Canyon Fuel Company, LLC
A Subsidiary of Bowie Resource Holdings, LLC

Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542
(435) 637-6360
Fax (435) 636-2897

C/007/0039
Received 2/21/18
Task #5612

February 20, 2018

Coal Regulatory Program
Division of Oil, Gas and Mining (DOGM)
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84114-5801

Subject: Permit Modification, Dugout Canyon Mine, Canyon Fuel Company, LLC, C/007/039, Carbon County, Utah

Dear Mr. Haddock:

Canyon Fuel Company, LLC herby files application to modify the permit C/007/039. Enclosed please find a copy of the submittal to address the Refuse Pile Amendment Phase II as-built updates.

Should you have any questions please contact Bill King at (435) 636-2898 or David Spillman at (435) 636-2872.

Sincerely,

David G. Spillman, P.E.
Technical Services Manager

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change ☒ New Permit ☐ Renewal ☐ Exploration ☐ Bond Release ☐ Transfer ☐

Permittee: Canyon Fuel Company, LLC
Mine: Dugout Canyon Mine **Permit Number:** C/007/039
Title: Dugout Canyon Mine, Waste Rock Site Expansion As-Built
Description, As-Built drawings and text changes for Dugouts Waste Rock Site Phase II Expansion

Instructions: If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

☐ Yes ☒ No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: _____ ☐ increase ☐ decrease.
☐ Yes ☒ No 2. Is the application submitted as a result of a Division Order? DO# _____
☐ Yes ☒ No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes ☒ No 4. Does the application include operations in hydrologic basins other than as currently approved?
☐ Yes ☒ No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes ☒ No 6. Does the application require or include public notice publication?
☐ Yes ☒ No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☐ Yes ☒ No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes ☒ No 9. Is the application submitted as a result of a Violation? NOV # _____
☐ Yes ☒ No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
☐ Yes ☒ No 11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes ☒ No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
☐ Yes ☒ No 13. Does the application require or include collection and reporting of any baseline information?
☐ Yes ☒ No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
☒ Yes ☐ No 15. Does the application require or include soil removal, storage or placement?
☒ Yes ☐ No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☐ Yes ☒ No 17. Does the application require or include construction, modification, or removal of surface facilities?
☐ Yes ☒ No 18. Does the application require or include water monitoring, sediment or drainage control measures?
☒ Yes ☐ No 19. Does the application require or include certified designs, maps or calculation?
☐ Yes ☒ No 20. Does the application require or include subsidence control or monitoring?
☐ Yes ☒ No 21. Have reclamation costs for bonding been provided?
☐ Yes ☒ No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
☐ Yes ☒ No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach one (1) review copy of the application.

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

David Spillman
Print Name

Sign Name, Position, Date: Engineering Manager 2/20/18

Subscribed and sworn to before me this 20 day of February, 20 18

Notary Public

My commission Expires: Nov. 16, 2018

Attest: State of Utah } ss:
County of Carbon

NOTARY PUBLIC
CARMEN HUMPHREY
Commission No. 680114
Commission Expires
NOVEMBER 16, 2018
STATE OF UTAH

For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining

Form DOGM- C1 (Revised 9/17/2013)

APPLICATION FOR COAL PERMIT PROCESSING
Detailed Schedule Of Changes to the Mining And Reclamation Plan

Permittee: Canyon Fuel Company, LLC
Mine: Dugout Canyon Mine **Permit Number:** C/007/039
Title: Dugout Canyon Mine, Waste Rock Site Expansion As-Built

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
☒ Add	☐ Replace	☐ Remove	Dugout M&RP, Refuse Pile Amendment, Chapter 2, RA Attachment 2-1, EIS Topsoil/Subsoil Salvage Verification Document
☐ Add	☒ Replace	☐ Remove	Dugout M&RP, Refuse Pile Amendment, Chapter 7, pg 7-v, pg 7-11, pg 7-12, pg 7-13, pg 7-14, pg 7-19
☒ Add	☐ Replace	☐ Remove	Dugout M&RP, Refuse Pile Amendment, Chapter 7, RA Plate 7-2b
☒ Add	☐ Replace	☐ Remove	Dugout M&RP, Refuse Pile Amendment, Chapter 7, RA Attachment 7-4, add As-built for UC-3
☐ Add	☐ Replace	☐ Remove	
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.	**Received by Oil, Gas & Mining**

Dugout M&RP, Refuse Pile Amendment, RA Attachment 2-1

EIS Topsoil/Subsoil Verification Document (add to back)

Dugout Canyon Mine Permit Number C/007/039

Canyon Fuel Company

Redline Strikeout

Title page for reference only

RA Attachment 2-1

EIS Soil Sampling Projects

Report - September 25, 2017

Report - August 14, 2017

Report - January 16, 2018

Environmental Industrial Services
Environmental & Engineering Consulting
31 North Main Street * Helper, Utah 84526
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September 25, 2017

To: William King
Mining Engineer
Canyon Fuel Company
Dugout Canyon Mine
Wellington, Utah

From: Leland Sasser
Soil Scientist
EIS Environmental & Engineering Consulting

Re: Dugout Canyon Mine
Soil Sampling Project, Waste Rock Expansion Area

Soil samples were checked at 6 sites across the expansion area to south of the existing Dugout Refuse

Pile.

Site 1 was on the nearly level soil, 1to 3 percent slopes and was similar to site 2 soil sampled on August 14, 2017. It had topsoil12 inches thick, pH 7.8 and EC of 0.5 or less. The subsoil was strongly calcareous with pH 7.8 to 8.0 and EC of 0.4 to 0.8. It extended to a depth of 6 feet or more. This soil was checked with a soil auger.

Site 2 was dug with a large backhoe on the shoulder slope. The northern end of the pit showed the area had been disturbed and was mostly gravelly material. The southern end of the pit more on the slope was native soil. The topsoil was very gravelly sandy loam, 4 inches thick, pH 7.9 and slightly calcareous. The subsoil was gravelly sandy loam to extremely stony sandy loam or loam to a depth of 48 to 50 inches. It was mostly strongly calcareous, pH 7.9 to

8.4. It has loamy sand and shale layers below the subsoil. This soil is similar to the Strych soil mapped in the Carbon Area Utah Soil Survey map, unit 114 with slopes of 3 to 30 percent.

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Site 3 was on mid-side slope about 20 to 25 percent slopes. The topsoil was 3 inches thick cobbley loam with a pH of 8.1. The subsoil was gravelly loam or parachannery loam or clay loam to 22 to 24 inches. Under the subsoil is weathered shale.

