I. Understanding the Basics of Irrigation in LWR

II. Main Issues Pertaining to Irrigation in LWR

III. IDA’s Plan to Address These Issues
I. Understanding the Basics
## I. Understanding the Basics

### Definition of Terms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDA</td>
<td>Inter-District Authority</td>
</tr>
<tr>
<td>SMR</td>
<td>Schroeder Manatee Ranch, Inc.</td>
</tr>
<tr>
<td>BRU</td>
<td>Braden River Utilities (Subsidiary of SMR)</td>
</tr>
<tr>
<td>SWFWMD</td>
<td>Southwest Florida Water Management District</td>
</tr>
<tr>
<td>MOU</td>
<td>Memorandum of Understanding</td>
</tr>
</tbody>
</table>
I. Understanding the Basics

1. Where does irrigation water come from?

2. How is this water distributed?

3. How is the water regulated?
I. Understanding the Basics

Irrigation water (Reuse)  Vs.  Drinking water (Potable)
I. Understanding the Basics

1. Where does irrigation water come from?

- From BRU
  - 10 Wells
  - 2 Lakes
  - Reclaimed Water (soon)
I. Understanding the Basics

1. Where does irrigation water come from?
I. Understanding the Basics

1. Where does irrigation water come from?

<table>
<thead>
<tr>
<th>Source</th>
<th>Location</th>
<th>ADF (gpm)</th>
<th>Peak (gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>W 26</td>
<td>Greenbrook</td>
<td>206</td>
<td>579</td>
</tr>
<tr>
<td>W 35</td>
<td>Country Club</td>
<td>164</td>
<td>486</td>
</tr>
<tr>
<td>L 51</td>
<td>Uihlein</td>
<td>798</td>
<td>1785</td>
</tr>
<tr>
<td>W 54</td>
<td>Country Club</td>
<td>1,305</td>
<td>1,792</td>
</tr>
<tr>
<td>L 57</td>
<td>Kent</td>
<td>398</td>
<td>1,042</td>
</tr>
<tr>
<td>W 60</td>
<td>Players' Drive</td>
<td>1,305</td>
<td>1,792</td>
</tr>
<tr>
<td>W 61</td>
<td>Country Club</td>
<td>1,305</td>
<td>1,792</td>
</tr>
<tr>
<td>W 65</td>
<td>Riverwalk</td>
<td>486</td>
<td>694</td>
</tr>
<tr>
<td>W 66</td>
<td>Greenbrook</td>
<td>486</td>
<td>694</td>
</tr>
<tr>
<td>W 67</td>
<td>Lake Club</td>
<td>486</td>
<td>694</td>
</tr>
<tr>
<td>W 70</td>
<td>Pope Road</td>
<td>486</td>
<td>694</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>7,425</td>
<td>12,044</td>
</tr>
</tbody>
</table>
1. Understanding the Basics

2. How is this water distributed?

- Through pressurized pipelines
I. Understanding the Basics

3. How is the water use regulated?

- By BRU determined irrigation schedule within or more stringent than SWFWMD rules.

<table>
<thead>
<tr>
<th>CDD # 1 Neighborhood</th>
<th>Irrigation Day/Time</th>
<th>Duration (Hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluffs</td>
<td>Fr. 3:00-6:00 (Odd)</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>Fr. 6:30-10:00 (Even)</td>
<td></td>
</tr>
<tr>
<td>Crest</td>
<td>Fr. 12:00-2:00 (Odd)</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>Fr. 2:00-4:00 (Even)</td>
<td></td>
</tr>
<tr>
<td>Forest</td>
<td>Sunday 12:00-1.30</td>
<td>1.5</td>
</tr>
</tbody>
</table>
I. Understanding the Basics

Key Points

1. Irrigation water provided by Braden River Utilities

2. Irrigation water delivered by pipelines owned by the Districts

3. Watering schedules including number of days determined by BRU
II. Main Issues Pertaining to Irrigation in LWR
II. Main Issues Pertaining to Irrigation in LWR

**Summary**

- Water Quality
- Water Quantity
- Schedules
II. Main Issues Pertaining to Irrigation in LWR

1. Water Quality
II. Main Issues Pertaining to Irrigation in LWR

2. Water Quantity (Pressure)
II. Main Issues Pertaining to Irrigation in LWR

3. Irrigation Schedules

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<td></td>
</tr>
</tbody>
</table>

Variance 02-1947

Areas assigned this day on the April 1, 2002 schedule ... May, at the discretion of Schroeder-Manatee Ranch or its successor with responsibility for irrigation management in Lakewood Ranch, also be irrigated on ...

