C/007/0035
Received 7/18/16
Task ID #5242

Sunnyside Cogeneration Associates

P.O. Box 10, East Carbon, Utah 84520 • (435) 888-4476 • Fax (435) 888-2538

February 3, 2016

Daron Haddock
Division of Oil Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84116

RE: Sunnyside Refuse and Slurry C/007/0035
Request for Phase 1 Bond Release –
Excess Spoil Disposal Area #2 Phase 1 Reclamation

Dear Daron,

SCA completed reclamation of the Excess Spoil Disposal Area #2 Phase 1 area in 2011. Earthwork included covering the spoil area with 4 feet of soil and roughening the surface. Areas without coal mine waste were scarified. Seeding was performed in fall 2011 and supplemental seeding occurred in 2013 due to drought conditions.

SCA requests Phase 1 bond release for this area.

SCA has prepared an amendment for the permit with updates to the drawings reflecting this reclamation work and removal of the roads around it that have been scarified. New portions of the bond calculation table have also been included in this amendment adjusting the volume of soil cover for the area.

Together with this amendment, SCA has also increased the soil cover depth in anticipation that the Excess Spoil Disposal Area #2 Phase 3 area will be coming on line in the next few years and will then require 4 feet of soil cover. This phase 3 area has been approved previously, but since it was a long way out, the bond calculations had not yet included the 4 feet of cover for that area.

We believe that we have adequately prepared the documents associated with this amendment and request for bond release.

If you have any questions regarding this submittal, please contact me or Rusty Netz or myself at 435-888-4476.

Thank You,

Gerald Hascall
Agent for
Sunnyside Cogeneration Associates

cc: Rusty Netz
Scott Carlson
Plant Files

APPLICATION FOR COAL PERMIT PROCESSING

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

Permittee: SUNNYSIDE COGENERATION ASSOCIATES
Mine: SUNNYSIDE REFUSE & SLURRY **Permit Number:** C/007/035
Title: Excess Spoil Disposal Area #2 Ph 1 Area - Request for Phase 1 bond release

Description, Include reason for application and timing required to implement:
Reclamation work was performed in 2011. SCA requests Phase 1 Bond Release for this area

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

☐ Yes ☒ No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: 0.00 ☐ 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?
☐ Yes ☒ No 24. Does the application include confidential information and is it clearly marked and separated in the plan?

Please attach three (3) review copies of the application. If the mine is on or adjacent to Forest Service land please submit four (4) copies, thank you. (These numbers include a copy for the Price Field Office)

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.

Gerald Hascall	Plant Manager	02/03/2016	[signature]
Print Name	Position	Date	Signature (Right-click above choose certify then have notary sign below)

Subscribed and sworn to before me this 3rd day of February, 2016

Notary Public: Jody Hansen, state of Utah.

My commission Expires: 12/23/19 }
Commission Number: 685853 } ss:
Address: Power Plant Road }
City: Sunnyside State: UT Zip: 84539 }

JODY HANSEN
Notary Public
State of Utah
Comm. No. 685853
My Comm. Expires Dec 23, 2019

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

Form DOGM- C1 (Revised December 10, 2007)

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

Permittee: SUNNYSIDE COGENERATION ASSOCIATES
Mine: SUNNYSIDE REFUSE & SLURRY
Permit Number: C/007/035
Title: Excess Spoil Disposal Area #2 Ph 1 Area - Request for Phase 1 bond release

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	Drawing 5-2
☐ Add	☒ Replace	☐ Remove	Drawing 5-2D
☐ Add	☒ Replace	☐ Remove	Drawing 7-1
☐ Add	☒ Replace	☐ Remove	Drawing 8-1
☐ Add	☒ Replace	☐ Remove	Drawing 8-2
☐ Add	☒ Replace	☐ Remove	Drawing 8-3
☐ Add	☒ Replace	☐ Remove	Drawing 8-4
☐ Add	☒ Replace	☐ Remove	Permit Text Table8-1 Bond Calculations - Summary and Grading pages
☐ Add	☒ Replace	☐ Remove	Permit Text - Appendix 5-7 Roads
☐ 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

DETERMINATION OF BOND AMOUNT - Backfill and Grading

ITEM	QUANTITY		PRODUCTION RATE		HOURS REQUIRED	UNIT COST	COST
Backfilling and Grading							
General site grading: High walls, Refuse Cleanup and Drainage needs							
D-10 Dozer	200,000	Cubic Yards	1,800	cy/hr	111	$ 278.00	$ 30,889
Disturbed area covered with refuse (4' borrow)	87.81	Acres					
C-631 E Scraper	566,667	Cubic Yards	375	cy/hr	1511	$ 224.00	$ 338,489
D-10 Dozer (one dozer to assist loading four scrapers)					378	$ 278.00	$ 105,022
Disturbed area w/ 2' existing cover over refuse (2' additional borrow)	13.73	Acres					
C-631 E Scraper	44,302	Cubic Yards	375	cy/hr	118	$ 224.00	$ 26,463
D-10 Dozer (one dozer to assist loading four scrapers)					30	$ 278.00	$ 8,211
D-10 Dozer (spreading on hillside)	44,302	Cubic Yards	375	cy/hr	118	$ 278.00	$ 32,843
Disturbed area contaminated by refuse (1.5 ' borrow)	39.12	Acres					
C-631 E Scraper	94,670	Cubic Yards	375	cy/hr	252	$ 224.00	$ 56,550
D-10 Dozer (one dozer to assist loading four scrapers)					63	$ 278.00	$ 17,546
D-10 Dozer (minor spreading in some hillside areas - 25%)	23,668	Cubic Yards	700	cy/hr	34	$ 278.00	$ 9,399
Distribution of salvaged topsoil	4.8	Acres					
D-10 Dozer	4,183	Cubic Yards	375	cy/hr	11	$ 278.00	$ 3,101
Scarification (average 18" depth)	186.86	Acres					
D-10 Dozer with multishank ripper	452,201	Cubic Yards	3,000	cy/hr	151	$ 278.00	$ 41,904
Construction Management							
Water Truck	3.5	Months	87	hr/mo	305	$ 95.00	$ 28,928
Foreman and 4x4 pickup	3.5	Months	174	hr/mo	609	$ 51.00	$ 31,059
Total Construction Management							**$ 59,987**

Total Backfill, Grading and support						**$ 730,403**

DETERMINATION OF BOND AMOUNT - Summary

ITEM	QUANTITY	RATE	COST
Total Crusher Demolition Culvert Removal & Riprap			$ 141,699
Total Backfill, Grading and support			$ 730,403
Total Revegetation and Erosion Control			$ 273,340
Total (Direct Costs)			**$ 1,145,442**
Mobilization and Demobilization	**10%**		$ 114,544
Contingency	**5%**		$ 57,272
Engineering Redesign	**2.5%**		$ 28,636
Main Office Expense	**6.8%**		$ 77,890
Project Management Fee	**2.5%**		$ 28,636
Total (Indirect Costs)	**26.8%**		**$ 306,979**
Total (Direct and Indirect Costs - 2015 dollars)			**$ 1,452,421**
Escalation 5 years to Mid Term 2020	5	**1.20%**	$ 89,262
Total Reclamation Costs (Escalated)			$ 1,541,683
Bond Amount Required (Rounded to the nearest $1,000)			**$ 1,542,000**

APPENDIX 5-7
ROAD DESCRIPTIONS

ROAD DESCRIPTIONS

TRANSPORTATION FACILITIES

The roads within the SCA Permit Area are used for a variety of purposes. These include hauling of refuse material, general access around the site, and various non-mining uses.

