UNIT COSTS FOR STORMWATER TREATMENT PRACTICE MAINTENANCE - DRAFT

Maintenance Item	Unit Price ($)	Unit	Mobilization Cost ($)[1]	Typical Applicability	Maintenance Interval (yrs)[2]
Landscaping/ Vegetation					
sod	3.25	sy	800	all surface practices	1-2
seed and top soil bare areas (3 inch depth)	4.37	sy	800	all surface practices	1-2
plant 1.5 inch tree	84	ea	0	dry pond, infiltration basin, wet ponds, bioretention	R[3]
plant shrub	15	ea	0	dry pond, infiltration basin, wet ponds, bioretention	R
mowing	300	ac	0	Ponds, wetlands and infiltration basins. Some surface filters	0.5-1
clear outfall and channel of trees	5.47	sy	800	all practices that outfall to the surface	0.5-1
clear embankment of small trees by hand	3.25	sy	800	Ponds, wetlands, infiltration basin, and surface filters	0.5-1
clear embankment trees with Ambusher or Brushhog	0.9	sy	800	Ponds, wetlands, infiltration basin, and surface filters	0.5-1
remove live tree (<12 inches)	130	ea	800	all surface practices	R (1-10)
remove live trees larger than 12 inches, <24 inches	250	ea	800	all surface practices	R (10-25)
remove downed timber (up to 40 cy of material)	2170	event	0	all surface practices	0.25-1
remove dumped vegetative material (up to 40 cy)	2590	event	0	all surface practices	0.25-1
install wetland plant	6	ea	800	wet ponds and wetlands	R (3-5)
remove invasive wetland vegetation (machine remove phragmites) (up to 40 cy)	3005	event	0	wet ponds and wetlands	0.5-1
spray for algae (0.25 ac pond)	600	ea	0	wet ponds and wetlands	0.25-0.5
spray for cattails (0.25 ac pond)	325	ea	0	wet ponds and wetlands	0.25-0.5

1) Cost at four levels: $0 for no mobilization; $800 for minimal mobilization; $1,500 for small project mobilization; >$2,500 for large project mobilization

2) Bottom number in range represents ideal maintenance interval. Top number represents maximum interval between maintenance activities.

3) R indicates repair items. The frequencies sometimes reported in parentheses represent an estimate of typical repair frequency.

UNIT COSTS FOR STORMWATER TREATMENT PRACTICE MAINTENANCE - DRAFT

Maintenance Item	Unit Price ($)	Unit	Mobilization Cost ($)[1]	Typical Applicability	Maintenance Interval (yrs)[2]
Animals/ Nuisances					
pond/ wetland aeration	560	ea	0	wet ponds and wetlands	1
treat pond for mosquitoes	1000	acre	0	wet ponds and wetlands	0.25-0.5
kill trap beavers (one week, one location, family of 6)	1010	event	0	wet ponds and wetlands	0.5-1
fill animal burrows	23	sy	800	ponds, wetlands and infiltration basins	R (5-10)
remove graffiti	310	day	800	Ponds, wetlands, and infiltration basins	1-3
Sediment/ Debris Removal					
debris removal (preventative)	350	event	0	all surface practices	0.25-1
clear outfall channel of sediment	130	cy	0	all practices that outfall to a channel	5-15
clogged low flow	750	event	800	all practices except bioretention, and infiltration practices	0.25-1
dredge wet ponds (jobs larger than 1000 cy) haul offsite	60	cy	>2500	wet ponds and wetlands	5-15
dry pond sediment removal	7600	event	0	dry pond or infiltration basin	15-25
dewater pond	900	event	0	wet ponds and wetlands	15-25
muck out undergrounds	390	cy	0	underground proprietary filter systems	0.5-1
dewater and remove sludge from underground facilities	1	gal	0	all underground facilities	0.25-1
typical sediment dump fee (not including trucking)	66	ton	0	all practices	NA
truck day for landfill to transport underground dredge materials (minimum, assume 2 to 4 trips in one day)	800	trip-day	0	all underground facilities	NA

