C0070005, Incoming ✓
#5022

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

Jeremiah Armstrong, Environmental Eng.
HC35, Box 380
Helper, Utah 84526
(435) 448-2645
Fax (435) 448-2632

RECEIVED
OCT 30 2015
DIV. OF OIL, GAS & MINING

October 28, 2015

Mr. Daron R. Haddock
Division of Oil, Gas, and Mining
1594 West North Temple
Salt Lake City, Utah 84114-5801

RE: Waste Rock Site Culvert, Canyon Fuel Company, LLC, Skyline Mine, C/007/005, Task ID 4978

Dear Daron,

Attached to this letter is pertinent information addressing modifications to the Skyline Mine M&RP to include the installation of a culvert at the Waste Rock Site. The culvert will carry runoff from the undisturbed ditch, UD-6B, to the adjacent natural drainage. The permit modifications consist of: 1) referencing the addition of the culvert in Section 3.2; 2) updates to Plates 3.2.8-1 and 3.2.8-2 to show the culvert; 3) the addition of Plate 3.2.8-1a detailing the culvert design; 4) updates to the bond calculations in Section 4.3 to accommodate the demolition and disposal of the concrete, culvert, and backfilling; and 5) relevant design information for the culvert.

Attached to this cover letter are the completed C1 and C2 forms, Two (2) CLEAN hard copies of the M&RP modifications in Section 3.2, four (4) plates; three (3) bond pages in Section 4.3, and design calculations for Appendix A-5, Volume I, Section 14. Redline-strikeout versions of this amendment were submitted to the division electronically.

If you have any questions regarding this information, please give me a call at (435) 448-2645.

Sincerely,

Jeremiah Armstrong

Jeremiah Armstrong
Canyon Fuel Company, LLC – Skyline Mines
Environmental Engineer

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Enclosures

APPLICATION FOR COAL PERMIT PROCESSING

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

Permittee: Canyon Fuel Company, LLC
Mine: Skyline Mine **Permit Number:** C/007/005
Title: Waste Rock Site Culvert Task ID #4978
Description, Include reason for application and timing required to implement:
Addition of culvert from undisturbed ditch to existing drainage CLEAN COPIES (2)

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?

Information has been submitted electronically. (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.

Corey Heaps
Print Name

Corey Heaps, GM, 10-29-15
Sign Name, General Manager, Date

Subscribed and sworn to before me this 29 day of October, 20 15

Melissa S Willden
Notary Public

My commission Expires: 3-19, 20 19

Attest: State of Utah } ss:
County of Carbon }

MELISSA S WILLDEN
Notary Public State of Utah
My Commission Expires
March 19 2019

For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining
		RECEIVED OCT 30 2015 DIV. OF OIL, GAS & MINING

Form DOGM- C1 (Revised March 12, 2002)

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

Permittee: Canyon Fuel Company, LLC
Mine: Skyline Mine **Permit Number:** C/007/005
Title: Waste Rock Site Culvert Task ID # 4978

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	Chapter 3.2 Skyline Mining Operation Plan - pages 3-53, 3-56(b)
☐ Add	☒ Replace	☐ Remove	Chapter 3.2 Plates 3.2.8-1 and 3.2.8-2
☒ Add	☐ Replace	☐ Remove	Chapter 3.2 Plate 3.2.8-1a
☐ Add	☒ Replace	☐ Remove	Section 4.3 Cost Estimate for Performance Bond - Total Bond Amount Page
☐ Add	☒ Replace	☐ Remove	Section 4.3 Cost Estimate for Performance Bond - Demolition Costs Summary page, Culvert Backfilling 37 demolition page (2 total pages)
☒ Add	☐ Replace	☐ Remove	Engineering Calculations, Appendix A-5, Volume I, Section 14: Waste Rock Site Culvert Design
☐ 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.

Two (2) clean copies are included.

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SECTION 3.2

2. The emplacement of a minimum of four feet of non-combustible fill material to form a barrier across the floor and along the walls of the abandoned strip pit where coal seams were exposed during prior mining activities and where cracks or fissures are venting from adjacent coal fires.

3. The construction of a fence and gate to control access to the disposal site and to protect re-vegetated areas from domestic livestock.

4. Some shrubs will be removed from near the top and south side of the pit just prior to the time the area they occupy will be covered with waste rock. The sparse grass and weeds will not be removed.

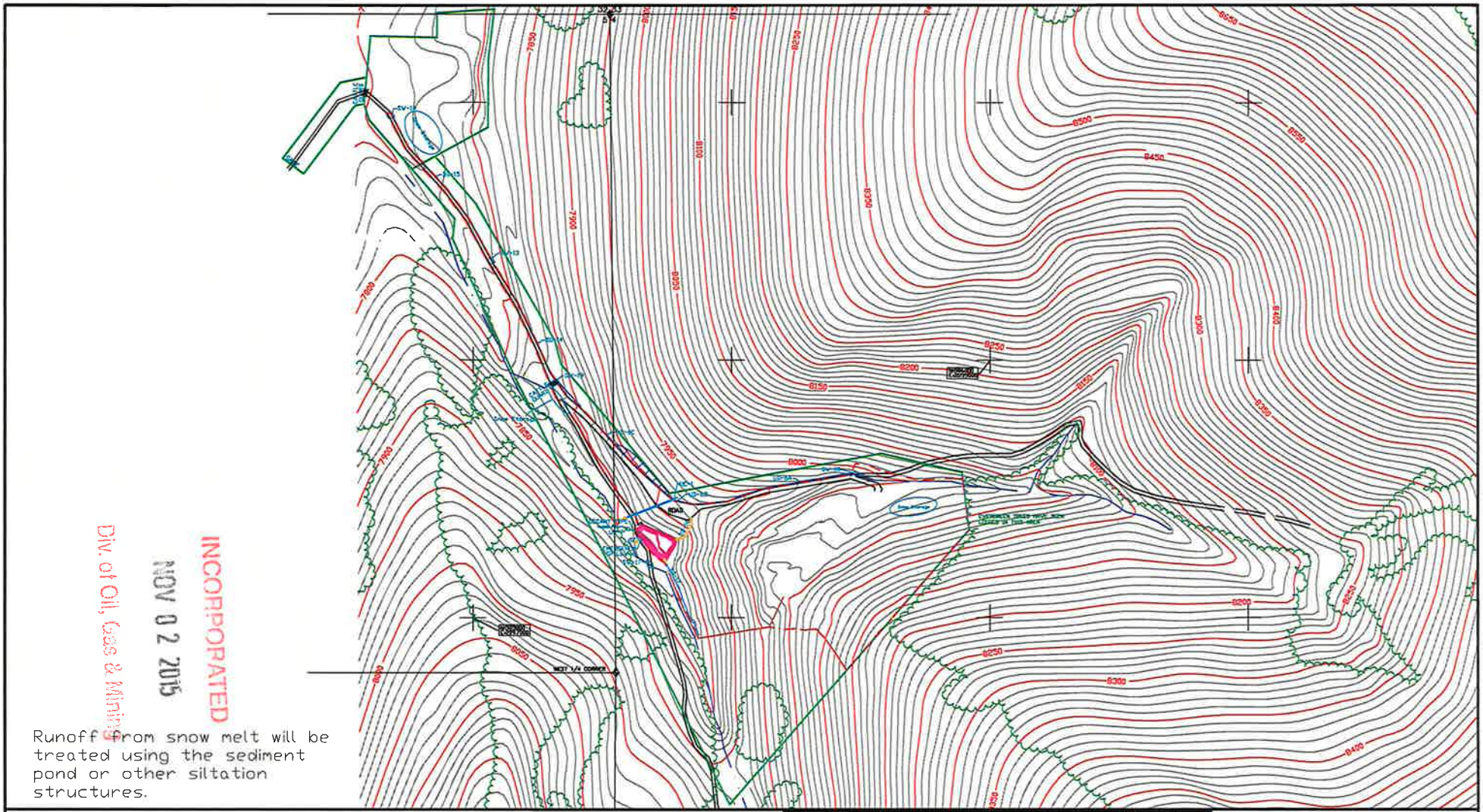
5. Any topsoil or growth material will be recovered and saved to used for reclamation of the site.

The previous course of the drainage from the canyon to the east of the abandoned strip pit was rerouted around the disposal site and along a portion of the access road and then into the original stream course. An open channel and dip are used to redirect the water flow (Maps 3.2.8-1 and 3.2.8-2). In 2015, a culvert (UC-1) was installed to divert water from the undisturbed ditch (UD-6B) across the access road, down the slope, and empty into the existing drainage to the east of the access road. The culvert has been designed as to not cause any erosion at exit. See drawing 3.2.8-1a and calculations in Engineering Calculations, Appendix A-5, Volume 1, Section 14. The Permittee searched for seeps and springs in the down slope area west of the disposal site during the spring of 1984. No seeps or springs were found.

After careful investigation by both the Company and the Division, it was determined that an undisturbed ditch would not be constructed above the site. This decision was based upon the following facts:

1. The existing highwall is unstable and therefore would prevent building a drainage ditch except at a considerable distance from the edge of the highwall.

2. The topography of the area above the highwal (see Map 3.2.8-3) is such that only a small area is actually tributary to the disposal pit.



Runoff from snow melt will be treated using the sediment pond or other siltation structures.

Permit Boundary

Disturbed Area Boundary

DATE	No.	REVISIONS	APPD. CHKD.	DES. DR.
09-14-15	10	ADDED UC-1	/	J.A./ J.A.

Waste Rock Snow Removal Plan

Canyon Fuel Company, LLC
Skyline Mines

DATE: 11-04-08 | DK.BY:G. Galecki | REVISION: 1
SCALE: NONE | DR.BY:A. Belcher
DWG. NO.: 3-56(b) | 9/14/2015

SECTION

4.3

Skyline Mine TC/007/005
2015 Waste Rock Site Culvert

Total Required Bond Amount
2014 Dollars

Revised October 28, 2015

Bonding Calculations

Direct Costs

Subtotal Demolition and Removal	$2,167,383
Subtotal Backfilling and Grading	$1,597,728
Subtotal Revegetation	$425,908
Direct Costs Subtotal	$4,191,019

Indirect Costs

Mob/Demob	$416,259	10.0%
Contingency	$208,130	5.0%
Engineering Redesign	$104,065	2.5%
Main Office Expense	$283,056	6.8%
Project Management Fee	$104,065	2.5%
Subtotal Indirect Costs	$1,115,575	26.8%

Total Cost 2014	**$5,306,594**	

Escalation factor		5
Number of years		0.019
Escalation	$520,846	
Reclamation Cost Escalated	$5,827,440	

Reclamation Bond Amount (rounded to nearest $1,000) 2019 Dollars	**$5,827,000**

Posted Bond March 18, 2015	$5,799,000
Difference Between Cost Estimate and Bond	-$28,000
Percent Difference	-0.48%

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Shop Warehouse 01																			394012
	Administration Bld 02																			27154
	Mine No 1 Transfer Tower 03																			44110
	BC 2 Drive House 04																			9422
	BC 3 Drive House 05																			40300
	Crusher Raw Coal 06																			29295
	Truck Loadout 07																			7090
	Railcar Loadout 08																			23377
	Conveyors 8 total 09																			99678
	Water Tanks Two 10																			6318
	Pump House 11																			1126
	Well House Three 12																			4756
	Water Treatment Bld 13																			17830
	Misc Storage Bld 14																			9435
	Overland Conveyor 15																			95092
	Guard Rail 16																			18195
	Rock Dust Bld 17																			5743
	Overland Dust Collector 18																			1296
	Substation 19																			1797
	Power Line 20																			528
	Cap Magazine 21																			34
	Fuel Storage 22																			2634
	Propane Tanks 23																			470
	Stacking Tube 24																			4900
	Reclaim Tunnel 25																			40535
	Slope Proctection Apron 26																			15574
	Concrete Lined Ditch 27																			1175
	Raw Coal Silo 28																			14063
	Parking Area Middle 29																			2178
	Truck Loadout Foundation 30																			206
	Road Pad Lower 31																			3372
	Silo Rail Loadout 32																			124659
	Loadout Foundation RR 33																			5124
	Pavement Rail Loadout 34																			82539
	Steel 35																			11075
	James Canyon 36																			126205
	Culvert Backfilling 37																			9041
	Channel Construction 38																			520548
	Equipment 39																			265747
	Portal Face Door 40																			6297
	Concrete Building 41																			1750
	Winter's Quarters Ventilation																			72809
	North of Graben (NOG) Bleeder Shaft																			19894
	Total																			2167383