Presently, there are various roads within the permit area which connect to roads outside the permit area and provide a continuity of those outside uses. The discussion in this appendix related to roads within the permit area pertains only to mine uses within the permit. No additional information is included related to outside uses.

The following section includes descriptions of the transportation facilities within the SCA Permit Area, including the general location and most common uses of each road. All of the roads have a letter name (A, B, C, etc.) and a traditional name acquired throughout the past decades of operation. Road names match the designations shown on Plate 5-2.

A. Tonka Road is located in the north east portion of the permit area and provides access to/from properties east of the SCA Permit Area
B. Upper Old Coarse Refuse Road is located in the south east portion of the permit area and provides access for inspection and monitoring
E. Lower Haul Road is located in the central portion of the permit area and runs generally along the northerly edge of the Coarse Refuse Pile. This road provides access for haul trucks to the refuse pile.
F. Railroad Access Road is located in the northeast portion of the permit area and provides access to this portion of the permit area
G. Excess Spoil Disposal Area #2 Road is located in the northeast portion of the permit area ~~between the~~and provides access to the Excess Spoil Disposal Area #2~~ and the coke ovens. This road provides access to the reclaimed disposal area and drainage features in the area for inspection and monitoring~~.
~~I. Clear Water Pond Access Road is located in the northeast portion of the permit area near the Excess Spoil Disposal Area #2 (former Clear Water Pond was in this area). This road provides access around the reclaimed disposal area.~~
J. New Haul Access Road is located in the north central portion of the permit area and is heavily used for the haul trucks to deliver refuse to the processing area.
K. Borrow Area Pond South Access Road is located in the southeast portion of the permit area and provides access to/from properties to the south and east of the SCA Permit Area.
L. East Slurry Cell South Access Road is located in the southeast portion of the permit area and provides access to / along the top of the south bank of the former East Slurry Cell. It is on the Coarse Refuse Pile and may be removed at some point as part of the refuse excavation process.
M. Coarse Refuse Seep Access Road is located in the west portion of the permit area. It provides access for inspection and monitoring.

N. Coarse Refuse Toe Pond Access Road is located in the west portion of the permit area. It provides access for inspection and monitoring.
P. Rail Cut Pond West Access Road is located in the south west portion of the permit area. It provides access for inspection and monitoring.
Q. Old Coarse Refuse Road Sediment Pond Access Road is located in the south east portion of the permit area. It provides access for inspection and monitoring.
R. Lower Old Coarse Refuse Road is located in the west portion of the permit area. It provides access for inspection and monitoring.
S. West Pasture Access Road is located in the north central portion of the permit area and provides access to / from adjacent facilities north of the permit area. This road is used regularly for trucks crossing through the permit area to reach facilities on the other side of the permit area.
T. Refuse Pile Access Road is located in the central portion of the permit area crossing the Refuse Pile. This road is used regularly for trucks crossing through the permit area to reach facilities on either side of the permit area. It is also used for haul trucks accessing the refuse pile.

Plate 5-2 provides a description of the physical properties of each road. Please refer to Plate 5-2 for the following information pertaining to each individual road: Name, Type of Use, Road Plan & Profile drawing reference, Maximum Grade, Average Width, and Approximate Length.

STRUCTURAL STABILITY OF EMBANKMENTS

The structural stability of roads within the SCA Permit Area is largely determined by the stability of the roadside embankments. This section provides calculations to determine the stability of these embankments and their factor of safety. Calculations are based on methods presented in Hoek and Bray's Rock Slope Engineering.

Most of the roads within the permit area fall within a common ranges of characteristics and embankment slopes. For simplification, these stability calculations will focus on the worst case scenario within the range and group all roads within the range together.

Soils

Information concerning soil types is included in the permit in Appendix 2-9 (the ACZ Soil Borrow Material Report); the SCS Soils Survey of Carbon Area; and Plate 2-1 (Soil Identification Map). The soils in the area are a Strych soil type ranging from very stony loam to a Gerst-Strych-Badland complex. These soil units are described in detail in the SCS Soil Survey for the Carbon Area. The soil type for each area was used to determine the cohesion strength, friction angle, and the density of the material. It should be recognized that values for cohesion strength were estimated based on existing information for the soil type in the designated area. In areas where the soil type was not apparent, a mixture of Strych dry stony loam and Gerst-Strych-Badland soil was assumed and an average value for the quantities listed below was employed for the purposes of determining structural stability.

Assumptions and Method

The "Circular Failure Method" from Rock Slope Engineering was used to determine the factor of safety for the road embankments. Using this method, the following assumptions were made:

- Soil type ranges from SM-SC to GM-GC
- Friction Angle ϕ ranges from 31° for SM-SC to > 31° and >34° for GM and GC soils.
- Density γ values range between 90 to 100 pcf.
- Groundwater conditions are generally fully drained, but to be conservative, we will use Chart 2 representing a surface water source at a distance of 8 x the slope height.
- The soil is may not be compacted. Values for cohesion strength were estimated based on upper and lower limits for each soil type. Generally cohesion strength is between 450 and 600 lb/sqft for soils and estimated at 300 lb/sqft for refuse.

Most of the roads and embankments in the permit area are such that they have very minor slopes. For simplicity in calculations, we have grouped all roads at or less than the following characteristics into a single classification.

Typical Characteristics:
Embankment Height H = 30 feet
Embankment Slope 2H:1V = Θ = 26.5^o
Friction Angle ϕ = 31°
Density γ = 100 pcf
Groundwater Chart 2 at 8x slope distance or more away
Cohesion strength c = 450 lb/sqft

For these typical roads, the calculation values indicate the following:

$$\frac{c}{(\gamma \text{ H Tan } \phi)} = \frac{450}{100\text{x}30\text{xTan}31} = 0.26$$

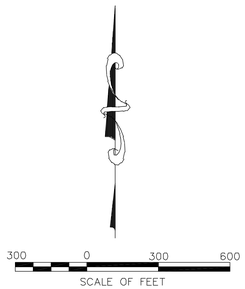
Chart 2 indicates for s 26.5^o slope that the (Tan ϕ / F) value =0.27
This gives a **Factor of Safety F = 2.2**

Roads with smaller or gentler embankment slopes have a higher factor of safety.

