

**King County CSI Project  
Juanita Bay Pump Station**

| Alternative                                 | Total Direct Project Cost | Total Estimated Capital Cost |
|---|---------------------------|------------------------------|
| 1 - New Pump Station on Existing Site       | \$8,772,000               | \$11,882,000                 |
| 1 - Temporary Pump Station on Existing Site | \$3,887,000               | \$5,297,000                  |
| Total                                       | \$12,659,000              | \$17,179,000                 |
| 2A - New Pump Station on Adjacent Site      | \$10,897,000              | \$15,338,500                 |
| 2B - New Pump Station on Remote Site        | \$13,867,000              | \$19,420,000                 |

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**King County CSI Project**  
**Juanita Bay Pump Station - Construction Cost Estimate for Alternative 1**  
**New Pump Station on Existing Site**

|   | Units | Cost / Unit | Quantity | Estimated Cost |
|---|-------|-------------|----------|----------------|
| <b>Division 2</b>                               |       |             |          |                |
| Earthwork                                       | LS    | \$200,000   | 1        | \$200,000      |
| Stabilization of Existing Caisson -Tiebacks     | LS    | \$80,000    | 1        | \$80,000       |
| Landscaping, Topsoil, and Irrigation System     | LS    | \$80,000    | 1        | \$80,000       |
| Soil Erosion and Sediment Control               | LS    | \$25,000    | 1        | \$25,000       |
| Driven Steel Sheet Piling                       | SF    | \$45        | 8,800    | \$396,000      |
| 18" Forcemain w/ Surface Restoration            | LF    | \$160       | 130      | \$20,800       |
| 24" Forcemain w/ Surface Restoration            | LF    | \$220       | 120      | \$26,400       |
| Forcemain Fittings                              | EA    | \$2,500     | 8        | \$20,000       |
| Flowmeter Vault                                 | LS    | \$16,000    | 1        | \$16,000       |
| 48" Bore and Jack/Microtunnel                   | LF    | \$1,600     | 95       | \$152,000      |
| <b>Division 3</b>                               |       |             |          |                |
| Concrete: Drywell Walls                         | CY    | \$600       | 400      | \$240,000      |
| Concrete: Tremie Seal/Wetwell Plug              | CY    | \$250       | 340      | \$85,000       |
| Concrete: Slabs on Grade                        | CY    | \$300       | 60       | \$18,000       |
| Concrete: Walls                                 | CY    | \$480       | 230      | \$110,400      |
| Concrete: Suspended Slabs                       | CY    | \$550       | 200      | \$110,000      |
| <b>Division 5</b>                               |       |             |          |                |
| Structural Aluminum                             | LS    | \$25,000    | 1        | \$25,000       |
| Floor Hatches                                   | EA    | \$2,500     | 4        | \$10,000       |
| Alum Stairs, Railings                           | LS    | \$65,000    | 1        | \$65,000       |
| <b>Division 6</b>                               |       |             |          |                |
| RTP Grating, Railings, and Stairs               | LS    | \$55,000    | 1        | \$55,000       |
| <b>Division 8</b>                               |       |             |          |                |
| Doors and Windows                               | LS    | \$24,000    | 1        | \$24,000       |
| <b>Division 9</b>                               |       |             |          |                |
| Painting and Protective Coatings                | LS    | \$65,000    | 1        | \$65,000       |
| <b>Division 10</b>                              |       |             |          |                |
| Louvers and Vents                               | LS    | \$25,000    | 1        | \$25,000       |
| Identification, Stenciling, and Tagging Systems | LS    | \$5,000     | 1        | \$5,000        |
| Signage   | LS    | \$4,000     | 1        | \$4,000        |
| Lavatory Equipment                              | LS    | \$1,200     | 1        | \$1,200        |
| Fire System                                     | LS    | \$35,000    | 1        | \$35,000       |
| <b>Division 11</b>                              |       |             |          |                |
| Equipment: Non-Clog Centrifugal                 | EA    | \$95,000    | 4        | \$380,000      |
| Equipment: Sump Pump                            | EA    | \$12,000    | 2        | \$24,000       |
| Engine Generators: Diesel                       | EA    | \$125,000   | 1        | \$125,000      |
| Fuel Tank and ATGS                              | LS    | \$18,000    | 1        | \$18,000       |
| Seal Water System                               | LS    | \$20,000    | 1        | \$20,000       |
| IA Compressor System                            | LS    | \$11,000    | 1        | \$11,000       |
| 48"x48" Sluice Gate w/ Operator                 | EA    | \$38,000    | 1        | \$38,000       |
| Chemical Metering Pump and Appurtenances        | EA    | \$9,500     | 2        | \$19,000       |
| Chemical Storage Tanks                          | EA    | \$4,500     | 3        | \$13,500       |
| <b>Division 13</b>                              |       |             |          |                |
| Plastic Liner Plate                             | SF    | \$20        | 3,200    | \$64,000       |
| Noise Attenuators and Silencers                 | EA    | \$9,000     | 4        | \$36,000       |
| Hoisting Equipment                              | LS    | \$45,000    | 1        | \$45,000       |