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Culvert Backfilling 37																			
	Culvert CU-1 48 inch	Excavation Bulk Bank 2 CY (322BL)	31 23 16 42 0260	1.42	/CY	560	4	8								FT		664	CY	943
		Backfill Trench Mininal Haul 2 1/4 CY	31 23 16 13 3080	1.77	/CY	560	4	8								FT		664	CY	1175
	Culvert CU-2	Excavation Bulk Bank 2 CY (322BL)	31 23 16 42 0260	1.42	/CY	588	4	8								FT		697	CY	990
		Backfill Trench Mininal Haul 2 1/4 CY	31 23 16 13 3080	1.77	/CY	588	4	8								FT		697	CY	1234
	Culvert CU-3	Excavation Bulk Bank 2 CY (322BL)	31 23 16 42 0260	1.42	/CY	410	4	8								FT		486	CY	690
		Backfill Trench Mininal Haul 2 1/4 CY	31 23 16 13 3080	1.77	/CY	410	4	8								FT		486	CY	860
	Culvert CU-2a	Excavation Bulk Bank 2 CY (322BL)	31 23 16 42 0260	1.42	/CY	410	4	8								FT		870	CY	1235
		Backfill Trench Mininal Haul 2 1/4 CY	31 23 16 13 3080	1.77	/CY	410	4	8								FT		870	CY	1540
	Culvert Waste Rock Site (UC-1) 24 inch	Excavation Bulk Bank 2 CY (322BL)	31 23 16 42 0260	1.42	/CY	180	3	5								FT		100	CY	142
		Backfill Trench Mininal Haul 2 1/4 CY	31 23 16 13 3080	1.77	/CY	180	3	5								FT		100	CY	177
		concrete demo less than 15" thick (2 - concrete sediment boxes [pre-fab])	Nelson '14	13.75	/CY											CY		4	CY	55
	Subtotal																			9041
	Total																			**9041**

ENGINEERING

CALCULATIONS

APPENDIX A-5

VOLUME I

SECTION 14

Waste Rock Site Culvert ~~WR~~ UC-1

B King

Skyline Mine
Scofield
Utah

Phone: 435-448-2643
Email: bking@bowieresources.com

General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	10 yr - 6 hr
Rainfall Depth:	1.360 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Culvert	#1	==>	End	0.000	0.000	WR-1

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	300.000	300.000	1.42	0.28

Structure Detail:

Structure #1 (Culvert)

WR-1

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
20.00	5.00	0.0240	0.50	0.00	0.90

Culvert Results:

Design Discharge = 1.42 cfs

Minimum pipe diameter: 1 - 24 inch pipe(s) required

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	300.000	0.322	0.000	0.000	65.000	M	1.42	0.282
	Σ	**300.000**						**1.42**	**0.282**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	2. Minimum tillage cultivation	31.00	1,000.00	3,225.80	2.780	0.322
#1	**1**	**Time of Concentration:**					**0.322**

NOAA Atlas 14, Volume 1, Version 5
Location name: Helper, Utah, US*
Latitude: 39.6974°, Longitude: -111.1533°
Elevation: 7994 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.139** (0.119-0.167)	**0.178** (0.153-0.214)	**0.246** (0.209-0.294)	**0.304** (0.256-0.366)	**0.395** (0.324-0.476)	**0.476** (0.382-0.575)	**0.569** (0.447-0.689)	**0.675** (0.516-0.825)	**0.845** (0.617-1.05)	**0.997** (0.702-1.26)
10-min	**0.211** (0.181-0.254)	**0.271** (0.233-0.326)	**0.374** (0.317-0.448)	**0.463** (0.390-0.557)	**0.602** (0.493-0.725)	**0.724** (0.582-0.875)	**0.865** (0.681-1.05)	**1.03** (0.785-1.26)	**1.29** (0.940-1.60)	**1.52** (1.07-1.92)
15-min	**0.262** (0.224-0.314)	**0.337** (0.288-0.404)	**0.464** (0.393-0.555)	**0.574** (0.483-0.690)	**0.746** (0.611-0.898)	**0.897** (0.721-1.08)	**1.07** (0.844-1.30)	**1.27** (0.973-1.56)	**1.59** (1.17-1.98)	**1.88** (1.32-2.38)
30-min	**0.353** (0.302-0.423)	**0.453** (0.388-0.544)	**0.624** (0.530-0.748)	**0.773** (0.650-0.929)	**1.00** (0.823-1.21)	**1.21** (0.971-1.46)	**1.45** (1.14-1.75)	**1.72** (1.31-2.10)	**2.15** (1.57-2.67)	**2.53** (1.78-3.20)
60-min	**0.437** (0.374-0.523)	**0.561** (0.481-0.673)	**0.773** (0.656-0.925)	**0.957** (0.805-1.15)	**1.24** (1.02-1.50)	**1.50** (1.20-1.81)	**1.79** (1.41-2.17)	**2.12** (1.62-2.59)	**2.66** (1.94-3.30)	**3.13** (2.21-3.96)
2-hr	**0.532** (0.459-0.631)	**0.673** (0.579-0.798)	**0.893** (0.764-1.06)	**1.09** (0.922-1.29)	**1.40** (1.16-1.67)	**1.68** (1.36-2.01)	**2.00** (1.58-2.41)	**2.37** (1.82-2.88)	**2.95** (2.17-3.65)	**3.49** (2.48-4.40)
3-hr	**0.593** (0.519-0.696)	**0.742** (0.649-0.871)	**0.953** (0.832-1.12)	**1.15** (0.993-1.35)	**1.45** (1.24-1.71)	**1.71** (1.43-2.03)	**2.03** (1.66-2.42)	**2.39** (1.91-2.88)	**2.98** (2.29-3.66)	**3.52** (2.61-4.44)
6-hr	**0.766** (0.681-0.873)	**0.947** (0.845-1.08)	**1.17** (1.04-1.34)	**1.36** (1.20-1.56)	**1.64** (1.43-1.88)	**1.89** (1.62-2.18)	**2.19** (1.85-2.56)	**2.54** (2.11-2.98)	**3.11** (2.51-3.72)	**3.63** (2.87-4.49)
12-hr	**0.971** (0.879-1.08)	**1.20** (1.08-1.34)	**1.45** (1.31-1.63)	**1.67** (1.50-1.87)	**1.98** (1.75-2.22)	**2.22** (1.94-2.51)	**2.48** (2.15-2.81)	**2.80** (2.39-3.22)	**3.36** (2.81-3.91)	**3.87** (3.19-4.57)
24-hr	**1.21** (1.08-1.37)	**1.49** (1.34-1.69)	**1.82** (1.62-2.06)	**2.07** (1.84-2.35)	**2.42** (2.13-2.75)	**2.68** (2.35-3.05)	**2.94** (2.57-3.35)	**3.21** (2.77-3.67)	**3.56** (3.04-4.09)	**3.91** (3.23-4.62)
2-day	**1.43** (1.26-1.62)	**1.77** (1.57-2.01)	**2.15** (1.89-2.44)	**2.46** (2.16-2.79)	**2.87** (2.50-3.25)	**3.18** (2.75-3.61)	**3.50** (3.01-3.98)	**3.82** (3.26-4.37)	**4.24** (3.58-4.88)	**4.56** (3.81-5.28)
3-day	**1.61** (1.41-1.85)	**2.00** (1.75-2.29)	**2.43** (2.12-2.79)	**2.78** (2.42-3.19)	**3.25** (2.81-3.73)	**3.61** (3.10-4.15)	**3.97** (3.38-4.58)	**4.34** (3.67-5.02)	**4.83** (4.03-5.62)	**5.21** (4.29-6.09)
4-day	**1.79** (1.56-2.08)	**2.22** (1.94-2.58)	**2.71** (2.35-3.14)	**3.10** (2.68-3.60)	**3.63** (3.11-4.21)	**4.04** (3.44-4.70)	**4.45** (3.75-5.18)	**4.87** (4.07-5.67)	**5.43** (4.48-6.36)	**5.86** (4.77-6.91)
7-day	**2.11** (1.85-2.46)	**2.62** (2.29-3.05)	**3.19** (2.79-3.73)	**3.66** (3.18-4.27)	**4.28** (3.70-5.02)	**4.76** (4.08-5.59)	**5.25** (4.46-6.18)	**5.74** (4.85-6.78)	**6.39** (5.34-7.61)	**6.89** (5.70-8.26)
10-day	**2.42** (2.10-2.81)	**3.01** (2.61-3.50)	**3.67** (3.17-4.27)	**4.19** (3.60-4.88)	**4.88** (4.16-5.70)	**5.40** (4.58-6.32)	**5.93** (4.99-6.96)	**6.45** (5.39-7.59)	**7.14** (5.89-8.46)	**7.66** (6.26-9.12)
20-day	**3.22** (2.77-3.88)	**4.01** (3.44-4.82)	**4.92** (4.20-5.96)	**5.64** (4.78-6.85)	**6.59** (5.55-8.04)	**7.31** (6.11-8.95)	**8.03** (6.66-9.84)	**8.75** (7.20-10.8)	**9.70** (7.85-12.0)	**10.4** (8.34-13.0)
30-day	**3.96** (3.38-4.72)	**4.92** (4.20-5.87)	**5.98** (5.08-7.19)	**6.80** (5.76-8.17)	**7.87** (6.61-9.46)	**8.66** (7.23-10.4)	**9.44** (7.83-11.4)	**10.2** (8.39-12.4)	**11.2** (9.08-13.6)	**11.9** (9.60-14.6)
45-day	**4.94** (4.22-5.93)	**6.14** (5.24-7.38)	**7.47** (6.35-9.02)	**8.49** (7.19-10.3)	**9.82** (8.26-11.9)	**10.8** (9.04-13.1)	**11.8** (9.81-14.3)	**12.7** (10.5-15.5)	**14.0** (11.4-17.1)	**14.9** (12.1-18.4)
60-day	**5.77** (4.95-6.82)	**7.18** (6.16-8.50)	**8.75** (7.48-10.4)	**9.95** (8.48-11.8)	**11.5** (9.73-13.7)	**12.6** (10.6-15.1)	**13.7** (11.5-16.4)	**14.8** (12.3-17.8)	**16.2** (13.3-19.6)	**17.2** (14.0-20.9)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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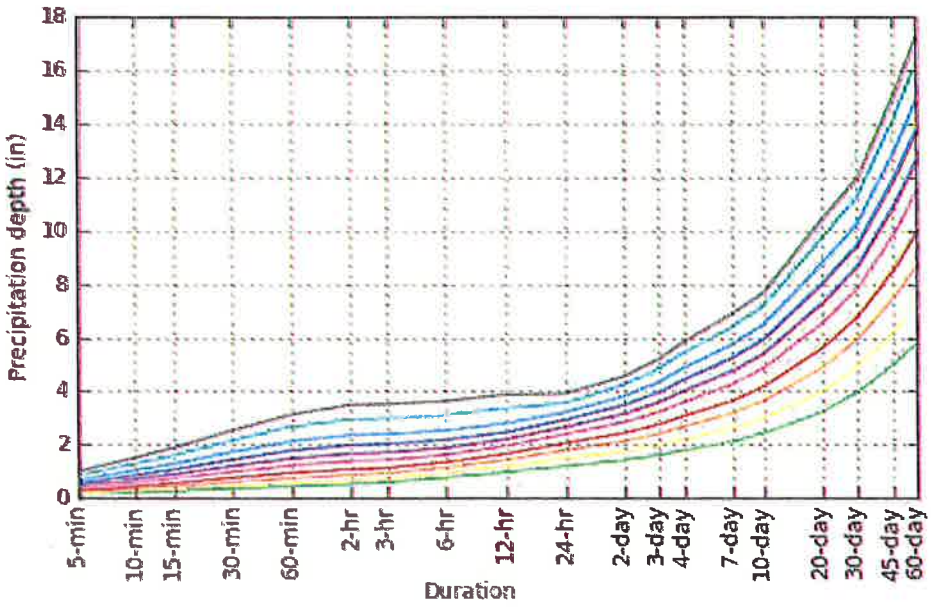
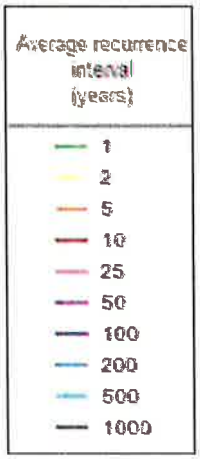
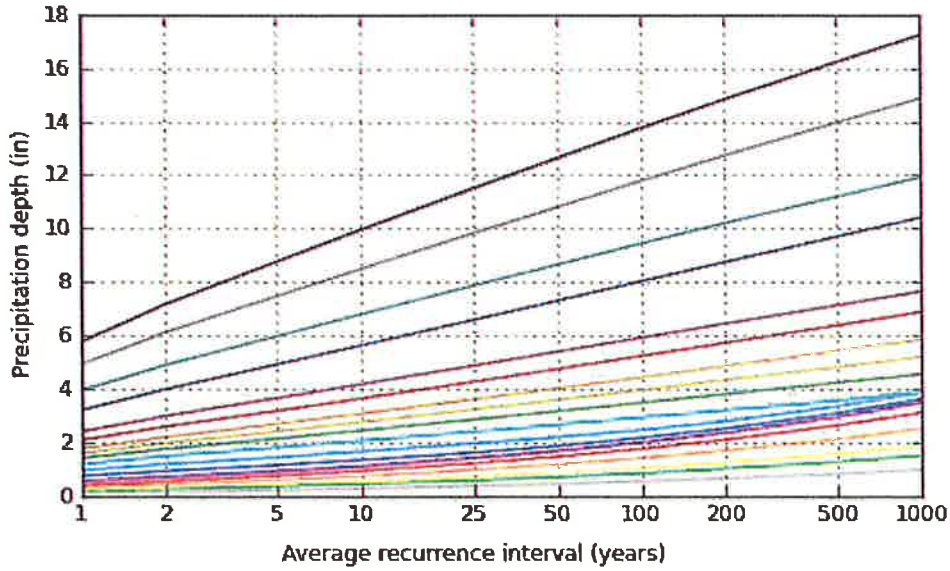
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 39.6974°, Longitude: -111.1533°

