

IT TOOK A LOT of imagination and some big thinking to create an 83,000 acre environmental park in a semi-arid area 35 miles south of Los Angeles. The rolling hills and canyons defied settlement since the days of California's founding. And with ten million people camped on its outskirts, the area defied the crush of an expanding city until 1969.

Part of the sprawling Irvine ranch, the man-made oasis, now includes complete villages, recreationally self-contained, reaching from the ocean to the Santa Ana Freeway several miles inland.

The Big Canyon Country Club is located much in the center of things; an area which formerly was used for motorcycle hill climbs and trails. According to Greg Arrowsmith, course superintendent, building the course required one of the most expansive ground moving projects since the building of the Panama Canal. The 6,800 yard course winds through canyons, requiring up to 70-feet of fill in laying out the fairways. Robert Muir Graves and Associates were the architects of this fabulous project with Roger Gordon doing the irrigation architecture. There are 155 acres of labeled turf with 32 acres of manicured slopes. The site has 7 lakes holding 8-million gallons of water. There are 2 acres of traps taking in 72 bunkers. The flat land of Big Canyon contains 3,700 trees with twice that number planted on the slopes. To add to maintenance problems there are 9 different types of turf on the course.

Big Canyon has two types of terrain: the Canyon 9 with water hazards and trees and the Highland 9 with a mountain type course. The course was laid out with Bermuda fairways, mixed bluegrass roughs, seaside tees and aprons, and Penn-cross Bentgrass greens.

Arrowsmith noted that the climatic conditions averaged 70 to 75 degrees year around. Extreme lows and highs range from 28 to 95 degrees. As the Bermuda fairways

Top: Long view down one of the fairways at Big Canyon gives some perspective of the amount of fill used to create a golf course in a canyon.

Bottom: Crew loads ryegrass in vericut seeder in preparation for overseeding bermuda fairways.



Big Canyon Golf Course, An Engineering Marvel

By W. SCOTT LAMB

began to go dormant in the winter months, Arrowsmith considered ryegrass overseeding. The climate was not too hot for perennial ryegrass and indicated a program of overseeding with Pennfine and Manhattan perennial ryegrass, rather than using the old favorite annual ryegrass. Arrowsmith began his overseeding program on 1 and 9 fairways two years ago using a verticut seeder. The bermuda had been going out from 3 to 10 weeks in the winter but Arrowsmith was pleased

to find the ryegrass grows upright and helps hold the ball up even through the winter and summer months. He decided ryegrass was a good companion grass for the climate and has started a program of overseeding the balance of the fairways with straight perennial ryegrass, because it comes up strong and dark green. For seeding rate, Arrowsmith experimented with 150, 300 and 450 pounds per acre in his overseeding program. He feels the



300 pounds per acre rate has worked the best. He uses a Viking verticut seeder, set 1/2 inch deep with rollers to press the soil back down after seeding. He also cross seeds in three directions to get an even stand. Traffic is redirected on the course until the grass is established by marking off areas for cart travel or requiring golfers to walk from permanent paths to the ball. He has had no problem with disease in his ryegrass program and has not used insecticide or herbicide on the course to date.

Greens fall in the same disease-free category. Arrowsmith's crews hand mow the greens at 3/16 inch five times a week. They use a triplex mower with vertical mowing heads once a week to control thatch and give the greens a good brushing. Traps are all about 7 feet from the green which keeps sand off the greens and allows mowing from any direction. There are two acres of Penncross greens on the course and Arrowsmith has discovered the roots reach 16 to 18 inches deep with most greens showing a 12-inch root system.

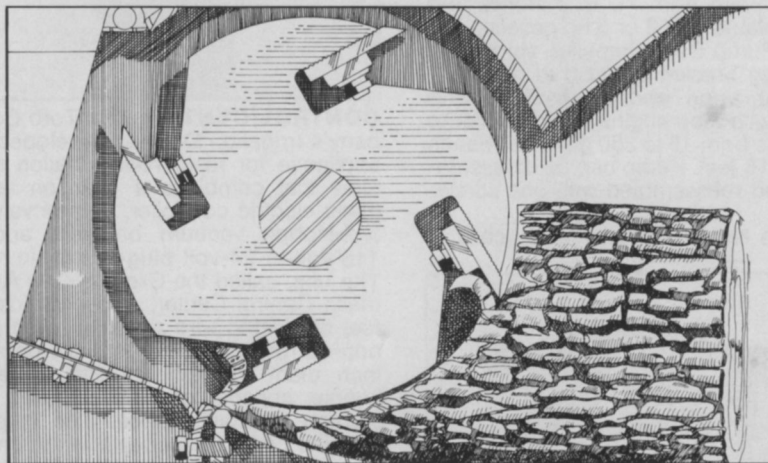
The maintenance area of the course is a picture of good organization. Planning is evident at every step of the program. Arrowsmith's maintenance budget is an astounding \$307,000, but his 19-man crew maintains not only the course but, also, the landscaped slopes, a dazzling array of flower beds, an Olympic size pool, practice fairways, a driving range, and a large clubhouse putting green. There are about 400 acres in the Big Canyon grounds and about 200 acres are maintained by Arrowsmith's crew. There are twelve men assigned to the course maintenance and seven men working in other club areas. "There is not a man on the crew who would not sit down in a mudhole if it were necessary, to get a job done," Arrowsmith said. He is proud of his entire crew and feels his program of training good men who want to get into the golf course superintendent business is responsible for a top maintenance crew. He hires men on the basis of a two-year training program and each man agrees to that time stipulation when he accepts work with Arrowsmith. A California Poly Tech graduate, Arrowsmith majored in landscape architecture and park administration.

The Big Canyon course drains about 1,000 acres. While it is well tiled, with elaborate and costly drainage system installed, the winter rains are sometimes too much for the drainage system. Fairway wash is sometimes a problem, but the grass waterways have held up quite well without excessive wash.

Big Canyon Country Club is a spectacular example of salvaging

unusable ground and making it an attractive recreation and home site area. The beautiful luxury homes bordering the canyon walls add to the setting and the greenness of the entire development is a great contrast to the nearby barren canyons. Water, turfgrass and trees, wonderfully groomed and maintained, have graphically illustrated how man can make an environment. □

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