**Division 15**

|                                       |    |           |     |           |
|---------------------------------------|----|-----------|-----|-----------|
| Mechanical Pipe and Pipe Fittings     | LS | \$350,000 | 1   | \$350,000 |
| Pipe: 16" Steel                       | LF | \$140     | 240 | \$33,600  |
| Pipe Support Systems                  | LS | \$10,000  | 1   | \$10,000  |
| Check Valve 16", Slow Closing         | EA | \$14,500  | 4   | \$58,000  |
| Gate Valves 24" w/ Operator           | EA | \$16,000  | 4   | \$64,000  |
| Gate Valves 16" w/ Operator           | EA | \$7,800   | 4   | \$31,200  |
| Plug Valves 16" w/ Operator           | EA | \$12,000  | 8   | \$96,000  |
| Surge Control and Air Release Valving | LS | \$35,000  | 1   | \$35,000  |
| Flowmeters                            | EA | \$25,000  | 2   | \$50,000  |
| Wetwell HVAC Equipment                | LS | \$55,000  | 1   | \$55,000  |
| Drywell HVAC Equipment                | LS | \$40,000  | 1   | \$40,000  |

**Miscellaneous**

|  |    |       |       |                    |
|--|----|-------|-------|--------------------|
| Superstructure: Roof, lighting, duct, finishes, etc. | SF | \$250 | 2,300 | \$575,000          |
| <b>SUBTOTAL</b>                                      |    |       |       | <b>\$4,085,100</b> |

**Division 16 & 17**

|                           |     |  |  |           |
|---------------------------|-----|--|--|-----------|
| Electrical and Controls @ | 20% |  |  | \$817,000 |
|---------------------------|-----|--|--|-----------|

|                 |  |  |  |                    |
|-----------------|--|--|--|--------------------|
| <b>SUBTOTAL</b> |  |  |  | <b>\$4,902,100</b> |
|-----------------|--|--|--|--------------------|

|               |     |  |  |             |
|---------------|-----|--|--|-------------|
| Contingency @ | 30% |  |  | \$1,471,000 |
|---------------|-----|--|--|-------------|

|                 |  |  |  |                    |
|-----------------|--|--|--|--------------------|
| <b>SUBTOTAL</b> |  |  |  | <b>\$6,373,100</b> |
|-----------------|--|--|--|--------------------|

|                |      |  |  |           |
|----------------|------|--|--|-----------|
| Mobilization @ | 5.0% |  |  | \$319,000 |
|----------------|------|--|--|-----------|

|                      |      |  |  |           |
|----------------------|------|--|--|-----------|
| General Conditions @ | 8.8% |  |  | \$561,000 |
|----------------------|------|--|--|-----------|

|                       |      |  |  |           |
|-----------------------|------|--|--|-----------|
| Bonds and Insurance @ | 3.0% |  |  | \$191,000 |
|-----------------------|------|--|--|-----------|

|                 |  |  |  |                    |
|-----------------|--|--|--|--------------------|
| <b>SUBTOTAL</b> |  |  |  | <b>\$7,444,000</b> |
|-----------------|--|--|--|--------------------|

|                       |      |  |  |           |
|-----------------------|------|--|--|-----------|
| Overhead and Profit @ | 8.5% |  |  | \$633,000 |
|-----------------------|------|--|--|-----------|

|   |  |  |  |                    |
|---|--|--|--|--------------------|
| <b>Estimated Direct Construction Cost</b> |  |  |  | <b>\$8,077,000</b> |
|---|--|--|--|--------------------|

|             |      |  |  |           |
|-------------|------|--|--|-----------|
| Sales Tax @ | 8.6% |  |  | \$695,000 |
|-------------|------|--|--|-----------|

|  |  |  |  |                    |
|--|--|--|--|--------------------|
| <b>Total Estimated Construction Cost</b> |  |  |  | <b>\$8,772,000</b> |
|--|--|--|--|--------------------|

|              |     |  |  |             |
|--------------|-----|--|--|-------------|
| Allied Costs | 35% |  |  | \$3,070,000 |
|--------------|-----|--|--|-------------|

|           |    |     |       |          |
|-----------|----|-----|-------|----------|
| Easements | SF | \$5 | 8,000 | \$40,000 |
|-----------|----|-----|-------|----------|

|                                     |  |  |  |                     |
|-------------------------------------|--|--|--|---------------------|
| <b>Total Estimated Project Cost</b> |  |  |  | <b>\$11,882,000</b> |
|-------------------------------------|--|--|--|---------------------|

|  |  |  |  |             |
|--|--|--|--|-------------|
| Net Present Worth of Operation and Maintenance Costs |  |  |  | \$1,835,000 |
|--|--|--|--|-------------|

|   |  |  |  |                     |
|---|--|--|--|---------------------|
| <b>Estimated Direct Construction Cost</b> |  |  |  | <b>\$13,717,000</b> |
|---|--|--|--|---------------------|

**King County CSI Project  
 Juanita Bay Pump Station - Construction Cost Estimate for Alternative 1  
 Temporary Pump Station and Demolition**

