Sustainability Stars Forum Featuring:
The Treehouse, MetroNational
Jersey Meadows, HCFCD
Stonebrook Estates, Terra Visions
Kendall Library, City of Houston
Stonebrook Estates
Terra Visions, LLC.

Presented by
Randy Jones, Terra Visions, LLC
Michael F. Bloom, P.E., ENV SP, R. G. Miller Engineers, Inc.
Project Summary Information

• **Purpose:**
  • Develop residential community while meeting drainage and stormwater quality requirements in a cost effective manner.

• **Type:**
  • Residential Neighborhood Development

• **Status:**
  • Lots and infrastructure fully constructed.
  • Homes 55% completed.
Firms and Sustainability Elements

• Professional Service Providers:
  • Aguirre & Fields
  • R. G. Miller Engineers, Inc.

• Key Sustainability Elements:
  • Low Impact Development Techniques – “Natural Drainage Features”
  • Stormwater Quality Treatment Using Bioretention Systems
  • Reduced Use of Concrete Storm Sewers
Why Sustainability Was Used

• Create Distinctive Front Entry Along Busy Major Thoroughfare
• Reduce Detention Volume
• Enhance Open / Green Space
• Reduce Storm Sewer Drainage System Costs
## Cost & Size

- **$11.4 million**
- **51.4 acres**
- **135 lots, both 70’ x 125’ and 80’ x 130’**

<table>
<thead>
<tr>
<th>DRAINAGE SYSTEM ELEMENTS</th>
<th>HYBRID DEVELOPMENT</th>
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<tbody>
<tr>
<td>Development Area</td>
<td>51.4 acres</td>
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<tr>
<td>Total Number of Lots</td>
<td>135</td>
</tr>
<tr>
<td>Storm Sewer and Bioswales</td>
<td>$675,000</td>
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<tr>
<td>Detention Basin</td>
<td>$213,000</td>
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<tr>
<td>Storm Water Pollution Prevention</td>
<td>$7,000</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$895,000</strong></td>
</tr>
<tr>
<td>Number of LID Lots</td>
<td>92 (68%)</td>
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<tr>
<td>Number of Traditional Lots</td>
<td>43 (32%)</td>
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<tr>
<td>Prorated Drainage System Cost Per LID Lot</td>
<td>$6,615 / lot</td>
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<tr>
<td>Prorated Drainage System Cost Per Traditional Lot</td>
<td>$6,660 / lot</td>
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Lessons Learned

• Erosion & Sediment Control is More Challenging
• Protect the Bioretention Systems!
• Construction Sequence is Unique
• Paving Contractors not Used to Single Cross Slope Roads
• Might Consider Removing Fence Separation Between Bioswales with the Residential Areas in Future Projects
Bioretention System

- Clean, Shredded Hardwood Mulch
- High Performance Biofiltration Media
- Clean Bridging Stone
- Open Mesh Geotextile
- Modular High Performance Underdrain Storage System

SOURCE: Convergent Water Technologies, Inc.