

ASGCA Forum

AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
GOLF INDUSTRY SHOW, FEBRUARY 9, 2016



Founding Fathers

First meeting, held at Pinehurst in 1947

Pictured from left to right: Billy Bell, Robert White, Bill Langford, Donald Ross, Robert Bruce Harris, Stanley Thompson, Bill Gordon, Robert Trent Jones, Bill Diddel and J.B. McGovern.

Not pictured: Jack Daray, Robert Lawrence, Perry Maxwell, Wayne B. Styles



ASGCA Vision and Missions

Vision

ASGCA is the leader in advancing the interests of golf course architects and the profession of golf course architecture for the benefit of ASGCA members and their clients, the golf industry and the game of golf.

Missions

Foster Professionalism
Support Design Excellence
Help Grow the Game
Expand Opportunities



ASGCA Forum

AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
GOLF INDUSTRY SHOW, FEBRUARY 9, 2016

JOHN FOUGHT, ASGCA



Golf Greens



Putting Greens:

“.... The character of the course depends upon building of the putting greens. **Putting greens to a golf course are what the face is to a portrait.** The clothes the subject wears, the background, whether scenery or whether draperies – are simply accessories; the face tells the story and determines the character & quality of the portrait – whether it is good or bad. So it is in golf.....”

Charles Blair Macdonald, architect, 1895 US Amateur Champion & American golf pioneer in his book: Scotland's Gift Golf, described the importance of greens.

Early Greens



Early green design often included rather strange forms!

Early Greens



Early green design locations were more often found than built

Modern Green



Greens complex built within a rock ledge on the side of a slope

Green Evolution

Reasons for changes in greens:

1. Grass varieties & construction methods
2. Maintenance improvements
3. Green speeds



1. Grass Varieties & Construction

Grass Types:

Cool Season

Poa Annua

Penncross

Pennlinks

Penn G-2 G-4

Penn A-1 A-4

Dominant

Warm Season

Common Bermuda

Tifgreen 328

Tifdwarf

Tifeagle

Champion

MiniVerde

Early Construction Methods:

1. Grass Varieties & Construction

Push-up green



Modern Construction Methods:

1. Grass Varieties & Construction



2. Maintenance Improvements



The original greens mower could often cut close but not uniform but at least it could also fertilize at the same time!

Early 20th Century Greens Mower

2. Maintenance Improvements



2. Maintenance Improvements



Modern Greens mowers are able to cut greens at consistent very low heights

2. Maintenance Improvements



Modern Greens can also be rolled to create faster speeds

2. Maintenance Improvements

Historical Mowing Heights

1895.....	.75"
1919.....	.37"
1955.....	.25"
1985.....	.15"
2015.....	.10"



3. Greens Speed

Stimp Meter Reading's:



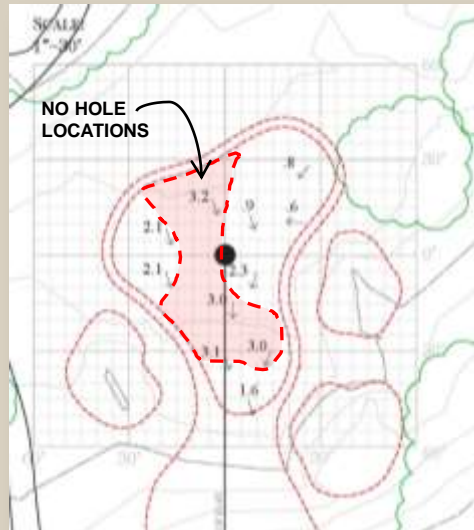
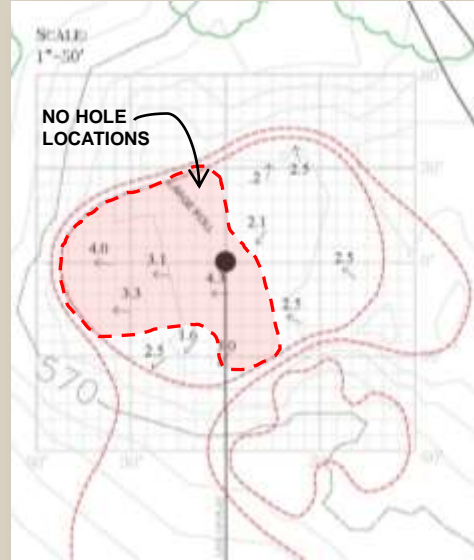
Bel-Air CC (CA) 1976 US Amateur 6.1 – 8.2

Cherry Hills (CO) 1978 US Open 7.7 – 8.0

Pine Needles (NC) 2007 US Women's Open 13

Sanderson Farms (PGA Tour) 2015 13

3. Greens Speed



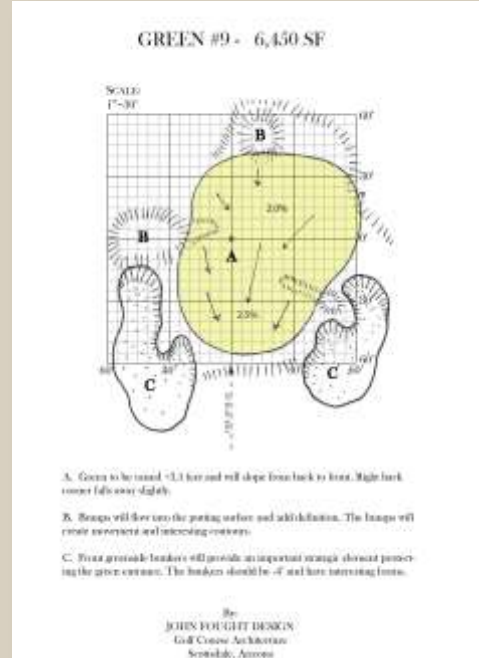
Review of Green Slope

HOLE	SQFT	RATING	COMMENTS
1	3,804	3	Green has nice contours and is 90% pinnable
2	5,718	1	Front 1/3 of this green is unpinnable
3	4,490	2	The slopes are generally ok however the green lacks interest and usable areas are consumed with slopes
4	4,706	1	This green is only 60% pinnable and inappropriate in size for the required approach shot
5	5,278	2	Green has nice contours. Small area in mid-left can hold H2O
6	4,719	3	Green has nice contours and interesting shape. Small area in back-left holds H2O
7	6,157	2	Contours test ok although back middle and ridge are to severe for hole locations.
8	5,708	1	Barely half of this green is pinnable due to significant slope from right to left and falls away.
9	5,781	2	Green is generally ok although stronger slopes on the right absorb possible pin locations. Green undersized for hole length

HOLE	SQFT	RATING	COMMENTS
10	3,328	1	Green is flat and not interesting
11	4,933	1	Only 65% pinnable with strong slopes on the left. Green should be moved right
12	4,732	2	The slopes are generally ok however the green lacks interest and front edge and approach are flat to ground and very narrow
13	3,635	2	Area mid left & right holds H2O. Front area of green is only suitable for one hole location
14	4,607	1	Only 70% of this green is pinnable due to large ridge at mid point of green. Green is undersized for required approach
15	3,324	2	Green has nice contours. However lacks interest and challenge for length of approach shot.
16	4,645	3	Green contours test ok in all areas although very slow, less than 1% throughout.
17	3,585	1	Green is completely blind and has too much slope through the middle for needed pin locations. Also undersized.
18	4,657	3	Possibly the best green on the course. Interesting pin locations in all areas of the green and good contours throughout

3. Greens Speed

Modern Green Design



- ❖ Build slopes in green so 70% is useable for hole locations (>2.5%)
- ❖ Create green so all areas within the green as cuppable (variety)
- ❖ Green must be sized properly for length of hole being designed
- ❖ New green should fit into the surroundings seamlessly



3. Greens Speed



Review of potential hole locations for the 2007 US Women's Open

Other factors

Players



Equipment



Conclusion



“The Strategy of the golf course is the soul of the game. The spirit of golf is to dare a hazard, and by negotiating it reap a reward, while he who fears or declines the issue of the carry, has a longer or harder shot for his second.....”

George C. Thomas, *Golf Architecture in America*

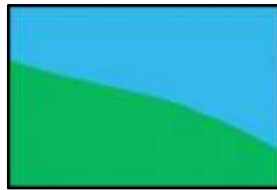
ASGCA Forum

AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
GOLF INDUSTRY SHOW, FEBRUARY 9, 2016

REES JONES, ASGCA FELLOW



The Evolution of Championship Golf



Rees Jones, Inc.



