200 Suitable Mulch
The reader is referred to Chapter 5 for detailed discussion regarding soil protection during and after final reclamation. Chapter 5 is approximately 40 pages long. Please be more specific and describe the type of mulch, the rate of application, and the method of mulch application to be applied during RECLAMATION. One successful approach has been to apply 1 ton'ac straw with incorporation into the soil, followed by hydroseed and 1,500 lbs/ac wood fiber mulch with tackifier.

pburton

Road System Reclamation

Analysis:

The minimum requirements of R645-301-534 are met within the application as text within Chapter 5 Section 527.100 and Section 537 detail that all roads within the waste rock disposal site will be reclaimed at final reclamation. Chapter 5 Section 542.600 details that all road will be reclaimed when no longer need to for access to the site. The surfacing material will be removed and depending upon the materials condition, or incorporated when the area is ripped, regarded and seeded with the final seed mix.

cparker

Road System Retention

Analysis:

The minimum requirements of R645-301-534 and -552 are met within the application as text in Chapter 5 Section 527.100 states that no roads within the Waste Rock Disposal Site will be retailed at the end of mining. Chapter 5 Section 542.600 details that all road will be reclaimed when no longer need to for access to the site.

cparker

Hydrological Information Reclamation Plan

Analysis:

The information provided is sufficient to meet the requirements of the State of Utah R645-301 Coal Mining Rules.

The previous deficiency identified in task ID 4809 was address by adding a statement on page 7-34 that commits that the sediment pond will be retained until at least two year after the last augmented seeding.

The plan also state that when the monitoring wells are approved by the Division for sealing, that the Division of Water Rights well abandonment rules will be followed.

adaniels

Contemporaneous Reclamation General

Analysis:

The minimum requirements of R645-301-553 of backfill and grading are met within the application. Chapter 5 Section 542.100 details the reclamation timetable for the proposed waste rock disposal site, summarized in a reclamation time table on page 5-33 and 5-34. The pile will be constructed so that the pile will be at final configuration when the disposal of waste is completed. It is anticipated that little regarding will need to be conducted at final reclamation. Map 8 details the final surface configuration with details of the growth medium and revegetation in Chapters 2 and 3.

cparker

Contemporaneous Reclamation General

Analysis:

Page 3-13, Section 352 states, “Reclamation activities prior to final reclamation will, to the extent feasible, be performed contemporaneously with waste rock storage operations. The soil stockpile and phases of the waste rock pile will be contemporaneously reclaimed, once it reaches final configuration. The soil storage area will receive interim seeding following the completion of soil stockpiling. The phases of pile outslope will be covered with soil and seeded with the final vegetation seed mix.

Information provided in the application meets the minimum requirements of the regulations R645-301-352

lreinhart

Contemporaneous Reclamation General

Analysis:

pburton

Revegetation General Requirements

Analysis:

Revegetation is adequately discussed in section 340 (pages 3-8 through 3-19). The final reclamation plan includes a schedule and timetable, appropriate final seed mix, seeding method, maps with sequence and construction of contemporaneous reclamation, and mulching techniques.

Information provided in the application meets the minimum requirements of the regulations R645-301-341.

lreinhart

Cessation of Operations

Analysis:

The minimum requirements of R645-301-515 and -541 are met within the application as there is no change to the existing MRP plan of communication with the appropriate parties in the event of the cessation of operations and final reclamation.

cparker

Maps Affected Area Boundary

Analysis:

The minimum requirements of R645-301-542 are met within the application as an updated final reclamation plan and profile map is provided in Map 8.

cparker

Maps Bonded Area

Analysis:

The minimum requirements of R645-301-800 are meet within the application as the bonded area map was updated.

cparker

Maps Reclamation BackFilling and Grading

Analysis:

The minimum requirements of R645-301-542 are not met within the application as there is conflicting information presented within the MRP text and MRP Maps.

cparker

Maps Reclamation Facilities

Analysis:

The minimum requirements of R645-301-542 are met within the application as there is no change to the existing MRP plan of facilities that will remain post mining operations.

cparker

Maps Reclamation Final Surface Configuration

Analysis:

