C/007/022 Incoming

#5500

SAVAGE
Savage Services Corporation
Coal & Power Services Group
2025 East 5000 South
Box 1001
Price, UT 84501

(435) 637-5664
Fax (435) 637-3418

Mr. Daron R. Haddock
Coal Program Manager
Utah Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

RECEIVED
JUL 26 2017
DIV. OF OIL, GAS & MINING

Attn: Joe Helfrich

Re: Midterm Completion Response
Savage Services Corporation
Savage Coal Terminal
C/007/0022, Task #5458

Dear Mr. Haddock:

Enclosed are two redline copies of the response for the deficiencies listed in the midterm completion review of the Savage Coal Terminal MRP. The entire application has been resubmitted, as requested. Also included is a checklist indicating the response location for each original deficiency, a checklist for the response locations for the previous bonding calculation deficiencies, a new checklist for the latest bonding calculation deficiencies and the required C1/C2 Forms.

If you have any questions, or need additional information, please let me know.

Sincerely,

Garth Nielsen
General Manager

Cc: Dan Guy
File

APPLICATION FOR COAL PERMIT PROCESSING

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

Permittee: Savage Services Corporation
Mine: Savage Coal Terminal **Permit Number:** C/007/0022
Title: Midterm Completion Response , Task ID #5458
Description, Include reason for application and timing required to implement:

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: _____ ☐ 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: Midterm Review
☐ 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.

Garth Nielsen (Print Name) | General Manager (Position) | 7-21-17 (Date) | Signature (Right-click above choose certify then have notary sign below)

Subscribed and sworn to before me this 21 day of July, 2017

Notary Public: Tami L McKendrick, state of Utah.

My commission Expires: 11-10-2018
Commission Number: 680287
Address: 179 E. Main
City: Price State: UT Zip: 84501

TAMI L MCKENDRICK
NOTARY PUBLIC-STATE OF UTAH
COMMISSION# 680287
COMM. EXP. 11-10-2018

For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining
		RECEIVED JUL 26 2017 DIV. OF OIL, GAS & MINING

Form DOGM- C1 (Revised December 10, 2007)

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

Permittee: Savage Services Corporation
Mine: Savage Coal Terminal **Permit Number:** C/007/0022
Title: Midterm Completion Response , Task ID #5458

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 1, Cover + Pages 1 through 5.
☐ Add	☒ Replace	☐ Remove	Appendix 1-6.
☐ Add	☒ Replace	☐ Remove	Chapter 2, Pages 23 and 24.
☒ Add	☐ Replace	☐ Remove	Attachment 4 to Appendix 3-2.
☐ Add	☒ Replace	☐ Remove	Chapter 5, Pages 36,44,45,49,50 and 51.
☐ Add	☒ Replace	☐ Remove	Appendix 8-1 + Attachments.
☐ 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
RECEIVED
JUN 26 2017
DIV. OF OIL, GAS & MINING

Checklist for Responses
To Mid-Term Review Deficiencies
For Bonding Estimates
Savage Coal Terminal
Task ID #5458

Deficiencies

1 – Excel revegetation sheet missing in application:

a – Sheet included. Value is same as worksheets.

b – Note: Sheet was inadvertently left out when copied.

2 – Concrete Demo 1 needs a bid or an RS Means reference:

a-- Stacking tubes (24) and silo (25) have been recalculated using Means Reference Number 02 41 16.15 0100.

b – All other concrete demo redone using Means Number 03 05 05.10 0050

3 – Obtain written bid from ECDC and provide contact information:

a – Disposal bid from Stephenson Metal Recycling included:

4 – Round up bond amount to nearest $1000.

a – Bond estimate has been updated with this submission.

Checklist for Responses
To Mid-Term Review Deficiencies
Savage Coal Terminal

R645-301-112 (ssteub)

1 – Chapter 1 – Cover + Pages 1-5

2 – Appendix 1-6

R645-301-212 and 220 (jhelfrich)

1 – Chapter 5 – Page 36

R645-301-121.200 (pburton)

1 – Chapter 2 – Pages 23 and 24

2 – Appendix 3-2 – Attachment 4 (New)

R645-301-244 (pburton)

1 – Chapter 5 – Pages 44 and 45

R645-301-243 (pburton)

1 – Chapter 5 – Page 50

R645-301-121.100 (pburton)

1 – Chapter 5 – Page 49

R645-301-830.140 (bwiser)

1 – Appendix 8-1

Checklist for Responses
To Mid-Term Review Deficiencies
For Bonding Estimates
Savage Coal Terminal

Demo Sheets

1 – Shop / Office 01

a – Steel Bldg. calculation okay. Dimensions corrected.

b – Concrete demo updated.

2 – Check Disposal on Site – Should be CY instead of CF.

a – Changed to CY on all sheets. Calculations were okay.

3 – Missing ECDC cost and quantity on Conveyors 8.

a – Added on items 08, 10, 11, 13, 16.

4 – Concrete Demo missing on some sheets.

a – Corrected on Conveyor 9.

5 – Verify the cost and RS Means reference for the 5000 gal. tank.

a – Same as on previous submittal.

6 – Provide RS Means, Rental Rate Blue Book or 3 bids for costs or references.

a - RS Means references used and updated throughout.

b – Non Means costs supported by written costs estimates in Attachment B.

7 – Sheet Asphalt 28 has a mix-up of CY and SY, and Parking Lot calcs. are off.

a – Corrected and updated on Asphalt 28.

8 – Verify SY Calculations on Road Surfacing Material 38.

a – Calculations checked – Okay.

b – Clarifications added.

Earthwork Sheets

All earthwork sheets need to include:

1 – Equipment over head of 0.1.

a – Added on all.

2 – Include RS Means reference, Rental Blue Book Guide or 3 bids.

a – Means reference added on all. Also see Worksheet 13.

3 – Verify Operator's Hourly Rate and Hourly Operating Rate.

a – Added operator's rate and updated all hourly rates.

4 – Use same number of hours in month or day as RS Means.

a – Checked and used same as RS Means.

5 – Include hourly wage rates from back page of RS Means book.

a – Included for operators, CLAB and foremen.

Revegetation

1 – Verify all bids are included and referenced.

a – RS Means references included where applicable.

b – Non RS Means costs supported by written estimates in Attachment B.

Total Sheet

1 – Make sure all totals are updated to correct costs.

a – All totals have been updated.

Savage Services Corporation
Savage Coal Terminal
C/007/022

Chapter 1

General Contents

R645-301-100

R645. Natural Resources; Oil, Gas and Mining; Coal.

R645-301. Coal Mine Permitting: Permit Application Requirements.

R645-301-100. General Contents.

112. Identification of Interests.

112.100. The applicant is a Utah Corporation.

112.210. The permit applicant name, address, telephone number and employer I. D. Number is:

Savage Services Corporation
901 W. Legacy Center Way
Midvale, Utah 84047
(801) 944-6600
Employer I.D. #87-0237425

112.220. The applicant's resident agent is:

Terrence Savage
901 W. Legacy Center Way
Midvale, Utah 84047
(801) 944-6600

112.230. The abandoned mine land reclamation fee will be paid by Savage Services Corporation.

Savage Services Corporation
901 W. Legacy Center Way
Midvale, Utah 84047
(801) 944-6600
Employer I.D. #87-0237425

112.300. All stock is owned by:

Savage Companies
901 W. Legacy Center Way
Midvale, Utah 84047
(A Utah Corporation)
Employer I.D. #87-0387049

112.310. Officers and Directors of the Applicant.

The names and addresses of every officer, partner, director, or other person performing a function similar to a director of the applicant:

SAVAGE SERVICES CORPORATION

Corporation: Savage Services Corporation
Type of Entity: Utah Corporation
Date of Formation: June 22, 1959

Shareholder: Savage Companies

Officers and Directors for Savage Services Corporation:

Directors:		Date:
John K. Savage	Director	06/11/2007
Kirk W. Aubry	Director	10/15/2010
Curtis C. Dowd	Director	06/06/2011
Nathan Savage	Director	06/22/2015
Todd Savage	Director	06/22/2015

Officers:		Date:
Kirk Aubry	President, Chief Operation	06/22/2015
Kelly Flint	Exec. VP, Sec., Gen Counsel	10/21/15, 06/04/08
Jeffrey L. Roberts	Exec. VP, CFO	04/11/2016
Howard F. Goodman	Executive Vice President	10/21/2015
Jason Ray	Executive Vice President	10/21/2015
Nathan N. Savage	Executive Vice President	01/01/2010
John Savage	Executive Vice President	10/21/2015
Donald Alexander	Executive Vice President	10/21/2015
Curtis C. Dowd	Executive Vice President	08/23/2010
Raymond Alt	Senior Vice President	01/01/2010
Jeff M. Chesler	Senior Vice President	01/01/2010
Boyd E. Draper	Senior Vice President	01/01/2010
Ellis Edwards	Senior Vice President	01/01/2010
Mark Wehmanen	Senior Vice President	01/01/2010
Gary L. Plant	Senior Vice President	05/07/2004
Charles E. Schwab	Senior Vice President	10/21/2015
Debbie Rhodes	Senior Vice President	10/21/2015
M. Troy Savage	Senior Vice President	01/01/2010
Terrence Savage	Senior Vice President	01/01/2010
C. Fred Busch	Senior Vice President	01/20/2003

Kim F. Christensen	Senior Vice President	01/20/2003
Jack M. Cohn	Senior Vice President	01/20/2003
Kenneth W. Cooper	Senior Vice President	01/20/2003
Kenneth D. Ellzey	Senior Vice President	01/20/2003
Brian Cotton	Vice President	09/14/2012
Jerry Evenson	Vice President	01/20/2003
Gerald Ferrell	Vice President	10/01/2006
Jose L. Fernandez	Vice President	01/20/2003
Tad A. Koch	Vice President	01/20/2003
Mike Miller	Vice President	01/20/2003
Samuel A. Orme	Vice President	06/10/2003
Michelle Hollingsed	Vice President	06/04/2015
Ed Ivey	Vice President	01/01/2010
Jared Larrabee	Vice President	11/22/2013
Brad Crist	Vice President	01/20/2003
Rob Davidson	Vice President	01/20/2003
Byron Lawrence	Vice President	01/18/2011
Mike McBride	Vice President	07/08/2011
Brandi Mechling	Vice President	10/21/2015
Steve Peterson	Vice President	06/10/2016
Dan Price	Vice President	01/01/2010
Chad Richard	Vice President	04/01/2014
Erik Skoy	Vice President	01/01/2010
Steve Stewart	Vice President	09/12/2011
Chris Thomas	Vice President	09/12/2011
Sharon Broadwater	Vice President	10/30/2006
Steven J. Newman	Assistant Secretary	06/09/2014
Ben Bates	Assistant Secretary	01/03/2012
Amy Poulson	Assistant Secretary	12/01/2007

SAVAGE COMPANIES

Type of Entity: Utah Corporation
Date of Formation: October 2, 1970

Shareholders:

Class A (voting):

LaRae T. Savage Q-Tip Marital Trust

Susan A. Savage Q-Tip Marital Trust

Class C (voting):

Allen B. Alexander	33.3%	05/15/78
H. Benson Lewis	33.3%	08/01/85

Officers and Directors for Savage Companies:

Directors:		Date:
H. Benson Lewis	Non-Exec. Chairman	07/01/82
Allen B. Alexander	Non-Exec. Vice Chairman	08/22/85
Kirk W. Aubry	Director	10/25/10
Curtis C. Dowd	Director	10/25/10
Kimo Esplin	Director	10/01/16
Crystal Maggelet	Director	10/21/13
S. Craig Omer	Director	03/01/15
John K. Savage	Director	06/05/00
Nathan N. Savage	Director	05/18/04
Todd L. Savage	Director	01/03/00
David G. Wolach	Director	05/01/87

Officers:		Date:
Kirk W. Aubry	President & CEO	10/15/10
Donald W. Alexander	Exec. Vice President	02/01/83
Curtis C. Dowd	Exec. Vice President	08/30/04
Kelly J. Flint	Exec. Vice President & Secretary	01/01/03
Howard F. Goodman	Exec. Vice President	05/01/94
Jason D. Ray	Exec. Vice President	03/18/11
Jeffrey L. Roberts	Exec. Vice President & CFO	04/11/16
John K. Savage	Exec. Vice President	01/01/70
Nathan N. Savage	Exec. Vice President	06/02/86
Todd L. Savage	Exec. Vice President	09/23/76
Debbie Rhodes	Sr. Vice President	10/21/15
Charles E. Schwab	Sr. Vice President	10//21/15
Sharon Broadwater	Vice President	10/30/06
Michelle Hollingsed	Vice President	06/04/15
Tad A. Koch	Vice President	09/16/86
Samuel A. Orme	Vice President	06/10/03
Chris Thomas	Vice President	12/11/11
Benjamin Bates	Assistant Secretary	01/03/12
Steven J. Newman	Assistant Secretary	06/09/14
Amy Poulson	Assistant Secretary	12/01/07

Previous officers and end dates:

Isaac Haboucha	05/08/08	David L. Harris	10/15/16
Butch Jentzsch	12/31/07	Charles O. Monroe	06/08/16
Kevin R. Haugh	02/01/08	Neal Savage	11/27/13
Mark Andrew Nelson	02/15/06	C. Scott Smith	06/04/15
Donald Alexander	10/21/15	Mark Wehmanen	01/01/10
Boyd E. Draper	01/01/10	David G. Wolach	03/31/12
Ellis Edwards	01/01/10	Carin Crowe	06/22/09
Eric B. Adamson	06/05/12	Kent Avery	09/14/12

112.320. All stock is owned by The Savage Companies (see Section 112.300).

112.330. See Section 112.310.

112.340. N/A - None.

112.350. N/A - There are no other coal mine operation permits in the name of Savage Services Corporation.

112.400. (See Section 112.340)

112.500. The owner of the surface and coal is:
Savage Services Corporation
901 W. Legacy Center Way
Midvale, Utah 84047

112.600. See Plate 1-1 for owners of record, and Table 1-1 for details and addresses.

112.700. The MSHA numbers for all mine-associated structures are:

Mine Name: Savage Coal Terminal.
MSHA I.D. # 42-01444
(See also Appendix 1-2 for MSHA Refuse Pile Numbers).

