

Soil Compaction Evaluation with the Spectrum Technologies SC-900 Before and After a Rolling Stones Concert at Petco Park

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The Problem



- New sports venues actively seek events that are compatible with the site in the off-season to maintain an income stream
- Concerts, X-games, Motocross, Monster trucks all are options
- What is the agronomic impact of off-season events (compaction)?



The Show



- 8,000 people seated on the field
- 51,500 people attended the concert



The Setup



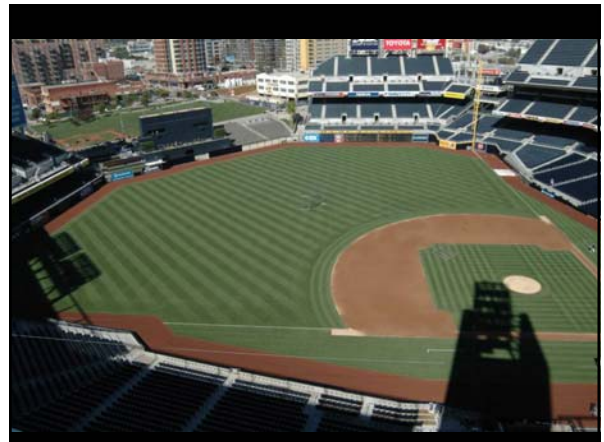
- PetCo Park – USGA specification root zone 12 – 14 inches deep
- Crane traffic for stage construction was restricted to an area with plywood over Enkamat to distribute the weight
- Seating on the field with plywood over Terraflor

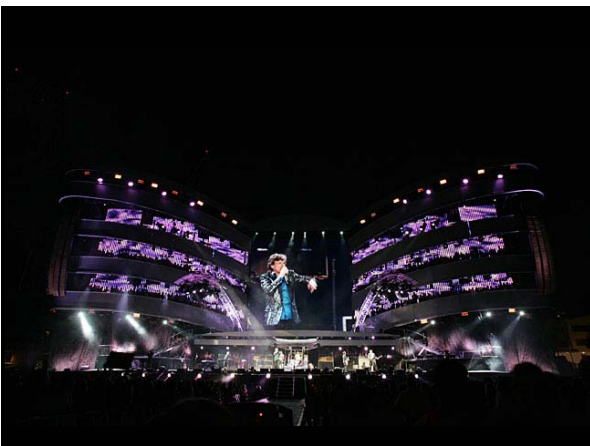
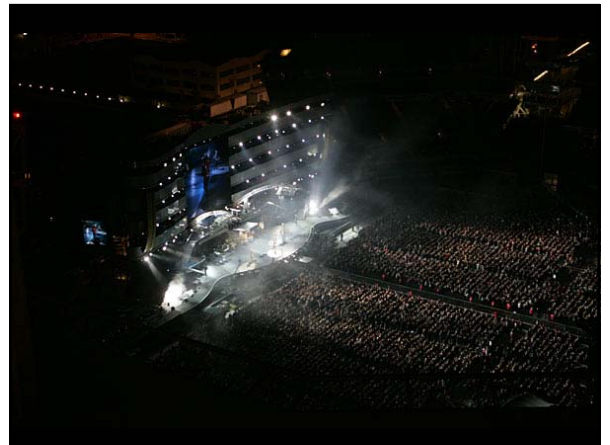
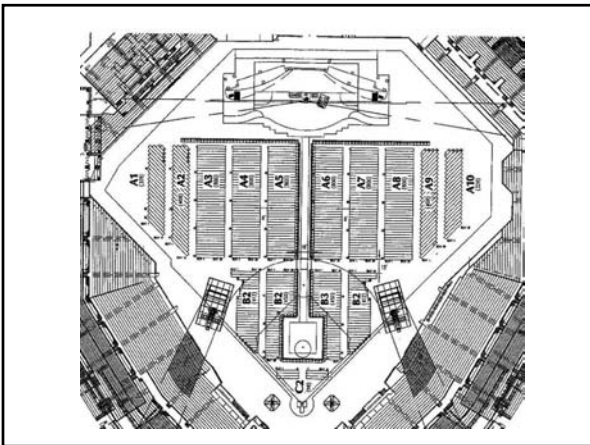