|   | Units | Cost / Unit | Quantity | Estimated Cost |
|---|-------|-------------|----------|----------------|
| <b>Division 2</b>                               |       |             |          |                |
| Traffic Control                                 | LS    | \$30,000    | 1        | \$30,000       |
| Demolition of Existing Pump Station             | LS    | \$50,000    | 1        | \$50,000       |
| Earthwork                                       | LS    | \$100,000   | 1        | \$100,000      |
| Soil Erosion and Sediment Control               | LS    | \$15,000    | 1        | \$15,000       |
| 18" Forcemain w/ Surface Restoration            | LF    | \$160       | 40       | \$6,400        |
| 24" Forcemain w/ Surface Restoration            | LF    | \$220       | 40       | \$8,800        |
| Forcemain Fitting                               | EA    | \$2,500     | 8        | \$20,000       |
| Flowmeter Vault                                 | LS    | \$16,000    | 1        | \$16,000       |
| Manhole - 35 feet deep                          | LS    | \$25,000    | 1        | \$25,000       |
| Trench Shoring                                  | LS    | \$125,000   | 1        | \$125,000      |
| <b>Division 3</b>                               |       |             |          |                |
| Concrete: Caisson                               | CY    | \$600       | 140      | \$84,000       |
| Concrete: Tremie Seal/Wetwell Plug              | CY    | \$250       | 120      | \$30,000       |
| Concrete: Slabs on Grade                        | CY    | \$300       | 50       | \$15,000       |
| Concrete: Walls                                 | CY    | \$480       | 60       | \$28,800       |
| Concrete: Suspended Slabs                       | CY    | \$550       | 50       | \$27,500       |
| <b>Division 5</b>                               |       |             |          |                |
| Miscellaneous Metals                            | LS    | \$10,000    | 1        | \$10,000       |
| Floor Hatches                                   | EA    | \$2,500     | 4        | \$10,000       |
| <b>Division 9</b>                               |       |             |          |                |
| Painting and Protective Coatings                | LS    | \$5,000     | 1        | \$5,000        |
| <b>Division 10</b>                              |       |             |          |                |
| Identification, Stenciling, and Tagging Systems | LS    | \$2,000     | 1        | \$2,000        |
| <b>Division 11</b>                              |       |             |          |                |
| Equipment: Wet Pit Submersibles                 | EA    | \$150,000   | 3        | \$450,000      |
| Engine Generators: Mobile Diesel                | EA    | \$150,000   | 1        | \$150,000      |
| 48"x48" Sluice Gate w/ Operator                 | EA    | \$38,000    | 1        | \$38,000       |
| <b>Division 15</b>                              |       |             |          |                |
| Mechanical Pipe and Pipe Fittings               | LS    | \$250,000   | 1        | \$250,000      |
| Pipe: 16" Steel                                 | LF    | \$140       | 240      | \$33,600       |
| Pipe Support Systems                            | LS    | \$10,000    | 1        | \$10,000       |
| Check Valve 16", Slow Closing                   | EA    | \$14,500    | 4        | \$58,000       |
| Gate Valves 16" w/ Operator                     | EA    | \$7,800     | 4        | \$31,200       |
| Plug Valves 16" w/ Operator                     | EA    | \$12,000    | 8        | \$96,000       |
| Surge Control and Air Release Valving           | LS    | \$35,000    | 1        | \$35,000       |
| Flowmeters                                      | EA    | \$25,000    | 2        | \$50,000       |
| SUBTOTAL  |       |             |          | \$1,810,300    |
| <b>Division 16 &amp; 17</b>                     |       |             |          |                |
| Electrical and Controls @                       | 20%   |             |          | \$362,000      |
| SUBTOTAL  |       |             |          | \$2,172,300    |
| Contingency @                                   | 30%   |             |          | \$652,000      |
| SUBTOTAL  |       |             |          | \$2,824,300    |
| Mobilization @                                  | 5.0%  |             |          | \$141,000      |
| General Conditions @                            | 8.8%  |             |          | \$249,000      |
| Bonds and Insurance @                           | 3.0%  |             |          | \$85,000       |
| SUBTOTAL  |       |             |          | \$3,299,000    |

|   |      |     |        |                    |
|---|------|-----|--------|--------------------|
| Overhead and Profit @                     | 8.5% |     |        | <u>\$280,000</u>   |
| <b>Estimated Direct Construction Cost</b> |      |     |        | <b>\$3,579,000</b> |
| Sales Tax @                               | 8.6% |     |        | \$308,000          |
| <b>Total Estimated Construction Cost</b>  |      |     |        | <b>\$3,887,000</b> |
| Allied Costs                              | 35%  |     |        | \$1,360,000        |
| Easements                                 | SF   | \$5 | 10,000 | <u>\$50,000</u>    |
| <b>Total Estimated Capital Cost</b>       |      |     |        | <b>\$5,297,000</b> |

**King County CSI Project**  
**Juanita Bay Pump Station - Construction Cost Estimate for Alternative 2A**  
**New Pump Station on Site at 93rd Avenue NE and Juanita Drive**