Please note the appendix 1-2 shows 2 refuse permits. The temporary permit was terminated on 3/19/81. The permanent permit was reassigned a new MSHA ID# on 08/10/00.

112.800. N/A - None.

112.900. When notified the application is approved, but before the permit is issued, the applicant shall, as applicable, update, correct or indicate that no change has occurred in the information previously submitted under R645-301-112.100 through R645-301-112.800.

Appendix 1-6

Designation of Authorized Representatives

Savage Services Corporation
Savage Coal Terminal

SAVAGE

March 21, 2017

Mr. Daron R Haddock
Coal Program Manager
Utah Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114 – 5801

RE: Designation of Authorized Representatives
Savage Coal Terminal
Permit Number C0070022
Carbon County, Utah

This letter is to inform your agency that the following people have been designated "Authorized Representatives" for Savage Services Corporation ("Savage") for matters pertaining to the Savage Coal Terminal permit and environmental monitoring:

(1) Bill Kaiser
Environmental Director
Savage Services Corporation

(2) Garth Nielsen
General Manager, Savage Coal Terminal
Savage Services Corporation

(3) Dan W. Guy
President
Blackhawk Engineering, Inc.

Any of the above individuals are empowered to sign transmittal letters and C1 Amendment forms to DOGM, and to submit required water monitoring data; however, since Dan Guy is not an employee of Savage, he may sign or submit such data only for Garth Nielsen in the name of Savage.

Sincerely,

Terrence Savage
Senior Vice President

cc: Bill Kaiser
Garth Nielsen
Dan Guy

Topsoil Replacement and Use of Selected Overburden Materials

Very little seedbed quality material exists for areas to be disturbed or previously disturbed and topsoil salvaged (see previous for physical and chemical analysis and Table 2-6 for topsoil available for reclamation). In addition, as a result of surface disturbance created prior to enactment of laws requiring salvaging of topsoil, areas mapped as Disturbed Land contain in-place soil material underlying coal waste and rock.

Since there is not sufficient topsoil to cover all pre and post-law disturbed areas to a minimum depth of six (6) inches, Savage Services Corporation proposes to alleviate and amend the poor features of the pre-law disturbed areas.

As shown by Table 2-4, the upper portion of the disturbed land material is rated as good or fair for all parameters except for the presence of coarse fragments. Many of these fragments are present in the upper portions of the road base. The subsoil material is clayey in areas and may contain high quantities of salt.

The disturbed land areas will have any large amounts of coal waste and excessive rocks removed and disposed of properly prior to reclamation. These areas will then be graded to the appropriate contour, and scarified to reduce compacted zones. If cloddy surfaces exist they can be pulverized with a disc to create a more desirable seedbed. Application of mulch will add organic matter to the soil and help recreate soil structure. Additional discussion of the redistribution and handling of the disturbed land fill conductive to successful establishment of vegetation during reclamation is given in Section 240.

Test plot information for the No.1 Refuse Area Test Plots is summarized in Appendix 3-1 "Vegetation Test Plots", of this MRP. These plots were established in the fall of 1987 by the former owner, Beaver Creek Coal Company. The final sampling of these plots in 2001 indicated some success with soil/refuse mixtures, as discussed in Appendix 3-1. These plots were located on the west end of the refuse pile, which has now been removed and used as a power plant fuel. DOGM approved the removal of the test plots in a letter from Mr. Daron R. Haddock on February 6, 2001.

An additional set of test plots were established in 1989, at the request of the Division. The location and details of these plots are shown in Appendix 3-2 "Reclamation Test Plot", in this MRP. This plot was intended to be left in place for 5 years; however, since the area was not needed for the operation, it was left in place and evaluated for over 8 years. During this time, qualitative and quantitative sampling was completed on the plot 3 separate times by Mt. Nebo Scientific, Inc., in 1991, 1992 and the last in 1997. The last report indicated that the east side of the test plots, where 1 ton of 3rd crop alfalfa hay was tilled into the top 6 inches of the soil showed a final cover (excluding weeds) of nearly 25%, whereas the native soil area on the west side remained below 10%. It should be noted that each of these reports were submitted to

the Division, as required. The 1997 report has been added to the existing Appendix 3-2 in this MRP.

Based on the results of the test plot sampling, it does appear that the proposed methods described above for the amendment of substitute topsoil (in-place soils on disturbed lands) is a viable option for reclamation on this site.

The actual reclaimability of the substitute topsoil (in-place soils on Disturbed Lands) will be based on results from the test plots. The Mass Balance Table 2-9 is based on "worst case" conditions, wherein the refuse pile would be covered with a minimum of 6" of soil and any remaining soil would be placed over only a portion of pre-law disturbed lands. This would require that the upper 12" of the disturbed land areas be reconditioned as necessary to meet topsoil standards. The material below a depth of 12" on the disturbed land would not be used as a topsoil substitute.

If the test plots are successful, it may mean that less than 6" of topsoil cover would be adequate on the refuse area, and more material would be available for the pre-law disturbed areas.

Because of the lack of large volumes of suitable subsoil and topsoil on the site, as demonstrated in Tables 2-4 and 2-6, less than four feet of sub and topsoil will be available for utilization during revegetation of the processed waste disposal banks. An analysis of the waste disposal material demonstrates that this material is rated good utilizing soil suitability standards, (see Table 2-7 for chemical analysis of refuse material).

Based on the suitability analysis results for the refuse disposal area and the fact that baseline vegetation studies at Savage Coal Terminal indicates that vegetation is shallow-rooted due to the close proximity of Manco Shale to the soil surface, all disturbed area should be able to be adequately reclaimed to the established vegetation standards with an even redistribution of stockpiled material.

Appendix 3-2

Attachment 4

Vegetation Monitoring

of the

C. V. Spur No. 2 Test Plots

VEGETATION MONITORING OF THE C.V. SPUR NO. 2 TEST PLOTS

1997

Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
Post Office Box 337
Springville, Utah 84663
(801) 489-6937

for

BLACKHAWK ENGINEERING
214 East 1st No.
Price, Utah 84501

Report:
Patrick Collins, Ph.D.

Fieldwork:
Patrick Collins
P. Dean Collins

Report Date:
March 1998

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RAW DATA . . . . . Appendix

VEGETATION MONITORING
OF THE
C.V. SPUR NO. 2 TEST PLOTS
1997

INTRODUCTION

In the fall of 1989 previous owners of the C.V. Spur site, Beaver Creek Coal Company, implemented a reclamation test plot on a disturbed area in the NE corner of the C.V. Spur Coal Processing and Loadout Facility property. *MT. NEBO SCIENTIFIC* did not construct this plot but was contracted to monitor it. Qualitative data were recorded in 1990, whereas, qualitative *and* quantitative data were compiled in the years' 1991, 1992 and 1997. This document reports the data from the 1997 sample year.

The test plot was divided into two larger sections for seeding mixtures, plus a middle section for single species. The plot was also fenced.

Section 1 (west side)

This is a 50 ft. by 100 ft. area. Design included techniques proposed for final reclamation methodologies as outlined in Chapter 3, Section 3.5 of the MRP. A species list is included in this report.

Section 2 (east side)

This area is another 50 ft. by 100 ft. section utilizing the same methods as Section 1 with the addition of 1 ton of 3rd crop alfalfa hay tilled into the top 6 inches of the soil. A species list is included in this report.

Section 3 (middle)

This section was apparently seeded with single species with two controls that were not seeded.

METHODS

Quantitative and qualitative data were taken on the subplots of the C.V. Spur No. 2 Test Plot. Sampling was accomplished on August 26-27, 1997. Sampling methods were identical to 1991 and 1992 to facilitate comparisons between sample years.

Cover and Composition

Regular placement of sample points were predetermined to provide unbiased accuracy of the data compiled. This was accomplished by establishing transect lines at regular intervals on each end of the plots. These transect lines were placed over the entire study area to adequately represent the area as a whole. Regular points on the transect lines were then marked. From these marks, the

sample points were determined by random distance numbers at right angles to the transect lines.

Cover estimates were made using ocular methods with meter square quadrats. Species composition and relative frequencies were also assessed from the quadrats. Additional information recorded on data sheets were: estimated precipitation, slope, exposure, grazing use, animal disturbance and other appropriate notes. Plant nomenclature follows Welsh et al. (1993).

Woody Species Density

Density of woody plant species of the subplots were estimated using belt transects that were 5 ft by 25 ft (125 ft^2). Total number of individuals by species were counted in each of the belt transects. The average number was then calculated followed by the number of individuals per acre.

Photographs

Color photographs were taken of the plot and are included in this report.

Raw Data

Summarized raw data were included in this report to facilitate additional statistical analyses by the reviewer if desired.

RESULTS

Section 1 (west side)

Mean total living cover of Section 1 was estimated to be 53.61% (Table 1A). Most of the living cover was comprised of forbs (82.11%; Table 1B), and most of the forbs were "weedy" species i.e. tumble mustard (*Sisymbrim altissimum*) and fivehook bassia (*Bassia hyssopifolia*). Crested wheatgrass (*Agropyron cristatum*) was the only grass species present in the plot (Table 1C).

Total woody plant density of the plot was 435.60 individuals per acre (Table 1D). The only woody plant present in the density belt transects was greasewood (*Sarcobatus vermiculatus*).

Section 2 (east side)

Total living cover of Section 2 was 55.83% (Table 2A), but was comprised of significantly more grasses in the composition (Table 2B). Crested wheatgrass made up 25.00% of the living cover in this plot, whereas, weedy species comprised most on the remaining cover (Table 2C).

Woody species density was even less than Section 1 in the test plot comprising 58.08 individuals per acre, all of which were greasewood (Table 2D).

Section 3 (middle)

As reported in previous years, the single species that were planted still show little success to date. The only species observed this year were "weedy" species

DISCUSSION

Graphs have been prepared to plot the success of some of the parameters over time. Figure 1 shows the total living cover and total cover (excluding weeds) for the west side of C.V. Spur No. 2. As one will note, total living cover increases in time for each sample year. The cover for "desirable species" (living cover excluding weeds) also increases significantly, but remains below 10% -- a number that is still well below most standards for final revegetation success.

Total living cover for the east side of the plot also increased markedly with time (Figure 2). Furthermore, the total cover (excluding weeds) also increased each year and results for 1997 has a much more respectable final cover value of near 25%.

Woody species density was low each year but seems to be increasing, however, none of the values for either side of the plot (Figures 3 and 4) were high enough to approach acceptable levels for density in most final success standards. Figure 5 shows the species that were planted when the test plots were constructed.

TABLE 1: Section 1 (west side) - Total cover (A), composition (B), cover and frequency by species (C), and woody species density (D), summaries for the C.V. Spur No. 2 Test Plot for 1997.

A. TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZES
Total Living Cover	53.61	13.72	18
Litter	13.00	10.96	18
Bareground	28.33	16.58	18
Rock	5.06	1.51	18

B. COMPOSITION			
Shrubs	1.22	3.62	18
Forbs	82.11	18.36	18
Grasses	16.67	17.36	18

C. COVER BY SPECIES

	% MEAN COVER	RELATIVE FREQUENCY	SAMPLE SIZES
Shrubs			
Sarcobatus vermiculatus	0.83	11.11	18
Forbs			
Bassia hyssopifolia	0.28	5.56	18
Kochia scoparia	0.56	11.11	18
Sisymbrium altissimum	43.33	100.00	18
Grasses			
Agropyron cristatum	8.61	66.67	18

D. WOODY SPECIES DENSITY

	NUMBER/ACRE
Sarcobatus vermiculatus	435.60
TOTAL	435.60

TABLE 2: Section 2 (east side) - Total cover (A), composition (B), cover and frequency by species (C), and woody species density (D), summaries for the C.V. Spur No. 2 Test Plot for 1997.

A. TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZES
Total Living Cover	55.83	15.75	18
Litter	9.72	3.52	18
Bareground	29.56	16.51	18
Rock	4.89	1.66	18
B. COMPOSITION			
Shrubs	0.35	1.43	18
Forbs	55.74	28.31	18
Grasses	43.91	28.43	18
C. COVER BY SPECIES	% MEAN COVER	RELATIVE FREQUENCY	SAMPLE SIZES
Shrubs			
Sarcobatus vermiculatus	0.28	5.56	18
Forbs			
Bassia hyssopifolia	8.08	14.54	18
Halogeton glomeratus	1.39	4.66	18
Kochia scoparia	5.28	11.60	18
Sisymbrium altissimum	15.83	77.78	18
Grasses			
Agropyron cristatum	25.00	15.09	18
D. WOODY SPECIES DENSITY		NUMBER/ACRE	
Sarcobatus vermiculatus		58.08	
TOTAL		58.08	

FIGURES & GRAPHS

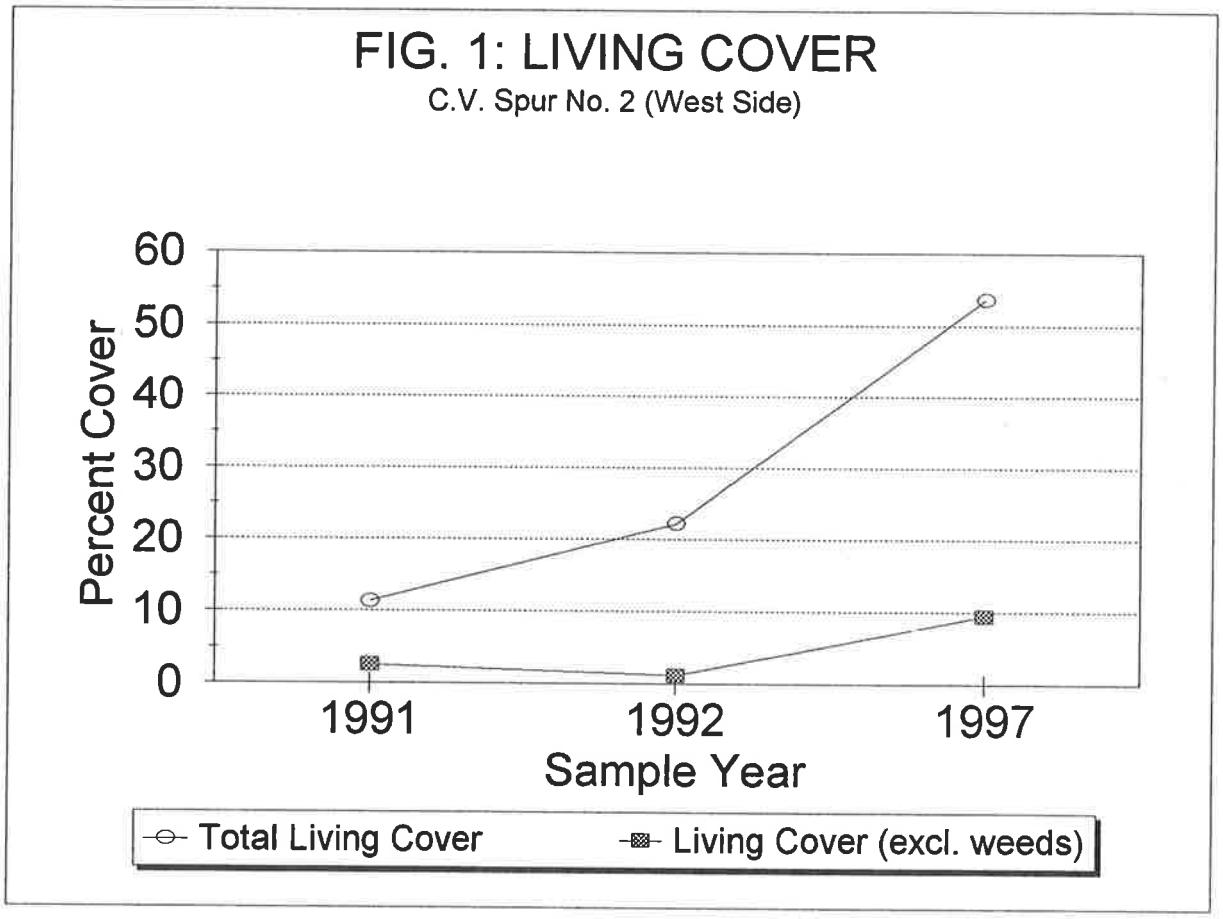
FIG. 1: LIVING COVER
C.V. Spur No. 2 (West Side)
Percent Cover
60
50
40
30
20
10
0
1991
1992
1997
Sample Year
Total Living Cover
Living Cover (excl. weeds)

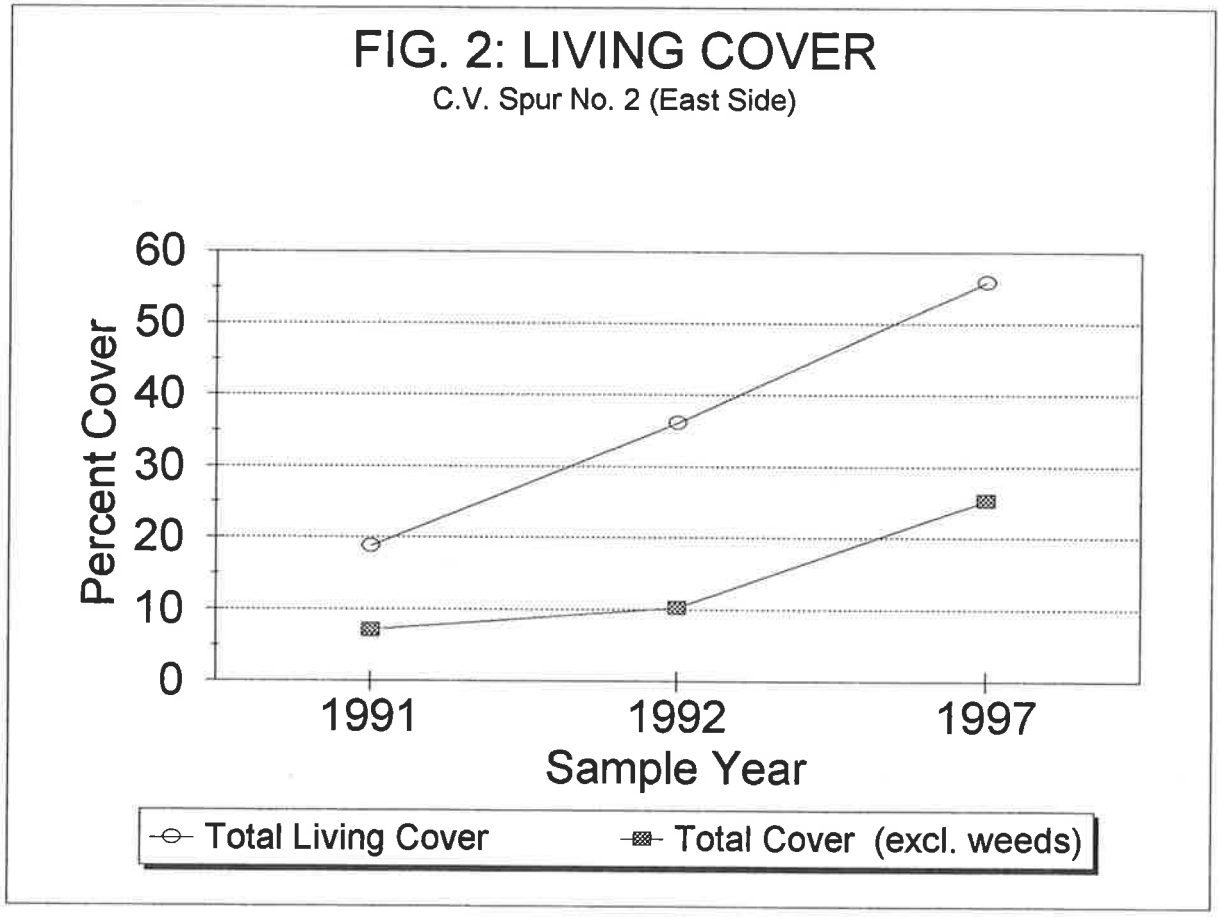
FIG. 2: LIVING COVER
C.V. Spur No. 2 (East Side)
Percent Cover
60
50
40
30
20
10
0
1991
1992
1997
Sample Year
Total Living Cover
Total Cover (excl. weeds)

FIG. 3: WOODY SPECIES DENSITY

C.V. Spur No. 2 (West Side)

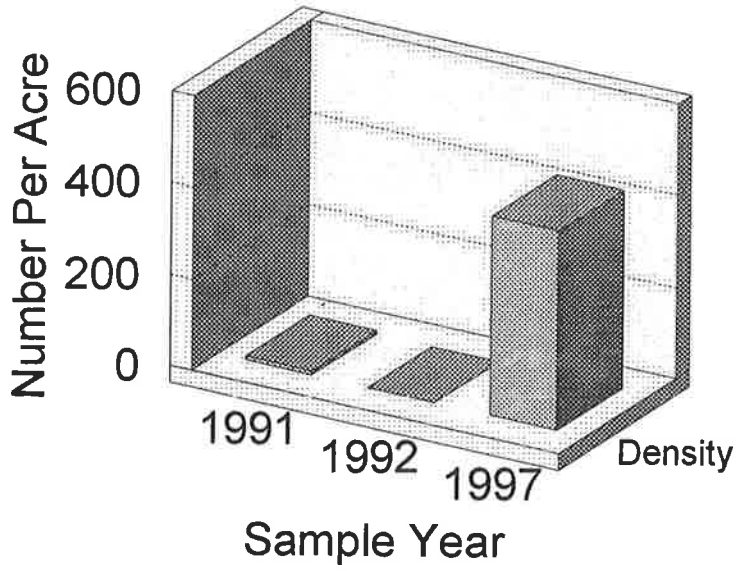

FIG. 4: WOODY SPECIES DENSITY

C.V. Spur No. 2 (East Side)

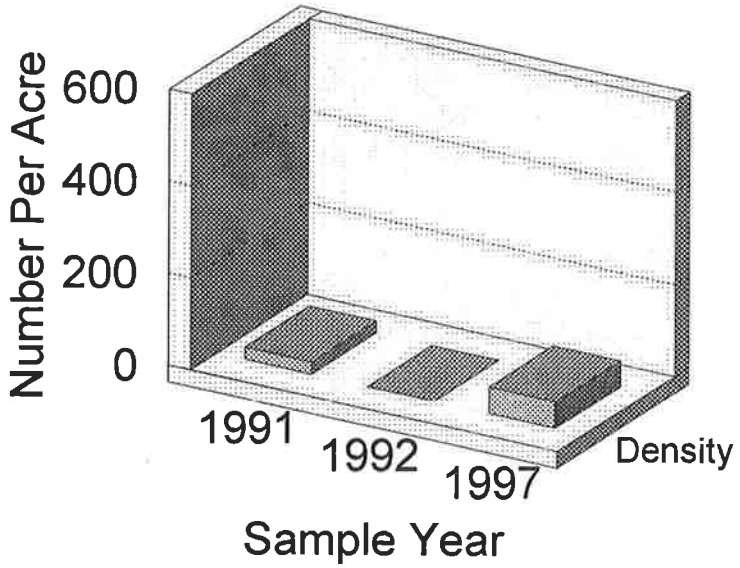

Fig. 5: Species Planted in Section 1 & 2 (East & West) for the C.V. Spur No. 2 Test Plot

	Rate #PLS/A
SHRUBS	
Atriplex confertifolia	2.0
Ceratoides lanata	1.0
FORBS	
Helianthus annuus	3.0
Kochia prostrata	1.0
Melilotus officinalis	1.0
Penstemon palmeri	.5
Sphraeralcea grossulariaefolia	.25
GRASSES	
Agropron cristatum ephraim	2.0
Agropyron cristatum fairway	2.0
Elymus lanceolatus	2.0
Elymus elymoides	.5
Elymus junceus	1.0
Stipa hymenoides	4.0

Section 3 (middle section)

Single spp. planted in 10 ft. strips: clover, winterfat, globemallow, shadscale, sunflower, kochia, Russian wildrye, crested wheatgrass, squirreltail, thickspike, Palmer penstemon, Indian ricegrass.

COLOR PHOTOGRAPHS

C V Spur No. 2
Section 1 (West Side)

C V Spur No. 2
Section 2 (East Side)

APPENDIX
Raw Data

BLACKHAWK
CV Spur - Reveg.Test Plot #2
Slope & Exp:
Section #1 (West Side)

Sample Date: 26 Aug 97	1.00	2.00	3.00	4.00	5.00	6.00	7.00
SHRUBS							
Sarcobatus vermiculatus	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FORBS							
Bassia hyssopifolia	0.00	0.00	0.00	0.00	0.00	0.00	5.00
Kochia scoparia	0.00	5.00	0.00	0.00	0.00	0.00	0.00
Sisymbrium altissimum	35.00	55.00	45.00	35.00	65.00	25.00	25.00
GRASSES							
Agropyron cristatum	5.00	0.00	15.00	0.00	5.00	20.00	10.00
COVER							
Total Living Cover	40.00	60.00	60.00	35.00	70.00	45.00	40.00
Litter	5.00	5.00	10.00	55.00	10.00	9.00	10.00
Bareground	50.00	30.00	25.00	5.00	15.00	45.00	45.00
Rock	5.00	5.00	5.00	5.00	5.00	1.00	5.00
% COMPOSITION							
Shrubs	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forbs	87.50	100.00	75.00	100.00	92.86	55.56	75.00
Grasses	12.50	0.00	25.00	0.00	7.14	44.44	25.00

8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00
0.00	0.00	0.00	5.00	10.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00
30.00	70.00	30.00	55.00	35.00	20.00	35.00	40.00	45.00	70.00
0.00	0.00	30.00	5.00	25.00	20.00	5.00	10.00	5.00	0.00
30.00	70.00	60.00	65.00	70.00	40.00	40.00	50.00	50.00	75.00
5.00	20.00	10.00	20.00	10.00	10.00	10.00	10.00	10.00	15.00
60.00	5.00	25.00	10.00	15.00	40.00	45.00	35.00	35.00	5.00
5.00	5.00	5.00	5.00	5.00	10.00	5.00	5.00	5.00	5.00
0.00	0.00	0.00	7.69	14.29	0.00	0.00	0.00	0.00	0.00
100.00	100.00	50.00	84.62	50.00	50.00	87.50	80.00	90.00	100.00
0.00	0.00	50.00	7.69	35.71	50.00	12.50	20.00	10.00	0.00