The minimum requirements of R645-301-542 are met within the application as there the application includes proposed topography and grading lines for each Phase one through six on the corresponding Maps 8 through 8C.

cparker

Maps Reclamation Surface and Subsurface Man Made

Analysis:

The minimum requirements of R645-301-542 are met within the application as the Maps 8 through 8C detail the final grade of the manmade operational waste rock pile and the final reclamation surface.

cparker

Bonding and Insurance General

Analysis:

The application meets the minimum requirements of R645-301-800 as the applicant is current on the bond and insurance standings. The application includes an updated earthwork and revegetation cost sheet to account for additional grading and seeding required at final reclamation of the Waste Rock site.

cparker

Bonding Form of Bond

Analysis:

The application meets the minimum requirements of R645-301-860.100 as the applicant currently maintains a surety bond amount of $3,944,00 which is held by Lexon Insurance Co with a rider held by Ironshore Indemnity Inc.

cparker

Bonding Determination of Amount

Analysis:

The application meets the minimum requirements of R645-301-830.140 as the Permittee submitted detailed bond information in regards to the application.

The earthwork and revegetation cost sheets were updated to reflect the additional reclamation costs associated with the

expanded waste rock site for Phase 1 to Phase 3. The Waste Rock Earthwork sheet was update to reflect the addition acres requiring grading. The sheet includes Phase 1 through Phase 3 of the waste rock site for an additional 43,895 cubic yards required. The revegetation sheet for ripping, seeding, mulching and tackifer was updated to reflect the new total disturbance acres up to Phase 3 of the waste rock site of 23.733 acres.

The application includes a minor error in the Total cost sheet. The Permittee only needs to escalate the bond at the time of the midterm. The total bond includes only the updated direct and indirect costs, $3,995,000 which is still within five percent of the current bond in process of $3,944,000.