Other roads with steeper or higher embankments are calculated separately below.

Road K – Height H = 50 ft, SlopeΘ = 45°, Cohesion c=450, Factor of Safety = 1.3
Road F – Height H = 16 ft, SlopeΘ = 33°, Cohesion c=300, Factor of Safety = 2.2
Road L – Height H = 40 ft, SlopeΘ = 38°, Cohesion c=300, Factor of Safety = 1.4

Road embankments within the permit area appear to have an adequate Factor of Safety against circular failure.



ROAD SUMMARY

ROAD DESIGNATION	ROAD NAME	ROAD TYPE (SEE LEGEND)	PLAN & PROFILE PLATE #	MAX. GRADE (%)	AVERAGE WIDTH (FEET)	APPROX. LENGTH (FEET)
A	Tonka Road	A	Plate 5-2C	22.4	31	1080
B	Upper Old Coarse Refuse Road	A	Plate 5-2H	5.6	12	2950
E	Lower Haul Road	PR	Plate 5-2C	9.7	24	2915
F	Railroad Access Road	A	Plate 5-2D	1.4	13	1490
G	Excess Spoil Disposal Area #2	PT	Plate 5-2D	3.0	23	500
J	New Haul Access Road	PR	Plate 5-3	3.0	25	1065
K	Borrow Area Pond South Access Road	PR	Plate 5-2G	8.4	17	850
L	East Slurry Cell South Access Road	PT	Plate 5-2G	13.8	11	880
M	Coarse Refuse Seep Access Road	A	Plate 5-2J	8.5	13	560
N	Coarse Refuse Toe Pond Access Road	A	Plate 5-2J	20.0	11	475
P	Railcut Pond West Access Road	A	Plate 5-2J	2.2	15	985
Q	Old Coarse Refuse Road Sediment Pond Access Road	A	Plate 5-2G	13.0	11	183
R	Lower Old Coarse Refuse Road	A	Plate 5-2J	4.2	15	2510
S	West Pasture Access Road	PR	Plate 5-2K	3.0	30	985
T	Refuse Pile Access Road	PT	Plate 5-2K	3.0	30	1570

NOTE:

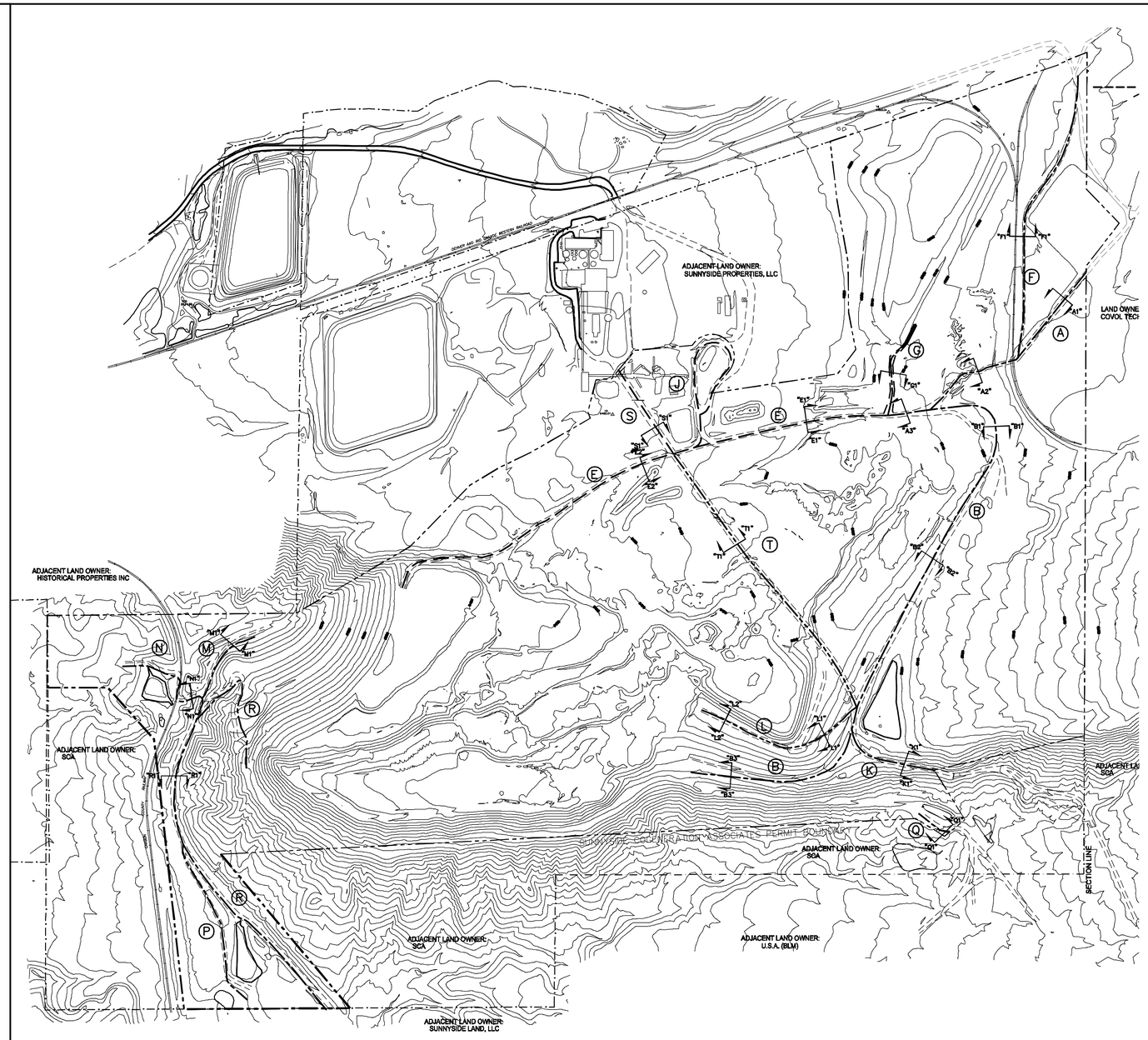
SEE PLAN AND PROFILE SHEETS FOR STATIONING

LEGEND

- PRIMARY ROADS (PR)
- ANCILLARY ROADS (A)
- PIT ROADS (PT)
- PERMIT BOUNDARY

NOTE: ROAD TYPES ARE REFLECTED IN CENTERLINE LINETYPES ON THIS DRAWING.

