ITEM 3-12

Bond Estimate

ITEM 3-12

Reclamation Cost Estimate

EarthFax Engineering, Inc.
Engineers/Scientists

COST ESTIMATE

PROJECT DESCRIPTION: Crandall Canyon Mine Reclamation Structure Removal PROJECT No.: C-27 ESTIMATOR: RBW DATE: 18 Sep 1986

ITEM No.	DESCRIPTION	EQUIPMENT	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
1	Office demolition – Foundation (concrete, 6") Walls, roof (steel or masonry)	NA	ft^2 ft^3	532 10,640	2.96 0.17	1,574.72 1,808.80
2	Bathouse dem. – Foundation (concrete, 6") Walls, roof (steel or masonry)	NA	ft^2 ft^3	1,044 20,880	2.96 0.17	3,090.24 3,549.60
3	Generator/fuel storage – Foundation (concrete, 6") Block wall	NA	ft^2 ft^3	500 1,500	2.96 0.17	1,480.00 255.00
4	Control bldg. – Foundation (concrete, 6") Walls, roof (steel or masonry)	NA	ft^2 ft^3	96 960	2.96 0.17	284.16 163.20
5	Substation (potential) – Structure (steel) Fence (chain link)	NA	ft^3 lf	9,000 120	0.17 1.19	1,530.00 142.80
6	Water tank (potential) – Steel tank (10,000 gal) Foundation (concrete, 6")	NA	ft^3 ft^2	1,330 225	0.17 2.96	226.10 666.00
7	Explosives storage bldgs (2 ea – concrete)	NA	ft^3	320	0.22	70.40
8	Portals (3 ea)	NA	ea	3	2,700.00*	8,100.00
9	Culverts – 42" CMP (UD-1)	NA	lf	295	1.43	421.85
10	Culverts – 24" CMP (C-2, C-3, C-4)	NA	lf	195	1.54	300.30
11	Culverts – 18" CMP (C-1, UD-3)	NA	lf	495	1.54**	762.30
12	Culverts – 12" CMP (Sed. Trap Outlet, C-5)	NA	lf	140	1.54**	215.60
13	Ventilation fan – Foundation (concrete, 6") Structure (steel)	NA	ft^2 ft^3	600 10,000	2.96 0.17	1,776.00 1,700.00

* AML cost data
** Assumed equal to 24" unit price due to steep slopes

EarthFax Engineering, Inc.
Engineers/Scientists

COST ESTIMATE

PROJECT DESCRIPTION: Crandall Canyon Mine Reclamation Structure Removal PROJECT No.: C-27 ESTIMATOR: TBW DATE: 19 Sep 1986

ITEM No.	DESCRIPTION	EQUIPMENT	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
14	Guard rail removal	NA	ft	150	4.34	651.00
15	Conveyor belt (surface)-steel & belting	NA	ft^3	1,200	0.17	204.00
16	Sediment trap removal	NA	ea	1	190.00	190.00
17	Sediment pond riser spillway removal	NA	lf	110	1.54	169.40
	TOTAL STRUCTURE REMOVAL COST					29,331.47

EarthFax Engineering, Inc. Engineers/Scientists

COST ESTIMATE

PROJECT DESCRIPTION: Crandell Canyon Mine Rec. Cut and Fill PROJECT No.: C-27 ESTIMATOR: RBW DATE: 19 Sep 1986

ITEM No.	DESCRIPTION	CREW ~~EQUIPMENT~~	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
1	Substation pad, 150' haul, "common earth"	B-10B	yd^3	1370	0.94	1,287.80
2	Admin. pad, 150' haul, "common earth"	"	yd^3	4800	0.94	4,512.00
3	Portal pad, 150' haul, "common earth"	"	yd^3	7370	0.94	6,927.80
4	Sediment pond, 50' haul, "common earth"	"	yd^3	2310	0.94	2,171.40
	TOTAL CUT AND FILL COST					14,899.00

EarthFax Engineering, Inc.
Engineers/Scientists

COST ESTIMATE

PROJECT DESCRIPTION: Crandell Canyon Mine Reclamation Topsoil Replacement / Reveg. PROJECT No.: C-27 ESTIMATOR: RBW DATE: 22 Sep 86

