Churchill Downs – West Side Parking Improvements
Over 40 years of service...

...with all of your solutions under one roof.

Louisville, KY (Corporate HQ-image above) • Frankfort, KY • Somerset, KY • Knoxville, TN • Bristol, TN • Norcross, GA • New Albany, IN
Agenda

• Design:
  – Background
  – Overall Project Improvements
  – Sizing and Locating the Infiltration Basins
  – Additional Green Design Elements
  – 3D Model Flythrough Video

• Construction
143 Years of evolving tradition!
Churchill Downs - More than two days a year!

- 182 full-time employees
- 334 part-time employees
- 4,117 seasonal employees
- 12,000 total employees Derby week
The Kentucky Derby – The Heartbeat of Churchill Downs

- The Kentucky Derby is not just “The Greatest Two Minutes in Sports” – it's a cultural and social phenomenon

- The longest continuously running sporting event in North America – 143 years

- Forbes ranks the Kentucky Derby one of the ten most valuable sporting event brands in the world*

*Event brand value is estimated by Forbes Magazine as the average revenue from sponsorships, tickets and licensed merchandise per event day of competition.
Kentucky Derby Economic Impact

- **Total Economic Impact - 2001**: $217 Million
  - **Direct Economic Impact**: $137 Million
  - **Indirect Economic Impact**: $80 Million

- **In 2013**: $46.7 million in *hotel room revenue* for the Thursday, Friday, Saturday of Derby week

- **Attendance**
  - **2015 Derby Day**: 170,000
  - **2016 Oaks Day**: 124,000

- **2017 Record Handle**
  - **All Sources**: $209 million
  - **Derby Race Alone**: $139 million

- **Number of Mint Juleps Sold**
  - **127,000!**
Investment in Facilities - $242 million since 2001; $122 million since 2010

Better facilities help create a better guest experience

- Jockey Club Suites and Finish Line Tower (Millionaires Row) – 2001-05
- Permanent Lights – 2010
- The Mansion, Parlay (OTB), The Paddock Plaza – 2013
- Grandstand Pavilion and Terrace – 2014
- 4K Video Board – 2014
- Winner’s Circle Courtyard and Boxes – 2015
- Stakes Room and Turf Club redesign – 2016
- Control Room – 2016
- 2nd Floor Clubhouse Renovation – 2017
- Starting Gate Suites – 2018

Example of measured experience improvement

OVERALL NPS SCORE for Kentucky Derby 2013

OVERALL NPS SCORE for Kentucky Derby 2014
We remain focused on improving the overall experience

Opportunities to address from 2017 Oaks and Derby Customer Survey Feedback. Parking, Shuttles and Traffic is a recurring theme from prior years and consistent across seating categories.

<table>
<thead>
<tr>
<th>DINING &amp; HOSPITALITY</th>
<th>RESERVED SEATS</th>
<th>SUITES</th>
<th>GENERAL ADMISSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Getting to Churchill Downs (Parking, Traffic)</td>
<td>• Getting to Churchill Downs (Parking, Shuttles, Traffic)</td>
<td>• Getting to Churchill Downs (Parking, Traffic, Entry, Wayfinding)</td>
<td>• Getting to Churchill Downs (Parking, Shuttles, Traffic, Entry)</td>
</tr>
</tbody>
</table>

* Churchill Downs is committed to improving the parking and accessibility for their guests.*
Existing Conditions

Gate 1
Gate 17
Gate 10
Central Ave
S. 9th St
Ruthe Ave
Homeview Dr
Warren Ave
Hornbrey Ave
Bohannon Ave
Taylor Blvd
Longfield Ave
Wizard Ave
Queen Ave
Road Closure Areas

- Right-of-Way to be Closed/Relocated
- Right-of-Way/Easement to be Dedicated
Proposed Improvements
Proposed Improvements
1937 Flooding
2009 Flooding
The location and size of the Churchill Downs facility is unique due to its proximity to 2 of MSD’s largest combined trunk sewers and watersheds which cross the CD property and drain to two large Combined Sewer Overflows on the Ohio River.

Both of these trunk sewers have a large combined sewer overflow. Churchill and MSD have worked together to design and construct 2 oversized underground infiltration basins, which will effectively remove the impacts of this 50-acre parking area and thus relieve both watersheds significantly.

This collaboration between Churchill Downs and MSD is one of the most community wide and cost-effective examples to-date to allow MSD to meet its regulatory requirements while promoting green infrastructure.
Underground Infiltration/Detention - Locating
## Underground Infiltration/Detention - Sizing

<table>
<thead>
<tr>
<th>North Lot</th>
<th>South Lot &amp; Interior Wall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Post 100-Year Flow</strong></td>
<td>140.05 cfs</td>
</tr>
<tr>
<td><strong>Pre 10-Year Flow</strong></td>
<td>94.17 cfs</td>
</tr>
<tr>
<td><strong>Storage Required</strong></td>
<td>130,000 ft$^3$</td>
</tr>
</tbody>
</table>

### North Lot Formulas

- **RE_{P[10]}**: 0.60 inches
- **I**: 92.6 percent
- **RV**: 0.88
- **A**: 972,217 ft$^2$
- **IA_{R[10]}**: 0 ft$^3$
- **WO_{In}**: 0 ft$^3$
- **WO_{Sp}**: 42,943 ft$^3$

### South Lot & Interior Wall Formulas

- **RE_{P[10]}**: 0.60 inches
- **I**: 91.6 percent
- **RV**: 0.87
- **A**: 1,370,383 ft$^2$
- **IA_{R[10]}**: 0 ft$^3$
- **WO_{In}**: 0 ft$^3$
- **WO_{Sp}**: 59,913 ft$^3$