Site 4 is on the upper toe slope to the west of site 3 and on the south west facing area above the wash. This site was dug with the backhoe. The topsoil was cobbley sandy loam 6 inches thick, slight to strongly calcareous with pH 7.9. The subsoil was very stony loam and channery clay loam to very parachanery clay loam to a depth of 42 inches over weathered shale. The subsoil was strongly to violently calcareous, pH 8.0 to 8.6. Depth of shale varied from 3 to 4 feet in the soil pit.

Site 5 on the lower side slope is very similar to Site 3 but was about 19 to 20 inches to shale and lacked carbonate development. It is similar to the Gerst soil map Unit 33 in the Carbon Area Utah Soil Survey. This site is about 100 to 140 feet northwest of marker 504.

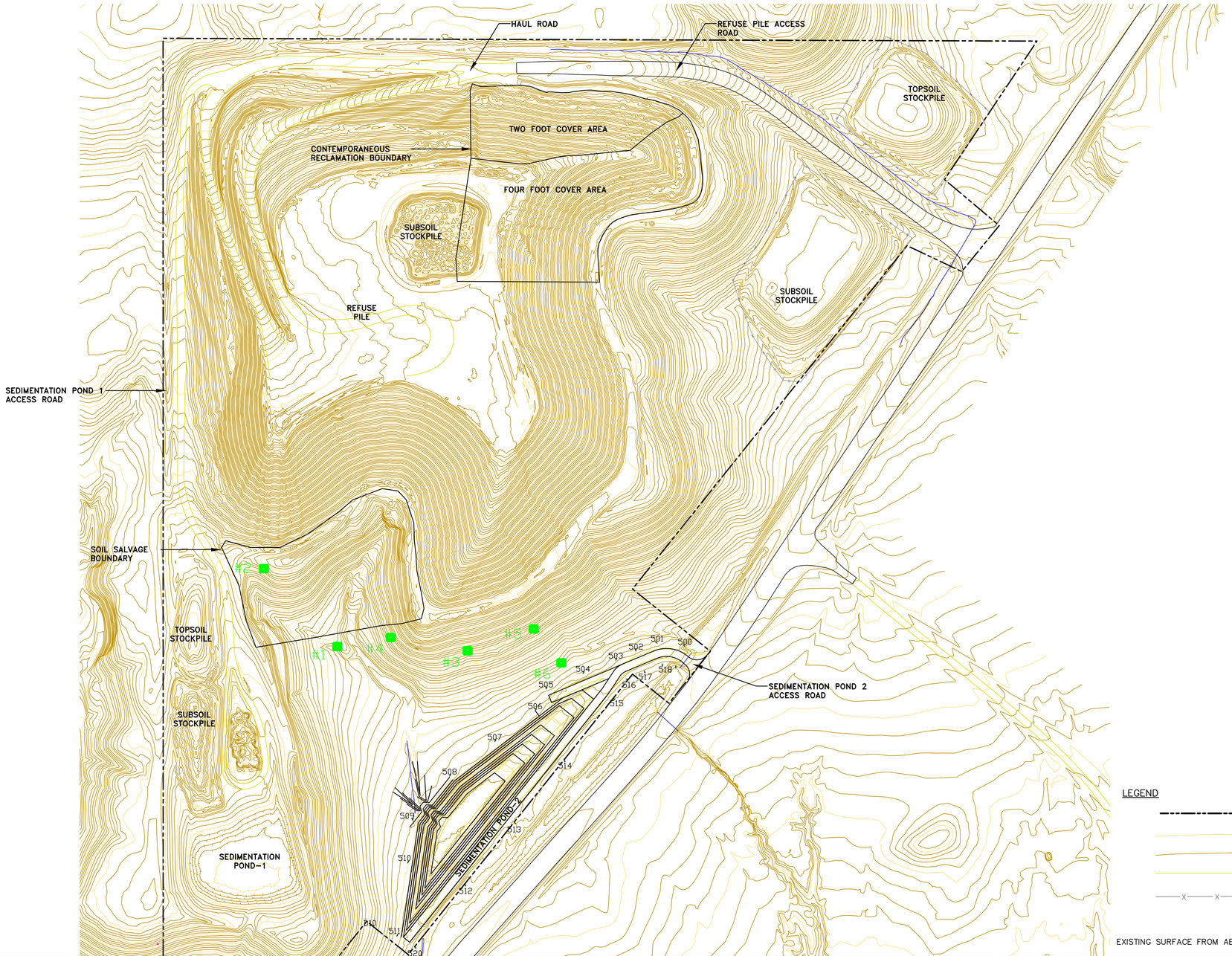
Site 6 about 30 feet northwest of marker 504 was checked with an auger to a depth of about 30 inches. The topsoil was 9 inches thick with pH of 7.6. The subsoil was fine sandy loam or gravelly fine sandy loam pH 7.9 to 8.0.

The area at sites **1** and 6 have 9 to 12 inches of topsoil on soils with slopes of less than 5 percent, and have 5 or more feet of salvageable subsoil. On the upper side slopes the topsoil is cobbley or stony and the subsoil extends to 36 to 50 inches and is gravelly to very stony. The mid and lower side slopes are 20 to 48 inches to shale with topsoil of 2 to 6 inches and the subsoil is loam to clay loam. The pH of these soils are 7.8 to 8.6 and do not have high EC's.

Leland Sasser

Leland Sasser
Soil Scientist

DUGOUT REFUSE PILE
DESIGN



SOIL TEST PIT LOCATIONS 9/25/2017

504 SURVEY REFERENCE POINTS FOR SEDIMENTATION POND #2 CONSTRUCTION

0 160
80
FEET

SEAL:

DATE	No.	REVISIONS

DUGOUT WASTE ROCK SITE PHASE II EXPANSION
SOIL SALVAGE TEST PIT LOCATION MAP

Canyon Fuel Company, LLC
Dugout Canyon Mine

P.O. BOX 1029 WELLINGTON, UTAH 84114 435-637-5360
CAD FILE: RAPhaseIISoilSalvageTestPitMap
DATE: 2/15/17 | CK.BY:DS | REVISION: 0
SCALE: As Shown | DR.BY:BK
DWG. NO.: RA Phase II Soil Salvage Test Pit Map

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August 14, 2017

To: William King
Mining Engineer
Canyon Fuel Company
Dugout Canyon Mine
Wellington, Utah

From: Leland Sasser
Soil Scientist
EIS Environmental & Engineering Consulting

Re: Dugout Canyon Mine
Soil Sampling Project, Waste Rock Expansion Area

Soil samples were checked at five sites across the area to be used as a pond site.

Site 1 was approximately 25 feet south of marker 504. Here only the top soil thickness and upper subsoil were checked to a depth of about 1 foot.