ALL ROADS WITHIN THE REFUSE PILE AREA AND EXCESS SPOIL DISPOSAL AREAS ARE PIT ROADS AND WILL ADJUST AS REQUIRED THROUGHOUT THE OPERATIONAL PERIOD. FOR SIMPLICITY, THESE ROAD HAVE NOT BEEN SHOWN ON THIS DRAWING.



REV	DATE	DESCRIPTION	BY	APP'D
10	1/16	ROAD RECLAMATION UPDATES	AH	
9	7/15	WEST PASTURE AND REFUSE PILE ACCESS ROADS	AH	
8	11/10	BOUNDARY AND TOPO UPDATE	AH	
7	2/07	CHANGE IN ROAD H	AH	
6	9/02	2002 PERMIT RENEWAL	PAM	
5	9/94	CHANGE IN ROAD B AND R	AJZ	

Electronically signed by S. Scott Carlson 1-29-16

REGISTERED PROFESSIONAL ENGINEER
No. 187727
S. SCOTT CARLSON
STATE OF UTAH

DATE 09-28-94
SCALE 1" = 300'
PROJECT NO. –

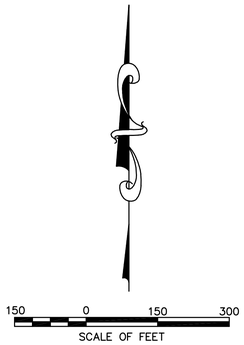
Sunnyside Cogeneration Associates
ROAD CLASSIFICATION MAP

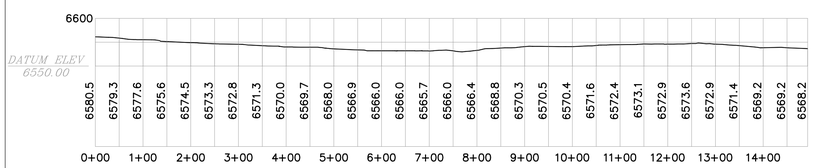
TWIN PEAKS
Engineering & Land Surveying
2264 NORTH 1450 EAST LEHI, UTAH 84043
(801) 450-3511, (801) 439-0700 FAX

DESIGNED AH
DRAWN AH
CHECKED SSC

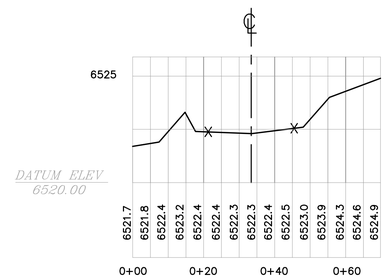
SHEET 5-2

PLOTTED DATE: Wednesday, 27 January 2016 9:20pm

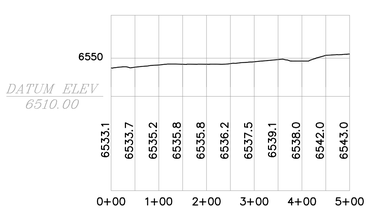




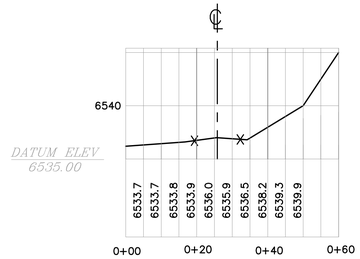
RAILROAD ACCESS ROAD (ROAD F) - PROFILE



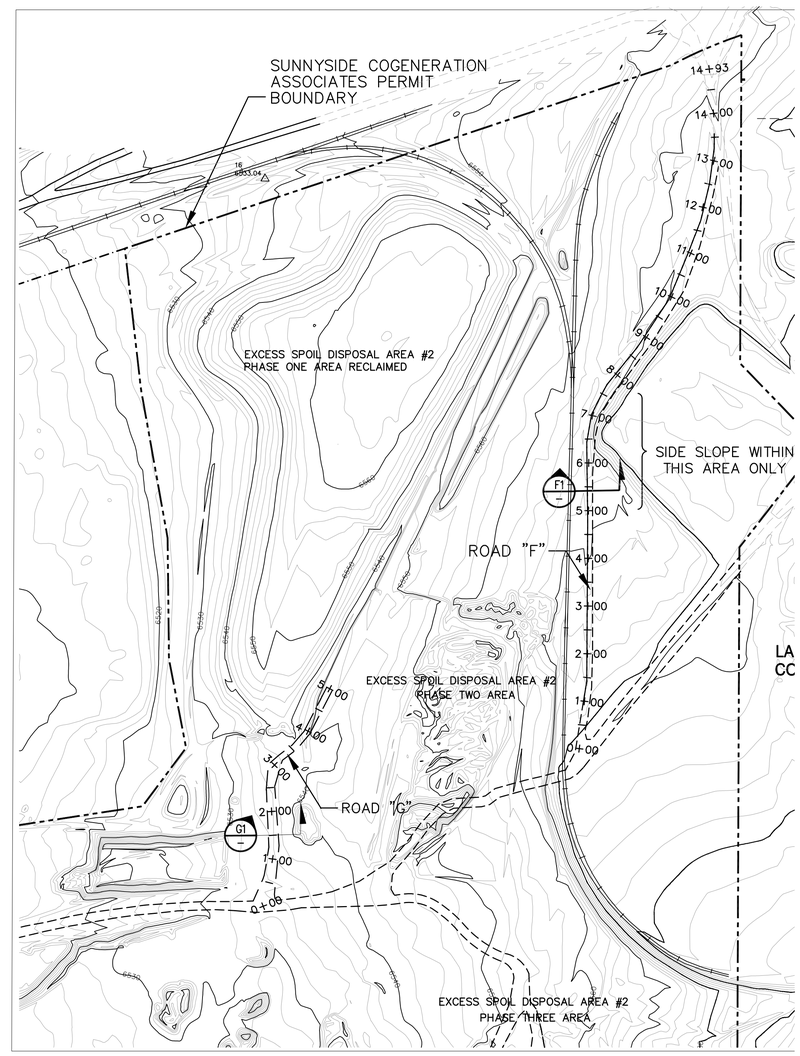
F1 – SECTION (ROAD "F")



EXCESS SPOIL DISPOSAL AREA #2 (ROAD G) - PROFILE



G1 – SECTION (ROAD "G")



NOTE:
1. ALL SECTIONS ARE NON-TYPICAL, AND MAY VARY FROM THAT SHOWN.
2. X = ROAD LIMITS ON CROSS-SECTIONS.

