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**APPENDIX O**

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**ESTIMATE OF EXCAVATION AND BACKFILL QUANTITIES**

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## APPENDIX O

### ESTIMATE OF EXCAVATION AND BACKFILL QUANTITIES

4     **O.1 INTRODUCTION**

5     The quantity of soil, sediment, and cobble that would need to be excavated and removed from  
6     the EE/CA Reach has been estimated using computer-generated cross sections of the river and  
7     the Average-End Method for calculating the volumes. The amount of soil, sediment, and erosion  
8     protection (assumed to be riprap for this EE/CA) that would need to be placed (backfilled) in the  
9     EE/CA Reach has been estimated using the same cross sections and the Average-End Method for  
10    calculating the volumes. These volume estimates will be used for the evaluation of removal and  
11    remediation alternatives for the EE/CA Reach.

12    **O.2 CALCULATIONS OF VOLUME ESTIMATES**

13    Cross sections of the Housatonic River have been surveyed by the USACE at 50-ft intervals for  
14    the length of the EE/CA Reach. These cross sections were used to develop the topography of the  
15    river. Plan features were then superimposed on the topography as developed by GE. The  
16    resulting topography map is presented in Section 2 of the EE/CA Report. It must be noted that  
17    since the topography was developed strictly on surveyed cross sections, some breaks in slope,  
18    grading around bends in the river, and grading at structures are not accurate on the map.

19    The topography map was then used to create cross sections of the river at 50-ft intervals. Some  
20    of these cross sections were then modified by hand to more closely represent existing riverbank  
21    and riverbed grades, reducing the above-mentioned inaccuracy of the topography. The proposed  
22    finished (restored) cross sections were then drawn over each cross section based upon  
23    requirements for bank stability (see Appendix N), excavation limitations (presence of bedrock,  
24    bridges, buildings, and easements), and hydraulic capacity of the restored river and banks.

25    The normal flow in the river (average daily flow estimated at 124 cfs) was used in Manning's  
26    Equation to estimate the normal flow elevation for the length of the EE/CA Reach. These  
27    elevations ranged from elevation 971 ft msl at Lyman Street to elevation 959 ft msl at the  
28    confluence (see Appendix M). The normal flow elevation was then added to each cross section.  
29    Riverbed and bank materials below this line were considered to be sediments. Materials above  
30    this line were considered to be riverbank soils.

31    **O.2.1 Excavation**

32    The limit of excavation was determined using the removal objectives presented in Section 3 of  
33    the EE/CA Report and comparing them to the 95% UCL for PCBs in the sediment and riverbank.  
34    The UCLs and removal objectives were compared on a subreach basis as described in the EE/CA  
35    Report. From this comparison, the following excavation depths to the cleanup criteria by  
36    subreach were determined (Table O-1):

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**Table O-1**  
**Excavation Depths by Subreach**

Subreach	East Riverbank Excavation Depth (ft)	West Riverbank Excavation Depth (ft)	Riverbed Excavation Depth (ft)
3-8	3	3	3
3-9	3	3	2
3-10	1	3	3
4-1	3	1	Bedrock (Assume 2 ft)
4-2	3 ft except for T116 to T122 remove only 1 ft	2	Bedrock (Assume 2 ft)
4-3	3 ft except for T132 to T140 remove only 1 ft in top 1/3 of bank and 3 ft in lower 2/3 of bank	3	Bedrock (Assume 2 ft)
4-4A	3	3	3
4-4B	3	3	3
4-5A	3	3	3
4-5B	3	3	2.5
4-6	3	3	2.5 ft for T190 to T210 and 3.5 ft for T210 to T212

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5 The excavation depths were then applied to the restored grades to determine the area of  
6 riverbank and riverbed excavation for each cross section. This excavation would include  
7 excavation required to reach the restored grade in addition to the excavation for removal.

8 Excavation volumes were determined using the Average-End Method. The areas of excavation at  
9 each end of a river segment (typically 50 ft long) were averaged and then multiplied by the  
10 length of the segment generating a calculated volume for each segment. The calculated volumes  
11 were then summed by subreach and then increased by a “swell” factor of 10% to account for two  
12 factors:

- 13     1. Overexcavation to reach the cleanup criterion.  
14     2. The swelling of the excavated material. This swell is an increase of the in-place  
15       volume of material once it is excavated. This represents the volume of material that  
16       must be transported, dewatered, and treated/disposed of.

17 The calculation of estimated excavation volumes is presented in Attachment O.1. The results are  
18 summarized in Table O-2 (Note: the values in the table have been rounded up).

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**Table O-2**  
**Excavation Volume to Cleanup Criteria**

Subreach	Riverbank Volume (yd <sup>3</sup> )	Riverbed (Sediment) Volume (yd <sup>3</sup> )	Total Volume By Subreach (yd <sup>3</sup> )
3-8	4,174	5,630	9,804
3-9	4,655	3,065	7,720
3-10	5,229	5,838	11,067
4-1	2,268	2,275	4,543
4-2	5,145	3,928	9,073
4-3	6,532	5,054	11,586
4-4A	2,226	2,185	4,411
4-4B	3,682	3,228	6,910
4-5A	4,042	3,972	8,014
4-5B	3,707	3,387	7,094
4-6	4,847	4,663	9,510
Total (all Subreaches)	46,507	43,225	89,732

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## 5   **O.2.2 Backfill**

6   The backfill depths were then applied from the excavation grades to the restored grades to  
7   determine the area of riverbank and riverbed backfill for each cross section. This backfill would  
8   include fill required to reach the restored grade.

9   The backfill volume includes clean backfill soils, sand, and gravel (bedding for the erosion  
10 protection layer), and the erosion protection layer (assumed to be riprap for this EE/CA). The  
11 quantities of each of these materials were calculated using the aforementioned cross sections.  
12 Backfill volumes were determined using the Average-End Method and then increased by a  
13 “swell” factor of 10% as was done for the excavation volumes. The calculation of estimated  
14 backfill volumes is presented in Attachment O.1. The results are summarized in Table O-3.

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**Table O-3**  
**Backfill Volume**

<b>Subreach</b>	<b>Location</b>	<b>Volume of Erosion Protection Layer (18 in. thick) (yd<sup>3</sup>)</b>	<b>Volume of Sand/Gravel (6 in. thick) (yd<sup>3</sup>)</b>	<b>Volume of Clean Soil and Sediment (yd<sup>3</sup>)</b>
3-8	Riverbanks	1,322	454	1,983
	Riverbed	2,762	930	1,832
	Subtotal	4,084	1,384	3,815
3-9	Riverbanks	1,437	475	2,296
	Riverbed	2,207	729	65
	Subtotal	3,644	1,204	2,361
3-10	Riverbanks	1,038	348	4,415
	Riverbed	2,742	911	1,727
	Subtotal	3,780	1,259	6,142
4-1	Riverbanks	126	51	2,798
	Riverbed	1,333	443	59
	Subtotal	1,459	494	2,857
4-2	Riverbanks	1,045	373	4,618
	Riverbed	2,412	846	0
	Subtotal	3,457	1,219	4,618
4-3	Riverbanks	1,099	419	6,200
	Riverbed	2,747	927	0
	Subtotal	3,846	1,346	6,200
4-4A	Riverbanks	725	268	1,294
	Riverbed	999	305	560
	Subtotal	1,724	573	1,854
4-4B	Riverbanks	1,248	420	2,407
	Riverbed	1,361	455	654
	Subtotal	2,609	875	3,061
4-5A	Riverbanks	1,478	492	2,676
	Riverbed	1,748	589	977
	Subtotal	3,226	1,081	3,653
4-5B	Riverbanks	1,157	400	2,467
	Riverbed	1,589	534	558
	Subtotal	2,746	934	3,025
4-6	Riverbanks	2,168	712	2,695
	Riverbed	2,302	776	1,153
	Subtotal	4,470	1,488	3,848
Total (all Subreaches)	Riverbanks	12,843	4,414	33,853
	Riverbed	22,202	7,444	7,586
	Total	35,045	11,858	41,439

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1    **O.3    LIMITATION OF THIS CALCULATION**

2    The volumes estimated here are preliminary and are intended for use in the EE/CA only. A  
3    detailed design program should be undertaken to determine the final quantities. The detailed  
4    quantity estimate must take into account the following:

- 5            ■ Final design plans and specifications.  
6            ■ Detailed survey of the river and its environs.  
7            ■ The final restored riverbed and riverbank cross sections.

