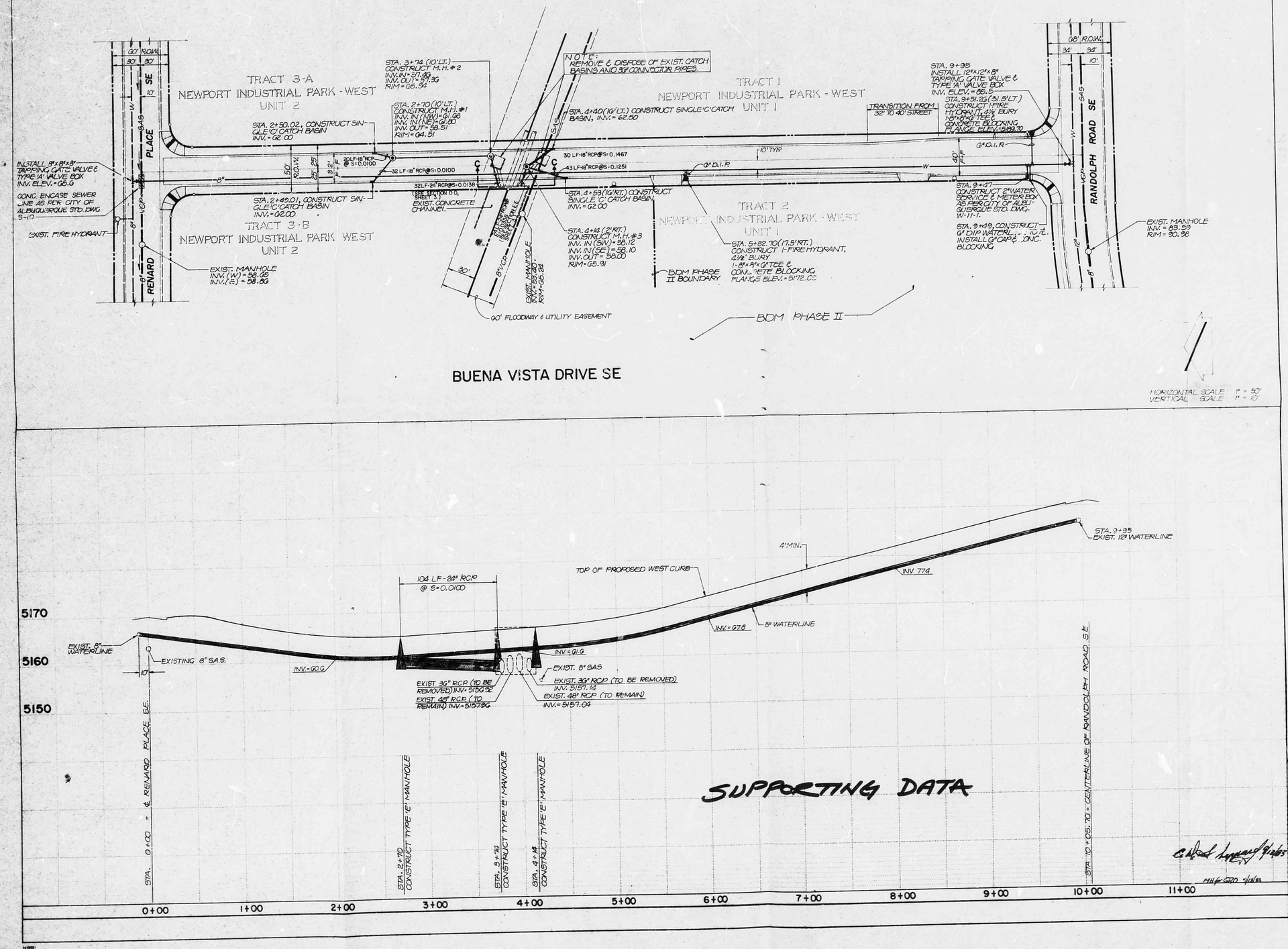
HYDROLOGY

M15/D5B
TWO PLANS

M 15/ D5B

2 PLANS



WATER DISTRIBUTION SYSTEM

1. WATER MAIN SHALL BE PVC C900 PIPE OR AS APPROVED BY THE CITY OF ALBUQUERQUE WATER RESOURCES DIVISION.
2. WATER LINE SHALL HAVE A MINIMUM COVER OF 4'0" (TOP OF CURB TO TOP OF PIPE).
3. WATER LINE SHALL BE LOCATED 10'0" FROM AND PARALLEL TO STREET CENTERLINE UNLESS OTHERWISE NOTED.
4. ELECTRONIC MARKER DISKS (EMD) SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 131 OF THE CITY OF ALBUQUERQUE "CONTRACT DOCUMENTS FOR CITY-WIDE UTILITIES AND CASH PAVING NO. 31."
5. ALL STATIONING IS BASED ON STREET CENTERLINE.
6. ALL GATE VALVES SHALL BE CONSTRUCTED AS PER CITY OF ALBUQUERQUE STANDARD DRAWING W-28, TYPE 'A' VALVE BOXES AS PER CITY OF ALBUQUERQUE STANDARD DRAWING W-2-3 AND TYPE 'B' VALVE BOXES AS PER CITY OF ALBUQUERQUE STANDARD DRAWING W-3-2.
7. ALL FIRE HYDRANTS SHALL BE CONSTRUCTED AS PER CITY OF ALBUQUERQUE STANDARD DRAWING W-20-1.