BLACKHAWK
CV Spur - Reveg.Test Plot #2
Slope & Exp:
Section #1 (West Side)

18.00	Mean	SDev	Freq	Sample Date: 26 Aug 97
				SHRUBS
0.00	0.83	2.50	11.11	*Sarcobatus vermiculatus*
				FORBS
0.00	0.28	1.15	5.56	*Bassia hyssopifolia*
0.00	0.56	1.57	11.11	*Kochia scoparia*
65.00	43.33	15.81	100.00	*Sisymbrium altissimum*
				GRASSES
0.00	8.61	9.25	66.67	*Agropyron cristatum*
				COVER
65.00	53.61	13.72		Total Living Cover
10.00	13.00	10.96		Litter
20.00	28.33	16.58		Bareground
5.00	5.06	1.51		Rock
				% COMPOSITION
0.00	1.22	3.62		Shrubs
100.00	82.11	18.36		Forbs
0.00	16.67	17.36		Grasses

BLACKHAWK
CV Spur - Test Plot #2
Slope & Exp:
Section #2 (East Side)

Sample Date: 26 Aug 97	1.00	2.00	3.00	4.00	5.00	6.00	7.00
SHRUBS							
Sarcobatus vermiculatus	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FORBS							
Bassia hyssopifolia	0.00	5.00	0.00	0.00	0.00	0.00	0.00
Halogeton glomeratus	0.00	20.00	0.00	0.00	0.00	0.00	0.00
Kochia scoparia	45.00	0.00	20.00	0.00	0.00	0.00	0.00
Sisymbrium altissimum	5.00	5.00	5.00	30.00	20.00	5.00	45.00
GRASSES							
Agropyron cristatum	20.00	0.00	25.00	0.00	25.00	45.00	10.00
COVER							
Total Living Cover	70.00	30.00	50.00	30.00	45.00	50.00	55.00
Litter	10.00	5.00	10.00	10.00	10.00	10.00	10.00
Bareground	15.00	60.00	30.00	55.00	40.00	35.00	30.00
Rock	5.00	5.00	10.00	5.00	5.00	5.00	5.00
% COMPOSITION							
Shrubs	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forbs	71.43	100.00	50.00	100.00	44.44	10.00	81.82
Grasses	28.57	0.00	50.00	0.00	55.56	90.00	18.18

8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00	17.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00
0.00	40.00	50.00	15.00	0.00	0.00	0.00	20.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00
25.00	0.00	10.00	15.00	0.00	30.00	30.00	10.00	50.00	0.00
15.00	40.00	20.00	30.00	55.00	30.00	20.00	30.00	25.00	50.00
50.00	80.00	80.00	60.00	55.00	60.00	70.00	60.00	80.00	50.00
10.00	10.00	5.00	10.00	10.00	10.00	20.00	5.00	15.00	5.00
35.00	5.00	14.00	25.00	30.00	25.00	5.00	30.00	3.00	40.00
5.00	5.00	1.00	5.00	5.00	5.00	5.00	5.00	2.00	5.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.25	0.00
70.00	50.00	75.00	50.00	0.00	50.00	71.43	50.00	62.50	0.00
30.00	50.00	25.00	50.00	100.00	50.00	28.57	50.00	31.25	100.00

BLACKHAWK
CV Spur - Test Plot #2
Slope & Exp:
Section #2 (East Side)

18.00	Mean	SDev	Freq	Sample Date: 26 Aug 9
				SHRUBS
0.00	0.28	1.15	5.56	*Sarcobatus vermiculatu*
				FORBS
15.00	8.06	14.54	33.33	*Bassia hyssopifolia*
5.00	1.39	4.66	11.11	*Halogeton glomeratus*
0.00	5.28	11.60	22.22	*Kochia scoparia*
0.00	15.83	15.39	77.78	*Sisymbrium altissimum*
				GRASSES
10.00	25.00	15.09	88.89	*Agropyron cristatum*
				COVER
30.00	55.83	15.75		Total Living Cover
10.00	9.72	3.52		Litter
55.00	29.56	16.51		Bareground
5.00	4.89	1.66		Rock
				% COMPOSITION
0.00	0.35	1.43		Shrubs
66.67	55.74	28.31		Forbs
33.33	43.91	28.43		Grasses

534.300. See Section 511.100.

535. N/A - This is a surface preparation and shipping facility. No spoil is generated at this site.

536. The refuse pile at Savage Coal Terminal is composed primarily of coal processing waste generated prior to 1984; however, a small percentage of the pile is made up of coal mine waste generated by the operations prior to ownership by Savage Services Corporation.

The primary use of the refuse pile at this time is for disposal of sediment from the cleanout of ponds, ditches and culverts.

The main refuse disposal area was approved to be removed and burned in the Sunnyside Cogeneration Power Plant, in the fall of 2000. The entire main refuse pile has since been removed and utilized in the power plant. The plan for removal was shown in Appendix 5-1 "Proposed Removal of Main Refuse Pile". This appendix included plans and figures with proposed dates for removal. Although the dates are no longer valid, since the pile is now gone, the appendix has been left in the MRP to provide the details and history of the removal process.

An alternative proposal had been made and approved to use the refuse as a B.T.U. resource recovery material. This is simply another form of waste utilization for the refuse, and provided Savage Services Corporation with an alternate method of removing the refuse pile and having it used beneficially. The details of the B.T.U. resource recovery plan are provided in Appendix 5-2. This plan was not intended to replace or supercede the original plan for the refuse pile removal, but merely to supplement the original plan. Although this procedure is no longer used, the plan details have been left in Appendix 5-2 to clarify the initial removal of up to 15,000 tons of refuse material as approved.

Although the main refuse pile has been removed, it is still considered active since ditch, culvert and sediment pond cleanout material as well as other site cleanup material will continue to be disposed of in the approved refuse area. A large portion of the previously approved refuse area may also be utilized as a coal storage area throughout the operational life of the facility. When the area is no longer required for the operation, it will be reclaimed according to the approved reclamation plan.

The following section is the approved Coal Processing Waste Disposal Plan for this site.

540. Reclamation Plan.

541. Contemporaneous Reclamation

At the present time it is not possible to project the life of the Savage Coal Terminal facility, as it may be used indefinitely. Therefore, only inactive refuse disposal areas may be reclaimed as the piles are completed. These areas will be covered with an appropriate amount of plant growth material. Seeding, fertilizing, and mulching will be performed simultaneous with placement of subsoil and topsoil.

541.100 When operations at Savage Coal Terminal are finally terminated, all surface facilities will be removed and the surface area graded (except the refuse disposal sites), topsoiled and revegetated. After revegetation efforts have been completed, all drainage structures, culverts, and diversions will be removed and the areas reclaimed.

The proposed final reclaimed configuration is shown on Plate 5-6 "Post Mining Topography and Drainage". A commitment has been made to revise and update this Plate prior to reclamation, since changes in configuration are possible over the life of the project. Based on the contours on the existing Plate 5-6, there are no areas with final slopes of 3H:1V or steeper, either on the truck dumps or refuse areas. There is a provision under Section 542.200 of the MRP to provide for hydroseeding and broadcast seeding on areas steeper than 4H:1V and hydromulching on areas steeper than 3H:1V, in the event this would become necessary at final reclamation. At this time, there are no portions of the site projected to be reclaimed with slopes 3H:1V or steeper.

Reclamation efforts, including backfilling, grading, topsoil replacement and revegetation shall occur as contemporaneously as practicable.

Seeding and planting will occur immediately after site preparation and during the first normal period of planting conditions.

<u>Soil Removal and Storage</u>

The soil survey conducted in July, 1980 distinguished disturbed soils from undisturbed soil mapping units (See Plate 2-1, Soils Map). Areas mapped as Disturbed Land were areas where the soils, vegetation, both were affected by operations. Disturbance of areas which now occupy roads and surface facility sites occurred prior to enactment of reclamation legislation so no topsoil was

salvaged from these areas. However, soils underlying disturbance are considered to be in-place aside from the top several inches of coal fines, and compaction.

The undisturbed soil mapping units will have topsoil removed immediately prior to disturbance based on stripping depths that have been assigned to each soil type. The stripping depths were derived from soil physical and chemical analysis (see Section 8.5). Subsoil is that material which exist between the topsoil and the parent material.

Where chemical analysis substantiates, subsoil will be stripped down to the parent material.

The location of the topsoil piles that currently exist at Savage Coal Terminal are displayed on Plate 5-2. These stockpiles were placed on level ground and revegetated with the temporary seed mixture to reduced wind and water erosion. As additional topsoil and subsoil is placed on the respective stockpiles they are reclaimed contemporaneously with the first suitable growing season.

The present stockpiles are most likely expanded to their maximum size at this time. Materials from the stockpiles will not be moved until needed for final reclamation.

541.200 Final Abandonment

Upon final cessation of operations all surface structures and facilities for the operation will be removed. There are no plans to transfer any wells to other parties. The shallow monitoring wells located within and around the property has been sealed by filling them with cement or other inert sealing material. All salvageable materials will be recovered and removed for sale or re-use. Non-salvageable materials (concrete, gravel, etc.) will be placed to the extent possible in existing impoundment excavations and low areas as fill prior to final grading and stored on the berms of sedimentation ponds. Remaining material will be taken off site to an approved landfill. The schedule and cost of removal is detailed in Chapter 8.

541.300 N/A - This is a surface operation.

542.200 Backfilling and Grading Plans

With the termination of Savage Coal Terminal operations, the surface area will be graded, except refuse disposal sites. The post-mining topography and drainage for the refuse disposal areas is shown on Plate 5-6. ~~Cross-sections of the reclaimed refuse disposal areas are shown on Plate 5-3.~~ For the most part, reclamation backfilling and grading will be minimal since no overburden will be removed.

Plate 5-3 shows the "As-Constructed" Refuse Pile contours prior to its shipment as a power plant fuel. The refuse lpile is still considered active, and may be re-established in the future as conditions warrant. Because of the possible changes to this area over time, the company will revise both Plates 5-3 "Refuse Pile As-Constructed" and Plate 5-6 "Post Mining Topography and Drainage" prior to reclamation.

Areas to be backfilled will consist of the 5 ponds, diversions, and any other depressions that will act to trap water. In each case, the material to be used for backfilling is either stored adjacent to the structure in the form of berms or dams, or will be placed there prior to the backfilling (i.e. - concrete to be placed in the ponds). The entire disturbed area will be graded to the necessary degree to reach the configuration shown on Plate 5-6, Post Mining Topography and Drainage.

Recontouring

All final grading, preparation and placement of topsoil (where applicable) will be done along the contour to minimize subsequent erosion and instability.

Rills or gullies deeper than 9 inches in regraded areas will be filled, graded or otherwise stabilized and reseeded.

The proposed final configuration of this area is shown on Plate 5-6. This final recontouring is compatible with the surrounding terrain and the post-mining land use.

Terracing and Erosion Control

As a part of the final reclamation work, native hay will be placed on the side slope of the refuse disposal piles and crimped into the soil. Other organic mulches will be used with a tackifier on steeper slope areas where native hay cannot be crimped into the soil.

Soil Redistribution and Stabilization

On pre-law disturbed areas (see Plate 5-1) the disturbed land fill will be used as a seedbed material. Any material which has been contaminated by more than 50% coal or coal refuse will be removed. Areas with excessive rock (more than 50% or rocks greater than 12" diameter will not be utilized as a soil substitute but will be salvaged to be employed as rip-rap. The balance of the material will be ripped at a depth of 14" to 18" utilizing a D-6 or the equivalent crawler tractor on approximately 18" center to center spacing.

Note: The 50% coal contamination will be determined visually; however, if such areas are left, they will have coal % verified by laboratory analyses. Contaminated material will be disposed of on site.

Post law disturbed areas will have an average of 6" of topsoil respread onto the area. This material as well as the disturbed land fill will be scarified (disced or tilled) in areas of less than 20% slopes to reduce clodiness. On steeper areas (greater than 20% slopes), the area will be surface roughened by placement of gouges approximately 30" in diameter by 12" - 18" deep and 2' - 3' apart. Based on knowledge gained from topsoil stockpiles the surface roughening for water harvesting and seeding immediately after topsoil placement appears to be the best technology for establishing vegetation on these areas.

The redistributed topsoil will be random sampled on a basis of 1 composite sample per acre. The sample sites will be randomly located on a grid of the reclaimed area by numbering each grid from 1 to 100/acre and selecting numbers to sample from a random number table. The sites will be located on the ground and a 4" soil auger will be utilized to extract a 4" to 6" core of surface material for laboratory analyses. The sample will be labeled as to its location and shipped to a certified lab to be analyzed as to those parameters the regulatory agency requires at the time of reclamation.

Pre-law disturbed and post-law topsoil samples will be analyzed to determine soil nutrients and amendments to be applied, using the following parameters: Texture, pH, EC, SAR, and plant available Nitrogen, Potassium and Phosphorus.

Revegetation Plan

Soil Preparation

Prior to seeding soil samples will be taken from all areas to be reclaimed to determine appropriate fertilizer types and application rates from the soil analysis.

Seeding and Transplanting

Areas which have been disturbed during mining will be reseeded with either native species or a mixture of native and introduced species. Mixtures containing introduced species may be more efficient in establishing ground cover for preventing erosion and protecting topsoil since some may grow faster and produce cover more quickly than native species.

