



A **tyco** International Ltd. Company

# Red River - Biota WTP 100MLD Water Treatment Plant

No Action - Chlorine

Job No. 89638

## Conceptual Cost Estimate - Summary

17-Feb-08

| Item   | Description                              | Quantity | Unit | Unit Price | Extension (\$)      |
|--|--|----------|------|------------|---------------------|
| 1.0  | General Requirements                     | 1        | LS   | NA         | \$ 328,000          |
| 2.0  | Civil and Site Work                      | 1        | LS   | NA         | \$ 510,000          |
| 3.0  | Architectural and Structural             | 1        | LS   | NA         | \$ 230,000          |
| 4.0  | Process Mechanical                       | 1        | LS   | NA         | \$ 429,000          |
| 5.0  | Building Mechanical                      | 1        | LS   | NA         | \$ 102,500          |
| 6.0  | Electrical, Instrumentation and Controls | 1        | LS   | NA         | \$ 718,000          |
| <b>Sub-Total Complete Project</b>                    |  |          |      |            | <b>\$ 2,318,000</b> |
| Owner Supplied Furniture, Lab Equipment, Etc.        |  |          |      |            | \$ 150,000          |
| <b>Contract Cost</b>                                 |  |          |      |            | <b>\$ 2,468,000</b> |
| Contingencies (21%)                                  |  |          |      |            | <b>\$ 519,000</b>   |
| <b>Field Cost (Contract cost plus 21%)</b>           |  |          |      |            | <b>\$ 2,987,000</b> |
| Non Contract Costs (25%)                             |  |          |      |            | \$ 747,000          |
| <b>ESTIMATED TOTAL PROJECT COST (Biota WTP only)</b> |  |          |      |            | <b>\$ 3,734,000</b> |

### SUMMARY OF TOTAL PROJECT COSTS - EARTH TECH

| Features                                   | Construction Cost<br>(2007 dollars) | Annual OM&R      |
|--|-------------------------------------|------------------|
| Inlet                                      | \$126,000                           | \$0.00           |
| Biota Treatment – Cl2                      | \$2,468,000                         | \$104,000        |
| Booster Pump Station                       | \$3,171,000                         | \$128,000        |
| <b>Contract Costs</b>                      | <b>\$5,765,000</b>                  |                  |
| Contingencies (21%+/-)                     | \$1,211,000                         |                  |
| <b>Field Cost</b>                          | <b>\$6,976,000</b>                  |                  |
| Non-Contract Costs (25%+/-)                | \$1,744,000                         |                  |
| <b>Total Construction / OM&amp;R Costs</b> | <b>\$8,720,000</b>                  | <b>\$232,000</b> |

Notes: 1. Costs for Inlet and Booster Pump Station based on DEIS estimate



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| Item       | Description                                     | Quantity | Unit   | Unit Price | Extension (\$) |
|------------|---|----------|--------|------------|----------------|
| <b>1.0</b> | <b>GENERAL REQUIREMENTS</b>                     |          |        |            |                |
| 1.1        | 50% Performance Bonds                           | 1        | LS     | 25,000 \$  | 25,000         |
| 1.2        | Insurance (General Contractor)                  | 1        | LS     | 25,000 \$  | 25,000         |
| 1.3        | Overhead - Indirect Costs (5% of project value) | 1        | LS     | 99,000 \$  | 99,000         |
| 1.4        | Profit (5% of project value)                    | 1        | LS     | 99,000 \$  | 99,000         |
| 1.5        | Site soft costs                                 | 8        | months | 10,000 \$  | 80,000         |
|            | <b>TOTAL 1.0 - GENERAL REQUIREMENTS</b>         |          |        | <b>\$</b>  | <b>328,000</b> |

Overhead is based on 5% of the project cost before including the construction contingency and general requirements. The contractor overhead covers office management and support staff, main office costs, etc.

Profit is based on 5% of the total project cost before including the construction contingency and general requirements.

Site soft cost are for construction power, site office, site foreman, first-aid attendant, telephones, site trailers, crew trucks and other miscellaneous support equipment located on-site.



