

# 31 23 Excavation and Fill

## 31 23 16 – Excavation

31 23 16.30 Drilling and Blasting Rock		Crew	Daily Output	Labor-Hours	Unit	Material	2022 Bare Costs		Total	Total Incl O&P
							Labor	Equipment		
2000	Over 1,500 C.Y.	B-47	20	1.200	B.C.Y.	4.51	60	82	146.51	184
2200	Trenches, up to 1,500 C.Y.		22	1.091		13.10	54.50	74.50	142.10	178
2300	Over 1,500 C.Y.		26	.923		13.10	46	63	122.10	153
2500	Pier holes, up to 1,500 C.Y.		22	1.091		4.51	54.50	74.50	133.51	168
2600	Over 1,500 C.Y.		31	.774		4.51	39	53	96.51	120
2800	Boulders under 1/2 C.Y., loaded on truck, no hauling	B-100	80	.150			8.30	11.65	19.95	25.50
2900	Boulders, drilled, blasted	B-47	100	.240		4.51	12	16.40	32.91	41
3100	Jackhammer operators with foreman compressor, air tools	B-9	1	40	Day		1,850	330	2,180	3,125
3300	Track drill, compressor, operator and foreman	B-47	1	24	"		1,200	1,650	2,850	3,600
3500	Blasting caps				Ea.	6.40			6.40	7.05
3700	Explosives					.53			.53	.58
3800	Blasting mats, for purchase, no mobilization, 10' x 15' x 12"					1,225			1,225	1,350
3900	Blasting mats, rent, for first day					197			197	217
4000	Per added day					66			66	72.50
4200	Preblast survey for 6 room house, individual lot, minimum	A-6	2.40	6.667			375	15.20	390.20	575
4300	Maximum	"	1.35	11.852			670	27	697	1,025
4500	City block within zone of influence, minimum	A-8	25200	.001	S.F.		.08		.08	.11
4600	Maximum	"	15100	.002	"		.13		.13	.19

## 31 23 16.42 Excavating, Bulk Bank Measure

0010	EXCAVATING, BULK BANK MEASURE	R312316-40								
0011	Common earth piled									
0020	For loading onto trucks, add								15%	15%
0050	For mobilization and demobilization, see Section 01 54 36.50	R312316-45								
0100	For hauling, see Section 31 23 23.20									
0200	Excavator, hydraulic, crawler mtd., 1 C.Y. cap. = 100 C.Y./hr.	B-12A	800	.020	B.C.Y.		1.09	1.14	2.23	2.87
0250	1-1/2 C.Y. cap. = 125 C.Y./hr.	B-12B	1000	.016			.87	.99	1.86	2.39
0260	2 C.Y. cap. = 165 C.Y./hr.	B-12C	1320	.012			.66	.73	1.39	1.79
0300	3 C.Y. cap. = 260 C.Y./hr.	B-12D	2080	.008			.42	1.08	1.50	1.81
0305	3-1/2 C.Y. cap. = 300 C.Y./hr.	"	2400	.007			.36	.94	1.30	1.57
0310	Wheel mounted, 1/2 C.Y. cap. = 40 C.Y./hr.	B-12E	320	.050			2.73	2.04	4.77	6.30
0360	3/4 C.Y. cap. = 60 C.Y./hr.	B-12F	480	.033			1.82	1.82	3.64	4.70
0500	Clamshell, 1/2 C.Y. cap. = 20 C.Y./hr.	B-12G	160	.100			5.45	5.40	10.85	14.05
0550	1 C.Y. cap. = 35 C.Y./hr.	B-12H	280	.057			3.11	4.37	7.48	9.45
0950	Dragline, 1/2 C.Y. cap. = 30 C.Y./hr.	B-12I	240	.067			3.63	4.44	8.07	10.30
1000	3/4 C.Y. cap. = 35 C.Y./hr.	"	280	.057			3.11	3.81	6.92	8.85
1050	1-1/2 C.Y. cap. = 65 C.Y./hr.	B-12P	520	.031			1.68	2.50	4.18	5.25
1200	Front end loader, track mtd., 1-1/2 C.Y. cap. = 70 C.Y./hr.	B-10N	560	.021			1.19	1.05	2.24	2.93
1250	2-1/2 C.Y. cap. = 95 C.Y./hr.	B-10O	760	.016			.88	1.23	2.11	2.65
1300	3 C.Y. cap. = 130 C.Y./hr.	B-10P	1040	.012			.64	1.14	1.78	2.20
1350	5 C.Y. cap. = 160 C.Y./hr.	B-10Q	1280	.009			.52	1.15	1.67	2.03
1500	Wheel mounted, 3/4 C.Y. cap. = 45 C.Y./hr.	B-10R	360	.033			1.85	.90	2.75	3.74
1550	1-1/2 C.Y. cap. = 80 C.Y./hr.	B-10S	640	.019			1.04	.69	1.73	2.31
1600	2-1/4 C.Y. cap. = 100 C.Y./hr.	B-10T	800	.015			.83	.80	1.63	2.12
1650	5 C.Y. cap. = 185 C.Y./hr.	B-10U	1480	.008			.45	.78	1.23	1.53
1800	Hydraulic excavator, truck mtd. 1/2 C.Y. = 30 C.Y./hr.	B-12J	240	.067			3.63	3.57	7.20	9.35
1850	48" bucket, 1 C.Y. = 45 C.Y./hr.	B-12K	360	.044			2.42	4.14	6.56	8.15
3700	Shovel, 1/2 C.Y. cap. = 55 C.Y./hr.	B-12L	440	.036			1.98	2.04	4.02	5.20
3750	3/4 C.Y. cap. = 85 C.Y./hr.	B-12M	680	.024			1.28	1.64	2.92	3.71
3800	1 C.Y. cap. = 120 C.Y./hr.	B-12N	960	.017			.91	1.28	2.19	2.76
3850	1-1/2 C.Y. cap. = 160 C.Y./hr.	B-12O	1280	.013			.68	1.06	1.74	2.17
3900	3 C.Y. cap. = 250 C.Y./hr.	B-12T	2000	.008			.44	1.07	1.51	1.83
4000	For soft soil or sand, deduct								15%	15%