August 20, 2020

Steve Christensen
Division of Oil Gas and Mining
1594 W. North Temple, Suite 1210
Salt Lake City, Utah 84116

RE: Sunnyside Refuse and Slurry C/007/0035
Task ID #6149 Midterm Permit Review

Dear Steve,

In response to comments received from the Division as part of the midterm review process, we have prepared the enclosed permit amendment. This amendment addresses the comments as follows:

Operation Plan
Top Soil and Subsoil
<u>Deficiency Details:</u>

R645-301-122, Please provide a copy of the map in Appendix B of Appendix 2-9 to complete the Division's copy of the Mining and Reclamation Plan.

SCA has included a copy of the drawing Plate 2-1, which was originally incorporated, by the Division, on March 10, 2015.

Operation Plan
Hydrologic Impoundments
<u>Deficiency Details:</u>

R645-301-733, The Permittee must re-evaluate the pond drawing for the Pasture Pond. Specifically, the existence of the 18" culvert and rip-rap inlet ditch as shown on Plate 7-9. The Permittee must also update the table of contents to remove Plate 7-1G and include an updated description of Plate 7-1F to include both the Borrow and Pasture Pond Upper Drainage.

SCA has included an updated red-lined table of contents, included an updated pond drawing Plate 7-9, included an updated drawing Plate 7-1 and included updated red-lined text where it was needed.

Reclamation Plan
Bonding Determination of Amount
Deficiency Details:

R645-301-830. The Permittee must adjust the bond summary in Table 8-1 of Chapter 8 to reflect the application of a 5-yr inflation factor of 2.95% out to 2025.

SCA has included an updated red-lined Table 8-1, which reflects the 5-yr inflation factor of 2.95% carried out to year 2025.

We believe that we have adequately responded to the comments received and expect that the enclosed submittal should meet the regulatory requirements. If you have any questions regarding this submittal, please contact me or Rusty Netz at 435-888-4476.

Thank You,

Gerald Hascall

Gerald Hascall
Agent For
Sunnyside Cogeneration Associates

#

cc: Rusty Netz
Scott Carlson
Plant File

APPLICATION FOR COAL PERMIT PROCESSING

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

Permittee: Sunnyside Cogeneration Associates

Mine: Sunnyside Refuse and Slurry **Permit Number:** C/007/035

Title: Respond to comments from Midterm Review (Task #6149)

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

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.

Gerald Hascall — Print Name

Gerald Hascall — Sign Name, Position, Date: Plant Manager, August 2020

Subscribed and sworn to before me this 20 day of August, 20 20

Amber Nichols — Notary Public

My commission Expires: May 15, 20 21

Attest: State of Utah } ss:
County of Carbon

AMBER NICHOLS
Notary Public – State of Utah
Comm. No. 694843
My Commission Expires on
May 15, 2021

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: Sunnyside Cogeneration Associates
Mine: Sunnyside Refuse and Slurry **Permit Number:** C/007/035
Title: Respond to comments from Midterm Review (Task #6149)

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 7-1
☐ Add	■ Replace	☐ Remove	Drawing 7-9
☐ Add	■ Replace	☐ Remove	Chapter 7 Table of Contents - Drawing list page
☐ Add	■ Replace	☐ Remove	Appendix 7-3A - Pasture Sediment Pond Hydrologic Calculations pages 5 and 6
☐ Add	■ Replace	☐ Remove	Table 8-1 Bond summary sheet
■ Add	☐ Replace	☐ Remove	Appendix 2-9 Appendix B Drawing 2-1 (copy for Division's books)
☐ Add	☐ Replace	☐ Remove	
☐ 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**

TABLE OF CONTENTS
CHAPTER SEVEN
R645-301-700 (HYDROLOGY)