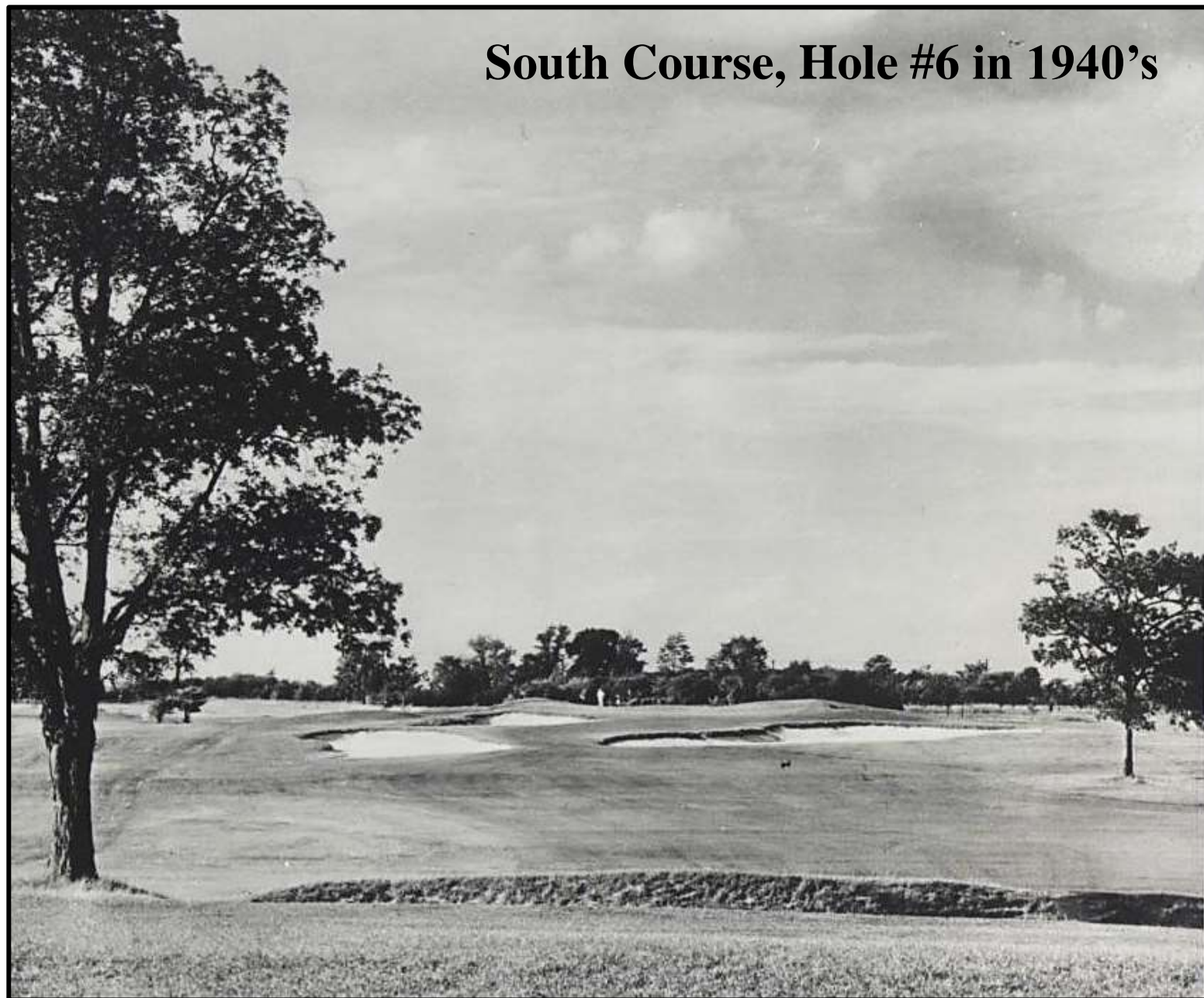


**Oakland Hills Country
Club
Bloomfield Hills, MI
South Course**

**Site of the 2004 Ryder Cup
Matches**

**Site of the 2008 PGA
Championship**

South Course, Hole #6 in 1940's



South Course, Hole #6 - Before



South Course, Hole #6 - After



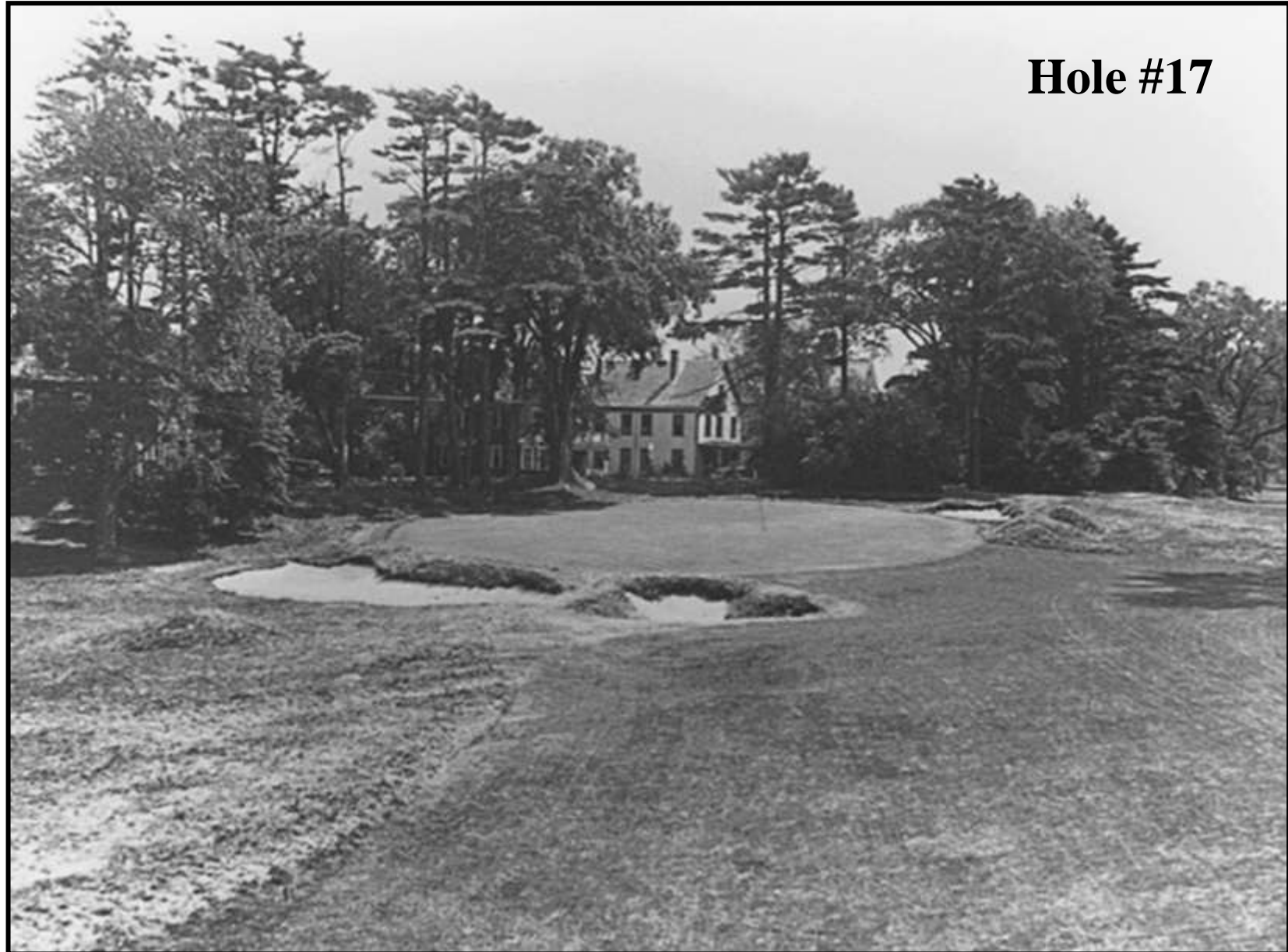


**The Country Club,
Brookline, MA
Composite Course**

Site of the 1988 U.S. Open

**Site of the 1999 Ryder Cup
Matches**

Hole #17



Hole #17



Hole #17 – 1988 U.S. Open



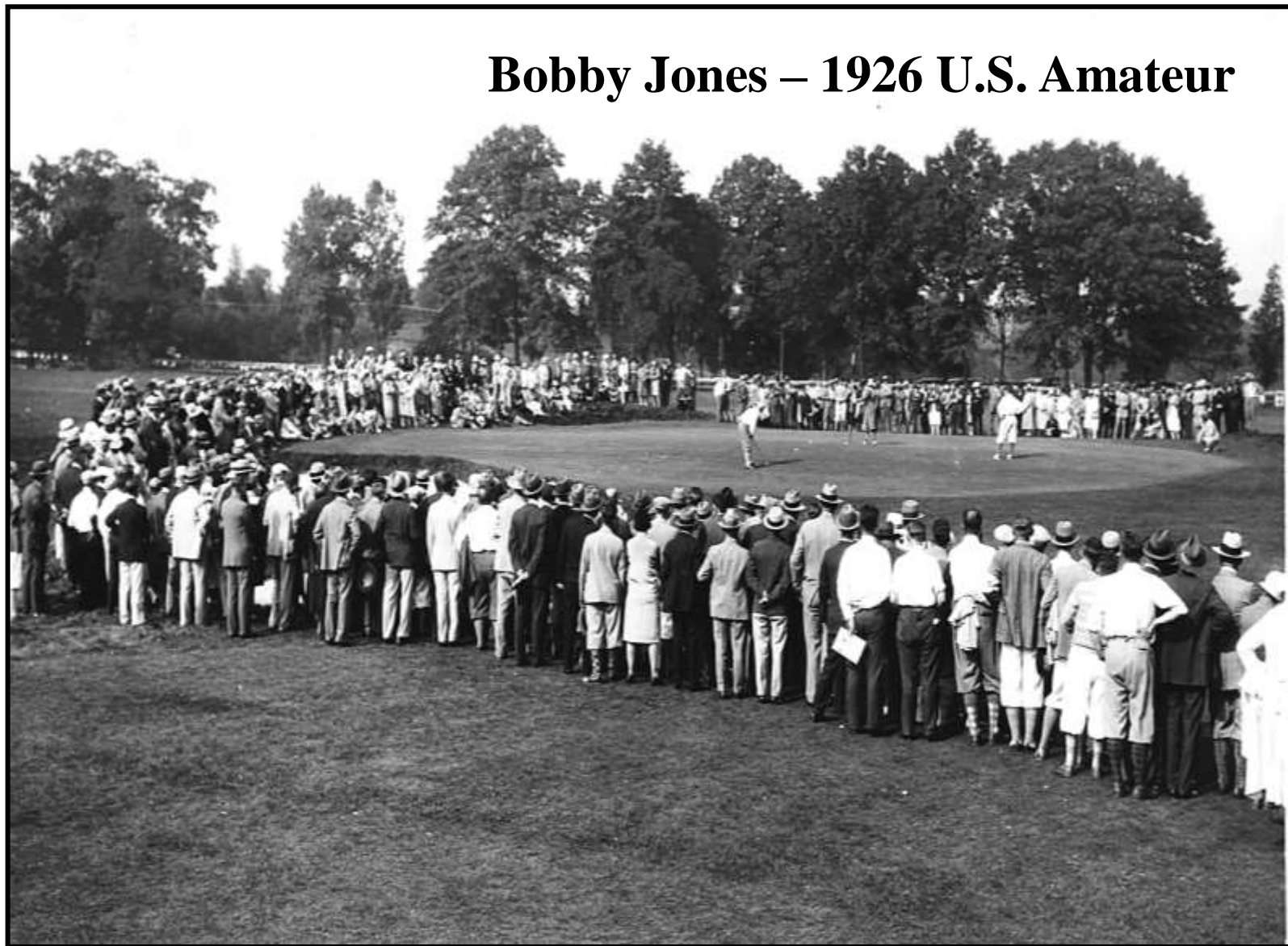