At site 2 which was north northwest of marker 514, a little south of the center of the site a pit was dug to a depth of over 5 feet. The top soil and subsoil were checked to this depth. This site was selected as representative of most of the soils of the area.

Site 3, north of marker 513 a little south of center of the area also had a pit dug to over 5 feet. This site was selected because it had greasewood vegetation and bare soil areas with some halogeton growing on them. Two soil types were noted in this pit. Site 4 between marker 508 and 509 was selected because it had more gravel and a few cables on the surface. It was checked to a depth of about 1 foot.

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Site 5 was near the marker 510 and check to a depth of about 20 inches. Sites 1, 2, 4 and 5 all had similar soil material with site 4 having more rock fragments near the surface. This area had Wyoming big sage, Indian rice and galleta grass vegetation with few shadscale and salt bushes. The top soil was 8 to 12 inches thick with a pH of 7.5 to 7.9 and had an EC of 0.5 or less. It was generally slightly calcareous and fine sandy loam or gravelly fine sandy loam.

The subsoil was strongly or violently calcareous with strong lime coats on the rock fragments and was loam or fine sandy loam with some strata of gravely fine sandy loam or sandy loam. The pH ranged from 7.8 to 8.4 with an EC of 0.4 to 0.8. This soil would be similar to the Hernandez soil mapped in the Carbon Area Utah Soil Survey map unit 51. Site 3 had two soils described in the same pit. The east end of the pit had a fine sandy loam surface about 2 inches thick and a weakly developed subsoil which was loam in the upper part and stratified fine sandy loam and gravelly sandy loam below. The subsoil was strongly calcareous from 7 to 14 inches and in the fine sandy loam strata below and moderately calcareous in the more gravelly strata. This soil is similar to the Haverdad soil mapped in the Carbon Area Utah Soil Survey, map unit 49. The west end of the pit had a weakly developed natric horizon and was under a slick spot with very little vegetation. The topsoil was 3 to 4 inches thick and platy in structure. It had a pH of 8.0 and was fine sandy loam.

The upper subsoil from 3 to 13 inches, the natric horizon was sandy clay loam with a pH of 8.8 to 9.2 and an EC of 4.0 and had platy and strong blocky structure. Below 13 inches it was loam or fine sandy loam with some gravelly strata with few cobbles. The pH was 7.8 to 8.4 with an EC of 0.5 to 1 and was strongly or violently calcareous. This area had a greasewood and galleta grass vegetation making up 60 to 75 percent of this small area, Haverdad soil. The slick spots, bare soil and halogeton making up 25 to 40 percent. This area was about 10 to 15 percent of the pond site.

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Summary

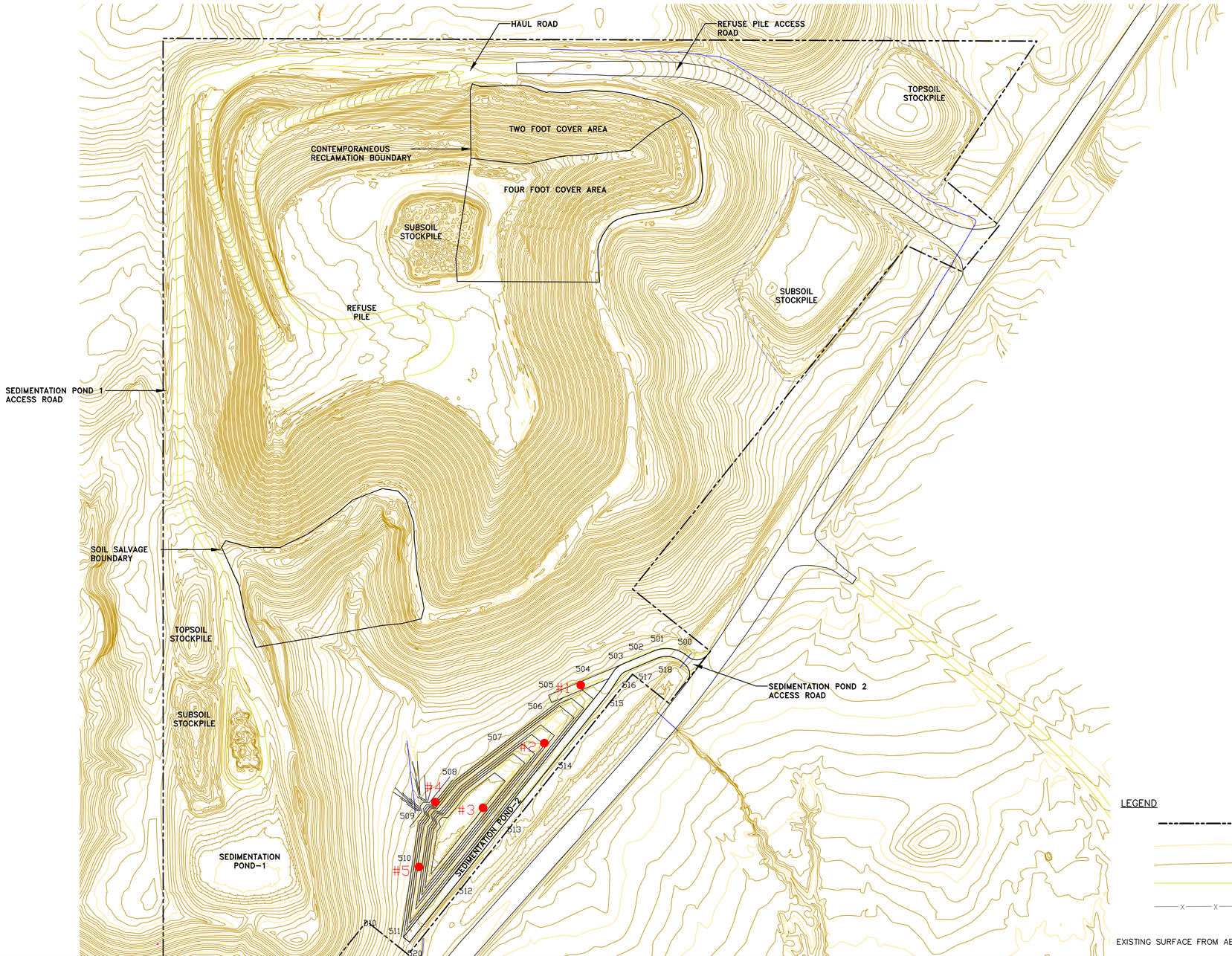
Most of the pond site has good soil for reclamation and appears to be over 80 inches deep to shale or bedrock. The topsoil is generally 8 to 12 inches thick and has low EC with pH of 7.5 to 7.9. The small greasewood area has 3 to 8 inches of fair topsoil. The subsoil is fine sandy loam or loam with gravely strata. It has EC's of 0.4 to 1 and pH of 7.8 to 8.4. The only exception is the subsoil below the few slick spots where the upper subsoil generally 10 inches or less in thickness that has pH's up to about 9.4 and EC's about 4 with higher clay contents.

