HILLSIDE GOLF COURSE

Sidney, Nebraska USA

MASTER PLAN REPORT

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sustainable golf course architecture
and THE GOLF RESOURCE GROUP

ACKNOWLEDGEMENTS

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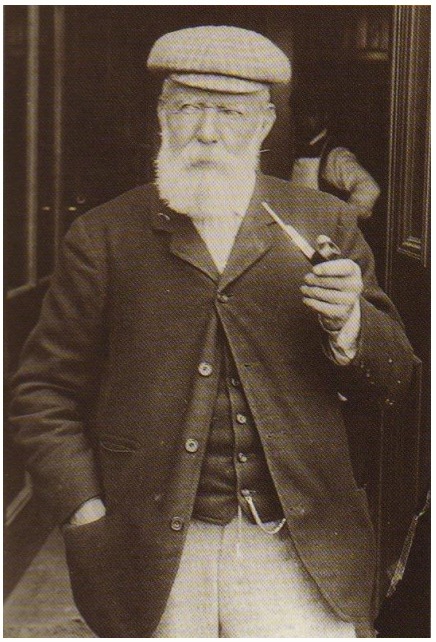
Part I - INTRODUCTION

Golf Course Architecture in America

The Game of Golf evolved on the links land of Scotland over wind-swept sand dunes covered with gorse and wild fescue grasses - open land near the coast, too sandy for farming. On these grounds, the weather proved mild enough to play the sport nearly all year long. A makeshift ball could be hit great distances and still found, to be played on to another target. Thus the game of golf was born.

Much of course design can be traced to one source – The Old Course at St. Andrews in Scotland. The man responsible for the course we know today is the long time administrator, pro and greenkeeper, Old Tom Morris. Old Tom is the closest thing to being the designer of The Old Course; he cared for and nurtured the course into what it is today. It is her timeless charm combined with strategic merit that has awakened many an architect to the ideals of great course design. Every hole provides numerous options of play, and the best route to the hole is dictated by the conditions and the position of the flagstick. It plays differently every day and requires the golfer to adapt to the changing conditions. It is what makes The Old Course the most unique course in the world. Old Tom understood The Old Course's greatness and introduced many of its subtleties to future architects such as C.B. MacDonald, Dr. Alister MacKenzie, A.W. Tillinghast and Donald Ross. These men, and others like them, became important figures as golf and golf course design was brought to America.



Old Tom Morris at St. Andrews

Golf came to America in the 19th Century and spread immediately throughout the country. The popularity of Bobby Jones and the rising tide of wealth in America brought with it an increasing need for golf courses. And a new generation of golf course architects rushed to meet the need. Early American course designs were primitive in style. They were crudely formed and geometric in shape. It was in 1911 when Charles Blair MacDonald built The National Golf Links of America that golf took a turn for the better. With this creation, a revolution was created which became known as the "Golden Age" of golf course design. During the period from 1911 through 1927 and until 1937, an overwhelming majority of the top courses in our country were created. Men like MacDonald, George Crump, Seth Raynor, Harry Colt, MacKenzie, and Ross brought a new sophistication to the subject of design. Their primary inspiration was the Scottish way of playing the game as learned from the original courses back in Scotland. Courses such as Shinnecock Hills, Winged Foot, Pine Valley, Riviera and Pebble Beach were all results of these "Golden Age" designers. This period of time is known as being the most creative, daring and innovative period in American history.

The golfing boom roared through the 20's and early 30's but came to a sudden halt at the start of the Great Depression, curtailing the expansion of the game. Sadly, golf course architecture has never come close to scaling the heights it achieved during this "Golden Age" period. From 1930 until the end of World War II, golf course openings slowed considerably. And, due to the national economy, many courses were closed. According to the National Golf Foundation, by the year 1953, there were less golf courses in the U.S. than there were in 1929.

Charles Blair (C.B.) MacDonald

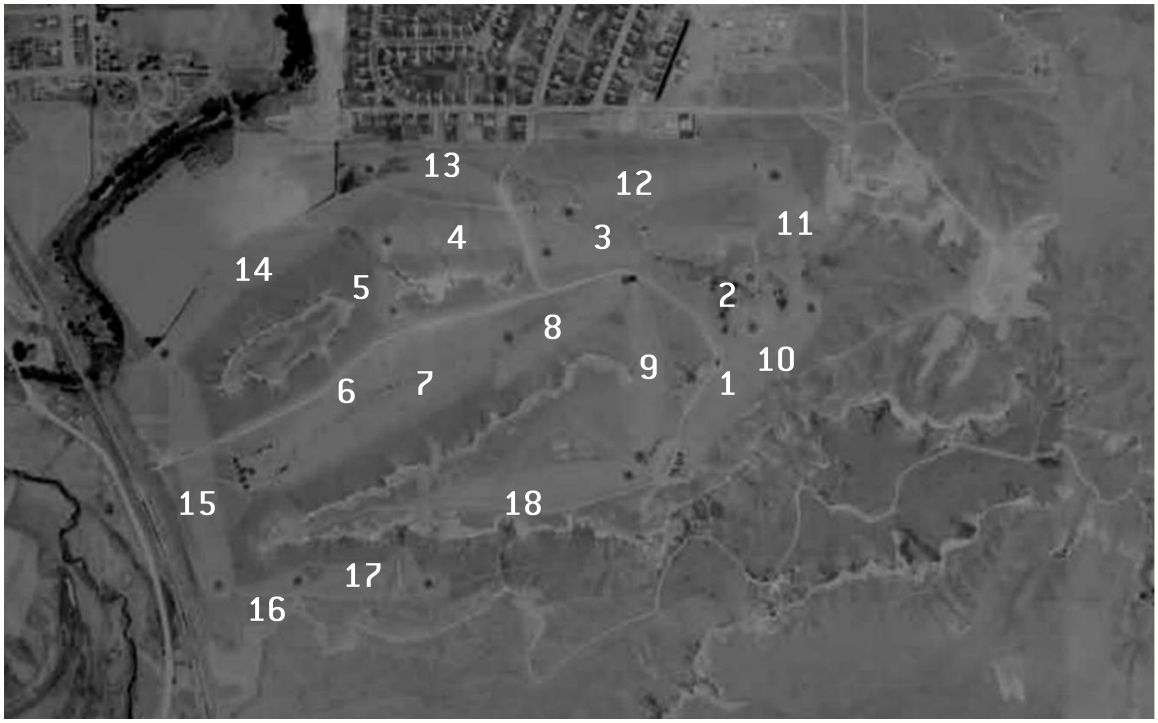
After the end of the Second World War, the business of golf course architecture was essentially reinvented from scratch. A post war housing boom and the growth of leisure time among the middle class triggered demand for large numbers of new courses, for which there were only a handful of designers trained to meet the need. Chief among the designers was Robert Trent Jones Snr. Having been trained by the Canadian architect Stanley Thomson, Jones was responsible for the design of over 400 courses throughout the world. Jones is regarded by many as having the single largest influence on course design than any other golf course architect. During this period, golf had evolved from the traditional match play game to one of stroke play. The courses of old with wide, strategic holes with options of play made way for narrow, tournament oriented golf. It also became economically feasible to build on poor sites requiring a great deal of construction, increasing the cost to not only build a course but also to maintain one. And, as Arnold Palmer burst on the scene of golf during the mid-1950's, it was a time where more Americans were brought to the sport than at any other period of time.