|   | Units | Cost / Unit | Quantity | Estimated Cost |
|---|-------|-------------|----------|----------------|
| <b>Division 2</b>                               |       |             |          |                |
| Traffic Control                                 | LS    | \$30,000    | 1        | \$30,000       |
| Demolition of Existing Pump Station             | LS    | \$50,000    | 1        | \$50,000       |
| Landscaping, Topsoil, and Irrigation System     | LS    | \$80,000    | 1        | \$80,000       |
| Earthwork                                       | LS    | \$300,000   | 1        | \$300,000      |
| Soil Erosion and Sediment Control               | LS    | \$25,000    | 1        | \$25,000       |
| Site Paving                                     | LS    | \$80,000    | 1        | \$80,000       |
| 18" Forcemain w/ Surface Restoration            | LF    | \$160       | 120      | \$19,200       |
| 24" Forcemain w/ Surface Restoration            | LF    | \$220       | 120      | \$26,400       |
| Forcemain Fittings                              | EA    | \$2,500     | 6        | \$15,000       |
| Microtunnel Access Shaft                        | LS    | \$250,000   | 1        | \$250,000      |
| 48" Microtunnel                                 | LF    | \$1,800     | 120      | \$216,000      |
| <b>Division 3</b>                               |       |             |          |                |
| Concrete: Caisson                               | CY    | \$600       | 1,000    | \$600,000      |
| Concrete: Tremie Seal/Wetwell Plug              | CY    | \$250       | 900      | \$225,000      |
| Concrete: Slabs on Grade                        | CY    | \$300       | 100      | \$30,000       |
| Concrete: Walls                                 | CY    | \$480       | 400      | \$192,000      |
| Concrete: Suspended Slabs                       | CY    | \$550       | 250      | \$137,500      |
| <b>Division 5</b>                               |       |             |          |                |
| Structural Aluminum                             | LS    | \$25,000    | 1        | \$25,000       |
| Floor Hatches                                   | EA    | \$2,500     | 4        | \$10,000       |
| Alum Stairs, Railings                           | LS    | \$65,000    | 1        | \$65,000       |
| <b>Division 6</b>                               |       |             |          |                |
| RTP Grating, Railings, and Stairs               | LS    | \$55,000    | 1        | \$55,000       |
| <b>Division 8</b>                               |       |             |          |                |
| Doors and Windows                               | LS    | \$24,000    | 1        | \$24,000       |
| <b>Division 9</b>                               |       |             |          |                |
| Painting and Protective Coatings                | LS    | \$65,000    | 1        | \$65,000       |
| <b>Division 10</b>                              |       |             |          |                |
| Louvers and Vents                               | LS    | \$25,000    | 1        | \$25,000       |
| Identification, Stenciling, and Tagging Systems | LS    | \$5,000     | 1        | \$5,000        |
| Signage   | LS    | \$4,000     | 1        | \$4,000        |
| Lavatory Equipment                              | LS    | \$1,200     | 1        | \$1,200        |
| Fire System                                     | LS    | \$35,000    | 1        | \$35,000       |
| <b>Division 11</b>                              |       |             |          |                |
| Equipment: Non-Clog Centrifugal                 | EA    | \$95,000    | 4        | \$380,000      |
| Equipment: Sump Pump                            | EA    | \$12,000    | 2        | \$24,000       |
| Engine Generators: Diesel                       | EA    | \$125,000   | 1        | \$125,000      |
| Fuel Tank and ATGS                              | LS    | \$18,000    | 1        | \$18,000       |
| Seal Water System                               | LS    | \$20,000    | 1        | \$20,000       |
| IA Compressor System                            | LS    | \$11,000    | 1        | \$11,000       |
| 48"x48" Sluice Gate w/ Operator                 | EA    | \$38,000    | 1        | \$38,000       |
| Chemical Metering Pump and Appurtenances        | EA    | \$9,500     | 2        | \$19,000       |
| Chemical Storage Tanks                          | EA    | \$4,500     | 3        | \$13,500       |
| <b>Division 13</b>                              |       |             |          |                |
| Plastic Liner Plate                             | SF    | \$20        | 3,200    | \$64,000       |
| Noise Attenuators and Silencers                 | EA    | \$9,000     | 4        | \$36,000       |

|  |      |           |        |                     |
|--|------|-----------|--------|---------------------|
| Hoisting Equipment                                   | LS   | \$45,000  | 1      | \$45,000            |
| <b>Division 15</b>                                   |      |           |        |                     |
| Miscellaneous Pipe and Pipe Fittings                 | LS   | \$350,000 | 1      | \$350,000           |
| Pipe: 16" Steel                                      | LF   | \$140     | 320    | \$44,800            |
| Pipe: 24" Steel                                      | LF   | \$250     | 90     | \$22,500            |
| Pipe Support Systems                                 | LS   | \$10,000  | 1      | \$10,000            |
| Check Valve 16", Slow Closing                        | EA   | \$14,500  | 4      | \$58,000            |
| Gate Valves 24" w/ Operator                          | EA   | \$16,000  | 4      | \$64,000            |
| Gate Valves 16" w/ Operator                          | EA   | \$7,800   | 4      | \$31,200            |
| Plug Valves 16" w/ Operator                          | EA   | \$12,000  | 8      | \$96,000            |
| Seal Water System                                    | LS   | \$12,000  | 1      | \$12,000            |
| C1 Water System                                      | LS   | \$3,000   | 1      | \$3,000             |
| Surge Control and Air Release Valving                | LS   | \$35,000  | 1      | \$35,000            |
| Flowmeters   | EA   | \$25,000  | 2      | \$50,000            |
| Wetwell HVAC Equipment                               | LS   | \$55,000  | 1      | \$55,000            |
| Drywell HVAC Equipment                               | LS   | \$40,000  | 1      | \$40,000            |
| 18" Pig Launch                                       | LS   | \$30,000  | 1      | \$30,000            |
| 24" Pig Launch                                       | LS   | \$40,000  | 1      | \$40,000            |
| <b>Miscellaneous</b>                                 |      |           |        |                     |
| Superstructure: Roof, lighting, duct, finishes, etc. | SF   | \$250     | 3,000  | \$750,000           |
| SUBTOTAL   |      |           |        | \$5,075,300         |
| <b>Division 16 &amp; 17</b>                          |      |           |        |                     |
| Electrical and Controls @                            | 20%  |           |        | \$1,015,000         |
| SUBTOTAL   |      |           |        | \$6,090,300         |
| Contingency @  | 30%  |           |        | \$1,827,000         |
| Estimated Direct Construction Cost                   |      |           |        | \$7,917,300         |
| Mobilization @                                       | 5.0% |           |        | \$396,000           |
| General Conditions @                                 | 8.8% |           |        | \$697,000           |
| Bonds and Insurance @                                | 3.0% |           |        | \$238,000           |
| Total Estimated Project Cost                         |      |           |        | \$9,248,000         |
| Overhead and Profit @                                | 8.5% |           |        | \$786,000           |
| <b>Estimated Direct Construction Cost</b>            |      |           |        | <b>\$10,034,000</b> |
| Sales Tax @  | 8.6% |           |        | \$863,000           |
| <b>Total Estimated Construction Cost</b>             |      |           |        | <b>\$10,897,000</b> |
| Allied Costs   | 35%  |           |        | \$3,814,000         |
| Easements  | SF   | \$5       | 500    | \$2,500             |
| Land Acquisition                                     | SF   | \$25      | 25,000 | \$625,000           |
| <b>Total Estimated Project Cost</b>                  |      |           |        | <b>\$15,338,500</b> |
| Net Present Worth of Operation and Maintenance Costs |      |           |        | \$1,835,000         |
| <b>Total Estimated Net Present Worth Cost</b>        |      |           |        | <b>\$17,173,500</b> |