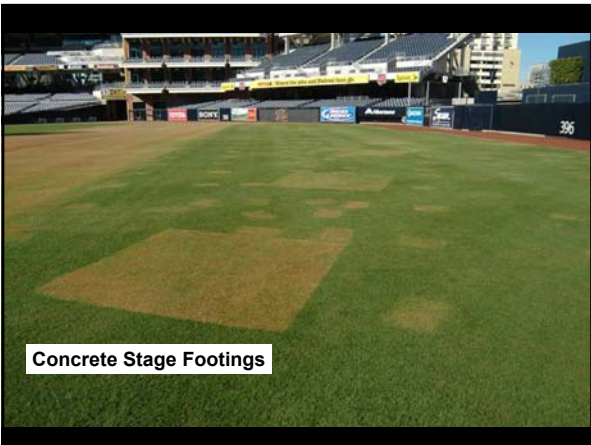
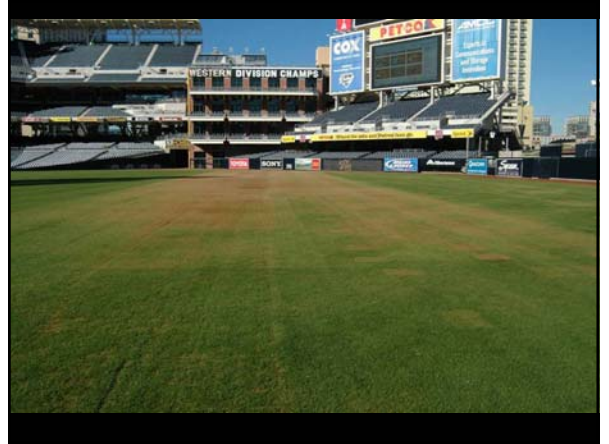
The Stage



- Biggest stage ever for a stadium show
- Construction of the stage took 36 hrs
- Free-standing 200 ft wide, 100 ft deep 7 stories tall
- Three 30 ton cranes and one 70 ton crane were needed for construction
- 141 semi truck loads, 72 were steel







