

C/007035 Incomin  
#5514



## Sunnyside Cogeneration Associates

P.O. Box 10, East Carbon, Utah 84520 • (801) 888-4476 • Fax (801) 888-2538

October 18, 2017

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OCT 27 2017

DIV. OF OIL, GAS & MINING

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  
Permit Amendment – East Access Road – W  
DOGM Review task #5514 – CLEAN COPIES

Dear Mr. Haddock,

Sunnyside Cogeneration Associates (SCA) has prepared the clean copies requested with the conditionally approved permit amendment – Task # 5514. This is related to the East Access Road W.

If you have any questions, please feel free to call Rusty Netz or myself at (435) 888-4476.

Thank You,

A handwritten signature in blue ink, appearing to read "Gerald Hascall". The signature is fluid and cursive, written over the printed name.

Gerald Hascall  
Agent for  
Sunnyside Cogeneration Associates

cc: Rusty Netz  
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:** East Haul Road - W - CLEAN COPIES

**Description,** Include reason for application and timing required to implement:

Proposed Haul Road W to the east. Remove Pit Road L. Other Minor Adjustments / updates, CLEAN COPIES per TASK #5514

**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)

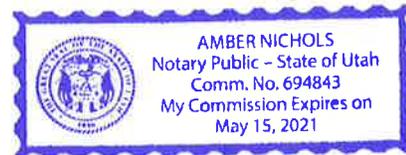
I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

Gerald Hascall Plant Manager 10/22/2017 Gerald Hascall  
 Print Name Position Date Signature (Right-click above choose certify then have notary sign below)

Subscribed and sworn to before me this 22 day of October, 2017

Notary Public: Amber Nichols, state of Utah

My commission Expires: May 15, 2021 }  
 Commission Number: 694843 } ss:  
 Address: #1 Power plant Rd }  
 City: Sunnyside State: Ut Zip: 84539 }



**For Office Use Only:**

**Assigned Tracking Number:**

**Received by Oil, Gas & Mining**

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APPENDIX 5-7  
ROAD DESCRIPTIONS

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## ROAD DESCRIPTIONS

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### 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. The eastern portion of this road also provides access for other haul traffic that needs to cross through the permit area to offsite facilities.
- 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 and provides access to the Excess Spoil Disposal Area #2.
- 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.
- 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.

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September 2017

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.

U. North Pasture Pond Access Road is located adjacent to the Pasture Pond on the north and west sides. It is used for access to and maintenance of the pond.

W. East Access Road is located in the southeast portion of the permit area and provides access for other haul traffic that needs to cross through the permit area to/from offsite facilities to the east of the SCA Permit Area. Use of this road is limited to SCA authorized users only. This road is temporary and will be removed and reclaimed when the soil under the road is needed for reclamation borrow material.

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.

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### Assumptions and Method

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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  $F$  ranges from  $31^\circ$  for SM-SC to  $> 31^\circ$  and  $>34^\circ$  for GM and GC soils.
- Density  $g$  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  $2H:1V = Q = 26.5^\circ$

Friction Angle  $F = 31^\circ$

Density  $g = 100$  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:

$$\frac{c}{(g H \tan F)} = \frac{450}{100 \times 30 \times \tan 31} = 0.26$$

Chart 2 indicates for a  $26.5^\circ$  slope that the  $(\tan F / F)$  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, Slope  $Q = 45^\circ$ , Cohesion  $c=450$ , Factor of Safety = 1.3

Road F – Height  $H = 16$  ft, Slope  $Q = 33^\circ$ , Cohesion  $c=300$ , Factor of Safety = 2.2

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

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### DIVERSION DESIGN CRITERIA

Ditch No.	Maximum Manning N	Side Slope min H/1V	Min. Bottom Width (ft)	Design Flow (cfs)	Minimum Channel Slope (%)	Maximum Flow Depth (ft)	Maximum Flow Area (ft <sup>2</sup> )	Minimum Channel Depth (ft)	Comments
D1	.05	2	0	9.2	2	1.3	3.2	3.2	No lining req'd
D2	.05	2	0	10.9	2	1.3	3.6	3.6	No lining req'd
D3	.05	2	0	1.0	3	0.7	1.0	1.0	No lining req'd

Ditch No.	Minimum Manning N	Side Slope min H/1V	Min. Bottom Width (ft)	Design Flow (cfs)	Maximum Channel Slope (%)	Minimum Flow Depth (ft)	Minimum Flow Area (ft <sup>2</sup> )	Maximum Velocity (ft/s)	Comments
D1	.035	2	0	9.2	4	0.97	1.9	4.9	No lining req'd
D2	.035	2	0	10.9	4	1.04	2.2	5.0	No lining req'd
D3	.03	2	0	1.0	8	0.5	0.4	4.9	No lining req'd

#### CULVERT DESIGN

A culvert is proposed to carry runoff across the access road W. This culvert should fit the following minimum design criteria.

