

APPENDIX | A



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ballona creek demonstration project conceptual cost estimate

BALLONA CREEK DEMONSTRATION PROJECT CONCEPTUAL COST ESTIMATE



CULVER HIGH SCHOOL, MIDDLE SCHOOL, AND FARRAGUT ELEMENTARY SCHOOL RETROFIT

Description	Dimension	Sizing	Unit	Unit Cost	Cost	Comments
Earthwork/Grading Swale	length	1,800	ft			
	width	10	ft			
	ave. depth	1.5	ft			
	volume	1,000	CY	\$13	\$13,000	excavation \$5/cy, hauling \$8/cy
Sycamores along Swale	number	100	trees	\$25	\$2,500	Spaced every 15 to 20 feet
Grasses along Swale	number	3,000	plugs	\$4	\$12,000	
Shrubs along Swale	number	500	shrubs	\$15	\$7,500	
Handseeding of Swale	length	1,800	ft			
	width	10	ft			
	area	0.4	acres	\$2,000	\$826	
Irrigation System	number	1,800	lineal feet	\$5	\$9,000	
Sedimentation and Trash Pretreatment	number	1	unit	\$30,000	\$30,000	
Excavation of Southern Ballfield	area	7.02	acres			
	area	305,791	ft ²			
	ave. depth	3	ft			
	volume	33,977	CY	\$10	\$339,768	excavation \$2/cy, hauling \$8/cy
Inlet structure (flow diversions from roofs etc)	number	1	lumpsum	\$25,000	\$25,000	
Outlet structure (weir)	number	1	lumpsum	\$25,000	\$25,000	
Underground storage/infiltration gallery	area	7	acres			(790' by 410')
Infiltrators	area	304,920	ft ²	\$12	\$3,659,040	Includes excavation, infiltrators, and backfill
Re-grading	area	33,880	yd ²	\$1	\$33,880	
Grass sods for football field	area	4	acres	\$18,300	\$73,200	
Hydroseeding for practice fields	area	3	acres	\$3,000	\$9,000	
Replacement of Irrigation system	area	7	acres			
	area	304,920	ft ²	\$0.2	\$60,984	
Total (rounded to nearest \$1k)					\$4,301,000	
Contingency				50%	\$2,150,500	
Total with contingency					\$6,451,500	
Engineering, inspection, plan check				15%	\$967,725	
Construction management				15%	\$967,725	
Capital Cost Estimate					\$8,386,950	

Assuming that all runoff from the ballfield goes to the creek/swale.

Assumes that only site runoff is collected

MAR VISTA RECREATION CENTER RETROFIT

Description	Dimension	Sizing	Unit	Unit Cost	Cost	Comments
Inlet Structure from Stormdrain to Eastern Ballfield	number	1	unit	\$40,000	\$40,000	Costly due to heavy traffic on Sawtelle Blvd.
Inlet Structure from Stormdrain to Western Ballfield	number	1	unit	\$10,000	\$40,000	
Sedimentation and Trash Pretreatment	number	2	units	\$30,000	\$60,000	one for each ballfield
Excavation of Eastern Ballfield	area	5.7	acres			
	area	248,292	ft ²			
	ave. depth	3	ft			Can be adjusted to match tributary area
	volume	27,588	CY	\$10	\$275,880	excavation \$2/cy, hauling \$8/cy
Excavation of Western Ballfield	area	3.1	acres			
	area	135,036	ft ²			
	ave. depth	3	ft			Can be adjusted to match tributary area
	volume	15,004	CY	\$10	\$150,040	excavation \$2/cy, hauling \$8/cy
Underground storage/infiltration galleries	area	8.8	acres			Includes excavation, backfill, etc.
	area	383,328	ft ²	\$12	\$4,599,936	
Outlet structure (manhole into stormdrain on Sawtelle)	number	1	unit	\$40,000	\$40,000	
Outlet structure (manhole into stormdrain near Western Ballfield)	number	1	unit	\$40,000	\$40,000	more expensive than inlet due to greater distance
Replacement of removed trees	number	25	trees	\$175	\$4,375	Tree cost increased to \$250/each (larger/labor/transport/protection)
Total (rounded to nearest \$1k)					\$5,251,000	
Contingency				50%	\$2,625,500	
Total with contingency					\$7,876,500	
Engineering, inspection, plan check				15%	\$1,181,475	
Construction management				15%	\$1,181,475	
Capital Cost Estimate					\$10,239,450	



