

TOOLS & EQUIPMENT

Princeton's Double Lightning-struck Tulip Tree

Case Study In Strategic Tree Removal

By **Mark Chisholm**



Above: The 130-foot-tall lightning-struck tulip tree suffered an advanced area of decay.
Above Right: An 80-ton capacity crane was utilized to remove the double-trunk tree, while a second crane secured Mark Chisholm to reduce the risk of injury.
Photos courtesy of Steve Chisholm

LARGE TREE REMOVALS TEST A CLIMBER'S ABILITY TO ENDURE EXTREME physical demands as well as creative problem-solving abilities. I faced such a challenge when I was called upon to remove a large lightning-struck tulip tree on the grounds of Princeton University in New Jersey. Because of the unique condition of the tree, it was apparent that a great deal of effort would be required to prepare for its removal.

Assessing The Damage

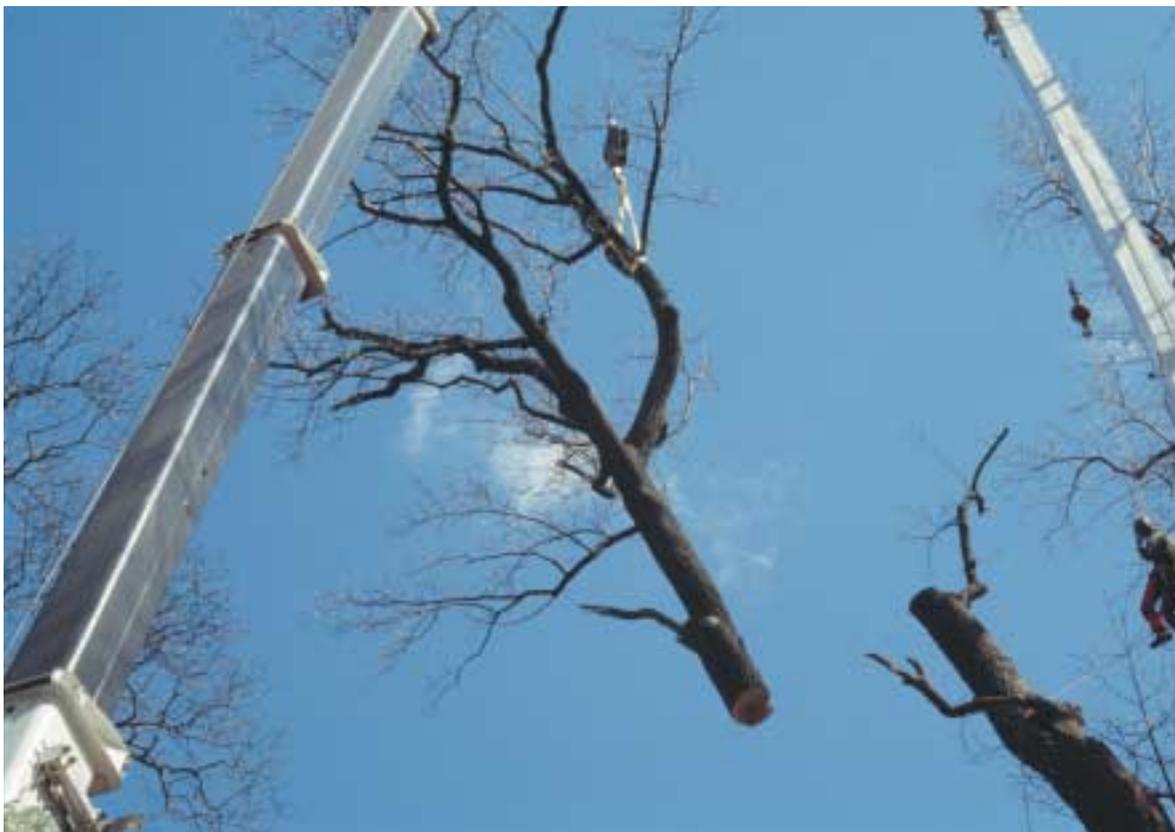
The tree had a double-trunk and was twice struck by lightning. The second strike resulted in fire, creating an advanced area of decay in the lower third of the tree. Located on the side of a small, winding two-lane road, the tree was more than 130 feet tall. Moreover, the larger of the double-trunks had a diameter of 56 inches and its smaller counterpart measured 48 inches. As if this wasn't challenging enough, electrical conductors ran alongside the tree and were within three feet of the trunk.

Planning The Work

Our first course of action was to research the status of the electrical conductors and discuss available options with the power company. Occupational Safety and Health Administration (OSHA) requires that tree removals performed within ten feet of electrical conductors be approved by qualified line-clearance personal. Engineers determined that the electrical lines fed a dorm area on university grounds. To avoid power interruptions, we decided that an eight-hour window during student breaks would be sufficient to tend to the tree.

To further complicate the project, a second tulip tree which stood only 150 feet from the decayed, lightning-struck, double-trunk tree, and would need to be removed within the same timeframe due to a large hollow that decayed 30 percent of the tree's base.

After careful consideration of the site restraints, tree hazards, and



size, it was evident that an 80-ton capacity crane with a 150-foot hook height would be the best choice for removal of the double-trunk tree. Since the tree was deemed high risk, a second crane was utilized to minimize the risk in the event of tree failure. A separate crew would perform the second removal with a 30-ton crane. This tree would be removed more conventionally as it

was evaluated as being suitable for climbing. With this much equipment operating in very tight quarters, smart coordination and set-up were essential.

Executing The Project

When removal day arrived, two crews, three cranes, a grapple-skid machine, one log truck, two log trailers, traffic control and a lineman's crew gathered to do the job. When the power company gave us the "go-ahead" the job was approached head-on. After three hours of coordinated effort, the aerial work in both trees was completed. The next three hours were spent loading logs and returning the site to a suitable condition. Wood was sent to the recyclers and the two trailers headed to the sawmill.

When a job of this magnitude presents itself, proper planning, communication and a skillful, experienced team are the key ingredients for success. Though this may not be your "average" job, this recipe can provide you with the plan-

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