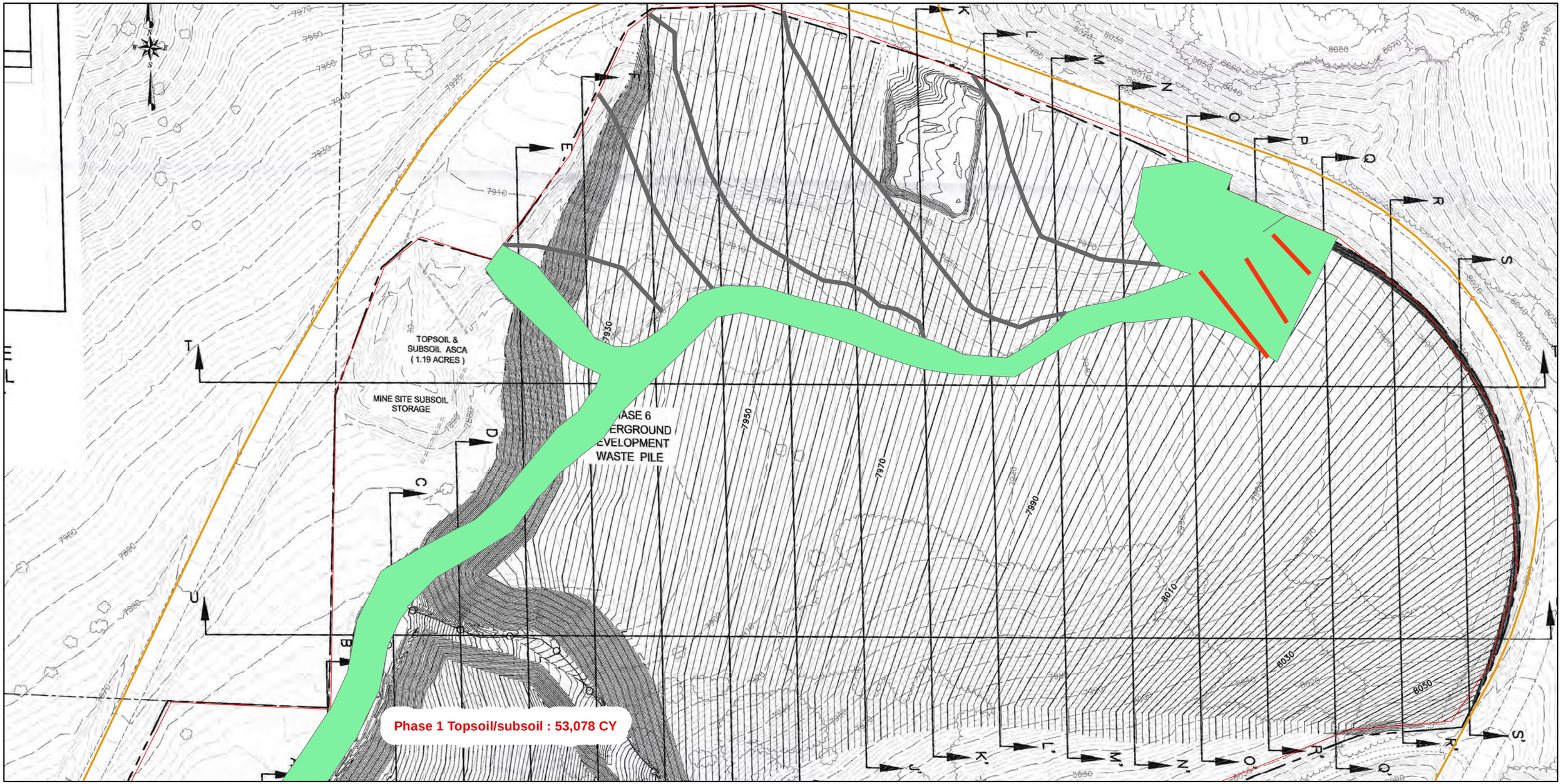
cparker

Bonding Terms and Conditions Liability Insurance

Analysis:

The application meets the minimum requirements of R645-301-850 as the applicant currently holds liability insurance through National Union Fire Ins Co, effective until 2/1/16. The insurance includes the required Marsh from, explosives and claims made per occurrence.

cparker



Legend

0 70 140 280 420 560 Feet

- Reclamation Contours Phase 1

ID

- Phase 1
- Original WRDS Reclamation contours
- Waste Rock Site Permit Boundary
- Utah Roads