BALDWIN HILLS TO BALLONA CREEK TRAIL

Description	Dimension	Sizing	Unit	Unit Cost	Cost	Comments
Construction of Bike Path	length	7,500	ft			Slightly less than 7,791 feet due to intersections
	width	7	ft			
	area	52,500	ft ²	\$2	\$105,000	porous pavement, grading etc.
Bike Path Traffic Control	number	1	lumpsum	\$50,000	\$50,000	Signals, crossings, etc.
Retention Facilities (earthwork)	length	7,500	ft			50% of width assumed
	width	60	ft			
	depth	3	ft			
	volume	50,000	CY	\$10	\$500,000	
Retention Facilities (inlet structures)	number	10	units	\$25,000	\$250,000	1 per segment, 3 extras for long segments
Retention Facilities (pretreatment)	number	10	units	\$30,000	\$300,000	one per inlet
Native Planting along retention basins	area	16	acres			About 90% of total area - bike path
	number	16,000	shrubs	\$15	\$240,000	1,000 shrubs per acre
Hydroseeding of Swale	length	7,500	ft			
	width	60	ft			
	area	10.3	acres	\$3,000	\$30,992	
Irrigation System	area	10.3				
	area	450,000	ft ²	\$0.2	\$90,000	
Outlet structures (pump)	number	6	segments	\$25,000	\$150,000	One per segment
Total (rounded to nearest \$1k)					\$1,716,000	
Contingency				50%	\$858,000	
Total with contingency					\$2,574,000	
Engineering, inspection, plan check				15%	\$386,100	
Construction management				15%	\$386,100	
Capital Cost Estimate					\$3,346,200	

LADERA COUNTY PARK RETROFIT

Description	Dimension	Sizing	Unit	Unit Cost	Cost	Comments
Retention Basins (inlet structures)	number	1	units	\$40,000	\$40,000	
Retention Facilities (pretreatment)	number	1	units	\$30,000	\$30,000	One per inlet
Retention Basins (earthwork)	area	3.31	acres			\$0 excavation \$2/cy, hauling \$8/cy
	area	144,184	ft ²			
	depth		ft			
	volume	0	CY	\$10		
Underground storage/infiltration gallery	area	2	acres			
	area	87,120	ft ²	\$12	\$1,045,440	Includes excavation, backfill, etc.
Re-grading	area	9,680	yd ²	\$1	\$9,680	
Hydroseeding	area	2	acres	\$3,000	\$6,000	
Irrigation system	area	2	acres			
	area	87,120	ft ²	\$0.2	\$17,424	
Daylighting the Creek	number	1	lumpsum	\$20,000	\$20,000	
Native Planting along restored stream	area	0.5	acres			
	number	500	shrubs	\$15	\$7,500	1,000 shrubs per acre
Hand/Hydroseeding along restored stream	area	0.5	acres	\$2,500	\$1,250	
Irrigation System along restored stream	area	0.5	acres			
	area	21,780	ft ²	\$0.2	\$5,000	
Dam	length	200	ft			Assumes a 10 ft width on top and a 3:1 slope
	ave. width	64	ft			
	height	18	ft			
	volume	8,533	CY	\$25	\$213,333	
Raise basketball courts	number	1	lumpsum	\$50,000	\$50,000	
Total (rounded to nearest \$1k)					\$1,446,000	
Capital Cost Estimate					\$368,000	
Contingency				50%	\$184,000	
Total with contingency					\$552,000	
Engineering, inspection, plan check				15%	\$82,800	
Construction management				15%	\$82,800	
Capital Cost Estimate					\$717,600	

BALLONA CREEK DEMONSTRATION PROJECT CONCEPTUAL COST ESTIMATE



LAFAYETTE PARK RETROFIT						
Description	Dimension	Sizing	Unit	Unit Cost	Cost	Comments
Inlet structure (from stormdrain)	number	1	unit	\$10,000	\$10,000	
Pretreatment and trash removal	number	1	unit	\$30,000	\$30,000	One per inlet
Excavation of Ballfields (earthwork)	area	5	acres			
	area	196,020	ft ²			
	ave. depth	5	ft			
	volume	36,300	CY	\$10	\$363,000	excavation \$2/cy, hauling \$8/cy
Irrigation system for depressed area	area	196,020	ft ²	\$0.2	\$39,204	
Re-grading	area	21,780	yd ²	\$1	\$21,780	
Hydroseeding	area	5	acres	\$3,000	\$13,500	
Elevation of Soccer field	area	0.5	acres		\$0	
	height	2.5				
		58,806	CY	\$10	\$588,060	
<u>Underground storage/infiltration gallery</u>	area	3.6	acres			
	area	158,123	ft ²	\$12	\$1,897,474	Includes excavation, backfill, etc.
Native Planting along park boundaries	length	2,200	ft			
	width	5	ft			
	area	0.25	acres			
	number	253	shrubs	\$15	\$3,788	1,000 shrubs per acre
Irrigation System for native planting	area	0.25	acres			
	area	11,000	ft ²	\$0.2	\$2,200	
New Sycamores	number	110	trees	\$45	\$4,950	Spaced every 20 ft (small trees)
Hand/Hydroseeding of native planting area	area	0.25	acres	\$2,500	\$631	
Outlet structures (back into stormdrain)	number	1	units	\$10,000	\$10,000	
Demolition of curb and cutter	length	850	ft	\$10	\$8,500	
Demolition of 1 lane (asphalt and base)	length	850	ft			
	width	12	ft			
	depth	1.5	ft			
	volume	567	CY	\$20	\$11,333	
Replace curb and cutter	length	850	ft	\$15	\$12,750	
Replace asphalt	length	850	ft			
	width	12	ft			
	area	10,200	ft ²	\$5	\$51,000	
New Sycamores	number	20	trees	\$175	\$3,500	Tree cost increased to \$250/each (larger/labor/transport/protection)
Total (rounded to nearest \$1k)					\$3,072,000	
Contingency				50%	\$1,536,000	
Total with contingency					\$4,608,000	
Engineering, inspection, plan check				15%	\$691,200	
Construction management				15%	\$691,200	
Capital Cost Estimate					\$5,990,400	