Golf had now evolved from an adventurous, strategic game into big business on a world wide scale in a period of less than 100 years. The celebrity styled game in which the sport had become paved the way for the likes of Pete and Alice Dye along with pro-golfer turned architects like Jack Nicklaus. By the 1980's, golf development had spread to Japan, China and the Koreas. It had fully integrated itself into residential developments and communities, making golf an extremely lucrative investment, and therefore, more fully distancing itself from its Scottish links heritage.

The History of Hillside Golf Course

Very little is known about the history of original Hillside Golf Course. In discussions with various local residents, along with some research pulled from the National Archives in Washington D.C., it appears Hillside first began as an 18-hole, regulation course built with sand greens (Sand greens were a popular alternative choice during the turn of century in locations where there was no regular seasonal rainfall or was absent of irrigation. Even the popular Pinehurst #2 course in Pinehurst, North Caroline played with sand greens up until 1934.). According to a local resident, it is estimated the original course was built in 1929 or 1930 just prior to the Great Depression. This was an interesting time for the construction of new courses. Known as the "Golden Age of Golf Course Architecture", the period from the early 1920's on to the end of the 1930's, many of our country's best golf courses were built including Augusta National in Georgia, Shinnecock Hills in New York, Pebble Beach and Cypress Point in California.

The routing of the original course (see aerial photo) uses many of the same corridors utilized by today's layout. Some of the notable features includes #'s 1 and 10 playing opposite direction to today's holes 9 and 18, the original #18 hole plays along the west side of the current driving range, then finishes close to the existing clubhouse and holes 7, 8, 9, 16, 17 and 18 incorporate the rock mesa and rising topography into the strategy of the course. The other notable attributes to the original course are a pair of par 3's. Hole #5 played through the two mesas in the center of the property and the shortish #2 which plays over the current lowland canyon in front of today's #9 tees.



Hillside Golf Course - cir. 1954

The sand greens course gave way to a new nine hole course built in 1962 by Milo Lucker, a golf professional from Sterling, Colorado and Carl Faddis, Hillside's golf professional at the time. This new nine constitutes what is now the current back nine of the existing course. Situated in the upper section of the property, the routing that incorporated various sections of the original course while eliminating the rest of the course from everyday play. This original "front" nine goes out from the current clubhouse location and incorporates existing drainage courses, trees, rolling land and was designed with small grass greens and no bunkers.

The second nine was added in 1992 by Bob Vander Zee, Hillside's head golf professional at the time. This "Back" nine (now the current front nine) headed south from the Clubhouse towards the spectacular rock mesas, bluffs and native grass lands. These holes run up and along the lowest parts of the property, looking up towards the highest ground, creating the feeling of being contained within a vast amphitheater - a truly spectacular landscape that can only be found in Western Nebraska. This nine holes were designed with larger greens and incorporates long views to the north and east.

Hillside presents spectacular views of the Western Nebraskan landscape.

Hillside Golf Course is truly a site unique to itself, providing an experience unlike any other in Nebraska. Being located 170 northeast of Denver and 400 miles west of Omaha, it is regularly accessed by golfers traveling the State.

Part II - THE MASTERPLANNING PROCESS

The Master Planning Process at Hillside

Understanding the unique nature of the Sidney community, we know that a process based on facts, user input, and community relations is critical to building local support and loyalty for any improvements to the golf course. This process (see "What is a Master Plan at the end of this section) has shown itself to be the most effective measure to ensure success and enjoyment of a facility over the future life of the golf course. It is with this process that our team has set out to find the balance between making subtle improvements while taking full advantage of our opportunities.

The Master Planning process for Hillside included:

1. Extensive golf course assessment and evaluation phase including multiple site visits, playing the golf course, observing others play the course and investigation into past improvements, budgets and capital expenses.
2. An irrigation audit including Distribution Uniformity testing on the existing sprinklers, pump efficiency testing of the current pump station, water use analysis and demand assessment.
3. Five (5) meetings with golf committee various stakeholder group(s)
4. Preliminary Design Phase including a design review by the golf committee
5. Final Design Phase complete

Summary of Assessment of Hillside

Upon completion of the initial evaluation of the golf course, a number of important details about the golf course became apparent. Specifically, the reasons for needed improvement of the course are:

1. Faulty and aging irrigation system including insufficient hydraulics design in the existing mainline piping system and poor uniformity of the existing sprinklers.
2. Insufficient water storage including rapidly deteriorating banks of existing irrigation pond.
3. Poor pumping design causing pumps to constantly shut down, increase energy costs and put undue stress on the overall system.
4. Unlevel and insufficient space of the teeing grounds. Overall yardages can be improved to include an additional "middle" tee for seniors and forward tees for beginners.
5. Aging and sometimes deteriorating quality of greens due to the original method of construction.
6. Lack of strong strategic features such as sand or grass bunkers, multiple interesting angles of play and variety of teeing grounds.
7. Insufficient practice facilities including small, unlevel range tee, lack of chipping green(s) and sand bunker practice and unsafe maintenance building access condition (access road situated crosses in front of range tee).
8. An overall lack of a Master Plan causing projects to be done improperly, out of order and/or not in fitting with a clear long term vision for the course.

Golf Course Design Assessment

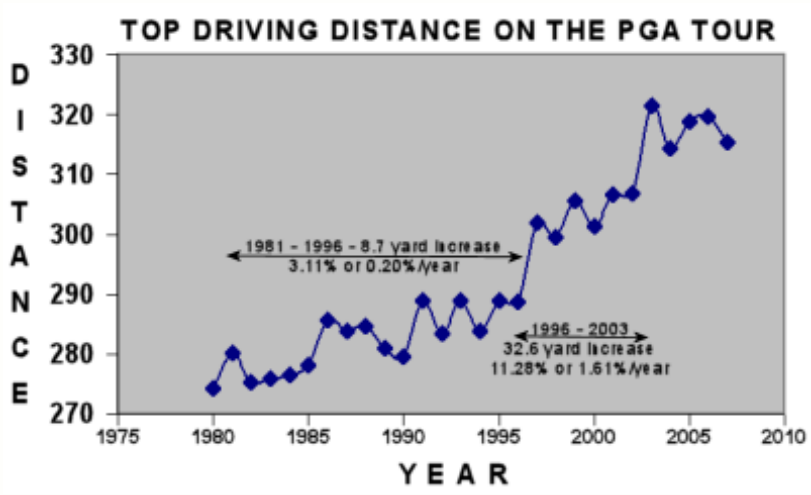
Course Basics: Hillside Golf Course, Sidney, Nebraska