Baltusrol Golf Club Springfield, NJ

Site of the 1993 U.S. Open

**Site of the 2005 and 2016
PGA Championships**

Bobby Jones – 1926 U.S. Amateur



Lower Course, Hole #4 -2009



Lower Course, Hole #4 -2010



Lower Course, Hole #18 -2010



Tee Shot View

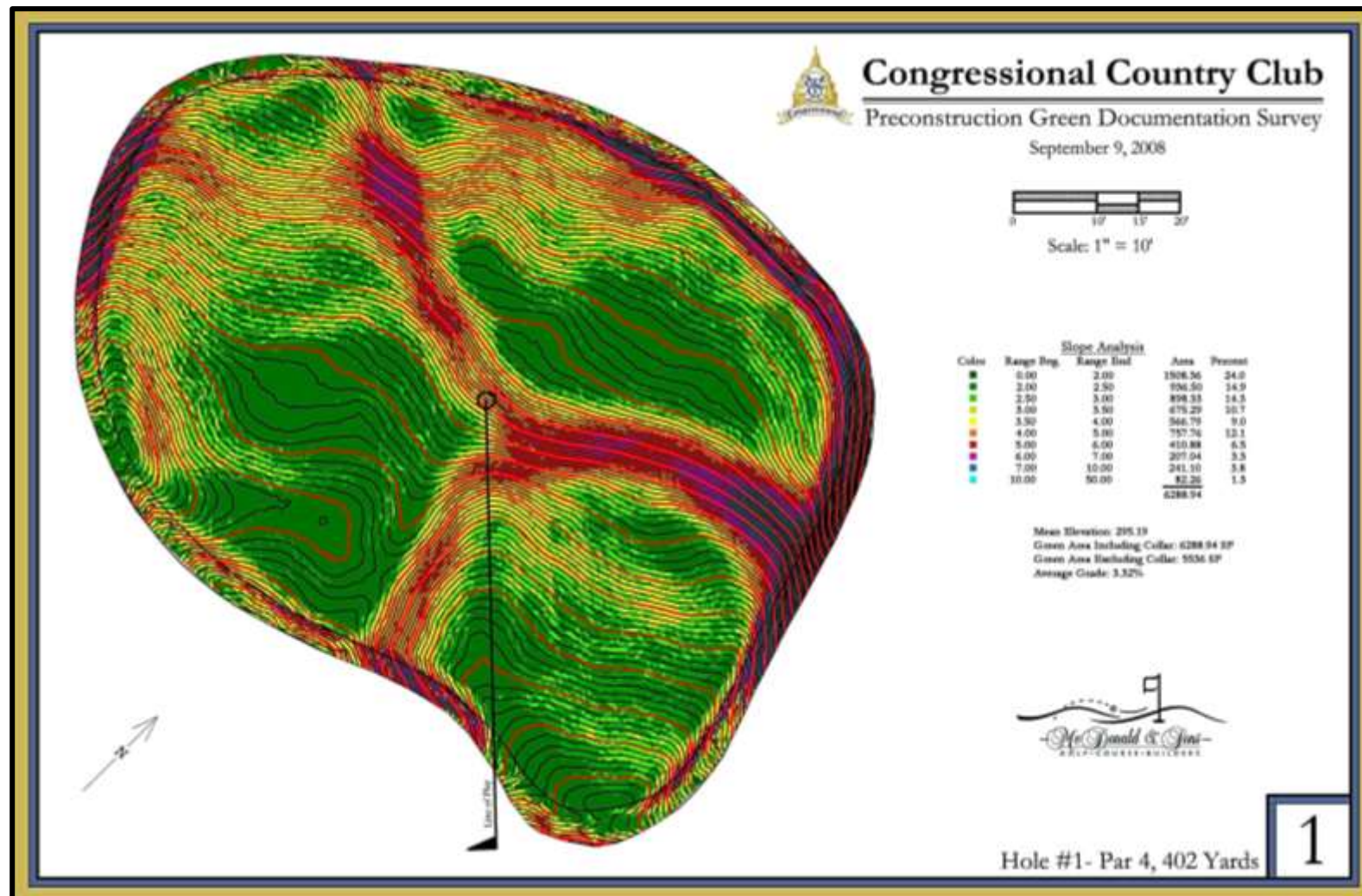




Congressional Country Club Bethesda, MD

Blue Course

Site of the 1997 and 2011 U.S.
Opens



8th Hole - After



Before





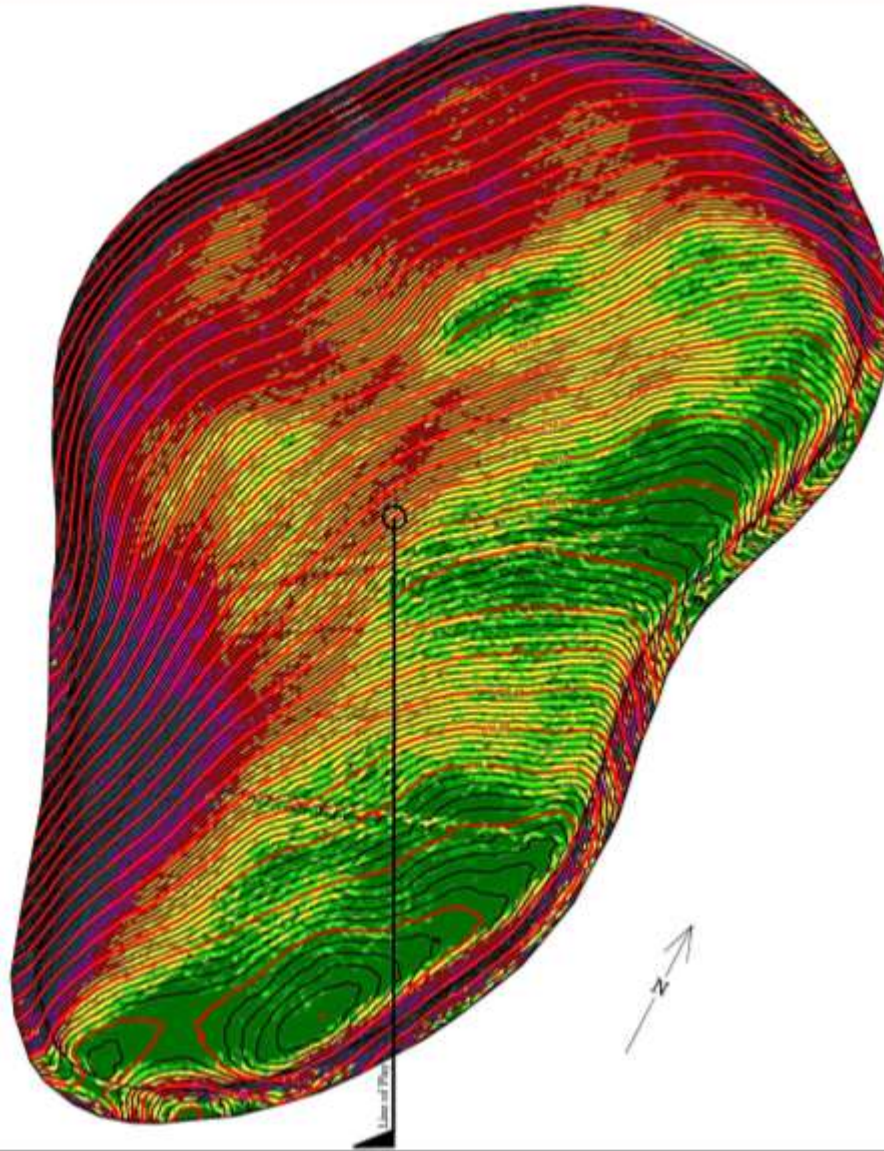
Congressional Country Club

Preconstruction Green Documentation Survey

September 9, 2008



Scale: 1" = 10'