RESIDENTIAL STREET SEGMENT RETROFIT						
Description	Dimension	Sizing	Unit	Unit Cost	Cost	Comments
Strip asphalt + base	length	400	ft			
	width	28	ft			14 feet on each side of the street
	area	11,200	ft ²	\$1	\$11,200	
Replacement of curb	length	800	ft	\$15	\$12,000	on both sides of the street
Porous pavement for parking area	length	400	ft			50% on each side of the street
	width	8	ft			
	area	3,200	ft ²	\$5	\$16,000	
Grading of swale + grass	length	400	ft	\$2	\$800	50% on each side of the street
Shrubs along Swale	area	0.45	acres			
	number	700	shrubs	\$15	\$10,500	about 1,500 shrubs/acres
Sycamore Trees	number	20	trees	\$250	\$5,000	Spaced every 20 ft on swales
Total (rounded to nearest \$1k)					\$56,000	
Contingency				50%	\$28,000	
Total with contingency					\$84,000	
Engineering, inspection, plan check				15%	\$12,600	
Construction management				15%	\$12,600	
Capital Cost Estimate					\$109,200	

Note: Assumed that irrigation system is not required.



OXFORD FLOOD CONTROL BASIN RETROFIT						
Description	Dimension	Sizing	Unit	Unit Cost	Cost	Comments
Pre-treatment and trash removal	number	2	unit	\$100,000	\$200,000	More expensive due to larger size
Sheetpile Dam between sedimentation basin and wetland	length	250	ft			
	depth	30	ft			
	area	7,500	ft ²	\$20	\$150,000	Wooden sheet piles (\$20/ft depth/lineal ft)
Sheetpile cap-treatment	length	250	ft	\$60	\$15,000	
Aeration Facility in Wetland	number	1	unit	\$100,000	\$100,000	May not be necessary
Shrubs along Swale	area	1.33	acres			Banks are assumed to cover about 15% of the total area.
	number	1,400	shrubs	\$15	\$21,000	about 1,000 shrubs/acres
Sycamore Trees	number	250	trees	\$25	\$6,250	
Hydroseeding of Swale	area	1.3	acres	\$3,000	\$3,900	
Pedestrian Improvements	length	2,500	ft	\$10	\$25,000	
Disinfection at outlet structure	number	1	units of 2 cfs	\$260,000	\$260,000	
Odor mitigation measures						May not be needed when aeration system is in place
Total (rounded to nearest \$1k)					\$782,000	
Contingency				50%	\$391,000	
Total with contingency					\$1,173,000	
Engineering, inspection, plan check				15%	\$175,950	
Construction management				15%	\$175,950	
Capital Cost Estimate					\$1,524,900	

Note: potable irrigation system is cheaper (\$12,000)

UNIVERSITY HIGH RETROFIT / KRURVUNGNA SPRINGS RESTORATION						
Description	Dimension	Sizing	Unit	Unit Cost	Cost	Comments
Inlet structure (from stormdrain) to infiltration under parking lot	number	3	units	\$20,000	\$60,000	
Pre-treatment and trash removal	number	3	units	\$30,000	\$90,000	One per inlet
Excavation of Ballfields (earthwork)	area	2.06	acres			
	area	89,734	ft ²			
	depth	5	ft			
	volume	16,617	CY	\$10	\$166,173	
Underground storage/infiltration gallery under parking lot	area	3.8	acres			Area = 2.0+0.32+0.91+0.54 acres
	area	163,786	ft ²	\$12	\$1,965,427	Includes excavation, backfill, etc.
Strip, replace, and paint parking lot	area	163,786	ft ²	\$5	\$818,928	
Outlet structures (back into stormdrain)	number	1	lumpsum	\$50,000	\$50,000	Multiple sites, piping etc.
Native Planting in marsh	area	0.30	acres			
	number	300	shrubs	\$15	\$4,500	1,000 shrubs per acre
Sycamores in marsh	number	33	trees	\$175	\$5,717	Tree cost increased to \$250/each
Hydroseeding of vegetated area	area	2.36	acres	\$3,000	\$7,080	2.06 acres for depression + 0.3 acres for marsh habitat
Irrigation System	area	2.36	acres			
	area	102,802	ft ²	\$0.2	\$20,560	
Restoration of creek from spring to marsh	length	668				
	width	10				
	area	6,680	ft ²			\$10,000 lumpsum cost estimate
Total (rounded to nearest \$1k)					\$3,199,000	
Contingency				50%	\$1,599,500	
Total with contingency					\$4,798,500	
Engineering, inspection, plan check				15%	\$719,775	
Construction management				15%	\$719,775	
Capital Cost Estimate					\$6,238,050	

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