**King County CSI Project**  
**Juanita Bay Pump Station - Construction Cost Estimate for Alternative 2B**  
**New Pump Station at 97th Avenue NE and Juanita Drive**

|   | Units | Cost / Unit | Quantity | Estimated Cost |
|---|-------|-------------|----------|----------------|
| <b>Division 2</b>                               |       |             |          |                |
| Traffic Control                                 | LS    | \$30,000    | 1        | \$30,000       |
| Demolition of Existing Pump Station             | LS    | \$50,000    | 1        | \$50,000       |
| Landscaping, Topsoil, and Irrigation System     | LS    | \$80,000    | 1        | \$80,000       |
| Earthwork                                       | LS    | \$300,000   | 1        | \$300,000      |
| Soil Erosion and Sediment Control               | LS    | \$25,000    | 1        | \$25,000       |
| Site Paving                                     | LS    | \$80,000    | 1        | \$80,000       |
| 18" Forcemain w/ Surface Restoration            | LF    | \$160       | 120      | \$19,200       |
| 24" Forcemain w/ Surface Restoration            | LF    | \$220       | 120      | \$26,400       |
| Forcemain Fittings                              | EA    | \$2,500     | 6        | \$15,000       |
| Microtunnel Access Shaft                        | LS    | \$150,000   | 2        | \$300,000      |
| 48" Microtunnel                                 | LF    | \$1,100     | 1,300    | \$1,430,000    |
| <b>Division 3</b>                               |       |             |          |                |
| Concrete: Caisson                               | CY    | \$600       | 1,200    | \$720,000      |
| Concrete: Tremie Seal/Wetwell Plug              | CY    | \$250       | 900      | \$225,000      |
| Concrete: Slabs on Grade                        | CY    | \$300       | 100      | \$30,000       |
| Concrete: Walls                                 | CY    | \$480       | 400      | \$192,000      |
| Concrete: Suspended Slabs                       | CY    | \$550       | 250      | \$137,500      |
| <b>Division 5</b>                               |       |             |          |                |
| Structural Aluminum                             | LS    | \$25,000    | 1        | \$25,000       |
| Floor Hatches                                   | EA    | \$2,500     | 4        | \$10,000       |
| Alum Stairs, Railings                           | LS    | \$65,000    | 1        | \$65,000       |
| <b>Division 6</b>                               |       |             |          |                |
| RTP Grating, Railings, and Stairs               | LS    | \$55,000    | 1        | \$55,000       |
| <b>Division 8</b>                               |       |             |          |                |
| Doors and Windows                               | LS    | \$24,000    | 1        | \$24,000       |
| <b>Division 9</b>                               |       |             |          |                |
| Painting and Protective Coatings                | LS    | \$65,000    | 1        | \$65,000       |
| <b>Division 10</b>                              |       |             |          |                |
| Louvers and Vents                               | LS    | \$25,000    | 1        | \$25,000       |
| Identification, Stenciling, and Tagging Systems | LS    | \$5,000     | 1        | \$5,000        |
| Signage   | LS    | \$4,000     | 1        | \$4,000        |
| Lavatory Equipment                              | LS    | \$1,200     | 1        | \$1,200        |
| Fire System                                     | LS    | \$35,000    | 1        | \$35,000       |
| <b>Division 11</b>                              |       |             |          |                |
| Equipment: Non-Clog Centrifugal                 | EA    | \$95,000    | 4        | \$380,000      |
| Equipment: Sump Pump                            | EA    | \$12,000    | 2        | \$24,000       |
| Engine Generators: Diesel                       | EA    | \$125,000   | 1        | \$125,000      |
| Fuel Tank and ATGS                              | LS    | \$18,000    | 1        | \$18,000       |
| Seal Water System                               | LS    | \$20,000    | 1        | \$20,000       |
| IA Compressor System                            | LS    | \$11,000    | 1        | \$11,000       |
| 48"x48" Sluice Gate w/ Operator                 | EA    | \$38,000    | 1        | \$38,000       |
| Chemical Metering Pump and Appurtenances        | EA    | \$9,500     | 2        | \$19,000       |
| Chemical Storage Tanks                          | EA    | \$4,500     | 3        | \$13,500       |
| <b>Division 13</b>                              |       |             |          |                |
| Plastic Liner Plate                             | SF    | \$20        | 3,200    | \$64,000       |
| Noise Attenuators and Silencers                 | EA    | \$9,000     | 4        | \$36,000       |