- Par: 72 (Par 73 for the Forward Tees)
  Yardage: 6,924 yards (blue tees: 73.2 rating / 124 slope)
  6,206 yards (white tees: 69.1 rating / 1116 slope)
  5,236 yards (red tees: 74.6 rating / 130 slope)
- Rounds: 15,000 annually, 2% walking
- Soil conditions: sandy loam, clay, rock
  Average annual rainfall: 18.8 inches
  Monthly average temperature (low / high): 37 / 87
- Total acreage of property: 162 acres, golf course and club envelope: 130 acres
- Course topography/elevation change: Rolling with moderate to severe (158 ft.) elevation change
  High point: clubhouse, 4,258 ft above sea level
  Low point: No. 6 tees, 4,100 ft. above sea level
- Greens: Poa annua (annual blue grass)
  Greens construction: Front Nine, push-up style, Back Nine, sand based, no drainage, Poa annua
  Greens cut: 0.10-inch, Stimpmeter reads: +/- 10.0 ft
  Green size: 1.96 acres (Front Nine Ave: 5,152 s.f. Back Nine Ave: 3,867 s.f.)
- Tees: 1.48 acres, 51 total on golf course, avg. size 1,265 s.f. (not incl. practice area)
  Tee grass type: poa annua (annual bluegrass)
  Tee cut: 0.3750-inch height of cut
- Fairways: 21.4 acres, avg. width 28-32 yards, poa annua, ryegrass, kentucky bluegrass
- Rough: 62 acres, mostly common poa and kentucky blue grass
- Bunkers: 3 total, avg. size 1,000 sq. ft.,
- Water hazards: 5 ponds (holes 3, 5, 7, 10, 11), 2 streams/burns (hole 10)
- Practice facility: 5 acres, 3 target greens, no short-game greens, 0.3 acre tee
- Irrigation: Toro Monitor II and Toro LTC Plus (850 heads, mainly single row); plans for OSMAC renovation 2008 with multi-row, 1,400 heads)
- Water source: ground water well pumped from off site; 0.6 acre pond installed to hold an estimate 1.9 mil gallons
- Landscape/Trees: native grass species, native cottonwoods, planted pines and various other species
- Wildlife: birds, snakes, deer, geese, skunks, fox, coyotes, bobcat
- Maintenance Staff: 1 fulltime / 7 part time
  Superintendent: Kris Johnson
  Assistant superintendent: N/A, Irrigation Tech: N/A, Mechanic: N/A
- General manager/Director of golf: Chuck Christensen, PGA
- Golf course architects: Original Architect is Unknown (1929-30), Milo Lucker (1962), Bob Vander Zee (1992)

The Routing

For the most part, the current course takes good advantage of the natural topography, the site's unique qualities and fantastic long off-site views. The course flows well and presents basic values to its players. Given its modest size, the City of Sidney is fortunate to have such a quality course for its citizens. With a few minor modifications to its layout and design, and the additions of strategically placed hazards and angles of play, the course could indeed push itself into the top tier of courses and a "must see" when traveling through the State.

Generally, our main concern with courses built prior to 1990 is in regards to a golf course routing is the issue of safety. Due to the increases of the club and ball technology, many courses are seeing golf balls hit into adjoining housing or other property, causing potential liability and safety concerns. This seems to be of little concern at Hillside, with the possible exception of holes 6, 16, 17 and 18. These holes play well inside the industry standard safety envelope, and should be addressed in the event any changes to these holes are made. As the golf ball through the years has continued to go further (and will most likely continue), the areas noted above should acknowledged and assessed in the future.



The Greens

The USGA has set forth guidelines for putting green construction, to which all greens, both existing and newly built) are compared. This does not mean good greens built differently from the USGA specs exist. Quite the opposite. It is merely a point of comparison when trying to estimate the expected life cycle of Hillside's greens. Hillside generally has two different styles of greens, based solely on the different dates of construction. The current front none greens were the earliest built greens, and are therefore the closest to a "sand based" green construction. The current back nine are the oldest of the greens and appear to be of a "push up" style which used the existing soils found conveniently nearby each green site. The difference of construction techniques is evidenced by the difference in average green sizes (Front Nine Ave: 5,152 s.f. Back Nine Ave: 3,867 s.f.). It is reasonable to estimate the sizes of the greens have shrunk over the years (at

least on the back nine) due to the changes in mowing practices and/or a conscious decision to save on labor and management. Further, it is also common in older golf courses for the greens to be transformed into circles due to the long-term effects of mowing or the circular motion of the application of sand for top dressing. However, the varying types of construction will continue to prove to be areas of concern both from an everyday management perspective and their long term expected health and longevity.

The dominant turfgrass on the greens is annual bluegrass (Poa annua). "Poa" is a widespread low-growing turgrass with a short root system. It loves cool, moist temperate climates and is almost impossible to eliminate. It also grows seed heads throughout the year, making playing conditions less than predictable or ideal. When temperatures increase, management practices need to understand a balance between quality playing conditions and keeping it alive. The fact that the greens have Poa, along with the original construction method, makes them candidates for consideration of future reconstruction and regrassing to the latest varieties of Bentgrass.

Looks can be deceiving - "poa" greens can be susceptible to heat and disease.

Tees

At first pass, the tees seem to be located in proper locations and directed correctly down the center of the holes. However, based upon industry standards of size relative to overall play, Hillside's tees are not sized large enough to handle the current play on various other holes and all the par 3's. Also, in the event the facility sees an increase in play, the current tee sizes will not hold up to added stress and play. Most of the tees are not very level and have a variety of mowing patterns causing many tee marker locations to be limited and restricting interesting angles of play.

Hillside's tees are unlevel and undersized.

The current blue tees measure 6,999 yards, white tees measure 6,206 yards and the red tees measure 5,308. With only three sets of tees, the course variety and interest for the "average" player is lagging. Further, since Hillside fosters kids and beginners programs, there is little to no ability to provide reasonable playing areas or tees to facilitate these programs. Statistics are showing the successful public courses that have great practice facilities combined with options for beginners to learn to play the game are more successful over the long run over the courses that do not provide these facilities.

The current bunkers are poorly constructed and provide very little strategic value.

Bunkers

The course only has three bunkers on the course, of which, are very poorly constructed. The principal value of a bunker to influence a golfer's choice of shot, penalize a poor shot or direct a preferred line of play. It is safe to say Hillside would benefit greatly over the addition of strategic features such as sand bunkers and grassy hollows.

Practice Range and Facilities

The access road to the maintenance building is located in front of the existing range tee.

The hallmark to every successful golf facility is a thriving practice facility and development program. Developing and embracing new players is what is going to ensure not only a successful and profitable Hillside Golf Course, but will promote the game of golf in general. The practice facilities at Hillside is lacking in many respects. First and foremost, a safety hazard exists with an maintenance building access road crossing in front of the range tee, causing a liability issue and an inconvenience for players using the range. Secondly, the range tee is not large enough to allow the numbers necessary for a tournament or deep enough for adequate hitting stall rotation to ensure quality turf health. Finally, the course also lacks a good short game and chipping green. These facilities are not large revenue generators by themselves, however, they promote instruction, practice and time spent at the facility.

Water Hazards

Water hazards present dramatic challenges to some, while creating frustrating penalties to others. Bobby Jones, the famous American amateur golfer and original developer of Augusta Nation in Georgia described water features best when he said: *"Getting in a water hazard is like being in a plane crash - the result is final. Landing in a bunker is similar to an automobile accident - there is chance of recovery."*

There are a number of natural water features and drainage ways that facilitate drainage along with imparting strategy into the course. These exist on holes 1, 2, 5, 7, 9, 10, 11 and 18. These features are integral into how the golf course plays strategically and solve major issues relative to large rain events or the purveyance of nuisance water from irrigation. The water hazards on holes 3, 5, 7 and 10 appear to be designed as individual projects, addressing particular issues, while not being conceived from a master plan perspective. Their place in the overall design of the golf course must be considered.