NOTES

1. MRP FIGURES ARE DITIGIZED BY DIVISION STAFF, NOT INTENDED FOR INSPECTION USE

REFERENCE

PROJECTION: NAVD 88 (NORTH AMERICAN VERTICAL DATUM)
COMPUTED USING GEIOD12B, UTM ZONE 12

N

CLIENT
SUFCO MINE
CANYON FUEL COMPANY, LLC

PROJECT
SUFCO MINE
C/041/0002

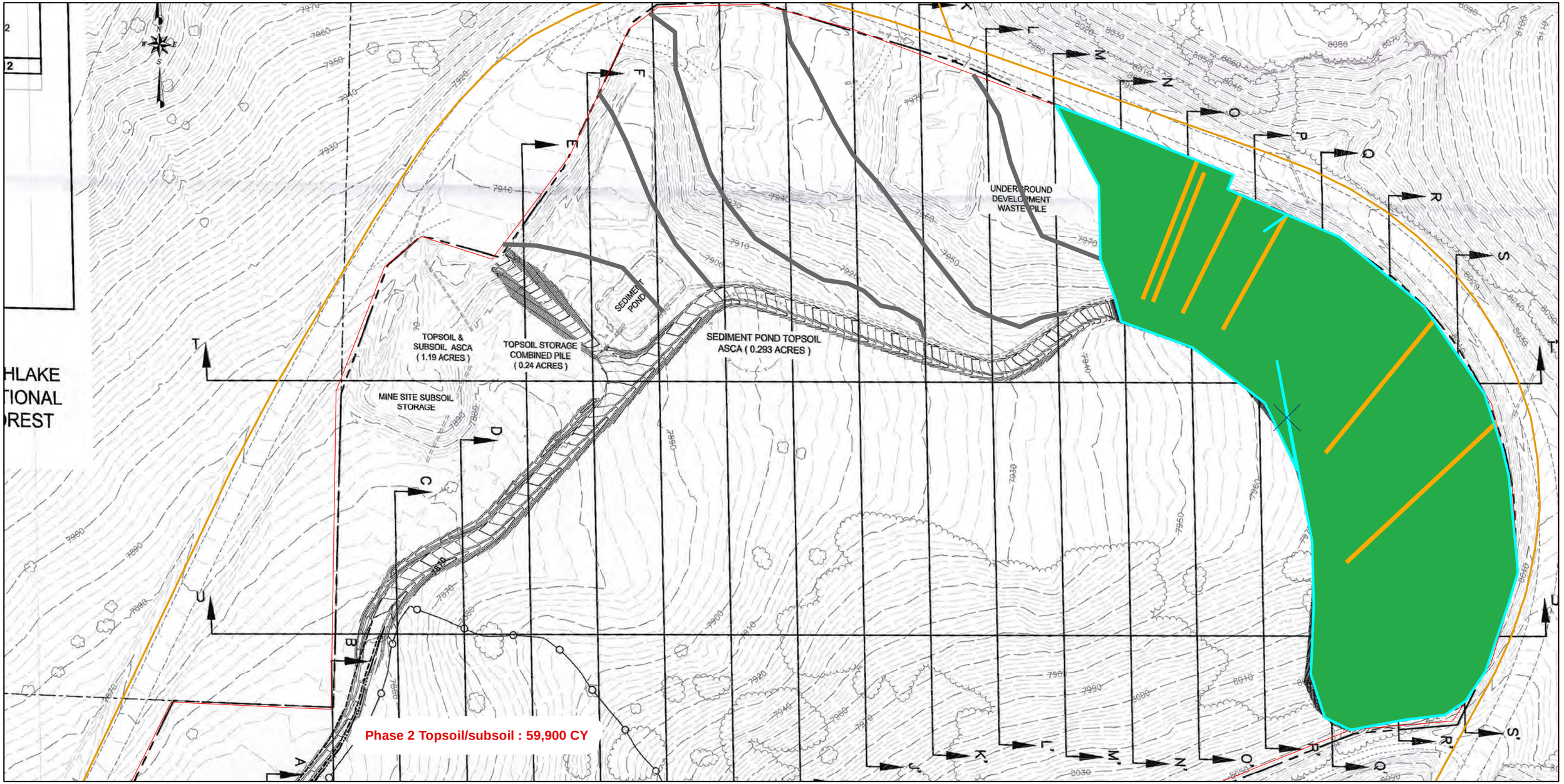
TITLE
WASTE ROCK EXPANSION
TASK #4953

UTAH COAL PROGRAM

YYYY-MM-DD	2015-08-14
PREPARED	CHERYL PARKER
DESIGN	CHERYL PARKER
REVIEW	AMANDA DANIELS
APPROVED	####

PROJECT	MINE	Ref.	FIGURE
Task 4953	Sufco Mine	C/041/0002	**1**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 11X17



Legend

0 70 140 280 420 560 Feet

- Reclamation Contour Phase 2

ID

- Phase 2
- Original WRDS Reclamation contours
- Waste Rock Site Permit Boundary
- Utah Roads

