



Texas Council of Engineering Companies  
2008 Engineering Excellence Awards  
Gold Medal Winner – Category I: Special Projects, Land Development

# Urban Oasis Offers Natural Living

Located in northwest Houston's rapidly growing Cypress-Fairbanks community, the new 11,400-acre Bridgeland development is the largest master-planned community created in the Houston metropolitan area in more than 30 years. Bridgeland celebrates nature by expanding upon the environmental, recreational, and aesthetic benefits of its natural surroundings.

The development's concept and design grew from the vision of protecting and enhancing the ecological habitat for local wildlife and the thousands of residents who will eventually call Bridgeland home.

A massive 1,000-acre system of interconnected lakes and streams is the centerpiece of the development's infrastructure. This extensive waterway network will buffer and surround each of the development's villages. It will also function as part of Bridgeland's drainage network, controlling storm water runoff and providing floodplain storage mitigation.

The first of its kind in a Texas residential development, Bridgeland's waterway and drainage system required an original hydrologic analysis process and design. During a time of regulatory transition and with no existing precedent, the engineering team adapted

complex modeling typically used for large, natural water networks to study and tailor the system to serve the development's current and future needs and to fully mitigate downstream impacts. Brown & Gay Engineers' efficient design reduced the area's floodplain, further enhancing safety and quality of life.



Bridgeland's entry promenade features a pair of striking signature bridges, which cleverly disguise drainage infrastructure. A stately arched bridge effect was achieved using pre-fabricated concrete arch culvert sections on the ends of standard concrete box culverts. Concrete headwalls were then clad with brick, which achieved a beautiful look without the cost of



*Bridgeland offers a wide array of recreational opportunities.*

traditional span bridges, saving approximately \$2 million in initial construction costs.

Bridgeland brings people to nature with an expansive waterway system and natural habitat corridors. Meandering channels, sloping banks, and waterfall-like spillways work together to provide a natural setting that attracts 140 species of birds and waterfowl along migratory flight paths.

Brown & Gay Engineers employed eco-friendly practices to maximize resources and save energy. These practices included repositioning approximately 2 million cubic yards of excavated

earth and reclaiming wastewater to support amenity lakes and the waterway network. Bridgeland's neighborhood street systems were designed to use less concrete. The team worked closely with local government officials for approval to reduce the street width from 28 feet to 25 feet, thereby decreasing the heat index and preserving green space.

Over the next 20 years, Bridgeland will grow into a 20,000-home community, with a balance of single- and multi-family housing, corporate and retail development, churches, schools, and community centers, all interconnected in the natural environment.



*Water brings the need for bridges—the inspiration for the development's name.*