REV	DATE	DESCRIPTION	BY	APP'D
5				
5	1/16	ROAD RECLAMATION UPDATES	AH	
4	11/10	BOUNDARY AND TOPO UPDATES	AH	
3	9/02	2002 PERMIT RENEWAL	PAM	
2	9/97	PERMIT RENEWAL– UPDATE	CAC	
1	2/94	REVISED SECTIONS	AH	

PROFESSIONAL ENGINEER No. 187727 SCOTT SCHOMBURG STATE OF UTAH

Scott Schomburg, P.E.
Scott Schomburg, P.E.
03-30-2016

03–94

SCALE 1" = 150'

PROJECT NO. –

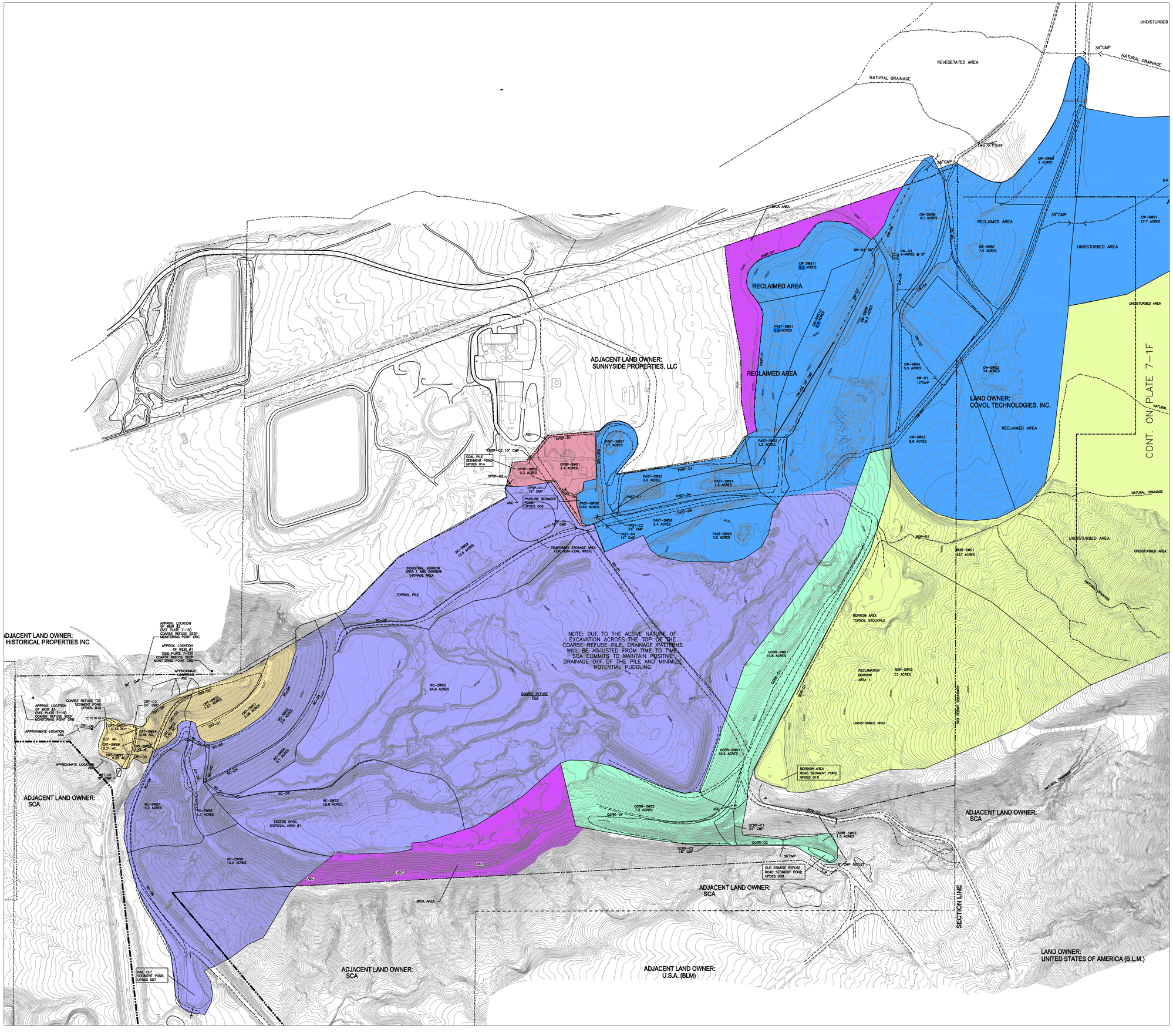
Sunnyside Cogeneration Associates
PLAN AND PROFILE
ROADS "F" & "G"

TWIN PEAKS
Engineering & Land Surveying
2264 NORTH 1450 EAST LEHI, UTAH 84043
(801) 450–3511, (801) 439–0700 FAX

DESIGNED AH
DRAWN AH
CHECKED SSC

SHEET 5–2D

PLOTTED DATE: Wednesday, 27 January 2016 - 9:41pm



GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)

LEGEND

- PERMIT BOUNDARY
- COLLECTOR DITCH
- WATERSHED BOUNDARY
- SUB-WATERSHED BOUNDARY
- ROAD
- ALTERNATE SEDIMENT CONTROL (ASC)
- UPDES POINTS
- COARSE REFUSE TOE SEDIMENT POND DRAINAGE
- BORROW AREA POND DRAINAGE
- OLD COARSE REFUSE ROAD SEDIMENT POND DRAINAGE
- PASTURE SEDIMENT POND DRAINAGE
- RAIL CUT SEDIMENT POND DRAINAGE
- BTCA AREA
- COAL PILE SEDIMENT POND DRAINAGE

NOTE:
AREAS HATCHED ARE BASED ON DRAINAGE PATTERNS AND MAY INCLUDE BOTH DISTURBED AND UNDISTURBED GROUND.