The existing irrigation storage pond on hole #3 serves little value beyond the function of holding irrigation water. The location of the water hazard only comes into play on very poorly hit shots to the right of the hole. The issue with this pond is the limited size and extreme erosion occurring during each night of watering. It is estimated the water level fluctuates approximately 4 feet each night of watering. This is causing the banks of the pond to become steeper and steeper (see image), causing not only water quality issues but liability to golfers falling into the water while looking for balls.

The banks o the existing irrigation storage pond are eroding and causing a safety hazard.

The site also has a variety of localized, natural springs located in parts of the course. Holes #8 near the green and hole #9 in front of the tees present the largest issues. These springs are causing various logistical issues and should be examined for the value in harvesting water and/or installing drainage to completely remove them.

Irrigation System Assessment

As part of this report, an entire irrigation system analysis was undertaken which included overall system efficiency assessment, distribution uniformity (DU) testing, pump efficiency testing, hydraulic testing, a complete assessment of the existing system components and diagnostic of the central control computer system (see attached study by Irrigation Technologies).

In summary, the areas of concern are:

- No central control computer
- Inconsistent sprinkler spacing
- Poor mainline hydraulics
- Inefficient pumping design
- Insufficient water storage

Poorly performing irrigation sprinkler heads, the lack of central control technology, poor sprinkler spacing, an undersized and inefficient pump station (see table below) and poor mainline pipe hydraulics highlight the list of reasons why Hillside should look to replace the entire irrigation system. The lack of a properly designed water delivery system is also the main reason for unpredictable, poor course conditions.

An analysis of the current water storage system was also examined during the evaluation. Hillside has a traditional storage pond with a wet well, intake and pump station. Due to the lack in surface area of the pond, the drawdown of the water level approaches four (4) feet on a nightly basis. The water source comes from the City's own well pump located off site that fills the irrigation pond via an 8-inch fill line. The minimum storage to be considered is 1.3 million (1,300,000) gallons exclusively for use by the golf course. This volume of water will give the golf course a minimum of 2 days peak requirement.

Pumping System	Motor Efficiency	Pump Efficiency	System Efficiency
Pump #1 (40 HP)	91.7%	53.8%	49.4% = Low Rating
Pump #2 (60 HP)	93.0%	46.6%	43.4% = Low Rating

Chart 1. Pump Station Efficiency Ratings

See attached report by Irrigation Technologies.

Maintenance Plan Assessment

After reviewing the annual maintenance budget along with various research into the maintenance practices, it appears as though the course is doing a spectacular job based on the resources available to them. Based on information provided by Hillside, there is one full time employee and 7 part time employees (4.5 full time equivalent employees). As a point of reference, industry standards suggest $5,000 to $7,000 per irrigated acre to be budgeted for a maintenance budget of an 18-hole moderate golf facility. Further, one employee per 5.0 to 10.0 irrigated acres in a 7-day per week operation. This would put Hillside $415,000 to $581,000 per year for dedicated maintenance expense and approximately 8 to 16 full time equivalent employees, depending on the golf course and playability expectation. Since Hillside does not have the usual amount of maintenance intensive features such as sand bunkers, steep grass faces, etc. and a lower than average amount of irrigated acres, these estimated numbers could be reduced.

Managing Poa annua greens in an arid environment can be a difficult task. Coupled with inconsistent construction methods makes maintaining quality, uniform putting surfaces much more difficult. Industry standard maintenance practices such as greens aerification, sand top dressing and verti-cutting should be accomplished at a minimum of two times per year to ensure adequate flow of oxygen and moisture percolation through the growing profile. Aerification and top dressing of the fairways and rough 2-3 times per year is recommended but not mandatory. The drainage characteristics of the Hillside site are conducive to well draining soils and have limited issues, so the introduction of drain inlets and drainage pipe is not recommended unless individual situations arise. In the event any construction on the course proceeds, additional testing and agronomic consulting is recommended.

Trees

The original golf site had a limited amount of trees, except in low land areas and natural drainage ways. It appears that Hillside has avoided the all too common "memorial tree planting program" and is generally void of massive tree planting programs. This should continued! There have been plantings within the past 5-10 years that appear to address site line issues or the addition of backdrop, of which for the most part seem to functioning adequately. The plantings that are performed in soldier-like rows or are in extreme high-play areas should be avoided (unless there is an issue of safety). Additional plantings should be done sparingly, planned properly and chosen from the list included in a later section of this report.

Example of soldier-like rows of trees on hole #5.

Golf Course Operational Assessment

The overall operations of Hillside from a design perspective appear to be sufficient for the current needs of the players. The largest change came a few years ago when the nines were flipped from their original layout. This change proved very successful. Not only does it clear up a communication and visibility issue from the pro shop to the 1st and 10th tees, it also dramatically improved the finishing holes.

It appears as though some attention has been paid to where the mowed areas begin and end, understanding there is a balance of maintenance cost efficiency versus slow play as people look for balls in long grass. Currently there is plenty of room to play and a reduction of mowed turf should be considered. Further, the native grassland look could be utilized to define areas of play and incorporate native vegetation. Benefits to decreasing mowed turf will include a reduction of maintenance costs combined with an increase of a visual aesthetic as holes will become more defined without affecting the pace of play.

One stark observation when reviewing the course is the excessive amount of service access roads that exist around the golf course. Most of the these roads are not critical to the operational efficiency of the management of the course but they impede dramatically on the visual integrity of the design of the course and come into play on a number of occasions. The most important roads should be identified and the others eliminated. This process should be accomplished in concert with the adjustment to the rough mowing lines as identified above. A well thought out plan for where mowed turf ends combined with a realistic, functional site access plan will pay incredible dividends for very little cost.

Example of an access road found throughout the site.

The final observation relative to the operations is with regards to maintenance of the greens. Aerification of greens is of utmost importance to the long term health and quality playing conditions, and HIllside should take every opportunity to ensure these practices are being implemented. This is never easy. Aerification affects play and creates down time generally at the worst times during the year. This needs to be managed and communicated properly to the golfing public.

Resource Management Assessment

The two major issues affecting the game of golf today are water and energy. Understanding a golf courses' water and energy consumption can not only identify areas of waste and therefore money saving opportunities, but also allow a golf course to set the groundwork for a long term efficient operation.

The current water source comes from the ground and is pumped to the golf course via a well and delivery line. This water source is an incredibly valuable asset and should be handled with care. Any opportunity Hillside has to reduce overall water use and to prolong the life of the wells should be utilized. Also, by reducing water use, energy consumption will also be minimized. Since Hillside does not have a central computer controlling the irrigation system, added pressure is placed on the mainlines causing undue stress along with causing an inefficient use of water.

By minimizing the total maintained areas overall labor, equipment and fuel use will be reduced. It will also maximize the areas of natural habitat encouraging the populations of many native animal species. As large green spaces that often feature diverse habitats, all golf facilities should contribute to ecosystem protection and enhancement, and the maintenance of healthy, functioning landscapes.

We feel Audubon Certification is the minimum standard for environmental stewardship in golf course developments and is something Hillside should consider. Our sustainable approach allows each golf course to assess how best to adopt these practices into their everyday management procedures, allowing for the realities of golf course management. In the end, our clients will find that Certification is a natural step since most of our protocols have already addressed the items necessary for Audubon recognition – it's just a matter of paying the fees.

Hillside also has the opportunity to achieve GEO Certification (Golf Environment Group - www.golfenvirnment.org), the world's most credible environmental certification for golf course facilities. Through GEO, all aspects of financial, environmental and cultural sustainability will be examined, tracked and verified. Areas such as fertilizer and chemical use, energy consumption, local supply chains and purchasing, and long term management will be verified for their authenticity and level of acceptance by an outside, 3rd party, ensuring the project is practicing what it is preaching.

