

## **Appendix E: Alternatives Cost Estimates**

**Project:** Bayshore Village Sewage Works Effluent Spray Irrigation Class EA

**File No.:** 100080-2

**Subject:** EA Cost Estimates

**Date:** 1/25/2013

**Design:** KES

KES Revised Aug. 29, 2014

KES Revised Dec. 10, 2015

KES Revised Nov 9, 2016

EP Revised Aug 3, 2023

**Checked:** ST, Sept 7, 2023, Revised Oct 18, 2023

**ALTERNATIVE 3: ESTABLISH NEW SPRAY IRRIGATION FIELD (WEST) AND MAINTAIN SOUTH AND NORTH FIELDS**

Item No.	Description	Units	Estimated Quantity	Estimated Unit Price	Total Cost
1.0	Mobilization/demobilization	L.S.	1	\$ 15,000	\$ 15,000
2.0	Spray irrigation on West Field				
	Spray irrigation equipment	L.S.	1	\$ 500,000	\$ 500,000
	Seed field	m <sup>2</sup>	160,000	\$ 1.00	\$ 160,000
3.0	Upgrade pumphouse with UV disinfection				
	Pumphouse (process piping, etc.)	L.S.	1	\$ 200,000	\$ 200,000
	UV disinfection equipment	L.S.	1	\$ 150,000	\$ 150,000
4.0	Tree line	ea.	275	\$ 600	\$ 165,000
5.0	Additional monitoring wells	L.S.	1	\$ 10,000	\$ 10,000
6.0	Bonds and insurance	%	2%	\$ 24,000	\$ 24,000
7.0	Estimate allowance/contingency	%	25%	\$ 306,000	\$ 306,000
	<b>Estimated construction cost</b>				<b>\$ 1,530,000</b>
8.0	Engineering and approvals	%	5%	\$ 77,000	\$ 77,000
	<b>Estimated project cost w engineering</b>				<b>\$ 1,607,000</b>

Notes: Excludes land acquisition and ex. equipment refurbishment costs

Excludes rehabilitation of North and South spray fields

**Project:** Bayshore Village Sewage Works Effluent Spray Irrigation Class EA

**File No.:** 100080-2

**Subject:** EA Cost Estimates

**Date:** 7/2/2013

**Design:** KES

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**ALTERNATIVE 6: KEEP SPRAY IRRIGATION ON SOUTH FIELD. ABANDON NORTH FIELD. BUILD DISPOSAL BED ON WEST FIELD**

Item No.	Description	Units	Estimated Quantity	Estimated Unit Price	Total Cost
1.0	Mobilization/demobilization	L.S.	1	\$ 15,000	\$ 15,000
2.0	Effluent pumping station to disposal bed				
	Pumping station	L.S.	1	\$ 800,000	\$ 800,000
	Effluent forcemains	m	796	\$ 100	\$ 80,000
	Distribution valves and chambers	ea.	14	\$ 1,500	\$ 32,000
3.0	Recharge bed				
	Site preparation	hrs	80	\$ 380	\$ 31,000
	Sand layer (septic sand)	tonne	123,376	\$ 16	\$ 1,975,000
	Stone layer (septic stone)	tonne	10,398	\$ 39	\$ 406,000
	Distribution piping	m	12,096	\$ 10	\$ 121,000
	General labourers	hrs	480	\$ 570	\$ 274,000
	Cover, grade, topsoil and seed	m <sup>2</sup>	5,000	\$ 12	\$ 60,000
4.0	Upgrade Pumphouse with UV disinfection to spray field	L.S.	1	\$ 350,000	\$ 350,000
5.0	Tree line	ea.	200	\$ 600	\$ 120,000
6.0	Remove spray equip in North Field	m <sup>2</sup>	100,000	\$ 4	\$ 400,000
7.0	Additional monitoring wells	L.S.	1	\$ 10,000	\$ 10,000
8.0	Bonds and insurance	%	2%	\$ 93,000	\$ 93,000
9.0	Estimate allowance/contingency	%	25%	\$ 1,169,000	\$ 1,169,000
	<b>Estimated construction cost</b>				<b>\$ 5,936,000</b>
10.0	Engineering and approvals	%	5%	\$ 297,000	\$ 297,000
	<b>Estimated project cost w engineering</b>				<b>\$ 6,233,000</b>

Notes: Exclude land acquisition and ex. Equipment refurbishment costs  
Excludes rehabilitation of South spray field