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**ATTACHMENT O.1**

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**QUANTITY ESTIMATE**

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**Table 1**  
**Summary**

Subreach ID	Location	Quantities			
		Cut Volume (cy)	Riprap Fill (cy)	Sand and Gravel (cy)	Soil Fill (cy)
3-8	East Bank	1,749	477	179	809
	Riverbed	5,630	2,762	930	1,832
	West Bank	2,425	845	275	1,174
	Subtotal	9,804	4,084	1,384	3,815
3-9	East Bank	2,693	652	221	1,591
	Riverbed	3,065	2,207	729	65
	West Bank	1,962	785	254	705
	Subtotal	7,719	3,644	1,204	2,361
3-10	East Bank	1,883	147	54	2,170
	Riverbed	5,838	2,742	911	1,727
	West Bank	3,346	891	294	2,244
	Subtotal	11,067	3,780	1,259	6,142
4-1	East Bank	1,062	20	8	1,661
	Riverbed	2,275	1,333	443	59
	West Bank	1,206	105	43	1,137
	Subtotal	4,544	1,459	494	2,857
4-2	East Bank	2,080	538	194	1,869
	Riverbed	3,928	2,412	846	-
	West Bank	3,065	507	179	2,749
	Subtotal	9,073	3,457	1,219	4,618
4-3	East Bank	3,543	482	186	4,375
	Riverbed	5,054	2,747	927	-
	West Bank	2,994	617	233	1,831
	Subtotal	11,592	3,846	1,346	6,206
4-4A	East Bank	1,052	319	124	817
	Riverbed	2,185	999	305	560
	West Bank	1,174	406	145	477
	Subtotal	4,411	1,724	573	1,854
4-4B	East Bank	1,877	874	292	728
	Riverbed	3,228	1,361	455	654
	West Bank	1,805	375	127	1,679
	Subtotal	6,910	2,609	875	3,061
4-5A	East Bank	2,228	628	215	1,758
	Riverbed	3,972	1,748	589	977
	West Bank	1,814	849	277	919
	Subtotal	8,014	3,226	1,081	3,653
4-5B	East Bank	2,487	359	128	1,914
	Riverbed	3,387	1,589	534	558
	West Bank	1,220	799	272	553
	Subtotal	7,094	2,746	934	3,025
4-6	East Bank	2,598	1,301	426	833
	Riverbed	4,663	2,302	776	1,153
	West Bank	2,249	868	286	1,862
	Subtotal	9,510	4,470	1,488	3,848
TOTAL	East Bank	23,253	5,795	2,028	18,525
	Riverbed	43,225	22,202	7,444	7,586
	West Bank	23,260	7,048	2,385	15,329
	Complete	89,738	35,045	11,858	41,439

**Table 2**  
**Cut Volume**

Distance Downstream of Lyman St (ft)	Distance Between Sections	Area (sf)	East Bank Volume (cf)	Sum of Volume (cy)	Riverbed Area (sf)	Riverbed Volume (cf)	Sum of Volume (cy)	West Bank Area (sf)	West Bank Volume (cf)	Sum of Volume (cy)
00		0	0	0	195			111		
50	50	0	0	0	180	9375	347	99	5250	194
100	50	0	0	0	159	8475	314	80	4475	166
150	50	0	0	0	144	7575	281	77	3925	145
200	50	0	0	0	162	7650	283	110	4675	173
250	50	101	2525	94	159	8025	297	86	4900	181
300	50	88	4725	175	180	8475	314	74	4000	148
350	50	83	4275	158	189	9225	342	71	3625	134
400	50	90	4325	160	168	8925	331	71	3550	131
450	50	92	4550	169	189	8925	331	71	3550	131
500	50	61	3825	142	208	9925	368	77	3700	137
550	50	96	3925	145	177	9625	356	71	3700	137
600	50	73	4225	156	206	9575	355	77	3700	137
650	50	107	4500	167	220	10650	394	63	3500	130
700	50	45	3800	141	1506	223	410	4722	65	3200
750	50	45	2250	83	1590	205	10700	396	86	3775
							5119			140
										2205
800	50	111	3900	144	1734	114	7975	295	56	3550
850	50	149	6500	241	1975	114	5700	211	98	3850
900	50	142	7275	269	2244	112	5650	209	97	4875
950	50	115	6425	238	2482	126	5950	220	56	3825
1000	50	91	5150	191	2673	120	6150	228	52	2700
1050	50	140	5775	214	2887	120	6000	222	68	3000
1100	50	146	7150	265	3152	122	6050	224	67	3375
1150	50	86	5800	215	3367	120	6050	224	69	3400
1200	50	88	4350	161	3528	139	6475	240	68	3425
1250	50	76	4100	152	3680	136	6875	255	105	4325
1300	50	103	4475	166	3845	120	6400	237	122	5675
1350	50	105	5200	193	4038	118	5950	220	124	6150
							7905			228
										3988
1400	50	93	4950	183	4221	186	7600	281	149	6825
1450	50	45	3450	128	4349	185	9275	344	125	6850
1500	50	43	2200	81	4431	204	9725	360	79	5100
1550	50	59	2550	94	4525	210	10350	383	89	4200
1600	50	38	2425	90	4615	198	10200	378	97	4650
1650	50	52	2250	83	4698	180	9450	350	10001	172
1700	50	56	2700	100	4798	186	9150	339	10340	5011
1750	50	58	2850	106	4904	180	9150	339	10679	183
1800	50	61	2975	110	5014	188	9200	341	11019	5194
1850	50	61	3050	113	5127	188	9400	348	11368	187
1900	50	59	3000	111	5238	212	10000	370	11738	5381
										5569
										5767
										5984
										6219

**Table 2**  
**Cut Volume**

Distance Downstream of Lyman St (ft)	Distance Between Sections (ft)	East Bank			Riverbed			West Bank					
		Area (sf)	Volume (cf)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Sum of Volume (cy)			
1950	50	60	2975	110	5348	180	9800	363	12101	128	6475	240	6458
2000	50	61	3025	112	5460	209	9725	360	12461	104	5800	215	6673
2050	50	89	3750	139	5599	208	10425	386	12847	65	4225	156	6830
2100	50	74	4075	151	5750	186	9850	365	13212	151	5400	200	7030
2150	50	66	3500	130	5880	168	8850	328	13540	51	5050	187	7217
2200	50	66	3300	122	6002	168	8400	311	13851	67	2950	109	7326
2250	50	47	2825	105	6106	129	7425	275	14126	67	3350	124	7450
2300	50	78	3125	116	6222	120	6225	231	14356	45	2800	104	7554
2350	50	68	3650	135	6357	138	6450	239	14595	48	2325	86	7640
2400	50	68	3400	126	6483	124	6550	243	14838	110	3950	146	7786
2450	50	64	3300	122	6606	124	6200	230	15068	93	5075	188	7974
2500	50	55	2975	110	6716	106	5750	213	15281	71	4100	152	8126
2550	50	57	2800	104	6819	126	5800	215	15495	107	4450	165	8291
2600	50	55	2800	104	6923	148	6850	254	15749	127	5850	217	8507
2650	50	39	2350	87	7010	146	7350	272	16021	110	5925	219	8727
2700	50	53	2300	85	7095	180	8150	302	16323	91	5025	186	8913
2750	50	58	2775	103	7198	164	8600	319	16642	60	3775	140	9053
2800	50	71	3225	119	7318	78	6050	224	16866	94	3850	143	9195
2850	50	71	3550	131	7449	76	3850	143	17008	115	5225	194	9389
2900	50	83	3850	143	7592	90	4150	154	17162	139	6350	235	9624
2950	50	97	4500	167	7758	104	4850	180	17342	158	7425	275	9899
3000	50	116	5325	197	7956	130	5850	217	17558	58	5400	200	10099
3050	50	55	4275	158	8114	128	6450	239	17797	60	2950	109	10208
3100	50	48	2575	95	8209	116	6100	226	18023	62	3050	113	10321
3150	50	27	1875	69	8279	119	5875	218	18241	103	4125	153	10474
3200	50	56	2075	77	8356	118	5925	219	18460	61	4100	152	10626
3250	50	84	3500	130	8485	108	5650	209	18669	85	3650	135	10761
3300	50	47	3275	121	8606	89	4925	182	18852	78	4075	151	10912
3350	50	128	4375	162	8769	104	4825	179	19031	147	5625	208	11120
3400	50	158	7150	265	9033	131	5875	218	19248	0	3675	136	11256
3450	50	79	5925	219	9253	101	5800	215	19463	0	0	0	11256
3500	50	82	4025	149	9402	164	6625	245	19708	0	0	0	11256
3550	50	49	3275	121	9523	143	7675	284	19993	0	0	0	11256
3600	50	84	3325	123	9646	211	8850	328	20320	0	0	0	11256
3650	50	90	4350	161	9807	134	8625	319	20640	79	1975	73	11330
3700	50	88	4450	165	9972	144	6950	257	20897	75	3850	143	11472
3750	50	80	4200	156	10128	140	7100	263	21160	60	3375	125	11597
3800	50	81	4025	149	10277	131	6775	251	21411	76	3400	126	11723
3850	50	66	3675	136	10413	122	6325	234	21645	163	5975	221	11944
3900	50	93	3975	147	10560	113	5875	218	21863	40	5075	188	12132

**Table 2**  
**Cut Volume**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank			Riverbed			West Bank					
		Area (sf)	Volume (cf)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Sum of Volume (cy)			
3950	50	92	4625	171	10731	170	7075	262	22125	65	2625	97	12230
4000	50	72	4100	152	10883	148	7950	294	22419	105	4250	157	12387
4050	50	102	4350	161	11044	81	5725	212	22631	164	6725	249	12636
4100	50	103	5125	190	11234	90	4275	158	22790	181	8625	319	12956
4150	50	108	5275	195	11430	122	5300	196	22986	109	7250	269	13224
4200	50	111	5475	203	11632	140	6550	243	23229	118	5675	210	13434
4250	50	100	5275	195	11828	95	5875	218	23446	98	5400	200	13634
4300	50	53	3825	142	11969	207	7550	280	23726	112	5250	194	13829
4350	50	81	3350	124	12094	192	9975	369	24095	107	5475	203	14031
4400	50	71	3800	141	12234	139	8275	306	24402	121	5700	211	14243
4450	50	101	4300	159	12394	202	8525	316	24718	45	4150	154	14396
4500	50	73	4350	161	12555	110	7800	289	25006	54	2475	92	14488
4550	50	43	2900	107	12662	121	5775	214	25220	44	2450	91	14579
4600	50	89	3300	122	12784	108	5725	212	25432	89	3325	123	14702
4650	50	78	4175	155	12939	91	4975	184	25617	93	4550	169	14870
4700	50	75	3825	142	13081	57	3700	137	25754	94	4675	173	15044
4750	50	46	3025	112	13193	78	3375	125	25879	90	4600	170	15214
4800	50	100	3650	135	13328	104	4550	169	26047	47	3425	127	15341
4850	50	74	4350	161	13489	148	6300	233	26281	53	2500	93	15433
4900	50	36	2750	102	13591	128	6900	256	26536	45	2450	91	15524
4950	50	84	3000	111	13702	99	5675	210	26746	72	2925	108	15632
5000	50	63	3675	136	13838	139	5950	220	26967	65	3425	127	15759
5050	50	37	2500	93	13931	105	6100	226	27193	61	3150	117	15876
5100	50	53	2250	83	14014	173	6950	257	27450	74	3375	125	16001
5150	50	40	2325	86	14100	168	8525	316	27766	50	3100	115	16116
5200	50	132	4300	159	14259	143	7775	288	28054	65	2875	106	16222
5250	50	118	6250	231	14491	195	8450	313	28367	65	3250	120	16343
5300	50	109	5675	210	14701	126	8025	297	28664	67	3300	122	16465
5350	50	108	5425	201	14902	126	6300	233	28897	45	2800	104	16569
5400	50	86	4850	180	15081	172	7450	276	29173	63	2700	100	16669
5450	50	67	3825	142	15223	165	8425	312	29485	23	2150	80	16748
5500	50	74	3525	131	15354	138	7575	281	29766	50	1825	68	16816
5550	50	87	4025	149	15503	95	5825	216	29981	109	3975	147	16963
5600	50	119	5150	191	15694	72	4175	155	30136	68	4425	164	17127
5650	50	45	4100	152	15845	130	5050	187	30323	45	2825	105	17231
5700	50	72	2925	108	15954	115	6125	227	30550	93	3450	128	17359
5750	50	45	2925	108	16062	100	5375	199	30749	57	3750	139	17498
5800	50	32	1925	71	16133	129	5725	212	30961	51	2700	100	17598
5850	50	60	2300	85	16219	114	6075	225	31186	56	2675	99	17697
5900	50	42	2550	94	16313	130	6100	226	31412	67	3075	114	17811