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Conceptual Cost Estimate - Civil

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| Item       | Description                                   | Quantity | Unit | Unit Price | Extension (\$) |
|------------|---|----------|------|------------|----------------|
| <b>2.0</b> | <b>CIVIL</b>                                  |          |      |            |                |
| <b>2.1</b> | <b>Common Excavation</b>                      |          |      |            |                |
| 2.1.1      | <u>WTP Building</u>                           |          |      |            |                |
|            | Common Excavation and Disposal (Granular)     | 144      | m3   | 9.0        | 1,296          |
|            | Excavation and Off-Site Disposal (Organics)   | 72       | m3   | 15.0       | 1,080          |
|            | Granular Fill from Stockpile                  | 22       | m3   | 9          | 194            |
|            | Till Excavation and Placement                 | 72       | m3   | 20         | 1,440          |
|            | Total 2.1.2 - Excavation                      |          |      |            | 4,010          |
| <b>2.2</b> | <b>Fencing</b>                                |          |      |            |                |
| 2.2.1      | Fencing - 1.8 m chain link                    | 200      | m    | 55         | 11,000         |
| 2.2.2      | Gates   | 2        | LS   | 3,500      | 7,000          |
|            | <b>Total 2.2 - Fencing</b>                    |          |      |            | <b>18,000</b>  |
| <b>2.3</b> | <b>Clearing and Grubbing</b>                  |          |      |            |                |
| 2.3.1      | Clearing and Grubbing Allowance               | 1        | LS   | 20,000     | 20,000         |
|            | <b>Total 2.3 - Clearing and Grubbing</b>      |          |      |            | <b>20,000</b>  |
| <b>2.4</b> | <b>Roadworks and Grading</b>                  |          |      |            |                |
| 2.4.1      | Paved Access Roads (7 m wide)                 | 1000     | m2   | \$ 20.00   | 20,000         |
| 2.4.2      | Paved Parking Areas c/w Granular Base         | 200      | m2   | \$ 25.00   | 5,000          |
|            | <b>Total 2.4 - Roadworks and Grading</b>      |          |      |            | <b>25,000</b>  |
| <b>2.5</b> | <b>Yard Piping and Facilities</b>             |          |      |            |                |
| 2.5.1      | Raw Water Connection Allowance                | 1        | LS   | 10,000     | 10,000         |
| 2.5.2      | Treated Water Connection Allowance            | 1        | LS   | 10,000     | 10,000         |
| 2.5.3      | Site Piping Allowance                         | 1        | LS   | 25,000     | 400,000        |
| 2.5.4      | Storm Drainage Allowance                      | 1        | LS   | 10,000     | 10,000         |
| 2.5.5      | Sanitary Waste Holding Tank and Tile Field    | 1        | LS   | 20,000     | 20,000         |
|            | <b>Total 2.5 - Yard Piping and Facilities</b> |          |      |            | <b>450,000</b> |
|            | <b>TOTAL 2.0 - CIVIL</b>                      |          |      |            | <b>510,000</b> |