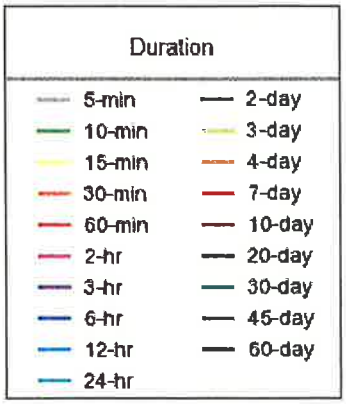






NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Thu Jul 10 19:42:59 2014



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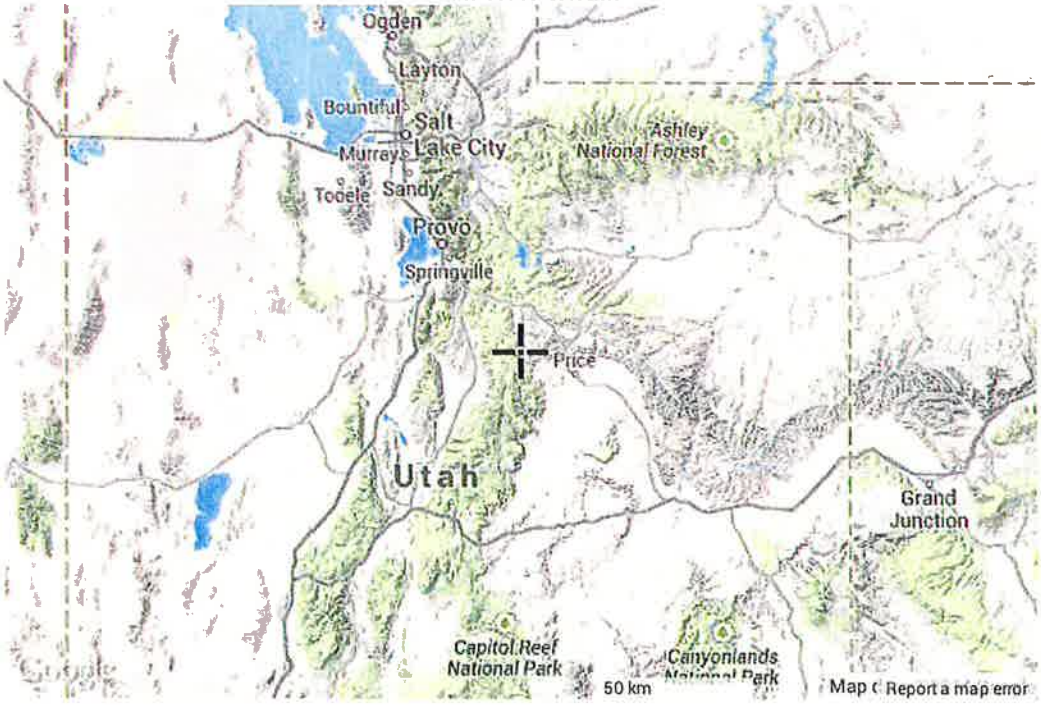
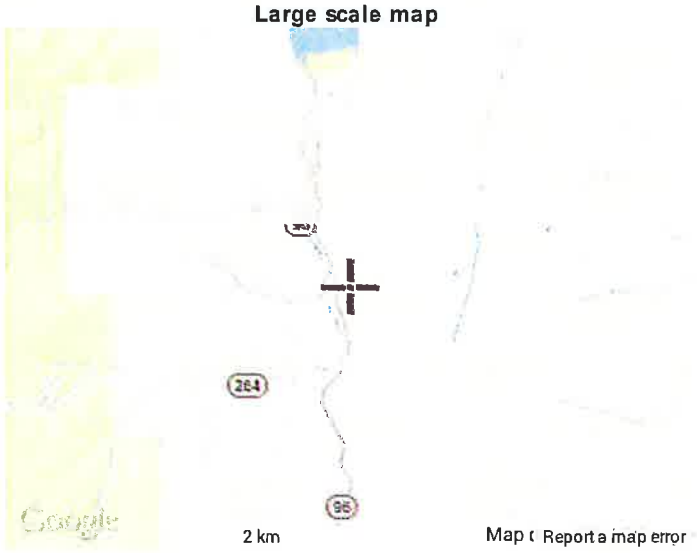
Maps & aerials

Small scale terrain



Large scale terrain

Large scale map



Large scale aerial

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Office of Hydrologic Development
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

USGS Utah StreamStats

Basin Characteristics Report

Date: Wed Nov 13 2013 08:06:35 Mountain Standard Time
NAD27 Latitude: 39.7202 (39 43 13)
NAD27 Longitude: -111.1517 (-111 09 06)
NAD83 Latitude: 39.7201 (39 43 12)
NAD83 Longitude: -111.1524 (-111 09 09)

Parameter	Value
Mean basin elevation, in feet	8530
Area in square miles	0.46
Area Covered by herbaceous upland, in percent	27.5
Area Covered by forest, in percent	52.5
Mean annual precipitation, in inches	20.4
Average basin slope, in percent	30.9
Slopes Greater Than 30 Percent	65.5
Jan. Mean annual precipitation, in inches	1.84
Feb. Mean annual precipitation, in inches	1.91
March Mean annual precipitation, in inches	2.12
April Mean annual precipitation, in inches	1.66
May Mean annual precipitation, in inches	1.53
June Mean annual precipitation, in inches	0.81
July Mean annual precipitation, in inches	1.1
Aug. Mean annual precipitation, in inches	1.6
Sept. Mean annual precipitation, in inches	1.68
Oct. Mean annual precipitation, in inches	2.14
Nov. Mean annual precipitation, in inches	1.65
Dec. Mean annual precipitation, in inches	1.45

USGS Utah StreamStats

Streamstats Ungaged Site Report

Date: Wed Nov 13 2013 08:10:06 Mountain Standard Time
Site Location: Utah
NAD27 Latitude: 39.7202 (39 43 13)
NAD27 Longitude: -111.1517 (-111 09 06)
NAD83 Latitude: 39.7201 (39 43 12)
NAD83 Longitude: -111.1524 (-111 09 09)
Drainage Area: 0.46 mi2

Peak Flows Basin Characteristics

100% Region 6 (0.46 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.46 (below min value 0.87)	0.87	532
Mean Basin Elevation (feet)	8520	4300	9380

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Monthly Exceedance and Annual Mean Flows Basin Characteristics

100% Mean Flow SIR08 5230 Region 6 (0.46 mi2)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.46 (below min value 3.66)	3.66	900
Mean Basin Elevation (feet)	8520	5220	9700
Mean Annual Precipitation (inches)	20.4	9.58	28.9
Mean March Precipitation (inches)	2.29	0.87	4.38
Mean November Precipitation (inches)	1.82	0.64	3.09

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Peak Flows Streamflow Statistics

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
PK2	14.2		1.4		
PK5	48.5		3		
PK10	88.1		5.1		
PK25	166		8.4		
PK50	247		11		
PK100	338		13		
PK200	468		14		
PK500	676		15		

Monthly Exceedance and Annual Mean Flows Streamflow Statistics

Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
QA	0.14				
JAND20	0.0255				
JAND50	0.0121				
JAND80	0.00629				
FEBD20	0.0478				
FEBD50	0.0252				
FEBD80	0.00928				
MARD20	0.0338				
MARD50	0.00613				
MARD80	0.00103				
APRD20	0.45				
APRD50	0.18				
APRD80	0.0465				