**Table 2**  
**Cut Volume**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank			Riverbed			West Bank					
		Area (sf)	Volume (cf)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Sum of Volume (cy)			
5950	50	42	2100	78	16391	184	7850	291	31703	40	2675	99	17910
6000	50	93	3375	125	16516	113	7425	275	31978	48	2200	81	17992
6050	50	45	3450	128	16644	151	6600	244	32222	34	2050	76	18068
6100	50	123	4200	156	16799	99	6250	231	32454	59	2325	86	18154
6150	50	110	5825	216	17015	104	5075	188	32642	92	3775	140	18294
6200	50	154	6600	244	17259	69	4325	160	32802	50	3550	131	18425
6250	50	102	6400	237	17496	142	5275	195	32997	46	2400	89	18514
6300	50	106	5200	193	17689	185	8175	303	33300	25	1775	66	18580
6350	50	96	5050	187	17876	157	8550	317	33617	29	1350	50	18630
6400	50	94	4750	176	18052	105	6550	243	33859	46	1875	69	18699
6450	50	93	4675	173	18225	181	7150	265	34124	31	1925	71	18770
6500	50	63	3900	144	18369	136	7925	294	34418	29	1500	56	18826
6550	50	72	3375	125	18494	121	6425	238	34656	60	2225	82	18908
6600	50	78	3750	139	18633	105	5650	209	34865	43	2575	95	19004
6650	50	77	3875	144	18777	102	5175	192	35056	62	2625	97	19101
6700	50	53	3250	120	18897	97	4975	184	35241	68	3250	120	19221
6750	50	60	2825	105	19002	95	4800	178	35419	81	3725	138	19359
6800	50	101	4025	149	19151	58	3825	142	35560	115	4900	181	19541
6850	50	45	3650	135	19286	150	5200	193	35753	79	4850	180	19720
6900	50	78	3075	114	19400	134	7100	263	36016	81	4000	148	19869
6950	50	49	3175	118	19518	184	7950	294	36310	70	3775	140	20008
7000	50	81	3250	120	19638	170	8850	328	36638	70	3500	130	20138
7050	50	66	3675	136	19774	151	8025	297	36935	111	4525	168	20306
7100	50	53	2975	110	19884	146	7425	275	37210	55	4150	154	20459
7150	50	60	2825	105	19989	105	6275	232	37443	93	3700	137	20596
7200	50	58	2950	109	20098	118	5575	206	37649	55	3700	137	20733
7250	50	82	3500	130	20228	100	5450	202	37851	30	2125	79	20812
7300	50	82	4100	152	20380	100	5000	185	38036	30	1500	56	20868
7350	50	82	4100	152	20531	140	6000	222	38258	30	1500	56	20923
7400	50	82	4100	152	20683	140	7000	259	38518	30	1500	56	20979
7450	50	82	4100	152	20835	140	7000	259	38777	30	1500	56	21034
7500	50	82	4100	152	20987	140	7000	259	39036	30	1500	56	21090
7550	50	82	4100	152	21139	140	7000	259	39295	30	1500	56	21145
Raw Cut (cy)				21139			39295				21145		
+ 10%				2114			3930				2115		
Total Cut (cy)				23,253			43,225				23,260		

**Table 3**  
**Riprap Fill**

Distance Downstream of Lyman St (ft)	Distance Between Sections	Area (sf)	East Bank Volume			Area (sf)	Riverbed Volume			Area (sf)	West Bank Volume			
			(cf)	(cy)	Sum of Volume (cy)		(cf)	(cy)	Sum of Volume (cy)		(cf)	(cy)	Sum of Volume (cy)	
00		0	0	0	0	90	4500	167	167	0	675	25	25	
50	50	0	0	0	0	90	4250	157	324	27	1350	50	75	
100	50	0	0	0	0	80	3800	141	465	30	1425	53	128	
150	50	0	0	0	0	72	3825	142	606	39	1725	64	192	
200	50	0	0	0	0	81	4025	149	756	36	1875	69	261	
250	50	33	825	31	31	80	4250	157	913	38	1850	69	330	
300	50	27	1500	56	86	90	4625	171	1084	38	1900	70	400	
350	50	27	1350	50	136	95	4475	166	1250	36	1850	69	469	
400	50	30	1425	53	189	84	4475	166	1416	27	1575	58	527	
450	50	27	1425	53	242	95	4900	181	1597	27	1350	50	577	
500	50	0	675	25	267	101	4750	176	1773	32	1475	55	631	
550	50	26	650	24	291	89	4700	174	1947	0	800	30	661	
600	50	26	1300	48	339	99	5025	186	2133	0	0	0	661	
650	50	38	1600	59	398	102	5150	191	2324	35	875	32	694	
700	50	0	950	35	433	104	5050	187	2511	46	2025	75	769	
750	50	0	0	0	433	98	86	4600	170	2681	39	2125	79	847
800	50	37	925	34	468	86	4300	159	2841	49	2200	81	929	
850	50	60	2425	90	557	84	4250	157	2998	26	1875	69	998	
900	50	42	2550	94	652	95	4475	166	3164	23	1225	45	1044	
950	50	34	1900	70	722	90	4625	171	3335	26	1225	45	1089	
1000	50	30	1600	59	781	90	4500	167	3502	35	1525	56	1145	
1050	50	39	1725	64	845	90	4550	169	3670	23	1450	54	1199	
1100	50	23	1550	57	903	92	4550	169	3839	22	1125	42	1241	
1150	50	24	1175	44	946	90	4675	173	4181	42	1100	41	1281	
1200	50	0	600	22	969	93	4600	170	4352	36	1950	72	1413	
1250	50	0	0	0	969	94	4725	175	5193	29	1675	62	1755	
1300	50	18	450	17	985	91	4675	173	5366	31	1500	56	1810	
1350	50	26	1100	41	1026	89	4725	166	4518	39	1875	69	1482	
1400	50	29	1375	51	1077	93	4550	169	4686	48	2175	81	1563	
1450	50	0	725	27	1104	86	4475	166	4852	27	1875	69	1632	
1500	50	0	0	0	1104	93	4475	166	5018	38	1625	60	1693	
1550	50	0	0	0	1104	96	4725	175	5193	29	1675	62	1755	
1600	50	0	0	0	1104	91	4675	173	5366	31	1500	56	1810	
1650	50	0	0	0	1104	81	4300	159	5525	29	1500	56	1866	
1700	50	0	0	0	1104	84	4125	153	5678	27	1400	52	1918	
1750	50	0	0	0	1104	83	4175	155	5832	26	1325	49	1967	