### CULVERT DESIGN CRITERIA

Culvert no.	Pipe Diameter (in)	Pipe Length (ft)	Pipe Slope (ft/ft)	Inlet Control HW (ft)	Design Flow (cfs)	Flow Depth (ft)	Flow Area (ft <sup>2</sup> )	Design velocity (ft/s)	Inlet / Outlet Conditions
C1	24	40	1%	1.7	9.2	1.3	2.1	4.3	No lining required. Trash rack req'd on upstream end

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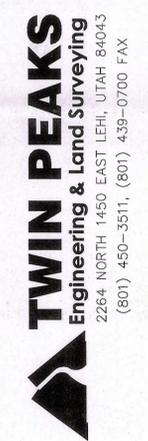
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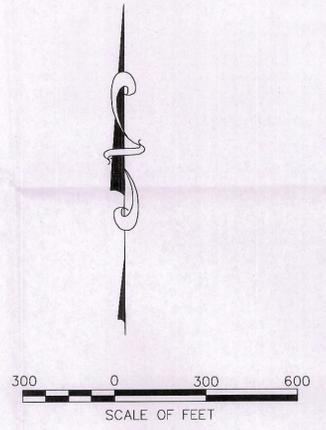
DATE: 09-28-94  
 SCALE: 1" = 300'  
 PROJECT NO.:

Sunnyside Cogeneration Associates  
 ROAD CLASSIFICATION MAP



DESIGNED: AH  
 DRAWN: AH  
 CHECKED: SSC  
 SHEET

5-2



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	0.4	31	535
B	Upper Old Coarse Refuse Road	A	Plate 5-2H	5.6	12	2500
E	Lower Haul Road	PR	Plate 5-2C	9.7	24	4250
F	Railroad Access Road	A	Plate 5-2D	1.4	13	1370
G	Excess Spoil Disposal Area #2	PT	Plate 5-2D	8.3	23	1160
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	150
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	535
P	Railcut Pond West Access Road	A	Plate 5-2J	2.2	15	840
Q	Old Coarse Refuse Road Sediment Pond Access Road	A	Plate 5-2G	13.0	11	150
R	Lower Old Coarse Refuse Road	A	Plate 5-2J	35.0	15	2950
S	West Pasture Access Road	PR	Plate 5-2K	3.0	30	540
U	North-West Pasture Access Road	A	Plate 5-2K	5.6	24	425
W	East Access Road	PR	Plate 5-2G	7.7	24	740