Presently, Savage Services Corporation has been granted permission to use the Seed Mixture in Table 5-1. This mixture contains some introduced species that the company feels may be valuable for reclamation of the site. By studying the effects of specific introduced and native species planted together on Savage Coal Terminal during temporary reclamation, the company will be able to design a permanent reclamation seed mixture most compatible with the site. At the present time, the permanent reclamation seed mixture consists of the species and rates found in Tables 5-2 and 5-3 for the upland and lowland areas, respectively. The mix in Table 5-4 will be used to revegetate the disturbed area on the Price River pipeline system. The revegetation plan for the Price River Well area also includes the planting of Sandbar Willows at a density of 150 per acre (to a distance of 200 feet from the river).

In most cases the post-mining topography will be gentle enough to drill seed along the contour. On steeper areas (greater than 4:1), a combination of hydroseeding and broadcast seeding will be utilized. Hydroseeding and broadcast seeding will be applied at twice the rate of drill seeding. Areas to be hydroseeded are shown on Plate 5-6, all other areas are to be drill seeded.

Seeding will take place as soon as practical after placement of topsoil and scarification or roughening. Success of the revegetation program will be determined by comparing the percent ground cover and shrub density on the reclaimed area with that on the reference areas described in Chapter 3. Success standards will be those required by the Division. Establishment of acceptable shrub densities may be achieved either through the use of seed or by planting bare root or containerized seedlings.

Appendix 8-1

Reclamation Cost Estimate

Savage Services Corporation
Savage Coal Terminal

Bonding Calculations

Direct Costs			
Subtotal Demolition and Removal	$	857,963.00	
Subtotal Backfilling and Grading	$	599,800.00	
Subtotal Revegetation	$	254,047.00	
Direct Costs	$	1,711,810.00	
Indirect Costs			
Mob/Demob	$	171,181.00	10.0%
Contingency	$	85,591.00	5.0%
Engineering Redesign	$	42,795.00	2.5%
Main Office Expense	$	116,403.00	6.8%
Project Mainagement Fee	$	42,795.00	2.5%
Subtotal Indirect Costs	$	458,765.00	26.8%
Total Cost 2016 Dollars	$	2,170,575.00	
Escalation factor			0.7%
Number of years			5
Escalation	$	77,041.00	
Reclamation Cost Escalated	$	2,247,616.00	
Bond Amount (rounded to nearest $1,000)	$	2,248,000.00	
Bond Posted Dollars	$	2,525,000.00	
Difference Between Cost Estimate and Bond	$	277,000.00	
Percent Difference	$	0.12	

Note: Direct costs are based on Bare Unit Costs from RS Means Heavy Construction Cost Data 30th Annual Edition 2016.

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swe l Factor	Quantity	Unit	Cost
	Shop Office 01																			26650
	Scale House 02																			2887
	No 1 Truck Dump 03																			7590
	No 2 Truck Dump 04																			4852
	No 3 Truck Dump 05																			2517
	No 4 Truck Dump 06																			2790
	No 5 Truck Dump 07																			1533
	Conveyors Eight 08																			9332
	Conveyor 48 inch 09																			9885
	No 4 Radial Stacker 10																			3777
	No 5 Radial Stacker 11																			1047
	Conveyor Piers 12																			7324
	Support Structure 13																			1589
	Water Tank 14																			0
	Reclaim Tunnel 15																			35051
	Portable Hopper 16																			980
	Trailer 17																			0
	Transfer Bin 18																			3146
	Preparation Plant 19																			243893
	Substation 20																			6733
	Fuel Storage 21																			12681
	Reclaim Control Bld 22																			2086
	Sample House 23																			5087
	Stacking Tube 24																			33128
	Loadout Silo 25																			165289
	Railroad 26																			25440
	Powerline 27																			3750
	Aphalt 28																			70505
	Pumphouse 29																			15025
	River Pump 30																			331
	Guard Rails 31																			11286
	Culverts 32																			2497
	Stacking Tube 33																			28585
	Coal Sampler Addition 34																			7083
	Conveyor Transfer 35																			19173
	New Shop Oil Storage Bld 36																			28744
	Plant Expansion 37																			18961
	Road Surfacing Material 38																			36723
	Total																			857993

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Shop Office 01																			
	Structure's Demolition Cost	Steel Bld, Large	02 41 16 13 0020	0.28	/CF	125	45	10								FT		56250	CF	15750
	Structure's Vol. Demolished																0.01	21	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						17					CY		17	CY	655
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			16405
	Equipment 's Disposal Cost	Chain link remove 8'-10'	02 41 13 60 1700	3.07	/LF	240										LF		240	LF	737
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			737
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	125	45	0.5								FT		104	CY	7649
	Concrete's Vol. Demolished																1.3	135	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													135	CY	228
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													135	CY	417
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													135	CY	1224
	Subtotal																			9518
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			26660

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Scale House 02																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	12	12	8								FT		1152	CF	323
	Structure's Vol. Demolished																0.01	0	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						0					CY		0	CY	
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			323
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	75	15	3								FT		3375	CF	945
	Structure's Vol. Demolished																0.01	1	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						1					CY		1	CY	39
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			984
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Footer's Demolition																			
	Demolition Cost	Concrete demolition	03 05 05.10 0050	73.55	/CY						15					CY		15	CY	1103
	Footer's Vol. Demolished																1.3	20	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													20	CY	34
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													20	CY	62
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													20	CY	181
	Subtotal																			1380
	Total																			2887

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	No 1 Truck Dump 03																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	16	16	22								FT		5632	CF	1577
	Structure's Vol. Demolished																0.01	2	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						2					CY		2	CY	77
	Subtotal																			1654
	No. 2 Truck Dump	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	16	6	8								FT		768	CF	215
	Structure's Demolition Cost																0.01	1	CY	
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						1					CY		1	CY	39
	Subtotal																			254
	No. 2 Truck Dump	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	200	30	1								FT		8000	CF	1680
	Structure's Demolition Cost																0.01	2	CY	
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						2					CY		2	CY	77
	Subtotal																			1757
	Footer's Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	30	40	1								FT		44	CY	3236
	Footer's Vol. Demolished																1.3	57	CY	
	Loading Cost	Front end loacer 3 CY	31 23 16 42 1300	1.69	/CY													57	CY	96
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													57	CY	176
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													57	CY	517
	Subtotal																			4025
	Total																			7690

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	No 2 Truck Dump 04																			
	Structure's Demolition Cost	Steel Bld, Large	02 41 16 13 0020	0.28	/CF	16	16	22								FT		5632	CF	1577
	Structure's Vol. Demolished																0.01	2	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						2					CY		2	CY	77
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			1654
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Footer's Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	120	8	1								FT		36	CY	2648
	Footer's Vol. Demolished																1.3	47	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													47	CY	79
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													47	CY	145
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													47	CY	426
	Subtotal																			3298
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			4952

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	No 3 Truck Dump 05																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	14	14	20								FT		3920	CF	1098
	Structure's Vol. Demolished																0.01	1	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						1					CY		1	CY	39
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			1137
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Footer's Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	20	20	1								FT		15	CY	1103
	Footer's Vol. Demolished																1.3	20	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													20	CY	34
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													20	CY	62
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													20	CY	181
	Subtotal																			1380
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			2517

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	No 4 Truck Dump 06																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	16	16	20								FT		5120	CF	1434
	Structure's Vol. Demolished																0.01	2	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						2					CY		2	CY	77
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			1511
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Footer's Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	48	4	2								FT		14	CY	1030
	Footer's Vol. Demolished																1.3	18	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													18	CY	30
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													18	CY	56
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													18	CY	163
	Subtotal																			1279
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			2790

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	No 5 Truck Dump 07																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	30	14	8								FT		3360	CF	941
	Structure's Vol. Demolished																0.01	1	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						1					CY		1	CY	39
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			980
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Footer's Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	10	15	1								FT		8	CY	441
	Footer's Vol. Demolished																1.3	8	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													8	CY	14
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													8	CY	25
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													8	CY	73
	Subtotal																			553
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			1533

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Conveyors Eight 08																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	1980	4	4								FT		31680	CF	8870
	Structure's Vol. Demolished																0.01	12	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						12					CY		12	CY	462
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			9332
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			9332

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Conveyor 48 inch 09																			
	Structure's Demolition Cost	Steel Bid, Large	02 41 16 13 0020	0.28	/CF	1980	4	4								FT		31680	CF	8870
	Structure's Vol. Demolished																0.01	12	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						12					CY		12	CY	462
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			9332
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Floor Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	10	15	1								FT		6	CY	441
	Floor's Vol. Demolished																1.3	8	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													8	CY	14
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													8	CY	25
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													8	CY	73
	Subtotal																			553
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			9885

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	No 4 Radial Stacker 10																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	200	8	8								FT		12800	CF	3584
	Structure's Vol. Demolished																0.01	5	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						5					CY		5	CY	193
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			3777
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Floor Demolition																			
	Demolition Cost																			
	Floor's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			0
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			3777

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	No 5 Radial Stacker 11																			
	Structure's Demolition Cost	Steel Bld, Large	02 41 16 13 0020	0.28	/CF	100	6	6								FT		3600	CF	1008
	Structure's Vol. Demolished																0.01	1	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						1					CY		1	CY	39
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			1047
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Floor Demolition																			
	Demolition Cost																			
	Floor's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			0
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			1047

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Conveyor Piers 12																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Floor Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	3	3	6							40	FT		80	CY	5884
	Floor's Vol. Demolished																1.3	104	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													104	CY	176
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													104	CY	321
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													104	CY	943
	Subtotal																			7324
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			7324

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Support Structure 13																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	300	1	1							18	FT		5400	CF	1512
	Structure's Vol. Demolished																0.01	2	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						2					CY		2	CY	77
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			1589
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Floor Demolition																			
	Demolition Cost																			
	Floor's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			1589

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Water Tank 14																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Floor Demolition																			
	Demolition Cost																			
	Floor's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			

REMOVED

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Reclaim Tunnel 15																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	1040	14	8								FT		116480	CF	32614
	Structure's Vol. Demolished																0.01	43	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						43					CY		43	CY	1656
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			34270
	Escape Tunnel																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF			160	4							FT		2011	CF	563
	Structure's Vol. Demolished																0.01	1	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						1					CY		1	CY	39
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			602
	Reclaim Tunnel 15																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	4	4	4							2	FT		128	CF	36
	Structure's Vol. Demolished																0.01	0	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						0					CY		0	CY	0
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			36
	Escape Tunnel																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	8	8	8								FT		512	CF	143
	Structure's Vol. Demolished																0.01	0	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						0					CY		0	CY	0
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			143
	Total																			35051

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Portable Hopper 16																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	20	12	14								FT		3360	CF	941
	Structure's Vol. Demolished																0.01	1	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						1					CY		1	CY	39
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			980
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Pad's Demolition																			
	Demolition Cost																			
	Pad's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			980

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Trailer 17																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			0

REMOVED

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Transfer Bin 18																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF			30	16							FT		6032	CF	1689
	Structure's Vol. Demolished																0.01	2	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						2					CY		2	CY	77
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			1766
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Pad's Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	20	20	1								FT		15	CY	1103
	Pad's Vol. Demolished																1.3	20	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													20	CY	34
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													20	CY	62
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													20	CY	181
	Subtotal																			1380
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			3145

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Preparation Plant 19																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	110	80	80								FT		704000	CF	197120
	Structure's Vol. Demolished																0.01	261	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						261					CY		261	CY	10049
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			207169
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	110	80	1								FT		326	CY	23977
	Concrete's Vol. Demolished																1.3	424	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													424	CY	717
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													424	CY	1310
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CF													424	CY	3846
	Subtotal																			29850
	Pad's Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY						75					CY		75	CY	5516
	Pad's Vol. Demolished																1.3	98	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													98	CY	166
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													98	CY	303
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CF													98	CY	889
	Subtotal																			6874
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			243893

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Substation 20																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	20	27	8								FT		4320	CF	1210
	Structure's Vol. Demolished																0.01	2	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						64					CY		64	CY	2464
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			3674
	Transformers 's Disposal Cost	Mechanical equipment heavy	25 05 05 10 3600	795	/ton							2				Ton		2	Ton	1590
	Fence Cost	Chain link remove 8'-10'	02 41 13 60 1700	3.07	/LF	180										FT		180	FT	553
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			2143
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	20	27	0.5								FT		10	CY	736
	Concrete's Vol. Demolished																1.3	13	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													13	CY	22
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													13	CY	40
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													13	CY	118
	Subtotal																			916
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			6733

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Fuel Storage 21																			
	Structure's Demolition Cost	3000 gal. to 5000 gal. tank	02 65 10 30 1023	760	Ea.										2	EA		2	EA	1520
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						0					CY		0	CY	0
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			1520
	Trailer																			
	Structure's Demolition Cost	Mixed Materials Bld. Large	02 41 16 13 0100	0.31	/CF	10	50	8								FT		4000	CF	1240
	Structure's Vol. Demolished																0.01	1	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						1					CY		1	CY	39
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			1279
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	30	30	0.68							4	FT		91	CY	6693
	Concrete's Vol. Demolished																1.3	118	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													118	CY	199
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													118	CY	365
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													118	CY	1070
	Subtotal																			8327
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	30	30	0.5								FT		17	CY	1250
	Concrete's Vol. Demolished																1.3	22	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													22	CY	37
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													22	CY	68
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													22	CY	200
	Subtotal																			1555
	Total																			12691

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Reclaim Control Bld 22																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	22	16	12								FT		4224	CF	1183
	Structure's Vol. Demolished																0.01	2	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						2					CY		2	CY	77
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			1260
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Pad's Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	22	22	0.5								FT		9	CY	662
	Pad's Vol. Demolished																1.3	12	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													12	CY	20
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi, rnd. trip	31 23 23 20 1014	3.09	/CY													12	CY	37
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													12	CY	109
	Subtotal																			828
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			2088