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UNIT COSTS FOR STORMWATER TREATMENT PRACTICE MAINTENANCE - DRAFT

Maintenance Item	Unit Price ($)	Unit	Mobilization Cost ($)[1]	Typical Applicability	Maintenance Interval (yrs)[2]
Erosion/ Channel Maintenance					
establish new riprap pilot channels (8' wide, 1' deep)	38	lf	1500	dry pond or infiltration basin	5-15
remove and replace rip rap or pea gravel	158	sy	1500	all practices designed with riprap	15-25
shoreline protection	50	lf	1500	wet ponds and wetlands	R
new riprap (general)	80	cy	1500	all practices designed with riprap	R (5-10)
erosion repair	1,100	event	0	all surface practices	R (2-5)
Restore/Replace Filtering Media Permeability					
fill low spots in bottom of infiltration or dry pond	25	sy	1500	dry pond or infiltration basin	R (2-5)
replace sand filter media surface	2200	event	0	all sand filters	3-5
replace sand filter media (surface)	300	cy	0	surface sand filters	15-25
replace sand media (underground)	390	cy	0	underground sand filters	15-25

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3) R indicates repair items. The frequencies sometimes reported in parentheses represent an estimate of typical repair frequency.

UNIT COSTS FOR STORMWATER TREATMENT PRACTICE MAINTENANCE - DRAFT

Maintenance Item	Unit Price ($)	Unit	Mobilization Cost ($)[1]	Typical Applicability	Maintenance Interval (yrs)[2]
Special Structures: Underdrains, Trash Racks, Observation Wells					
jet observation well	10	lf	800	infiltration and filtering practices	R (3-5)
underdrain jetting not including disposal (25' an hour)	200	hr	800	filtering practices	R (3-5)
replace broken observation well in asphalt parking lot	1200	ea	0	infiltration and filtering practices	R
replace broken observation wells (not located in pavement or underground)	300	ea	0	infiltration and filtering practices	R
replace observation well cap (each additional cap is $20)	50	ea	800	infiltration and filtering practices	R
install underground half shell trash rack (4' to 6') (2 pieces is extra $120)	1250	ea	0	underground practices	R
repair high stage trash racks (weld new rebar, etc.)	425	event	0	ponds, wetlands, infiltration basins	R (10-20)
new low flow trash rack (surface facilities)	1,700	ea	800	all surface practices except bioretention, infiltration practices, and open channel practices	R (5-10)
install high stage trash rack 4'x2'	1,120	ea	1500	ponds, wetlands, infiltration basins	R (20+)
replace CMP anti-vortex device <48"	1,500	ea	1500	ponds, wetlands, infiltration basins	R (10-15)
replace CMP anti-vortex device >48"	4,600	ea	1500	ponds, wetlands, infiltration basins	R (10-15)

1) Cost at four levels: $0 for no mobilization; $800 for minimal mobilization; $1,500 for small project mobilization; >$2,500 for large project mobilization

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3) R indicates repair items. The frequencies sometimes reported in parentheses represent an estimate of typical repair frequency.

UNIT COSTS FOR STORMWATER TREATMENT PRACTICE MAINTENANCE - DRAFT

Maintenance Item	Unit Price ($)	Unit	Mobilization Cost ($)[1]	Typical Applicability	Maintenance Interval (yrs)[2]
Structural - Riser and Barrel					
re-tar CMP barrel	11	sf	800	ponds, wetlands and infiltration basins	15-20
install new elbow underground	1200	ea	800	oil/grit separators and some underground filters	R
repair CMP barrel joint leak	530	ea	800	ponds, wetlands, infiltration basins	R (3-5)
repair leaking concrete principal spillway joint	1,150	ea	0	ponds, wetlands, infiltration basins	R (5-10)
replace riser (CMP)	12,000	ea	>2500	ponds, wetlands, infiltration basins	R (25)
replace riser (concrete)	20,000	ea	>2500	ponds, wetlands, infiltration basins	R (50)
replace barrel	1000	lf	>2500	ponds, wetlands and infiltration basins	R (25-50)

1) Cost at four levels: $0 for no mobilization; $800 for minimal mobilization; $1,500 for small project mobilization; >$2,500 for large project mobilization

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3) R indicates repair items. The frequencies sometimes reported in parentheses represent an estimate of typical repair frequency.