PLATES

Plate 7-1, Hydrologic Index Map
Plate 7-1F, Borrow ~~Area~~ and Pasture Pond Upper Drainage
~~Plate 7-1G, Pasture Pond Upper Drainage~~
Plate 7-2, Surface and Groundwater Monitoring Locations
Plate 7-7, Coarse Refuse Toe Sediment Pond Record Drawing
Plate 7-8, Railcut Pond and Topsoil Pile Record Drawing
Plate 7-9, Pasture Pond Record Drawing
Plate 7-10, Old Coarse Refuse Road Sediment Pond Record Drawing
Plate 7-11, Borrow Area Sediment Pond Record Drawing
Plate 7-18, Coal Pile Sediment Pond and Cross-section
Plate 7-19, Typical Flow Measuring Devices
Plate 7-20, Alternate Sediment Control Details

DIVERSION / CULVERT DESIGN FLOWS

Storm Event	CW D1/C1 cfs	CW D2 cfs	CW D3 cfs	CW D4 cfs	CW D5/C3 cfs	CW D6 cfs	CW D7/C4-5 cfs	Past D1 cfs	Past D3/C1 cfs	Past D4/C2 cfs	Past D6/C4 cfs	~~Past D8 cfs~~	Past D9/C5 outlet cfs
10yr 6 hr	0.20	0.62	0.07	0.30	0.90	0.11	1.06	0.75	1.24	1.41	0.88	~~0.61~~	0.00
10yr 24 hr	0.93	2.54	0.34	1.05	3.44	0.71	3.92	1.60	2.60	4.71	1.61	~~0.89~~	0.00
25yr 6 hr	0.93	2.53	0.34	1.10	3.24	0.76	3.82	1.80	2.65	4.86	1.67	~~1.05~~	0.00
100yr 6 hr	2.64	7.90	0.98	2.99	10.31	1.92	11.52	3.00	5.40	13.14	3.11	~~1.74~~	3.98
Design flows	**2.40**	**7.80**	**2.50**	**4.80**	**10.10**	**5.00**	**11.5**	**2.20**	**2.80**	**4.86**	**3.60**	~~**1.70**~~	**3.98**

DIVERSION DESIGN

Temporary diversions and culverts for these miscellaneous flows are required to be designed to pass the 10 year, 6 hour storm (R645-301-742.333). They were previously designed for the 100 year 6 hour storm. Combining of the watersheds as proposed in 2006 does not always allow for that same conservative design. However, the designs are still more conservative than the 10 year 6 hour storm. See the table above for design flow rates.

Permanent diversion designs are described in the permit term reclamation plan and final reclamation plan. Design summaries are given in the tables below. The diversions were designed to fit within a range of expected field values. The minimum design channel depth is conservatively calculated by using a minimum channel slope and a maximum expected Mannings N. Additional freeboard is not required in the regulations, but the operator may construct the diversions larger than required to reduce the risk of overflow from storms greater than the required design precipitation event.

The Maximum velocity expected in the channel is calculated by using minimum Manning's N values and maximum channel slopes. Manning's N for a channel bed with riprap is estimated by the equation $N=0.0395*(D_{50})^{1/6}$ with D_{50} in feet (Applied Hydrology and Sedimentology for Disturbed Areas page 188). If the normal depth of flow is less than twice D_{50} then N is estimated by the equation $N=0.456*(D_{50}$ *Slope)0.159 with D_{50} in inches and slope in feet/feet (*Development of Riprap Design Criteria by Riprap Testing in Flumes: Phase 1* May 1987, Colorado State University, prepared for Uranium Recovery Field Office and Division of Waste Management).

While the slopes and N values are expected to be near the middle of the range provided, these values provide the maximum variance accepted without additional rip rap or lining through the channel. The cross sections may vary but must always be sufficient to provide the maximum required flow area.