Hillside's sustainability plan will encompass the following areas of study:

- Water
- Energy & Resources
- Environmental Quality
- Landscape & Ecosystems
- People & Communities
- Products & Supply Chains

What is a Master Plan?

As a means of establishing a baseline, it is necessary to understand what a Master Plan is, what is its purpose and why a golf course should have one. A Master Plan is a graphic and written display identifying issues, problems and areas of opportunity in the golf course facility, put into historical context, to serve as a road map for future improvements, developed with an outside, non-biased perspective.

To more fully understand what a Master Plan is, it is often useful to explain what a Master Plan is not:

- It is not change for the sake of change
- It is not an excuse to spend money
- It is not a haphazard collection of certain individuals' ideas

One may ask, "Why do a Master Plan?" It is indeed because golf is a business! Real issues continue to affect the golf industry today and will continue to on into the future. Rising costs of resources, new competition, failing greens or bunkers, even safety issues due to the longer distances a golf ball travels all weigh heavily on the idea that golf is a business. And are reasons for why a course needs to be ready to address these issues heading into the future.

■ **Fact: A golf course naturally evolves and changes mostly for the worse.**

As outlined in the Expected Life Cycle of Golf Course Items, it is shown that components of a golf course do have a life expectancy and do break down over time. This life expectancy is also directly related to how well the items are maintained. Accelerated degradation should be expected without annual maintenance.

■ **Fact: Changes will be made to the golf course by course officials or staff.**

Every course has a governing body in place to look out for the long term health of the facility. But, this governing body brings with it potential issues concerning changes or adjustments made to the golf course. How many times have you seen a bunker removed, or a tee added to satisfy the needs of a particular person or board?

An example of a tee built as an after-thought

GOLF COURSE ITEMS
EXPECTED LIFE CYCLE

HOW LONG SHOULD PARTS OF THE GOLF COURSE LAST?

No two golf courses are alike except for one thing: deferring replacement of key items can lead to greater expense in the future, as well as a drop in conditioning and player enjoyment. The following information represents a realistic timeline for each item's longevity.

Component life spans can vary depending upon location of the golf course, quality of materials, original installation and past maintenance practices. The American Society of Golf Course Architects (ASGCA) encourages golf course leaders to work with an ASGCA member, superintendents and others to assess their course's components.

ITEM	YEARS
Greens (1)	15 – 30 years
Bunker Sand	5 – 7 years
Irrigation System	10 – 30 years
Irrigation Control System	*10 – 15 years*
PVC Pipe (under pressure)	*10 – 30 years*
H.D.P.E. Pipe	*40 – 60 years*
Pump Station	*15 – 20 years*
Cart Paths – asphalt (2)	5 – 10 years (or longer)
Cart Paths – concrete	15 – 30 years (or longer)
Practice Range Tees	5 – 10 years
Tees	15 – 20 years
Corrugated Metal Pipes	15 – 30 years
Bunker Drainage Pipes (3)	5 – 10 years
Mulch	1 – 3 years
Grass (4)	Varies

NOTES: ***(1)*** *Several factors can weigh into the decision to replace greens: accumulation of layers on the surface of the original construction, the desire to convert to new grasses and response to changes in the game from an architectural standpoint (like the interaction between green speed and hole locations).* ***(2)*** *Assumes on-going maintenance beginning 1 - 2 years after installation.* ***(3)*** *Typically replaced because the sand is being changed – while the machinery is there to change sand, it's often a good time to replace the drainage pipes as well.* ***(4)*** *As new grasses enter the marketplace – for example, those that are more drought and disease tolerant — replanting may be appropriate, depending upon the site.*

ASGCA thanks those at the USGA Green Section, Golf Course Builders Association of America, Golf Course Superintendents Association of America and various suppliers for their assistance in compiling this information.

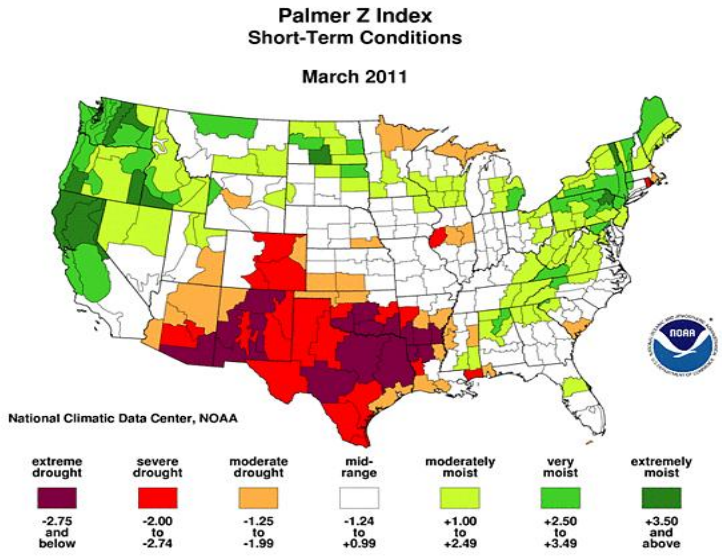
The materials presented on this chart have been reviewed by the following Allied Associations of Golf:

For more information, contact ASGCA at (262) 786-5960 or visit www.ASGCA.org

DATA COMPILED BY ASGCA, 125 NORTH EXECUTIVE DRIVE, SUITE 302, BROOKFIELD, WI 53005

- **Fact: Costs to operate a golf facility and the likelihood of additional restrictions/taxes levied on these facilities are only increasing.**

As the costs for resources such as water, energy and fuel continue to rise and become less available, golf facilities will need to become increasingly aware of how to address their future sustainability. Integrating recycled water into their plans, adopting energy efficiency technologies such as efficient pumping strategies, green building and renewable energy will become increasingly important and a necessary function in order to remain profitable.



2011 National Drought Overview

- **Fact: Without a firm direction or plan, a golf course will slowly over time loose its continuity, allowing each governing board to leave their individual mark, negatively affecting the long term health of the course.**

So, to answer why a course should have a Master Plan in place, it very simple - A course needs a plan in place in order to account for the changes in the golf course that occur naturally and to direct officials and staff when they plan to make change, to positively affect and preserve the long term health of the course.

Another example of questionable design – a greenside bunker

Part III - THE MASTER IMPROVEMENT PLAN

Golf Course Routing and Design

The most important aspect to any great golf course is its routing. As noted in Golf Course History and background section, the golf course has gone through some chances since it was first built in the early 1930's. For the most part, the current course takes good advantage of the natural topography, the site's unique qualities and fantastic long off-site views. The course flows well and presents basic values to its players. Due to the lack of strategically placed hazards such as sand bunkers, grassy hollows or changes of angles in fairway approaches, Hillside itself has not garnered the attention one would think a site of this quality would. With a few minor modifications to its layout and design, and the additions of strategically placed hazards and angles of play, the course could indeed push itself into the top tier of courses and a "must see" when traveling through the State.