## Red River - Biota WTP 100MLD Water Treatment Plant

No Action - Chlorine

Job No. 89638

Conceptual Cost Estimate - Structural

17-Feb-08

| Item       | Description  | Quantity | Unit | Unit Price | Extension (\$) |
|------------|--|----------|------|------------|----------------|
| <b>3.0</b> | <b>STRUCTURAL</b>  |          |      |            |                |
| <b>3.1</b> | <b>Concrete</b>  |          |      |            |                |
| 3.1.1      | <u>Chlorine Building</u>                                 |          |      |            |                |
|            | Exterior East wall                                       | 0        | m3   | 1,400      | 0              |
|            | Exterior West wall                                       | 0        | m3   | 1,400      | 0              |
|            | Exterior South wall                                      | 0        | m3   | 1,400      | 0              |
|            | Exterior North wall                                      | 0        | m3   | 1,400      | 0              |
|            | Base slab  | 50       | m3   | 950        | 47,500         |
|            | Total 3.1.1 - Concrete                                   |          |      |            | 47,500         |
| <b>3.2</b> | <b>Buildings</b>   |          |      |            |                |
| 3.2.1      | <u>WTP</u>   |          |      |            |                |
|            | Masonry block  |          |      |            |                |
|            | Exterior East wall                                       | 100      | m2   | 175        | 17,500         |
|            | Exterior West wall                                       | 100      | m2   | 175        | 17,500         |
|            | Exterior South wall                                      | 0        | m2   | 175        | 0              |
|            | Exterior North wall                                      | 0        | m2   | 175        | 0              |
|            | Interior walls   | 100      | m2   | 175        | 17,500         |
|            | Roof (steel truss, q-deck, and metal cladding)           | 200      | m2   | 170        | 34,000         |
|            | Metal Wall Cladding                                      | 200      | m2   | 75         | 15,000         |
|            | Administration Area & Architectural Finishes             | 1        | LS   | 10,000     | 10,000         |
|            | Total 3.2.1 - WTP Building                               |          |      |            | 111,500        |
|            | <b>Total 3.2 - Buildings</b>                             |          |      |            | <b>111,500</b> |
| <b>3.3</b> | <b>Miscellaneous Metals</b>                              |          |      |            |                |
| 3.3.1      | Miscellaneous Metals Allowance (Handrails, Grating, Etc) | 1        | m    | 15,000     | 15,000         |
|            | <b>Total 3.3 - Miscellaneous Metals</b>                  |          |      |            | <b>15,000</b>  |
| <b>3.4</b> | <b>Doors, Windows, and Hatches</b>                       |          |      |            |                |
| 3.4.1      | Single Door  | 2        | ea   | 4,000      | 8,000          |
| 3.4.2      | Double Door  | 2        | ea   | 7,500      | 15,000         |
| 3.4.3      | Insulated Rolling Overhead Door                          | 1        | ea   | 10,000     | 10,000         |
| 3.4.4      | Access Hatches   | 2        | m2   | 2,500      | 5,000          |
| 3.4.5      | Window Allowance   | 1        | LS   | 15,000     | 15,000         |
|            | <b>Total 3.4 - Doors, Windows and Hatches</b>            |          |      |            | <b>53,000</b>  |
|            | <b>TOTAL 3.0 - STRUCTURAL</b>                            |          |      |            | <b>230,000</b> |

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Conceptual Cost Estimate - Process Mechanical

17-Feb-08

| Item       | Description  | Quantity | Unit | Unit Price | Extension (\$) |
|------------|--|----------|------|------------|----------------|
| <b>4.0</b> | <b>PROCESS MECHANICAL</b>                            |          |      |            |                |
| <b>4.1</b> | <b>Mechanical Equipment</b>                          |          |      |            |                |
|            | <u>Piping, Fittings, Valves</u>                      |          |      |            |                |
| 4.2        | Process Piping Allowance                             | 1        | LS   | 20,000     | 20,000         |
|            | Installation allowance                               | 1        | LS   | 5,000      | 5,000          |
|            | <b>Total 4.2 - Piping, Fittings and Valves</b>       |          |      |            | <b>25,000</b>  |
| <b>4.3</b> | <b>Chlorination Equipment</b>                        |          |      |            |                |
| 4.3.1      | Chlorination Equipment - Clarified water system      | 1        | LS   | 250,000    | 250,000        |
| 4.3.2      | Chlorine booster pumps (2 duplex sets)               | 2        | LS   | 2,000      | 4,000          |
| 4.3.3      | Chlorine room hoist and trolley                      | 1        | LS   | 50,000     | 50,000         |
| 4.3.4      | Chlorine equipment installation                      | 1        | LS   | 50,000     | 50,000         |
| 4.3.4      | Chlorine service water treatment                     | 1        | LS   | 50,000     | 50,000         |
|            | <b>Total 4.3 - Chlorination Equipment Relocation</b> |          |      |            | <b>404,000</b> |
|            | <b>TOTAL 4.0 - PROCESS MECHANICAL</b>                |          |      |            | <b>429,000</b> |

All the shown supply prices were determined by marking up the quoted value by 10% to cover known miscellaneous items associated with the equipment but not included in the quotation. PST was added to all the quoted amounts.



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Conceptual Cost Estimate - Building Mechanical

17-Feb-08

| Item       | Description   | Quantity | Unit | Unit Price | Extension (\$) |
|------------|---|----------|------|------------|----------------|
| <b>5.0</b> | <b>BUILDING MECHANICAL</b>                          |          |      |            |                |
| 5.1        | <u>Building Heating and Ventilation</u>             |          |      |            |                |
| 5.1.2      | Office and Administration (AHU)                     | 1        | ea   | 15,000     | 15,000         |
| 5.1.3      | Electrical Room (AHU)                               | 1        | ea   | 15,000     | 15,000         |
| 5.1.4      | Ducting and Installation                            | 1        | LS   | 15,000     | 15,000         |
| 5.1.5      | Heating and Ventilation Controls                    | 1        | ea   | 2,500      | 2,500          |
| 5.1.6      | Chlorine area                                       | 1        | ea   | 50,000     | 50,000         |
|            | <b>Total 5.1 - Building Heating and Ventilation</b> |          |      |            | <b>97,500</b>  |
| 5.2        | <u>Plumbing</u>                                     |          |      |            |                |
| 5.2.1      | Domestic Plumbing Allowance                         | 1        | LS   | 5,000      | 5,000          |
|            | <b>Total 5.2 - Plumbing</b>                         |          |      |            | <b>5,000</b>   |
|            | <b>TOTAL 5.0 - BUILDING MECHANICAL</b>              |          |      |            | <b>102,500</b> |



