



Project: SMCSO Headworks, Primary and Secondary Treatment Pre-Design

Date: October 7, 2011

Aspect: Overall Cost Estimate Summary - Recommended Project

Project Number: 0055-003

Estimate Type:

Prepared by: MWT
 Checked by: DG
 Check Date: October 10, 2011

Divisions	Site Work	Yard/Process Piping	Turntable	Administration Building and Parking	Headworks Structure	Screening	Grit Removal	Equalization	Primary Clarification	FFR Upgrades	Tertiary Treatment	WWTP Gas Electrical and Instrumentation	Totals
1 - General	\$ 42,000	\$ 22,000	\$ 27,000	\$ 49,000	\$ 45,000	\$ 35,000	\$ 49,000	\$ 85,000	\$ 110,000	\$ 61,000	\$ 102,000	\$ 39,000	\$ 620,000
2 - Site Work	\$ 277,000	\$ 244,000	\$ 25,000	\$ 70,000	\$ 20,000	\$ -	\$ -	\$ 80,000	\$ 267,000	\$ 50,000	\$ 75,000	\$ -	\$ 1,110,000
3 - Concrete	\$ 329,200	\$ 30,000	\$ 170,000	\$ 60,000	\$ 313,000	\$ 72,000	\$ 72,000	\$ 896,000	\$ 435,000	\$ -	\$ 326,000	\$ -	\$ 2,700,000
4 - Masonry	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5 - Metals	\$ -	\$ -	\$ -	\$ 375,000	\$ 185,000	\$ 15,000	\$ 15,000	\$ 33,000	\$ 222,000	\$ -	\$ 37,000	\$ -	\$ 880,000
6 - Wood and Plastics	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
8 - Doors & Windows	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9 - Finishes	\$ -	\$ -	\$ -	\$ 25,000	\$ 50,000	\$ 10,000	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 95,000
10 - Specialties	\$ -	\$ -	\$ -	\$ 127,500	\$ 51,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 179,000
11 - Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 355,000	\$ 546,000	\$ 55,000	\$ 394,000	\$ 172,500	\$ 823,000	\$ -	\$ 2,350,000
13 - Special Construction	\$ -	\$ -	\$ 200,000	\$ -	\$ -	\$ -	\$ -	\$ 40,000	\$ 10,000	\$ 618,100	\$ -	\$ -	\$ 870,000
15 - Mechanical	\$ -	\$ 49,000	\$ -	\$ 20,000	\$ 30,000	\$ 55,000	\$ 65,000	\$ 118,449	\$ 253,000	\$ 40,000	\$ 206,000	\$ -	\$ 840,000
16 - Electrical/Instrumentation	\$ -	\$ -	\$ -	\$ 30,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 565,000	\$ 600,000
Raw Const. Cost	\$ 648,200	\$ 345,000	\$ 422,000	\$ 756,500	\$ 694,000	\$ 542,000	\$ 757,000	\$ 1,307,449	\$ 1,691,000	\$ 941,600	\$ 1,569,000	\$ 604,000	\$ 9,630,000
Project Contingency (30%)	\$ 195,000	\$ 104,000	\$ 127,000	\$ 227,000	\$ 209,000	\$ 163,000	\$ 228,000	\$ 393,000	\$ 508,000	\$ 283,000	\$ 471,000	\$ 182,000	\$ 3,090,000
Sales Tax on Materials (10%)	\$ 32,410	\$ 17,250	\$ 21,100	\$ 37,825	\$ 34,700	\$ 27,100	\$ 37,850	\$ 65,372	\$ 84,550	\$ 47,080	\$ 78,450	\$ 30,200	\$ 510,000
Contractor Overhead & Profit (10%)	\$ 64,820	\$ 34,500	\$ 42,200	\$ 75,650	\$ 69,400	\$ 54,200	\$ 75,700	\$ 130,745	\$ 169,100	\$ 94,160	\$ 156,900	\$ 60,400	\$ 1,030,000
Construction Cost	\$ 940,000	\$ 500,000	\$ 610,000	\$ 1,100,000	\$ 1,010,000	\$ 790,000	\$ 1,100,000	\$ 1,900,000	\$ 2,450,000	\$ 1,370,000	\$ 2,280,000	\$ 880,000	\$ 14,930,000
July 2013 Const Cost ENR Adj.	\$ 100,000	\$ 50,000	\$ 60,000	\$ 120,000	\$ 110,000	\$ 80,000	\$ 120,000	\$ 200,000	\$ 260,000	\$ 140,000	\$ 240,000	\$ 90,000	\$ 1,470,000
July 2013 Construction Cost	\$ 1,040,000	\$ 550,000	\$ 670,000	\$ 1,220,000	\$ 1,120,000	\$ 870,000	\$ 1,220,000	\$ 2,100,000	\$ 2,710,000	\$ 1,510,000	\$ 2,520,000	\$ 970,000	\$ 15,460,000
% of Total Bid Cost	7%	4%	4%	8%	7%	6%	8%	14%	18%	10%	16%	6%	