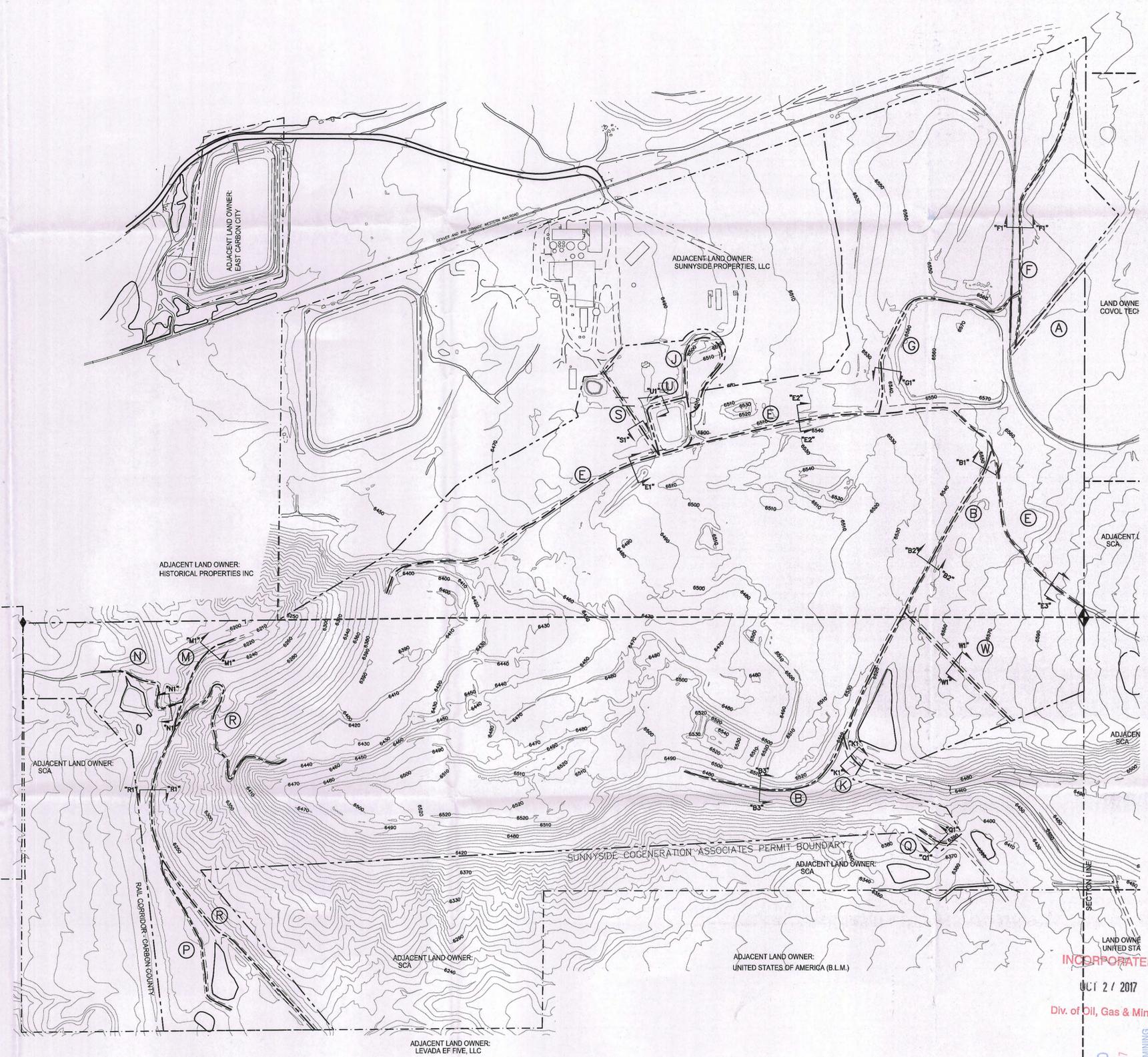
NOTE:  
 SEE PLAN AND PROFILE SHEETS FOR STATIONING

**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
△	7/17	UPDATED TOPO AND ADDED ROAD W	AH	
△	12/16	ADD ROAD U	AH	
△	8/16	SHORTEN ROAD B AND EXTEND ROAD E REMOVE RD T	AH	
△	1/16	ROAD RECLAMATION UPDATES	AH	
△	7/15	WEST PASTURE AND REFUSE PILE ACCESS ROADS	AH	
△	11/10	BOUNDARY AND TOPO UPDATE	AH	

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03-94

SCALE

PROJECT NO.