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Conceptual Cost Estimate - Electrical

17-Feb-08

| Item       | Description   | Quantity | Unit | Unit Price | Extension (\$) |
|------------|---|----------|------|------------|----------------|
| <b>6.0</b> | <b>ELECTRICAL AND INSTRUMENTATION</b>                 |          |      |            |                |
| <b>6.1</b> | <b>Electrical</b>                                     |          |      |            |                |
| 6.1.1      | Electrical Service and Hydro Connection Fees          | 1        | LS   | 50,000     | \$ 50,000.00   |
| 6.1.2      | Outdoor Sub-station                                   | 1        | LS   | 15,000     | \$ 15,000.00   |
| 6.1.3      | MCC and Power Distribution                            | 1        | LS   | 10,000     | \$ 10,000.00   |
| 6.1.4      | Power Factor Correction Unit                          | 1        | LS   | 5,000      | \$ 5,000.00    |
| 6.1.5      | Panelboards & UPS & ByPass                            | 1        | LS   | 5,000      | \$ 5,000.00    |
| 6.1.6      | Exterior Stand-By Generator                           | 1        | LS   | 35,000     | \$ 450,000.00  |
| 6.1.7      | Transfer Switch                                       | 1        | LS   | 5,000      | \$ 5,000.00    |
| 6.1.8      | Exterior Duct banks & Manholes                        | 1        | LS   | 5,000      | \$ 5,000.00    |
| 6.1.9      | Power feeders to Process Loads                        | 1        | LS   | 10,000     | \$ 10,000.00   |
| 6.1.10     | Field Miscellaneous                                   | 1        | LS   | 5,000      | \$ 5,000.00    |
| 6.1.11     | Cable Tray and Grounding Installation                 | 1        | LS   | 6,000      | \$ 6,000.00    |
| 6.1.12     | Security & F/A system H/W                             | 1        | LS   | 15,000     | \$ 15,000.00   |
| 6.1.13     | Testing, Commissioning and Start-up                   | 1        | LS   | 10,000     | \$ 10,000.00   |
|            | <b>Total 6.1 - Electrical</b>                         |          |      |            | <b>591,000</b> |
| <b>6.2</b> | <b>Instrumentation</b>                                |          |      |            |                |
| 6.2.1      | SCADA Control H/W - Including Panelboards & PLC       | 1        | LS   | 15,000     | \$ 15,000.00   |
| 6.2.2      | SCADA HMI H/W - OI Stations and support               | 1        | LS   | 10,000     | \$ 10,000.00   |
| 6.2.3      | SCADA Software & Integrator cost                      | 1        | LS   | 15,000     | \$ 15,000.00   |
| 6.2.4      | Field Instruments                                     | 1        | LS   | 25,000     | \$ 25,000.00   |
| 6.2.5      | Field components for Local Control Panels             | 1        | LS   | 5,000      | \$ 5,000.00    |
| 6.2.6      | Instrumentation wiring - Standard + Profibus Backbone | 1        | LS   | 5,000      | \$ 5,000.00    |
| 6.2.7      | Fielbus Topology Field Wiring & Connection Install    | 1        | LS   | 5,000      | \$ 5,000.00    |
| 6.2.8      | Instrumentation Tubing & Stands                       | 1        | LS   | 2,000      | \$ 2,000.00    |
| 6.2.9      | Testing Commissioning and Start-up                    | 1        | LS   | 5,000      | \$ 5,000.00    |
| 6.2.10     | SCADA Telemetry Upgrades                              | 1        | LS   | 5,000      | \$ 40,000.00   |
|            | <b>Total 6.2 - Instrumentation</b>                    |          |      |            | <b>127,000</b> |
|            | <b>TOTAL 6.0 - ELECTRICAL &amp; INSTRUMENTATION</b>   |          |      |            | <b>718,000</b> |