TOTAL WWTP BID AMOUNT	\$ 15,460,000
WWTP CHANGE ORDER ALLOWANCE (5%)	\$ 770,000
TOTAL CONSTRUCTION AMOUNT	\$ 16,230,000
DESIGN ALLOWANCE (10%)	\$ 1,546,000
LEGAL / ADMIN / CEQA (5%)	\$ 773,000
CONSTRUCTION MANAGEMENT ALLOWANCE (10%)	\$ 1,546,000
ENGINEERING SERVICES DURING CONSTRUCTION ALLOWANCE (6%)	\$ 928,000
TOTAL CAPITAL COSTS	\$ 21,020,000

Apparent errors in total due to rounding

Cost estimates assume a July 2011 ENR SF CCI = 10,179 plus 5.2 percent to reflect adjustment to mid-point of construction (July 2013).



Project: SMCSD Headworks, Primary and Secondary Treatment Pre-Design
Aspect: Relocated Road Sitework

Date: October 7, 2011
 Project Number: 0055-003
 Prepared by: MWT
 Checked by: DG
 Check Date: October 10, 2011

Estimate Type: Predesign

Spec. Division	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
2 - Sitework							\$ 276,900	
	Clearing and Grubbing			1	EA	\$ 15,000	\$ 15,000	
	Tree Mitigation			1	EA	\$ 50,000	\$ 50,000	
	Misc Site Work Allowance			1	LS	\$ 20,000	\$ 20,000	
	Excavation / Subgrade Preparation			1	LS	\$ 75,000	\$ 75,000	
	Hillside Excavation			926	CY	\$ 42	\$ 39,100	3x unit cost due to site conditions
	Retaining Wall Tiebacks			20	ea	\$2,000	\$ 40,000	
	Paving			2500	sf	\$5	\$ 13,100	
	Aggregate Base			139	CY	\$34	\$ 4,700	
	Misc Site Work Allowance			1	LS	\$ 20,000	\$ 20,000	
3 - Concrete							\$ 329,200	
	Hillside Retaining Walls			75	CY	\$ 1,500	\$ 112,500	
	Bayside Retaining Walls			75	CY	\$ 1,500	\$ 112,500	
	New elevated causeway at treatment plant level			69	CY	\$ 1,500	\$ 104,200	
5 - Metals							\$ -	
9 - Finishes							\$ -	
10 - Specialties							\$ -	
11 - Equipment							\$ -	
13 - Special							\$ -	
15 - Mechanical							\$ -	
16 - Electrical							\$ -	

FACILITY RAW CONSTRUCTION COST \$ 606,100



Project: SMCS D Headworks, Primary and Secondary
Treatment Pre-Design

Date: October 7, 2011
 Project Number: 0055-003

Aspect: Yard Piping

Prepared by: MWT
 Checked by: DG
 Check Date: October 10, 2011

Estimate Type: Predesign

Spec. Division	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes	
2 - Sitework							\$ 244,133		
	<u>Modify Existing Influent MSPS Pipe</u>								
	Trench Excavation			50	CY	\$ 20	\$ 1,000	Assume 3 feet wide, 4.5 feet deep	
	Pipe bedding			17	CY	\$ 53	\$ 891	Assume 1.5 feet deep	
	Trench backfill			17	CY	\$ 20	\$ 333	Assume 1.5 feet deep	
	Trench Sub base			17	CY	\$ 53	\$ 891	Assume 1.5 feet deep	
	28" HDPE Pipe	28	in	100	LF	\$ 112	\$ 11,200		
	Manholes			2	EA	\$ 4,901	\$ 9,801		
	Connection Structure			1	LS	\$ 30,000	\$ 30,000		
	Fitting - Influent Pipe	28	in	6	EA	\$ 3,600	\$ 21,600		
	<u>New Primary Influent Line</u>								
	Trench Excavation			50	CY	\$ 5	\$ 273	Assume 3 feet wide, 4.5 feet deep	
	Pipe bedding			17	CY	\$ 53	\$ 891	Assume 1.5 feet deep	
	Trench backfill			17	CY	\$ 5	\$ 83	Assume 1.5 feet deep	
	Trench Sub base			17	CY	\$ 53	\$ 891	Assume 1.5 feet deep	
	20" Pipe	24	in	100	LF	\$ 96	\$ 9,600		
	Fitting - PE Pipe	24	in	6	EA	\$ 3,600	\$ 21,600		
	<u>New Primary Effluent Line</u>								
	Trench Excavation			100	CY	\$ 5	\$ 547	Assume 3 feet wide, 4.5 feet deep	
	Pipe bedding			33	CY	\$ 53	\$ 1,782	Assume 1.5 feet deep	
	Trench backfill			33	CY	\$ 5	\$ 167	Assume 1.5 feet deep	
	Trench Sub base			33	CY	\$ 53	\$ 1,782	Assume 1.5 feet deep	
	20" Pipe	24	in	200	LF	\$ 96	\$ 19,200		
	Fitting - PE Pipe	24	in	6	EA	\$ 3,600	\$ 21,600		
	<u>Extend FT Baker Sewer</u>								
	Trench Excavation			100	CY	\$ 5	\$ 547	Assume 3 feet wide, 4.5 feet deep	
	Pipe bedding			33	CY	\$ 53	\$ 1,782	Assume 1.5 feet deep	
	Trench backfill			33	CY	\$ 5	\$ 167	Assume 1.5 feet deep	
	Trench Sub base			33	CY	\$ 53	\$ 1,782	Assume 1.5 feet deep	
	8" Pipe	8	in	200	LF	\$ 32	\$ 6,400		
	Fitting - Ft Baker Sewer	8	in	6	EA	\$ 720	\$ 4,320		
	Allowance for relocating existing utilities for relocated Road							\$ 75,000	
3 - Concrete							\$ 30,000		
	Misc. Building Modifications			1	LS	\$ 10,000	\$ 10,000	New PE connection	
	Yard Piping Junction Boxes/Manholes			2	EA	\$ 10,000	\$ 20,000		
5 - Metals							\$ -		
9 - Finishes							\$ -		
10 - Specialties							\$ -		
11 - Equipment							\$ -		
13 - Special							\$ -		
15 - Mechanical							\$ 48,800		
	20" PE	20	in	100	LF	\$ 80	\$ 8,000	Exposed piping	
	Fitting - PE Pipe	20	in	4	EA	\$ 3,600	\$ 14,400		
	Pipe Supports			10	EA	\$ 1,000	\$ 10,000		
	20" PI	20	in	40	LF	\$ 90	\$ 3,600	PI Bypass to existing primary	
	Fitting - PE Pipe	20	in	4	EA	\$ 2,200	\$ 8,800		
	Pipe Supports			4	EA	\$ 1,000	\$ 4,000		
16 - Electrical/Instrumentation							\$ -		

