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Scott Provan* (Scott_Provan@UNC.edu), Dept. of Statistics and Operations Research, Chapel Hill, NC 27599-3260, and **Marcus Brazil, Doreen Thomas** and **Jia Weng**. *On Finding Pipes and Cables: The Opaque Cover Problem*. Preliminary report.

We study the problem of finding, for any convex set S in the plane, the minimum length set of line segments that is guaranteed to intersect any straight line passing through S . This as yet unsolved problem is closely related to the Steiner tree problem, but with some interesting twists. We characterize several properties of solutions for this problem, as well as giving complete solutions for some simpler variants. (Received September 11, 2007)