DIVERSION DESIGN CRITERIA

Ditch No.	Manning N		Side Slope	Min Bottom Width	Design Flow	Channel Slope (%)		Flow Depth (ft)		Flow Area (ft^2)		Maximum Velocity	Minimum Channel Depth	Comments
	Min	Max	minH/1V	(ft)	(cfs)	Min	Max	Min	Max	Min	Max	(ft/s)	(ft)	No lining required
CW-D1	0.03	0.05	2	0	**2.40**	1.6	5	0.53	0.8	0.60	1.30	4.3	0.80	No lining required
CW-D2	0.03	0.05	2	0	**7.80**	3	4	0.89	1.1	1.58	2.40	4.9	1.10	No lining required
CW-D3	0.03	0.05	2	0	**2.50**	2	6	0.52	0.8	0.54	1.30	4.62	0.80	No lining required
CW-D4	0.03	0.05	2	0	**4.80**	2	5	0.70	1.0	0.98	2.10	4.9	1.00	No lining required
CW-D5	0.03	0.05	2	0	**10.10**	1	2.5	1.04	1.5	2.16	4.70	4.7	1.50	No lining required
CW-D6	0.03	0.05	2	1	**5.00**	1	6	0.56	0.9	1.19	2.50	4.2	0.90	No lining required
CW-D7	0.03	0.05	2	1	**14.50**	1	2.3	0.98	1.5	2.90	6.00	5	1.50	No lining required
Past-D1	0.012	0.03	2	2	**2.20**	0.2	1.5	0.20	0.6	0.48	1.92	4.58	0.60	No lining required
Past-D3	0.025	0.05	2	0	**2.80**	1	4	0.55	0.9	0.61	1.62	4.59	0.90	No lining required
Past-D4	0.025	0.05	2	1	**4.86**	2	5	0.49	0.8	0.97	2.10	4.95	0.80	No lining required
Past-D5	0.025	0.05	2	1	**2.50**	0.5	2.5	0.38	0.8	0.67	2.08	3.73	0.80	No lining required
Past-D6	0.03	0.05	2	1	**3.60**	2	5	0.42	0.7	0.77	1.68	4.68	0.70	No lining required
~~Past-D8~~	~~0.025~~	~~0.05~~	~~2~~	~~0~~	~~**1.70**~~	~~1~~	~~5~~	~~0.44~~	~~0.8~~	~~0.39~~	~~1.28~~	~~4.36~~	~~0.80~~	~~No lining required~~
Past-D9	0.025	0.05	2	1	**3.98**	0.8	5	0.46	1.0	0.82	2.20	4.85	1.00	No lining required