FACILITY RAW CONSTRUCTION COST \$ 322,933



Project: SMCS Headworks, Primary and Secondary Treatment Pre-Design
Aspect: Turntable

Date: October 7, 2011
 Project Number: 0055-003
 Prepared by: MWT
 Checked by: DG
 Check Date: October 10, 2011

Estimate Type: Predesign

Spec. Division	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
2 - Sitework							\$ 25,000	
	Excavation / Subgrade Preparation			1	LS	\$ 25,000	\$ 25,000	
3 - Concrete							\$ 170,017	
	Circular Wall under Turntable			35	CY	\$ 1,500	\$ 52,360	Note: volume was multiplied by 150% to account for stringent deflection requirements. Assumes 2 support beams; Note: length was doubled to account for stringent deflection requirements
	Elevated Slab			59	CY	\$ 1,500	\$ 88,357	
	Horizontal Support Beams			120	LF	\$ 244	\$ 29,300	
5 - Metals							\$ -	
	Guardrail						\$ -	
9 - Finishes							\$ -	
10 - Specialties							\$ -	
11 - Equipment							\$ -	
13 - Special							\$ 200,000	
	Truck Turntable	25	FT DIA	1	LS	\$ 200,000	\$ 200,000	Includes installation and controls
15 - Mechanical							\$ -	
16 - Electrical/Instrumentation							\$ -	

FACILITY RAW CONSTRUCTION COST \$ 395,017

ANNUAL O&M COSTS								
Consumables							\$ 2,000	
	Equipment Consumables			\$ 200,000		1.0%	\$ 2,000	
	Mechanical Consumables			\$ -		1.0%	\$ -	
Power Costs							\$ 160	
	Turntable Drive			290	kwh	\$ 0.15	\$ 40	
	Screenings Conveyor			814	kwh	\$ 0.15	\$ 120	
Labor							\$ 3,200	
	Operator			1.0	HR/WK	\$ 45	\$ 2,300	Includes turntable and screenings conveyor.
	Maintenance			0.4	HR/WK	\$ 45	\$ 900	Includes turntable and screenings conveyor.
Chemicals							\$ -	
	None						\$ -	
TOTAL ANNUAL O&M COSTS							\$ 5,360	



Project: SMCSD Headworks, Primary and Secondary Treatment Pre-Design
Aspect: Admin Bldg and Parking

Date: October 7, 2011
 Project Number: 0055-003
 Prepared by: MWT
 Checked by: DG
 Check Date: October 10, 2011

Estimate Type: Predesign

Spec. Division	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
2 - Sitework							\$ 70,000	
	Demolition			1	EA	\$ 20,000	\$ 20,000	
	Tree Mitigation			1	EA	\$ 10,000	\$ 10,000	
	Excavation / Subgrade Preparation			1	LS	\$ 20,000	\$ 20,000	
	Misc Site Work Allowance			1	LS	\$ 20,000	\$ 20,000	
3 - Concrete							\$ 60,300	
	Foundation Upgrades			1	EA	\$ 20,000	\$ 20,000	
	Parking Area (On grade)			28	CY	\$ 600	\$ 16,700	
	Parking Area (Elevated)			28	CY	\$ 850	\$ 23,600	
5 - Metals							\$ 375,000	
	Pre-Engineered Building			1500	SF	\$ 250	\$ 375,000	
9 - Finishes							\$ 25,000	
	Misc Interior Finishes			1	LS	\$ 25,000	\$ 25,000	
10 - Specialties							\$ 127,500	
	ADA Wheelchair Lift			1	EA	\$ 30,000	\$ 30,000	
	Furniture for Admin. Building			1500	SF	\$ 65	\$ 97,500	
11 - Equipment							\$ -	
13 - Special							\$ -	
15 - Mechanical							\$ 20,000	
	HVAC			1	EA	\$ 20,000	\$ 20,000	
16 - Electrical							\$ 30,000	
	Misc Elect			1	LS	\$ 15,000	\$ 15,000	
	Misc Inst.			1	LS	\$ 15,000	\$ 15,000	