Sunnyside Cogeneration Asso
HYDROLOGIC INDEX MAP

DATE:
PLOT DATE:
SCALE
PROJECT NUMBER: 1

DESIGNED: AH
DRAFTED: AH
CHECKED: SSC

TWIN PEAKS
Engineering & Land Surveying
2264 NORTH 1450 EAST LEHI, UTAH 84043
(801) 450-3511, (801) 439-0700 FAX

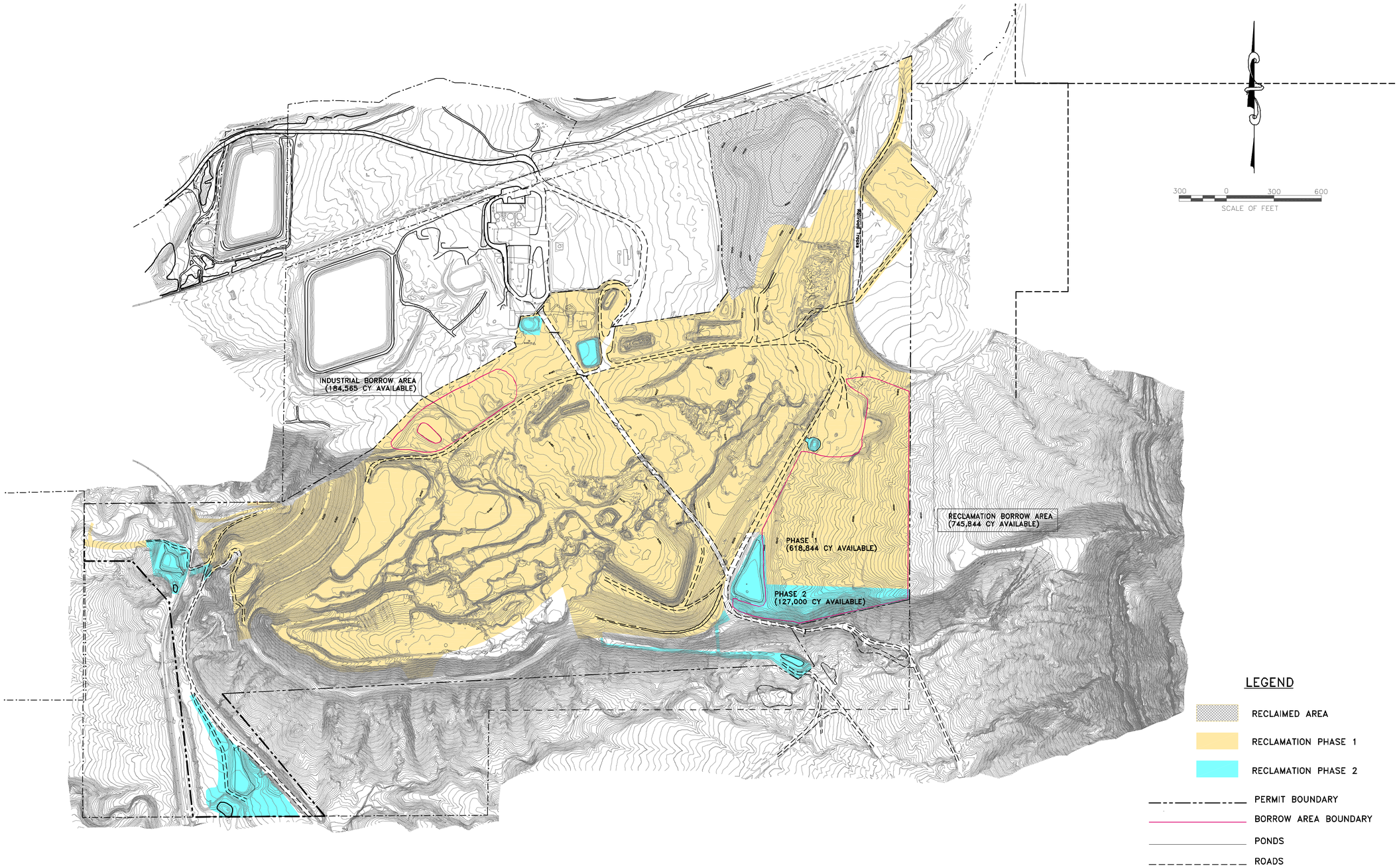
REGISTERED PROFESSIONAL ENGINEER
187727
S. SCOTT CARLSON
STATE OF UTAH

REV	DATE	DESCRIPTION	BY	APP'D
17	1/16	EXCESS SPOIL DISPOSAL AREA RECLAMATION UPDATE	AH	
16	7/15	REMOVE CULVERTS IN PASTURE POND DRAINAGE AREA	AH	
15		ADD DITCHES AND CULVERTS IN RAIL CUT DRAINAGE	AH	
14	11/10	BOUNDARY UPDATE	AH	
13	8/10	UPDATE SITE AND TOPO	AH	
12	5/08	MOVE PASTURE POND CULVERT-C1	SSC	
11	5/07	UPDATE PASTURE POND	AH	
10	3/06	UPDATE DRAINAGE AREAS	AH	

SHEET

7-1

PLOTTED DATE: Wednesday, 27 January 2016 - 10:00pm



REV	DATE	DESCRIPTION	BY	APP'D
5	1/16	EXCESS SPOIL DISPOSAL AREA 2 PH 1 RECLAMATION UPDATES	AH	
4	6/11	EXCESS SPOIL DISPOSAL AREA 2 CHANGES	AH	
3	11/10	BOUNDARY AND TOPO UPDATES	AH	
2	9/02	2002 PERMIT RENEWAL	AH	
1	9/97	PERMIT RENEWAL– UPDATES	AH	

PLOTTED DATE: Wednesday, 27 January 2016 - 7:40pm

Electronically signed by Scott Carlson 12-21-16

LICENSED PROFESSIONAL ENGINEER No. 5 SCOTT CARLSON STATE OF UTAH

7-11-94

SCALE 1" = 300'