**Table 3**  
**Riprap Fill**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank			Riverbed			West Bank					
		Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)			
1800	50	0	0	0	1104	90	4325	160	5993	24	1250	46	2013
1850	50	0	0	0	1104	92	4550	169	6161	27	1275	47	2060
1900	50	0	0	0	1104	95	4675	173	6334	30	1425	53	2113
1950	50	0	0	0	1104	89	4600	170	6505	27	1425	53	2166
2000	50	0	0	0	1104	93	4550	169	6673	55	2050	76	2242
2050	50	20	500	19	1122	92	4625	171	6844	0	1375	51	2293
2100	50	20	1000	37	1159	87	4475	166	7010	0	0	0	2293
2150	50	0	500	19	1178	98	4625	171	7181	0	0	0	2293
2200	50	0	0	0	1178	98	4900	181	7363	0	0	0	2293
2250	50	0	0	0	1178	66	4100	152	7515	0	0	0	2293
2300	50	0	0	0	1178	68	3350	124	7639	0	0	0	2293
2350	50	0	0	0	1178	80	3700	137	7776	0	0	0	2293
2400	50	0	0	0	1178	77	3925	145	7921	20	500	19	2311
2450	50	0	0	0	1178	85	4050	150	8071	20	1000	37	2348
2500	50	0	0	0	1178	78	4075	151	8222	23	1075	40	2388
2550	50	0	0	0	1178	77	3875	144	8366	22	1125	42	2430
2600	50	0	0	0	1178	89	4150	154	8519	24	1150	43	2472
2650	50	0	0	0	1178	90	4475	166	8685	23	1175	44	2516
2700	50	0	0	0	1178	94	4600	170	8856	0	575	21	2537
2750	50	0	0	0	1178	84	4450	165	9020	29	725	27	2564
2800	50	27	675	25	1203	58	3550	131	9152	0	725	27	2591
2850	50	27	1350	50	1253	57	2875	106	9258	0	0	0	2591
2900	50	27	1350	50	1303	68	3125	116	9374	23	575	21	2612
2950	50	21	1200	44	1347	77	3625	134	9508	23	1150	43	2655
3000	50	26	1175	44	1391	77	3850	143	9651	0	575	21	2676
3050	50	24	1250	46	1437	69	3650	135	9786	0	0	0	2676
3100	50	21	1125	42	1479	68	3425	127	9913	0	0	0	2676
3150	50	21	1050	39	1518	73	3525	131	10044	20	500	19	2694
3200	50	29	1250	46	1564	86	3975	147	10191	26	1150	43	2737
3250	50	28	1425	53	1617	50	3400	126	10317	33	1475	55	2792
3300	50	26	1350	50	1667	56	2650	98	10415	29	1550	57	2849
3350	50	32	1450	54	1720	51	2675	99	10514	35	1600	59	2908
3400	50	0	800	30	1750	74	3125	116	10630	0	875	32	2941
3450	50	0	0	0	1750	50	3100	115	10744	0	0	0	2941
3500	50	0	0	0	1750	80	3250	120	10865	0	0	0	2941
3550	50	0	0	0	1750	75	3875	144	11008	0	0	0	2941
3600	50	0	0	0	1750	92	4175	155	11163	0	0	0	2941

**Table 3**  
**Riprap Fill**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank			Riverbed			West Bank					
		Area (sf)	Volume (cf)	Volume (cy)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)	Sum of Volume (cy)
3650	50	0	0	0	1750	66	3950	146	11309	29	725	27	2968
3700	50	0	0	0	1750	65	3275	121	11431	30	1475	55	3022
3750	50	0	0	0	1750	62	3175	118	11548	32	1550	57	3080
3800	50	0	0	0	1750	66	3200	119	11667	30	1550	57	3137
3850	50	0	0	0	1750	66	3300	122	11789	28	1450	54	3191
3900	50	27	675	25	1775	66	3300	122	11911	0	700	26	3217
3950	50	29	1400	52	1827	86	3800	141	12052	0	0	0	3217
4000	50	29	1450	54	1881	90	4400	163	12215	0	0	0	3217
4050	50	24	1325	49	1930	72	4050	150	12365	23	575	21	3238
4100	50	23	1175	44	1973	68	3500	130	12494	26	1225	45	3283
4150	50	21	1100	41	2014	83	3775	140	12634	20	1150	43	3326
4200	50	27	1200	44	2058	77	4000	148	12782	24	1100	41	3367
4250	50	23	1250	46	2105	63	3500	130	12912	23	1175	44	3410
4300	50	0	575	21	2126	90	3825	142	13054	29	1300	48	3458
4350	50	27	675	25	2151	72	4050	150	13204	24	1325	49	3507
4400	50	27	1350	50	2201	62	3350	124	13328	27	1275	47	3555
4450	50	24	1275	47	2248	54	2900	107	13435	26	1325	49	3604
4500	50	26	1250	46	2294	53	2675	99	13534	35	1525	56	3660
4550	50	26	1300	48	2343	59	2800	104	13638	32	1675	62	3722
4600	50	30	1400	52	2394	48	2675	99	13737	30	1550	57	3780
4650	50	33	1575	58	2453	42	2250	83	13820	31	1525	56	3836
4700	50	37	1750	65	2518	29	1775	66	13886	48	1975	73	3909
4750	50	33	1750	65	2582	48	1925	71	13957	41	2225	82	3992
4800	50	46	1975	73	2656	48	2400	89	14046	25	1650	61	4053
4850	50	37	2075	77	2732	69	2925	108	14155	24	1225	45	4098
4900	50	18	1375	51	2783	55	3100	115	14269	0	600	22	4120
4950	50	41	1475	55	2838	48	2575	95	14365	0	0	0	4120
5000	50	30	1775	66	2904	48	2400	89	14454	0	0	0	4120
5050	50	26	1400	52	2956	26	1850	69	14522	0	0	0	4120
5100	50	27	1325	49	3005	63	2225	82	14605	0	0	0	4120
5150	50	32	1475	55	3059	68	3275	121	14726	0	0	0	4120
5200	50	42	1850	69	3128	59	3175	118	14844	0	0	0	4120
5250	50	24	1650	61	3189	82	3525	131	14974	0	0	0	4120
5300	50	27	1275	47	3236	63	3625	134	15108	24	600	22	4143
5350	50	30	1425	53	3289	62	3125	116	15224	30	1350	50	4193
5400	50	0	750	28	3317	71	3325	123	15347	36	1650	61	4254
5450	50	0	0	0	3317	60	3275	121	15469	24	1500	56	4309

**Table 3**  
**Riprap Fill**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank			Riverbed			West Bank					
		Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)			
5500	50	0	0	0	3317	58	2950	109	15578	30	1350	50	4359
5550	50	0	0	0	3317	32	2250	83	15661	60	2250	83	4443
5600	50	35	875	32	3349	33	1625	60	15721	38	2450	91	4533
5650	50	30	1625	60	3409	57	2250	83	15805	0	950	35	4569
5700	50	33	1575	58	3468	57	2850	106	15910	23	575	21	4590
5750	50	35	1700	63	3531	45	2550	94	16005	35	1450	54	4644
5800	50	30	1625	60	3591	47	2300	85	16090	33	1700	63	4706
5850	50	29	1475	55	3645	53	2500	93	16182	36	1725	64	4770
5900	50	25	1350	50	3695	65	2950	109	16292	36	1800	67	4837
5950	50	0	625	23	3719	86	3775	140	16431	0	900	33	4870
6000	50	45	1125	42	3760	56	3550	131	16563	24	600	22	4893
6050	50	0	1125	42	3802	72	3200	119	16681	0	600	22	4915
6100	50	33	825	31	3832	54	3150	117	16798	27	675	25	4940
6150	50	0	825	31	3863	45	2475	92	16890	50	1925	71	5011
6200	50	33	825	31	3894	41	2150	80	16969	27	1925	71	5082
6250	50	0	825	31	3924	72	2825	105	17074	26	1325	49	5131
6300	50	0	0	0	3924	69	3525	131	17205	32	1450	54	5185
6350	50	0	0	0	3924	62	3275	121	17326	29	1525	56	5242
6400	50	0	0	0	3924	50	2800	104	17430	33	1550	57	5299
6450	50	0	0	0	3924	69	2975	110	17540	33	1650	61	5360
6500	50	17	425	16	3940	68	3425	127	17667	36	1725	64	5424
6550	50	21	950	35	3975	62	3250	120	17787	39	1875	69	5494
6600	50	33	1350	50	4025	60	3050	113	17900	32	1775	66	5559
6650	50	33	1650	61	4086	56	2900	107	18007	32	1600	59	5619
6700	50	35	1700	63	4149	59	2875	106	18114	32	1600	59	5678
6750	50	33	1700	63	4212	56	2875	106	18220	44	1900	70	5748
6800	50	30	1575	58	4270	35	2275	84	18305	66	2750	102	5850
6850	50	23	1325	49	4319	75	2750	102	18406	0	1650	61	5911
6900	50	36	1475	55	4374	75	3750	139	18545	0	0	0	5911
6950	50	27	1575	58	4432	86	4025	149	18694	0	0	0	5911
7000	50	38	1625	60	4493	75	4025	149	18844	0	0	0	5911
7050	50	33	1775	66	4558	75	3750	139	18982	0	0	0	5911
7100	50	32	1625	60	4619	75	3750	139	19121	0	0	0	5911
7150	50	33	1625	60	4679	56	3275	121	19243	44	1100	41	5952
7200	50	29	1550	57	4736	71	3175	118	19360	29	1825	68	6019
7250	50	42	1775	66	4802	56	3175	118	19478	30	1475	55	6074
7300	50	42	2100	78	4880	56	2800	104	19581	30	1500	56	6130

**Table 3**  
**Riprap Fill**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank			Riverbed			West Bank					
		Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)			
7350	50	42	2100	78	4957	56	2800	104	19685	30	1500	56	6185
7400	50	42	2100	78	5035	56	2800	104	19789	30	1500	56	6241
7450	50	42	2100	78	5113	56	2800	104	19893	30	1500	56	6296
7500	50	42	2100	78	5191	56	2800	104	19996	30	1500	56	6352
7550	50	42	2100	78	5269	56	2800	104	20100	30	1500	56	6407
Raw Fill (cy)					5269				20100				6407
+ 10%					527				2010				641
Total Fill (cy)					5,796				22,110				7,048