Slope Analysis				
Color	Range Beg	Range End	Area	Percent
■	0.00	2.00	544.20	10.5
■	2.00	2.50	387.98	7.5
■	2.50	3.00	485.64	9.3
■	3.00	3.50	442.35	8.5
■	3.50	4.00	407.28	7.8
■	4.00	5.00	898.40	17.3
■	5.00	6.00	855.48	16.5
■	6.00	7.00	392.92	7.6
■	7.00	10.00	553.03	10.6
■	10.00	50.00	230.71	4.4
			5205.88	

Mean Elevation: 292.29

Green Area Including Collar: 5205.88 SF

Green Area Excluding Collar: 4563 SF

Average Grade: 4.70%



Hole #8- Par 4, 354 Yards

8

Before #18



After – New #10





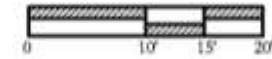
Congressional Country Club

Preconstruction Green Documentation Survey

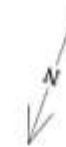
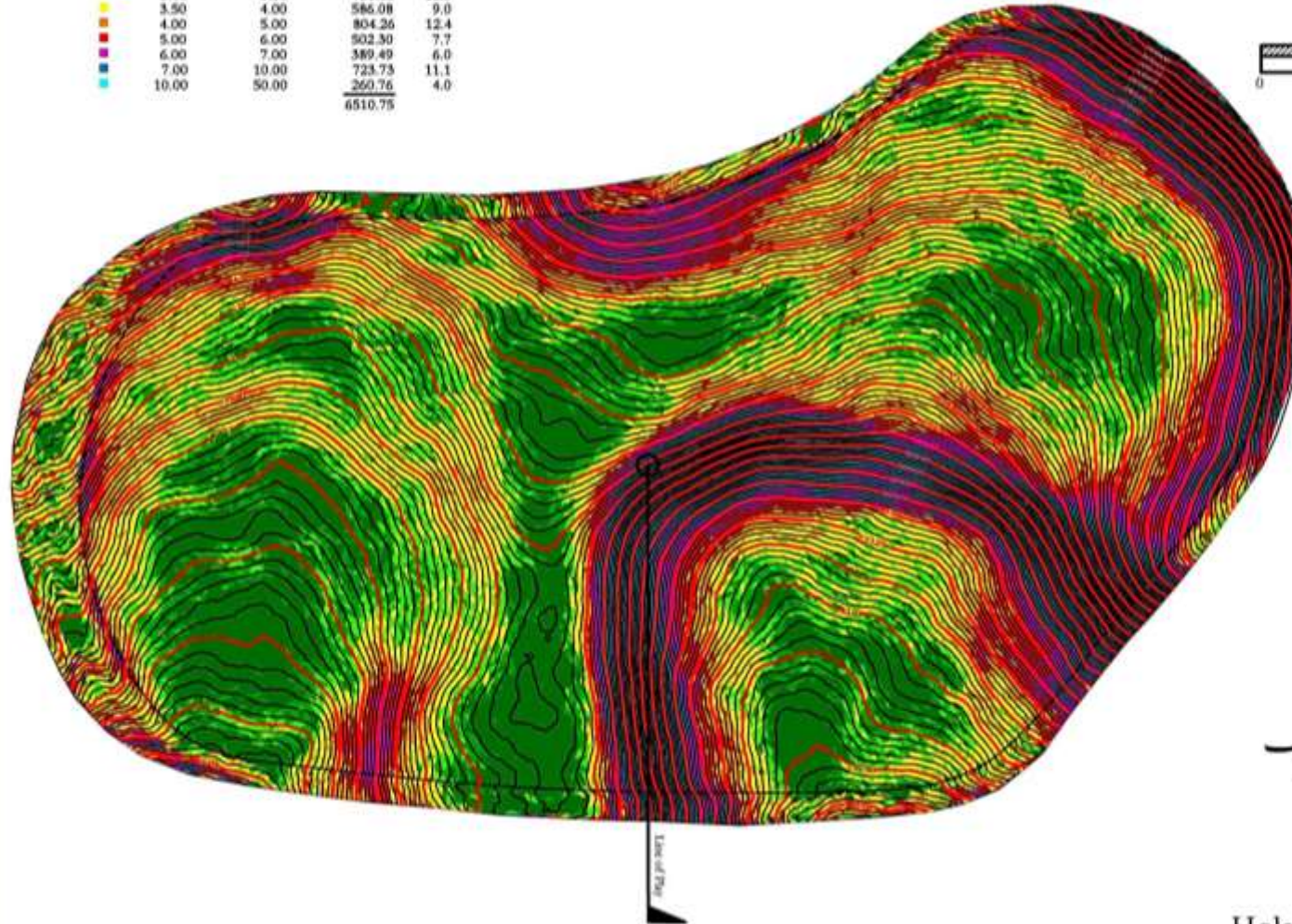
September 9, 2008

Slope Analysis				
Color	Range Beg.	Range End	Area	Percent
■	0.00	2.00	1069.57	16.4
■	2.00	2.50	685.31	10.5
■	2.50	3.00	749.64	11.5
■	3.00	3.50	731.65	11.3
■	3.50	4.00	586.08	9.0
■	4.00	5.00	804.26	12.4
■	5.00	6.00	502.30	7.7
■	6.00	7.00	389.49	6.0
■	7.00	10.00	723.73	11.1
■	10.00	50.00	260.76	4.0
			6510.75	

Mean Elevation: 233.97
Green Area Including Collar: 6510.75 SF
Green Area Excluding Collar: 5618 SF
Average Grade: 4.24%



Scale: 1" = 10'