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[Diagram showing Underground Infiltration/Detention Sizing]

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**Churchill Downs**
Underground Infiltration/Detention – Pre-Treatment

**North Infiltration Basin**

<table>
<thead>
<tr>
<th>Inlet Pipe</th>
<th>Qp*</th>
<th>Q_{12}</th>
<th>Q_{32}</th>
<th>V_{12}</th>
<th>V_{32}</th>
<th>Invert Elevation</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>N27</td>
<td>5.44</td>
<td>39.00</td>
<td>56.43</td>
<td>4.49</td>
<td>6.50</td>
<td>439.78</td>
<td>42</td>
</tr>
<tr>
<td>N39</td>
<td>4.01</td>
<td>28.89</td>
<td>40.29</td>
<td>4.50</td>
<td>6.27</td>
<td>440.72</td>
<td>36</td>
</tr>
</tbody>
</table>

**South Infiltration Basin**

<table>
<thead>
<tr>
<th>Inlet Pipe</th>
<th>Qp*</th>
<th>Q_{12}</th>
<th>Q_{32}</th>
<th>V_{12}</th>
<th>V_{32}</th>
<th>Invert Elevation</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>S38</td>
<td>8.28</td>
<td>70.43</td>
<td>97.26</td>
<td>6.78</td>
<td>9.37</td>
<td>440.51</td>
<td>48</td>
</tr>
<tr>
<td>S57</td>
<td>4.96</td>
<td>60.41</td>
<td>85.34</td>
<td>5.45</td>
<td>7.70</td>
<td>440.79</td>
<td>48</td>
</tr>
</tbody>
</table>

*Provide 50% removal efficiency for pretreatment based on Qp flow. Qp flow rate = 0.5 * CA value from Hydraflow Storm Sewers
**Flow Rates and Velocities taken from Hydraflow Storm Sewer Analysis of the Proposed Drainage Systems

**Bypass Piping to WCQ**

<table>
<thead>
<tr>
<th>Inlet Pipe</th>
<th>Orifice Diameter (Inches)</th>
<th>Orifice Diameter (Feet)</th>
<th>Cross Sectional Area (SF)</th>
<th>Head From Springline (Feet)</th>
<th>Head From Invert - Feet</th>
<th>Q (CFS)</th>
<th>Overflow Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>N27</td>
<td>15.00</td>
<td>1.25</td>
<td>1.35</td>
<td>1.42</td>
<td>0.80</td>
<td>5.44</td>
<td>442.20</td>
</tr>
<tr>
<td>N39</td>
<td>12.00</td>
<td>1.00</td>
<td>0.79</td>
<td>1.56</td>
<td>1.06</td>
<td>4.02</td>
<td>442.38</td>
</tr>
<tr>
<td>S38</td>
<td>18.00</td>
<td>1.50</td>
<td>1.77</td>
<td>1.64</td>
<td>0.89</td>
<td>8.29</td>
<td>442.15</td>
</tr>
<tr>
<td>S57</td>
<td>15.00</td>
<td>1.25</td>
<td>1.23</td>
<td>1.29</td>
<td>0.67</td>
<td>4.98</td>
<td>442.08</td>
</tr>
</tbody>
</table>
Underground Infiltration/Detention
Underground Infiltration/Detention
3D Flythrough Video

LiDar 3d flythrough video
Existing Landscaped and Gravel Areas: 14.5 Acres
Proposed Landscaped and “Cool Pavement” Areas: 16.1 Acres
Tree Canopy

Tree Canopy Required (0% of Site Area):
0 SF

Tree Canopy Provided (16% of Site Area):
373,754 SF

902 TREES!
CHURCHILL DOWNS
WEST SIDE PARKING IMPROVEMENTS
SITE CONSTRUCTION PLANS
Owner/Developer: Churchill Downs Racetrack, LLC
Address: 700 Central Avenue
Louisville, Kentucky 40208

CALHOUN
CONSTRUCTION SERVICES

FLYNN BROTHERS
Construction Schedule:

- **Phase I:** August 24, 2017 - March 31, 2018
  - Bohannon Sanitary Sewer Improvements
    - Start Date: August 24, 2017
    - Completion Date: December 19, 2017
  - West Lot Improvements
    - Start Date: September 17, 2017
    - Estimated Completion Date: March 31, 2018

- **Phase II:** May 7, 2018 - October 5, 2018
Construction – Bohannon Ave. Interceptor Relocation

- 435 linear feet of 66” HO BAS (Fiberglass) Pipe.
- Cast-in-Place Sewer Junction Structures to accommodate FRP connection to existing sewer.
Construction Challenges

• Aggressive Schedule
  – Ten (10) Crews worked a minimum of 10 hour days 7 days a week from August 24, 2017 to the present time.

• Phasing
  – Site had to remain accessible at all times for the travelling public.
  – Churchill Downs remains operational throughout construction.

• Unforeseen Conditions
  – The location of the existing utilities was unknown in many areas

• Adverse Weather Conditions
  – There were construction complications due to the abnormally high amount of precipitation for the winter of 2017-2018.
Construction – Contech Infiltration System

- CONTECH Underground Infiltration/Detention System.
  - 96” Diameter CMP Piping.
  - Depth of System: 22 vertical feet.
  - 31,658 tons of Double Washed #3 Stone for backfill.
  - Total Construction Time: 65 working days (10 hrs. per day)
Construction – Contech Infiltration System
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Construction – Contech Infiltration System
Construction – Contech Infiltration System
Post Construction – Pre-Derby 2018

04/27/2018

04/27/2018

04/27/2018

04/27/2018
Questions???