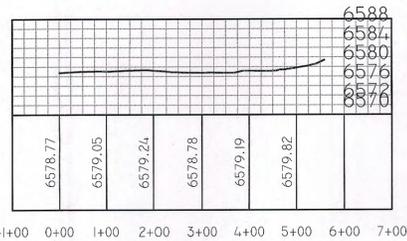
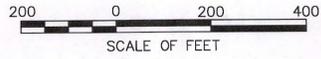
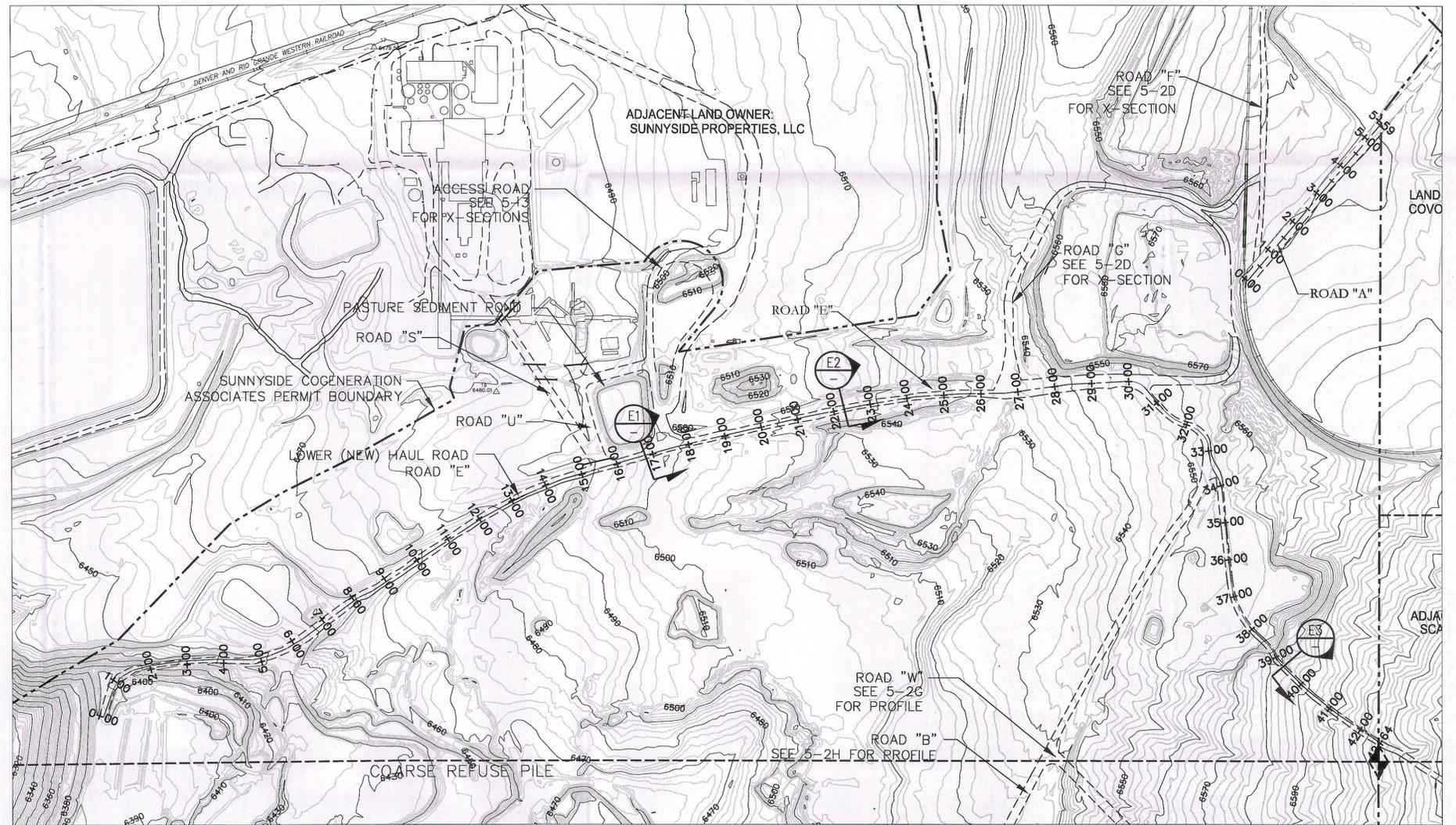
Sunnyside Cogeneration Associates  
ROAD PLAN AND PROFILE  
ROADS "A" & "E"