STORM DRAINAGE SYSTEM

1. ALL MANHOLES SHALL BE CONSTRUCTED AS PER CITY OF ALBUQUERQUE STANDARD DRAWING S-2-3.
2. ALL CATCH BASINS SHALL BE CONSTRUCTED AS PER CITY OF ALBUQUERQUE STANDARD DRAWING K-4-2.
3. ALL REINFORCED CONC. PIPE (RCP) SHALL BE CLASS IV

AS BUILT INFORMATION
CONTRACTOR — DATE
WORK STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS
A STANDARD A.C.S. BRASS TABLET STAMPED "9" MIS-SET IN THE TOP OF A CONCRETE POST AND LOCATED APPROXIMATELY 66 FEET SOUTH OF THE INTERSECTION OF SAN JOSE AVE. SE IN THE S.W. QUADRANT IN THE NORTH EDGE OF THE CONCRETE DRAINAGE CHANNEL.
ELEVATION = 5119.33 FEET (HELD)

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL
REGISTERED PROFESSIONAL ENGINEER — STATE OF NEW MEXICO — THOMAS T. MOORE — No. 5412 — 7/6/83

NO. | DATE | REMARKS | BY

BI-DALLAS N.I. - ALBUQUERQUE - NEW MEXICO - 87110
ENGINEERS

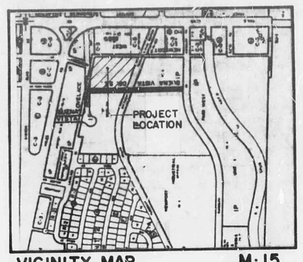
CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: BUENA VISTA DRIVE SE
WATERLINE & STORM SEWER IMPROVEMENTS PLAN & PROFILE

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste		8-16-83
A.C.E. - Design		15 Aug 83	Traffic		
A.C.E. - Hydrology		9/1/83	Water		8-16-83

DRAWING NO. 1849 | MAP NO. M-15 | SHEET 5 OF 5

M15/D58



VICINITY MAP M-15

SCALE 1" = 800'

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- PROPOSED SWALE
- PROPOSED CONCRETE
- EXISTING SPOT ELEVATION
- PROPERTY LINE
- DRAINAGE BASIN BOUNDARY
- WATER BLOCK

PROJECT BENCHMARK - T.B.M.

A standard brass cap stamped "Airport AMAFCA 1965" and se in top of 8-inch square concrete post. It is 5.6 feet west of a wooden witness post on the south side of Viewpoint Road S.E. west of Yale Boulevard S.E.

Elevation = 5,302.81 feet (MSLD).

LEGAL ADDRESS:

Tract 3A, Newport Industrial Park - West, Unit 2.