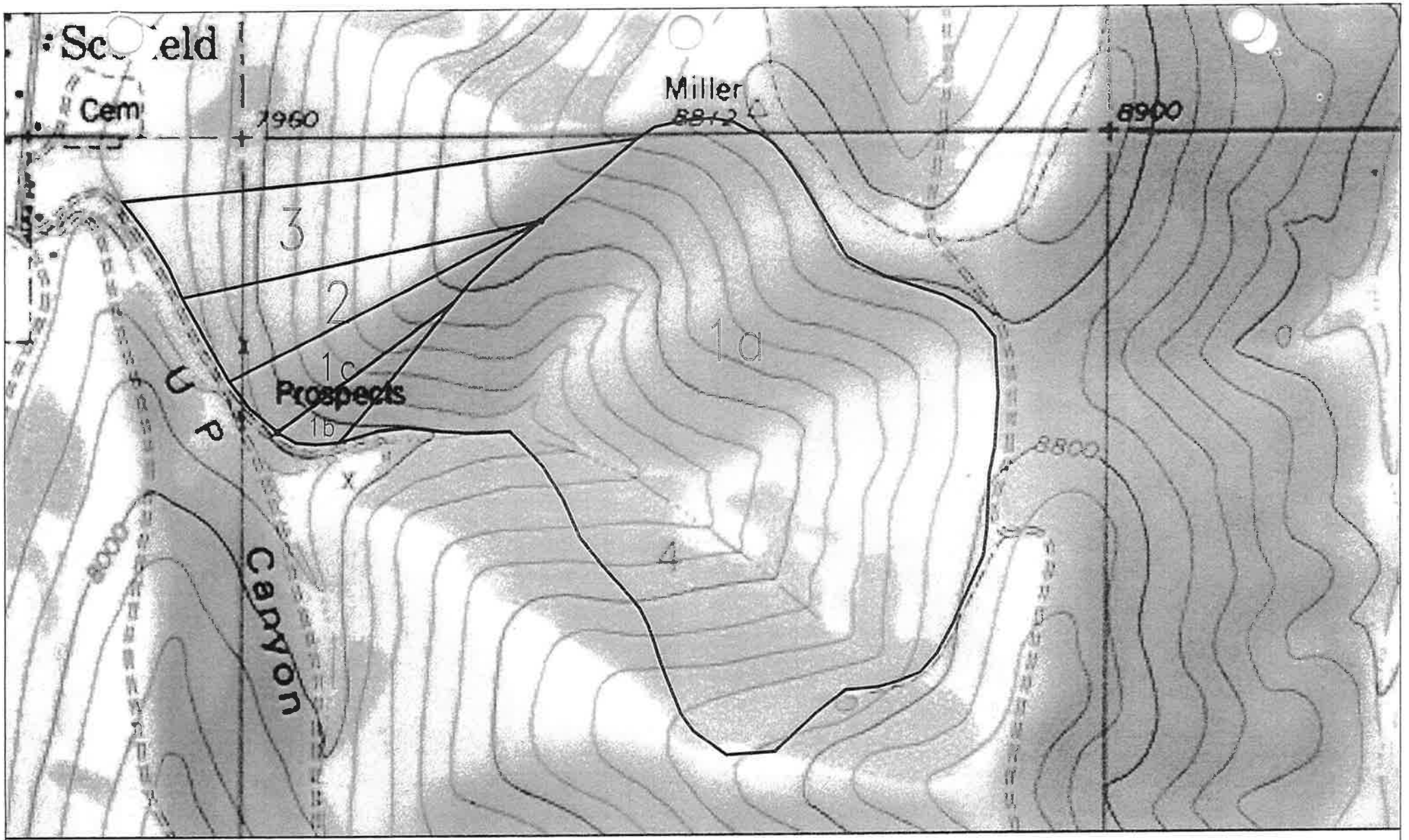
MAYD20	1.57				
MAYD50	0.47				
MAYD80	0.0614				
JUND20	0.43				
JUND50	0.17				
JUND80	0.0541				
JULD20	0.7				
JULD50	0.42				
JULD80	0.18				
AUGD20	0.14				
AUGD50	0.0792				
AUGD80	0.053				
SEPD20	0.0715				
SEPD50	0.0385				
SEPD80	0.0299				
OCTD20	0.0358				
OCTD50	0.0214				
OCTD80	0.0121				
NOVD20	0.0103				
NOVD50	0.00285				
NOVD80	0.000873				
DECD20	0.0227				
DECD50	0.0106				
DECD80	0.00553				

REFFERENCE INFORMATION FOR THE FOLLOWING SEDCAD 4 DESIGNS

DITCHES: UD-6, DD-14, DD-15
SWALES: SW-13, SW-14, SW-18, SW-19

Design Storm: 10yr – 6 hr, per State Regulation R645-301-742.300
Area Dimensions: per 1:24,000 topographic coverage calculated using AutoCad
Rainfall depth: 1.31 inches. See attached NOAA Atlas 14 data for site specific information
Curve Number: 64. This is the same curve number for the area that was previously in the M&RP. See attached copy of handwritten calculations from M&RP – the page was taken out of the main body of the M&RP because it was no longer relevant in its location. Also included are Table 7-14, (UDOT Manual of Instructions) and Table 5 of Vegetation of the Waste Rock Expansion Site, Mt Nebo Scientific, Inc, June 2007 (See Appendix A-2 Volume 2). Table 7-14 is provided as basis for the weighted curve number. Table 5 is provided as additional field-inspected information to demonstrate not only living cover, but the amount of litter, and rock. These ditches and swales have been functional for 20+ years (1983 – 2007).

Revised: 8/28/07



#	Area in Acres	Estimated Slope	Corresponding Structures
1a	193.99	29%	UD-6 Head - UD-6A, SW-18
1b	4.46	42%	UD-6B (cumulative to 1a)
1c	11.12	33%	UD-6C, SW-19 (cumulative to 1a & 1b)
2	14.17	29%	DD-14, SW-13
3	30.40	28%	DD-15, SW-14

N

600' 200' 0' 400' 800'

POINT PRECIPITATION FREQUENCY ESTIMATES FROM NOAA ATLAS 14

Utah 39.72 N 111.151 W 8106 feet

from "Precipitation-Frequency Atlas of the United States" NOAA Atlas 14, Volume 1, Version 4
G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M. Yekta, and D. Riley
NOAA, National Weather Service, Silver Spring, Maryland, 2006

Extracted: Wed Aug 29 2007

Confidence Limits | Seasonality | Location Maps | Other Info. | GIS data | Maps | Help | D

Precipitation Frequency Estimates (inches)

ARI* (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.14	0.21	0.26	0.34	0.43	0.51	0.57	0.74	0.93	1.16	1.36	1.70	1.98	2.26	2.97	3.65	4.55	5.28
2	0.17	0.27	0.33	0.44	0.55	0.65	0.72	0.91	1.15	1.44	1.69	2.10	2.45	2.80	3.70	4.54	5.65	6.56
5	0.24	0.37	0.45	0.61	0.76	0.86	0.92	1.13	1.39	1.75	2.05	2.56	2.98	3.42	4.53	5.51	6.86	7.98
10	0.30	0.45	0.56	0.76	0.94	1.06	1.11	1.31	1.60	1.99	2.34	2.92	3.41	3.89	5.19	6.26	7.79	9.06
25	0.39	0.59	0.73	0.99	1.22	1.36	1.41	1.58	1.90	2.33	2.73	3.42	3.99	4.53	6.05	7.23	9.00	10.45
50	0.47	0.71	0.88	1.19	1.47	1.63	1.67	1.83	2.13	2.57	3.02	3.80	4.43	5.00	6.71	7.95	9.89	11.47
100	0.56	0.85	1.06	1.42	1.76	1.95	1.98	2.12	2.38	2.83	3.32	4.18	4.87	5.48	7.37	8.66	10.76	12.47
200	0.67	1.01	1.26	1.69	2.09	2.31	2.33	2.46	2.69	3.08	3.62	4.57	5.32	5.96	8.02	9.35	11.61	13.44
500	0.83	1.27	1.57	2.12	2.62	2.88	2.90	3.02	3.22	3.41	4.01	5.08	5.91	6.57	8.87	10.23	12.69	14.66
1000	0.98	1.50	1.86	2.50	3.09	3.41	3.43	3.53	3.72	3.76	4.31	5.47	6.36	7.04	9.51	10.89	13.48	15.55

Text version of table

* These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval. Please refer to the documentation for more information. NOTE: Formatting forces estimates near zero to appear as zero.

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Culvert Design

Waste Rock Culvert — Thu Aug 27 08:45:46 2015

Carlson HydroCad

Upstream Station:	0.000	Invert Elev:	7836.000ft
Downstream Station:	200.000	Invert Elev:	7787.000ft
Flow Rate (CFS):	1.42		
Pipe Diameter (in):	24.00		
Manning's n:	0.022		
Length (ft):	200.00		
Slope (ft/ft):	0.2450		
Travel Time (min):	0.39		
Flow Depth (in):	2.43		
Velocity (fps):	8.54		

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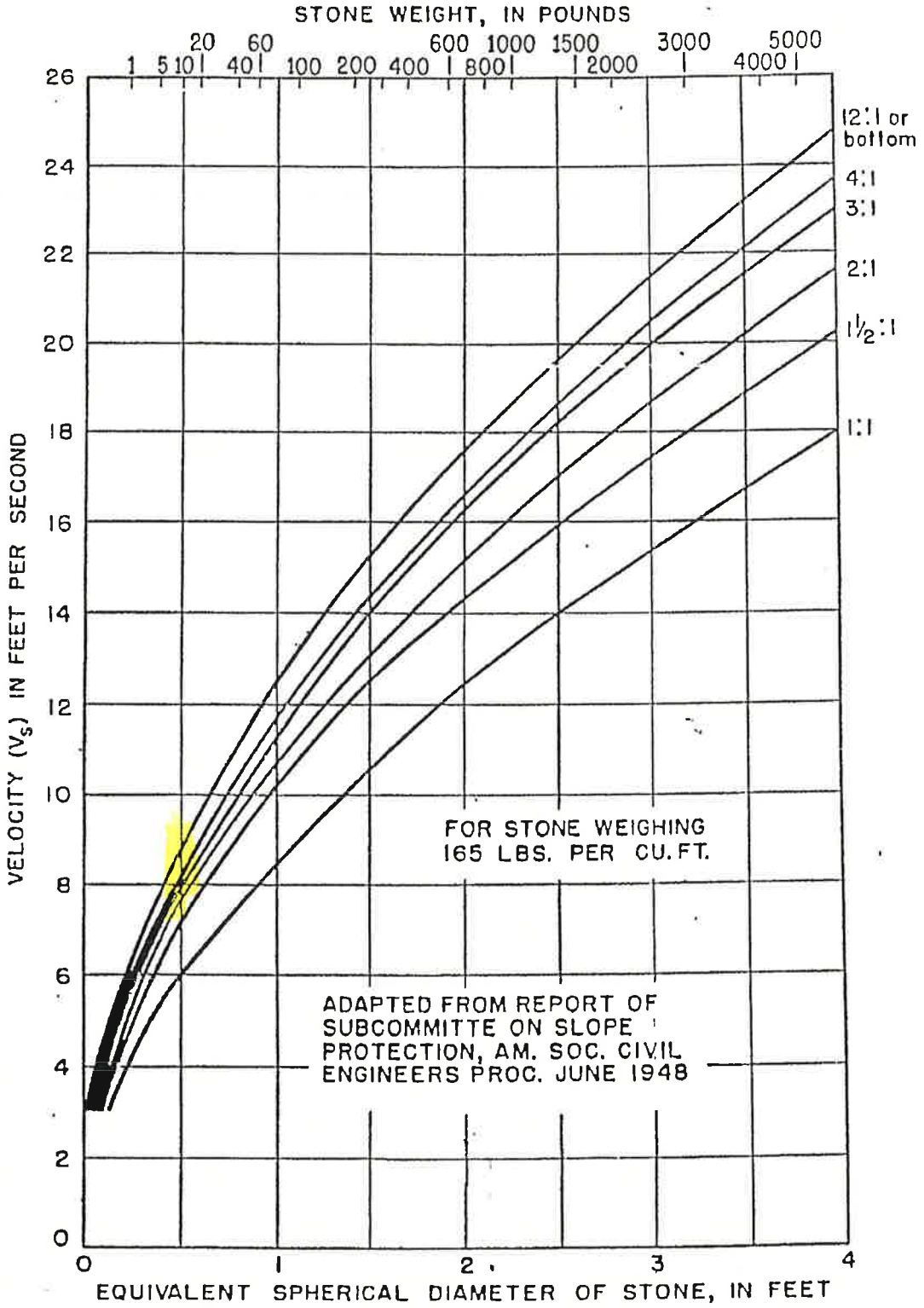


FIGURE 5-2 Size of Stone that will Resist Displacement for Various Velocities and Side Slopes (U.S. Department of Transportation, 1978).