Leland Sasser

Leland Sasser

Soil Scientist

DUGOUT REFUSE PILE
DESIGN



SOIL TEST PIT LOCATIONS 8/14/2017

504 SURVEY REFERENCE POINTS FOR SEDIMENTATION POND #2 CONSTRUCTION

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80
FEET

SEAL:

DATE	No.	REVISIONS

DUGOUT WASTE ROCK SITE PHASE II EXPANSION
SEDIMENT POND #2 SOIL TEST PIT LOCATION MAP

Canyon Fuel Company, LLC
Dugout Canyon Mine

P.O. BOX 1029 WELLINGTON, UTAH 84114 435-637-5360
CAD FILE: RAPhaseIIPond#2SoilTestMap
DATE: 2/15/2018 | CK.BY:DS
SCALE: As Shown | DR.BY:BK
DWG. NO.: RA Phase II Pond#2 Soil Test Map
REVISION: 0

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January 16, 2018

To: William King
Mining Engineer
Canyon Fuel Company
Dugout Canyon Mine
Wellington, Utah

From: Leland Sasser
Soil Scientist
EIS Environmental & Engineering Consulting

Re: Dugout Canyon Mine
Soil Sampling Project, Waste Rock Expansion Area
Completion Report

The Waste Rock Site was visited today, January 16, 2018, and the cover of the Dugout Refuse Pile on the northeast corner was checked. The north facing side had over 2 feet of cover. The top 6 inches being topsoil, the next foot was subsoil, and the lower 6 to 8 inches being subsoil mixed with refuse. The top and other side-slopes were similar with 6 inches of topsoil and 3.5 feet of subsoil.

The side-slopes were seeded and covered with coconut and Curlex matting. The top was pocked and prepared for seeding.

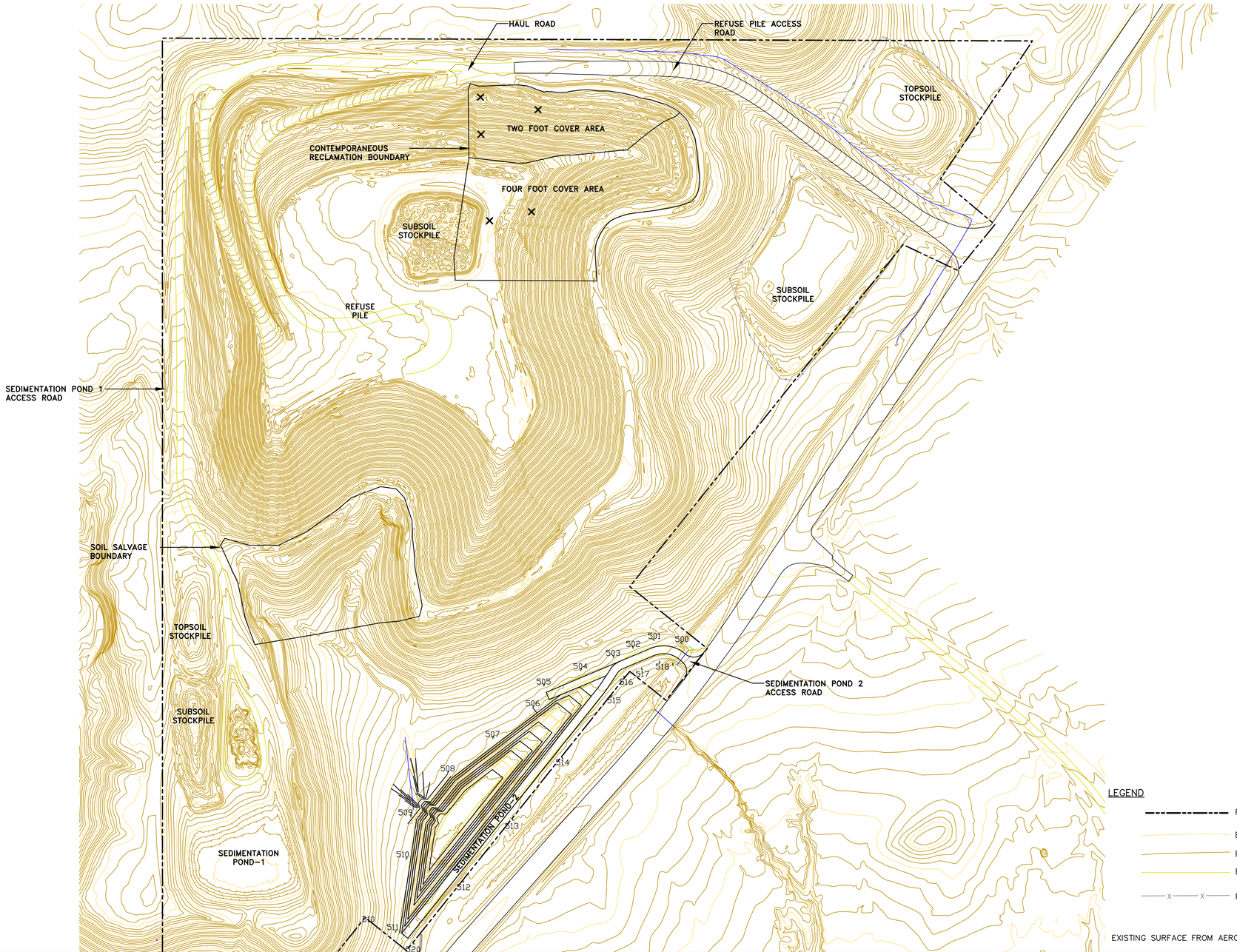
The area where the refuse pile was to be expanded had the topsoil and subsoil removed before expansion. An excellent job was done removing everything that could be removed. Some extra subsoil was obtained and piled on top of the refuse pile to be used in future reclamation.