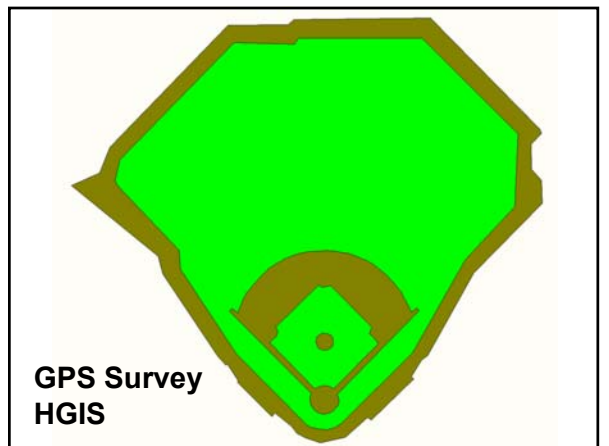
Concrete Stage Footings



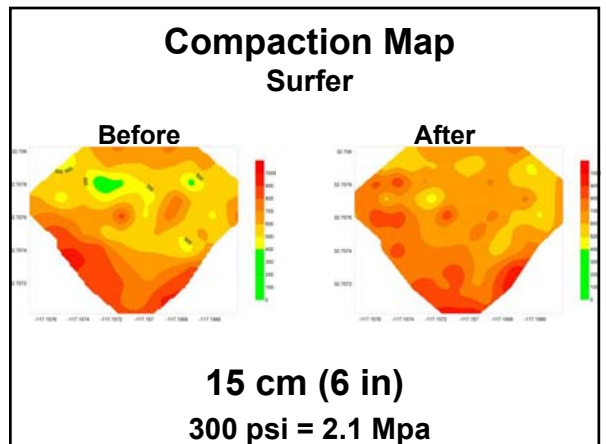
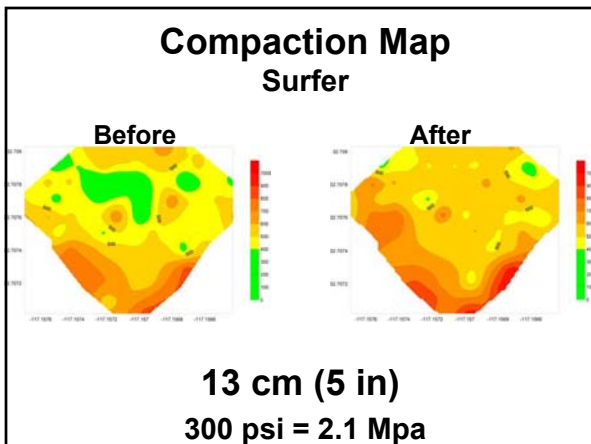
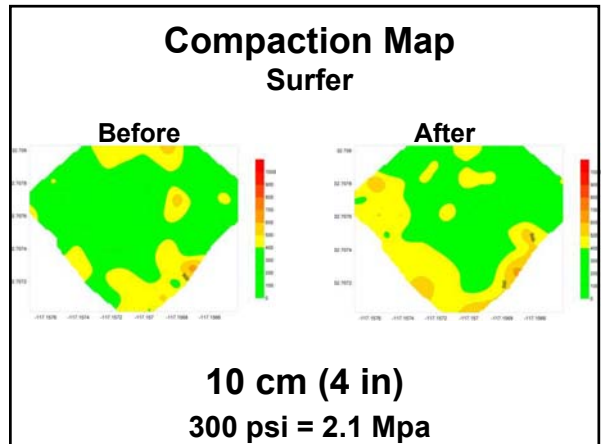
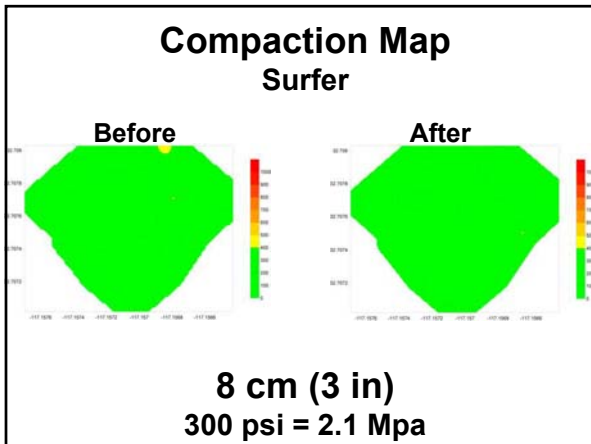
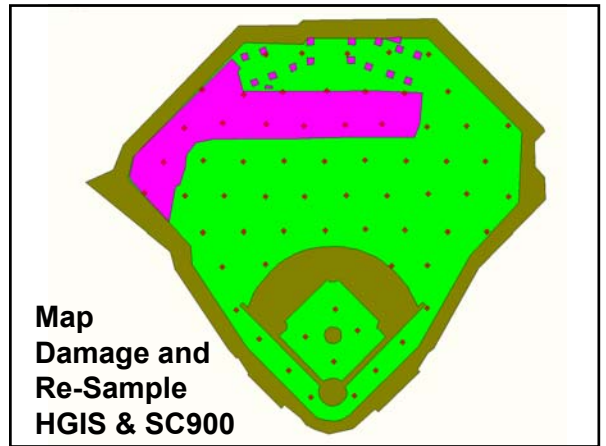
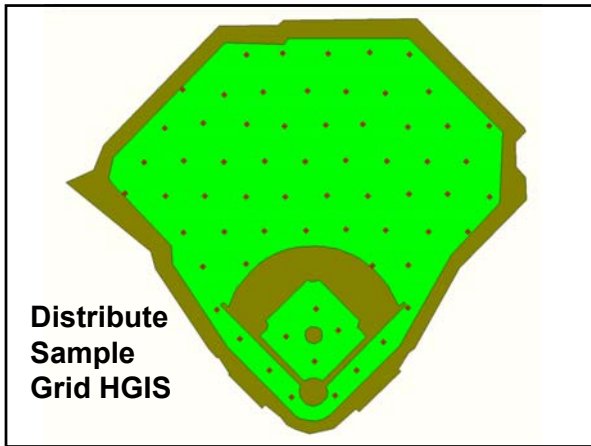
Terraform for seating on field



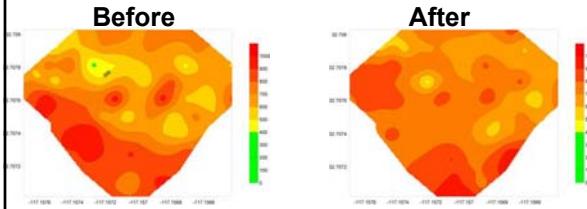
Trimble AgGPS 132
TDS400 Handheld PC
HGIS Software
SC900 Compaction Meter