|  |      |           |        |                     |
|--|------|-----------|--------|---------------------|
| Hoisting Equipment                                   | LS   | \$45,000  | 1      | \$45,000            |
| <b>Division 15</b>                                   |      |           |        |                     |
| Miscellaneous Pipe and Pipe Fittings                 | LS   | \$350,000 | 1      | \$350,000           |
| Pipe: 16" Steel                                      | LF   | \$140     | 320    | \$44,800            |
| Pipe: 24" Steel                                      | LF   | \$250     | 90     | \$22,500            |
| Pipe Support Systems                                 | LS   | \$10,000  | 1      | \$10,000            |
| Check Valve 16", Slow Closing                        | EA   | \$14,500  | 4      | \$58,000            |
| Gate Valves 24" w/ Operator                          | EA   | \$16,000  | 4      | \$64,000            |
| Gate Valves 16" w/ Operator                          | EA   | \$7,800   | 4      | \$31,200            |
| Plug Valves 16" w/ Operator                          | EA   | \$12,000  | 8      | \$96,000            |
| Seal Water System                                    | LS   | \$12,000  | 1      | \$12,000            |
| C1 Water System                                      | LS   | \$3,000   | 1      | \$3,000             |
| Surge Control and Air Release Valving                | LS   | \$35,000  | 1      | \$35,000            |
| Flowmeters   | EA   | \$25,000  | 2      | \$50,000            |
| Wetwell HVAC Equipment                               | LS   | \$55,000  | 1      | \$55,000            |
| Drywell HVAC Equipment                               | LS   | \$40,000  | 1      | \$40,000            |
| 18" Pig Launch                                       | LS   | \$30,000  | 1      | \$30,000            |
| 24" Pig Launch                                       | LS   | \$40,000  | 1      | \$40,000            |
| <b>Miscellaneous</b>                                 |      |           |        |                     |
| Superstructure: Roof, lighting, duct, finishes, etc. | SF   | \$250     | 3,000  | \$750,000           |
| SUBTOTAL   |      |           |        | \$6,459,300         |
| <b>Division 16 &amp; 17</b>                          |      |           |        |                     |
| Electrical and Controls @                            | 20%  |           |        | \$1,292,000         |
| SUBTOTAL   |      |           |        | \$7,751,300         |
| Contingency @  | 30%  |           |        | \$2,325,000         |
| Estimated Direct Construction Cost                   |      |           |        | \$10,076,300        |
| Mobilization @                                       | 5.0% |           |        | \$504,000           |
| General Conditions @                                 | 8.8% |           |        | \$887,000           |
| Bonds and Insurance @                                | 3.0% |           |        | \$302,000           |
| Total Estimated Project Cost                         |      |           |        | \$11,769,000        |
| Overhead and Profit @                                | 8.5% |           |        | \$1,000,000         |
| <b>Estimated Direct Construction Cost</b>            |      |           |        | <b>\$12,769,000</b> |
| Sales Tax @  | 8.6% |           |        | \$1,098,000         |
| <b>Total Estimated Construction Cost</b>             |      |           |        | <b>\$13,867,000</b> |
| Allied Costs   | 35%  |           |        | \$4,853,000         |
| Easements  | SF   | \$5       | 15,000 | \$75,000            |
| Land Acquisition                                     | SF   | \$25      | 25,000 | \$625,000           |
| <b>Total Estimated Project Cost</b>                  |      |           |        | <b>\$19,420,000</b> |
| Net Present Worth of Operation and Maintenance Costs |      |           |        | \$1,835,000         |
| <b>Total Estimated Net Present Worth Cost</b>        |      |           |        | <b>\$21,255,000</b> |

**King County CSI Project**  
**Juanita Bay Pump Station - Construction Cost Estimate for Alternative 4A**  
**Upgrade Existing Pump Station with New Generator and Chemical Control Facility**