Leland Sasser

Leland Sasser

Soil Scientist

DUGOUT REFUSE PILE
DESIGN



EXISTING SURFACE FROM AERO-GRAPHICS SEPTEMBER 20, 2017

X CONTEMPORANEOUS RECLAMATION TEST PIT LOCATIONS 1/16/2018

504 SURVEY REFERENCE POINTS FOR SEDIMENTATION POND #2 CONSTRUCTION

0 160
80
FEET

SEAL:

DATE	No.	REVISIONS

DUGOUT WASTE ROCK SITE PHASE II EXPANSION
RECLAMATION SOIL TEST PIT LOCATION MAP

Canyon Fuel Company, LLC
Dugout Canyon Mine

P.O. BOX 1029 WELLINGTON, UTAH 84114 435-637-8360
CAD FILE: RAReclamationSoilTestPitMap
DATE: 2/15/2018 | CK.BY:DS
SCALE: As Shown | DR.BY:BK
DWG. NO.: RA Reclamation Soil Test Pit Map
REVISION: 0

Dugout M&RP, Refuse Pile Amendment, Chapter 7

Pages, 7-v, 7-11, 7-12, 7-13, 7-14, 7-19

Dugout Canyon Mine Permit Number C/007/039

Canyon Fuel Company

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Title page for reference only

LIST OF PLATES

RA Plate 7-1 Drainages, Sediment Control Structures and Sampling Locations
RA Plate 7-2 As-Built Sediment Pond Details
RA Plate 7-3 Reclaimed Drainages and Watersheds
RA Plate 7-1a Drainages, Sediment Control Structures and Sampling Locations, Phase II
RA Plate 7-2a Operational and Reclamation Storm Water Conveyance Details, Phase II
RA Plate 7-2b Waste Rock Sedimentation Pond #2 As-Built Plan and Sections, Phase II
RA Plate 7-3a Operational Sediment Pond Details, Phase II
RA Plate 7-4a Operational Watersheds, Phase II
RA Plate 7-5a Reclamation Watersheds, Phase II

RA Plate 7-1a shows the location of each monitoring station and the watershed boundaries for the area watersheds. RA Plate 7-1a shows the proposed location of the diversion ditches and culverts and sediment ponds associated with the refuse pile area. RA Plate 7-2, RA Plate 7-2b and RA Plate 7-3a presents the design details of the sediment ponds with appropriate cross sections of the ponds and embankments.

731.800 Water Rights and Replacement

No surface or groundwater sources are located within the refuse pile area.

732 Sediment Control Measures

The sediment control measures within the refuse pile area have been designed to prevent additional contributions of sediment to stream flow or to runoff outside the permit area. In addition, they have been designed to meet applicable effluent limitations, and minimize erosion to the extent possible.

The structures to be used for the runoff-control plan for the permit area include disturbed and undisturbed area diversion channels, sedimentation ponds, berms, silt fences, and road diversions and culverts.

Reference RA Attachment 7-3, Addendum A for hydrologic information pertaining to the soil borrow area.

732.100 Siltation Structures

The siltation structures within the permit area are sediment ponds as described in Section 732.200. In addition to the sediment ponds, a berm encircles the topsoil/subsoil stockpiles, providing treatment and total containment of the runoff from the stockpiles (RA Attachment 7-2 and 7-7). Typical cross sections of the ditches, berm and containment area are located in RA Plate 7-2a and RA Attachment 7-4.

732.200 Sedimentation Ponds

There are two sedimentation ponds operating at the refuse pile site. The sedimentation pond topography and cross sections are presented on RA Plate 7-2, RA Plate 7-2b and RA Plate 7-3a. Details regarding sedimentation pond design are presented in Section 742.100 and RA Attachments 7-2 and 7-7. The sedimentation ponds are defined as a Class A pond in accordance with TR-60 (U.S. Soil Conservation Service, 1976). A clean-out marker will be installed in the sediment ponds.

The sedimentation ponds are within the disturbed area boundary and are subject to final reclamation. The areas are included in the calculation of the disturbed area subject to bonding and in the calculation of final reclamation costs.

Compliance Requirements. The sedimentation ponds will be maintained until removal in accordance with the reclamation plan (see Section 540 of this submittal). When the pond is removed, the land will be revegetated in accordance with the reclamation plan defined in Section 540.

MSHA Requirements. MSHA requirements defined in 30 CFR 77.216 are not applicable since the sedimentation ponds will not impound water or sediment to an elevation of 20 feet or more above the upstream toe of the structure. The ponds will have a storage volume of less than 20 acre-feet.

732.300 Diversions

The objective of the runoff control plan is to isolate, to the maximum degree possible, runoff from disturbed areas from that of undisturbed areas. This is accomplished by routing runoff from the undisturbed slope above the refuse pile facilities via diversion berm/ditch UD-1 around the upstream side of the pile (see RA Plate 7-1a). Disturbed area runoff will be collected by diversion ditches and conveyed to the sediment ponds. A brief list of each proposed diversion structure is as follows:

Diversion Ditches:

Undisturbed drainage ditch UD-1 located on the north side of the pile, will collect

runoff from the undisturbed watershed above of the pile. The runoff will be discharge into UC-1.

Disturbed drainage ditch DD-1 is located along the northwest side of the pile and will connect to DD-3.
Disturbed Berm 1 (DB-1) connects to DD-2 along the west side of the pile.
DD-2 is connected to DD-3 along the southwest side of the pile.
DD-3 is connected to DD-5 along the south side of the pile.
DB-2 connects to DD-4 along the south side of the pile.
DD-4 connects to DD-5.
DD-5 connects to Sedimentation Pond 1 at the south side of the pile.
DD-6 along the north side of the pile connects to DS-1.
DS-1 located north of the pile connects to DD-8 northeast of the pile.
DD-7 collects runoff from the upper haul, along the northwest side of the pile, and connect to DD-8.
DD-8 connects to DD-9, located along the east side of the pile.
DS-2 collects runoff from the east half of the top of the pile and connects to DD-10 along the southeast side of the pile.
DD-10 connects to DD-11.
DD-9 connects to DD-11, located along the southeast side of the pile.
DD-11 directs runoff to Sedimentation Pond 2.

Diversions Swales:

Disturbed swale DS-1 will convey runoff from DD-6 to DD-8 over the Upper Haul Road.
DS-2 conveys runoff from the east half of the top of the pile to DD-10.

Diversion Culverts:

Culvert UC-1 will convey runoff from the county road borrow ditch under the pile access road. This runoff will ultimately discharge to the natural drainage under the county road.

Culvert UC-2 will be constructed only if the "topsoil stockpile" is relocated adjacent to the Dugout Canyon Road. UC-2 will convey water from the undisturbed drainage above the disturbed area, under the stockpile to the undisturbed drainage below the site (RA Table 7-4 and RA Attachment 7-7). Detailed diversion design is presented in Section 742.

Culvert UC-3 will convey runoff from the undisturbed area east of the refuse pile and from UC-1 under the access road for Sedimentation Pond 2.

732.400 Road Drainage

No permanent roads are to be built within the refuse pile area. Road drainage facilities will include diversion ditches and culverts. The road drainage diversion ditches and culverts for the refuse pile area are included in the list of diversions presented in Section 732.300 above. Additional road drainage design information is presented in Section 742.

