



September 7, 2006

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC. 20555-0001

**Subject:** Reading Slag File Site Decommission Plan  
Revised Decommissioning Cost Estimate  
License No. SMC-1562  
Docket Number 40-9027

Document Control:

Please find enclosed one copy of the subject document.

Please contact Mr. Theodore Smith of the NRC if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Wayne M. Reiber'.

Wayne M. Reiber

Corporate Manager,  
Environmental Assessment and Remediation

CC: Theodore Smith, NRC  
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Enclosure

LMSSO1



CLIENT	STEP, Inc.	SUBJECT	Riprap Construction Cost Estimate	Prepared by:	DMH	7/7/2006
PROJECT	Cabot			Reviewed by:	RDS	7/29/2006
	Reading Slag Pile					

**TASK:** Estimate the construction cost for the riprap placement at the Cabot Site in Reading, PA

**REFERENCE:** 2005 RSMEANS Building Construction Cost Data 63rd Annual Edition

**QUANTITY ESTIMATE:**

Slope	1.5H:1V	$\tan^{-1}(1/1.5)$	$\alpha =$	33.7 °
Plan Width	parallel to river		W =	250 ft
Plan length of slope			L =	108 ft
Effective Length	$=W/\cos(\alpha)$		L' =	130 ft
Plan Area			A =	27,000 sf
				3,000 sy
				0.62 acre
Effective Area	$=W \times L'$		A' =	32,450 sf
				3,606 sy
				0.74 acre
Slope toe			elevation	210 ft
Slope crest			elevation	282 ft
Slope height				72 ft

**Material Size and Gradation**

NSA No.	Graded Rock Size (in)		
	Max	d50	Min
R-4	12	6	3
R-6	24	12	6
R-7	30	18	12
FS-2	2	#4	#100
FS-3	6.5	2.5	#16

<b>R-4</b>	(to be placed above elevation 230)		
	Length of Slope above 230	$= (282-230)/\sin(33.7^\circ \times \pi/180) =$	94 ft
	Upper apron length		15 ft
	Thickness = 2 x d50		1 ft
	Volume =	$= (94+15) \times 1 \times 250/27$	1,007 cy
	Total Weight	$= 1007 \times 27 \text{ cf/cy} \times 185 \text{ lbs/cf} / 2000 \text{ lbs/ton} \times (1-0.35) =$	1635 tons*
<b>R-6</b>	(to be placed below elevation 230)		
	Length of Slope above 230	$= (230-210)/\sin(33.7^\circ \times \pi/180) =$	36 ft
	Thickness = 2 x d50		2 ft
	Volume =	$= 36 \times 2 \times 250/27$	668 cy
	Total Weight	$= 668 \times 27 \text{ cf/cy} \times 185 \text{ lbs/cf} / 2000 \text{ lbs/ton} \times (1-0.35) =$	1084 tons*
<b>R-7</b>	Apron Length		25 ft
	Thickness		4.5 ft
	Volume =	$= 25 \times 4.5 \times 250/27$	1,042 cy
	Total Weight	$= 1042 \times 27 \text{ cf/cy} \times 185 \text{ lbs/cf} / 2000 \text{ lbs/ton} \times (1-0.35) =$	1691 tons*



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**FS-2** Underlying R-4  
 Thickness 0.5 ft  
 Volume =  $= (94+15) * 0.5 * 250 / 27$  503 cy  
 Total Weight  $= 503 * 27 \text{ cf/cy} * 185 \text{ lbs/cf} / 2000 \text{ lbs/ton} * (1-0.35) =$  817 tons\*

**FS-3** Underlying R-6 & R-7  
 Thickness under R-6 0.67 ft  
 Thickness under R-7 1 ft  
 Volume under R-6  $= 36 * 0.67 * 250 / 27$  224 cy  
 Volume under R-7  $= 25 * 1 * 250 / 27$  231 cy  
 Total Volume 455 cy  
 Total Weight  $= 455 * 27 \text{ cf/cy} * 185 \text{ lbs/cf} / 2000 \text{ lbs/ton} * (1-0.35) =$  739 tons\*

**TOTAL OF ALL ROCK** 3,675 cy  
 \*Weight based on porosity of 0.35 and rock density of 185 lbs/cf 5,966 tons\*

**SCHEDULE**

Section	Description	Unit	Quantity	Output	Extended	Subtotal
02370-450-0100	Machine placed	cy	3,675	62.00	59.27	
OR						
02370-450-0200	18" Min thickness (mat.)	sy	3,606	53.00	58.15	

**MATERIAL COST (Delivered)**

Section/Description	Description	Unit	Quantity*	Unit Cost	Extended	Subtotal
	R-4	ton	1,635	15.75	25,744.37	
	R-6	ton	1,084	18.85	20,431.87	
	R-7	ton	1,691	19.60	33,143.91	
	FS-2	ton	817	12.00	9,807.38	
	FS-3	ton	739	12.00	8,866.73	97,994.26

**CONSTRUCTION COST (2005 dollars)**

<b>Site Clearing</b>						
02230-100-0300	Cut & Chip heavy trees 24"	acre	0.74	10,800.00	8,045.44	
02230-100-0350	Grub and remove stumps	acre	0.74	5,850.00	4,357.95	
<b>Erosion and Sedimentation Control, RIPRAP</b>						
02370-450-0100	Machine placed (lab,O&P)	cy	959	24.50	23,485.83	
02370-450-0200	18" Min thickness (lab,O&P)	sy	3,606	61.45	221,561.13	
<b>INFLATION</b>						
	CPI Increase form June 2005 to June 2006			4.30%	11,070.36	268,520.71



**GeoSystems  
Consultants, Inc.**

**CALCULATION SHEET**

CLIENT	<u>STEP, Inc.</u>	SUBJECT	<u>Riprap Construction Cost Estimate</u>	Prepared by:	<u>DMH</u>	Project No.	<u>03G324</u>
PROJECT	<u>Cabot</u>			Reviewed by:	<u>RDS</u>		<u>7/7/2006</u>
	<u>Reading Slag Pile</u>						<u>7/29/2006</u>

**ENGINEERING**

QA/QC	Quarry	day	15	450	6,750.00	
	Slope	day	60	450	27,000.00	
	Consultation	hours	75	120	9,000.00	42,750.00

**SUBTOTAL** 302,270.71 366,514.97

**CONTINGENCY** 25% 91,628.74

**TOTAL** 458,143.71

**RANGE** 450,000 to 500,000