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Sample House 23																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	22	22	30								FT		14520	CF	4066
	Structure's Vol. Demolished																0.01	5	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						5					CY		5	CY	193
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			4259
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Pad's Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	22	22	0.5								FT		9	CY	662
	Pad's Vol. Demolished																1.3	12	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													12	CY	20
	Transportation Cost	12 CY (18 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													12	CY	37
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													12	CY	109
	Subtotal																			828
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			5087

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Stacking Tube 24																			
	Structure's Demolition Cost	Concrete Building/Explosive	02 41 16 15 0100	0.30	/CF			200	20						4	FT		62832	CF	18850
	Structure's Vol. Demolished																0.01	23	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						23					CY		23	CY	885
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			19735
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Pad's Demolition																			
	Demolition Cost																			
	Pad's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			0
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished										186				4	CY	1.3	967	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													967	CY	1634
	Transportation Cost	12 CY (18 Ton) Dump Truck 1/2 ml. rnd. trip	31 23 23 20 1014	3.09	/CY													967	CY	2988
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													967	CY	8771
	Subtotal																			13393
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			33129

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Loadout Silo 25																			
	Structure's Demolition Cost	Concrete Building/Explosive	02 41 16 15 0100	0.30	/CF			200	50						4	FT		392699	CF	117810
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						145					CY		145	CY	5583
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			123393
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Pad's Demolition																			
	Demolition Cost																			
	Pad's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			0
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished									2327					1	CY	1.3	3025	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													3025	CY	5112
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													3025	CY	9347
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													3025	CY	27437
	Subtotal																			41896
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			165289

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Railroad 26																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost	Rail Road Removal/Non Means	RR Contractors x 1.2	12000	Mi	11200										LF		2.12	Mi	25440
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			25440
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			25440

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Powerline 27																			
	Structure's Demolition Cost																			
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			
	Equipment 's Disposal Cost	Powerpole	Division Estimate	150	EA										25	EA.		25	EA.	3750
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			3750
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			3750

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Aphalt 28																			
	Haul road PR-1																			
	Demolition Cost	Pavement Removal 4-6"	02 41 13 17 5050	7.12	SY	770	24	0.5		2053								2053	SY	14617
	Pavement's Vol. Demolished										342							342	CY	
	Loading Cost	FEL wheeled loader 3 CY	31 23 16 42 1601	0.96	CY						445						1.3	445	CY	427
	Transportation Cost	20 CY Dump Trailer 4 Mile Round Trip	31 23 23 20 5530	5.32	CY						445							445	CY	2367
	Disposal Costs	Asphalt crushed/45 pounds/CF	Nielson Construct	10.35	Ton							270						270	TON	2795
	Haul road PR-2																			
	Demolition Cost	Pavement Removal 4-6"	02 41 13 17 5050	7.12	SY	1720	24	0.5		4587								4587	SY	32659
	Pavement's Vol. Demolished										764							764	CY	
	Loading Cost	FEL wheeled loader 3 CY	31 23 16 42 1601	0.96	CY						994						1.3	994	CY	954
	Transportation Cost	20 CY Dump Trailer 4 Mile Round Trip	31 23 23 20 5530	5.32	CY						994							994	CY	5288
	Disposal Costs	Asphalt crushed/45 pounds/CF	Nielson Construct	10.35	Ton							464						464	TON	4802
	Subtotal																			69911
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Haul Road PR-2																			
	Pavement's Demolition																			
	Demolition Cost																			
	Pavement's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			0
	Parking Lot																			
	Demolition Cost	Pavement Removal 4-6"	02 41 13 17 5050	7.12	SY	50	140	0.25		778								778	SY	5539
	Pavement's Vol. Demolished										65							65	CY	0
	Loading Cost	FEL wheeled loader 3 CY	31 23 16 42 1601	0.96	CY						84						1.3	84	CY	81
	Transportation Cost	20 CY Dump Trailer 4 Mile Round Trip	31 23 23 20 5530	5.32	CY						84							84	CY	447
	Disposal Costs	Asphalt crushed/45 pounds/CF	Nielson Construct	10.35	Ton							51						51	Ton	528
	Subtotal																			6595
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			70505

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Pumphouse 29																			
	Structure's Demolition Cost	Mixed Materials Bld. Large	02 41 16 13 0100	0.31	/CF	40	26	10								FT		10400	CF	3224
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						135					CY		135	CY	5198
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			8422
	Pumphouse																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF			8	12						1	Ft.		905	CF	253
	Structure's Vol. Demolished																0.01	5	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						5					CY		5	CY	193
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			446
	Pumphouse																			
	Structure's Demolition Cost	Concrete Bld. Large	02 41 16 13 0050	0.41	/CF			30	21						1	Ft.		10391	CF	4260
	Structure's Vol. Demolished																0.01	4	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON						4					CY		4	CY	154
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			4414
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Pad's Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	40	26	0.5								FT		19	CY	1397
	Pad's Vol. Demolished																1.3	25	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													25	CY	42
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													25	CY	77
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													25	CY	227
	Subtotal																			1743
	Total																			15025

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	River Pump 30																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	8	8	8								FT		512	CF	143
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			143
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Pad's Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	8	8	1								FT		2	CY	147
	Pad's Vol. Demolished																1.3	3	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													3	CY	5
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													3	CY	9
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													3	CY	27
	Subtotal																			188
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			331

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Guard Rails 31																			
	Structure's Demolition Cost	Guard Rail Removal	02 41 13 20 0010	2.28	LF	4950										LF		4950	LF	11286
	Structure's Vol. Demolished																			
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel																			
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			11286
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			11286

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Culverts 32																			
	Excavate 12" diameter culvert	Excavation Bulk Bank 2 CY (322BL)	31 23 16 32 0260	1.44	/CY	175	2	2								FT		26	CY	37
	Backfill 12" diameter culvert	Backfill Trench Vininal Haul 2 1/4 CY	31 23 16 13 3080	1.79	/CY	175	2	2								FT		26	CY	46
	Excavate 18" diameter culvert	Excavation Bulk Bank 2 CY (322BL)	31 23 16 32 0260	1.44	/CY	1630	2	3								FT		362	CY	522
	Backfill 18" diameter culvert	Backfill Trench Vininal Haul 2 1/4 CY	31 23 16 13 3080	1.79	/CY	1630	2	3								FT		362	CY	648
	Excavate 24" diameter culvert	Excavation Bulk Bank 2 CY (322BL)	31 23 16 32 0260	1.44	/CY	1300	2	4								FT		385	CY	555
	Backfill 24" diameter culvert	Backfill Trench Vininal Haul 2 1/4 CY	31 23 16 13 3080	1.79	/CY	1300	2	4								FT		385	CY	689
	Subtotal																			2497
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			2497

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Stacking Tube 33																			
	36" Conveyor																			
	Structure's Demolition Cost	Steel Bld, Large	02 41 16 13 0020	0.28	/CF	100	45	10								FT		45000	CF	12600
	Structure's Vol. Demolished																0.1	167	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON											CY		167	CY	6430
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			19030
	Steel Stacking Tube																			
	Structure's Demolition Cost	Steel Bld, Large	02 41 16 13 0020	0.28	/CF			80.3	10						2	FT		12613	CF	3532
	Structure's Vol. Demolished																0.1	47	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON											CY		47	CY	1810
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			5342
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY						46					CY		46	CY	3383
	Concrete's Vol. Demolished																1.3	60	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													60	CY	101
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													60	CY	185
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													60	CY	544
	Subtotal																			4213
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			28585

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Coal Sampler Addition 34																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	27	26	16								FT		11232	CF	3145
	Structure's Vol. Demolished																0.1	42	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON								100			lb/cf		57	ton	2195
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			5340
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	27	26	0.75								FT		19	CY	1397
	Concrete's Vol. Demolished																1.3	25	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													25	CY	42
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													25	CY	77
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													25	CY	227
	Subtotal																			1743
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			7083

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Conveyor Transfer 35																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	1538	7	4								FT		43064	CF	12058
	Structure's Vol. Demolished																0.05	80	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	36.5	/TON								100			lb/cf		108	ton	4158
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			16216
	Excavate 18" diameter culvert	Excavation Bulk Bank 2 CY (322BL)	31 23 16 32 0280	1.44	/CY	800	2	3								FT		178	CY	256
	Backfill 18" diameter culvert	Backfill Trench Mininal Haul 2 1/4 CY	31 23 16 13 3080	1.79	/CY	800	2	3								FT		178	CY	319
	Subtotal																			575
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY	8	2	2							22	FT		26	CY	1912
	Concrete's Vol. Demolished																1.3	34	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													34	CY	57
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													34	CY	105
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													34	CY	308
	Subtotal																			2382
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			19173

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	New Shop Oil Storage Bld 36																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	40	80	18								FT		57600	CF	16128
	Structure's Vol. Demolished																0.01	21	CY	
	Rubble's Weight (exclude steel)																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Non Steel Truck																			
	Transportation Cost Non Steel Drive																			
	Disposal Cost Non Steel	ECDC	ECDC	38.5	/TON								100			lb/cf		28	ton	1078
	Steel's Weight																			
	Truck's Capacity																			
	Haulage																			
	Transportation Cost Steel Truck																			
	Transportation Cost Steel Truck Drive																			
	Disposal Cost Steel																			
	Subtotal																			17206
	Equipment 's Disposal Cost																			
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			0
	Concrete Demolition																			
	Demolition Cost	Concrete demo ition	03 05 05 10 0050	73.55	/CY						126					CY		126	CY	9267
	Concrete's Vol. Demolished																1.3	164	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													164	CY	277
	Transportation Cost	12 CY (18 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													164	CY	507
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													164	CY	1487
	Subtotal																			11538
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			28744

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Plant Expansion 37																			
	Plant Feed Conveyor																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	233	4	4								FT		3728	CF	1044
	Structure's Vol. Demolished																0.01	1	CY	
	Fine Raow Coal Conveyor																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	200	4	4								FT		3200	CF	896
	Structure's Vol. Demolished																0.01	1	CY	
	Refuse Conveyor																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	100	4	4								FT		1600	CF	448
	Structure's Vol. Demolished																0.01	1	CY	
	Stacking Conveyor																			
	Structure's Demolition Cost	Steel Bld. Large	02 41 16 13 0020	0.28	/CF	100	4	4								FT		1600	CF	448
	Structure's Vol. Demolished																0.01	1	CY	
	Subtotal																			2836
	Plant Feed Conveyor																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY						42.6					CY		42.6	CY	3133
	Concrete's Vol. Demolished																1.3	55	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													55	CY	93
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													55	CY	170
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													55	CY	499
	Subtotal																			3835
	Fine Raow Coal Conveyor																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY						33.1					CY		33.1	CY	2435
	Concrete's Vol. Demolished																1.3	43	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													43	CY	73
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													43	CY	133
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													43	CY	390
	Subtotal																			3031
	Refuse Conveyor																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY						15.3					CY		15.3	CY	1125
	Concrete's Vol. Demolished																1.3	20	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													20	CY	34
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													20	CY	62
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													20	CY	181
	Subtotal																			1402
	Stacking Conveyor																			
	Concrete Demolition																			
	Demolition Cost	Concrete demolition	03 05 05 10 0050	73.55	/CY						85.1					CY		85.1	CY	6259
	Concrete's Vol. Demolished																1.3	111	CY	
	Loading Cost	Front end loader 3 CY	31 23 16 42 1300	1.69	/CY													111	CY	188
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip	31 23 23 20 1014	3.09	/CY													111	CY	343
	Disposal Costs	Disposal on site	02 41 16 17 4200	9.07	/CY													111	CY	1007
	Subtotal																			7797
	Total																			16661

Ref.	Description	Materials	Means Reference Number	Bare Unit Cost	Unit	Length	Width	Height	Area	Unit	Volume	Unit	Volume	Unit	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Road Surfacing Material 38	Remove Road Gravel (Nonsalvageable)	31 22 16 10 0100																	
	Blade Off Gravel	Motor Grader	2005 RS Means	0.72	/SY			.33-.5												
		PR-1				935	24	0.416	2493	SY	9335	CF	346	CY	0.72	SY		2493	SY	1795
		PR-3				1425	24	0.416	3800	SY	14227	CF	527	CY	0.72	SY		3800	SY	2736
		PR-4				3840	20	0.416	8533	SY	31949	CF	1183	CY	0.72	SY		8533	SY	6144
		PR-5				625	16	0.416	1111	SY	4160	CF	154	CY	0.72	SY		1111	SY	800
		PR-6				545	16	0.416	969	SY	3628	CF	134	CY	0.72	SY		969	SY	698
		PR-7				2170	24	0.416	5787	SY	21665	CF	802	CY	0.72	SY		5787	SY	4166
		PR-9				420	20	0.416	933	SY	3494	CF	129	CY	0.72	SY		933	SY	672
		PR-10				560	16	0.416	996	SY	3727	CF	138	CY	0.72	SY		996	SY	717
		PR-11				400	24	0.416	1067	SY	3994	CF	148	CY	0.72	SY		1067	SY	768
		PR-12				575	20	0.416	1278	SY	4784	CF	177	CY	0.72	SY		1278	SY	920
		PR-13				950	16	0.416	1689	SY	6323	CF	234	CY	0.72	SY		1689	SY	1216
	Subtotal																			20632
		Load Gravel into Trucks																		
	Equipment 's Disposal Cost	FEL wheeled unit 3 CY	31 23 16 42 1601	0.96	/CY						3973	/CY						3973	CY	3814
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			3814
		Haul Gravel to Disposal																		
	Haulage for Disposal	12 CY Dump Truck 1/2 Mi. Round Trip	31 23 23 20 1014	3.09	/CY						3973	/CY						3973	CY	12277
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			12277
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost																			
	Concrete's Vol. Demolished																			
	Loading Cost																			
	Transportation Cost																			
	Disposal Costs																			
	Subtotal																			
	Total																			38723