All road drainage diversions will be maintained and repaired as needed. The culvert to be installed in the county road borrow ditch within the disturbed area is discussed in Section 742.300.

733 Impoundments

733.100 General Plans

There are two sedimentation ponds operating at the refuse pile facility as described in Section 732.200. The sedimentation ponds are located in the southern portion of the disturbed area. The sedimentation pond topography and cross sections are presented on RA Plate 7-2, RA Plate 7-2b and RA Plate 7-3a. Detailed design information is presented in RA Attachments 7-2 and 7-7.

Certification. All maps and cross sections of the sedimentation ponds have been prepared by or under the direction of, and certified by a qualified, registered, professional engineer.

Maps and Cross Sections. The topography and cross sections for the sedimentation ponds are provided on RA Plate 7-2, RA Plate 7-2b and Ra plate 7-3a.

The sedimentation ponds were designed to fully contain the sediment generated within the disturbed area. As the Phase II expansion continues, more and more runoff will be directed away from Sediment Pond 1, towards Sediment Pond 2. Ultimately, the design parameters for Sedimentation Pond 1 can be reevaluated. The originally designed sediment storage capacity of 0.67 acre-feet can be increased to 1.81 acre-feet, and the elevation of the maximum sediment level can be increased from 5,897.55 feet to 5,901.0 feet. The 60% sediment clean-out volume of 0.40 acre-feet at an elevation of 5,896.5 feet will also increase to 1.81 acre-feet at an elevation of 5,901.0 feet. Sedimentation Pond 2 has been designed with a sediment storage capacity of 0.68 acre-feet. The elevation of the maximum sediment level is ~~5,862.52~~ 5,862.67feet. The 60% sediment clean-out volume of 0.41 acre-feet is an elevation of ~~5,861.70~~ 5,861.45feet.

Sediment Removal. Sediment removal from the sedimentation ponds will occur when the sediment level reaches the 60% clean-out level. The sediment will be disposed in the refuse pile as discussed in Section 526.100 and 732.200 of this M&RP.

Design Event. As these are total containment structures, the sedimentation ponds have been designed to fully contain runoff resulting from the 100-year, 24-hour precipitation event instead of the 10-year, 24-hour event. This will provide a significant additional storage volume.

Detention Time. As these structures are planned to be total containment ponds, no decant structures will be part of the pond design. If collected water is to be removed from the structures, it would be pumped. Any such pumping activities will comply with the sites approved UPDES permit.

Runoff Volume. The curve numbers used to determine the runoff volumes were based on professional judgment and soil and vegetation information presented in Chapters 2 and 3 of this submittal. The curve number for the pond area was assumed to be 98.

The storm runoff volume to the Phase II Sedimentation Pond 1 resulting from the 100-year, 24-hour storm event was calculated to be 0.62 acre-feet. The combined volume of the runoff from the 100-year, 24-hour storm event and the maximum sediment storage is 2.43 ac-ft. The storm runoff

Dugout M&RP, Refuse Pile Amendment, Chapter 7

RA Plate 7-2b

Dugout Canyon Mine Permit Number C/007/039

Canyon Fuel Company

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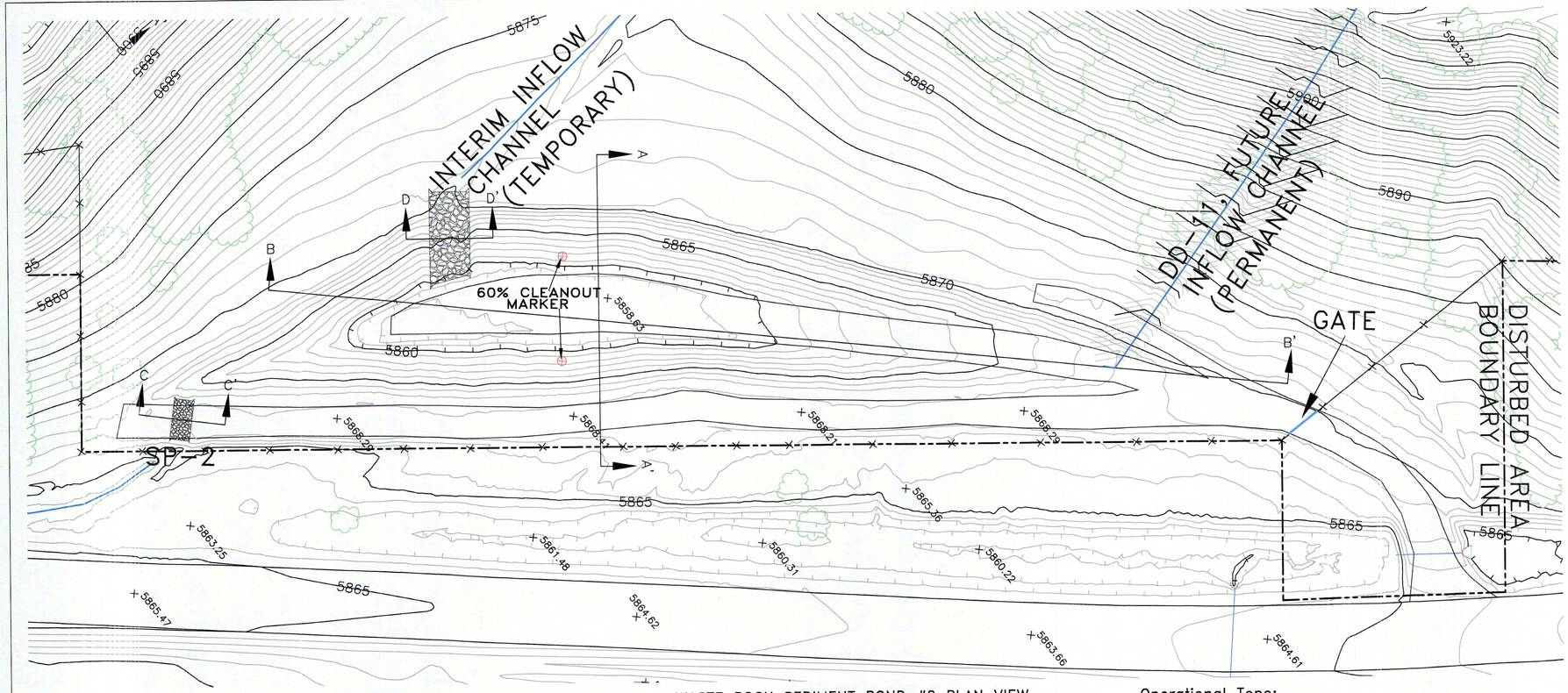
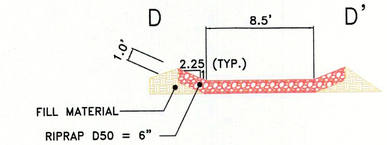