FACILITY RAW CONSTRUCTION COST \$ 707,800



Project: SMCSD Headworks, Primary and Secondary Treatment Pre-Design

Date: October 7, 2011

Aspect: Headworks Structure

Project Number: 0055-003

Estimate Type: Predesign

Prepared by: MWT

Checked by: DG

Check Date: October 10, 2011

Spec. Division	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
2 - Sitework							\$ 20,000	
	Misc Site Work Allowance			1	LS	\$ 20,000	\$ 20,000	
3 - Concrete							\$ 312,500	
	<u>Bottom Floor</u>							
	Slab	1750	SF	97	CY	\$ 1,500	\$ 145,800	
	Walls			78	CY	\$ 1,500	\$ 116,700	
	Misc. Concrete			1	LS	\$ 50,000	\$ 50,000	
5 - Metals							\$ 185,000	
	Access Stairs and Railings			1	LS	\$ 50,000	\$ 50,000	
	Prefab Steel Building (Headworks)			850	SF	\$ 100	\$ 85,000	25 ft x 34 ft
	Prefab Steel Building (Sludge Bins)			500	SF	\$ 100	\$ 50,000	25 ft x 20 ft
9 - Finishes							\$ 50,000	
	Coating Allowance			1	LS	\$ 25,000	\$ 50,000	Engineer's estimate
10 - Specialties							\$ 51,000	
	Signage Allowance			1	LS	\$ 1,000	\$ 1,000	Engineer's estimate
	Doors and Windows			1	LS	\$ 50,000	\$ 50,000	Engineer's estimate
11 - Equipment							\$ -	
13 - Special							\$ -	
15 - Mechanical							\$ 30,000	
	HVAC Allowance			1	LS	\$ 30,000	\$ 30,000	
16 - Electrical							\$ -	

FACILITY RAW CONSTRUCTION COST \$ 648,500



Project: SMCSD Headworks, Primary and Secondary Treatment Pre-Design

Date: October 7, 2011

Aspect: Screening

Project Number: 0055-003

Prepared by: MWT

Checked by: DG

Check Date: October 10, 2011

Estimate Type: Predesign

Spec. Division	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
2 - Sitework								\$ -
3 - Concrete								\$ 71,500
	Screen - FloorSlab			20	CY	\$ 850	\$ 17,000	
	Screen - Walls			25	CY	\$ 1,500	\$ 37,500	
	Sourrounding Deck Slab			20	CY	\$ 850	\$ 17,000	
5 - Metals								\$ 15,000
	cover plating						\$ 15,000	
9 - Finishes								\$ 10,000
	Coating Allowance			1	LS	\$ 10,000	\$ 10,000	
10 - Specialties								\$ -
						\$ -	\$ -	25 ft x 34 ft
11 - Equipment								\$ 355,000
	channel screens			2	ea	\$ 125,000	\$ 250,000	
	mannual screen			1	ea	\$ 10,000	\$ 10,000	
	channel aeration blower			1	ea	\$ 15,000	\$ 15,000	
	screening conveyor			30	lf	\$ 1,000	\$ 30,000	
	Screenings Compactor			1	EA	\$ 50,000	\$ 50,000	
13 - Special								\$ -
15 - Mechanical								\$ 55,000
	channel gates			allow			\$ 30,000	
	channel air piping			1	ea	\$ 10,000	\$ 10,000	
	OC ducting			1	ea	\$ 15,000	\$ 15,000	
16 - Electrical/Instrumentation								\$ -

FACILITY RAW CONSTRUCTION COST \$ 506,500

ANNUAL O&M COSTS								
Consumables								\$ 3,900
	Equipment Consumables			\$ 355,000		1.0%	\$ 3,600	% of Equipment Capital Cost
	Mechanical Consumables			\$ 30,000		1.0%	\$ 300	% of Mechanical Capital Cost
Power Costs								\$ 7,500
	Screens			6467	kwh	\$ 0.15	\$ 1,000	
	Aeration Blower			32335	kwh	\$ 0.15	\$ 4,900	
	Screenings Compactor			10778	kwh	\$ 0.15	\$ 1,600	
Labor								\$ 14,100
	Operator			4	HR/WK	\$ 45	\$ 9,400	
	Maintenance			2.0	HR/WK	\$ 45	\$ 4,700	
Chemicals								\$ -
	None						\$ -	
TOTAL ANNUAL O&M COSTS							\$ 25,500	