	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Cleanup Coal Piles															12167
Recontouring															382317
Topsoil															165405
Ripping															39911
Subtotal															599800

	Means Reference No.	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Savage Coal Terminal Cleanup Coal Piles															
D9R-9U Dozer	154334360	299.00	29.90	77.30		1	406.20	HR	1500	CY	187	CY/HR	8	HR	3250
988 G Loader	154334810	245.50	24.55	77.30		1	347.35	HR	1500	CY	187	CY/HR	8	HR	2779
CLAB (Common Building Labor)	Means				58.15	1	58.15	HR					16	HR	930
Foreman Average, Outside	Means				79.95	1	79.95	HR					16	HR	1279
5,000 gal H2O Truck	154336950	146.00	14.60	63.35		1	223.95	HR					16	HR	3583
Pickup Truck Crew 4x4 1 Ton	154337200	19.60	1.96			1	21.56	HR					16	HR	345
Subtotal															12167

	Means Reference No.	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Svage Coal Terminal Recontouring															
D9R-9U Dozer	154334360	299.00	29.90	77.30		1	406.20	HR					639	HR	259562
CLAB (Common Building Labor)	Means				58.15	1	58.15	HR					320	HR	18608
5,000 gal H2O truck Diesel (20-17) (2nd2006)	Means				79.95	1	79.95	HR					320	HR	25584
5,000 gal H2O Truck	154336950	146.00	14.60	63.35		1	223.95	HR					320	HR	71664
Pickup Truck Crew 4x4 1 Ton	154337200	19.60	1.96	**			21.56						320	HR	6899
** Included with Foreman															
Subtotal															382317

	Means Reference No.	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Savage Coal Terminal															
Topsoil															
D8N-SU Push Tractor	154334310	235.88	23.59	77.30		1	336.77	HR					102	HR	34350
627G Scraper	154333550	339.38	33.94	77.30		1	450.62	HR					204	HR	91926
CLAB (Common Building Labor)	Means				58.15		58.15						102	HR	5931
Foreman Average, Outside	Means				79.95	1	79.95	HR					102	HR	8155
5,000 gal H2O Truck	154336950	146.00	14.60	63.35		1	223.95	HR					102	HR	22843
Pickup Truck Crew 4x4 1 Ton	154337200	19.60	1.96			1	21.56	HR					102	HR	2199
Subtotal															165405

	Means Reference No.	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Ripping															
D7R-SU Dozer	154334260	174.63	17.46	77.30			269.39	HR	132.5	AC			139	HR	37445
Ripper Attachment	154330580	16.13	1.61	Included			17.74	HR	132.5	AC			139	HR	2466
Subtotal															39911

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Productivity	Unit	Height	Diameter	Area	Unit	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
	Vegetation																			
	General Area			854.98	/Day															
	Seeding Equipment and Labor	Tractor Spreader (equip. & labor) B-66	329219145700			52	MSF/Day			132.5	AC				111	Days		5772	MSF	98233
	Seeding Material	General Seed Mix	Price Quote	227.42	/AC					132.5	AC				132.5	AC		132.5	AC	30133
	Mulcher and Labor	Crew B 65, Large Power Mulcher	329113160700	1593.58	/Day	530	MSF/Day			132.5	AC				11	Days		5772	MSF	17562
		Hay bale		327.59	/ton					132.5	AC				1	Ton/AC		132.5	AC	43408
	Riprarian																			
	Seeding Equipment and Labor	Hydro Spreader (equip. & labor) B-61 80MS	329219145800	2368.12	/Day	60	MSF/Day			5.28	AC				3	Days		230	MSF	7104
	Seeding Material	Riparian Seed Mix	Price Quote	103.4	/AC					5.28	AC				5.28	AC		5.28	AC	546
		Bare root seed lngs, 11" to 16" mod. soil	32 93 43 10 0130	1.26	Ea					5.28	AC				4963	EA		4963	EA	6253
	Subtotal																			203286
	Revegetation																			
	25% Revegetation Rate																			50809
	Subtotal																			50809
	Subtotal																			
	Subtotal																			
	Total																			254047

ATTACHMENT A

Bond Calculation Worksheets

March 2017

WORKSHEET 3
MATERIAL HANDLING PLAN SUMMARY

Earthmoving Activity	Volume (LCY)	Origin	Destination	Haul Distance (ft)	Grade* (%)	Equipment To Be Used
1- Site Grading	119,479		Backfill/Contour	300 Avg.	+5	D9R-9U Dozer (2)
2- Topsoil	67,592	Stockpile	Disturbed Area	2000 Avg.	0 Avg.	627 F Scraper (2) w/D8N Push Tractor
3- Ripping/Roughening	132.5 ac.		Disturbed Area			D7R-SU Dozer w/3 Shank Ripper
4- Clean-Up Coal Piles	3000	Coal Piles	Ship	300 Avg.	+5 Avg.	D9R-9U Dozer 988 F - Loader

* **Record grade resistance (% grade) here.**

WORKSHEET 4B
EARTHWORK QUANTITY

Site Grading

Earthwork Volume -119,479 LCY (See Worksheet 4A)

Estimate all moved by dozers.

Topsoil Replacement

Topsoil Volume = 67,592 LCY
(To be moved by scraper)

Ripping

Ripping depth for 132.5 ac. disturbed area = 1.5 ft.

Volume = (132.5 ac x 43,560 SF/ac x 1.5 ft)/27 CF/CY = 320,650 BCY

Data Source(s):

Mine Plan

WORKSHEET 5A
PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity: (119,479 CY)

Recontour and rough grade disturbed areas.

Characterization of Dozer Used (type, size, etc.):

D9R-9U Dozer

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

300 LF push distance @ +5% effective grade.

Productivity Calculations:

Operating Adjustment Factor = 0.75 (operator factor) x 0.80 (material factor) x 0.83 (efficiency factor) x 0.90 (grade factor)

x 0.87 (weight correction factor) x 1.0 (production method/blade factor) x 1.0 (visibility factor) x 1.0 (elevation factor) = 0.39

Net Hourly Production = 480 (normal hourly production) LCY/hr x 0.39 (operating adjustment factor) = 187 LCY/hr

Hours Required = 119,479 (volume to be moved) LCY ÷ 187 (net hourly production) LCY/hr = 639 hr

Note: Minimum of 2 dozers will be used.

Data Source(s):

Caterpillar Performance Handbook, Edition 28.

WORKSHEET 5B
PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity:

Push tractor to assist loading scrapers.

Characterization of Dozer Used (type, size, etc.):

D8N dozer with a "SU" Blade.

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

Scrapers loaded with Back-track Loading Method.

Productivity Calculations:

Operating Adjustment Factor = _____ (operator factor) x _____ (material factor) x _____ (efficiency factor) x _____ (grade factor)

x _____ (weight correction factor) x _____ (production method/blade factor) x _____ (visibility factor) x _____ (elevation factor) = _____

Net Hourly Production = _____ (normal hourly production) LCY/hr x _____ (operating adjustment factor) = _____ LCY/hr

Hours Required = _____ (volume to be moved) LCY + _____ (net hourly production) LCY/hr = * 102 hr

* See Worksheet 11B-1.

Data Source(s):

Caterpillar Performance Handbook, Edition 28.

WORKSHEET 5C
PRODUCTIVITY AND HOURS REQUIRED FOR DOZER USE

Earthmoving Activity: (1,500 CY)

Clean-Up of Coal Storage Areas.

Characterization of Dozer Used (type, size, etc.):

D9R-9U Dozer

Description of Dozer Use (origin, destination, grade, haul distance, material, etc.):

300 LF push distance @ +5% effective grade.

Productivity Calculations:

Operating Adjustment Factor = 0.75 (operator factor) x 0.80 (material factor) x 0.83 (efficiency factor) x 0.90 (grade factor)

x 0.87 (weight correction factor) x 1.0 (production method/blade factor) x 1.0 (visibility factor) x 1.0 (elevation factor) = 0.39

Net Hourly Production = 480 (normal hourly production) LCY/hr x 0.39 (operating adjustment factor) = 187 LCY/hr

Hours Required = 1,500 (volume to be moved) LCY ÷ 187 (net hourly production) LCY/hr = 8 hr

Data Source(s):

Caterpillar Performance Handbook, Edition 28

WORKSHEET 7
PRODUCTIVITY AND HOURS REQUIRED FOR RIPPER-EQUIPPED DOZER USE

Ripping Activity: Unit will be used for ripping and roughening the site.

The activity will involve 132.5 acres.

Characterization of Dozer and Ripper Use:

D7R w/SU blade and 3-shank adjustable ripper.

Description of Ripping (ripping depth, cut spacing, cut length, and material to be ripped):

Ripping depth = 1.5 ft.
Ripping width = 9.75 ft.

Productivity Calculation:

Cycle Time = (1,000 ft ÷ 88 ft/min) + 0.3 min = 11.66 min/pass
cut length [speed] fixed turn time*

Passes/Hour = 60 min/hr + 11.66 min/pass x .83 = 4.27 passes/hr
cycle time efficiency factor

Volume Cut/Pass = (1.5 ft x 9.75 ft x 1,000 ft) ÷ 27 ft³/yd³
tool penetration cut spacing cut length

= 541.7 BCY/pass

Hourly Production = 541.7 BCY/pass x 4.27 passes/hr = 2,313.1 BCY/hr

Hours Required = 320,650 BCY ÷ 2,313.1 BCY/hr = 138.62 hr
bank volume to be ripped hourly production

*** Fixed turn time depends upon dozer used. 0.25 min/turn is normal.**

**** Remember to use the swell factor to convert from bank cubic yards to loose cubic yards when applying these data to Worksheet 5. Calculate separate dozer hauling of ripped material for each lift on that worksheet.**

Data Source(s):
Caterpillar Performance Handbook, Edition 28.

WORKSHEET 8
PRODUCTIVITY AND HOURS REQUIRED FOR LOADER USE

Earthmoving Activity: (1,500 CY)

Clean-up of Coal Storage Areas.

Characterization of Loader Use (type, size, etc.):

988 F Front End Loader

Description of Loader Use (origin, destination, grade, haul distance, etc.):

300 LF haul distance @ +5% effective grade.
Working with D9N Dozer.

Productivity Calculations:

Cycle Time = _____ (haul time (loaded)) **min +** _____ (return time (empty)) **min +** _____ (basic cycle time) **min =** _____ **min**

Net Bucket Capacity = _____ (heaped bucket capacity) **LCY x** _____ (bucket fill factor *) **=** _____ **LCY**

Hourly Production = _____ (net bucket capacity) **LCY ÷** _____ (cycle time) **min x** _____ (efficiency factor) **x 60 min/hr =** * 187 **LCY/hr**

Hours Required = 1,500 **LCY ÷** 187 **LCY/hr =** 8 **hr**

*** Productivity assumed same as dozer, since both are working together.**

Data Source(s):

See Worksheet 5C.

WORKSHEET 11B -1
PRODUCTIVITY OF DOZER PUSH-LOADED SCRAPER USE

Earthmoving Activity: (67,592 CY)

Haul and Spread Topsoil.

Characterization of Scraper Used (type, capacity, etc.):

Cat 627 F Non-push pull 14 CY (struck) + 20 CY (heaped) = 17 CY Average Capacity.

Description of Scraper Use (origin, destination, grade, haul distance, capacity, etc.):

1000' avg. haul @ 0% effective grade; 1000' return @ +5% effective grade.

List Pusher Tractor(s) Used:

D8N dozer.

Describe Push Tractor Loading Method (see figure on next page):

Back-track loading method with 1 push tractor.

Scraper Productivity Calculations:

Cycle Time = 0.5 (load time) **min +** 0.50 (loaded trip time) **min +** 0.6 (maneuver and spread time) **min +** 0.70 (return trip time) **min =** 2.30 **min**

Hourly Production = 17 (capacity *) **LCY x 60 min/hr +** 2.30 (cycle time) **min x** .75 (efficiency factor) **=** 332.6 **LCY/hr**

Hours Required = 67,592 (volume to be handled) **LCY ÷** 332.6 (hourly production) **LCY/hr =** 203 **hr**

*** Use the average of the struck and heaped capacities.**

Push Tractor Productivity Calculations:

Pusher Cycle Time = 0.5 (scraper load time) **min x** 1.5 (pusher factor) **=** 0.75 **min**

Scrapers/Pusher = 2.30 (scraper cycle time) **min ÷** 0.75 (pusher cycle time) **min =** 1.7 (Use 2) **scrapers**

Pusher Hours Required = 203 (scraper hours) **hr ÷** 2 (scraper per pusher) **=** 102 (round up) **hr**

Data Source(s):
Caterpillar Performance Handbook, Edition 28.

