

**TABLE 2-1
TYPICAL IMPROVEMENT UNIT COSTS**

Method	Description	Unit	Range \$/unit	Average \$/unit
Surface Water Improvements				
	Tightlines	LF	10-30	20
	Tightline Anchor	EA	500-1,000	750
	Paved Swales	LF		6
	Machine Formed Concrete Curbs	LF	10-25	15
	Catch Basins	EA	1,200-3,600	2,200
	Sealing Cracks In Pavement	LF	0.50-1.00	1
	Paving (Asphalt Concrete)	SY	85-150	120
Groundwater Improvements				
	Trench Subdrains			
	5 ft deep, complete	LF	15-70	35
	10 ft deep, complete	LF	50-150	100
	15 ft deep, complete	LF	110-380	220
	15 ft deep with Trench Box, complete	LF	140-440	260
	Trench Excavation	CY	15-60	30
	Trench Box Shoring	SF	1-2	2
	Backfill: Common Backfill	CY	5-20	10
	Backfill: Seattle Type 26 Aggregate	CY	20-70	45
	Dam: Concrete	EA	300-1,700	1,150
	Dam: Clay	EA	250-500	350
	Subdrain Cleanout	EA	125-800	360
	Finger Drain: Typically 20 ft long 5 ft deep	EA	550-1,800	1,000
	Springhead Drains	EA		1,000
	Drainage Blanket	CY	20-70	45
Drilled Drains				
	Horizontal Drains			
	3-in-dia Sand	LF	14-20	17
	3-in-dia Sand/Gravel	LF	14-20	18
	Cleaning Horizontal Drains	LF		1
	Directional Drains			
	3-in-dia	LF	25-85	50

**TABLE 2-1
TYPICAL IMPROVEMENT UNIT COSTS (CONT.)**

Method	Description	Unit	Range \$/unit	Average \$/unit
	Vertical Drains			
	Dewatering Well: 24-inch-dia	LF	9-35	22
	Pump and Power	Week		140
Structures (excluding drainage provisions)				
	Pile Walls			
	Cantilever Soldier Pile – Concrete Facing	SF	45-140	105
	Cantilever Soldier Pile – Timber Lagging	SF	30-90	75
	Soldier Pile & Tieback – Concrete Facing	SF	70-190	140
	Soldier Pile & Tieback – Timber Lagging	SF	55-140	110
	Tangent Drilled Shafts	SF	60-100	80
	Sheet Pile – Permanent	SF	16-24	20
	Sheet Pile – Removed/Salvaged	SF	11-13	12
	Gravity Walls			
	Reinforced Concrete Cantilever	SF	30-60	50
	Gabion Baskets	SF	25-55	40
	Rock-filled Concrete	SF	32-37	35
	Metal Cribs	SF	33-55	45
	Concrete Cribbing, excluding backfill	SF	20-35	30
	Timber Cribs, excluding backfill	SF	15-25	20
	Ecology Blocks	SF	15-30	25
	Catchment Walls			
	Soldier Pile and Concrete Lagging	SF		185
	Reinforced Concrete Cantilever	SF	30-60	42
	Gabion Baskets	SF	25-55	40
	Riprap Berms	CY	36-40	38
	Soil Berms	CY		25

**TABLE 2-1
TYPICAL IMPROVEMENT UNIT COSTS (CONT.)**

Method	Description	Unit	Range \$/unit	Average \$/unit
Soil Reinforcement				
	Geotextile Reinforced Soil Slope, including backfill	SF	15-30	25
	Segmental Block (MSE) 10-30 ft high	SF	20-55	35
	Panel Facing Systems (MSE) 10-30 ft high	SF	25-55	40
	Rockery Facing	SF	15-30	25
	Soil Nail Walls: Permanent	SF	20-75	35
	Soil Nail Walls: Temporary	SF	20-25	22
Grading and Fills				
	Clearing and Grubbing	SF	1-3	2
	Excavation	CY	20-50	30
	Hauling (one mile)	CY	5-10	8
	Riprap Backfill	TON	20-40	35
	Crushed Rock Backfill	CY	30-60	45
	Sand and Gravel Backfill (Seattle Type 17)	CY	20-60	35
	Soil Compaction	CY	2-4	3
Lightweight Fills				
	Expanded Polystyrene	CY	50-70	60
	Cellular Concrete	CY	700-200	
Vegetation				
	Hydro-seeding	SY	2-8	4
	Hand-seeding	SY	5-10	8
	Jute Mesh	SY	1.50	
City of Seattle Retaining Wall Construction Costs*				
	Cantilever Soldier Pile (H-pile)	LF	707-3,917	2,137
	Soldier Pile (H-pile) with Tiebacks	LF	2,541-7,341	3,752
City of Seattle Retaining Wall Total Costs*				
	Cantilever Soldier Pile (H-pile)	LF	--	3,500
	Soldier Pile (H-pile) with Tiebacks	LF	--	6,100

**TABLE 2-1
TYPICAL IMPROVEMENT UNIT COSTS (CONT.)**

Legend:

CY = cubic yard
dia = diameter
EA = each
ft = foot
in = inch
LF = linear foot
MSE = Mechanically Stabilized Earth Wall, including excavation and backfill
SF = square foot
SY = square yard

* City experience based on cost of walls built in last 15 years, with amounts adjusted to 1997 dollars. Exposed wall heights typically range from approximately 8 to 15 feet.

NOTE:

The unit costs in this table should be used in conjunction with the information provided in Section 8.0 of this report.