TALKING ROCK RANCH
PHASE 8

SEWER SYSTEM
DESIGN REPORT

Prepared for:

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Introduction

General Description

The Talking Rock Ranch Subdivision consists of residential and recreational facilities. This planned area development (PAD) was approved by the Yavapai County Board of Supervisors on October 6, 1999 and Amended on May 8, 2000.

The site encompasses about 3500 acres of undeveloped and newly developed land that slopes towards Inscription Canyon. The site is divided by Williamson Valley Road. The site consists of forested areas with slopes ranging from gentle to near vertical.

Project Location

The project site (Phase 8) is located in portions of Section 22, Township 16 North, Range 3 West, Gila and Salt River - Meridian, Yavapai County, Arizona. The project is generally located in the Southern portion of Williamson Valley and lies to the east of Williamson Valley Road. See Appendix "A" for site map.

Objective

This report will address the low-pressure and gravity sewer system design for Phase 8. Lots connecting into the low pressure sewer system within Phase 8 will require a homeowner installed and operated grinder pump station (see Appendix D for grinder pump information). All low pressure sewer pipe will be schedule 40 PVC, meeting AWWA standards. Gravity sewer pipe will be SDR-35 PVC.

The sewer system for Phases 8A and 8B will consist entirely of a low pressure sewer system. The low pressure system for phases 8A and 8B will need to function properly with phase 8A standing alone and with phase 8A and 8B functioning together. The outfall for Phases 8A and 8B will the gravity sewer main along Three Forks Road, built in Phase 2 of Talking Rock. Phase 8C will consist of both a low pressure sewer system and a gravity system and will also connect in the gravity main along Three Forks Road. An exhibit of the sewer collection system for Phase 8 is located in Appendix E

System Analysis

The low-pressure sewer piping analysis was performed using computer design software developed by Environment One Corporation (E-ONE) of Niskayuna, New York. The software calculates velocity and friction head loss for pumps in simultaneous operation within the system. The output is based on the Hazen-Williams formula for determining pipe sizes to create minimum flow velocities of 3.0 feet per second or higher as required by ADEQ. At these velocities, scouring is assured. The analysis uses a design flow of 250 gallons/day/unit and maximum flow rate of 11 gallons/minute/unit. A C-Value of 140 was used for the low pressure sewer system pipe.