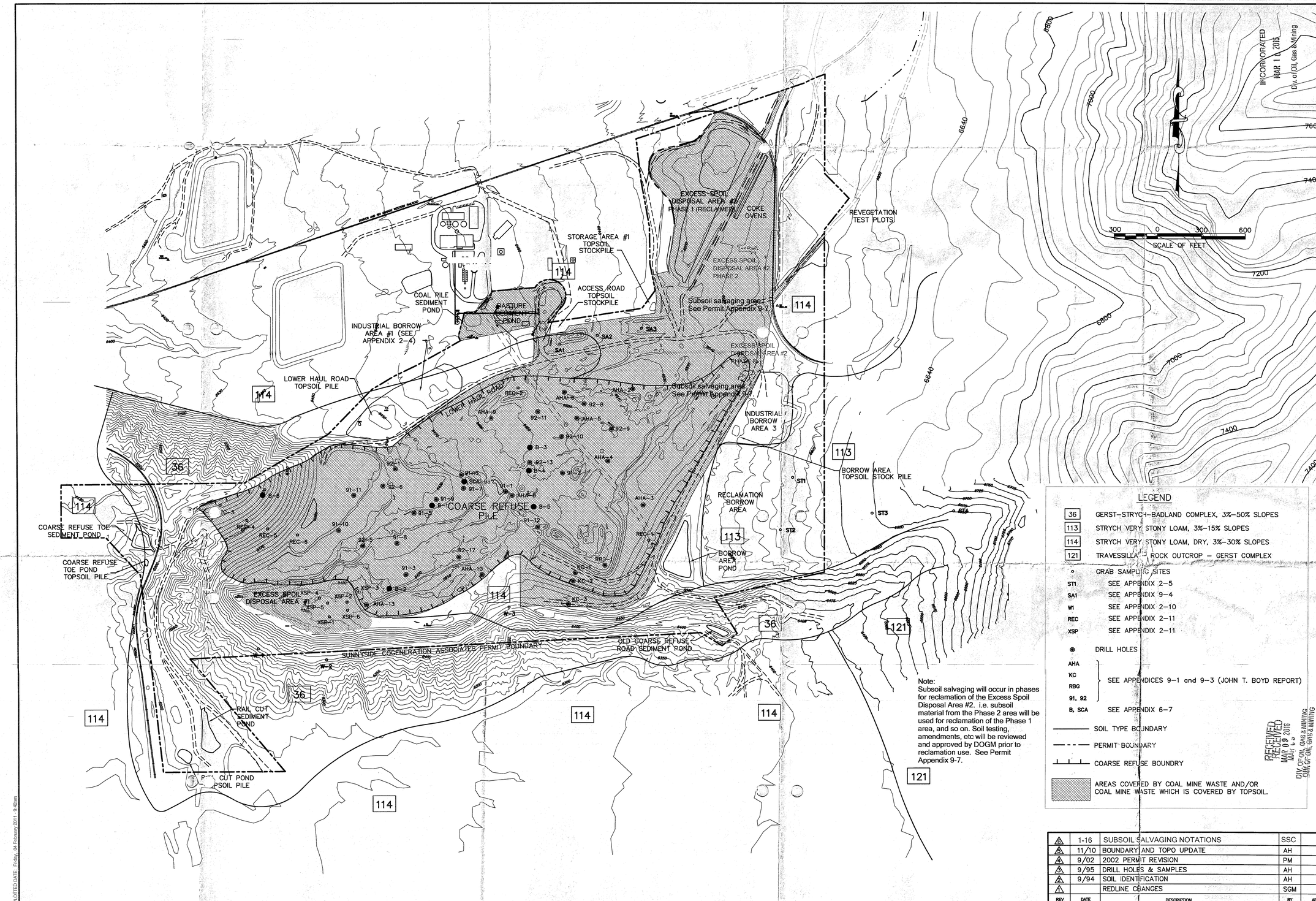
CULVERT DESIGN CRITERIA

Culvert No	Minimum Pipe Diameter (in)	Pipe Length (ft)	Pipe Slope %	Controlling Head Water (Ft)	Design Flow (cfs)	Design Velocity (ft/s)	Inlet / Outlet Conditions
Past-C1	18	40	1	1	**2.8**	2.3	No lining req'd
Past-C2	24	115	3	1.2	**4.9**	2.9	No lining req'd
Past-C4	12	75	3	1.65	**3.6**	4.6	Submerged inlet outlet Riprap D50=6"
Past-C5	24	40	1	0.1	**3.98**	2.6	No lining req'd
CW-C1	12	60	3.7	1.9	**4**	5	No lining req'd
CW-C3	4@8"	10	6	0.67	**6.8**	5	No lining req'd
CW-C4	36	60	1.7	1.9	**3.8**	4.2	No lining req'd
CW-C5	18	780	1.8	3	**11.5**	4.9	No lining req'd

Culverts were designed for these watersheds previously under a very conservative storm (100 yr 6 hr). With the combined watersheds now proposed, we have checked to make sure that the designs are still more conservative than the required 10 year 6 hour storm. See the table above for the design flow rates used.

DETERMINATION OF BOND AMOUNT - Summary

ITEM	QUANTITY	RATE	COST
Total Crusher Demolition Culvert Removal & Riprap			$ 141,699
Total Backfill, Grading and support			$ 720,767
Total Revegetation and Erosion Control			$ 273,340
Total (Direct Costs)			**$ 1,135,806**
Mobilization and Demobilization	**10%**		$ 113,581
Contingency	**5%**		$ 56,790
Engineering Redesign	**2.5%**		$ 28,395
Main Office Expense	**6.8%**		$ 77,235
Project Management Fee	**2.5%**		$ 28,395
Total (Indirect Costs)	**26.8%**		**$ 304,396**
Total (Direct and Indirect Costs - 2015 dollars)			**$ 1,440,202**
Escalation 5 years to Mid Term 2020	5	**1.20%**	$ 88,511
Escalation 5 years to Mid Term 2025	5	**2.95%**	$ 239,187
Total Reclamation Costs (Escalated)			$ 1,767,900
Bond Amount Required (Rounded to the nearest $1,000)			**$ 1,768,000**