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

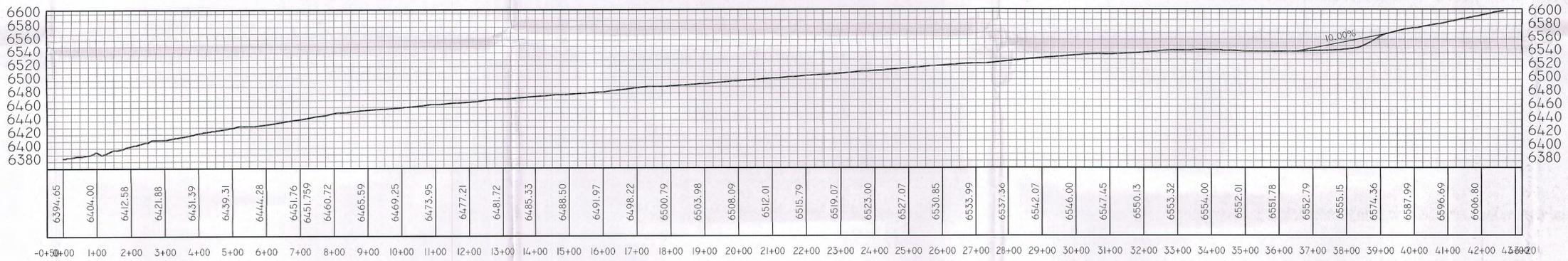


DESIGNED	AH
DRAWN	AH
CHECKED	SSC

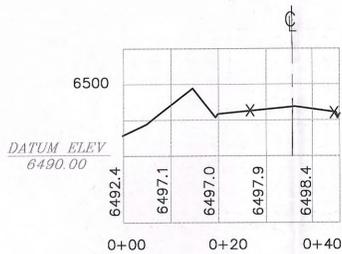
5-20



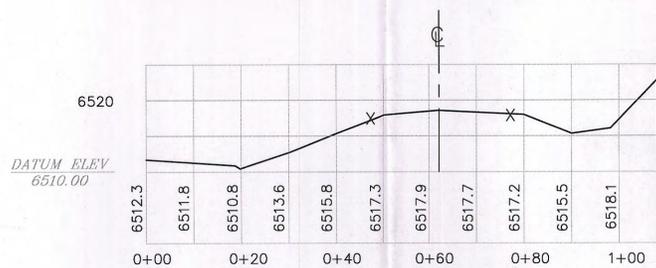
TONKA ROAD (ROAD 'A') - PROFILE



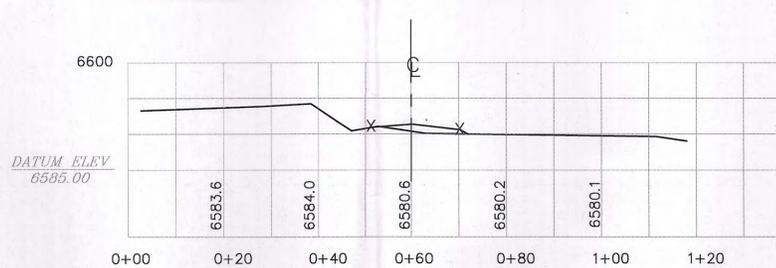
LOWER HAUL ROAD (ROAD 'E') - PROFILE



E2 SECTION (ROAD 'E')



E2 SECTION (ROAD 'E')



E3 SECTION (ROAD 'E')

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
△	8/17	UPDATE TOPO AND ADD ROAD W	AH	
△	7/16	EXTEND ROAD E	AH	
△	11/10	BOUNDARY AND TOPO UPDATES	AH	
△	9/02	2002 PERMIT RENEWAL	PAM	
△	9/97	PERMIT RENEWAL-UPDATE	CAC	
△	2/94	REVISED BOUNDARY	AH	

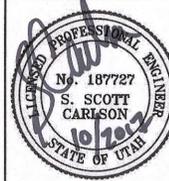
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SHEET