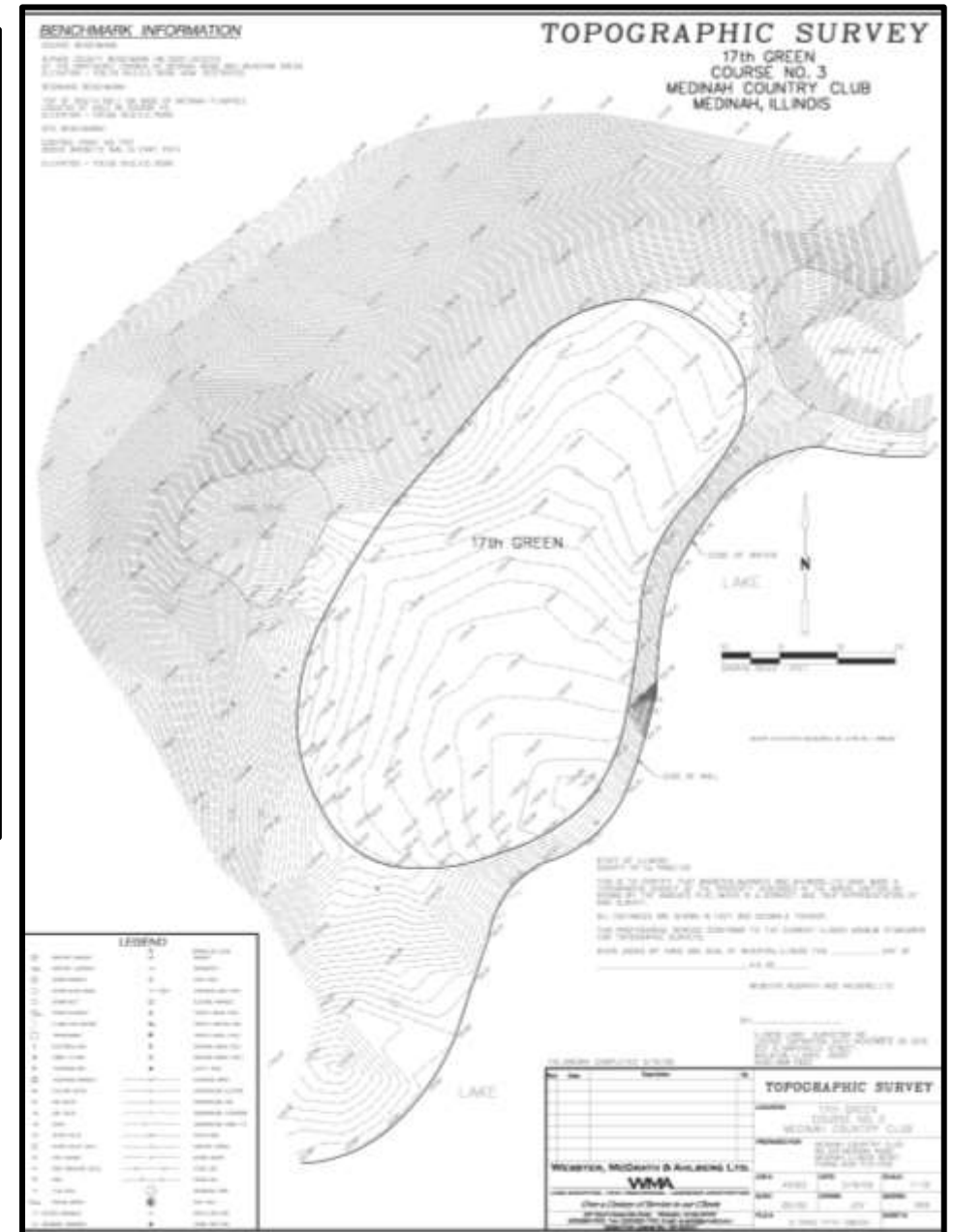
Hole #10- Par 3, 218 Yards

10



Medinah Country Club Medinah, IL Course #3

Site of the 2005 PGA
Championship
Site of the 2012 Ryder Cup
Matches



Before



Hole #17 - After





Bethpage State Park Bethpage, NY Black Course

**Site of the 2002 & 2009 U.S.
Opens**

**Site of 2019 PGA
Championship**

**Site of 2024 Ryder Cup
Matches**



Hole #4 - After

Before



Hole #14 - After





**Atlanta Athletic
Club
Duluth, GA
Highlands Course**

**Site of the 2001 and 2011
PGA Championships**



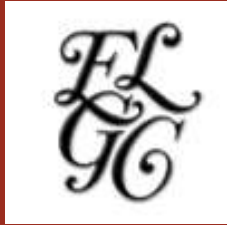
Hole #7 - 1976

Highlands Course, Hole #7 - After



Before - 1984





**East Lake Golf
Club
Atlanta, GA**

**Annual Site of the PGA Tour
Championship**



Before



Hole #2 - After

Before



Hole #6 - After

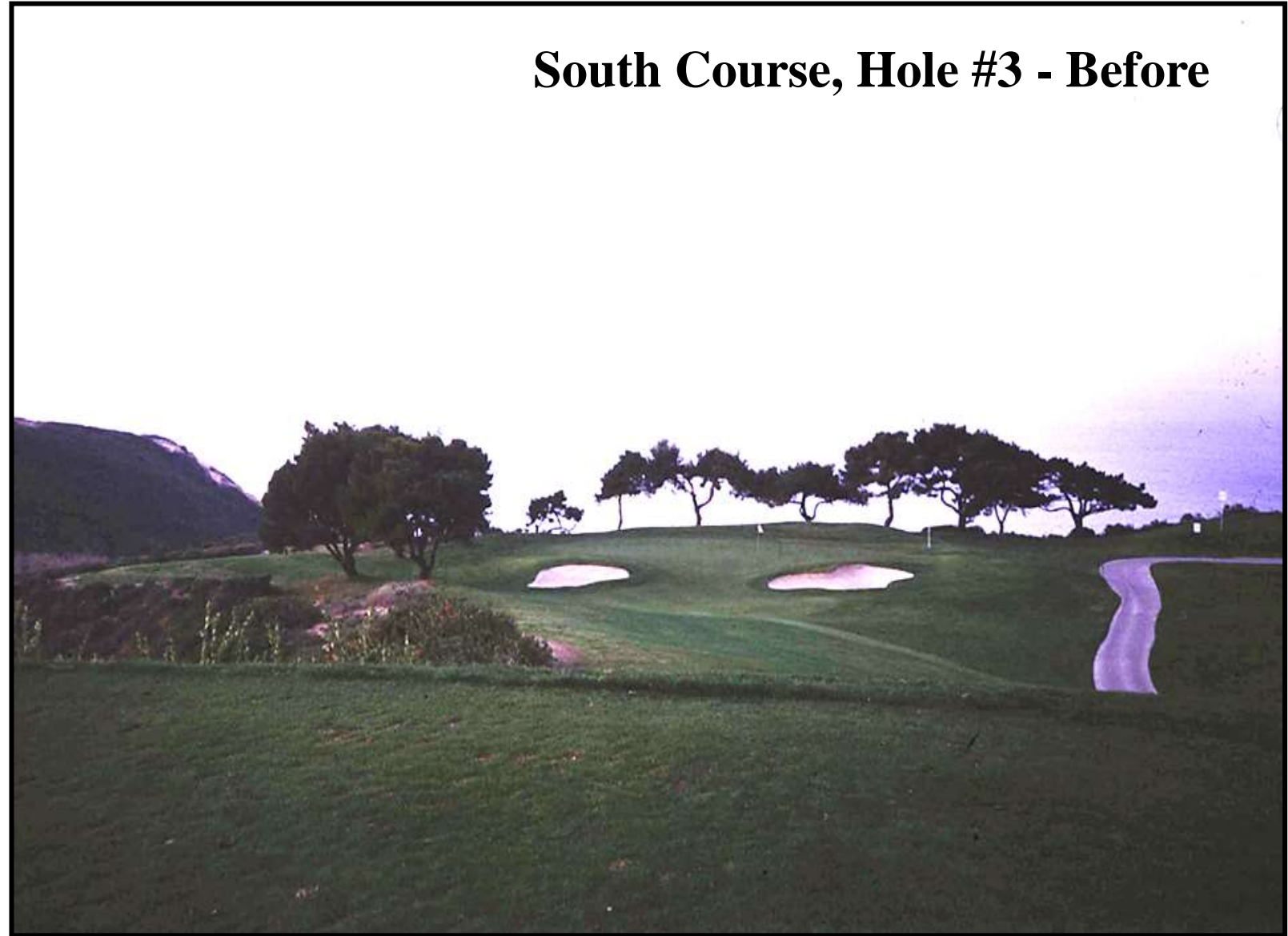




Torrey Pines San Diego, CA South Course

**Site of the 2008 and 2021 U.S.
Open
Site of Annual PGA Tour
Event**

South Course, Hole #3 - Before



South Course, Hole #3 - After



Before



South Course, Hole #14 - After