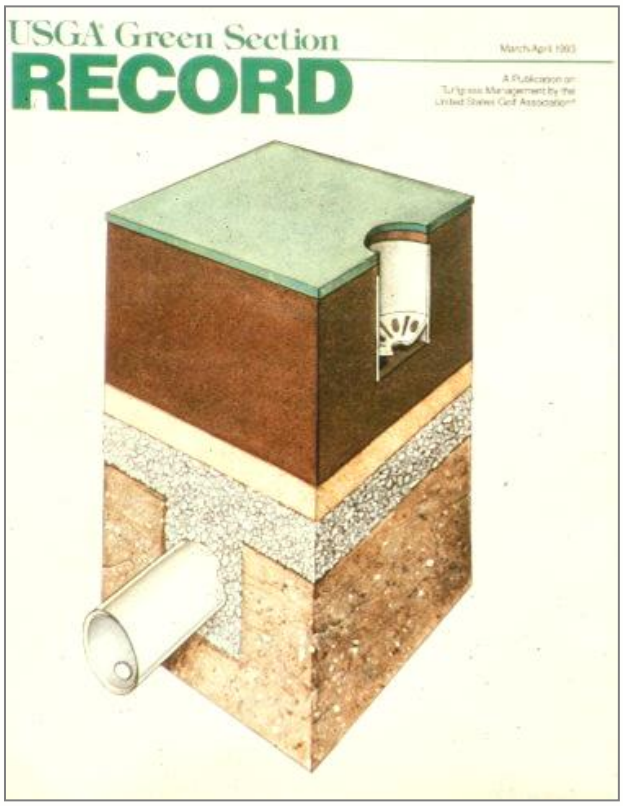
Recommendations:

- Keep routing intact. Eliminate the short green on hole #2. If keeping the short green is a preference, consider adding a par 3 playing from a high point direct north of the short green, playing west to the far green, then play from the current #3 tees to the current #4 green.
- Monitor holes 6, 16 and 17 for issues related to safety.
- Consider rebuilding hole # 8, lower green, eliminate spring, rebuild tees.
- Consider rebuilding all greens to U.S.G.A. recommendations in the future. In the event greens are rebuilt, consider moving some locations to utilize better views, playability, air movement and drainage.
- Utilize the unique site features (see image above) where possible and incorporate them into the routing of the golf course.

Golf Course Components

Consistency of design style is the focus of this section of the Master Plan. A sustainable golf course utilizes features that give a course a unique style, create strategy while not overextending the maintenance budget. Irrigation water and fertilizer will be focused on the main areas of play and allow the course to blend out into the surrounding native grasses and landscape. A uniform, fast-and-firm playing surface will be our goal.

Hillside should be designed to emulate a course typical of one built during the "Golden Age of Golf Course Architecture" with natural landforms, simple yet strategic hazards and small, plateau-styled greens. The existing greens will have subtle contours and slight roll-offs. these should e be accentuated by extending the tightly mown surrounds around select areas of the green. These subtleties will allow for greater options around the greens, presenting the player with more playing options including the use of a putter on through to a wedge. The greens at Hillside are known for being small and tricky, and this will be maintained. However, in order to allow for an increased level of play, the overall size must be increased. This can be accomplished by continuing to expand the green surfaces by expanding the mowing patterns in ever green. Even if these expansions are not actual pin placements, they facilitate additional pinable areas by creating increased distances around the green edge, thereby increasing the amount of space available for pins.



U.S.G.A. greens construction recommendations.

Ground contour will be given great consideration throughout the course and will be utilized as additional hazards into the design, increasing strategy and interest while decreasing the need for maintenance intensive features such as bunkers or lakes. When re-grassing occurs, all turf areas outside the greens will be grassed with an identical blend of dwarf bluegrass, ryegrass and fescue, allowing for 100% freedom for mowing patterns, maintenance practices and water management.

Specific attention will be paid to the long term cost of maintenance of all hazards by choosing a style and grass that minimizes mowing, watering and fertilization. Plants such as low-mow blue grass and fine fescue with allow for limited maintenance and are drought tolerant with very little maintenance. Our intention is to increase the number of bunkers while keeping the cost of upkeep relatively the same.

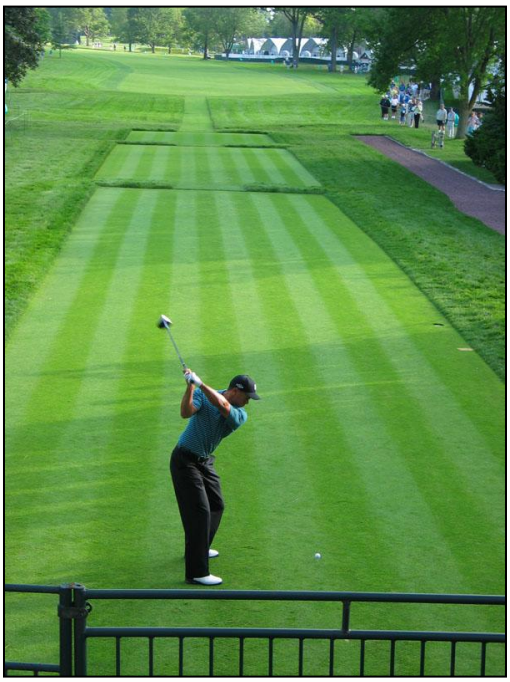
Recommendations:

Greens

- When greens are to be , follow U.S.G.A. recommendations.
- Enlarge all greens to a minimum of 5,000 sq. ft. ave. (5,500 sf preferred) with flat and subtle putting quadrants.
- Greens will be maintained with a riding greens mower.
- Shall provide numerous pin placements on all the greens.
- Shall be designed with closely mown roll-offs with collection areas.
- Shall be replanted with the same Poa annua variety as found on the rest of the greens. *NOTE: In the event all greens are rebuilt at the same time, it is recommended to convert all green to the latest variety of genetically improved Bentgrass.*

Tees

- Shall be designed to allow for four (4) sets of tees, plus a learning/junior tee on every hole.
- Follow USGA recommendations for size (i.e. 100 sq. ft. per 1,000 rounds of play on par 4's) wherever feasible.
- Shall be releveled to ensure a uniform, flat surface and constructed to a 1.0 – 1.5% slope to encourage surface drainage.
- When rebuilt, tees should be capped with a 4-inch layer of existing, well draining topsoil/sandy laom mixture that promotes drainage while providing a desirable growing medium.
- To be constructed in a square or rectangular shape. Tee slopes shall blend into the surrounding ground contour wherever possible to promote a "natural" feel.
- Shall be grassed with the latest, genetically improved, drought tolerant, winter hardy dwarf bluegrass.



Tiger on the 1st tee during the 2006 U.S. Open at Winged Foot Golf Club

Existing Hole #14

Proposed green and bunker concepts for hole #14
(Bunkers will be designed to either be sand or grass)

Bunkers

- Shall be converted to a flat bottomed, grass-faced style, reminiscent to the design styles of William Langford or Seth Raynor.. These bunkers will be placed for strategic value and be conducive to ease of maintenance. Long native grasses left to grow unmaintained along the edges are acceptable (where feasible).
- Some bunker locations shall be designed be built as grassy hollows and can be converted to sand bunkers when time and budget allows.

Example of proposed bunker shapes. Some bunkers will not have sand installed and will be built as "grassy hollows" for ease of maintenance while creating visual appeal.

- Each bunker shall have a herringbone drainage installed to prevent erosion and contamination of the sand from soil subgrade. Grassy hollows shall be constructed to have a low point with a drainage sump to eliminate standing water.
- Sand shall be converted to a tan/ off-white color with angularity properties that provide firmness and help prevent buried lies.
- Bunkers shall incorporate recycled materials wherever feasible.
- Shall be constructed to provide accessibility by a mechanical rake from at least one entry point.