Riprap–Stabilized Outlet

Definition

A section of stone or crushed concrete protection placed at the outlet end of the culverts, conduits, or channels.

Description and Purpose

The purpose of the rock outlet protection is to reduce the velocity, and energy of water, such that the flow will not erode the receiving downstream reach.

The practice may also be called armoring or an energy dissipater

Pollutant(s) controlled
- Suspended Solids

Advantages and Disadvantages

Advantages
- Permanent low maintenance erosion control

Disadvantages
- Aesthetics

Location

This practice applies where discharge velocities and energies at the outlets of culverts, conduits, or channels are sufficient to erode the downstream reach. This applies to:

- Culvert outlets of all types.
- Pipe conduits from all sediment basins, dry storm water ponds, and permanent type ponds.
- New channels constructed as outlets for culverts and conduits.

General Characteristics

- Riprap structures should be designed by registered professional engineers.
- All work conducted below the ordinary high water mark of a lake or stream, or in a floodplain or wetland will require permits from the DNRE, Land and Water Management Division. This includes placement of riprap. See Figure 1 for an explanation of the ordinary high water mark.

Materials

- Nonwoven geotextile fabric or well-graded gravel or sand-gravel mix for filter blanket
- Crushed or angular aggregate

Design Specifications

General Considerations

The design of rock outlet protection depends entirely on the location. Pipe outlet at the top of cuts or on slopes steeper than 10 percent, cannot be protected by rock aprons or riprap sections due to re-concentration of flows and high velocities encountered after the flow leaves the apron.

Many counties and state agencies have regulations and design procedures already established for dimensions, type and size of materials, and locations where outlet protection is required. Where these requirements exist, they shall be followed.

1. Investigate the downstream channel to assure that nonerosive velocities can be maintained.
2. Determine the tailwater condition at the outlet to establish which design criteria to use.
3. Enter the appropriate chart with the design discharge to determine the riprap size and apron length required. It is noted that references to pipe diameters in the charts are based on full flow. For other than full pipe flow, the parameters of depth of flow and velocity must be used to adjust the design discharges.
4. Calculate apron width at the downstream end if a flare section is to be employed.

Tailwater Depth

The depth of tailwater immediately below the pipe outlet must be determined for the design capacity of the pipe.

- If the tailwater depth is less than half the diameter of the outlet pipe, and the receiving stream is wide enough to accept divergence of the flow, it shall be classified as a Minimum Tailwater Condition; see Figure 1 as an example.
- If the tailwater depth is greater than half the pipe diameter and the receiving stream will continue to confine the flow, it shall be classified as a Maximum Tailwater Condition; see Figure 2 as an example.
- Pipes which outlet onto flat areas with no defined channel may be assumed to have a Minimum Tailwater Condition; see Figure 1 as an example.

Apron Size

- The apron length and width shall be determined from the curves according to the tailwater conditions:
  - Minimum Tailwater – Use Figure 1
  - Maximum Tailwater – Use Figure 2
- If the pipe discharges directly into a well defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank, whichever is less.
- The upstream end of the apron, adjacent to the pipe, shall have a width two (2) times the diameter of the outlet pipe, or conform to pipe end section if used.

Bottom Grade

- The outlet protection apron shall be constructed with no slope along its length.
- There shall be no overfall at the end of the apron.
- The elevation of the downstream end of the apron shall be equal to the elevation of the receiving channel or adjacent ground.

Alignment

The outlet protection apron shall be located so that there are no bends in the horizontal alignment.

Materials

- The outlet protection may be done using rock riprap, grouted riprap, or gabions.
- Riprap shall be composed of a well-graded mixture of aggregate size so that 50 percent of the pieces, by weight, shall be larger than the d_{50} size determined by using the charts. A well-graded mixture, as used herein, is defined as a mixture composed primarily of larger aggregate sizes, but with a sufficient mixture of other sizes to fill the smaller voids between the aggregates. The diameter of the largest aggregate size in such a mixture shall be 1.5 times the d50 size.

Thickness

The minimum thickness of the riprap layer shall be 1.5 times the maximum aggregate diameter for d_{50} of 15 inches or less; and 1.2 times the maximum aggregate size for d_{50} greater than 15 inches. The following chart lists some examples:

d_{50} (in)	d_{max} (in)	Minimum Blanket Thickness (in)
4	6	9
6	9	14
9	14	20
12	18	27
15	22	32
18	27	32
21	32	38
24	36	43

Aggregate Quality

- Aggregate for riprap shall consist of field stone, rough unhewn quarry stone, crushed concrete, or other similar material. The aggregate shall be hard and angular and of a quality that will not disintegrate on exposure to water or weathering.
- The specific gravity of the individual aggregates shall be at least 2.5.
- Recycled concrete equivalent may be used provided it has a density of at least 150 pounds per cubic foot, and does not have any exposed steel or reinforcing bars.

Filter Blanket

- A filter blanket is a layer of material placed between the riprap and the underlying soil surface to prevent soil movement into and through the riprap. Riprap shall have a filter blanket placed under it in all cases. A filter blanket can be of two general forms: a gravel layer or a nonwoven geotextile filter.
- Gravel filter blanket shall be designed by comparing particle sizes of the overlying material and the base material. Design criteria are available in Standard and Specification for Riprap - Slope Protection.
- A nonwoven geotextile filter (aka. Filter fabric, geotextile liner, filter cloth) should have properties as identified below:

Aggregate Size (in)	Grab Tensile Strength (min) ASTM D4632 (lbs)	Trapezoidal Tear Strength (min) ASTM D4533 (lbs)	Puncture Strength (min) ASTM D4833 (lbs)	Mullen Burst Strength (min) ASTM D4833 (lbs)	Permittivity ASTM D4491 (1/s)	Apparent Opening Size (max) ASTM D4751 (mm)
<16	200	75	75	200	0.5	0.21
16-24	270	100	100	400	0.5	0.21
>24	As directed by engineer					

Gabions

- Gabions shall be made of hexagonal triple twist mesh with heavily galvanized steel wire. The maximum linear dimension of the mesh opening shall not exceed 4 ½ inches and the area of the mesh opening shall not exceed 10 square inches.
- Gabions shall be fabricated in such a manner that the sides, ends, and lid can be assembled at the construction site into a rectangular basket of the specified sizes. Gabions shall be of single unit construction and shall be installed according to manufacturer's recommendations.
- The area on which the gabion is to be installed shall be graded as shown on the drawings. Foundation conditions shall be the same as for placing rock riprap, and filter cloth shall be placed under all gabions. Where necessary, key, or tie, the structure into the bank to prevent undermining of the main gabion structure.

Construction Guidelines

1. The subgrade for the filter, riprap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.

2. The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.

3. Filter cloth shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps, whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.

4. Aggregate for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The aggregate for riprap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogenous with the smaller aggregates and spalls filling the voids between the larger aggregates. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

Monitoring

- Inspect after high flows for evidence of undermining, scour, and/or dislodged aggregates.

Maintenance

- Once a riprap outlet has been installed, the maintenance needs are very low.

References

New York Standards and Specifications For Erosion and Sediment Control

Figure 1. Outlet Protection Design—Minimum Tailwater Condition
Design of Outlet Protection from a Round Pipe Flowing Full, Minimum Tailwater Condition: Tw < 0.5Do (USDA - NRCS)

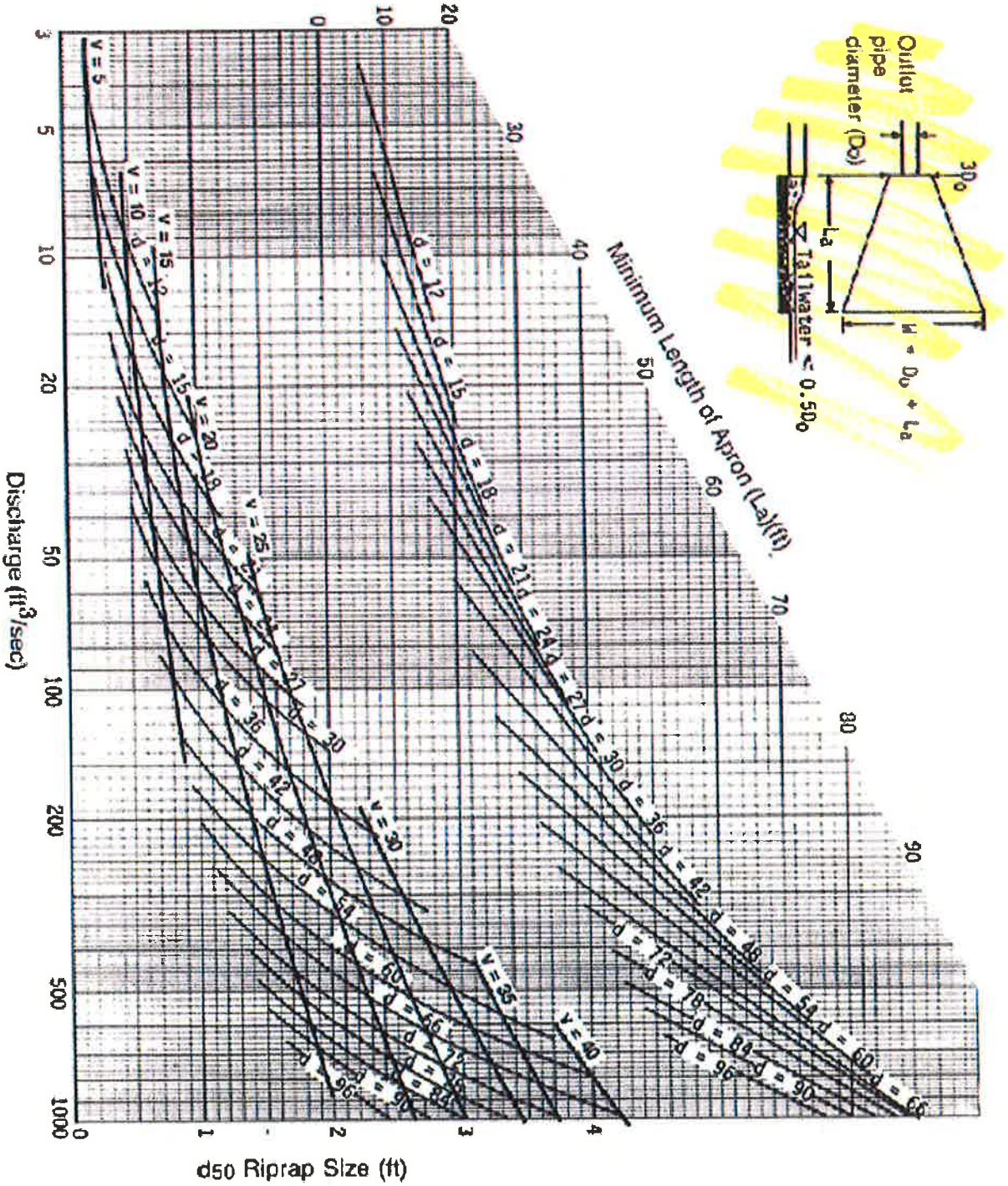


Figure 2. Outlet Protection Design—Maximum Tailwater Condition
Design of Outlet Protection from a Round Pipe Flowing Full, Maximum Tailwater Condition: Tw ≥ 0.5Do) (USDA - NRCS)