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**ALTERNATIVE 7: ESTABLISH SPRAY IRRIGATION ON WEST FIELD. ABANDON NORTH FIELD. BUILD DISPOSAL BED ON SOUTH FIELD**

Item No.	Description	Units	Estimated Quantity	Estimated Unit Price	Total Cost
1.0	Mobilization/demobilization	L.S.	1	\$ 15,000	\$ 15,000
2.0	Spray irrigation on West Field				
	Spray irrigation equipment	L.S.	1	\$ 480,000	\$ 480,000
	Seed field	m <sup>2</sup>	160,000	\$ 1.00	\$ 160,000
2.0	Effluent pumping station to disposal bed				
	Pumping station	L.S.	1	\$ 800,000	\$ 800,000
	Effluent forcemains	m	539	\$ 100	\$ 54,000
	Distribution valves and chambers	ea.	14	\$ 1,500	\$ 32,000
3.0	Recharge bed				
	Site preparation	hrs	80	\$ 380	\$ 31,000
	Sand layer (septic sand)	tonne	151,712	\$ 16	\$ 2,428,000
	Stone layer (septic stone)	tonne	11,642	\$ 39	\$ 455,000
	Distribution piping	m	12,096	\$ 10	\$ 121,000
	General labourers	hrs	480	\$ 570	\$ 274,000
	Cover, grade, topsoil and seed	m <sup>2</sup>	5,000	\$ 12	\$ 60,000
4.0	Upgrade Pumphouse with UV disinfection to spray field	L.S.	1	\$ 350,000	\$ 350,000
5.0	Remove spray equip in North Field	m <sup>2</sup>	100,000	\$ 4	\$ 400,000
	Remove spray equip in South Field	m <sup>2</sup>	136,000	\$ 4	\$ 544,000
6.0	Additional monitoring wells	L.S.	1	\$ 10,000	\$ 10,000
7.0	Bonds and insurance	%	2%	\$ 124,000	\$ 124,000
8.0	Estimate allowance/contingency	%	25%	\$1,554,000	\$ 1,554,000
	<b>Estimated construction cost</b>				<b>\$ 7,892,000</b>
9.0	Engineering and approvals	%	5%	\$ 395,000	\$ 395,000
	<b>Estimated project cost w engineering</b>				<b>\$ 8,287,000</b>

Notes: Exclude land acquisition and ex. equipment refurbishment costs

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**ALTERNATIVE 8: BUILD EFFLUENT RECHARGE BED AND DISCONTINUE SPRAY IRRIGATION**

Item No.	Description	Units	Estimated Quantity	Estimated Unit Price	Total Cost
1.0	Mobilization/demobilization	L.S.	1	\$ 15,000	\$ 15,000
2.0	Effluent pumping station				
	Pumping station	L.S.	1	\$ 800,000	\$ 800,000
	Effluent forcemains	m	1,221	\$ 100	\$ 122,000
	Distribution valves and chambers	ea.	14	\$ 1,500	\$ 32,000
3.0	Recharge bed				
	Site preparation	hrs	80	\$ 380	\$ 31,000
	Sand layer (septic sand)	tonne	148,720	\$ 16	\$ 2,380,000
	Stone layer (septic stone)	tonne	15,941	\$ 39	\$ 622,000
	Distribution piping	m	18,144	\$ 10	\$ 181,000
	General labourers	hrs	480	\$ 570	\$ 274,000
	Cover, grade, topsoil and seed	m <sup>2</sup>	5,000	\$ 12	\$ 60,000
4.0	Decommission/remove spray equip in North and South Fields				
	North field	m <sup>2</sup>	100,000	\$ 4	\$ 400,000
	South field	m <sup>2</sup>	136,000	\$ 4	\$ 544,000
5.0	Additional monitoring wells	L.S.	1	\$ 10,000	\$ 10,000
6.0	Bonds and insurance	%	2%	\$ 109,000	\$ 109,000
7.0	Estimate allowance/contingency	%	25%	\$1,368,000	\$ 1,368,000
	<b>Estimated construction cost</b>				<b>\$ 6,948,000</b>
8.0	Engineering and approvals	%	5%	\$ 347,000	\$ 347,000
	<b>Estimated project cost w engineering</b>				<b>\$ 7,295,000</b>

Notes: Exclude land acquisition and ex. equipment refurbishment costs