Project: SMCS D Headworks, Primary and Secondary Treatment Pre-Design

Date: October 7, 2011
Project Number: 0055-003

Aspect: Grit Removal

Prepared by: MWT
Checked by: DG
Check Date: October 10, 2011

Estimate Type: Predesign

Spec. Division	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
2 - Sitework							\$ -	
3 - Concrete							\$ 71,500	
	Grit - Base Slab			20	CY	\$ 850	\$ 17,000	
	Grit - Walls			25	CY	\$ 1,500	\$ 37,500	
	Deck Slab			20	CY	\$ 850	\$ 17,000	
4 - Masonry							\$ -	
5 - Metals							\$ 15,000	
	checker plating			allowance			\$ 15,000	
8 - Doors and Windows							\$ -	
9 - Finishes							\$ 10,000	
	Coating Allowance			1	LS	\$ 10,000	\$ 10,000	
10 - Specialties							\$ -	
11 - Equipment							\$ 546,000	
	8 ft dia vortex grit	2	HP	2	ea	\$ 100,000	\$ 200,000	
	cyclone classifiers			2	ea	\$ 100,000	\$ 200,000	
	grit pumps	5	HP	3	ea	\$ 40,000	\$ 120,000	
	Storage Bin			1	ea	\$ 10,000	\$ 10,000	
	Flow Meters			2	ea	\$ 8,000	\$ 16,000	
13 - Special							\$ -	
15 - Mechanical							\$ 65,000	
	Grit Piping			allowance			\$ 30,000	
	channel gates			allowance			\$ 20,000	
	OC ducting			allowance			\$ 15,000	
16 - Electrical/Instrumentation							\$ -	

FACILITY RAW CONSTRUCTION COST \$ 707,500

ANNUAL O&M COSTS								
Consumables							\$ 5,400	
	Equipment Consumables			\$ 520,000		1.0%	\$ 5,200	% of Equipment Capital Cost
	Mechanical Consumables			\$ 20,000		1.0%	\$ 200	% of Mechanical Capital Cost
Power Costs							\$ 6,800	
	Vortex Grit			12934	kwh	\$ 0.15	\$ 1,900	
	Grit Pumps			32335	kwh	\$ 0.15	\$ 4,900	
Labor							\$ 14,100	
	Operator			4	HR/WK	\$ 45	\$ 9,400	
	Maintenance			2.0	HR/WK	\$ 45	\$ 4,700	
Chemicals							\$ -	
	None						\$ -	
TOTAL ANNUAL O&M COSTS							\$ 26,300	



Project: SMCSD Headworks, Primary and Secondary Treatment Pre-Design
Aspect: Equalization

Date: October 7, 2011
 Project Number: 0055-003
 Prepared by: MWT
 Checked by: DG
 Check Date: October 10, 2011

Estimate Type: Predesign

Spec. Division	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
2 - Sitework							\$ 80,000	
	Excavation / Subgrade Preparation			1	LS	\$ 80,000	\$ 80,000	
3 - Concrete							\$ 895,900	
	<u>Equalization Basin 1 Structure</u>							
	Base Slab			164.4	CY	\$ 1,500	\$ 247,000	
	Walls			416.0	CY	\$ 1,500	\$ 624,000	
	Drilled Piers			320	LF	\$ 75	\$ 24,000	Based on 16 piers under base slab; 20 ft deep
	Equipment Pad			1.1	CY	\$ 850	\$ 900	
5 - Metals							\$ 32,700	
	Stairs			1	LS	\$ 20,000	\$ 20,000	
	Treadplate			50	SF	\$ 33	\$ 1,700	
	Grating			50	SF	\$ 20	\$ 1,000	
	Misc Metals			1	LS	\$ 10,000	\$ 10,000	
9 - Finishes							\$ -	
10 - Specialties							\$ -	
11 - Equipment							\$ 54,600	
	Sump Pumps			2	EA	\$ 20,800	\$ 41,600	Engineers Estimate
	Equipment Testing			1	LS	\$ 10,000	\$ 10,000	Engineers Estimate
	Equipment Installation			1	LS	\$ 3,120	\$ 3,000	15% of Equipment Cost
13 - Special							\$ 40,000	
	Trench Drain			200	LF	\$ 200	\$ 40,000	
15 - Mechanical							\$ 118,449	
	Pipe - Utility Water	2	IN	400	LF	\$ 21	\$ 8,256	
	Misc. Piping Allowance			1	LS	\$ 20,000	\$ 20,000	
	Fitting Allowance			1	LS	\$ 5,000	\$ 5,000	
	Valve Allowance			1	LS	\$10,000	\$ 10,000	
	Influent Gate	16	IN	1	EA	\$ 12,596	\$ 12,596	
	Effluent Gate	16	IN	1	EA	\$ 12,596	\$ 12,596	
	Dump Troughs			1	LS	\$50,000	\$ 50,000	
16 - Electrical							\$ -	
							\$ -	

FACILITY RAW CONSTRUCTION COST \$ 1,221,649



Project: SMCS D Headworks, Primary and Secondary Treatment Pre-Design
Aspect: Circular Primary Filtration