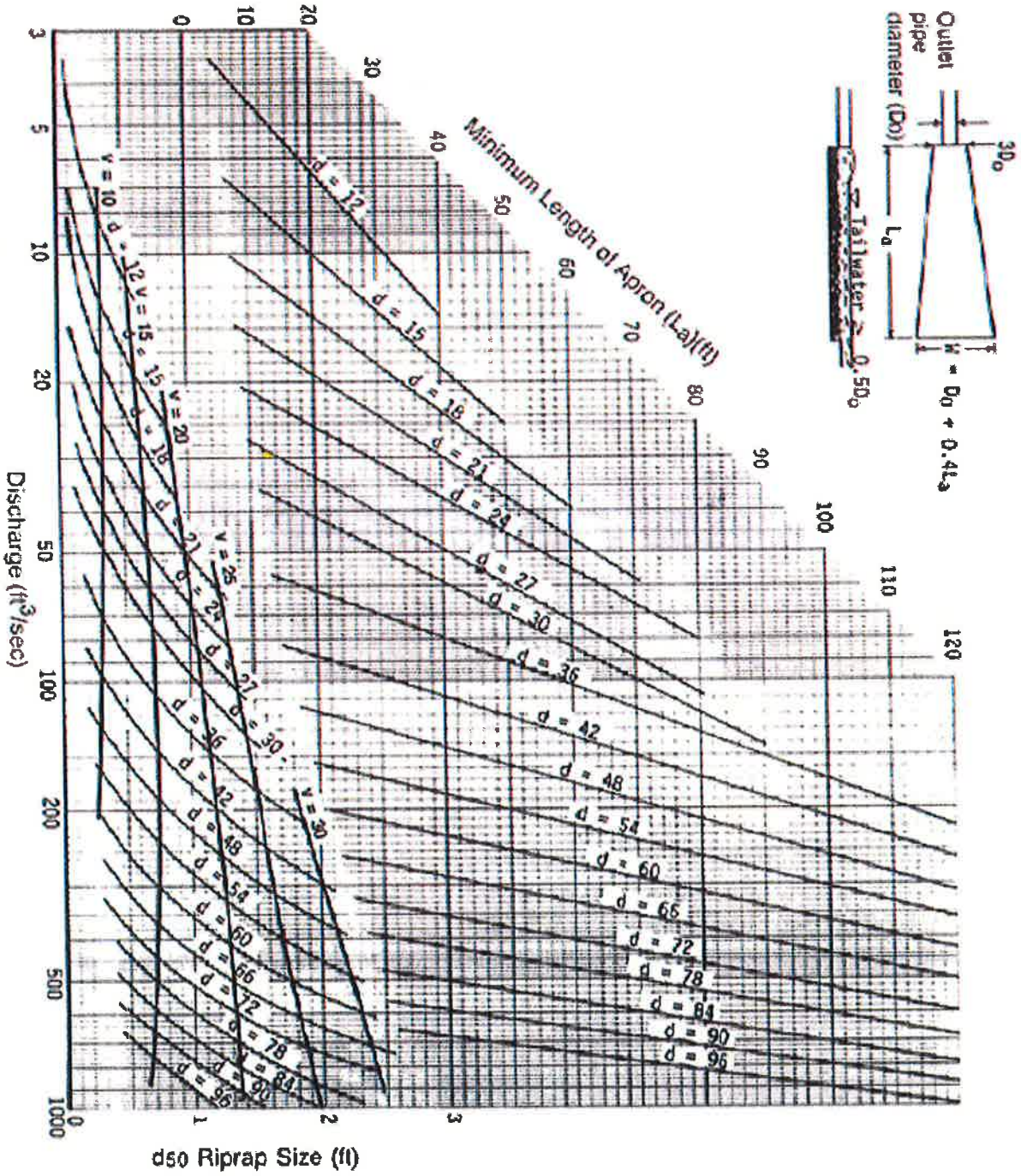


Figure 3. Riprap Outlet Protection Detail—1 of 3

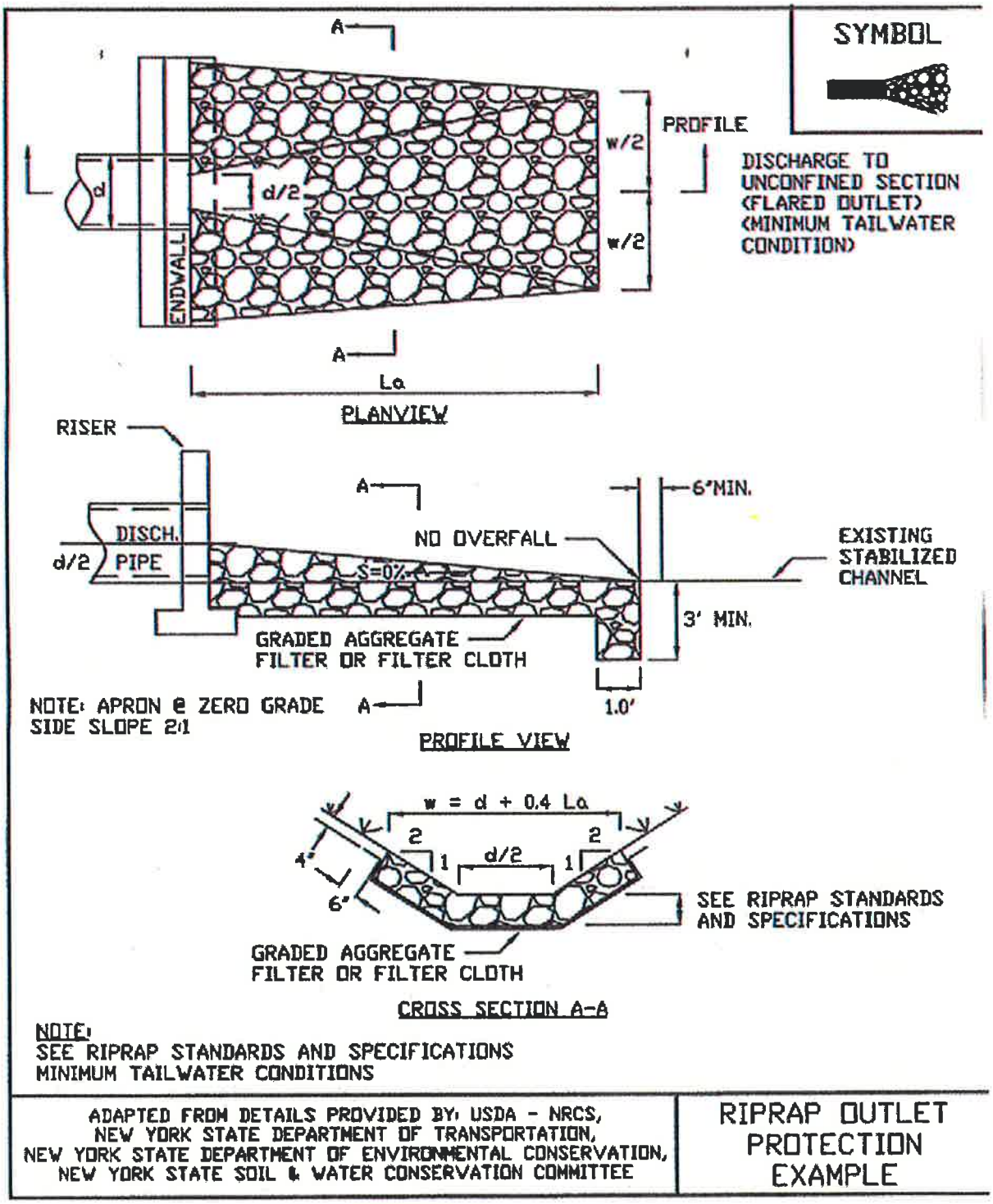


Figure 4. Riprap Outlet Protection Detail—2 of 3

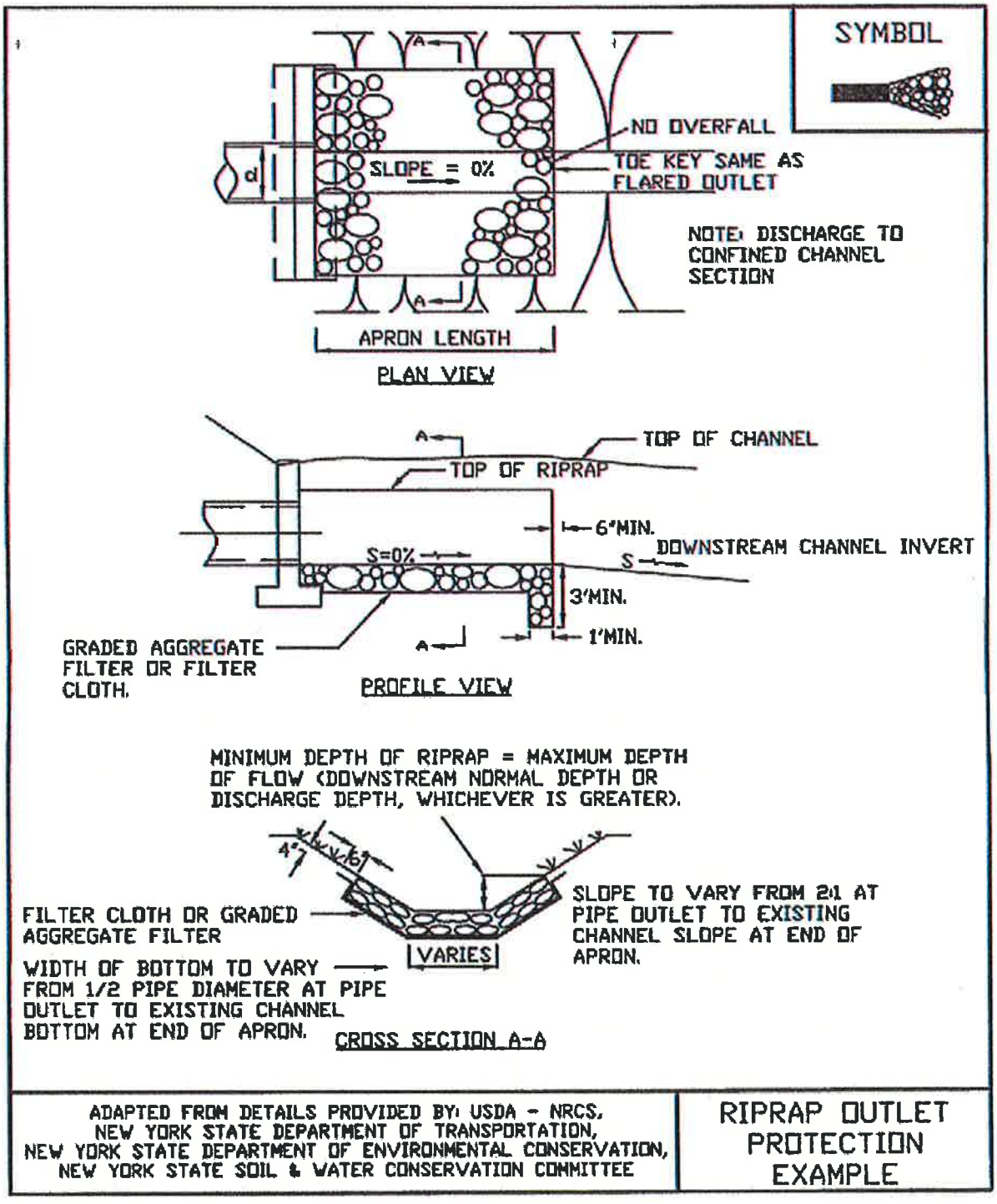


Figure 5. Riprap Outlet Protection Detail—3 of 3

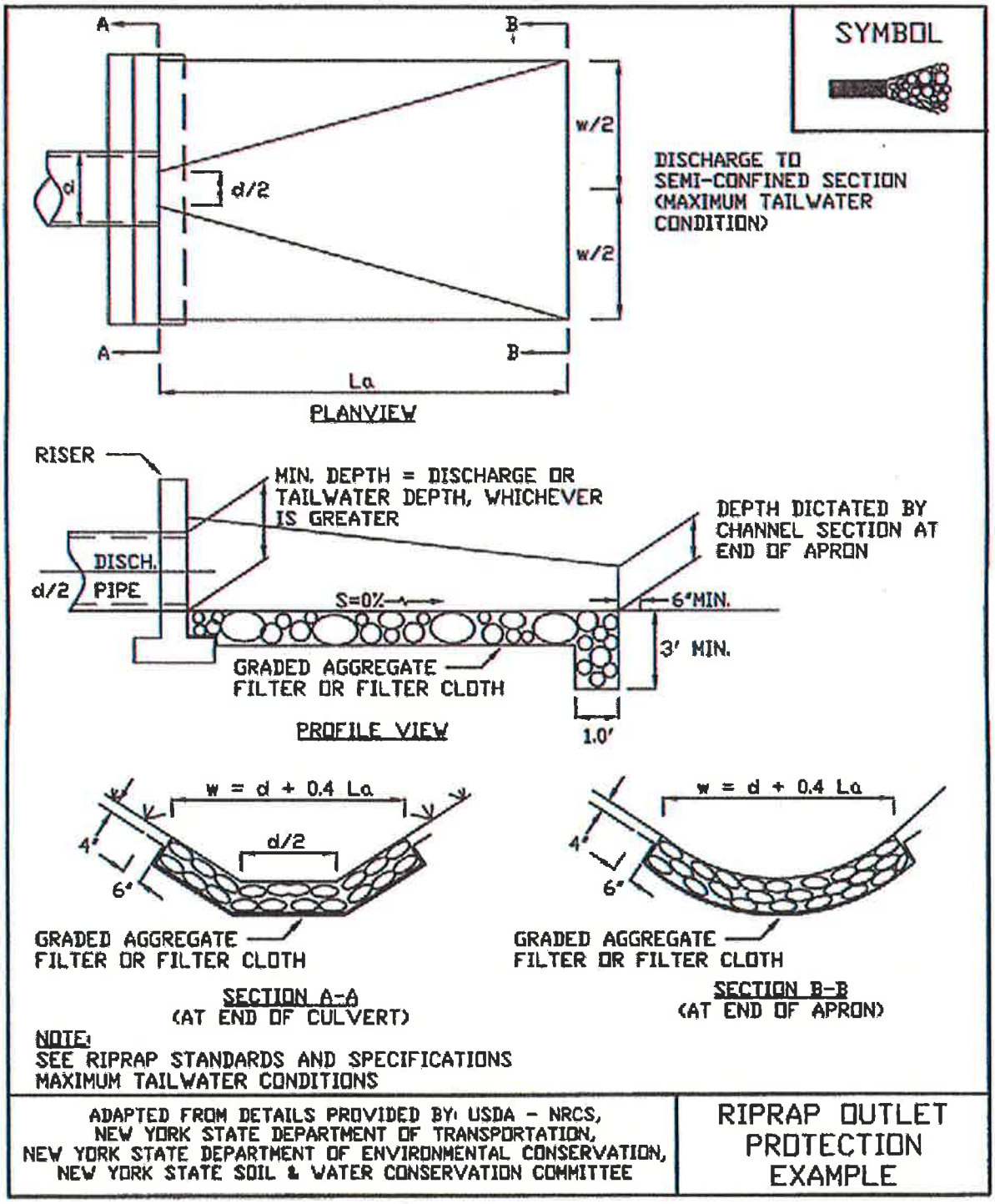
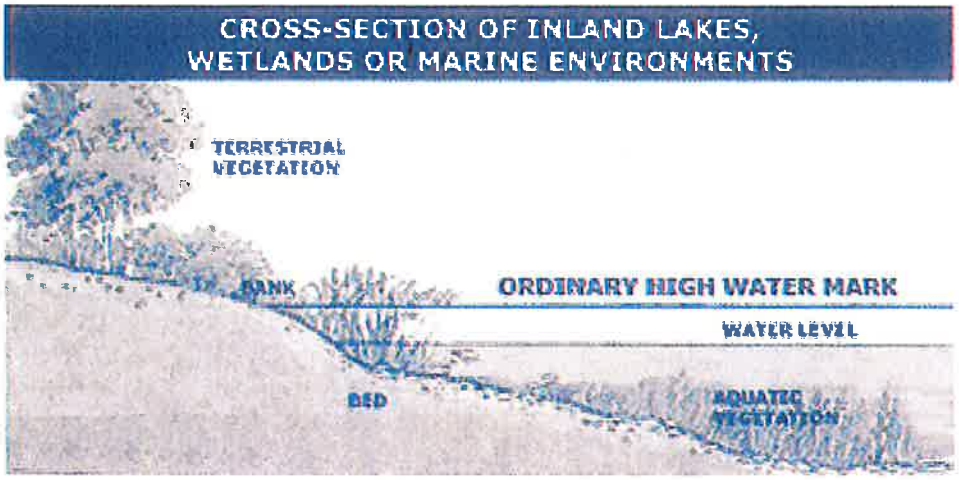
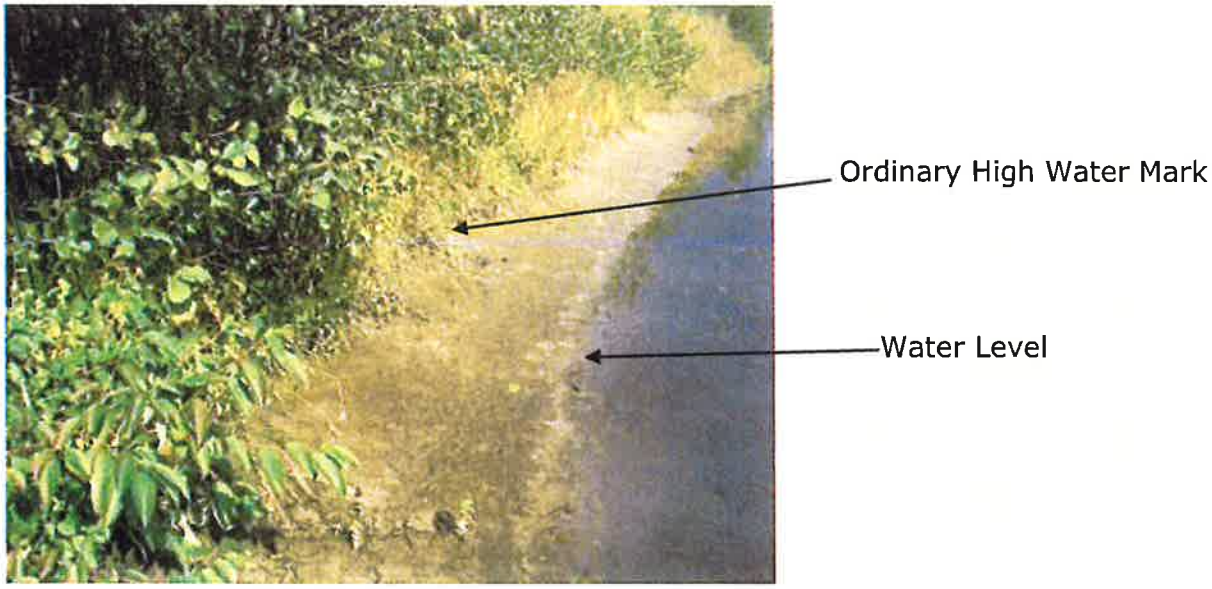
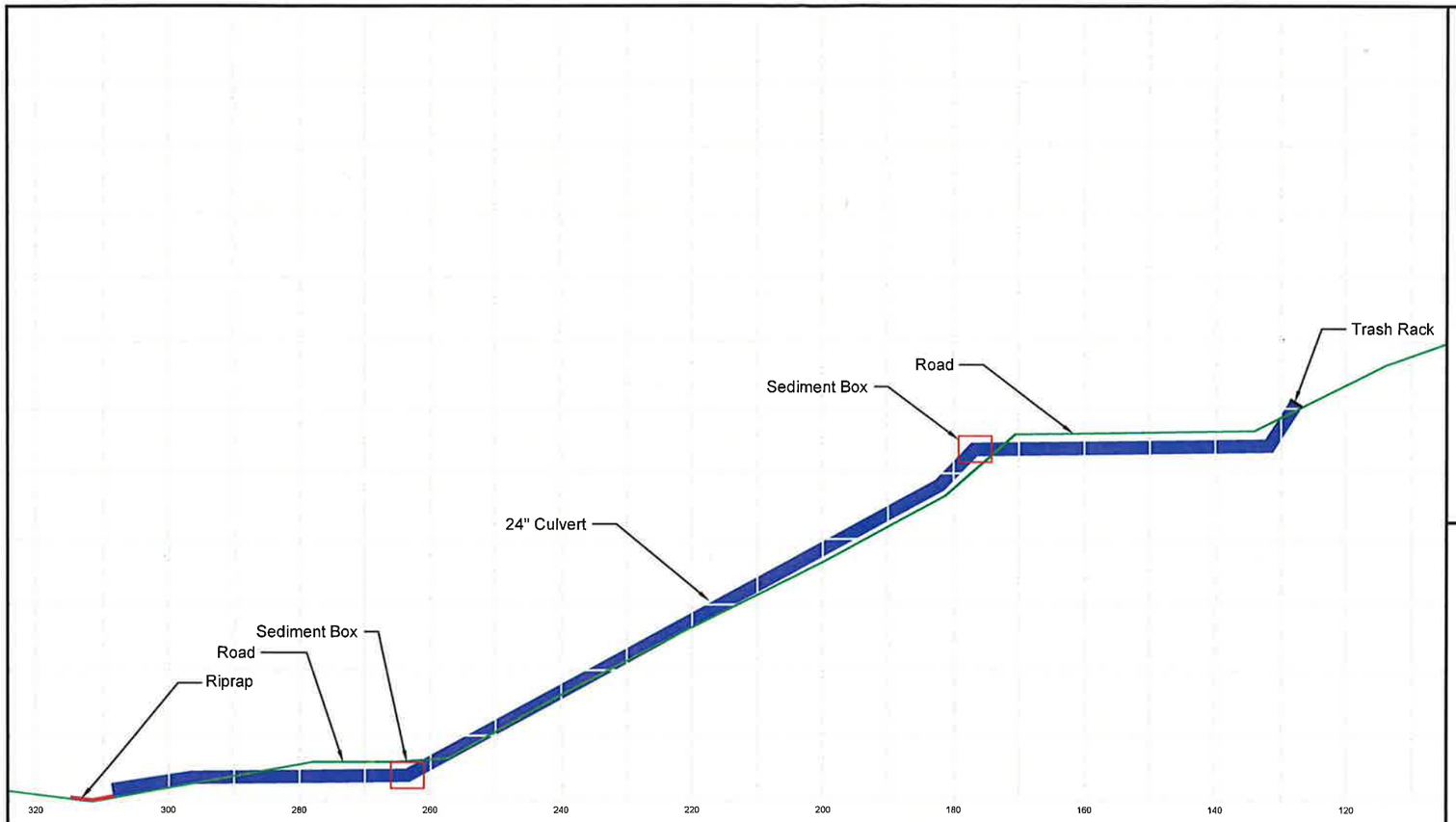


Figure 6. Ordinary High Water Mark

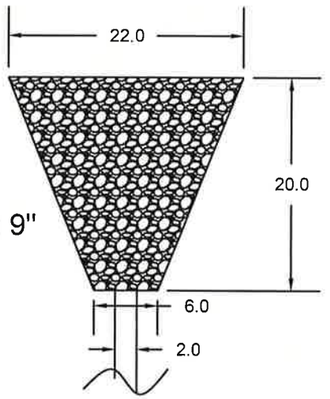


"Ordinary High Water Mark" means the line between upland and bottomland that persists through successive changes in water levels, below which the presence and action of the water is so common or recurrent that the character of the land is marked distinctly form the upland and is apparent in the soil itself, the configuration of the surface of the soil, and the vegetation. On a lake that has a level established by law, it means the high established level. Where water returns to its natural level as the result of the permanent removal or abandonment of a dam, it means the natural ordinary high-water mark.