Note:
Subsoil salvaging will occur in phases for reclamation of the Excess Spoil Disposal Area #2. i.e. subsoil material from the Phase 2 area will be used for reclamation of the Phase 1 area, and so on. Soil testing, amendments, etc will be reviewed and approved by DOGM prior to reclamation use. See Permit Appendix 9-7.

LEGEND

36	GERST-STRYCH-BADLAND COMPLEX, 3%-50% SLOPES
113	STRYCH VERY STONY LOAM, 3%-15% SLOPES
114	STRYCH VERY STONY LOAM, DRY, 3%-30% SLOPES
121	TRAVESSILLA - ROCK OUTCROP - GERST COMPLEX
∘	GRAB SAMPLING SITES
ST1	SEE APPENDIX 2-5
SA1	SEE APPENDIX 9-4
W1	SEE APPENDIX 2-10
REC	SEE APPENDIX 2-11
XSP	SEE APPENDIX 2-11
●	DRILL HOLES
AHA, KC, RBG, 91, 92	SEE APPENDICES 9-1 and 9-3 (JOHN T. BOYD REPORT)
B, SCA	SEE APPENDIX 6-7
———	SOIL TYPE BOUNDARY
— - —	PERMIT BOUNDARY
⊥⊥⊥	COARSE REFUSE BOUNDRY
▨	AREAS COVERED BY COAL MINE WASTE AND/OR COAL MINE WASTE WHICH IS COVERED BY TOPSOIL.

RECEIVED MAR 09 2016 DIV. OF OIL, GAS & MINING

REV	DATE	DESCRIPTION	BY	APP'D
6	1-16	SUBSOIL SALVAGING NOTATIONS	SSC	
5	11/10	BOUNDARY AND TOPO UPDATE	AH	
4	9/02	2002 PERMIT REVISION	PM	
3	9/95	DRILL HOLES & SAMPLES	AH	
2	9/94	SOIL IDENTIFICATION	AH	
1		REDLINE CHANGES	SGM	

INCORPORATED MAR 1 0 2016 Div. of Oil, Gas & Mining

ELECTRONICALLY SIGNED BY LICENSED PROFESSIONAL ENGINEER SCOTT CARLSON No. 187727 S. SCOTT CARLSON STATE OF UTAH 1/2016

9-28-95

SCALE 1" = 300'