NOTES

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PROJECTION: NAVD 88 (NORTH AMERICAN VERTICAL DATUM)
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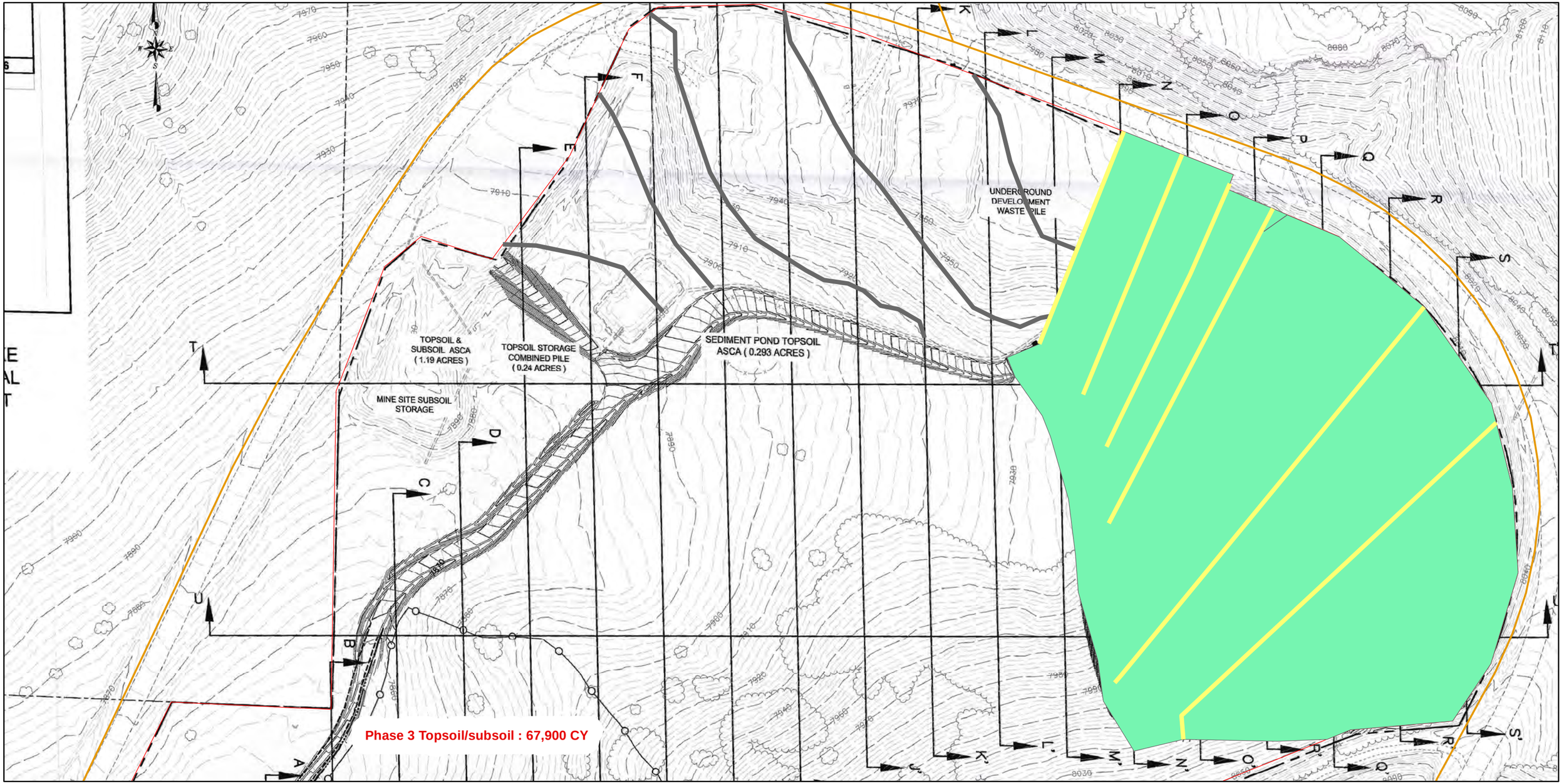

Legend

0 70 140 280 420 560 Feet

- Reclamation Contour Phase 3

ID

- Phase 3
- Original WRDS Reclamation contours
- Waste Rock Site Permit Boundary
- Utah Roads

NOTES

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PROJECTION: NAVD 88 (NORTH AMERICAN VERTICAL DATUM) COMPUTED USING GEIOD12B, UTM ZONE 12