Hazeltine National Golf Club Chaska, MN

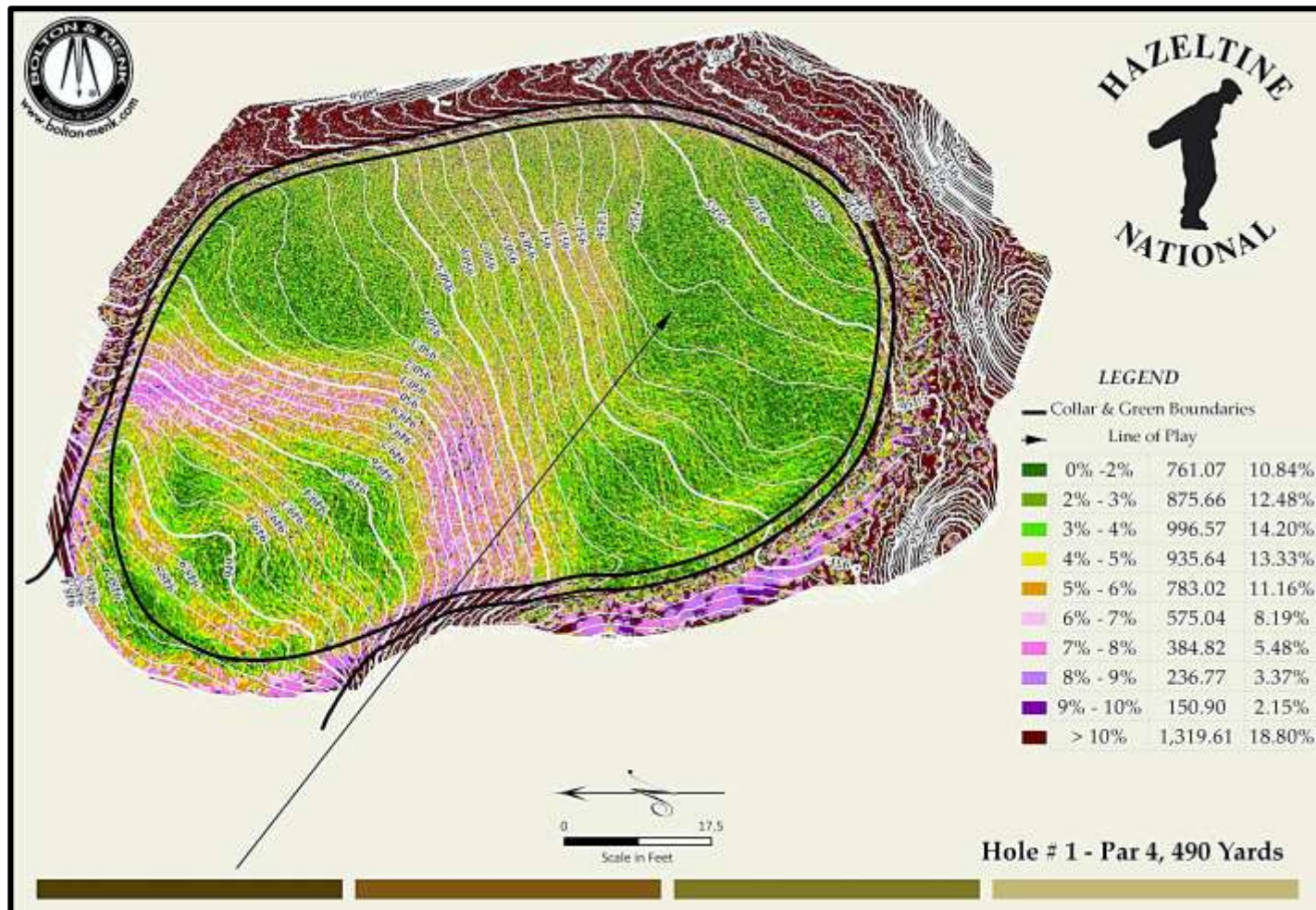
Site of the 1991 U.S. Open

Site of the 2002 & 2009 PGA
Championships

Site of the 2016 Ryder Cup
Matches

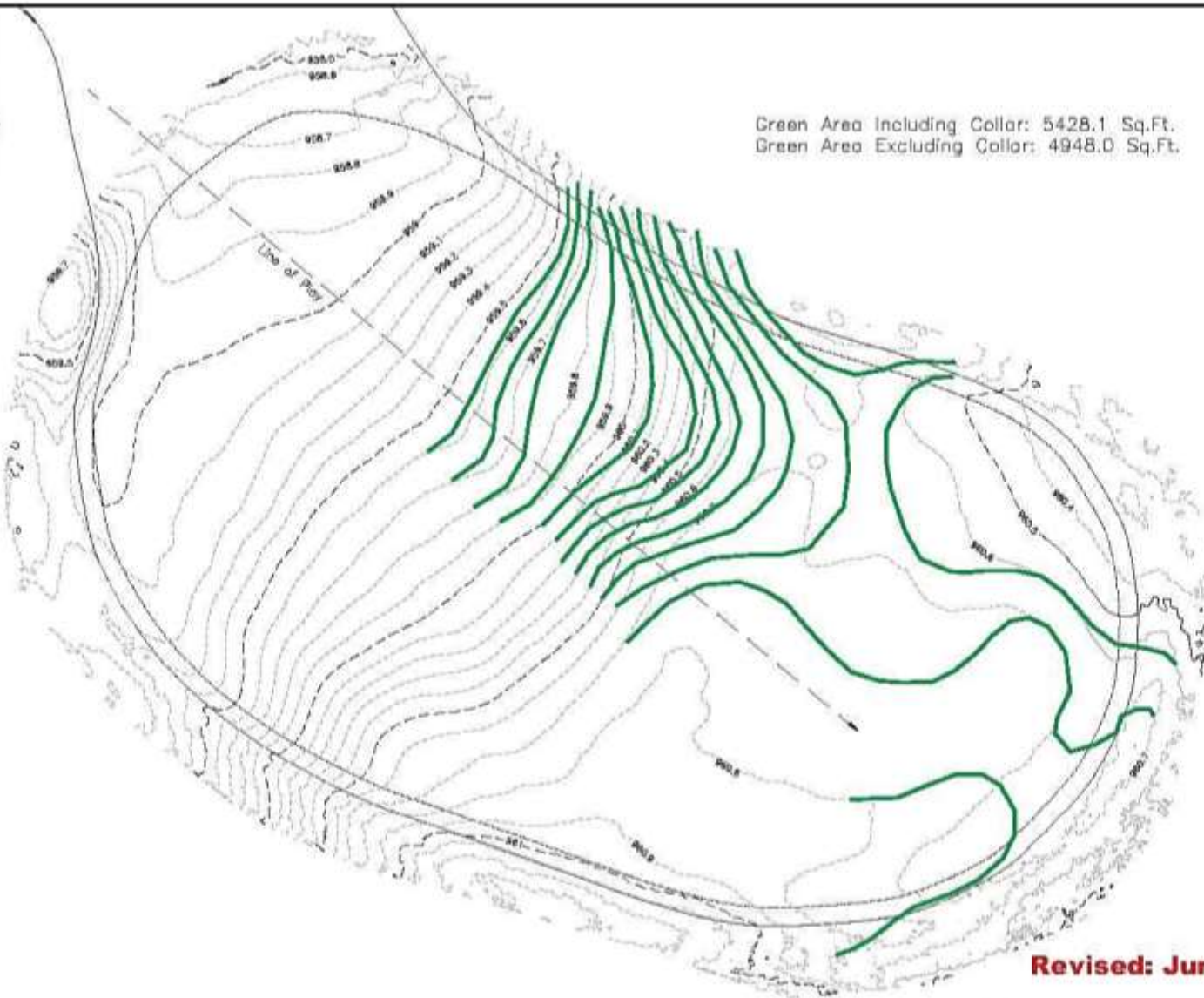
Historic Hazeltine

With the 2016 Ryder Cup, Hazeltine will become one of only two courses in the United States to have hosted the U.S. Open, PGA Championship, U.S. Senior Open, U.S. Women's Open, U.S. Amateur, and Ryder Cup Matches.





Green Area Including Collar: 5428.1 Sq.Ft.
Green Area Excluding Collar: 4948.0 Sq.Ft.



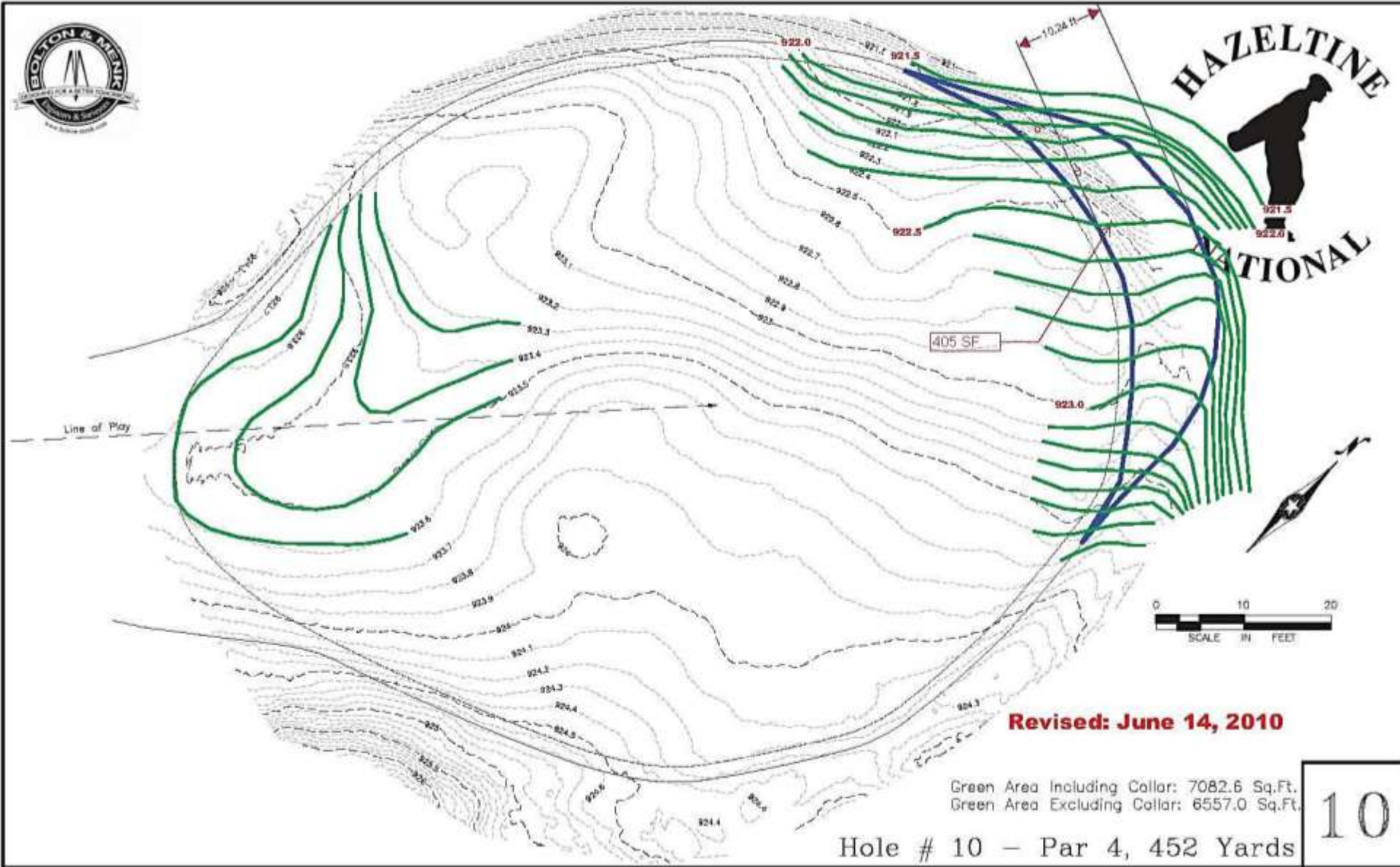
Revised: June 16, 2010

Hole # 4 — Par 3, 212 Yards

4

Green Surface Modifications:

- Reworked the left middle section of the green surface to create a new pin location.
- Minor adjustments to the back section of the green surface to improve pin locations.



Green Surface Modifications:

- Expanded the back left section green surface to create a new pin location.
- Minor adjustments to the front section of the green surface to improve pin location.