**Table 4**  
**Sand and Gravel**

Distance Downstream of Lyman St (ft)	Distance Between Sections	Area (sf)	East Bank Volume (cf) (cy)			Sum of Volume (cy)	Area (sf)	Riverbed Volume (cf) (cy)			Sum of Volume (cy)	Area (sf)	West Bank Volume (cf) (cy)		
00		0	0	0	0	0	30	1500	56	56	0	10	250	9	9
50	50	0	0	0	0	0	30	1400	52	107	9	9	475	18	27
100	50	0	0	0	0	0	26	1250	46	154	10	10	475	18	44
150	50	0	0	0	0	0	24	1275	47	201	13	13	575	21	66
200	50	0	0	0	0	0	27	1350	50	251	12	12	625	23	89
250	50	11	275	10	10	30	30	1425	53	304	12	12	600	22	111
300	50	10	525	19	30	51	32	1550	57	361	11	11	575	21	132
350	50	13	575	21	72	32	31	1575	58	419	10	10	525	19	152
400	50	10	575	19	92	92	32	1650	61	539	10	10	500	19	170
450	50	11	525	10	102	102	34	1600	59	598	11	11	525	19	208
500	50	0	275	10	130	130	33	1575	58	656	0	0	275	10	219
550	50	10	250	9	111	111	30	1675	62	719	0	0	0	0	219
600	50	10	500	19	151	151	34	1725	64	782	10	10	250	9	228
650	50	13	575	21	163	163	35	1700	63	845	14	14	600	22	250
700	50	0	325	12	163	163	33	1525	56	902	12	12	650	24	274
750	50	0	0	0	163	163	28	1400	52	954	15	15	675	25	299
800	50	14	350	13	176	176	28	1400	52	1006	9	9	600	22	321
850	50	20	850	31	207	207	31	1475	55	1060	8	8	425	16	337
900	50	14	850	31	239	239	30	1525	56	1117	8	8	400	15	352
950	50	10	600	22	261	261	30	1500	56	1172	10	10	450	17	369
1000	50	10	500	19	280	280	30	1525	56	1228	7	7	425	16	384
1050	50	13	575	21	301	301	30	1500	56	1283	8	8	375	14	398
1100	50	8	525	19	320	320	31	1525	56	1340	8	8	400	15	413
1150	50	8	400	15	335	335	31	1550	57	1397	14	14	550	20	433
1200	50	0	200	7	343	343	31	1525	56	1454	12	12	650	24	457
1250	50	0	0	0	343	343	30	1475	55	1508	13	13	625	23	481
1300	50	7	175	6	349	349	29	1500	56	1564	16	16	725	27	507
1350	50	9	400	15	364	364	29	1500	56	1619	9	9	625	23	531
1400	50	10	475	18	381	381	31	1500	56	1675	12	12	525	19	550
1450	50	0	250	9	391	391	31	1575	58	1733	10	10	550	20	570
1500	50	0	0	0	391	391	31	1575	58	1792	10	10	500	19	589
1550	50	0	0	0	391	391	27	1450	54	1845	10	10	500	19	607
1600	50	0	0	0	391	391	28	1375	51	1896	9	9	475	18	625
1650	50	0	0	0	391	391	28	1400	52	1948	9	9	450	17	642
1700	50	0	0	0	391	391									
1750	50	0	0	0	391	391									

**Table 4**  
**Sand and Gravel**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank			Riverbed			West Bank					
		Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)			
1800	50	0	0	0	391	30	1450	54	2002	8	425	16	657
1850	50	0	0	0	391	30	1500	56	2057	9	425	16	673
1900	50	0	0	0	391	31	1525	56	2114	10	475	18	691
1950	50	0	0	0	391	29	1500	56	2169	9	475	18	708
2000	50	0	0	0	391	31	1500	56	2225	17	650	24	732
2050	50	8	200	7	398	30	1525	56	2281	0	425	16	748
2100	50	8	400	15	413	29	1475	55	2336	0	0	0	748
2150	50	0	200	7	420	33	1550	57	2394	0	0	0	748
2200	50	0	0	0	420	33	1650	61	2455	0	0	0	748
2250	50	0	0	0	420	22	1375	51	2506	0	0	0	748
2300	50	0	0	0	420	22	1100	41	2546	0	0	0	748
2350	50	0	0	0	420	26	1200	44	2591	0	0	0	748
2400	50	0	0	0	420	26	1300	48	2639	8	200	7	756
2450	50	0	0	0	420	28	1350	50	2689	8	400	15	770
2500	50	0	0	0	420	26	1350	50	2739	10	450	17	787
2550	50	0	0	0	420	25	1275	47	2786	9	475	18	805
2600	50	0	0	0	420	30	1375	51	2837	10	475	18	822
2650	50	0	0	0	420	30	1500	56	2893	0	250	9	831
2700	50	0	0	0	420	31	1525	56	2949	0	0	0	831
2750	50	0	0	0	420	28	1475	55	3004	10	250	9	841
2800	50	10	250	9	430	20	1200	44	3048	0	250	9	850
2850	50	10	500	19	448	28	1200	44	3093	0	0	0	850
2900	50	10	500	19	467	22	1250	46	3139	8	200	7	857
2950	50	8	450	17	483	26	1200	44	3183	9	425	16	873
3000	50	10	450	17	500	26	1300	48	3231	0	225	8	881
3050	50	10	500	19	519	23	1225	45	3277	0	0	0	881
3100	50	9	475	18	536	23	1150	43	3319	0	0	0	881
3150	50	8	425	16	552	25	1200	44	3364	8	200	7	889
3200	50	11	475	18	569	29	1350	50	3414	10	450	17	906
3250	50	4	375	14	583	27	1400	52	3466	13	575	21	927
3300	50	10	350	13	596	19	1150	43	3508	12	625	23	950
3350	50	12	550	20	617	18	925	34	3543	13	625	23	973
3400	50	0	300	11	628	25	1075	40	3582	0	325	12	985
3450	50	0	0	0	628	17	1050	39	3621	0	0	0	985
3500	50	0	0	0	628	27	1100	41	3662	0	0	0	985
3550	50	0	0	0	628	25	1300	48	3710	0	0	0	985
3600	50	0	0	0	628	31	1400	52	3762	0	0	0	985

**Table 4**  
**Sand and Gravel**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank			Riverbed			West Bank					
		Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)			
3650	50	0	0	0	628	22	1325	49	3811	11	275	10	995
3700	50	0	0	0	628	22	1100	41	3852	11	550	20	1016
3750	50	0	0	0	628	22	1100	41	3893	11	550	20	1036
3800	50	0	0	0	628	22	1100	41	3933	11	550	20	1056
3850	50	0	0	0	628	22	1100	41	3974	11	550	20	1077
3900	50	11	275	10	638	22	1100	41	4015	0	275	10	1087
3950	50	11	550	20	658	29	1275	47	4062	0	0	0	1087
4000	50	11	550	20	679	30	1475	55	4117	0	0	0	1087
4050	50	9	500	19	697	24	1350	50	4167	9	225	8	1095
4100	50	9	450	17	714	23	1175	44	4210	10	475	18	1113
4150	50	9	450	17	731	28	1275	47	4257	7	425	16	1129
4200	50	10	475	18	748	26	1350	50	4307	10	425	16	1144
4250	50	9	475	18	766	21	1175	44	4351	9	475	18	1162
4300	50	0	225	8	774	30	1275	47	4398	10	475	18	1180
4350	50	11	275	10	784	24	1350	50	4448	9	475	18	1197
4400	50	11	550	20	805	21	1125	42	4490	11	500	19	1216
4450	50	9	500	19	823	18	975	36	4526	10	525	19	1235
4500	50	10	475	18	841	18	900	33	4559	11	525	19	1255
4550	50	10	500	19	859	20	950	35	4594	10	525	19	1274
4600	50	11	525	19	879	16	900	33	4628	11	525	19	1294
4650	50	12	575	21	900	14	750	28	4656	12	575	21	1315
4700	50	12	600	22	922	10	600	22	4678	15	675	25	1340
4750	50	11	575	21	944	16	650	24	4702	14	725	27	1367
4800	50	15	650	24	968	16	800	30	4731	8	550	20	1387
4850	50	12	675	25	993	23	975	36	4768	8	400	15	1402
4900	50	6	450	17	1009	19	1050	39	4806	0	200	7	1409
4950	50	13	475	18	1027	16	875	32	4839	0	0	0	1409
5000	50	10	575	21	1048	16	800	30	4869	0	0	0	1409
5050	50	8	450	17	1065	8	600	22	4891	0	0	0	1409
5100	50	8	400	15	1080	21	725	27	4918	0	0	0	1409
5150	50	10	450	17	1096	23	1100	41	4958	0	0	0	1409
5200	50	16	650	24	1120	20	1075	40	4998	0	0	0	1409
5250	50	10	650	24	1144	27	1175	44	5042	0	0	0	1409
5300	50	10	500	19	1163	21	1200	44	5086	9	225	8	1418
5350	50	11	525	19	1182	21	1050	39	5125	10	475	18	1435
5400	50	0	275	10	1193	24	1125	42	5167	11	525	19	1455
5450	50	0	0	0	1193	20	1100	41	5207	7	450	17	1471