PROJECT NO. -

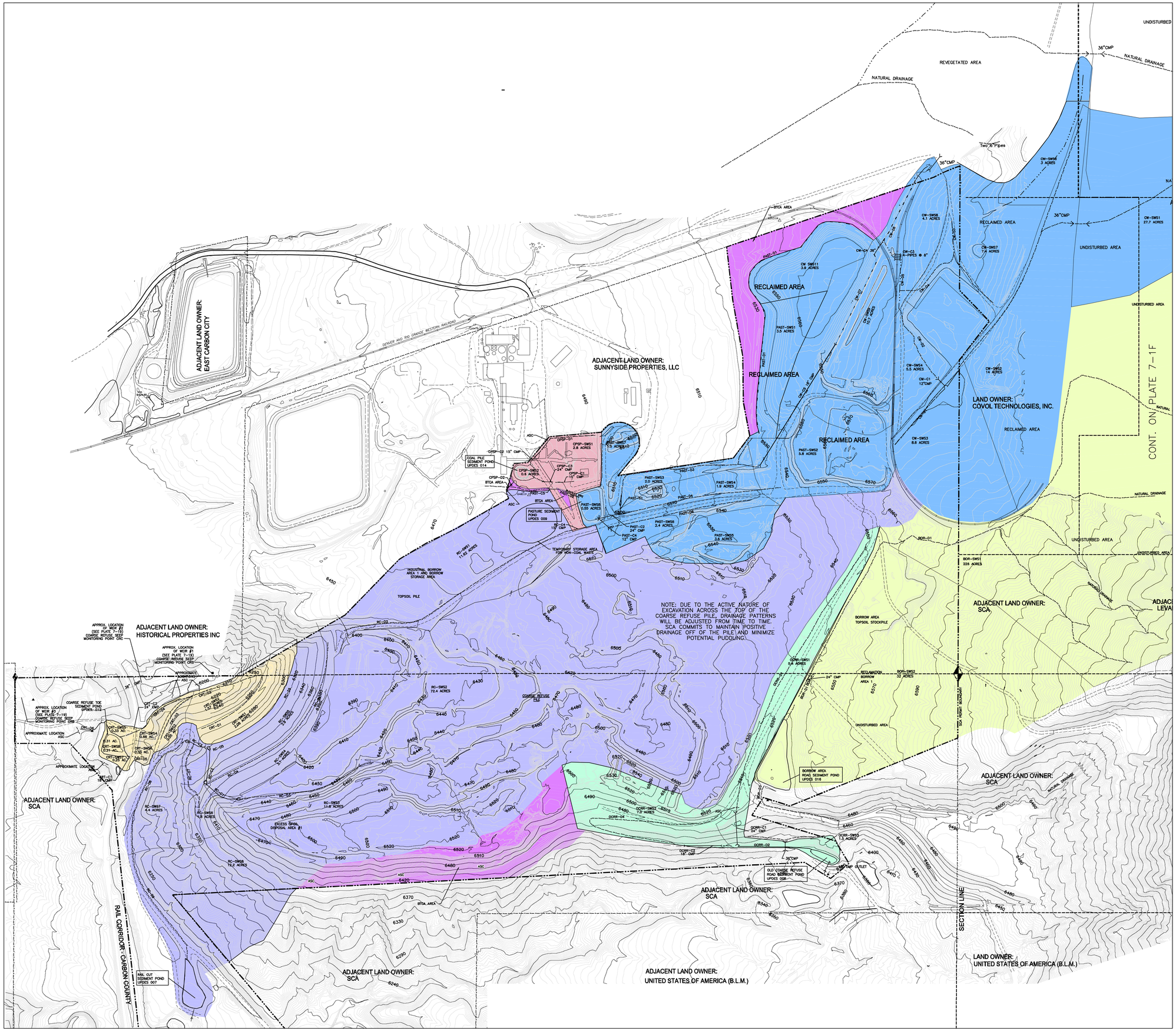
Sunnyside Cogeneration Associates
SOIL IDENTIFICATION MAP

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 2-1

PLOTTED DATE: Friday, 04 February 2011 - 9:42am



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: -

DESIGNED: AH
DRAFTED: AH
CHECKED: SSC

TWIN PEAKS
Engineering & Land Surveying
2264 NORTH 1450 EAST LEHI, UTAH 84043
(801) 450-351