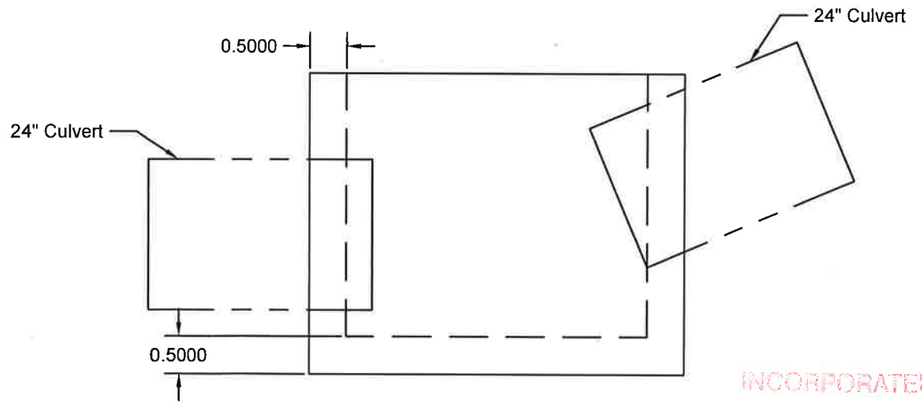


Outlet Riprap Design



6" D50
Minimum Thickness: 9"

Concrete Sediment Box



Waste Rock Site
Culvert and Riprap
Design

Canyon Fuel Company, LLC
Skyline Mines
HCR 35 BOX380, HELPER, UT, 84526
435-448-2832

DWG. NO.: 3.2.8-1a	DATE: 09/09/15	CK.BY: JArmstrong	REVISION: 0
CAD FILE: P:\PERMITS\SKY\WORKING\2015_WRS_culvert\3.2.8-1a	SCALE: NST	DR.BY: BBAILEY	09/09/15

NOTE:
1. SEE DRAWING 3.2.8-2, 4.16.1-1B, AND 4.16.1-1C FOR THE WASTE ROCK SITE OPERATIONAL PLAN AND RECLAMATION PLANS.
2. THE DISTURBED AREA OF THE ACCESS ROAD IS CLASSIFIED AS ASCA AREA 24 SEE SECTION 3.2.12 OF M&RP FOR DESCRIPTION,
3. THE ACCESS ROAD WAS AN EXISTING ROAD, LONG IN USE BY LOCAL RANCHERS.

MAP LEGEND

- ASCA AREA 24-A
- STREAM
- IMPROVED ROAD
- UNIMPROVED ROAD
- GUARD RAIL
- DISTURBED AREA AND DRAINAGE
- PERMIT BOUNDARY / LEASE AREA
- TREE LINE
- SURVEY COORDINATE
- CULVERT
- TOPSOIL PILE

50' 25' 0' 50' 100'

SEAL: PROFESSIONAL ENGINEER No. 8186171-2202 MASON DALE BISHOP 9/14/15 STATE OF UTAH

PROFESSIONAL ENGINEER: _____

REGISTRATION No. _____

DATE	No.	REVISIONS	APPD./CHKD.	DES./DR.
7-89	1	ADD AREA 24-A	/	/
9-20-89	2	DITCH NUMBER'S CHANGED	/	/
9-29-89	3	NOTE ADDED	/	/
7-1-92	4	REVISED FOR PIT EXPANSION	/	/
5-19-94	5	ADD AREA 24-A	/	/
5-02-07	6	ADDED EXPANDED PERMIT AND DISTURBED AREA, AS-BUILT SEDIMENT POND, AND UNIMPROVED ROAD	/	C.G./B.R.
5-15-14	7	ADDED Topsoil/Subsoil Piles, Removed "Access Road" from title block	/	C.G./C.G.
9-9-15	8	ADDED UC-1, ADDED EXPANSION AREA FROM PLATE 3.2.8-2	/	B.B./B.B.
			/	/

RECEIVED
OCT 30 2015
NOV 02 2015
DIV. OF OIL, GAS & MINING
Div. of Oil, Gas & Mining

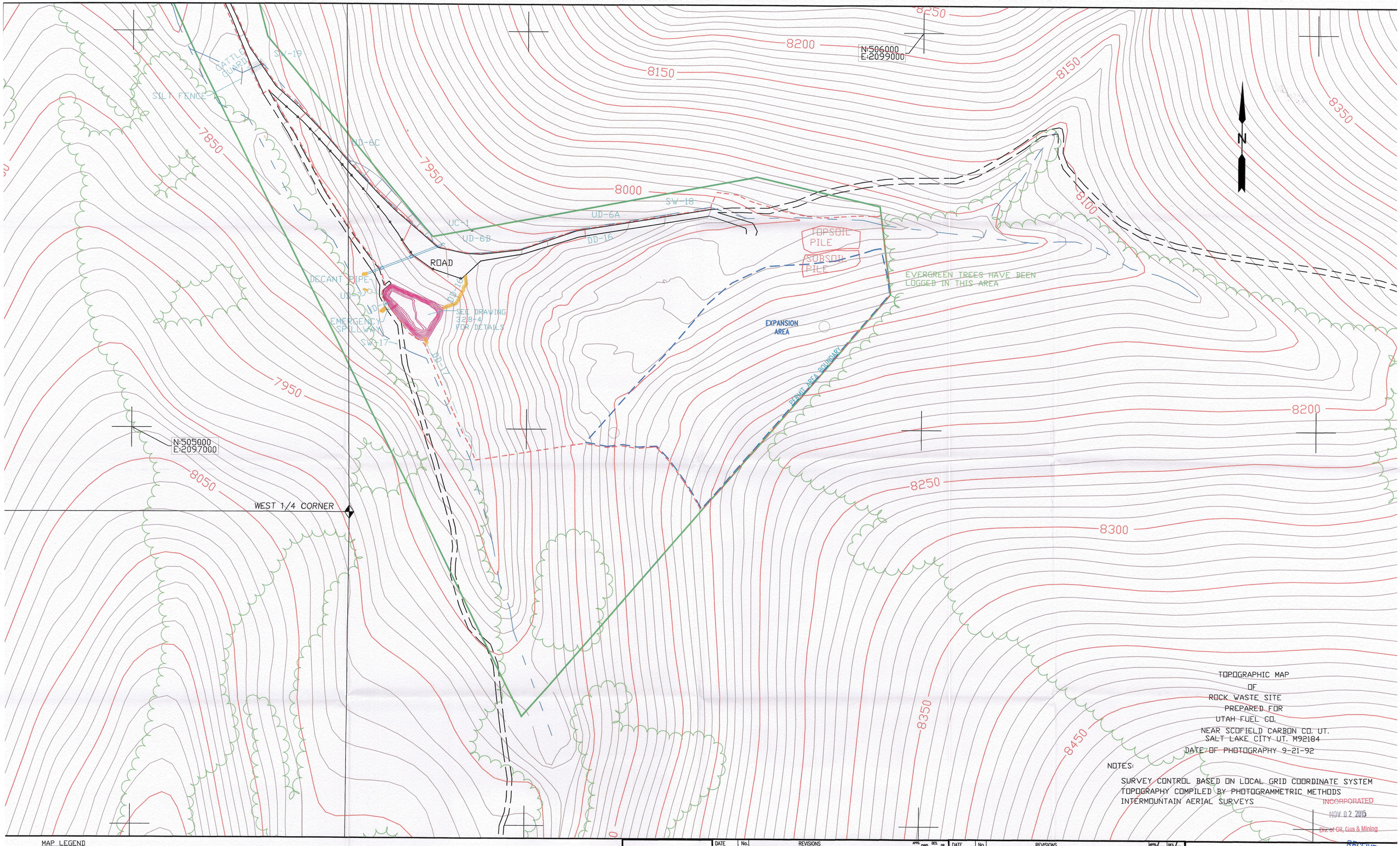
WASTE ROCK FACILITIES

Canyon Fuel Company, LLC
Skyline Mines
HC35 BOX 380, HELPER, UTAH 84526
435-448-6463

SCALE: 1" = 150' | DATE: 5/02/07 | CK.BY:C WINTERS
DWG. NO.: 3.2.8-1 | DR.BY:B REES
CAD FILE: P:\PERMITS\SKY\WORKING\2015 WRS culvert\3.2.8-1rev8.dwg
REVISION: 8 9/14/15

TOPOGRAPHIC MAP
OF
ROCK WASTE SITE
PREPARED FOR
UTAH FUEL CO.
NEAR SCOFIELD CARBON CO. UT.
SALT LAKE CITY UT. M92184
DATE OF PHOTOGRAPHY 9-21-92

NOTES:
SURVEY CONTROL BASED ON LOCAL GRID COORDINATE SYSTEM
TOPOGRAPHY COMPILED BY PHOTOGRAMMETRIC METHODS
INTERMOUNTAIN AERIAL SURVEYS
INCORPORATED



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INTERMOUNTAIN AERIAL SURVEYS

INCORPORATED
NOV 02 2015
Div. of Oil, Gas & Mining

RECEIVED
OCT 30 2015
DIV. OF OIL, GAS & MINING

MAP LEGEND

- DISTURBED AREA AND DRAINAGE
- STREAM
- IMPROVED ROAD
- UNIMPROVED ROAD
- GUARD RAIL
- EXPANSION AREA
- PERMIT BOUNDARY / LEASE AREA
- ASCA AREA 24-A
- TREE LINE
- SURVEY COORDINATE
- CULVERT

50' 25' 0' 50' 100'

SEAL:
PROFESSIONAL ENGINEER
No. 8186171-2202
MASON DALE BISHOP
STATE OF UTAH
PROFESSIONAL ENGINEER
REGISTRATION No.

DATE	No.	REVISIONS	APPR. CHKD.	DES. DR.
09-1-98	1	SHOW EXPANDED AREA		G.T / T.F.
11-10-98	2	ADDED TOP SOIL STOCKPILE		G.T / T.F.
01-11-98	3	SHOW ALL OF PERMIT AREA BOUNDARY		G.T / T.F.
04-16-99	4	TEMPORARY DRAINAGE DIVERSION		G.T / T.F.
10-12-05	5	REMOVED SILT FENCE ALONG ACCESS ROAD		G.G / J.T.
02-01-06	6	REMOVE ROAD LINES, FIX TITLE BLOCK		G.G / J.T.
05-02-07	7	ADDED EXPANDED PERMIT, DISTURBED, AND PILE EXPANSION AREA, AS-BUILT SEDIMENT POND, AND UNIMPROVED ROAD.		G.G B.R.
05-09-08	8	ADDED TOPSOIL PILE, MODIFIED EXPANSION AREA LINE		G.G / G.G
05-15-14	9	Relocated one topsoil pile, ADDED subsoil pile		G.G / G.G
09-14-15	10	ADDED UC-1		J.A. / J.A.

WASTE ROCK FACILITIES
AND
DRAINAGE CONTROL

Canyon Fuel Company, LLC
HC35 BOX 380, HELPER, UTAH 84526
435-448-6463
Skyline Mines

SCALE: 1" = 100'	DATE: 5/02/07	CK.BY:C WINTERS	REVISION: 10
DWG. NO.: 3.2.8-2		DR.BY:B REES	9/14/2015
CAD FILE:P:\PERMITS\SKY\WORKING\WRS CULVERT\3.2.8-REV10			