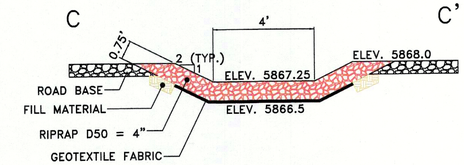
LEGEND
DISTURBED AREA

WASTE ROCK SEDIMENT POND #2 PLAN VIEW
SCALE 1:30

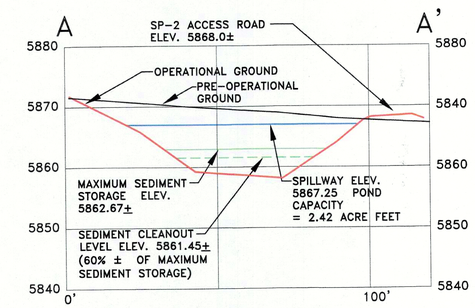
Operational Topo:
Aero-Graphics, Inc,
Survey Dated September 20, 2017



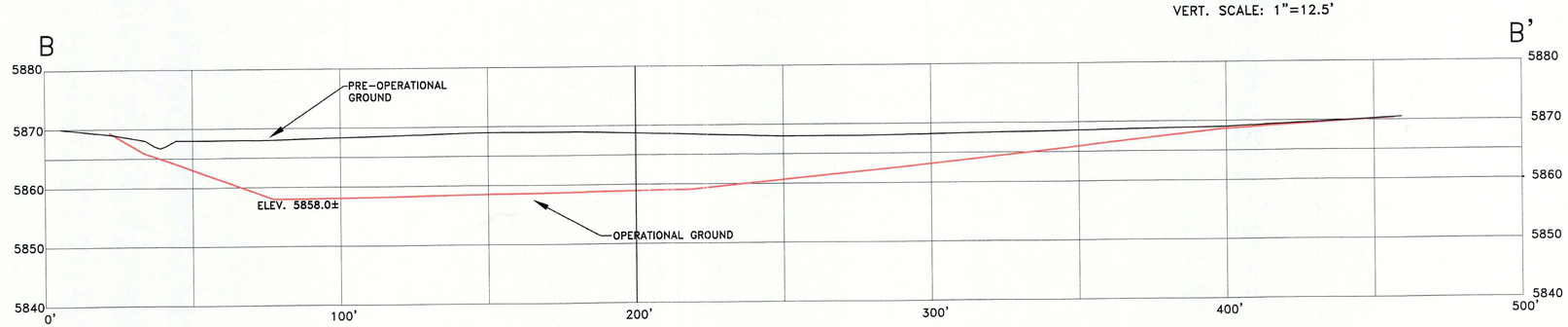
INTERIM INFLOW CHANNEL (TEMPORARY)
CROSS SECTION D–D' (Typical/Approximate)
SCALE: 1"=6'



SP–2 SPILLWAY CROSS SECTION C–C' (Typical/Approximate)
SCALE: 1"=3'



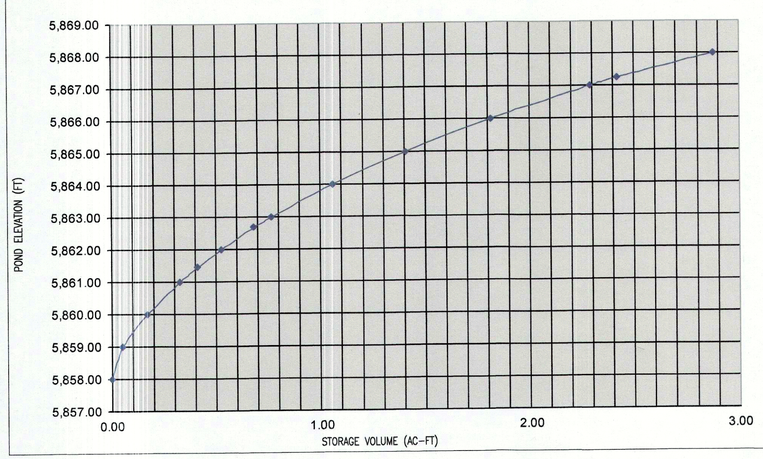
SEDIMENTATION POND–2 CROSS SECTION A–A' (Typical/Approximate)
HORZ. SCALE: 1"=25'
VERT. SCALE: 1"=12.5'



SEDIMENTATION POND–2 CROSS SECTION B–B' (Typical/Approximate)
HORZ. SCALE: 1"=25'
VERT. SCALE: 1"=12.5'

WASTE ROCK SEDIMENT POND #2
STAGE STORAGE CURVE

Elevation	Area	Acres	Interval	Average	Acre-Feet	Cumulative	Elevation	Comments
5,858.00	360.00	0.008				0.00	5,858.00	Bottom of Pond
5,859.00	4143.00	0.095	1	0.052	0.05	0.05	5,859.00	
5,860.00	6073.00	0.139	1	0.117	0.12	0.17	5,860.00	
5,861.00	7659.00	0.176	1	0.158	0.16	0.33	5,861.00	
5,861.45	8464.74	0.194	0.45	0.185	0.08	0.41	5,861.45	60% Sediment Volume
5,862.00	9450.00	0.217	0.55	0.206	0.11	0.52	5,862.00	
5,862.67	10864.70	0.249	0.67	0.233	0.16	0.68	5,862.67	Maximum Sediment Volume
5,863.00	11551.00	0.265	0.33	0.257	0.08	0.76	5,863.00	
5,864.00	13892.00	0.319	1	0.292	0.29	1.06	5,864.00	
5,865.00	16450.00	0.378	1	0.348	0.35	1.40	5,865.00	
5,866.00	19211.00	0.441	1	0.409	0.41	1.81	5,866.00	
5,867.00	22220.00	0.510	1	0.476	0.48	2.29	5,867.00	
5,867.25	22985.20	0.528	0.25	0.519	0.13	2.42	5,867.25	Crest of Spillway
5,868.00	30146.00	0.692	0.75	0.610	0.46	2.88	5,868.00	



LICENSED PROFESSIONAL ENGINEER
No. 313965-2202
JEFFREY S. ERICKSON
12-15-17
STATE OF UTAH

REVISIONS OR UP-DATES			DATE:	12/13/17
NO.	DATE	BY	DESIGNED BY:	
1			DRAWN BY:	JSE
2			CHECKED BY:	BK/DGS
3				
			SCALE:	AS SHOWN
FILENAME:	RA PLATE 7-2b.DWG			