Date: October 7, 2011
 Project Number: 0055-003
 Prepared by: MWT
 Checked by: DG
 Check Date: October 10, 2011

Estimate Type: Pre-design

Spec. Division	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
							\$ 266,835	
2 - Sitework								
	Demolition			2667	CY	\$ 17	\$ 46,039	Based on volume of Building
	Hauling and Dumping			193	CY	\$ 108	\$ 20,783	
	Excavation for Primary Structure	75	ft	1636	CY	\$ 75	\$ 122,718	\$75/CY for rock excavation. Assume excavation for half the volume of tank
	Excavation for Primary Structure	75	ft	1636	CY	\$ 42	\$ 69,117	Assume excavation for half the volume of tank
	Excavation / Subgrade Preparation			1	LS	\$ 75,000	\$ 75,000	
							\$ 435,000	
3 - Concrete								
	<u>Primary Structure</u>							
	Base Slab	65	ft	184.4	CY	\$ 850	\$ 157,000	
	Walls	65		151.3	CY	\$ 1,500	\$ 227,000	
	Drilled Piers			320	LF	\$ 75.00	\$ 24,000	Based on 16 piers under base slab; 20 ft deep
	<u>Primary Sludge/Scum Pump Station</u>							
	Base Slab			16.7	CY	\$ 850	\$ 14,000	
	Walls	65		7.7	CY	\$ 1,500	\$ 12,000	
	Equipment Pad - Primary Sludge Pumps			1.1	CY	\$ 850	\$ 900	
	Equipment Pad - Control Panels			0.1	CY	\$ 850	\$ 100	
							\$ 222,200	
5 - Metals								
	Handrail			274	LF	\$ 55	\$ 15,100	Includes handrail for sludge pump station, scum, and effluent structures
	Aluminum Truss-Supported Covers	55	ft	2376	SF	\$ 82	\$ 194,900	Vendor, includes installation
	Treadplate			50	SF	\$ 33	\$ 1,700	
	Grating			25	SF	\$ 20	\$ 500	
	Misc Metals			1	LS	\$ 10,000	\$ 10,000	
							\$ -	
9 - Finishes								
							\$ -	
10 - Specialties								
							\$ -	
11 - Equipment								
							\$ 394,400	
	Primary Clarifier Mechanism - Sludge Scraper		1	60	Ft Dia	\$ 2,000	\$ 120,000	
	Primary Clarifier Scum Collection			2	LS	\$ 9,000	\$ 18,000	From Vendor, 15% of mechanism costs
	Sludge/Scum Pumps			2	EA	\$ 20,800	\$ 41,600	From Vendor
	Primary Clarifier Mechanism Installation			1	EA	\$ 158,800	\$ 158,800	Eight man crew, four weeks @labor rate + \$50,000 for equipment
	Equipment Testing			1	LS	\$ 10,000	\$ 10,000	Engineers Estimate
	Primary Sludge Pumps	5	HP	2	EA	\$ 20,000	\$ 40,000	
	Equipment Installation			1	LS	\$ 6,000	\$ 6,000	15% of Equipment Cost
							\$ 9,753	
13 - Special								
	Scum Baffle			55	\$/Ft Dia	\$ 70	\$ 3,850	From vendor + 40% installation
	FRP Weir			188	LF	\$ 15	\$ 2,903	From vendor + 40% installation
	Trench Drain in Pump Gallery			15	LF	\$ 200	\$ 3,000	
							\$ 252,740	
15 - Mechanical								
	Pipe - Primary Influent	16	IN	200	LF	\$ 145	\$ 29,024	
	Pipe - Primary Effluent	16	IN	400	LF	\$ 145	\$ 58,048	Piping within building only
	Pipe - Overflow	16	IN	40	LF	\$ 145	\$ 5,805	
	Pipe - Primary Sludge	6	IN	100	LF	\$ 62	\$ 6,192	
	Duct - Odor Control	6	IN	60	LF	\$ 54.48	\$ 3,269	
	Misc. Piping Allowance			1	LS	\$ 30,000	\$ 30,000	
	Fitting Allowance			1	LS	\$ 30,000	\$ 30,000	
	Valve - Primary Influent/Effluent Plug Valves	16	IN	4	EA	\$ 7,247	\$ 28,987	
	Valve - Primary Sludge Plug Valve	6	IN	8	EA	\$ 1,793	\$ 14,343	
	Valve - Primary Sludge Check Valve	6	IN	2	EA	\$ 1,940	\$ 3,879	
	Valve - Primary Sludge Sewage Relief Valve	2	IN	2	EA	\$ 4,000	\$ 8,000	Engineer's estimate
	Valve Allowance			1	LS	\$ 10,000	\$ 10,000	
	Influent Gate	16	IN	1	EA	\$ 12,596	\$ 12,596	
	Effluent Gate	16	IN	1	EA	\$ 12,596	\$ 12,596	
							\$ -	
16 - Electrical								