<table>
<thead>
<tr>
<th>Sundays</th>
<th>Wednesdays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mondays</td>
<td>Thursdays</td>
</tr>
<tr>
<td>Tuesdays</td>
<td>Fridays</td>
</tr>
<tr>
<td>Wednesdays</td>
<td>Saturdays</td>
</tr>
<tr>
<td>Thursdays</td>
<td>Sundays</td>
</tr>
<tr>
<td>Fridays</td>
<td>Mondays</td>
</tr>
<tr>
<td>Saturdays</td>
<td>Tuesdays</td>
</tr>
</tbody>
</table>
III. IDA’s Plan to Address the Irrigation Issues
IDA retained a Consultant to address these issues in accordance with the following tasks:

- Review previous pertinent reports, permits, etc.
- Understand water usage and billing.
- Recommend specific, strategic, prioritized improvements
III. IDA’s Plan to Address the Irrigation Issues

- Review previous pertinent reports, permits, etc.

1. 2002 BRU Report by Boyle Engineering
   - Recognized water pressure and water quality problems.
   - For improving pressures recommended revised irrigation schedules, and certain pipeline upsizing.
   - For improving water quality recommended chlorination/filtration at sources.
III. IDA’s Plan to Address the Irrigation Issues

- Review previous pertinent reports, permits, etc.

2. 2005 BRU Report by Boyle Engineering

- Recognized water pressure and water quality problems.
- For improving pressures recommended revised irrigation schedules.
- For improving water quality recommended chlorination & filtration at sources and flushing of pipelines.
III. IDA's Plan to Address the Irrigation Issues

- Review previous pertinent reports, permits, etc.

3. 2007 BRU Report by Progressive Water Resources

- Recognized water pressure and water quality problems.
- Recommended revised irrigation schedules.
- Recommended chlorination/filtration at sources and flushing of pipelines.
- Recommended quarterly testing of source water quality.
Task 1 Conclusions

Confirmed much of what we thought we already knew

All previous reports funded by BRU noted:
    Pressure problems
    Water Quality problems
Second Major Task

Water Usage and Billing
III. IDA’s Plan to Address the Irrigation Issues

Understand water usage and billing

Water Used by IDA equals Water Produced by SMR less Water used by about 50 retail customers
III. IDA’s Plan to Address the Irrigation Issues

- Understand water usage and billing

Water used by about 50 retail customers

- Some meters not working
- Golf course water usage wrongly measured
- Double accounting of Kent Lake water (resulted in a credit of about $90,000)
Third Major Task

Create Hydraulic Model

Review scheduling

Analyze Hydraulic Performance

Make specific, strategic and prioritized improvements
III. IDA’s Plan to Address the Irrigation Issues

1. Evaluate impact of randomized demand distribution.

   • Strict scheduling may work against us

     ➢ Study impacts of homeowners irrigating at their convenience on any day and at any time within SWFWMD guide lines.

     ➢ This will require educating homeowners not irrigate more than twice a week.
III. IDA’s Plan to Address the Irrigation Issues

2. Create IDA-owned Hydraulic Model.

• Analyze hydraulic performance.

  ➢ Under existing conditions and schedules.
  ➢ Under randomized demands and different piping configurations.
  ➢ Under 2 days/week irrigation, etc.
3. Recommend Improvements.

- Prioritized improvements based on:
  - Area-specific gravity of pressure problems.
  - Cost of Improvements.
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II. Main Issues Pertaining to Irrigation in LWR
III. IDA’s Plan to Address These Issues
Conclusions

Cooperative effort seeking same goals

Water quality improvements
• Filtration and chlorination
• Reclaimed water

Water pressure improvements
• Randomized scheduling
• Prioritized pipeline improvements
• Additional pump installations