Hole #10



ASGCA Forum

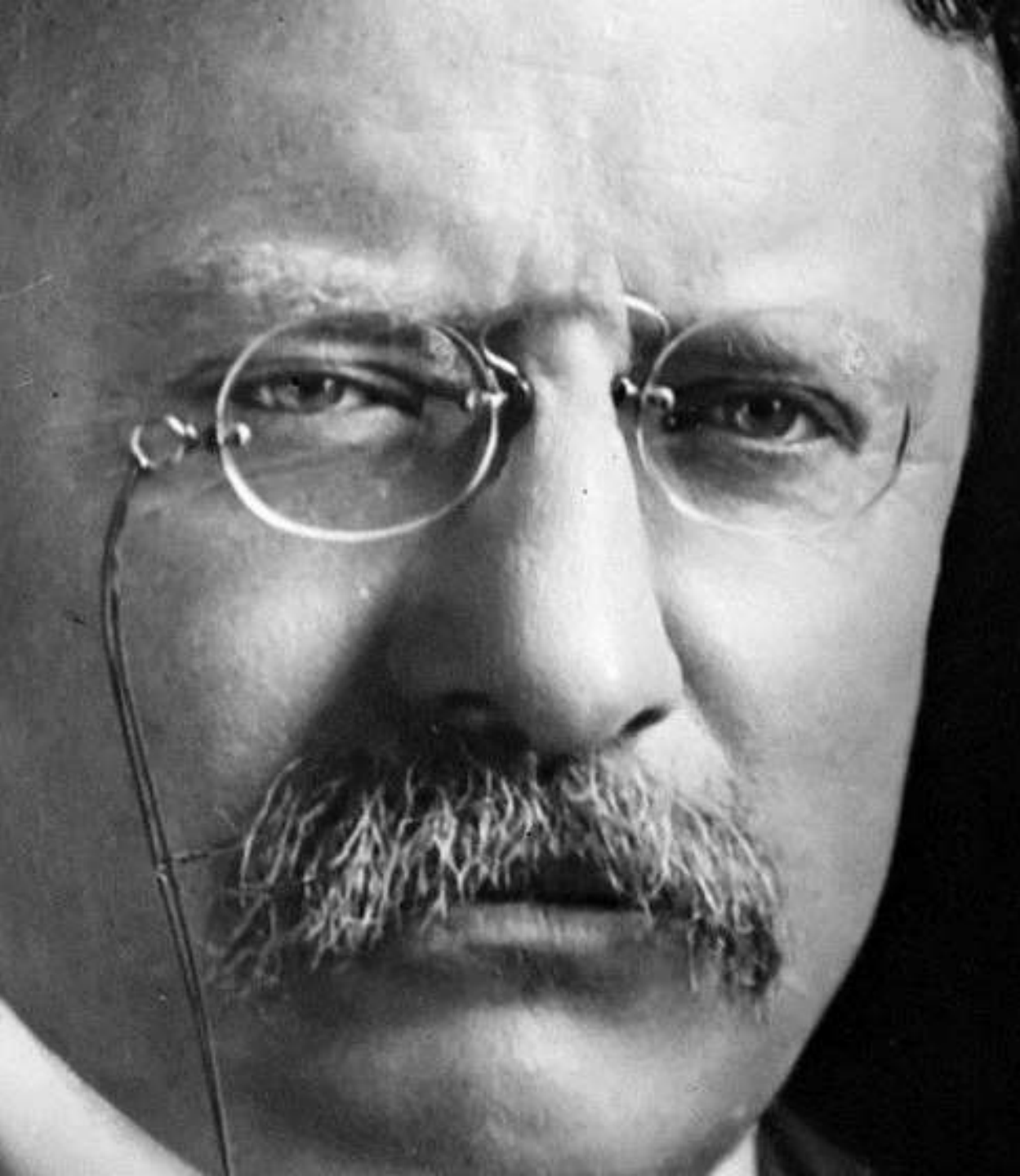
AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS
GOLF INDUSTRY SHOW, FEBRUARY 9, 2016
ANDY STAPLES, ASGCA





WATER

An architect's view on what's going on...



"In a moment of decision,
the best thing you can do is
the right thing to do, the
next best thing is the wrong
thing, and the worst thing
you can do is nothing."

Theodore Roosevelt

So, what have we been doing?





Median cost of all water for an 18-hole golf course, 2005 vs. 2013

Region	Total water cost/18-hole golf course (U.S. dollars)	
	2005	2013
North Central	3,991	1,734*
Northeast	4,643	7,202
Pacific	38,263*	159,730
Southeast	18,025*	28,854
Southwest	73,598*	140,301
Transition	11,357*	16,415
Upper West/Mountain	15,960	20,431
U.S.	13,645*	23,870

Table 7. Median cost (U.S. dollars) of all water for an 18-hole golf course in 2005 vs. 2013. Within each row, values in bold type with the lower value followed by an asterisk show a significant difference between the 2005 and 2013 values, at the 90% confidence level. Values that are not in bold type show no significant change from 2005 to 2013.

, 2005 vs. 2013

2013	% change
1,859,021	-21.8
198,041	-25.7
94,194	-19.4
107,185	-0.6
548,524	-39.3
532,149	0.2
181,379	-25.4
197,548	-5.4

feet, 2005 vs. 2013.

CHAMPIONSHIPS ▾ RULES ▾ HAN



Golf's Use of Water: Conser

Water plays many important roles th



GOLF & WATER

CASE STUDIES IN WATER STEWARDSHIP

AMERICAN SOCIETY OF GOLF COURSE ARCHITECTS

Shop  Sign In/Register  Search

Sustainability Case Study:
Paradise Valley

The No-Mow Experiment at
Hidden Falls

Photos: Sustainability
Practices at the Moorings
Valley Golf Club

Ok, let's talk a little politics...



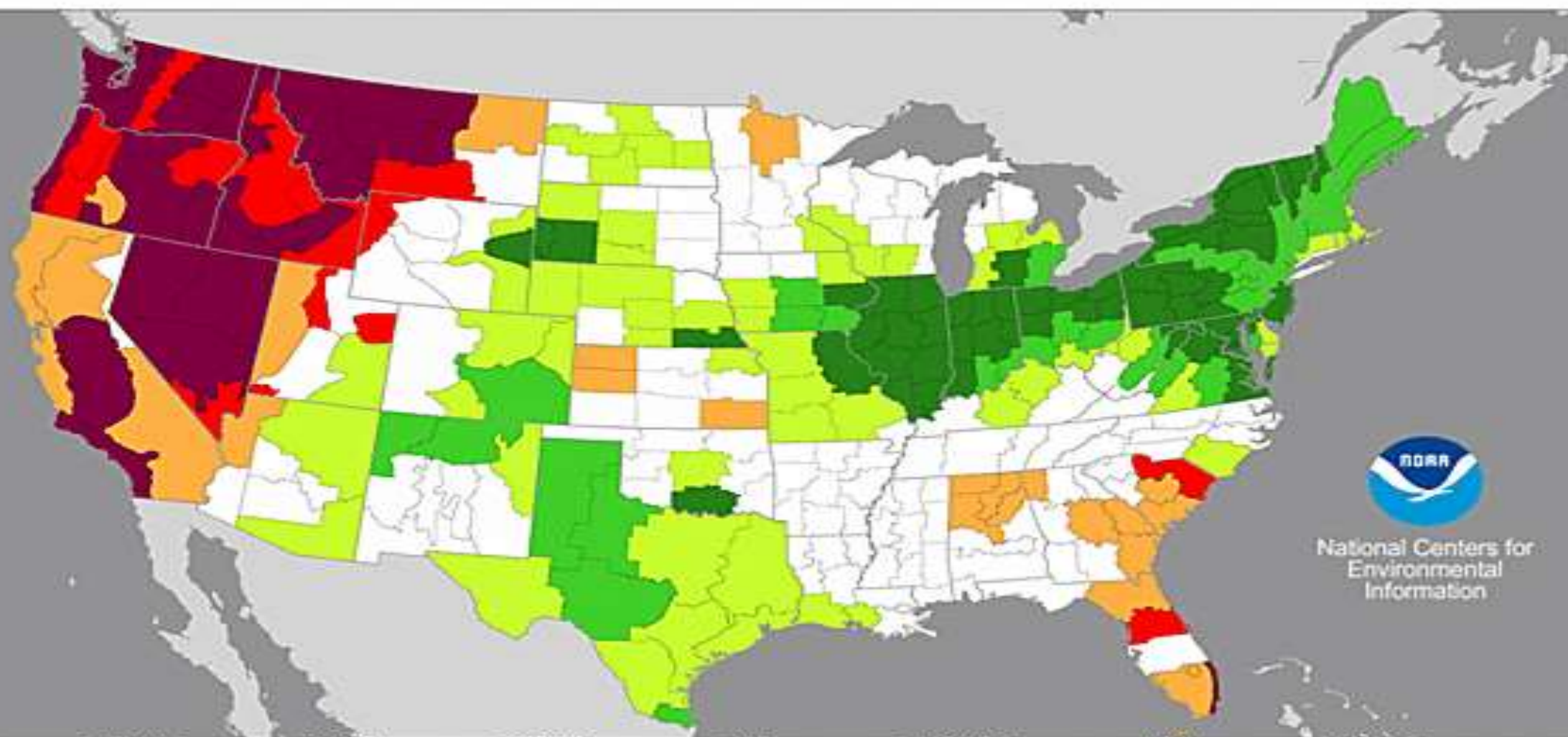


An aerial photograph showing a lush green golf course on the left, featuring several sand traps and a winding path. To the right of the golf course is a wide, dry riverbed filled with light-colored sand and small rocks. In the background, there are rolling hills and mountains under a clear sky. The text "What role will Golf play in the future?" is overlaid in the center of the image.