FACILITY RAW CONSTRUCTION COST \$ 1,647,750

ANNUAL O&M COSTS			
Consumables			
Equipment Consumables	\$ 219,600	1.0%	\$ 2,200
Mechanical Consumables	\$ 65,209	1.0%	\$ 700
Power Costs			
Clarifier Mechanism	9772	kwh	\$ 0.15
Primary Sludge Pumps	8144	kwh	\$ 0.15
Labor			
Operator	2	HR/WK	\$ 45
Maintenance	1	HR/WK	\$ 45
Chemicals			
None			\$ -
TOTAL ANNUAL O&M COSTS			\$ 12,600



Project: SMCSD Headworks, Primary and Secondary Treatment Pre-Design
Aspect: FFR Upgrades

Date: October 7, 2011
 Project Number: 0055-003
 Prepared by: MWT
 Checked by: DG
 Check Date: June 21, 2011

Estimate Type: Predesign

Spec. Division	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
2 - Sitework							\$ 50,000	
	Demolition			1	LS	\$ 50,000	\$ 50,000	Engineers Estimate
3 - Concrete							\$ -	
							\$ -	
							\$ -	
5 - Metals							\$ -	
9 - Finishes							\$ -	
10 - Specialties							\$ -	
11 - Equipment							\$ 172,500	
	FFR Feed Pumps			3	EA	\$ 50,000	\$ 150,000	Based on vendor
	Pump Installation			1	LS	\$ 22,500	\$ 22,500	15% of equipment cost
13 - Special							\$ 618,100	
	FFR Covers	40	ft	2513	SF	\$ 40	\$ 100,600	
	FFR Media			1	LS	\$ 450,000	\$ 450,000	
	Pump Installation			1	LS	\$ 67,500	\$ 67,500	15% of equipment cost
15 - Mechanical							\$ 40,000	
	Piping Allowance			1	LS	\$ 10,000	\$ 10,000	
	Fitting Allowance			1	LS	\$ 20,000	\$ 20,000	
	Valve Allowance			1	LS	\$10,000	\$ 10,000	
16 - Electrical							\$ -	

FACILITY RAW CONSTRUCTION COST \$ 880,600



Project: SMCSD Headworks, Primary and Secondary Treatment Pre-Design
Aspect: Disk Filter

Date: October 7, 2011
 Project Number: 0055-003
 Prepared by: MWT
 Checked by: DG
 Check Date: June 21, 2011

Estimate Type: Predesign

Spec. Division	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
2 - Sitework								\$ 75,000
	Demolition			1	LS	\$ 75,000	\$ 75,000	Engineers Estimate
3 - Concrete								\$ 326,000
	<u>Process Tank</u>							
	Base Slab			43.6	CY	\$ 850	\$ 37,000	
	Walls			95.6	CY	\$ 1,500	\$ 143,000	
	Misc. Structural Upgrade			1	LS	\$ 10,000	\$ 10,000	
	<u>Flocculation Chamber</u>							
	Base Slab			9.3	CY	\$ 850	\$ 8,000	
	Walls			37.8	CY	\$ 1,500	\$ 57,000	
	Misc. Structural Upgrade			1	LS	\$ 10,000	\$ 10,000	
	<u>Disk Filter Feed Pumps</u>							
	Feed Pumps Support			1	LS	\$ 50,000	\$ 50,000	
	<u>Chemical Facilities</u>							
	Equipment Pad - Feed Pumps			1.1	CY	\$ 850	\$ 900	
	Equipment Pad - Control Panels			0.1	CY	\$ 850	\$ 100	
5 - Metals								\$ 37,200
	<u>Stairs and Guardrail</u>							\$ 10,000
	Handrail			100	LF	\$ 55	\$ 5,500	
	Treadplate			125	SF	\$ 33	\$ 4,200	
	Grating			625	SF	\$ 20	\$ 12,500	
	Misc Metals			1	LS	\$ 5,000	\$ 5,000	
9 - Finishes								\$ -
10 - Specialties								\$ -
11 - Equipment								\$ 823,000
	Disk Filter	6	MGD	1	EA	\$ 500,000	\$ 500,000	Based on vendor quote for 2 10 disk filters at \$450K
	Disk Filter Installation			1	EA	\$ 146,000	\$ 146,000	Eight man crew, four weeks @labor rate + \$50,000 for equipment
	Equipment Testing			1	LS	\$ 15,000	\$ 15,000	Engineers Estimate
	Chemical Metering Pumps			2	EA	\$ 15,000	\$ 30,000	Engineers Estimate
	Metering Pump Installation			1	LS	\$ 4,500	\$ 5,000	15% of Equipment Cost
	<u>Backwash System</u>							
	Backwash System			1	EA	\$ 50,000	\$ 50,000	Engineers Estimate
	Equipment Installation			1	LS	\$ 7,500	\$ 8,000	15% of Equipment Cost
	<u>Feed pumps</u>							
	Feed pumps	25	HP	3	EA	\$ 20,000	\$ 60,000	Engineers Estimate
	Equipment Installation			1	LS	\$ 9,000	\$ 9,000	15% of Equipment Cost
13 - Special								\$ -
15 - Mechanical								\$ 206,016
	Pipe - Influent	12	IN	300	LF	\$ 109	\$ 32,652	
	Pipe - Effluent	12	IN	300	LF	\$ 109	\$ 32,652	
	Pipe - Secondary Sludge	6	IN	500	LF	\$ 62	\$ 30,960	
	Misc. Piping Allowance			1	LS	\$ 30,000	\$ 30,000	
	Fitting Allowance			1	LS	\$ 30,000	\$ 30,000	
	Valve - Influent/Effluent Butterfly Valves	12	IN	6	EA	\$ 2,255	\$ 13,530	
	Valve - Sludge Plug Valve	6	IN	8	EA	\$ 1,793	\$ 14,343	
	Valve - Sludge Check Valve	6	IN	2	EA	\$ 1,940	\$ 3,879	
	Valve - Sludge Sewage Relief Valve	2	IN	2	EA	\$ 4,000	\$ 8,000	Engineer's estimate
	Valve Allowance			1	LS	\$ 10,000	\$ 10,000	
16 - Electrical								\$ -