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CANYON FUEL COMPANY, LLC

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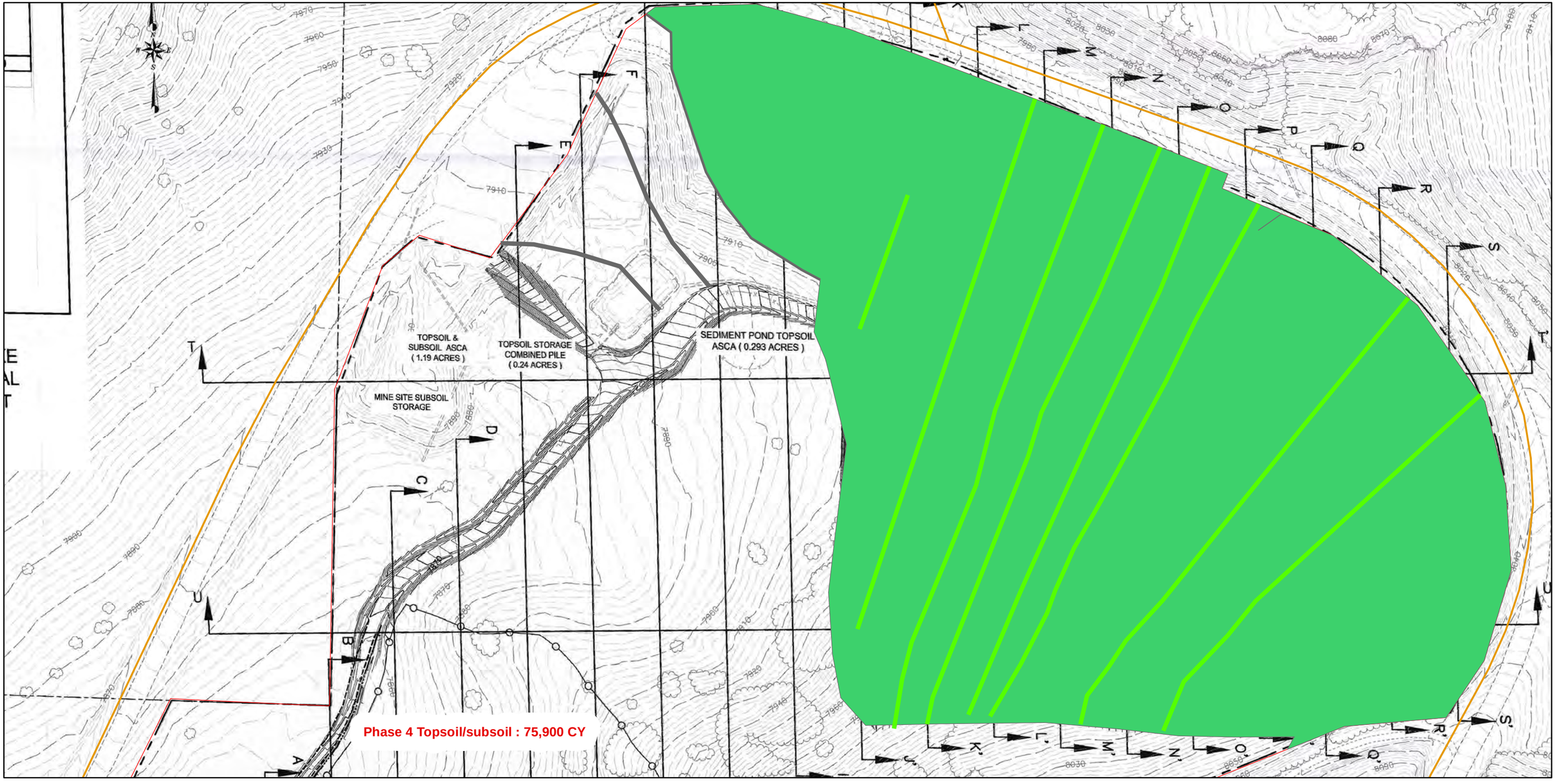

Legend

0 70 140 280 420 560 Feet

- Reclamation Contour Phase 4

ID

- Phase 4
- Original WRDS Reclamation contours
- Waste Rock Site Permit Boundary
- Utah Roads