**What role will Golf
play in the future?**

Palmer Z-Index

June, 2015



National Centers for
Environmental
Information

extreme
drought



-2.75
and
below

severe
drought



-2.00
to
-2.74

moderate
drought



-1.25
to
-1.99

mid-
range



-1.24
to
+0.99

moderately
moist



+1.00
to
+2.49

very
moist



+2.50
to
+3.49

extremely
moist



+3.50
and
above

Palmer Z-Index

June, 2015

The amount the State of California

\$450mil

Spent on water rebates in 2015



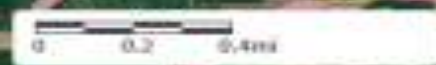
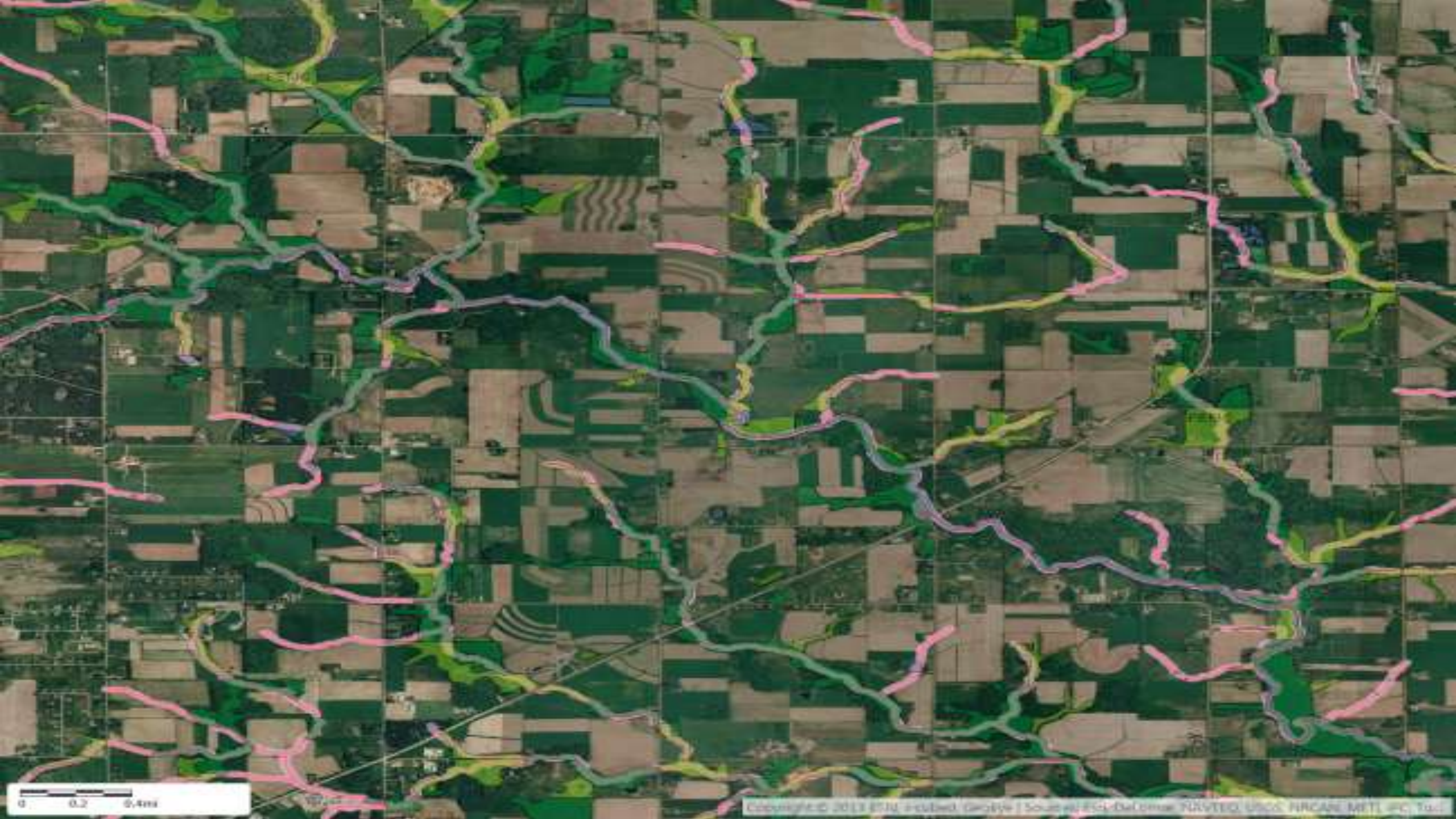
National Centers for
Environmental
Information



An aerial photograph of a rural landscape, likely in the United States, showing a dense patchwork of agricultural fields. The fields are in various stages of growth, with some appearing as vibrant green and others as brown or tan, suggesting different crops or harvest times. A faint grid of lines is overlaid on the map, possibly representing property boundaries or survey lines. The text 'W.O.T.U.S.' is prominently displayed in the center, with the subtitle '(Waters of the United States)' below it.

W.O.T.U.S.

(Waters of the United States)





PRAC

PRAC

0 0.2 0.4mi

Copyright © 2013 ESRI. All rights reserved. GeoEye | Source: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, etc.

An aerial photograph of a large industrial facility, likely a power plant or refinery, situated in a dry, hilly landscape. Several tall smokestacks are visible, emitting thick plumes of white smoke that rise into the sky. In the foreground, there are power lines and a fenced-in area. The overall scene is captured in a warm, golden-hour light.

Pumping water accounts for

20%

of the world's energy demands

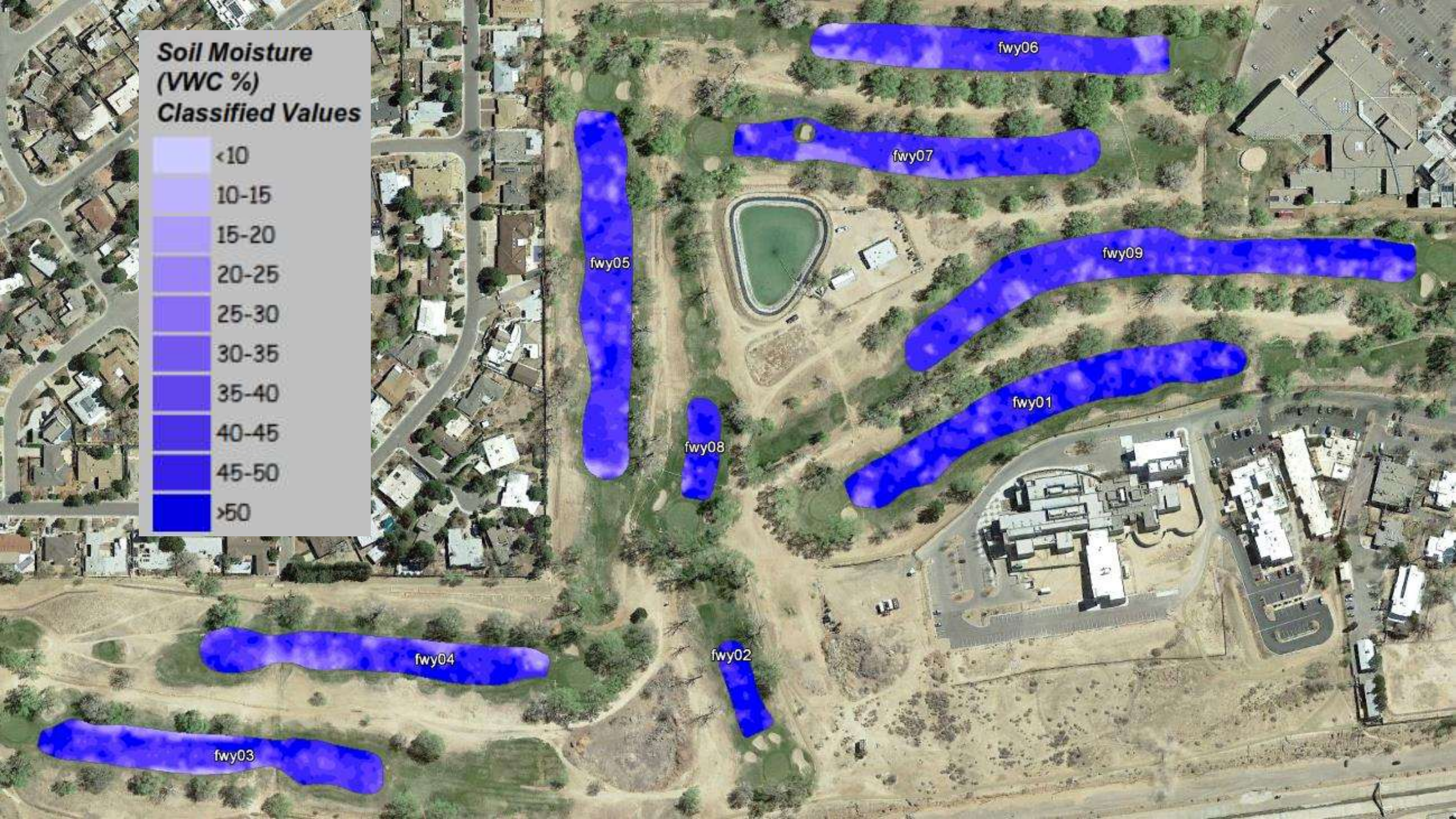
The future.







**Soil Moisture
(VWC %)
Classified Values**







Thank you!