**Table 4**  
**Sand and Gravel**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank			Riverbed			West Bank					
		Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)			
5500	50	0	0	0	1193	20	1000	37	5244	10	425	16	1487
5550	50	0	0	0	1193	11	775	29	5273	19	725	27	1514
5600	50	13	325	12	1205	11	550	20	5294	12	775	29	1543
5650	50	10	575	21	1226	19	750	28	5321	0	300	11	1554
5700	50	11	525	19	1245	19	950	35	5356	9	225	8	1562
5750	50	11	550	20	1266	15	850	31	5388	11	500	19	1581
5800	50	10	525	19	1285	16	775	29	5417	11	550	20	1601
5850	50	9	475	18	1303	18	850	31	5448	12	575	21	1622
5900	50	8	425	16	1319	22	1000	37	5485	11	575	21	1644
5950	50	0	200	7	1326	29	1275	47	5532	0	275	10	1654
6000	50	15	375	14	1340	19	1200	44	5577	8	200	7	1661
6050	50	0	375	14	1354	24	1075	40	5617	0	200	7	1669
6100	50	12	300	11	1365	18	1050	39	5656	8	200	7	1676
6150	50	0	300	11	1376	15	825	31	5686	16	600	22	1698
6200	50	12	300	11	1387	14	725	27	5713	8	600	22	1720
6250	50	0	300	11	1398	24	950	35	5748	13	525	19	1740
6300	50	0	0	0	1398	23	1175	44	5792	13	650	24	1764
6350	50	0	0	0	1398	21	1100	41	5832	9	550	20	1784
6400	50	0	0	0	1398	17	950	35	5868	11	500	19	1803
6450	50	0	0	0	1398	23	1000	37	5905	11	550	20	1823
6500	50	7	175	6	1405	23	1150	43	5947	11	550	20	1844
6550	50	7	350	13	1418	21	1100	41	5988	13	600	22	1866
6600	50	11	450	17	1434	20	1025	38	6026	11	600	22	1888
6650	50	13	600	22	1456	19	975	36	6062	11	550	20	1908
6700	50	12	625	23	1480	20	975	36	6098	10	525	19	1928
6750	50	11	575	21	1501	19	975	36	6134	14	600	22	1950
6800	50	11	550	20	1521	12	775	29	6163	22	900	33	1983
6850	50	8	475	18	1539	25	925	34	6197	0	550	20	2004
6900	50	12	500	19	1557	25	1250	46	6244	0	0	0	2004
6950	50	8	500	19	1576	29	1350	50	6294	0	0	0	2004
7000	50	13	525	19	1595	25	1350	50	6344	0	0	0	2004
7050	50	11	600	22	1618	25	1250	46	6390	0	0	0	2004
7100	50	11	550	20	1638	25	1250	46	6436	0	0	0	2004
7150	50	11	550	20	1658	19	1100	41	6477	15	375	14	2018
7200	50	10	525	19	1678	24	1075	40	6517	9	600	22	2040
7250	50	13	575	21	1699	19	1075	40	6556	10	475	18	2057
7300	50	13	650	24	1723	19	950	35	6592	10	500	19	2076

**Table 4**  
**Sand and Gravel**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank			Riverbed				West Bank				
		Area (sf)	Volume (cf)	Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Volume (cy)	Sum of Volume (cy)	
7350	50	13	650	24	1747	19	950	35	6627	10	500	19	2094
7400	50	13	650	24	1771	19	950	35	6662	10	500	19	2113
7450	50	13	650	24	1795	19	950	35	6697	10	500	19	2131
7500	50	13	650	24	1819	19	950	35	6732	10	500	19	2150
7550	50	13	650	24	1844	19	950	35	6768	10	500	19	2169
Raw Fill (cy)					1844			6768			2169		
+ 10%					185			677			217		
Total Fill (cy)					2,029			7,445			2,386		

**Table 5**  
**Soil Fill**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank				East Bank (Wall = 2 ft Thick)				Riverbed				West Bank				West Bank (Wall = 2 ft Thick)					
		Area (sf)	Volume (cf)	Sum of Volume (cy)	Height (ft)	Volume (cf)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Area (sf)	Volume (cf)	Sum of Volume (cy)	Height (ft)	Volume (cf)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Sum of Volume (cy)					
00	0	0	0	0	0	0	0	75	3375	125	125	97	0	650	24	24	13	0	0	0			
50	50	0	0	0	0	0	0	60	2825	105	230	27	3100	115	115	0	0	0	0	0	0		
100	50	0	0	0	0	0	0	53	2525	94	323	44	1775	66	181	0	0	0	0	0	0		
150	50	0	0	0	0	0	0	48	2550	94	418	37	2025	75	256	0	0	0	0	0	0		
200	50	0	0	0	0	0	0	54	2650	98	516	43	2000	74	330	0	0	0	0	0	0		
250	50	57	1425	53	53	0	0	52	2875	106	839	38	2025	75	405	0	0	0	0	0	0		
300	50	8	1625	60	113	0	0	60	2800	104	619	24	1550	57	462	0	0	0	0	0	0		
350	50	8	400	15	128	0	0	62	3050	113	732	22	1150	43	505	0	0	0	0	0	0		
400	50	52	1500	56	183	0	0	53	2875	106	945	25	1175	44	548	0	0	0	0	0	0		
450	50	34	2150	80	263	0	0	62	2875	106	945	22	1175	44	592	0	0	0	0	0	0		
500	50	45	1975	73	336	13	650	66	3200	119	1064	27	1225	45	637	0	0	0	0	0	0		
550	50	28	1825	68	404	0	650	58	3100	115	1179	28	1375	51	688	0	0	0	0	0	0		
600	50	8	900	33	437	0	0	66	3100	115	1294	59	2175	81	769	11	550	20	44	0	0		
650	50	56	1600	59	496	0	0	68	3350	124	1418	44	2575	95	864	10	1050	39	83	0	0		
700	50	30	2150	80	576	10	500	68	3400	126	1544	20	1600	59	923	0	500	19	102	0	0		
750	50	30	1500	56	631	10	1000	64	3300	122	1666	26	1150	43	966	0	0	0	0	0	0		
800	50	28	1450	54	685	0	500	0	1600	59	1725	0	650	24	990	0	0	0	0	0	0		
850	50	69	2425	90	775	0	0	0	0	0	0	28	700	26	1016	0	0	0	0	0	0		
900	50	86	3875	144	919	0	0	0	0	0	0	36	1600	59	1075	0	0	0	0	0	0		
950	50	71	3925	145	1064	0	0	0	0	0	0	25	1525	56	1131	0	0	0	0	0	0		
1000	50	27	2450	91	1155	0	0	0	0	0	0	11	900	33	1165	0	0	0	0	0	0		
1050	50	88	2875	106	1261	0	0	0	0	0	0	17	700	26	1191	0	0	0	0	0	0		
1100	50	113	5025	186	1447	0	0	0	0	0	0	21	950	35	1226	0	0	0	0	0	0		
1150	50	54	4175	155	1602	0	0	0	0	0	0	23	1100	41	1267	0	0	0	0	0	0		
1200	50	74	3200	119	1720	11	550	0	0	0	0	23	1150	43	1309	0	0	0	0	0	0		
1250	50	64	3450	128	1848	11	1100	0	0	0	0	39	1550	57	1367	0	0	0	0	0	0		
1300	50	6	1750	65	1913	0	550	0	0	0	0	74	2825	105	1471	0	0	0	0	0	0		
1350	50	64	1750	65	1978	0	0	0	0	0	0	72	3650	135	1606	0	0	0	0	0	0		
1400	50	31	2375	88	2066	0	0	0	204	62	1550	57	1782	85	3925	145	1752	0	0	0	0	0	0
1450	50	36	1675	62	2128	12	600	22	226	56	2950	109	1892	89	4350	161	1913	0	0	0	0	0	0
1500	50	51	2175	81	2208	13	1250	46	272	62	2950	109	2001	29	2950	109	2022	0	0	0	0	0	0
1550	50	56	2675	99	2307	16	1450	54	326	64	3150	117	2118	50	1975	73	2095	0	0	0	0	0	0
1600	50	68	3100	115	2422	14	1500	56	381	45	2725	101	2219	56	2650	98	2194	0	0	0	0	0	0
1650	50	70	3450	128	2550	16	1500	56	437	54	2475	92	2310	62	2950	109	2303	0	0	0	0	0	0
1700	50	68	3450	128	2678	18	1700	63	500	56	2750	102	2412	65	3175	118	2420	0	0	0	0	0	0
1750	50	48	2900	107	2785	14	1600	59	559	54	2750	102	2514	66	3275	121	2542	0	0	0	0	0	0
1800	50	44	2300	85	2870	13	1350	50	609	60	2850	106	2619	81	3675	136	2678	0	0	0	0	0	0
1850	50	53	2425	90	2960	10	1150	43	652	61	3025	112	2731	86	4175	155	2832	0	0	0	0	0	0
1900	50	59	2800	104	3064	13	1150	43	694	63	3100	115	2846	91	4425	164	2996	0	0	0	0	0	0
1950	50	56	2875	106	3170	12	1250	46	741	59	3050	113	2959	92	4575	169	3166	0	0	0	0	0	0
2000	50	54	2750	102	3272	13	1250	46	787	62	3025	112	3071	32	3100	115	3281	0	0	0	0	0	0
2050	50	9	1575	58	3331	0	650	24	811	61	3075	114	3185	86	2950	109	3390	14	700	26	128	0	0
2100	50	5	350	13	3344	0	0	811	58	2975	110	3295	113	4975	184	3574	11	1250	46	174	0	0	
2150	50	96	2525	94	3437	13	650	24	835	0	1450	54	3349	59	4300	159	3733	12	1150	43	217	0	0
2200	50	96	4800	178	3615	22	1750	65	900	0	0	0	3349	79	3450	128	3861	19	1550	57	274	0	0
2250	50	66	4050	150	3765	22	2200	81	981	0	0	0	3349	79	3950	146	4007	19	1900	70	344	0	0
2300	50	62	3200	119	3883	21	2150	80	1061	0	0	0	3349	56	3375	125	4132	12	1550	57	402	0	0
2350	50	72	3350	124	4007	17	1900	70	1131	0	0	0	3349	53	2725	101	4233	11	1150	43	444	0	0
2400	50	76	3700	137	4144	17	1700	63	1194	0	0	0	3349	0	1325	49	4282	0	550	20	465	0	0
2450	50	47	3075	114	4258	16	1650	61	1256	0	0	0	3349	0	0	0	4282	0	0	0	465	0	0
2500	50	50	2425	90	4348	17	1650	61	1317	0	0	0	3349	37	925	34	4317	0	0	0	465	0	0
2550	50	81	3275	121	4469	16	1650	61	1378	0	0	0	3349	74	2775	103	4419	0	0	0	465	0	0
2600	50	94	4375	162	4631	14	1500	56	1433	0	0	0	3349	81	3875	144	4563	0	0	0	465	0	0
2650	50	67	4025	149	4781	14	1400	52	1485	0	0	0	3349	0	2025	75	4638	0	0	0	465	0	0
2700	50	72	3475	129	4909	14	1400	52	1537	0	0	0	3349	114	2850	106	4744	15	750	28	493	0	0
2750	50	64	3400	126	5035	15	1450	54	1591	0	0	0	3349	109	5575	206	4950	0	750	28	520	0	0
2800	50	34	2450	91	5126	0	750	28	1619	0	0	0	3349	170	6975	258	5208	13	650	24	544	0	0
2850	50	34	1700	63	5189	0	0	0	1619	0	0	0	3349	108	6950	257	5466	0	650	24	569	0	0
2900	50	46	2000	74	5263	0	0	0	1619	0	0	0	3349	23	3275	121	5587	0	0	0	569	0	0

