HYDROLOGY

F14/D2

CAMINO REAL

F14-D2

1 PLAN

A DRAINAGE ANALYSIS

for

CAMINO RAEL SUBDIVISION

Albuquerque, New Mexico

Prepared for:

J. Edward Rael

1308 Delamar N.W.

Albuquerque, New Mexico

August 1978

Drainage Report and Plan

for

Camino Rael Subdivision

Introduction

At the request of Mr. J. Edward Rael, owner of the Camino Rael Subdivision, a proposed R-1 development in Albuquerque, New Mexico, CCIC has investigated the storm drainage for the site. This investigation follows the total ponding concept, in recognition of the general surface drainage problem of the valley area.

Property Description

The property on which the development is proposed is slightly west of the center of Section 32, T11N, R3E (Zone Atlas #F-14-Z). It is more particularly described as lot 3, Land of Sam Blair, and Tract B, Lands of Pedro Armenta. The site contains 1.97 acres. A 40' wide utility easement extends through the center of the site in a N-S direction. The City presently is completing the construction of sewer and water trunk lines within this easement.

The site is surrounded on the east and west by existing single-family houses, with large, open fields surrounding each house. The grade of the site, as well as the adjoining tracts, is very flat.

Proposed Development

The proposed development consists of constructing 10 single family houses, streets and driveways. Support utilities are being installed now. Construction of the houses will be accomplished in two phases.

Phase I construction will include the main entrance street, located within the 40' utility easement, and construction of all units on the west side of the street. Phase II will consist of construction of all units around the cal-de-sac.

Construction features which are pertinent to drainage are as follows:

a. All buildings will have flat roofs, sloping to the rear.

b. Gravel will be used for the driveways and streets.

c. Area 1 will have rear yard ponds for the rear yard and roof areas, and a common cul-de-sac pond for the front yards and street area.

d. Area 2 and 3 will have individual rear yard ponds to accommodate the street area common to each lot and each lot area and entire lot.

e. Area 4 will drain to a pond area at the north end of the street.

Soil

The soil type for this area is Gila Loam (Gb).[1] The interpretations of soil properties significant to engineering for ponds and reservoir indicate a moderate to rapid permeability with a permeability rate of 0.2 to 0.68 in./hr. hour for 0-10" from surface, 0.63 to 2.0"/hr. for 10" - 64" from surface. Depth to the seasonal high water table is 60" +.[2]

Topographic Map

The topographic map used as a basis for this study and for preparation of the grading drainage plat was obtained from the City Engineer's Office. (See orthophoto map - Figure 1).

Field inspections of the site made August 12, 1978 indicate this map represents the topography as it now exists, except for the utility construction area, which is in the process of being completed.

---

[1]Soil Survey of Bernalillo County - U.S. Soil Conservation Service.

[2]Detailed Soil Survey, Soil Data Handbook by The Middle Rio Grande Council of Governments of New Mexico.

Existing Drainage

The entire area is very flat, with a very slight grade to the south. There are no cross-drainage characteristics for the area, and each lot or tract is, for all practical purposes, self-ponding. A slight rise of Guadalupe Trail acts as a buffer for the north side of the site.

Grading and Drainage Plan (Fig. II)

This plan reflects the total ponding concept, which will be handled in two ways: individual rear lot ponds and central ponds. The infiltration pond area within the cul-de-sac will be constructed within a private street. The center of the cul-de-sac will be the lowest point to allow travel around the outside edge when runoff collects in the area.

The ponding area for Area 4 will be constructed within the private street easement, and maintenance will be the responsibility of the developer.

Recommendations

1. The developer plans to leave the grade of each lot as natural as possible, with the exception of the house pad area. Each house pad area should be raised up a minimum of 6" above natural ground and have a minimum 2% grade to the street or drainage swales. The house pad should have a 2% minimum grade to the rear pond.

2. Rear yard pond sizes are shown on Fig. II. The example used in Figure II reflects the largest type structure planned for a typical 60' x 101'

lot. The limits of the ponded waters should be kept a minimum distance of 10 feet away from any house foundation.[1]

3. Drainage swales should be constructed at a minimum 1% grade.

Street Grading

1. The main street should be constructed as a no-crown section with a 1% cross slope to drain surface flows to the west side, where flows will accumulate in individual lot drainage swales. Individual drainage swales on each lot will transport surface flows to the rear yard ponds for Areas 2 and 3.

2. The future cul-de-sac should be constructed as a inverted cone section with a 1'-0" dip in the center to collect surface flows from the front yards and street area.

Central Pond Area

1. The central pond area will be located at the north end of the main street within a 40' wide street-utility easement. If the pond area is left open, it would be advisable to install traffic warning posts along the south and north edges of the pond area. If the pond area is filled with gravel, over excavate the area to a depth of 4'-0" in order to obtain the necessary volume capacity.

This concludes the recommendations for the Camino Rael Subdivision. The following section, the Appendix, contains the calculations, and plats used in arriving at the conclusions presented here.

---

[1]These general recommendations are only intended to call the Developer's attention to potential settlement problems. A qualified soils engineer should prepare specific guidelines for ponding waters around structures.

1918