Cedar Grove Composting
Stormwater Treatment Options

Presented By
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Facility Design Aspects

- High Contact Area Drain to Separate Location
- High Traffic Drain to Oil/Water Separator
- Fresh Material Down Stream From Finished
Best Management Practice (BMP)

Typical Site Plan

Contaminated Side

Grinding and Mixing Area
Receiving Area

First Phase
Composting

Second Phase
Composting

Treated Side

Screening
Finished Product Storage and Sales

Off Site Customer

Stormwater/Leachate Flow

Normal Wind Direction

Material Flow

Stormwater/leachate Ponds

Customer

Contaminated Side

Treated Side
Receiving Building
## Facility with Stormwater and Leachate Combined (Source controlled)

<table>
<thead>
<tr>
<th></th>
<th>pH</th>
<th>Copper</th>
<th>Lead</th>
<th>Zinc</th>
<th>Ammonia</th>
<th>BOD</th>
<th>TDS</th>
<th>Phos</th>
<th>E.Coli</th>
<th>Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proposed Standard</strong></td>
<td>5.5-9.0</td>
<td>.18</td>
<td>.05</td>
<td>1.2</td>
<td>3.0</td>
<td>30</td>
<td>1000</td>
<td>.7</td>
<td>126</td>
<td>15</td>
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<tr>
<td><strong>Pond 1, Lined, Highly Aerated</strong></td>
<td>7.5</td>
<td>.069</td>
<td>.05</td>
<td>.28</td>
<td>33</td>
<td>442</td>
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<td>5000</td>
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<td><strong>Pond 2, Lined Highly Aerated</strong></td>
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<td>.028</td>
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<tr>
<td><strong>Pond 3, Lined Slightly Aerated</strong></td>
<td>8</td>
<td>.048</td>
<td>ND</td>
<td>.17</td>
<td>.12</td>
<td>13</td>
<td>592</td>
<td>ND</td>
<td>30</td>
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</tbody>
</table>

**Pre-elements**

**Oil Water Separator in High Traffic Area**

**Solid Separators**
## Facility with Stormwater Separated From Leachate (source controlled)

<table>
<thead>
<tr>
<th></th>
<th>pH</th>
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<tr>
<td><strong>Proposed Standard</strong></td>
<td>5.5-9.0</td>
<td>0.18</td>
<td>0.05</td>
<td>1.2</td>
<td>3.0</td>
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<td>1000</td>
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<td>15</td>
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<tr>
<td><strong>4 Phase Solid Separator</strong></td>
<td>6.54</td>
<td>0.06</td>
<td>0.05</td>
<td>0.3</td>
<td>10</td>
<td>97</td>
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<td>ND</td>
<td>1600</td>
<td>ND</td>
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<td><strong>Pond 1, Lined Lightly Aerated</strong></td>
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<td>ND</td>
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<td>ND</td>
<td>ND</td>
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<td><strong>Bioswale</strong></td>
<td>7.6</td>
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<td>ND</td>
<td>ND</td>
<td>0.19</td>
<td>13</td>
<td>NT</td>
<td>ND</td>
<td>ND</td>
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</tbody>
</table>

**Pre-elements**
- Oil Water Separator in High Traffic Area
- Solid Separators
<table>
<thead>
<tr>
<th>Treatment Method</th>
<th>PPM</th>
</tr>
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<tbody>
<tr>
<td>Proposed Standard</td>
<td>0.31</td>
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<tr>
<td>Pond 1 L/High Air/Storm with Leachate</td>
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<tr>
<td>Pond 2 L/High Air/Storm with Leachate</td>
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<td>Pond 3 L/High Air/Storm with Leachate</td>
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<tr>
<td>Four Phase Solid Separator Stormwater</td>
<td>10.2</td>
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<tr>
<td>Pond 2 Lined Slightly Aerated Stormwater</td>
<td>0.19</td>
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<tr>
<td>Bioswale Stormwater</td>
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Proposed Standard
Pond 1 L/High Air/Storm with Leachate
Pond 2 L/High Air/Storm with Leachate
Pond 3 L/High Air/Storm with Leachate
Four Phase Solid Separator Stormwater
Pond 2 Lined Slightly Aerated Stormwater
Bioswale Stormwater

Treatment Method
Functional Stormwater Treatment

**Lower Cost**
- Compost Berms
- Solid Separators
- Bioswales

**Higher Cost**
- Lined Ponds
- Pond Aeration
- Multiple Units or Treatment Trains
Stormwater Operational Practices

- **Sweeper Truck**: $75 per hour
  - 4hr twice/wk = $600 per week
- **Keep Solid Separators and Catch Basins Clean**: $75 per hour
  - 2 hr = $150 per week
Cost of Each Treatment Unit

- Oil/Water Separator: $41,000
- Solid Separator: $58,500
- 46,000 Leachate Tank: $150,000
  w/Secondary Containment, Cover, Pump and Line
- 2-500,000 gal Lined Ponds: $83,000
  (100 mil liner) Double bottom, add $40K for excavation
  ($7,000 80 mil liner)
- 3-Surface Aerator (stainless steel): $20,000
  (7 hp)
- 500,000 gal wet pond: $25,000
- 600 ft Bioswale (add $2k for veg): $7,000
- Leachate pump to re-hydrate and plumb line from tank: $9,000
Most Effective For the Least Cost

- Sweeper truck once per week
- Compost Berm 1” Screen Material
  
  \[1 \text{ ft High} \quad \text{by} \quad 3 \text{ ft Wide}\]
- 4 Phase Solid Separator
- 1 Wet Pond
- 1 Bioswale