DESIGNED	AH
DRAWN	AH
CHECKED	SSC

5-20



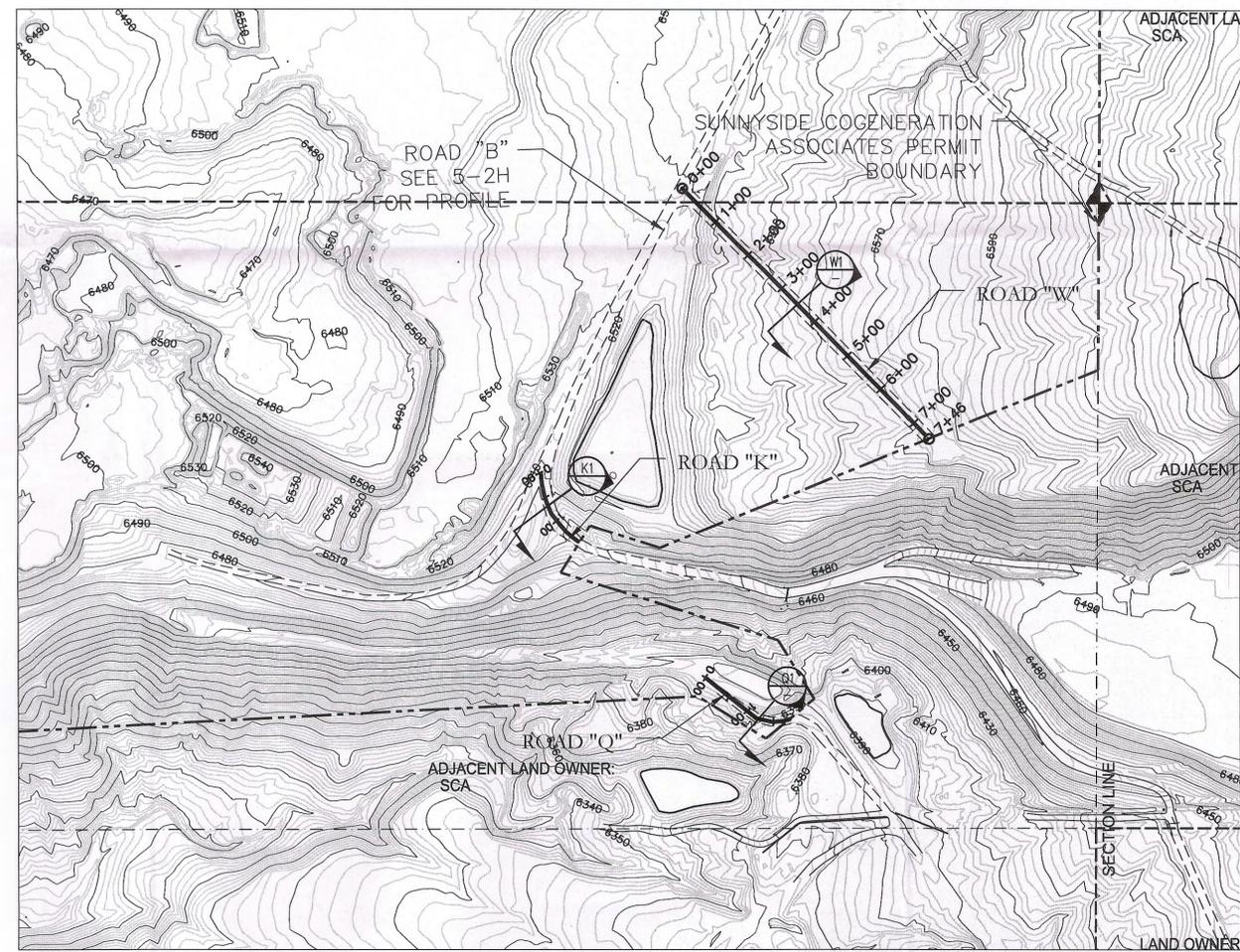
3-94  
SCALE  
PROJECT NO.

Sunnyside Cogeneration Associates  
PLAN AND PROFILES  
ROADS "K", "Q" & "W"

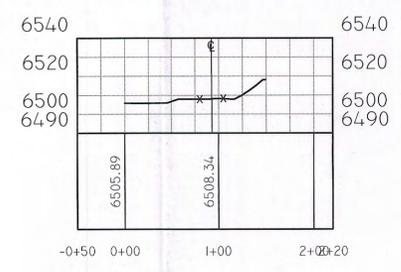
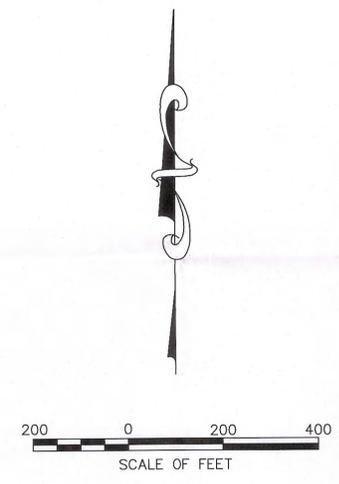
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Engineering & Land Surveying  
2264 NORTH 1450 EAST LEHI, UTAH 84043  
(801) 450-3511, (801) 439-0700 FAX

DESIGNED	AH
DRAWN	AH
CHECKED	SSC
SHEET	

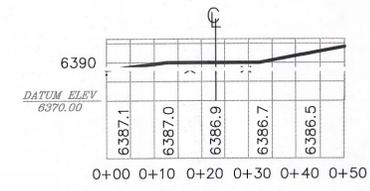
5-2G



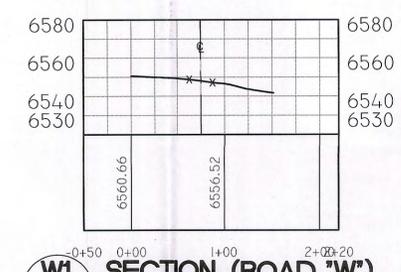
NOTE:  
1. ALL SECTIONS ARE NON-TYPICAL, AND MAY VARY FROM THAT SHOWN.  
2. X = ROAD LIMITS ON CROSS-SECTIONS.