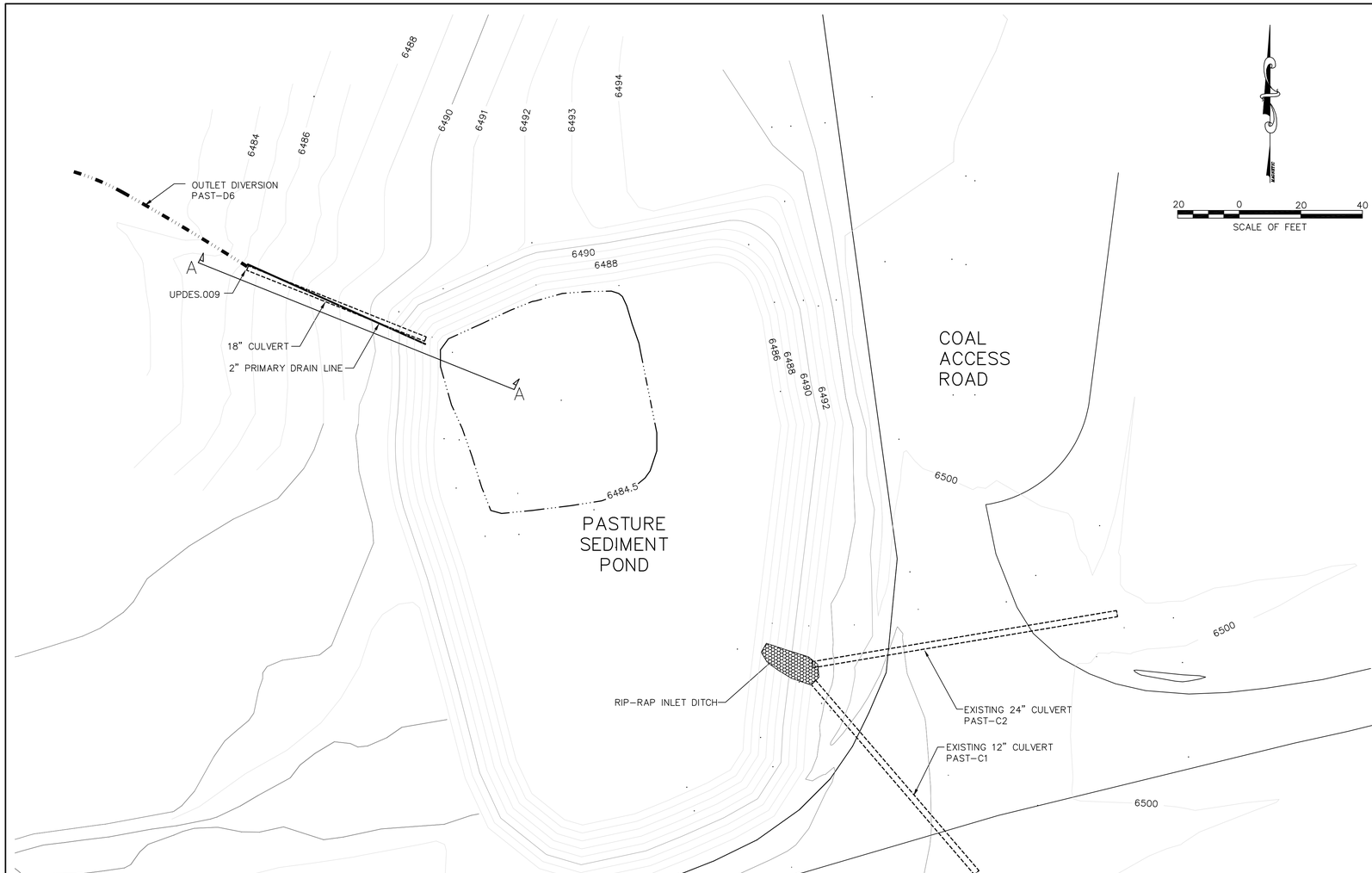
LICENSED PROFESSIONAL ENGINEER
No. 187727
S. SCOTT CARLSON
STATE OF UTAH

7/17	UPDATED TOPO AND ADDED ROAD W	AH
10/16	POST CONSTRUCTION UPDATE FOR ROAD S	AH
7/16	EXCESS SPOIL DISPOSAL AREA RECLAMATION UPDATE	AH
7/15	REMOVE CULVERTS IN PASTURE POND DRAINAGE AREA	AH
	ADD DITCHES AND CULVERTS IN RAIL CUT DRAINAGE	AH
11/10	BOUNDARY UPDATE	AH
8/10	UPDATE SITE AND TOPO	AH
5/08	MOVE PASTURE POND CULVERT-C1	SSC
5/07	UPDATE PASTURE POND	AH