|  | Units | Cost / Unit | Quantity | Estimated Cost     |
|--|-------|-------------|----------|--------------------|
| <b>Division 2</b>                                    |       |             |          |                    |
| Earthwork  | LS    | \$20,000    | 1        | \$20,000           |
| Landscaping and Irrigation                           | LS    | \$15,000    | 1        | \$15,000           |
| Soil Erosion and Sediment Control                    | LS    | \$4,000     | 1        | \$4,000            |
| <b>Division 3</b>                                    |       |             |          |                    |
| Concrete: Slabs on Grade                             | CY    | \$300       | 60       | \$18,000           |
| <b>Division 6</b>                                    |       |             |          |                    |
| RTP Grating  | SF    | \$40        | 250      | \$10,000           |
| <b>Division 9</b>                                    |       |             |          |                    |
| Painting and Protective Coatings                     | LS    | \$15,000    | 1        | \$15,000           |
| <b>Division 10</b>                                   |       |             |          |                    |
| Louvers and Vents                                    | LS    | \$18,000    | 1        | \$18,000           |
| Identification, Stenciling, and Tagging Systems      | LS    | \$1,000     | 1        | \$1,000            |
| Signage  | LS    | \$1,000     | 1        | \$1,000            |
| Fire System  | LS    | \$5,000     | 1        | \$5,000            |
| <b>Division 11</b>                                   |       |             |          |                    |
| Equipment: Non-Clog Centrifugal - 300 HP             | EA    | \$70,000    | 4        | \$280,000          |
| Engine Generators: Diesel - 1200 kW                  | EA    | \$120,000   | 1        | \$120,000          |
| Fuel Tank and ATGS                                   | LS    | \$18,000    | 1        | \$18,000           |
| Seal Water System                                    | LS    | \$20,000    | 1        | \$20,000           |
| Chemical Metering Pump and Appurtenances             | EA    | \$9,500     | 2        | \$19,000           |
| Chemical Storage Tanks                               | EA    | \$13,500    | 1        | \$13,500           |
| <b>Division 13</b>                                   |       |             |          |                    |
| Noise Attenuation Panels                             | SF    | \$25        | 1,000    | \$25,000           |
| Noise Attenuators and Silencers                      | EA    | \$8,000     | 4        | \$32,000           |
| <b>Division 15</b>                                   |       |             |          |                    |
| Mechanical Cooling System for VFDs                   | LS    | \$15,000    | 1        | \$15,000           |
| Seal Water System                                    | LS    | \$12,000    | 1        | \$12,000           |
| C1 Water System                                      | LS    | \$3,000     | 1        | \$3,000            |
| Float Switch Assembly - High Level Controls          | LS    | \$5,500     | 1        | \$5,500            |
| Float Switch Assembly - Low Level Switch             | LS    | \$4,000     | 1        | \$4,000            |
| Surge Control and Air Release Valving                | LS    | \$35,000    | 1        | \$35,000           |
| Wetwell HVAC Equipment                               | LS    | \$15,000    | 1        | \$15,000           |
| <b>Miscellaneous</b>                                 |       |             |          |                    |
| Superstructure: Roof, lighting, duct, finishes, etc. | SF    | \$250       | 1,600    | \$400,000          |
| <b>Division 16 &amp; 17</b>                          |       |             |          |                    |
| VFDs - 300 HP  | EA    | \$60,000    | 4        | \$240,000          |
| Automatic Transfer Switch for Generator              | EA    | \$40,000    | 1        | \$40,000           |
| Transformer  | EA    | \$30,000    | 1        | \$30,000           |
| Concrete Encasement for Conduit                      | LS    | \$6,000     | 1        | \$6,000            |
| Allowance for Controls                               | LS    | \$50,000    | 1        | \$50,000           |
| Miscellaneous Conduit and Cable                      | LS    | \$40,000    | 1        | \$40,000           |
| <b>SUBTOTAL</b>                                      |       |             |          | <b>\$1,530,000</b> |
| Contingency @  | 30%   |             |          | <b>\$459,000</b>   |
| <b>SUBTOTAL</b>                                      |       |             |          | <b>\$1,989,000</b> |

|   |      |      |        |                    |
|---|------|------|--------|--------------------|
| Mobilization @                            | 5.0% |      |        | \$99,000           |
| General Conditions @                      | 8.8% |      |        | \$175,000          |
| Bonds and Insurance @                     | 3.0% |      |        | \$60,000           |
| SUBTOTAL                                  |      |      |        | \$2,323,000        |
| Overhead and Profit @                     | 8.5% |      |        | \$197,000          |
| <b>Estimated Direct Construction Cost</b> |      |      |        | <b>\$2,520,000</b> |
| Sales Tax @                               | 8.6% |      |        | \$217,000          |
| <b>Total Estimated Construction Cost</b>  |      |      |        | <b>\$2,737,000</b> |
| Allied Costs                              | 35%  |      |        | \$958,000          |
| Easements                                 | SF   | \$5  | 1,000  | \$5,000            |
| Land Acquisition                          | SF   | \$25 | 25,000 | \$625,000          |
| <b>Total Estimated Project Cost</b>       |      |      |        | <b>\$4,325,000</b> |

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**King County CSI Project**  
**Juanita Bay Pump Station - Construction Cost Estimate for Alternative 4B**  
**Upgrade Existing Pump Station with New Generator and Chemical Control Facility**