DRAINAGE PLAN

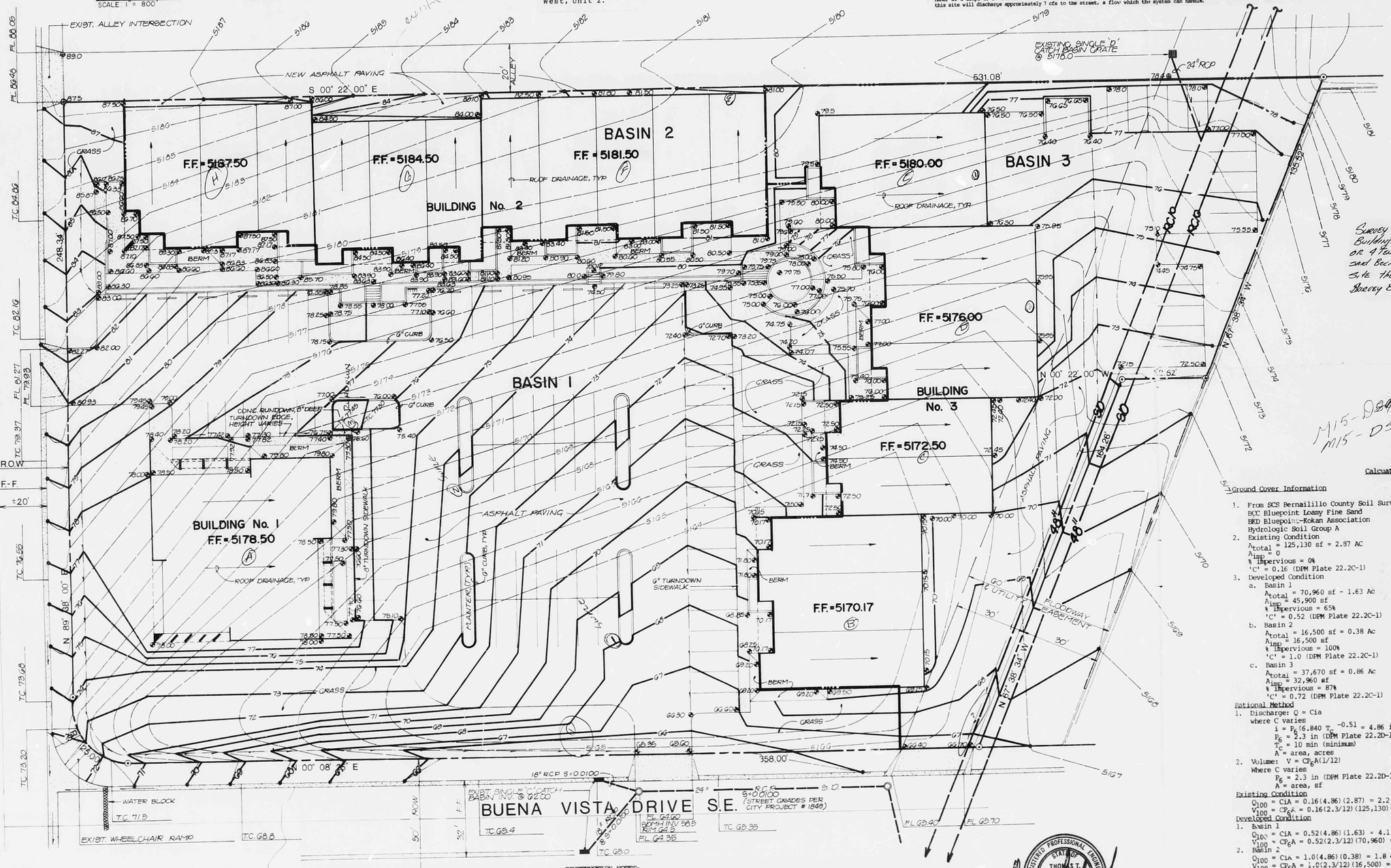
The following items concerning the Commerce Centr II Drainage Plan are contained hereon: 1) Vicinity Map, 2) Grading Plan, and 3) Calculations.

The proposed improvements, as shown by the the Vicinity Map, are located at the southeast corner of the intersection of Renard Place S.E. and Buena Vista Drive S.E. At present, the site is undeveloped. Much of the surrounding area is developed as an industrial park. In particular, the site immediately south is the Avis facility ("M15-D1A"), and the site located southwest is the RDM site ("M15-D1C"). As demonstrated by the drainage plans for those two projects, a runoff contribution of not more than 20 cfs is anticipated to flow from the south on Buena Vista Drive. The street design for Buena Vista Drive includes a water block at the intersection with Renard Place, therefore, no flows are anticipated from the north. Runoff generated by the land to the east is, for the most part, ponded on that site. That runoff generated by the existing 20-foot alley along the east boundary, along with some contiguous asphalt paving, is intercepted by the existing single "D" Catch basin located within the alley. Based upon the information presented above, off site flows do not present a problem with the respect to the development of this site.

As shown by Panel 35 of 50 of the National Flood Insurance Program Flood Boundary and Floodway Map, City of Albuquerque, New Mexico, the site does not lie within a designated flood hazard zone. This Panel also demonstrates that the 100-year flood is confined to the existing improved channel situated downstream from the site. This channel is the outfall for the site. Runoff from the site is discharged to this channel by the storm drain system constructed in Buena Vista Drive and the existing single"D" catch basin located within the aforementioned alley.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1' 0" intervals, 2) continuity between existing and proposed elevations, 3) existing storm drain improvements within and adjacent to the project site, 4) the limit and character of the proposed improvements, and 5) proposed roof drainage patterns. As shown by this plan, the proposed improvement include the construction of three separate buildings along with adjacent paving and landscaping. Basins 1 and 3 will discharge directly to Buena Vista Drive via the two driveways proposed along the street. Basin 2, on the other hand, discharges to the 24-foot wide public alley which lies along the west property line of the site. Runoff discharged to the alley will be collected by an existing catch basin as previously described. Should that catch basin become clogged and overflow, runoff will enter the existing 60-foot wide floodway and utility easement located along the south property line of the site. The proposed grades are such that this overflow runoff will flow overland within the easement and exit the site via the southernmost driveway.