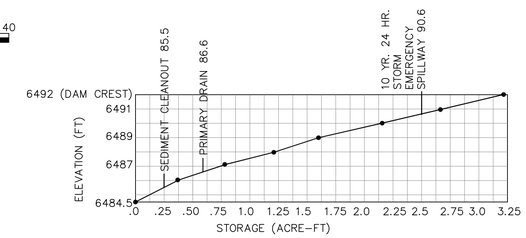
SHEET

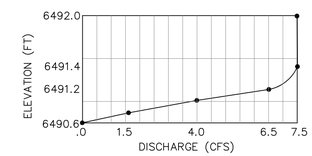
7-1

PLOTTED DATE: Tuesday, 18 August 2020 - 7:03pm

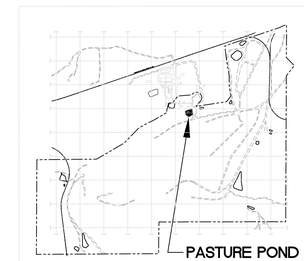


ELEVATION (FT)	AREA (ACRES)	DISCHARGE (CFS)	STORAGE (AC-FT)
6484.5	.084	.00	.00
6486.0	.366	.00	.37
6487.0	.395	.00	.77
6488.0	.425	.00	1.20
6489.0	.455	.00	1.66
6490.0	.487	.00	2.15
6490.8	.513	1.60	2.57
6491.0	.520	4.00	2.67
6491.2	.527	6.50	2.78
6491.4	.534	7.50	2.89
6492.0	.554	7.50	3.22

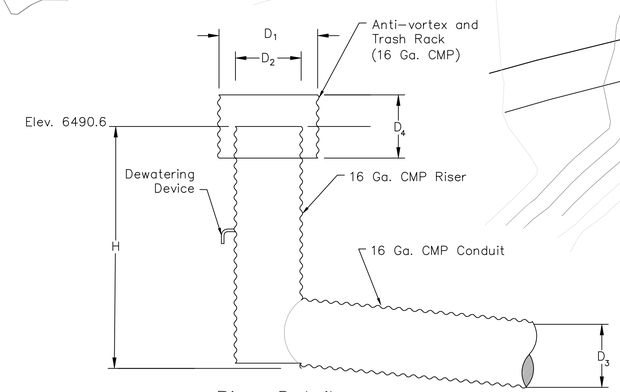




SPILLWAY DIMENSIONS		
	Primary Drain	Emergency
D_1		24"
D_2	2"	18"
D_3	2"	18"
D_4		18"
ELEV	6486.6	6490.6

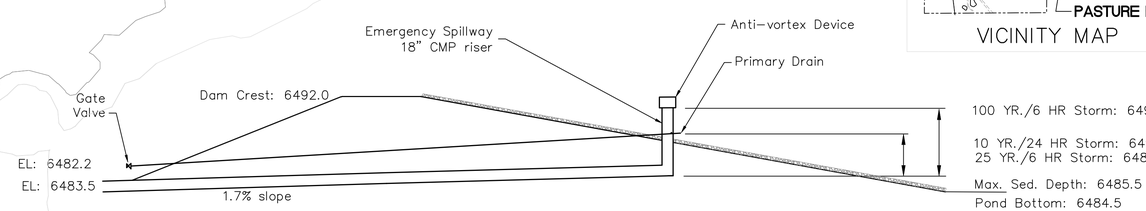


VICINITY MAP



Riser Detail

N. T. S.



Section A

N. T. S.

REV	DATE	DESCRIPTION	BY	APP'D
△				
△				
4	2/07	ADD NOTES AND ELEVATIONS	AH	
3	12/05	PASTURE POND ENLARGEMENT	AH	
2	9/02	2002 PERMIT RENEWAL	PAM	
1	9/97	PERMIT RENEWAL-UPDATES	AH	

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

Electronically signed by: S. Scott Carlson 8-6-20

DATE 06-93

SCALE

PROJECT NO. 8SUN010500

Sunnyside Cogeneration Associates
PASTURE POND DRAWING

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

DESIGNED AH

DRAWN AH

CHECKED SSC

SHEET

7-9