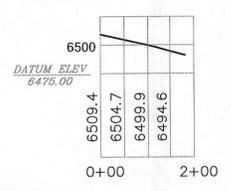
**K1 SECTION (ROAD "K")**



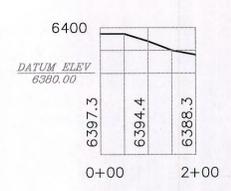
**Q1 SECTION (ROAD "Q")**



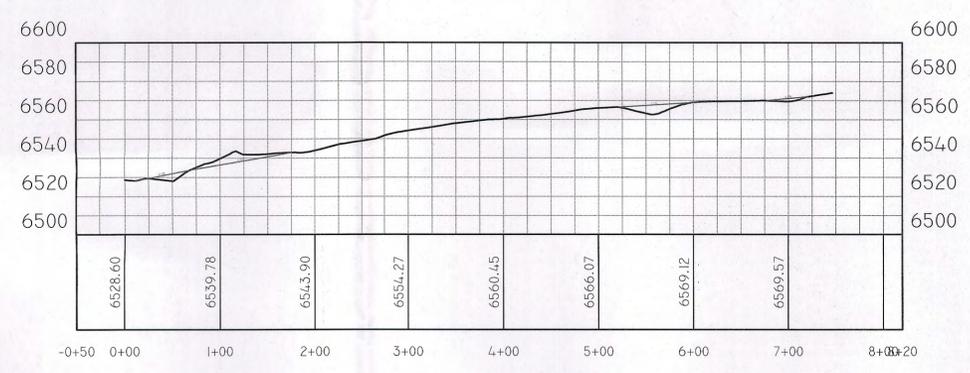
**W1 SECTION (ROAD "W")**



**BORROW AREA POND SOUTH ACCESS ROAD (ROAD K) - PROFILE**



**OLD COARSE REFUSE ROAD (ROAD Q) - PROFILE**



**EAST ACCESS ROAD (ROAD W) - PROFILE**

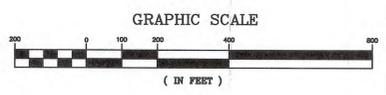
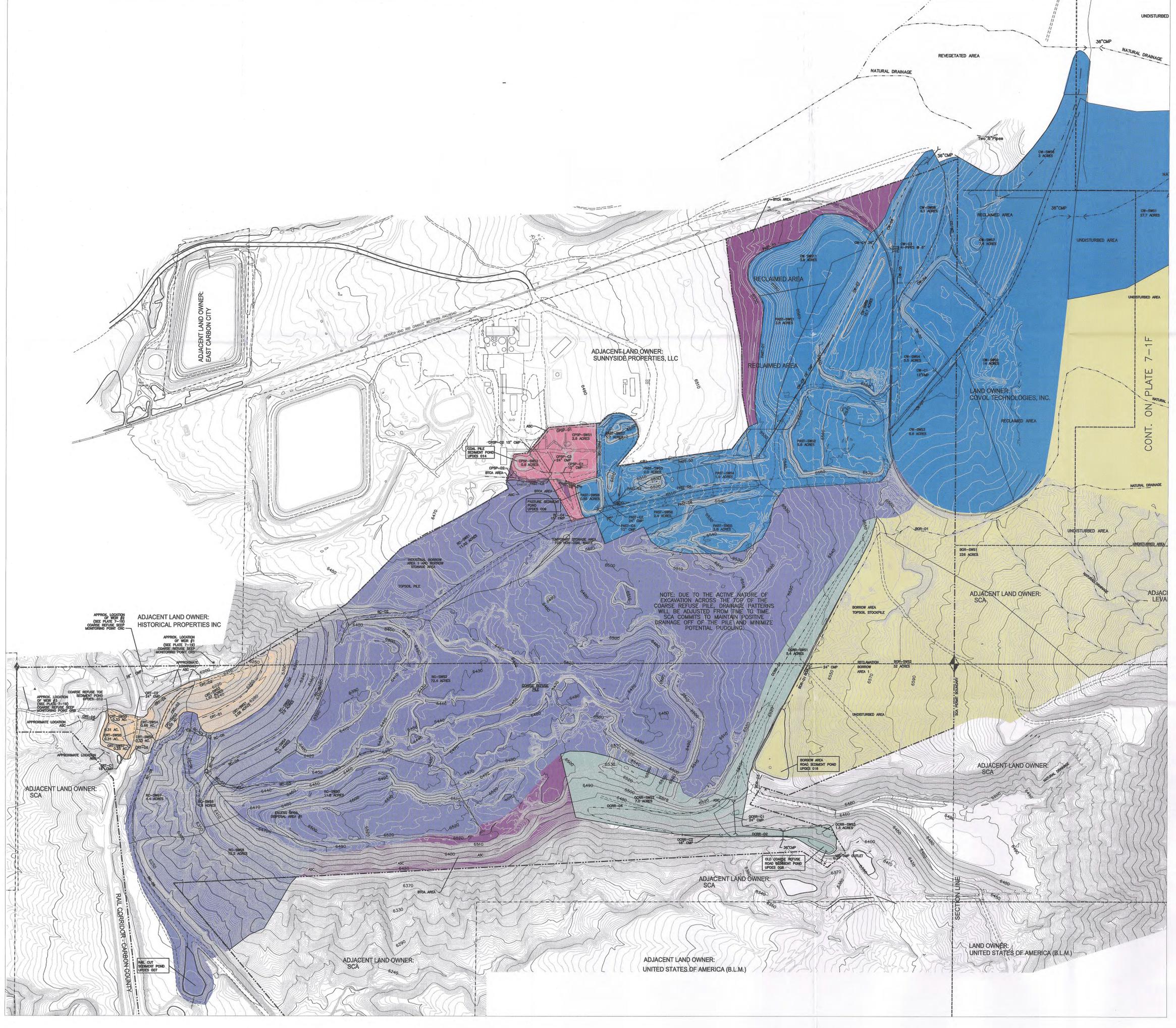
REV	DATE	DESCRIPTION	BY	APP'D
△	8/17	UPDATE BNDRY AND TOPO, REMOVE ROAD L ADD ROAD W	AH	
△	11/10	BOUNDARY AND TOPO UPDATES	AH	
△	9/02	2002 PERMIT RENEWAL	PAM	
△	9/97	PERMIT RENEWAL-UPDATE	CAC	
△	2/94	CHANGE IN ROAD B & SECTIONS	AH	

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PLOTTED DATE: Thursday, 09 August 2017 - 2:20pm





- 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.