PROJECT NO. –

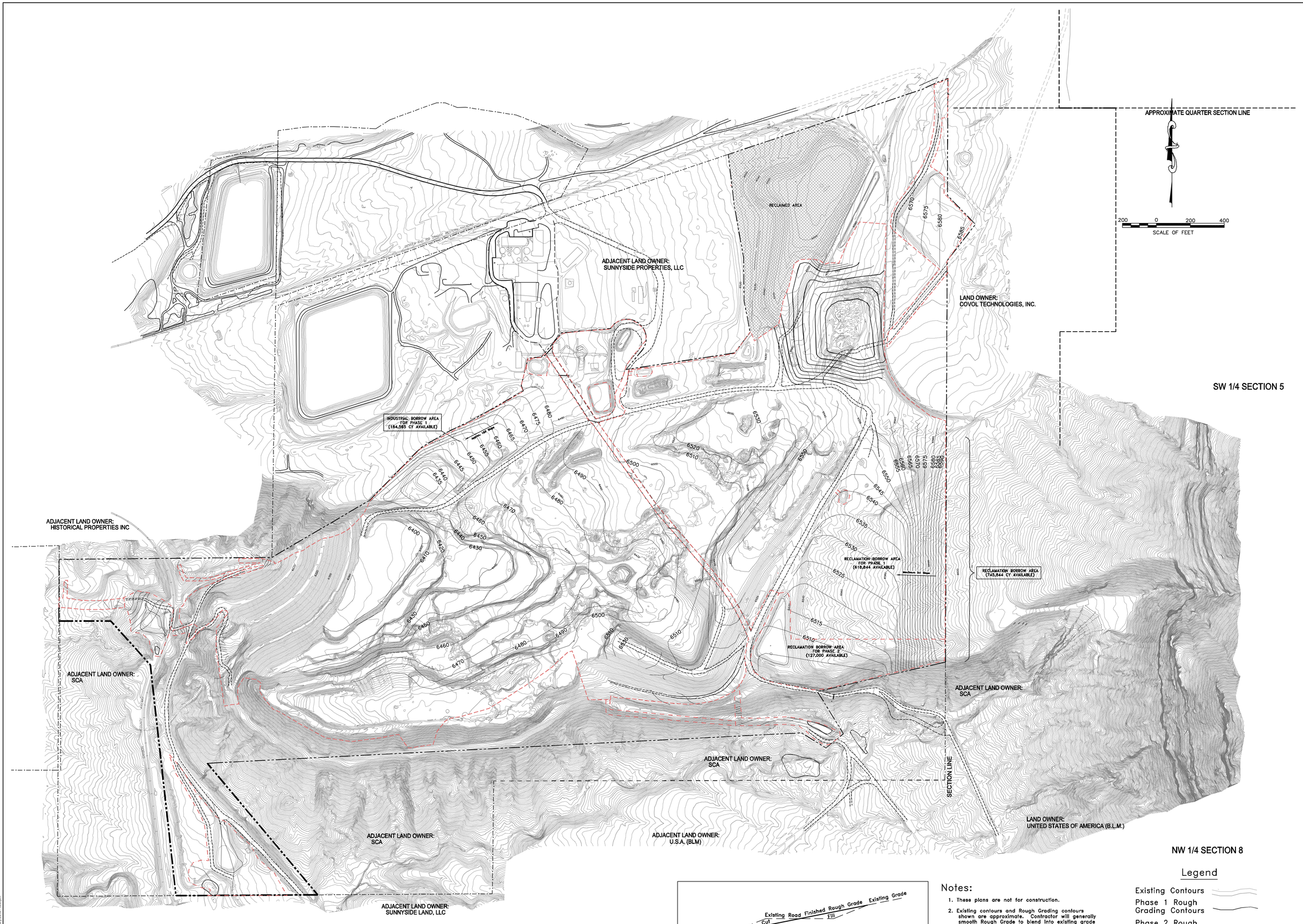
Sunnyside Cogeneration Associates
PERMIT TERM RECLAMATION PLAN
PHASING PLAN

TWIN PEAKS
Engineering & Land Surveying
2264 NORTH 1450 EAST LEHI, UTAH 84043
(801) 450-3511, (801) 439-0700 FAX

DESIGNED AH
DRAWN AH
CHECKED SSC

SHEET

8–1



Existing Grade — Cut — Existing Road — Finished Rough Grade — Fill — Existing Grade

Typical Detail of Road Grading

Not-to-Scale

Notes:

1. These plans are not for construction.
2. Existing contours and Rough Grading contours shown are approximate. Contractor will generally smooth Rough Grade to blend into existing grade at the edges of the disturbed areas.
3. Rough Grade should generally drain as indicated by the Rough Grade contours and the drainage plans, Sheets 8-3(A-E).
4. Maximum Rough Grading slope is to be 33% (3:1).

Legend

- Existing Contours
- Phase 1 Rough Grading Contours
- Phase 2 Rough Grading Contours
- Phase 1 Boundary
- Phase 2 Boundary

REV.	DATE	DESCRIPTION	BY	APP'D
7	1/16	EXCESS SPOIL DISPOSAL AREA, RECLAMATION UPDATE	AH	
6	11/10	BOUNDARY AND TOPO UPDATES	AH	
5	2/07	UPDATED PASTURE POND	AH	
4	12/05	EXCESS SPOIL #2 GRADING	AH	
3	9/02	2002 PERMIT RENEWAL	AH	
2	9/97	REVISED GRADING	KM	
1	7/94	ADDED COAL PILE AREA	AH	

DATE: 07-11-1994
PLOT DATE:
SCALE: 1" = 200'
PROJECT NUMBER: –

Sunnyside Cogeneration Associates
PERMIT TERM RECLAMATION PLAN
ROUGH GRADING PLAN