NOTES

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CANYON FUEL COMPANY, LLC

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C/041/0002

TITLE
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TASK #4953

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UTAH COAL PROGRAM

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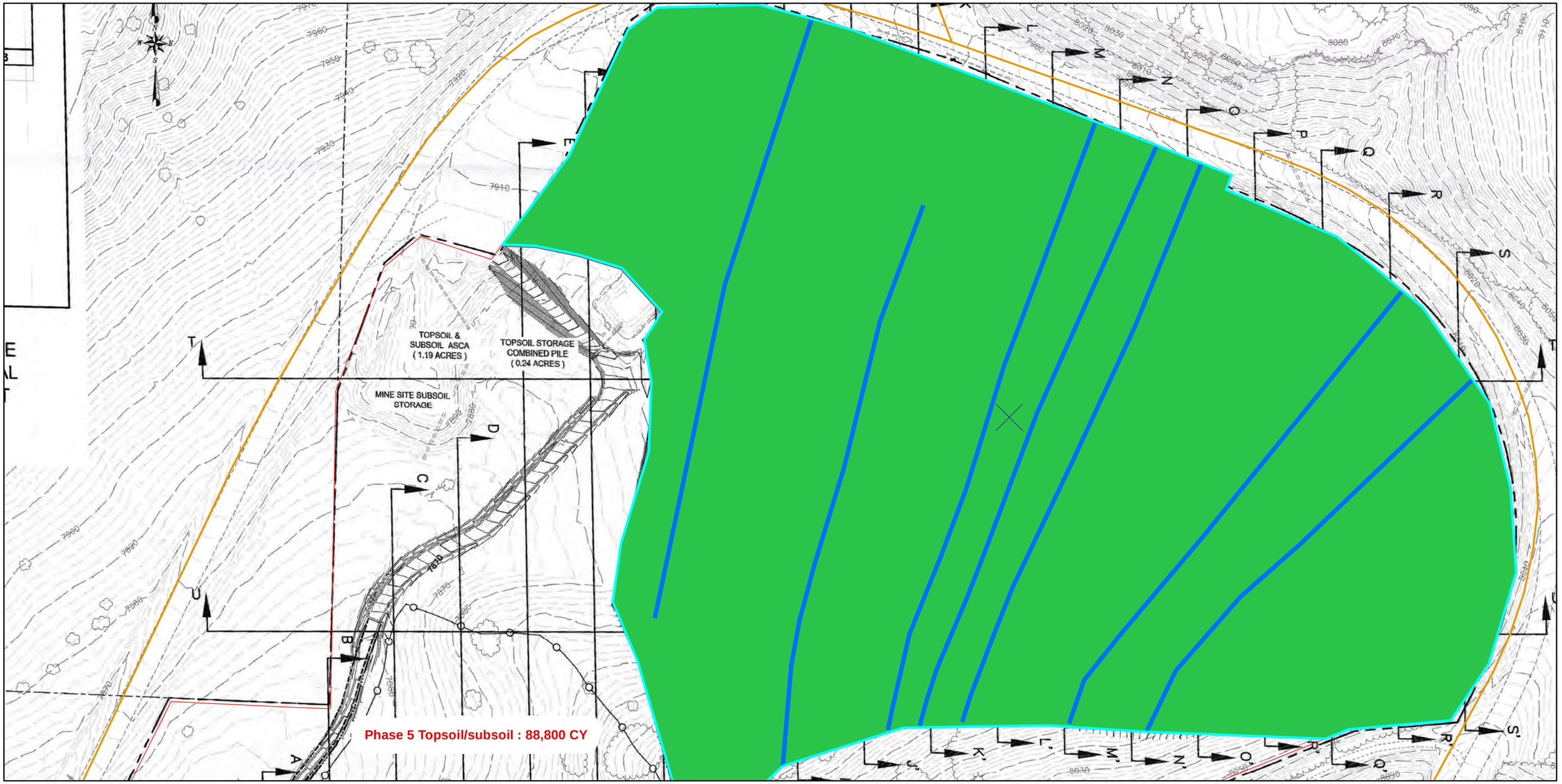

Legend

0 70 140 280 420 560 Feet

- Reclamation Contours Phase 5

ID

- Phase 5
- Original WRDS Reclamation contours
- Waste Rock Site Permit Boundary
- Utah Roads

NOTES

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REFERENCE

PROJECTION: NAVD 88 (NORTH AMERICAN VERTICAL DATUM)
COMPUTED USING GEIOD12B, UTM ZONE 12

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