WORKSHEET 13
SUMMARY CALCULATION OF EARTHMOVING COSTS

EQUIPMENT	RS Means Ref. No	Rental Cost/Hr	OH Cost/Hr	*Oper Cost/Hr	Total Cost/Hr	Total Hours	Total Cost ($)
627 G Scraper	01 54 33 3550	339.38	33.94	77.30	450.62	204	91,926.48
D8N-SU Push Tractor	01 54 33 4310	235.88	23.59	77.30	336.77	102	34,350.54
(1) D7R-SU Dozer	01 54 33 4260	174.63	17.46	77.30	269.39	139	37,445.21
Ripper Attach.	01 54 33 0580	16.13	1.61	Included	17.74	139	2,465.86
D-9R-9U Dozer	01 54 33 4360	299.00	29.90	77.30	406.20	647	262,811.40
988G Loader	01 54 33 4810	245.50	24.55	77.30	347.35	8	2,778.80
5000 Gallon Water Truck	01 54 33 6950	146.00	14.60	63.35	223.95	438	98,090.10
4X4 Crew Pickup	01 54 33 7200	19.60	1.96	Included	21.56	438	9,443.28
CLAB	Common Bldg.	-	-	58.15	58.15	438	25,469.70
Foreman	Outside	-	-	79.95	79.95	438	35,018.10
(1) Used for Ground Prep Only – Included in Revegetation Cost.							
GRAND TOTAL:							**$ 599,799.47**

Data Source(s):

Means Heavy Construction Cost Data, 30th Annual Edition.

*Back Page of RS Means Heavy Construction Cost Data, 30th Annual Edition

EQUIPMENT	COST/HR	QUANTITY	PRODUCTIVITY	HOURS	COST
CLEANUP					
D9R-9U	406.20	1500 CY	187 CY/HR	8	$3,249.60
988 G	347.35	1500 CY	187 CY/HR	8	$2,778.80
CLAB	58.15			16	$930.40
Forman	79.95			16	$1,279.20
5000 gal water truck	223.95			16	$3,583.20
Pick Up	21.56			16	$344.96
Total					$12,166.16
EARTHMOVING - REGRADE					
D9R-9U	406.20	119,479 CY	187 CY/HR	639	$259,561.80
CLAB	58.15			320	$18,608.00
Foreman	79.95			320	$25,584.00
5000 gal water truck	223.95			320	$71,664.00
Pickup	21.56			320	$6,899.20
Total					$382,317.00
TOPSOIL					
D8N	336.77	67,592 CY		102	$34,350.54
627 G	450.62			204	$91,926.48
CLAB	58.15			102	$5,931.30
Foreman	79.95			102	$8,154.90
5000 gal water truck	223.95			102	$22,842.90
Pickup	21.56			102	$2,199.12
Total					$165,405.24
REVEGETATION					
*Ground Prep D7-R w/ Ripper	287.13	132.5 AC		139	*($39,911.07)
Seeding Tractor/Spreader Means 32 9219 5700 B-66 Crew	884.98/Day	5772 MSF	52MSF/Day	111 Days	$98,232.78
Mulch Power Mulcher - Large Means 32 92 13 16 0700 B-65 Crew	1596.58/Day	5772 MSF	530 MSF/Day	11 Days	$17,562.38

Hydro Spreader Means 32 92 19 5800 B-81 Crew	2368.12/Day	230 MSF	80 MSF/Day	3 Days	$7,104.36
Seed Mix Riparian The Maple Leaf Co.	103.40/AC	5.28 AC			$545.95
Bare Root Seedlings The Maple Leaf Co.	1.26/EA	4963			$6,253.38
Seed Mix General The Maple Leaf Co.	227.42/AC	132.5 AC			$30,133.15
Hay Mulch IFA	327.59/TON	132.5 TON	1 TON/ACRE		$43,405.08
Sub Total					$203,237.08
+25% Revegetation					$50,809.27
Total					$254,046.35

*Cost included with Earthwork Total on Bond Worksheets.

ATTACHMENT B

Non-Means Prices

May 2017

Non-Means Pricing

Item	Company	Date	Response
Disposal	Stephenson Recycling	7/7/17	Price Estimate Rec'd. (Same as ECDC)
	ECDC	3/16/17	Verbal Price of $38.50/t Called for Written on 5/9, 5/11, 5/16, 6/30 – No Response
Asphalt	Nielson Const.	5/9/17	Price Estimate Rec'd.
	Nelco Const.	5/16/17	Left Message – No Resp.
Seed	Maple Leaf	5/10/17	Price Estimate Rec'd.
	Stevenson	5/16/17	Price Estimate Rec'd.
	Utah Seed	5/16/17	No Response
Hay	IFA	5/9/17	Price Estimate Rec'd. Only known local supplier of certified hay.

STEPHENSON METAL RECYCLING
P.O. BOX 86
PRICE, UTAH 84501
435.636.0144

Invoice

DATE	INVOICE #
7-7-17	622

BILL TO:

Bid for Savage Coal Terminal for:
Removal of waste material
2025 East 5000 South
Price, UT 84501

TERMS	DUE DATE
NET 20	

QUANTITY	DESCRIPTION	RATE	AMOUNT
	$38.50 per ton for the disposal of waste material from Savage Coal terminal to ECDC		
		TOTAL	

THE MAPLE LEAF CO.
SEED DIVISION

450 South 50 East
Ephraim, Utah, 84627
P) 435.283.4400
F) 435.283.6872
mapleif@cut.net

5-10-17

Dan Guy
Blackhawk Engeneering

Follows are current prices on seed you requested. If you need any other information let me know. Prices are PLS per lb.

Castle Valley saltbush	$16.00	x 2/ac = 32.00
Shadscale	$11.50	x 4/ac = 46.00
Rubber rabbit brush	$42.00	x .3/ac = 12.60
Winterfat	$21.00	x 4/ac. = 84.00
Matt Saltbrush	$12.00	x 3/ac. = 36.00
Greasewood	$16.50	x .5/ac. = 8.25
Desert Trumpet	N/A	-
Annual Sunflower	$9.25	x 4/ac. = 37.00
Evening Primrose	$37.00	x .3/ac. = 11.10
Scarlet Globemallow	$120.00	x .5/ac. = 60.00
Munro Globemallow	$65.00	Not in Mix
Blue Grama	$9.60	x .3/ac = 2.88
Thickspike wheatgrass	$5.75	x 1/ac. = 5.75
Galleta Grass	$27.00	x 1.5/ac. = 40.50
Alkali Sacaton	$25.00	x .1/ac. = 2.50
Needle and Thread	$32.00	x 3/ac. = 96.00

Indian rice grass	$6.75	x 2/ac. = 13.50
Inland Saltgrass	$34.00	x .5/ac. = 17.00
Great Basin WR	$9.50	x 2/ac. = 19.00
Streambank Wheatgrass	$5.50	x 5/ac. = 27.50
Tall Wheatgrass	$2.40	x 3/ac. = 7.20
Crested Wheatgrass	$3.40	x 3/ac = 10.20
Yellow Clover	$2.25	x 2/ac. = 4.50

We do not carry root stock or container plants

Lloyd Stevens
Maple Leaf Seed
Ephraim, Utah

Subject: Asphalt demo pricing

From: Luke, Eric (Nielson Construction) (eric.luke@nielsonconstruction.com)

To: blackhawk2422@yahoo.com;

Date: Tuesday, May 9, 2017 11:17 AM

Dan, nice to speak with you again. I did some calculations on the asphalt removal that we spoke about.

Use a price of $10.35 per ton for both the 6" and 3" depth.

This covers the cost of rubblizing the asphalt and loading it in a truck for haul. It does not include the cost of the haul or dump fees.

Carbon county now charges $20.00 per ton for dump fees. This was just changed this year. They did not charge any dump fees prior to this year.

Best regards

Eric Luke

Estimator

Direct office: 435-687-0113

Cell Number: 435-749-0432

Nielson Construction & Materials

NIELSON

STAKER PARSON

Attachments

Price Country Store & Agronomy
240 W. 1st North
PRICE UT 84501-2425
USA

Order Confirmation

Sold-To-Party
PRICE CUSTOMER
240 WEST 1ST NORTH
PRICE UT 84501-2425
USA

Ship-To-Party
PRICE CUSTOMER
240 WEST 1ST NORTH
PRICE UT 84501-2425
USA

Document Number	
Document Date	05/09/2017
Customer No.	93075
Customer Phone No.	435-637-0652
Currency	USD
Sales Rep	

Header Information

Purchase Order No.		**Purchase Order Date**	05/09/2017
Gross Weight	1,872.000 LB	**Net Weight**	1,872.000 LB
Volume	128.160 FT3		
Delivery Date	05/15/2017		
Terms of payment :	Payable immediately without deduction		
	Baseline date on day 1 of month		
Terms of Delivery :	CFR Cost and Freight		
Header Text :			
Pesticide License Info :			

Item	Material	Quantity		Price		Price Unit	Amount
10	67445	36.00	BA	7.99	BAL	1	287.64
	STRAW COMPRESSED BALE CERT STANDLEE						
	Items total:						287.64
	Sales Tax						18.98
	Final amount:						306.62

Subject: Re: Seed Price Estimate for Dan Guy

From: Ronald Stevenson (ron@siseed.com)

To: blackhawk2422@yahoo.com;

Date: Tuesday, May 16, 2017 4:52 PM

Dan, Here is the price list.

Have a good day.

Jeff

Stevenson Intermountain Seed, Inc.
488 S 100 E
Ephraim, UT 84627
PH: 435-283-6639
Fax: 435-283-4155

On 2017-05-16 12:29 pm, Dan Guy wrote:

> Attn: Jeff
>
> Per my conversation with Jeff this morning, I have attached the proposed seed mixes for which I have requested price estimates. These estimates are only for bonding calculations which are required for the company's mining and reclamation plan. I would appreciate it if you could provide pricing per pound of the listed seeds.
>
> Thank you for your consideration and taking time to discuss this with me. If you have any questions, please call me at (435) 216-7912 or e-mail me at blackhawk2422@yahoo.com.
>
> Dan Guy

Attachments

- img121.pdf (1.64MB)
- Stevenson Seed price list 5-16-17.PDF (709.00KB)

TABLE 5-3
SEED MIX FOR THE GREASEWOOD (LOWLAND AREAS)

Price/ PLS 16.

SCIENTIFIC NAME	COMMON NAME	PLS/Acre	Seeds/Ft²	
SHRUBS				
Atriplex confertifolia	Fourwing saltbush	4.00	5.88	$12.00
Atriplex corrugata	Mat saltbush	3.00	4.13	15.00
Atriplex gardneri var. cuneata	Castle Valley saltbush	2.00	5.10	13.00
Chrysothamnus nauseosus	Rubber rabbitbrush	0.50	4.59	49.00
Sarcobatus vermiculatus	Greasewood	0.50	3.28	25.00
FORBS				
Eriogonum inflatum	Desert trumpet	1.00	4.80	N/A
Helianthus annuus	Annual sunflower	4.00	5.33	10.00
Oenothera caespitosa	Evening primrose	0.30	6.20	60.00
Sphaeralcea coccinea	Globemallow	0.50	5.74	112.00
GRASSES				
Bouteloua gracilis	Blue grama	0.30	4.90	15.00
Distichlis spicata	Saltgrass	0.50	5.97	35.00
Elymus cinereus	Gt. Basin wildrye	2.00	4.36	9.00
Elymus smithii	Western wheatgrass	1.00	2.89	7.00
Hilaria jamesii	Galleta	1.50	5.48	25.00
Sporobolus airoides	Alkali sacaton	0.10	4.02	24.00
TOTALS		21.20	72.65	

* Based on broadcast seeding methods.

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TABLE 5-2
SEED MIX FOR THE SHADSCALE (UPLAND AREAS)

SCIENTIFIC NAME	COMMON NAME	PLS/Acre*	Seeds/Ft²	Price/ PLS lb.
SHRUBS				
Atriplex gardneri var. cuneata	Castle Valley saltbush	2.00	5.10	$13.00
Atriplex confertifolia	Shadscale	4.00	5.88	9.00
Chrysothamnus nauseosus	Rubber rabbitbrush	0.30	2.75	49.00
Ceratoides lanata	Winterfat	4.00	5.05	28.00
FORBS				
Eriogonum inflatum	Desert trumpet	1.00	4.80	N/A
Helianthus annuus	Annual sunflower	4.00	5.33	10.00
Oenothera caespitosa	Evening primrose	0.30	6.20	60.00
Sphaeralcea coccinea	Globemallow	0.50	5.74	112.00
GRASSES				
Bouteloua gracilis	Blue grama	0.50	8.16	15.00
Elymus lanceolatus	Thickspike wheatgrass	2.00	7.07	6.00
Hilaria jamesii	Galleta	2.00	7.30	25.00
Sporobolus airoides	Alkali sacaton	0.20	8.03	24.00
Stipa comata	Needle-and-thread	3.00	7.92	28.00
Stipa hymenoides	Indian ricegrass	2.00	8.63	12.00
TOTALS		25.80	87.96	

*Based on broadcast seeding methods.

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TABLE 5-4
PERMANENT RECLAMATION SEED MIXTURE
PRICE RIVER SYSTEM
(5.28 Acres)

Name	Acreage 1 Pounds PLS/Acre	Price/#	# Seeds/Pound	Total	Price/ PLS lb.
Steambank Wheat Grass	5	$3.25	137,830	16.25	4.50
Tall Wheat Grass	3	$0.80	76,805	2.40	2.90
Alkali Sacaton	2	$3.00		6.60	24.00
Crested Wheat Grass Fairway	3	$1.20	319,660	3.60	2.25
Yellow Sweet Clover	2	$0.40	258,560	.80	2.50
Total	15			$29.65	

Containerized of Bare Root Stock	Number Per Acre
Rubber Rabbitbrush	200 - $158 (@ .79 per plant)
Sandbar Willow	150 - $118
	$279/Acre
Fourwing Salt Brush Winter Fat Shadscale	May be utilized to supplement the shrub density as containerized stock depending on the success of the seeding effort.

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