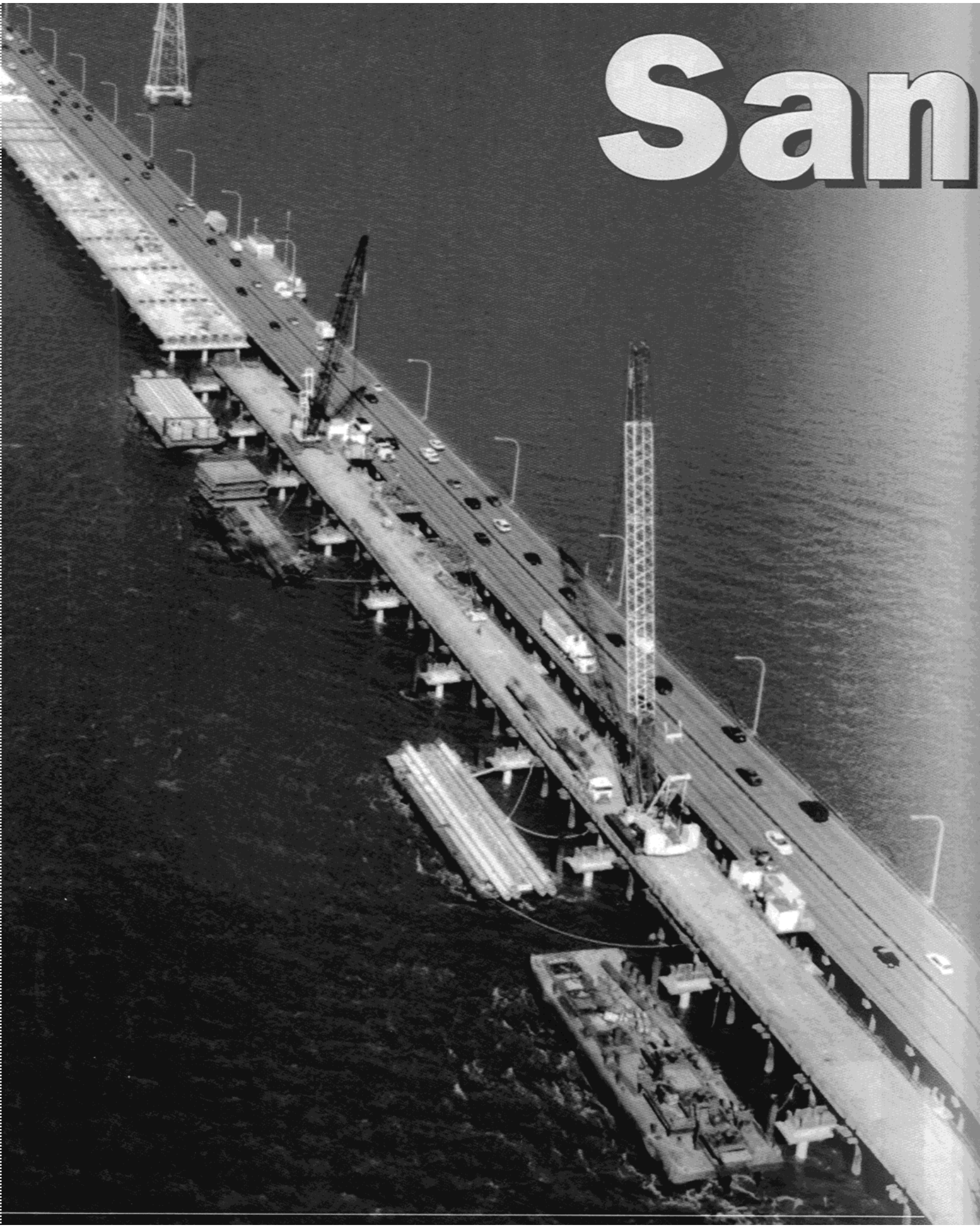
San

Mateo's

Impressive Bridge Project Finishes on Schedule

By Lisa Kopochinski, Piledriver Editor

Now that the widening of the San Mateo-Hayward Bridge in San Francisco's Bay area is complete, Mark Johnnie, project manager with Balfour Beatty, general manager on the project, can breathe both a sigh of relief and recall what he enjoyed most about the experience.

"Like all projects I work on, I enjoy the people the most," he says. "It is very rewarding to assemble a group of people, pose them with a challenge, work with them through the struggles and watch them perform. I know this doesn't always happen on projects, but it did at San Mateo and I am very proud of the people who worked on this project."

"A once terrible commute is now a breeze!"

BILL HESTON, BALFOUR BEATTY

The project – the winner of the 2003 PDCA Project of the Year Award – involved constructing a new 4.7-mile long trestle portion of the 7.5-mile San Mateo Bridge so that three lanes now run in each direction over the length of the bridge.

Valued at nearly $133 million, it was finished on schedule by Balfour Beatty and the numerous subcontractors that helped, such as San Francisco-based Ben C. Gerwick, which performed pile driving analyses as an engineering consultant for the project.

"We were consulting engineers to Balfour Beatty," says Pat Durnal, Ben C. Gerwick's senior engineer. "We used the 97 version of GRL WEAP (wave equation analysis program) to help Balfour Beatty decide which hammer to purchase prior to the test pile installation. Then, before the test pile installation, we performed a preliminary drivability analysis and estimated [that] the tension stresses could be too high because the design effective prestress for the 42-in. prestressed concrete piles might be too low. This was because the piles had number nine rebar in between the prestressing strands, which had not been considered in the effective concrete prestress calculations."

Durnal added that when the concrete area was transformed to account for the rebar, the area was large and the effective prestress in the concrete was too low. "It is primarily the effective prestress that resists tension stresses, so Caltrans [California Department of Transportation] agreed to add more prestressing strands to their design," he explains.