GPS Survey
HGIS

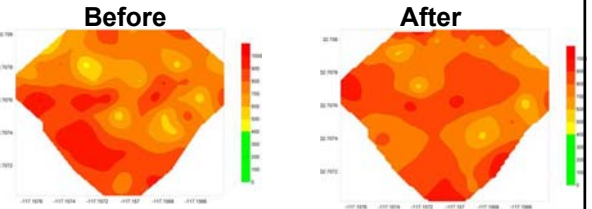


Compaction Map Surfer



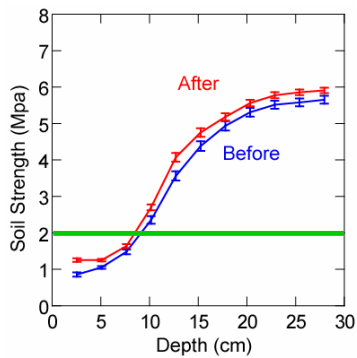
18 cm (7 in)
300 psi = 2.1 Mpa

Compaction Map Surfer

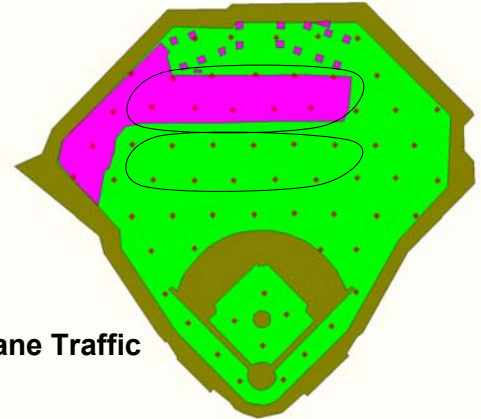


20 cm (8 in)
300 psi = 2.1 Mpa

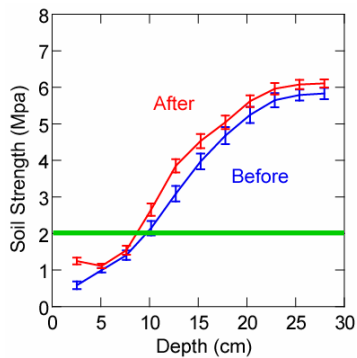
Full Survey Data Set



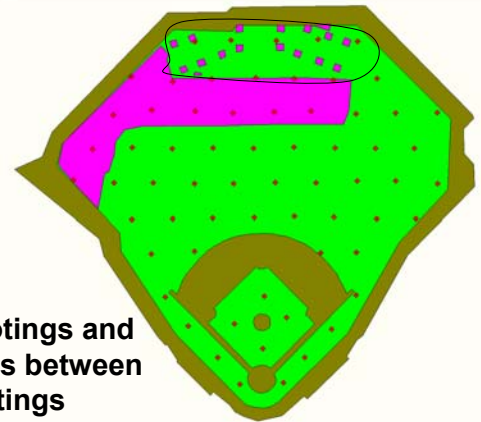
Crane Traffic



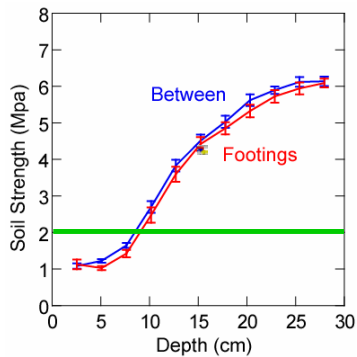
Crane Traffic Area



Footings and
sites between
footings



Footings and Between



Summary

- Soil strength increased following the Rolling Stones Concert with the greatest increase in the crane traffic area
- None of the increases in soil strength were meaningful – the USGA root zone specification sand managed the traffic well and remained below 3 Mpa (435 psi) within the surface 10 cm

Summary

- The Spectrum Technologies SC-900 performed well in data acquisition
- Mapping the site and setting up the grid sample series in real-time requires software similar to HGIS by Star Pal and a sub-meter GPS system
- Post processing data is cumbersome and requires the use of several software packages

Acknowledgements

- Mike Thurow of Spectrum Technologies provided the SC-900 for this study
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