UNIT COSTS FOR STORMWATER TREATMENT PRACTICE MAINTENANCE - DRAFT

Maintenance Item	Unit Price ($)	Unit	Mobilization Cost ($)[1]	Typical Applicability	Maintenance Interval (yrs)[2]
Structural - Pipes and Valves					
remove old valve	300	ea	800	all practices designed with valves	R (10)
replace existing underground elbow	1,600	ea	800	oil/grit separators and some underground filters	R (10)
slip line failing pipes	90	lf	>2500	all practices that receive flow from or outfall to a pipe	R
install new valve (< 24 inches)	3,050	ea	1500	ponds, wetlands, infiltration basins	R
install new valve (<11 inches)	1,320	ea	1500	ponds, wetlands, infiltration basins	R
install new valve (<36 inches)	4,600	ea	1500	ponds, wetlands, infiltration basins	R
install new valve (<7 inches)	460	ea	800	ponds, wetlands, infiltration basins	R
replace end sections <36"	600	ea	1500	ponds, wetlands, infiltration basins, surface filters	R
remote control TV video pipes	1	lf	800	all practices that receive flow through pipes	5-25
lubricate valves (same price for first four)	300	ea	0	Ponds, wetlands and infiltration basins	1-2

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3) R indicates repair items. The frequencies sometimes reported in parentheses represent an estimate of typical repair frequency.

UNIT COSTS FOR STORMWATER TREATMENT PRACTICE MAINTENANCE - DRAFT

Maintenance Item	Unit Price ($)	Unit	Mobilization Cost ($)[1]	Typical Applicability	Maintenance Interval (yrs)[2]
Structural - Other Concrete					
concrete work under ground	600	cy	1500	all underground practices	R
concrete work above ground	450	cy	1500	all surface practices except infiltration trenches and open channel practices	R
grout cracks	50	lf	0	all practices, except infiltration trench and open channels	R
parge minor spalling	25	sf	0	all practices, except infiltration trench and open channels	R
repair gutter spalling	225	event	800	all underground practices	R
parge major spalling	25	sf	0	all practices except open channels and infiltration trenches	R
injection grout concrete leaks	180	lf	800	all practices, except infiltration trench and open channels	R
Structural - Other Metal					
remove bolts, lift lugs, form nails	80	ea	800	all practices, except infiltration trench and open channels	R

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2) Bottom number in range represents ideal maintenance interval. Top number represents maximum interval between maintenance activities.

3) R indicates relatively infrequent repair items

UNIT COSTS FOR STORMWATER TREATMENT PRACTICE MAINTENANCE - DRAFT

Maintenance Item	Unit Price ($)	Unit	Mobilization Cost ($)[1]	Typical Applicability	Maintenance Interval (yrs)[2]
Access/ Safety					
fence repair	1,000	event	800	all practices with fences	R
install warning signs	210	ea	0	wet ponds and wetlands	R
manhole riser repair (in asphalt)	1900	ea	0	all underground practices	R (10)
add manhole steps	100	ea	800	all practices, except infiltration trench, bioretention, and open channels	R
new manhole cover	250	ea	0	all practices, except infiltration trench, bioretention, and open channels	R
create 12' access road (permanent, cut/fill balances)	40	lf	1500	all surface practices	R
create 12' access road (permanent, cut/fill non-balance)	65	lf	1500	all surface practices	R
create 12' access road (temp)	12	lf	1500	all surface practices	R
install chainlink fence	26	lf	800	all surface practices except infiltration trenches and open channel practices	R
install ladder (8 foot)	27.5	ft	800	all underground practices	R
install three rail fence	15	lf	800	all surface practices except infiltration trenches and open channel practices	R
repair asphalt path	26	cy	800	all above ground practices	R
supply lock and chain for first one (additional at $30 apiece)	125	ea	0	Ponds, wetlands, infiltration basin, and surface filters	4-8

1) Cost at four levels: $0 for no mobilization; $800 for minimal mobilization; $1,500 for small project mobilization; >$2,500 for large project mobilization

2) Bottom number in range represents ideal maintenance interval. Top number represents maximum interval between maintenance activities.

3) R indicates repair items. The frequencies sometimes reported in parentheses represent an estimate of typical repair frequency.

UNIT COSTS FOR STORMWATER TREATMENT PRACTICE MAINTENANCE - DRAFT

Maintenance Item	Unit Price ($)	Unit	Mobilization Cost ($)[1]	Typical Applicability	Maintenance Interval (yrs)[2]
Dam/ Embankment					
unclog internal drains for embankments	10	lf	1500	dry pond or infiltration basin	R (10)
low spots in dam or berm	170	cy	1500	ponds, wetlands, infiltration basins and some filters	R (5)

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3) R indicates relatively infrequent repair items