|  | Units | Cost / Unit | Quantity | Estimated Cost     |
|--|-------|-------------|----------|--------------------|
| <b>Division 2</b>                                    |       |             |          |                    |
| Earthwork  | LS    | \$20,000    | 1        | \$20,000           |
| Landscaping and Irrigation                           | LS    | \$15,000    | 1        | \$15,000           |
| Soil Erosion and Sediment Control                    | LS    | \$4,000     | 1        | \$4,000            |
| <b>Division 3</b>                                    |       |             |          |                    |
| Concrete: Slabs on Grade                             | CY    | \$300       | 60       | \$18,000           |
| <b>Division 6</b>                                    |       |             |          |                    |
| RTP Grating  | SF    | \$40        | 250      | \$10,000           |
| <b>Division 9</b>                                    |       |             |          |                    |
| Painting and Protective Coatings                     | LS    | \$15,000    | 1        | \$15,000           |
| <b>Division 10</b>                                   |       |             |          |                    |
| Louvers and Vents                                    | LS    | \$20,000    | 1        | \$20,000           |
| Identification, Stenciling, and Tagging Systems      | LS    | \$1,000     | 1        | \$1,000            |
| Signage  | LS    | \$1,000     | 1        | \$1,000            |
| Fire System  | LS    | \$5,000     | 1        | \$5,000            |
| <b>Division 11</b>                                   |       |             |          |                    |
| Equipment: Non-Clog Centrifugal - 400 HP             | EA    | \$95,000    | 4        | \$380,000          |
| Engine Generators: Diesel - 1500 kW                  | EA    | \$125,000   | 1        | \$125,000          |
| Fuel Tank and ATGS                                   | LS    | \$18,000    | 1        | \$18,000           |
| Seal Water System                                    | LS    | \$20,000    | 1        | \$20,000           |
| Chemical Metering Pump and Appurtenances             | EA    | \$9,500     | 2        | \$19,000           |
| Chemical Storage Tanks                               | EA    | \$13,500    | 1        | \$13,500           |
| <b>Division 13</b>                                   |       |             |          |                    |
| Noise Attenuation Panels                             | SF    | \$25        | 1,000    | \$25,000           |
| Noise Attenuators and Silencers                      | EA    | \$9,000     | 4        | \$36,000           |
| <b>Division 15</b>                                   |       |             |          |                    |
| 18" Discharge Header                                 | LF    | \$30        | 180      | \$5,400            |
| 18" Pipe Fittings                                    | EA    | \$1,200     | 7        | \$8,400            |
| 18" Discharge Header - Supports, connect, etc. .     | LS    | \$10,000    | 1        | \$10,000           |
| Mechanical Cooling System for VFDs                   | LS    | \$15,000    | 1        | \$15,000           |
| Seal Water System                                    | LS    | \$12,000    | 1        | \$12,000           |
| C1 Water System                                      | LS    | \$3,000     | 1        | \$3,000            |
| Float Switch Assembly - High Level Controls          | LS    | \$5,500     | 1        | \$5,500            |
| Float Switch Assembly - Low Level Switch             | LS    | \$4,000     | 1        | \$4,000            |
| Surge Control and Air Release Valving                | LS    | \$35,000    | 1        | \$35,000           |
| Wetwell HVAC Equipment                               | LS    | \$15,000    | 1        | \$15,000           |
| <b>Miscellaneous</b>                                 |       |             |          |                    |
| Superstructure: Roof, lighting, duct, finishes, etc. | SF    | \$250       | 1,800    | \$450,000          |
| <b>Division 16 &amp; 17</b>                          |       |             |          |                    |
| VFDs - 400 HP  | EA    | \$80,000    | 4        | \$320,000          |
| Automatic Transfer Switch for Generator              | EA    | \$40,000    | 1        | \$40,000           |
| Transformer  | EA    | \$30,000    | 1        | \$30,000           |
| Concrete Encasement for Conduit                      | LS    | \$6,000     | 1        | \$6,000            |
| Allowance for Controls                               | LS    | \$50,000    | 1        | \$50,000           |
| Miscellaneous Conduit and Cable                      | LS    | \$40,000    | 1        | \$40,000           |
| <b>SUBTOTAL</b>                                      |       |             |          | <b>\$1,794,800</b> |

|   |      |      |        |                    |
|---|------|------|--------|--------------------|
| Contingency @                             | 30%  |      |        | <u>\$538,000</u>   |
| SUBTOTAL                                  |      |      |        | \$2,332,800        |
| Mobilization @                            | 5.0% |      |        | \$117,000          |
| General Conditions @                      | 8.8% |      |        | \$205,000          |
| Bonds and Insurance @                     | 3.0% |      |        | <u>\$70,000</u>    |
| SUBTOTAL                                  |      |      |        | \$2,725,000        |
| Overhead and Profit @                     | 8.5% |      |        | <u>\$232,000</u>   |
| <b>Estimated Direct Construction Cost</b> |      |      |        | <b>\$2,957,000</b> |
| Sales Tax @                               | 8.6% |      |        | \$254,000          |
| <b>Total Estimated Construction Cost</b>  |      |      |        | <b>\$3,211,000</b> |
| Allied Costs                              | 35%  |      |        | \$1,124,000        |
| Easements                                 | SF   | \$5  | 1,000  | \$5,000            |
| Land Acquisition                          | SF   | \$25 | 25,000 | <u>\$625,000</u>   |
| <b>Total Estimated Project Cost</b>       |      |      |        | <b>\$4,965,000</b> |

**King County CSI Project  
 Juanita Bay Pump Station  
 Operations and Maintenance Costs**

|   | Units  | Cost / Unit | Quantity  | Estimated Cost     |
|---|--------|-------------|-----------|--------------------|
| Operations and Maintenance Staff <sup>1</sup>   | HR     | \$30        | 930       | \$27,900           |
| Spare Parts and Miscellaneous Materials         | LS     | \$15,000    | 1         | \$15,000           |
| Odor Control Chemicals <sup>2</sup>             | MO     | \$2,000     | 12        | \$24,000           |
| Energy <sup>3</sup>                             | KWH    | \$0.06      | 2,000,000 | \$120,000          |
| <b>Estimated Operation and Maintenance Cost</b> |        |             |           | <b>\$186,900</b>   |
| Discount Rate                                   | 8.0%   |             |           |                    |
| Term (Years)                                    | 20     |             |           |                    |
| Present Worth Factor                            | 9.8181 |             |           |                    |
| <b>Net Present Worth</b>                        |        |             |           | <b>\$1,835,000</b> |

(1) Assumes staff of two with daily visits to the pump station. One hour each visit. Plus 200 extra hours for larger maintenance items.

(2) Based on cost for caustic recommended in ESI Chemical Injection Feasibility Study Draft Report, December, 1998. Table 5-1.

(3) Includes base rate, demand charges, and potential increase in power costs.

Energy consumption was based on an ADWF of 4.6 mgd and water-to-wire efficiency of 60 percent.