FACILITY RAW CONSTRUCTION COST \$ 1,467,216

ANNUAL O&M COSTS			
Consumables			
Equipment Consumables			\$ 6,900
Equipment Consumables	\$ 640,000	1.0%	\$ 6,400
Mechanical Consumables	\$ 49,752	1.0%	\$ 500
Power Costs			
Disk Filter	14659	kwh	\$ 0.15
Filter Feed Pumps	97724	kwh	\$ 0.15
Backwash Pumps	8144	kwh	\$ 0.15
EQ Return Pumps	335	kwh	\$ 0.15
Labor			
Operator	3	HR/WK	\$ 45
Maintenance	0.5	HR/WK	\$ 45
Chemicals			
Coagulant	80	mg/L	38964 DRY LB
			\$ 1.05
TOTAL ANNUAL O&M COSTS			\$ 74,200



Project: SMCSD Headworks, Primary and Secondary Treatment Pre-Design
Aspect: Site Electrical & Instrumentation/Controls

Date: October 7, 2011
 Project Number: 0055-003

Prepared by: MWT
 Checked by: DG
 Check Date: October 10, 2011

Estimate Type: Predesign

Spec. Division	Item	Size	Units	Quantity	Unit	Unit Cost	Total Cost	Notes
2 - Sitework							\$ -	
3 - Concrete							\$ -	
5 - Metals							\$ -	
8 - Doors and Windows							\$ -	
9 - Finishes							\$ -	
10 - Specialties							\$ -	
11 - Equipment							\$ -	
13 - Special							\$ -	
15 - Mechanical							\$ -	
16 - Site Electrical/Instrumentation							\$ 565,000	
	<u>Motor Control Center MCC-HW Motor Control Center MCC HW</u>			1	EA	\$64,000	\$ 64,000	
	8 Vertical Section - 480V 600A main bus w/ starters&VFDs, power panels, transformer							
	<u>Motor Heavy duty Disconnect Switches</u>			25	EA	\$1,650	\$ 41,000	
	30A 3P Nema 7			1	EA	\$2,500	\$ 3,000	
	60A 3P Nema 4X							
	Modifications to Existing Main Feeder and Relocation of impacted Feeder:			1	EA	\$25,000	\$ 25,000	
	Main Feeder from Existing Main SWBD to MCC-HW			1	EA	\$15,000	\$ 15,000	
	Misc Cables and Conduit & Wirings to equipment mostly NEMA 4X & N			25	EA	\$4,500	\$ 113,000	
	<u>SCADA System Additions and Modifications</u>							
	Control Panel CP-HW			1	EA	\$8,500	\$ 9,000	
	UPS (3kVA) w/10 minutes Batteries and Bypass			1	EA	\$3,500	\$ 4,000	
	SCADA RTU Software (200 points)			1	EA	\$15,000	\$ 15,000	
	SCADA CITEC Software (200 points)			1	EA	\$25,000	\$ 25,000	
	<u>Field Instruments</u>							
	Flowmeters			1	EA	\$8,000	\$ 8,000	
	Flammable Gas Analyzer/Detectors			1	EA	\$12,000	\$ 12,000	
	Misc. Pressure Gauge/Transmitters			1	EA	\$8,500	\$ 9,000	
	Lighting System/Battery Packs and Convenience Outlets, some exterior lig			1	EA	\$19,000	\$ 19,000	
	Fire Detection System			1	EA	\$15,000	\$ 15,000	
	Power System Study (Arc Flash & Short Circuit Calcs) for Headworks ne			1	EA	\$8,500	\$ 9,000	
	Shop Drawing Preparation, O&M			1	EA	\$8,500	\$ 9,000	
	Staging, Startup, Testing, Rentals			1	EA	\$20,000	\$ 20,000	
	Insurance, bonding			1	EA	\$15,000	\$ 15,000	
	<u>Secondary Upgrades</u>							
	Electrical Upgrades			1	EA	\$50,000	\$ 50,000	
	FFR Feed Pump Electrical Upgrades			1	EA	\$85,000	\$ 85,000	

FACILITY RAW CONSTRUCTION COST \$ 565,000