

Approved

DRAINAGE STUDY
LAKE PARK DAM ROAD

GATES LAND COMPANY

LAND DEVELOPMENT

CITY ENGINEER'S COPY

12/31/71

Approved Les Jung
1-4-72

Subject To Final Approval
Of Subdivision & Road
Alignment By The Colo.
Springs, City Council

DRAINAGE STUDY
LAKE PARK DAM ROAD

Developer:
GATES LAND COMPANY
155 West Lake Avenue
Colorado Springs, Colorado 80906

Engineering Consultants:
HARTZELL-PFEIFFENBERGER AND ASSOCIATES, INC.
210 St. Paul Street
Denver, Colorado 80206

December 31, 1971

LAKE PARK DAM ROAD DRAINAGE STUDY

The proposed Lake Park Dam Road (formerly "Southlake Dam Road") lies in Section 32, T14S, R66W and will provide direct access to Cheyenne Mountain Boulevard for the residential areas lying south of the lake. The crest of the dam serves as a portion of the highway embankment. The attached plan shows the details of the location, topography of the surrounding areas, design storm runoff flows and proposed drainage structures.

Final plans for subdivision and grading of the areas adjoining the road have not as yet been made. However, it is known that Area A is expected to be multi-family development and Area B single family. Grading of these areas will be determined largely by the existing topography and can hardly affect the basin boundaries shown to any large degree. Flow from Area C ✓ will be carried in the north gutter of Cheyenne Mountain Boulevard to the east and will not contribute to the Lake Park Dam Road. That on the south side, representing runoff from only the south half of the boulevard, will be carried around the corner at the intersection and is included in the small flow shown at the low point of the road near the north end of the dam. This flow and that from the roadway to the south will be collected in grate inlets on each side and carried to the lake in ^{18" MIN.} (12") CMP which has more than adequate capacity for these quantities at the slopes shown.

In anticipation of the future development of the area a runoff coefficient of 0.50 was selected for the rational formula and times of concentration of from 10 to 20 minutes. The peak flows shown are based on these values and a design storm of 2" per hour as recommended by the City.

The flow of 35 cfs from Area A will be carried along the road to the 30-inch culvert. It may be noted that this culvert has capacity in excess of that necessary to pass a 100-year storm without overtopping the roadway. Since the road embankment will in some cases encroach on the natural drainage channel some minor realignment and grade changes of that channel will be made. Riprap or other protection for the channel will be provided as necessary when the final runoff pattern, as determined by the lot grading, has been determined. Riprap will also be provided as necessary at the discharge points of culvert and pipes. (B)

Flow from Area A will accumulate in the street to a total of 18 cfs as shown. Since this is less than the allowable for a street of this type and grade, no drainage inlets are required other than at the low points of the street. The two 4-foot boxes with 18" pipes at this location appear to be adequate for the 2-inch storm.

Respectfully submitted,

HARTZELL - PFEIFFENBERGER AND ASSOCIATES, INC.

Warren W. DeLapp
Warren W. DeLapp, P.E.