ITEM No.	DESCRIPTION	EQUIPMENT	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
1	Topsoil loading & hauling, 1 mi RT	5 CY loader Dump trailers	yd^3	7310	2.90	21,199.00
2	Topsoil grading at dump location	Crew B-10B	yd^3	7310	1.03	7,529.30
3	Scarification (0.5 ac/hr)	Farm tractor	hr	10.3	39.00	401.70
4	Fertilization	Crew B-66	MSF	224	4.03	902.72
5	Soil testing	Sampler Lab subcontract	ls	1	1000.00	1,000.00
6	Seeding – slope ≤ 30% (Use Means "slope mix" for cost purposes)	Crew B-66	MSF	86	22.00	1,892.00
7	Mulching – slope ≤ 30%	Crew B-66	MSF	86	24.00	2,064.00
8	Seeding – slope > 30% (Use Means "slope mix" for cost purposes)	Crew B-66	MSF	101	22.00	2,222.00
9	Mulching – slope > 30%	Crew B-65	MSF	101	25.00	2,525.00
10	Seeding - wooded area (Use Means "slope mix" for cost est.)	Crew B-66	MSF	37	22.00	814.00
11	Planting - wooded area 610 trees/ac (Material costs)	NA	ea	512	1.00	512.00
12	Planting - wooded area 120 plants/hr (Labor)	Common laborer	hr	4.5	22.00	99.00
13	Mulching - wooded area	Crew B-66	MSF	37	24.00	888.00

EarthFax Engineering, Inc.
Engineers/Scientists

COST ESTIMATE

PROJECT DESCRIPTION: Crandall Canyon Mine Rec. Topsoil Replacement / Reveg. PROJECT No.: C-27 ESTIMATOR: TBW DATE: 22 Sep 86

ITEM No.	DESCRIPTION	EQUIPMENT	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
14	Monitoring revegetation success	Inspector	yr	10	2,000.00	20,000.00
15	Reseeding (20%)	crew B-65	ac	1.03	500.00	515.00
16	Repair rills and gullies	Farm tractor	hr	20	39.00	780.00
	TOTAL TOPSOIL REPLACEMENT AND	REVEGETATION				63,343.72

EarthFax Engineering, Inc.
Engineers/Scientists

COST ESTIMATE

PROJECT DESCRIPTION: Crandall Canyon Mine Rec. Landfill Reclamation PROJECT No.: C-27 ESTIMATOR: TJBW DATE: 23 Sep 86

ITEM No.	DESCRIPTION	EQUIPMENT	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
1	Backfill and grade	Crew B-10B	hr	16	85.77	1,372.32
2	Ditch construction	Crew B-6	hr	4	31.91	127.64
	TOTAL LANDFILL RECLAMATION					1,499.96

EarthFax Engineering, Inc.
Engineers/Scientists

COST ESTIMATE

PROJECT DESCRIPTION: Crandall Canyon Mine Rec. Cost Summary PROJECT No.: C-27 ESTIMATOR: TBW DATE: 10 Oct 1986

ITEM No.	DESCRIPTION	EQUIPMENT	UNIT	ESTIMATED QUANTITY	UNIT PRICE	TOTAL PRICE
1	Structure removal					29,331.47
2	Cut and fill					14,899.00
3	Topsoil replacement and revegetation					63,343.72
4	Landfill reclamation					1,499.96
	SUBTOTAL					109,074.15
	10% CONTINGENCY AND ENGINEERING COSTS					10,907.42
	TOTAL					119,981.57
	ROUNDED BOND REQUIREMENT					$120,000 -

CUT AND FILL VOLUMES
PORTAL PAD

Fill:

Depth (ft)	Area (ft^2)	Vol. (yd^3)
0	22,180	
		3290
5	13,400	
		1860
10	6,720	
		1000
15	4,100	
		630
20	2,740	
		390
25	1,490	
		200
30	690	

TOTAL → 7370 yd^3 fill

Cut:

Depth (ft)	Area (ft^2)	Vol. (yd^3)
0	7,980	
		990
−5	2,710	
		370
−10	1,260	

TOTAL → 1360 yd^3 cut

CUT AND FILL VOLUMES
ADMIN. PAD

Fill:

Depth (ft)	Area (ft^2)	Vol. (yd^3)
0	43,050	
		2540
2	25,660	
		1310
4	9,700	
		550
6	5,050	
		280
8	2,450	
		120
10	680	

TOTAL → 4800 yd^3 fill

Cut:

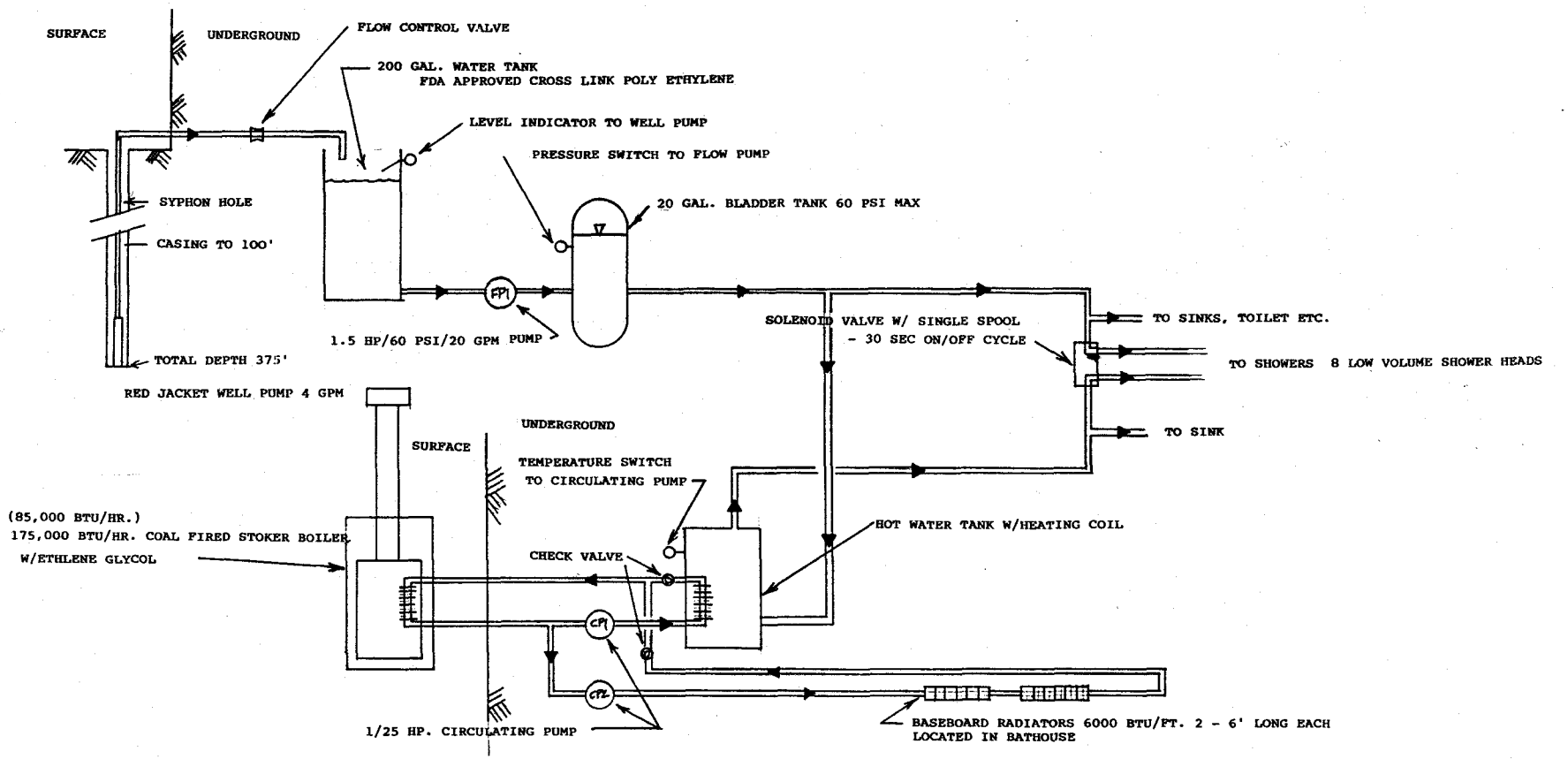
Depth (ft)	Area (ft^2)	Vol. (yd^3)
0	10,090	
		590
-2	5,710	
		310
-4	2,620	
		130
-6	1,000	
		40
-8	190	