Turf Areas including Fairways and Roughs

- Shall be widened to more resemble the conditions of the course in the 1920's and 30's providing multiple options of play within one hole, putting a priority on strategy and interest.
- When replanting occurs, shall be converted to the latest genetically improved, drought tolerant, winter hardy bluegrass/ryegrass/fescue blend to provide a denser turf canopy resulting in improved lies, more consistent playing surface, earlier spring green-up and improved weed control.

An example of a natural approach to grassing concepts and fairway mowing lines.

- Amend soil as necessary to promote natural agronomy and improve overall growing conditions.

- Roughs shall blend naturally from maintained to non-maintained areas. Native grasses will be allowed to grow long, where appropriate, creating a dramatic aesthetic appeal of a mown green space contrasted against a natural grassland found in the Nebraska prairie.
- Where fairways are disturbed and soil is removed for shaping features, no less than six (6) inches of topsoil shall be replaced, and/or compost shall be added to create an acceptable growing medium.
- Eliminate all unnecessary maintenance roads and convert to native grass plantings.

Cart Paths

As part of this Master Plan, a cart path routing plan is included to guide the course when cart paths are to be upgraded, replaced or added. It is proposed to initially utilize asphalt millings or compactable gravel for the surface and focus the paths around the tees and greens. Eventually it is proposed to convert all cart paths to concrete, eliminating all gravel/asphalt paths when the amount of play and/or the economics warrant the expense. The concrete is also proposed to be colored or stained to reduce the brightness of the natural bright color, blending the paths with the surroundings, directing attention to the golf course. Special attention should be paid to the final locations as to not impede into the line of play or sight of the golf hole and should be run along the transition line from turf to native grass, where possible. Drainage should be incorporated into the path wherever feasible, pouring catch basins directly in the path itself. This will allow the path to serve the secondary purpose of reducing the amount of surface runoff onto the golf course.

Note the cart path on the right side of the picture – Not only does the path blend with its surroundings, it functions as a drainage swale as well

Recommendations:

- Paths shall be at least eight (8) feet wide and initially built with asphalt millings.
- Paths should be installed only around the greens and tees.
- Paths shall be designed to integrate drainage into the path whenever feasible. This will help prevent erosion around the path and reduce the amount of run-off on to the golf course.
- Shall be located in out-of-play areas to reduce the visual impact whenever feasible.
- When paths are converted to concrete, they shall be colored or stained to blend paths into the surroundings.
- All maintenance access should be handled via a cart path. All other access road and dirt trails should be eliminated.

Master Tree and Landscape Management Plan

A native plant list is included in this report and should be used as a guide when trees or shrubs are planted. This list includes plants native to Sidney, NE that will adapt to the microclimates found at Hillside. Attention was paid to select the proper trees suitable for plantings inside the turf perimeter, areas outside of the irrigation as well as chosen for color and texture. As trees mature, their canopy can cause harm to turf health due to shade and possible disease issues. Therefore, final plant locations should be verified.

Recommendations:

- Use plantings native to Sidney, NE, whenever feasible.
- Integrate "native" color on the golf course where ever possible.
- Avoid maintenance intensive plantings such as non native plant species or small flower beds.
- It is recommended to convert all difficult-to-maintain areas (i.e. out-of-play areas, steep slopes, etc.) into native grass planting areas. These areas will provide nutrient run-off buffers and wildlife habitat while reducing maintenance costs.

Native Plant list for Hillside Golf Course

Scientific Name	**Sun**	**Comments**	
Silver Maple	*Acer saccharinum*	75-100'	Lace-like leaves with white bloom on the underside
Ohio Buckeye	*Aesculus glabra*	50-75'	Greenish-yellow flowers (spring); yellow to orange (fall)
Shagbark Hickory	*Carya ovata*	75-100'	Yellow to golden-brown fall color; squirrels eat nuts
Hackberry	*Celtis occidentalis*	60-100'	Mild yellow fall color; warty trunk is interesting in winter
Redbud	*Cercis canadensis*	15-30'	In April, clusters of rosy-pink flowers line branches, trunk
Downy Hawthorn	*Crataegus mollis*	35-50'	White spring flowers become red fruit; yellow fall color
White Ash	*Fraxinus americana*	75-120'	Yellow, maroon-purple fall color; butterfly larval plant
Green Ash	*Fraxinus pennsylvanic*	50-75'	Grows rapidly; yellow fall color
Kentucky Coffee Tree	*Gymnocladus dioica*	75-100'	Pinnate compound leaves; male, female separate plants
Black Walnut	*Juglans nigra*	99-125'	Edible nuts in fall; beautiful, wildlife-friendly tree
Eastern Red Cedar	*Juniperus virginiana*	30-80'	Good for screening; attracts birds
Prairie Crabapple	*Malus ioensis*	20-30'	Fragrant pink flowers become very tart fruit; suckering
Ironwood	*Ostrya virginiana*	30-50'	Cream-colored fruit looks like hops; yellow fall color
Sycamore	*Platanus occidentalis*	75-100'	Leaves drop all summer; mottled white bark
Eastern Cottonwood	*Populus deltoides*	100'	Modest fall color; can be messy
Wild Plum	*Prunus americana*	20-35'	White, fragrant flowers (spring); red, yellow fruit (sum.)
Black Cherry	*Prunus serotina*	50-60'	Messy tree; small edible berries in summer attract birds
White Oak	*Quercus alba*	80-100'	Brown, red, wine fall color; acorns eaten by wildlife
Bur Oak	*Quercus macrocarpa*	80-100'	Mild yellow-brown fall color
Red Oak	*Quercus rubra*	75-100'	Russet to bright red fall color; grows rapidly
Basswood	*Tilia americana*	60-125'	Wood for carving; nectar makes honey; birds like seeds

Existing Practice Range and Surrounding Area

An area of serious concern for Hillside is the current design of the existing practice facility and the access to the maintenance facility. As noted in the report, an access road is located directly in front of the current range tee, creating a serious liability for the City. Further, the current size of the existing range hitting tee is far below industry standards, providing for very poor turf conditions and forcing the course to use the artificial turf hitting pads.

Learning/ Family/ Junior Tees

Hillside currently has an a successful junior and beginner program, however, the course does not have adequate practice facilities and tees to foster these programs. A lack of practice facilities, short game areas and chipping practice will be addressed with the newly expanded practice range. The final aspect to the development of new players and foster participation by entire families is the introduction of a dedicated tee on the course, specifically designed for learning and beginners. This aspect of the design will allow a set of tees to be set closer to each green along the cart path, where feasible, to allow for those who need to let their kids play only a portion of the hole, but want to hit into the regulation greens. The driving range can also be designed to play a short par-3 course utilizing the ranges target greens and flat areas for tees. The length of these holes will range from as little as 25 yards and much as 100. The range will need to close while this course is in play, however, this can be done during off peak times and when the course is traditionally slow. Various tees including tees set very close to each green will be available for use by the entire family, based on their skill level.