NOTE: DUE TO THE ACTIVE NATURE OF EXCAVATION ACROSS THE TOP OF THE COARSE REFUSE PILE, DRAINAGE PATTERNS WILL BE ADJUSTED FROM TIME TO TIME. SCA COMMITS TO MAINTAIN POSITIVE DRAINAGE OFF OF THE PILE AND MINIMIZE POTENTIAL PUDDLING.

SUNNYSIDE COGENERATION ASSO  
 HYDROLOGIC INDEX MAP

DESIGNED	AH
DRAWN	AH
CHECKED	SSC

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

NO. 187727	DATE	REV.
S. SCOTT CARLSON	10/20/17	1
REGISTERED PROFESSIONAL ENGINEER		
STATE OF UTAH		

DATE	DESCRIPTION
7/17	UPDATED TOPO AND ADDED ROAD W
10/16	POST CONSTRUCTION UPDATE FOR ROAD S
1/18	EXCESS SOIL DISPOSAL ARE RECLAMATION UPDATE
7/15	BELOW CULVERTS IN PASTURE POND DRAINAGE AREA
	ADD DITCHES AND CULVERTS IN RAIL CUT DRAINAGE
11/10	BOUNDARY UPDATE
8/10	UPDATE SITE AND TOPO
5/08	MOVE PASTURE POND CULVERT-C1
5/07	UPDATE PASTURE POND

SHEET  
**7-1**

**INCORPORATED**  
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PLOTTED DATE: Thursday, 10-August-2017 5:43pm