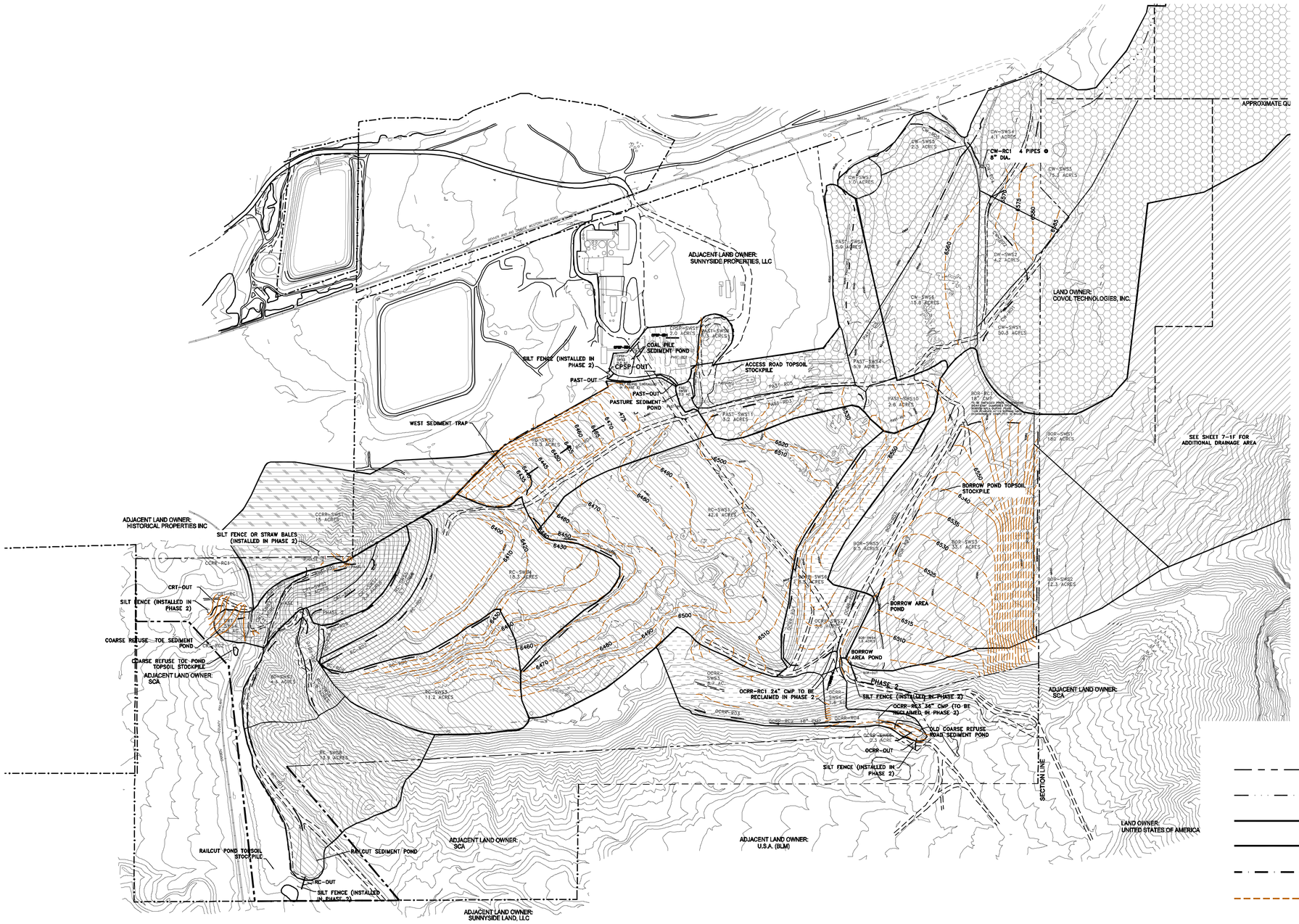
DESIGNED: AH
DRAFTED: AH
CHECKED: SSC

TWIN PEAKS
Engineering & Land Surveying
2264 NORTH 1450 EAST LEHI, UTAH 84043
(801) 450-3511, (801) 439-0700 FAX

REGISTERED PROFESSIONAL ENGINEER
187727
S. SCOTT CARLSON
STATE OF UTAH
Electronically signed and sealed on 1-16-16

8-2

PLOTTED DATE: Wednesday, 27 January 2016 - 10:07pm



NORTH

GRAPHIC SCALE

0' 150' 300' 600' 900'

- COAL PILE SEDIMENT POND DRAINAGE
- BORROW AREA POND DRAINAGE
- PASTURE SEDIMENT POND DRAINAGE
- COARSE REFUSE TOE SEDIMENT POND DRAINAGE
- RAIL CUT SEDIMENT POND DRAINAGE
- OLD COARSE REFUSE ROAD SEDIMENT POND DRAINAGE
- CARBON COUNTY RAILROAD DRAINAGE

LEGEND

- PERMIT BOUNDARY
- DIVERSIONS
- DRAINAGE BOUNDARY
- SUB-DRAINAGE BNDRY
- SILT FENCE
- RECLAMATION CONTOURS

REV	DATE	DESCRIPTION	BY	APP'D
6	1/16	PHASE ONE RECLAMATION UPDATE	AH	
5	11/10	BOUNDARY AND TOPO UPDATE	AH	
4	2/07	PASTURE POND UPDATE	AH	
3	3/06	CLEAR WATER POND RECLASSIFICATION	AH	
2	9/97	PERMIT RENEWAL UPDATES	AH	
1	8/94	ADDED COAL PILE AREA	AH	

REGISTERED PROFESSIONAL ENGINEER 187727 S. SCOTT CARLSON STATE OF UTAH

Digitally signed by S. Scott Carlson 1/29/16

DATE 01-10-93

SCALE

PROJECT NO. –

Sunnyside Cogeneration Associates
PERMIT TERM RECLAMATION PLAN
DRAINAGE AND DIVERSION PLAN

TWIN PEAKS Engineering & Land Surveying
2264 NORTH 1450 EAST LEHI, UTAH 84043
(801) 450-3511, (801) 439-0700 FAX

DESIGNED SSC

DRAWN AH

CHECKED SSC

SHEET 8-3 OF

PLOTTED DATE: Wednesday, 27 January 2016 - 6:32pm

NORTH

GRAPHIC SCALE

300 0 150 300 600 1200

(IN FEET)
1 inch = 300 ft.

BORROW MATERIAL QUANTITIES

4' Borrow Cap X 87.81 Acres	=	566,667 CY
2' Borrow Cap X 13.73 Acres	=	44,302 CY
1.5' Borrow Cap X 39.12 Acres	=	94,670 CY
Total Borrow	=	705,639 CY

Scarify Soil Prior To Seeding	=	41.4 AC
Regrade, Scarify & Replace Topsoil	=	4.8 AC
Topsoil	=	4,183 CY

Notes:

1. At the time of final reclamation four feet of borrow material will be placed over areas that are occupied by unsuitable plant growth medium, as determined by testing. This includes refuse pile and excess spoil disposal areas.
2. At the time of final reclamation two feet of borrow material will be placed over areas on the coarse refuse pile which have previously been covered with two feet of borrow material.
3. At the time of final reclamation up to eighteen inches of borrow material will be placed over areas which have some refuse on the surface only.
4. At the time of final reclamation, areas which have no refuse will be scarified to assist revegetation.
5. At the time of final reclamation, areas which have had topsoil removed and stockpiled, will have the topsoil redistributed. These areas will be scarified to reduce potential slippage of the redistributed material and to assist revegetation.
6. Some areas may be regraded as necessary to meet the post-mining land use prior to placement of borrow material, replacement of topsoil, or scarification of existing soil.
7. Minimal grading will be utilized to redistribute the dumped borrow materials sufficient to cover the reclaimed sites. The borrow materials will be spread unevenly to create small depressions which will retain moisture, minimize erosion, create and enhance wildlife habitat, and assist revegetation.

REV	DATE	DESCRIPTION	BY	APP'D
7	1/16	SOIL QUANTITIES UPDATE	AH	
6	6/11	EXCESS SPOIL DISPOSAL AREA 2 CHANGES	AH	
5	11/10	BOUNDARY AND TOPO UPDATES	AH	
4	10/02	2002 PERMIT RENEWAL	AH	
3	9/97	PERMIT RENEWAL-UPDATES	AH	
2	10/95	RECLAMATION AREAS	AH	

PROFESSIONAL ENGINEER No. 187727 SCOTT Reg. (Reg.) Civil Engineer STATE OF UTAH

9-11-94

SCALE

PROJECT NO. –

Sunnyside Cogeneration Associates
PERMIT TERM RECLAMATION PLAN
BORROW MATERIAL PLAN

TWIN PEAKS
Engineering & Land Surveying
2264 NORTH 1450 EAST LEHI, UTAH 84043
(801) 450-3511, (801) 439-0700 FAX

DESIGNED AH
DRAWN AH
CHECKED SSC

SHEET

8-4

PLOTTED DATE: Monday, 01 February 2016 - 6:14pm