Recommendations:

- Move maintenance to the west, north of the existing parking lot.
- Incorporate as many opportunities to foster beginners and families into the game of golf Expand range hitting tee to include a minimum of 25 grass-tee hitting stations
- Incorporate a teaching tee at the end of the range, if feasible
- Include a short game area, chipping green, sand bunker practice and par-3 short course
- Include into each golf hole one (or more) forward sets of tees located close to each green to allow for kids and beginners to learn the game on the "real" golf course
- Add par-3 course into the design of the driving range for use in junior programs and teaching sessions

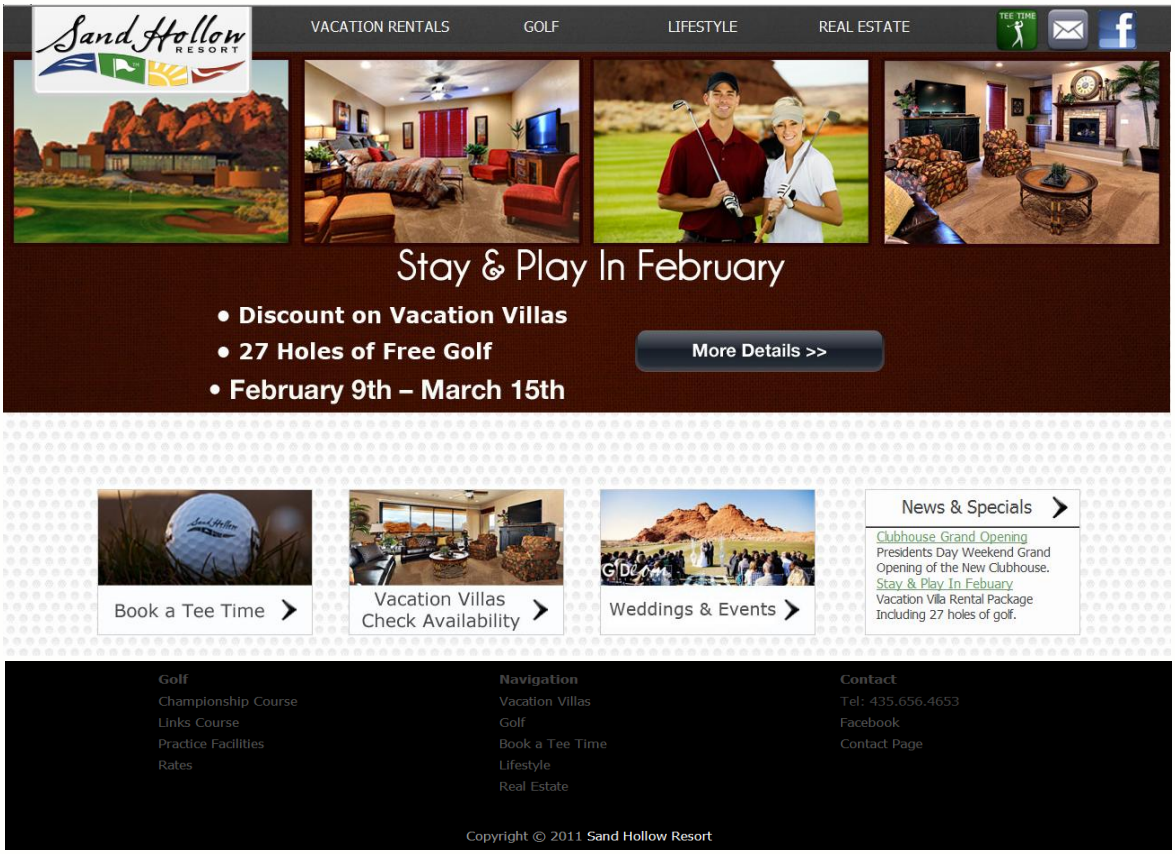
Marketing, Branding and Logo Design

It is recommended to reevaluate the marketing message for Hillside Golf Course. As the components of this plan are implemented, it is feasible for the golf course to garner additional attention outside the City's current promotional channels. The City should consider evaluating increasing the appeal of the course's web presence, logo and overall brand. This can be done over time as portios of the plan are introduced.

Recommendations:

- Consider rebranding the course with a new logo, website and marketing materials
- Better utilize the web to communicate with your customers
- Design custom site signage, hole signs, tee markers, benches, etc (see below).
- Cross market with additional uses throughout the County such as hiking, mountain biking, outdoor concerts, etc.
- Utilize the current Clubhouse as THE social meeting place in Sidney
- Align with like-minded, sustainable organizations to promote the integration of green technologies in business

Web site example:



Examples of possible custom golf course accessories, signage, etc.:

Implementation and Phasing Plan

There are three main factors that go into how a Master Plan is implemented. These factors are:

1. **Cost**
2. **Quality**
3. **Disturbance to golfers**

When a Master Plan is accepted and work commences, the above factors must be weighed when implementing the Plan. For example, what is the cost of doing a large amount of work vs. many small projects spread out over a period of time? Obviously the more work that is accomplished at once will give the greatest amount of cost efficiency over spreading it out over time. But, it may not be realistic for a course to do a large amount of work at once. All of the pros and cons with regards to cost must be weighed.

Another factor is quality. Quality is possibly the most important factor when any work is undertaken. Doing it right the first time ensures the project will be a success. Even if it means lessening the size of a project, the long term impacts to the course will show greater benefit and generate positive feedback from your members. And, nothing kills a plan faster than not doing something right and having to go back and do it again.

The final factor is overall disturbance to the members or customer base. Having a course and its play continually disrupted not only weighs heavily on the current golfers, it also affects the course's reputation when looking for new customers. On one hand, it is a positive for a course to be improving its course. But, on the other hand, if the course is always under construction, causing bad publicity and unhappy golfers, this burden may not be worth the financial savings achieved. This factor should be discussed and the course should understand the impacts of their decisions.

The implementation schedule for most golf courses are entirely based on the amount of water available at the time of planting the turf. Since the turf maturation process (or commonly called the "grow-in") is extremely water intensive, it will exhaust the water storage quickly. Thus, the total overall amount of available water needs to be assessed prior to creating a final implementation plan. The actual schedule of course closures would depend on when construction would commence. Since the premier growing time in Sidney is roughly mid-May through late September, the course would need coordinate the schedule of each project around the ideal time to complete the work and have enough growing time for the newly planted turf.

Projects That Need to Be Done In Order:

Projects in Order A

1) Move the Maintenance building
2) Rebuild Range
3) Add short game area

Projects in Order B

1) Expand irrigation pond
2) #2 fairway and green (need fill)
3) #3 fairway
4) #3 irrigation mainline

Projects in Order B

1) #10 Green and lake expansion
2) #11 and #8 Tees
3) #9 fairway widen by tees

Projects That Can Be Done At Any Time:

1) Hole 1
2) Hole 2
3) Hole 5
4) Hole 6
5) Hole 7
6) Hole 8 Green
7) Hole 9 (except fairway widening)
8) Hole 10 (except green) see above
9) Hole 11 green
10) Hole 12
11) Hole 13
12) Hole 14
13) Hole 15
14) Hole 16
15) Hole 17
16) Hole 18

Project Priority List – Front Nine

1) Irrigation pond, holes 2, 3 and 4
2) Hole 8
3) Hole 9
4) Hole 1
5) Hole 5
6) Hole 6
7) Hole 7

Project Priority List – Back Nine

1) Hole 18
2) Hole 16
3) Hole 17
4) Hole 10
5) Hole 11
6) Hole 15
7) Hole 14
8) Hole 13
9) Hole 12