**Table 5**  
**Soil Fill**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank			East Bank (Wall = 2 ft Thick)			Riverbed			West Bank			West Bank (Wall = 2 ft Thick)							
		Area (sf)	Volume (cf)	Sum of Volume (cy)	Height (ft)	Volume (cf)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Sum of Volume (cy)	Height (ft)	Volume (cf)	Sum of Volume (cy)					
2950	50	40	2150	80	5343	0	0	0	1619	0	0	0	3349	0	575	21	5608	0	0	0	569
3000	50	80	3000	111	5454	0	0	0	1619	0	0	0	3349	140	3500	130	5738	0	0	0	569
3050	50	49	3225	119	5573	0	0	0	1619	0	0	0	3349	156	7400	274	6012	15	750	28	596
3100	50	0	1225	45	5619	0	0	0	1619	0	0	0	3349	162	7950	294	6306	13	1400	52	648
3150	50	2	50	2	5620	0	0	0	1619	0	0	0	3349	0	4050	150	6456	0	650	24	672
3200	50	16	450	17	5637	0	0	0	1619	0	0	0	3349	24	600	22	6479	0	0	0	672
3250	50	35	1275	47	5684	0	0	0	1619	0	0	0	3349	39	1575	58	6537	0	0	0	672
3300	50	31	1650	61	5745	0	0	0	1619	0	0	0	3349	38	1925	71	6608	0	0	0	672
3350	50	145	4400	163	5908	0	0	0	1619	0	0	0	3349	67	2625	97	6706	0	0	0	672
3400	50	149	7350	272	6181	13	650	24	1643	0	0	0	3349	0	1675	62	6768	0	0	0	672
3450	50	122	6775	251	6431	14	1350	50	1693	0	0	0	3349	0	0	0	6768	0	0	0	672
3500	50	115	5925	219	6651	13	1350	50	1743	0	0	0	3349	0	0	0	6768	0	0	0	672
3550	50	122	5925	219	6870	14	1350	50	1793	0	0	0	3349	0	0	0	6768	0	0	0	672
3600	50	99	5525	205	7075	16	1500	56	1848	0	0	0	3349	0	0	0	6768	0	0	0	672
3650	50	106	5125	190	7265	13	1450	54	1902	0	0	0	3349	23	575	21	6789	0	0	0	672
3700	50	107	5325	197	7462	14	1350	50	1952	0	0	0	3349	24	1175	44	6832	0	0	0	672
3750	50	92	4975	184	7646	15	1450	54	2006	0	0	0	3349	18	1050	39	6871	0	0	0	672
3800	50	94	4650	172	7819	14	1450	54	2059	0	0	0	3349	22	1000	37	6908	0	0	0	672
3850	50	89	4575	169	7988	12	1300	48	2107	0	0	0	3349	67	2225	82	6991	0	0	0	672
3900	50	112	5025	186	8174	0	600	22	2130	0	0	0	3349	72	3475	129	7119	11	550	20	693
3950	50	110	5550	206	8380	0	0	0	2130	0	0	0	3349	55	3175	118	7237	17	1400	52	744
4000	50	83	4825	179	8558	0	0	0	2130	0	0	0	3349	90	3625	134	7371	15	1600	59	804
4050	50	79	4050	150	8708	0	0	0	2130	0	0	0	3349	109	4975	184	7556	0	750	28	831
4100	50	78	3925	145	8854	0	0	0	2130	0	0	0	3349	112	5525	205	7760	0	0	0	831
4150	50	57	3375	125	8979	0	0	0	2130	0	0	0	3349	37	3725	138	7898	0	0	0	831
4200	50	67	3100	115	9094	0	0	0	2130	0	0	0	3349	59	2400	89	7987	0	0	0	831
4250	50	60	3175	118	9211	0	0	0	2130	0	0	0	3349	78	3425	127	8114	0	0	0	831
4300	50	58	2950	109	9320	16	800	30	2159	60	1500	56	3405	38	2900	107	8221	0	0	0	831
4350	50	74	3300	122	9443	0	800	30	2189	48	2700	100	3505	36	1850	69	8290	0	0	0	831
4400	50	68	3550	131	9574	0	0	0	2189	41	2225	82	3587	40	1900	70	8360	0	0	0	831
4450	50	35	2575	95	9669	0	0	0	2189	36	1925	71	3658	24	1600	59	8419	0	0	0	831
4500	50	58	2325	86	9756	0	0	0	2189	35	1775	66	3724	21	1125	42	8461	0	0	0	831
4550	50	29	2175	81	9836	0	0	0	2189	39	1850	69	3793	20	1025	38	8499	0	0	0	831
4600	50	34	1575	58	9894	0	0	0	2189	32	1775	66	3858	32	1300	48	8547	0	0	0	831
4650	50	28	1550	57	9952	0	0	0	2189	28	1500	56	3914	31	1575	58	8606	0	0	0	831
4700	50	24	1300	48	10000	0	0	0	2189	19	1175	44	3957	30	1525	56	8662	0	0	0	831
4750	50	21	1125	42	10042	0	0	0	2189	26	1125	42	3999	0	750	28	8690	0	0	0	831
4800	50	26	1175	44	10085	0	0	0	2189	22	1200	44	4044	15	375	14	8704	0	0	0	831
4850	50	23	1225	45	10131	0	0	0	2189	46	1700	63	4106	15	750	28	8731	0	0	0	831
4900	50	11	850	31	10162	0	0	0	2189	19	1625	60	4167	36	1275	47	8779	12	600	22	854
4950	50	26	925	34	10196	0	0	0	2189	32	1275	47	4214	72	2700	100	8879	15	1350	50	904
5000	50	19	1125	42	10238	0	0	0	2189	32	1600	59	4273	78	3750	139	9018	14	1450	54	957
5050	50	16	875	32	10270	0	0	0	2189	16	1200	44	4318	72	3750	139	9156	15	1450	54	1011
5100	50	6	550	20	10291	0	0	0	2189	15	775	29	4346	63	3375	125	9281	18	1650	61	1072
5150	50	19	625	23	10314	0	0	0	2189	13	700	26	4372	79	3550	131	9413	16	1700	63	1135
5200	50	89	2700	100	10414	0	0	0	2189	14	675	25	4397	63	3550	131	9544	17	1650	61	1196
5250	50	65	3850	143	10556	0	0	0	2189	46	1500	56	4453	48	2775	103	9647	16	1650	61	1257
5300	50	64	3225	119	10676	0	0	0	2189	42	2200	81	4534	28	1900	70	9718	0	800	30	1287
5350	50	69	3325	123	10799	0	0	0	2189	41	2075	77	4611	19	1175	44	9761	0	0	0	1287
5400	50	80	3725	138	10937	15	750	28	2217	26	1675	62	4673	15	850	31	9793	0	0	0	1287
5450	50	74	3850	143	11080	17	1600	59	2276	40	1650	61	4734	5	500	19	9811	0	0	0	1287
5500	50	84	3950	146	11226	16	1650	61	2337	38	1950	72	4806	10	375	14	9825	0	0	0	1287
5550	50	90	4350	161	11387	15	1550	57	2394	8	1150	43	4849	31	1025	38	9863	0	0	0	1287
5600	50	64	3850	143	11530	0	750	28	2422	22	750	28	4877	22	1325	49	9912	0	0	0	1287
5650	50	19	2075	77	11606	0	0	0	2422	38	1500	56	4932	36	1450	54	9966	12	600	22	1309
5700	50	21	1000	37	11644	0	0	0	2422	38	1900	70	5003	60	2400	89	10055	0	600	22	1331
5750	50	21	1050	39	11682	0	0	0	2422	10	1200	44	5047	31	2275	84	10139	0	0	0	1331
5800	50	20	1025	38	11720	0	0	0	2422	0	250	9	5056	20	1275	47	10186	0	0	0	1331
5850	50	18	950	35	11756	0	0	0	2422	35	875	32	5089	21	1025	38	10224	0	0	0	1331
5900	50	16	850	31	11787	0	0	0	2422	43	1950	72	5161	21	1050	39	10263	0	0	0	1331