TOTAL → 1070 yd^3 cut

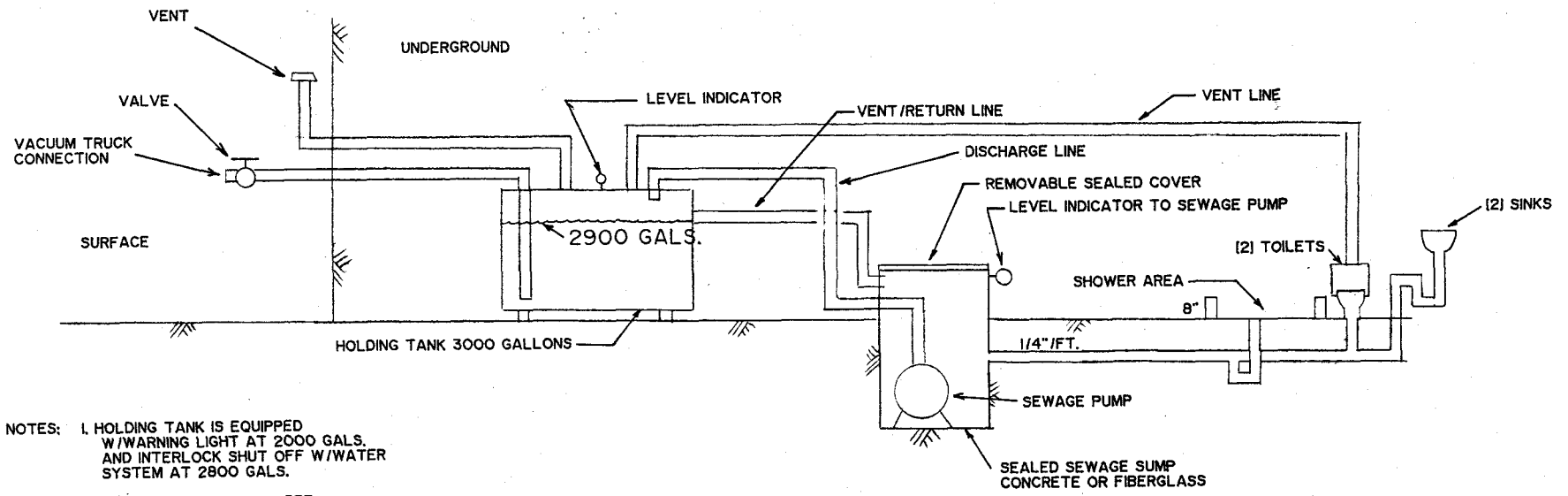
CUT AND FILL VOLUMES
SUBSTATION PAD

Depth (ft)	Area (ft^2)	Vol (yd^3)
0	11,000	
		680
2	7,300	
		400
4	3,550	
		200
6	1,740	
		90
8	590	
	TOTAL →	1370 yd^3 fill

No cut



GENWAL COAL COMPANY
CULINARY WATER SUPPLY
CRANDALL CANYON MINE
ITEM 3-13 FEB. 10, 1988



NOTES:
1. HOLDING TANK IS EQUIPPED W/WARNING LIGHT AT 2000 GALS. AND INTERLOCK SHUT OFF W/WATER SYSTEM AT 2800 GALS.
2. ALL EQUIPMENT WILL MEET OR EXCEED UTAH HEALTH DEPT. REGULATIONS

GENWAL COAL COMPANY
CRANDALL CANYON MINE

SEWAGE SYSTEM
ITEM 3-14 FEB. 10, 1988

Seed Mix
Genwal Coal Company
Crandall Canyon Mine
ACT/015/032
January 4, 1989

Species	Rate* Lbs/Acre
GRASSES & FORBES:	
Agroypron smithii Western wheatgrass	3.0
Agropyron spicatum Bluebunch wheatgrass	2.0
Agropyron trachycaulum Slender wheatgrass	3.0
Bromus caranatus (marginatus) Mountain brome	3.0
Dactylis glomerata (piaute) Orchard grass	0.5
Aster glaucoides Blueleaf aster	0.5
Linum lewisii Lewis flax	1.0
Melilotus officinalis Yellow sweetclover	0.5
Sanguisorba minor Small barnet	1.0
TOTAL	14.5
SHRUBS:	
Symphoricarpos oreophilus Snowberry	1.0
Rosa woodsii Woods rose	1.0
Rhus trilobata Squawbush	1.0
Juniperous scopulorum Rocky mountain juniper	1.0
TOTAL	4.0

* Rate is for Pure Live Seed (PLS) to be broadcast seeded over all disturbed area. For best results, lightly rake areas that have been seeded.

1/4/89

Planting Mix*
Genwal Coal Company
Crandall Canyon Mine
ACT/015/032
January 4, 1989

Species	Plants/Acre
TREES:	
Picea punjens Blue spruce	150
Pseudotsuga menziesii Douglas fir	150
Pinus Ponderosa Ponderosa pine	50
Populus angustifolia Cottonwood	75
Populus tremuloides Quaking aspen	75
Salix geyeriana Geyer willow	55
Salix myrtifolia (boothii) Willow	55
TOTAL	610

* Planting mix will be planted on the wooded area. The willows will be planted within 20 feet of drainages to assure sufficient moisture for establishment and growth.

1/4/89