Canyon Fuel Company, LLC
Dugout Canyon Mine

WASTE ROCK SEDIMENT POND #2
AS-BUILT PLAN AND SECTIONS

P.O BOX 1029
WELLINGTON, UTAH 84542

DRAWING OR MAP NUMBER RA PLATE 7-2b

Dugout M&RP, Refuse Pile Amendment, RA Attachment 7-4

As-Built UC-3 (add to back of attachment)

Dugout Canyon Mine Permit Number C/007/039

Canyon Fuel Company

Redline Strikeout

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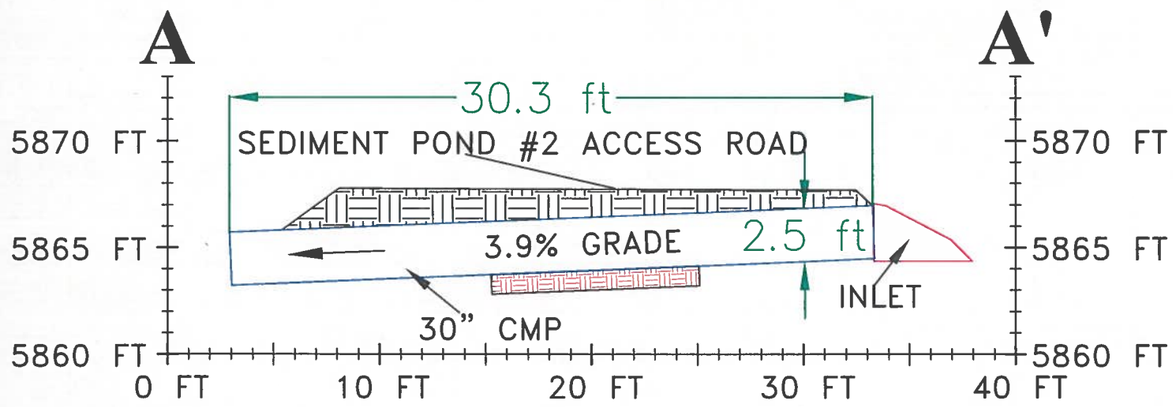
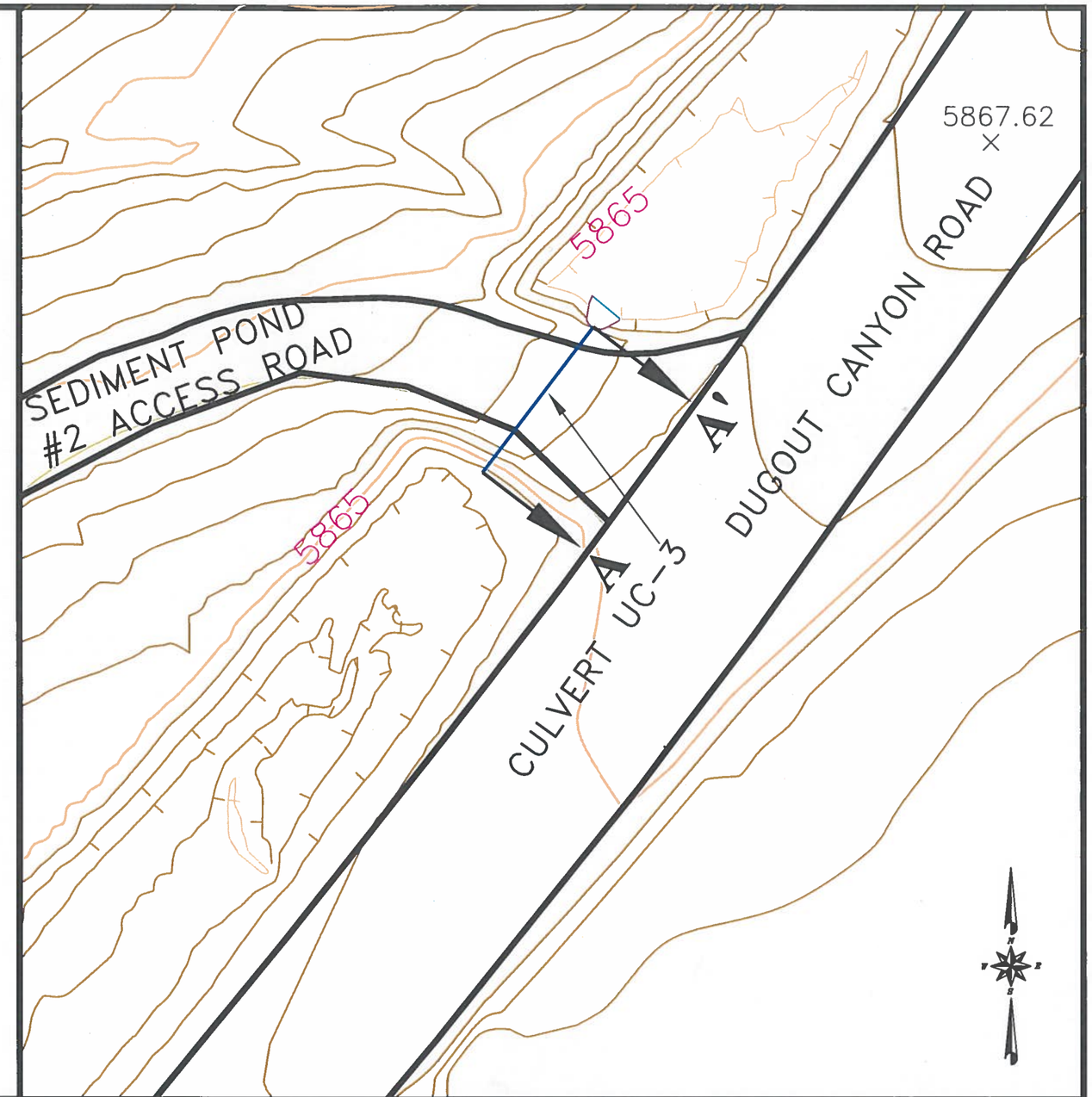


CULVERT UC-3 Cross Section A-A' (Typical/Approximate)



SEAL:

LICENSED PROFESSIONAL ENGINEER
No. 313965-2202
JEFFREY S. ERICKSON
12-11-17
STATE OF UTAH

REVISIONS OR UP-DATES			12/11/17	
NO.	DATE	BY	DESIGNED BY:	
			DRAWN BY:	JSE
			CHECKED BY:	
			SCALE:	NTS

FILENAME: Culvert UC-3 As Built.Dwg

Canyon Fuel Company, LLC
Dugout Canyon Mine

As Built Culvert UC-3
Waste Rock Site

P.O BOX 1029
WELLINGTON, UTAH 84542

DRAWING OR MAP NUMBER