**Table 5**  
**Soil Fill**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank			East Bank (Wall = 2 ft Thick)			Riverbed			West Bank			West Bank (Wall = 2 ft Thick)							
		Area (sf)	Volume (cf)	Sum of Volume (cy)	Height (ft)	Volume (cf)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Sum of Volume (cy)	Area (sf)	Volume (cf)	Sum of Volume (cy)	Height (ft)	Volume (cf)	Sum of Volume (cy)					
5950	50	30	1150	43	11830	10	500	19	2441	57	2500	93	5254	36	1425	53	10316	12	600	22	1354
6000	50	29	1475	55	11884	0	500	19	2459	37	2350	87	5341	16	1300	48	10364	0	600	22	1376
6050	50	39	1700	63	11947	13	650	24	2483	24	1525	56	5397	24	1000	37	10401	8	400	15	1391
6100	50	81	3000	111	12058	0	650	24	2507	21	1125	42	5439	16	1000	37	10438	0	400	15	1406
6150	50	64	3625	134	12193	10	500	19	2526	15	900	33	5472	31	1175	44	10481	0	0	0	1406
6200	50	58	3050	113	12306	0	500	19	2544	14	725	27	5499	16	1175	44	10525	0	0	0	1406
6250	50	84	3550	131	12437	14	700	26	2570	24	950	35	5534	15	775	29	10554	0	0	0	1406
6300	50	56	3500	130	12567	37	2550	94	2665	23	1175	44	5578	15	750	28	10581	0	0	0	1406
6350	50	69	3125	116	12682	16	2650	98	2763	21	1100	41	5619	17	800	30	10611	0	0	0	1406
6400	50	73	3550	131	12814	11	1350	50	2813	17	950	35	5654	20	925	34	10645	0	0	0	1406
6450	50	66	3475	129	12943	14	1250	46	2859	23	1000	37	5691	18	950	35	10681	0	0	0	1406
6500	50	28	2350	87	13030	0	700	26	2885	23	1150	43	5733	22	1000	37	10718	0	0	0	1406
6550	50	48	1900	70	13100	0	0	0	2885	21	1100	41	5774	23	1125	42	10759	0	0	0	1406
6600	50	14	1550	57	13157	0	0	0	2885	20	1025	38	5812	21	1100	41	10800	0	0	0	1406
6650	50	30	1100	41	13198	0	0	0	2885	19	975	36	5848	19	1000	37	10837	0	0	0	1406
6700	50	21	1275	47	13245	0	0	0	2885	20	975	36	5884	17	900	33	10870	0	0	0	1406
6750	50	21	1050	39	13284	0	0	0	2885	19	975	36	5920	25	1050	39	10909	0	0	0	1406
6800	50	29	1250	46	13331	0	0	0	2885	12	775	29	5949	41	1650	61	10970	0	0	0	1406
6850	50	14	1075	40	13370	0	0	0	2885	30	1050	39	5988	111	3800	141	11111	14	700	26	1431
6900	50	22	900	33	13404	0	0	0	2885	25	1375	51	6039	95	5150	191	11302	13	1350	50	1481
6950	50	16	950	35	13439	0	0	0	2885	29	1350	50	6089	80	4375	162	11464	21	1700	63	1544
7000	50	24	1000	37	13476	0	0	0	2885	25	1350	50	6139	71	3775	140	11604	20	2050	76	1620
7050	50	21	1125	42	13518	0	0	0	2885	25	1250	46	6185	90	4025	149	11753	13	1650	61	1681
7100	50	19	1000	37	13555	0	0	0	2885	25	1250	46	6231	36	3150	117	11869	12	1250	46	1728
7150	50	20	975	36	13591	0	0	0	2885	19	1100	41	6272	27	1575	58	11928	0	600	22	1750
7200	50	18	950	35	13626	0	0	0	2885	24	1075	40	6312	15	1050	39	11967	0	0	0	1750
7250	50	26	1100	41	13667	0	0	0	2885	19	1075	40	6352	17	800	30	11996	0	0	0	1750
7300	50	26	1300	48	13715	0	0	0	2885	19	950	35	6387	17	850	31	12028	0	0	0	1750
7350	50	26	1300	48	13763	0	0	0	2885	59	1950	72	6459	17	850	31	12059	0	0	0	1750
7400	50	26	1300	48	13811	0	0	0	2885	59	2950	109	6569	17	850	31	12091	0	0	0	1750
7450	50	26	1300	48	13859	0	0	0	2885	59	2950	109	6678	17	850	31	12122	0	0	0	1750
7500	50	26	1300	48	13907	0	0	0	2885	59	2950	109	6787	17	850	31	12154	0	0	0	1750
7550	50	26	1300	48	13956	0	0	0	2885	59	2950	109	6896	17	850	31	12185	0	0	0	1750
SubTotal (cy)		13956			2885			6896			12185			1750							
Raw Fill (cy)		16841			6896			13935			1750			1394							
+ 10%		1685			690			1394			1750			15,329							
Total Fill		18,526			7,586			7,586			15,329										

**Table 6**  
**Walls**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank		West Bank	
		Width (ft)	Area (sf)	Width (ft)	Area (sf)
00		0	0	18	
50	50	0	0	14	800
100	50	0	0	12	650
150	50	0	0	10	550
200	50	0	0	10	500
250	50	16	400	8	450
300	50	11	675	0	200
350	50	13	600	0	0
400	50	13	650	0	0
450	50	12	625	8	200
500	50	6	450	10	450
550	50	10	400	13	575
600	50	9	475	12	625
650	50	14	575	11	575
700	50	3	425	0	275
750	50	3	150	5	125
800	50	8	275	0	125
850	50	16	600	7	175
900	50	24	1000	10	425
950	50	23	1175	8	450
1000	50	15	950	0	200
1050	50	27	1050	0	0
1100	50	32	1475	7	175
1150	50	18	1250	10	425
1200	50	18	900	9	475
1250	50	15	825	12	525
1300	50	15	750	22	850
1350	50	24	975	23	1125
1400	50	24	1200	22	1125
1450	50	7	775	27	1225
1500	50	11	450	15	1050
1550	50	11	550	14	725
1600	50	17	700	16	750
1650	50	11	700	15	775
1700	50	12	575	20	875
1750	50	17	725	20	1000
1800	50	18	875	25	1125
1850	50	20	950	27	1300
1900	50	19	975	26	1325
1950	50	19	950	29	1375
2000	50	16	875	0	725
2050	50	26	1050	20	500
2100	50	30	1400	32	1300
2150	50	24	1350	28	1500
2200	50	24	1200	28	1400
2250	50	5	725	25	1325

**Table 6**  
**Walls**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank		West Bank	
		Width (ft)	Area (sf)	Width (ft)	Area (sf)
2300	50	5	250	25	1250
2350	50	12	425	28	1325
2400	50	12	600	32	1500
2450	50	5	425	31	1575
2500	50	5	250	37	1700
2550	50	15	500	40	1925
2600	50	21	900	44	2100
2650	50	23	1100	37	2025
2700	50	25	1200	30	1675
2750	50	19	1100	43	1825
2800	50	35	1350	43	2150
2850	50	34	1725	53	2400
2900	50	0	850	50	2575
2950	50	27	675	49	2475
3000	50	30	1425	43	2300
3050	50	18	1200	48	2275
3100	50	15	825	55	2575
3150	50	17	800	33	2200
3200	50	13	750	16	1225
3250	50	36	1225	23	975
3300	50	30	1650	24	1175
3350	50	39	1725	20	1100
3400	50	45	2100	0	500
3450	50	42	2175	0	0
3500	50	37	1975	0	0
3550	50	34	1775	0	0
3600	50	27	1525	0	0
3650	50	33	1500	8	200
3700	50	32	1625	6	350
3750	50	25	1425	0	150
3800	50	28	1325	4	100
3850	50	29	1425	35	975
3900	50	31	1500	27	1550
3950	50	30	1525	12	975
4000	50	27	1425	21	825
4050	50	26	1325	35	1400
4100	50	25	1275	35	1750
4150	50	20	1125	25	1500
4200	50	24	1100	24	1225
4250	50	18	1050	25	1225
4300	50	8	650	18	1075
4350	50	22	750	18	900
4400	50	21	1075	20	950
4450	50	17	950	7	675
4500	50	16	825	0	175
4550	50	13	725	0	0
4600	50	8	525	8	200

**Table 6**  
**Walls**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank		West Bank	
		Width (ft)	Area (sf)	Width (ft)	Area (sf)
4650	50	6	350	7	375
4700	50	0	150	0	175
4750	50	0	0	0	0
4800	50	0	0	0	0
4850	50	0	0	0	0
4900	50	0	0	5	125
4950	50	0	0	13	450
5000	50	0	0	17	750
5050	50	0	0	14	775
5100	50	0	0	7	525
5150	50	0	0	13	500
5200	50	25	625	8	525
5250	50	20	1125	5	325
5300	50	20	1000	17	550
5350	50	20	1000	0	425
5400	50	15	875	7	175
5450	50	11	650	0	175
5500	50	15	650	0	0
5550	50	20	875	0	0
5600	50	18	950	0	0
5650	50	0	450	5	125
5700	50	0	0	15	500
5750	50	0	0	0	375
5800	50	0	0	0	0
5850	50	0	0	0	0
5900	50	0	0	0	0
5950	50	5	125	5	125
6000	50	0	125	0	125
6050	50	5	125	5	125
6100	50	20	625	0	125
6150	50	26	1150	0	0
6200	50	28	1350	0	0
6250	50	15	1075	0	0
6300	50	18	825	0	0
6350	50	14	800	0	0
6400	50	24	950	0	0
6450	50	13	925	0	0
6500	50	10	575	0	0
6550	50	13	575	0	0
6600	50	8	525	0	0
6650	50	8	400	0	0
6700	50	0	200	0	0
6750	50	0	0	0	0
6800	50	10	250	21	525
6850	50	0	250	27	1200
6900	50	0	0	23	1250
6950	50	0	0	15	950

**Table 6**  
**Walls**

Distance Downstream of Lyman St (ft)	Distance Between Sections	East Bank		West Bank		
		Width (ft)	Area (sf)	Width (ft)	Area (sf)	
7000	50	0	0	13	700	
7050	50	5	125	21	850	
7100	50	4	225	10	775	
7150	50	0	100	5	375	
7200	50	0	0	0	125	
7250	50	0	0	0	0	
7300	50	0	0	0	0	
7350	50	0	0	0	0	
7400	50	0	0	0	0	
7450	50	0	0	0	0	
7500	50	0	0	0	0	
7550	50	0	0	0	0	
Subtotal	Area (sf)		106,300		101,450	
	+10%		10,630		10,145	
Total	Area (sf)		116,930		111,595	
	Area (ac)				228,525	
					5.25	