The Calculations which appear below analyze both the existing and developed conditions for the 100-year, 6 hour rainfall event. The National Method has been used for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. As shown by those calculations, the proposed improvements will generate an overall increase in runoff, however, it should be realized that downstream capacity does exist. This statement is based upon knowledge of the storm drain system within Buena Vista Drive. The portion of the system shown on this plan is the north half of the of the system. A similar pair of catch basins, 18" RCP, manholes, and 24" RCP are located to the south to intercept flows within that portion street. The analysis of the system's capacity assumes that the catch basin grates are not clogged and that they are capable of accepting all of the runoff which can be discharged to them. This is a fairly accurate assumption based upon the fact that the pair of catch basins shown on this plan are located at the low point in the street. Based upon this assumption, the downstream capacity is controlled by the 18" RCP pipe. This has been determined by using "Field's Hydraulics Calculator for Gravity Flow in Pipes" for an 18" diameter pipe at a slope of 1% and an "n" value of 0.015. Under this criteria, each 18" RCP can carry 9 cfs for a combined total of 18 cfs. The 24" RCP, on the other hand, at a slope of 1% and an "n" value of 0.015 can carry slightly greater than 20 cfs. As shown by the calculations below, the development of this site will discharge approximately 7 cfs to the street, a flow which the system can handle.



CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 765-1234, FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE

REGISTERED PROFESSIONAL ENGINEER — STATE OF NEW MEXICO — THOMAS T. MANN — 5792 — LAND SURVEY

1/11/84
2/19/84

B.M.
+5.32 T.B.M.
3.60 - 1
7.60 - 2
2.16 - 3

Graddock Development Company

STATE OF NEW MEXICO — GEORGE L. SANDERS — REGISTERED ARCHITECT

Survey on 7-31-84 Shows that Buildings were lower Approx 5" or 4 Feet. Showed to Bernie & Billy said Because of good Construction on site there would be no Big Problem. Survey Bk # Hydrology Book A-2

M15-D5A
M15-D5A

Calculations

Ground Cover Information

1. From SCS Bernailillo County Soil Survey, Plates 31/41:
   BCC Bluepoint Loamy Fine Sand
   BKD Bluepoint-Kokan Association
   Hydrologic Soil Group A
2. Existing Condition
   A_{total} = 125,130 sf = 2.87 AC
   A_{imp} = 0
   % Impervious = 0%
   'C' = 0.16 (DPM Plate 22.2C-1)
3. Developed Condition
   a. Basin 1
      A_{total} = 70,960 sf - 1.63 Ac
      A_{imp} = 45,900 sf
      % Impervious = 65%
      'C' = 0.52 (DPM Plate 22.2C-1)
   b. Basin 2
      A_{total} = 16,500 sf = 0.38 Ac
      A_{imp} = 16,500 sf
      % Impervious = 100%
      'C' = 1.0 (DPM Plate 22.2C-1)
   c. Basin 3
      A_{total} = 37,670 sf = 0.86 Ac
      A_{imp} = 32,960 sf
      % Impervious = 87%
      'C' = 0.72 (DPM Plate 22.2C-1)

Rational Method

1. Discharge: Q = CiA
   where C varies
   $i = P_6(6.840\ T_c^{-0.51} = 4.86$ in/hr
   P_6 = 2.3 in (DPM Plate 22.2D-1)
   T_c = 10 min (minimum)
   A = area, acres
2. Volume: $V = CP_6A(1/12)$
   Where C varies
   P_6 = 2.3 in (DPM Plate 22.2D-1)
   A = area, sf

Existing Condition

Q_{100} = CiA = 0.16(4.86)(2.87) = 2.2 cfs
V_{100} = CP_6A = 0.16(2.3/12)(125,130) = 3840 cf

Developed Condition

1. Basin 1
   Q_{100} = CiA = 0.52(4.86)(1.63) = 4.1 cfs
   V_{100} = CP_6A = 0.52(2.3/12)(70,960) = 7070 cf
2. Basin 2
   Q_{100} = CiA = 1.0(4.86)(0.38) = 1.8 cfs
   V_{100} = CP_6A = 1.0(2.3/12)(16,500) = 3160 cf
3. Basin 3
   Q_{100} = CiA = 0.72(4.86)(0.86) = 3.0 cfs
   V_{100} = CP_6A = 0.72(2.3/12)(37,670) = 5200 cf
4. Total Discharge to Buena Vista Drive
   Q_{100} = Q_1+Q_3 = 3+4.1 = 7.1 cfs

Comparison

Q_{100} = 2.2-(4.1 + 1.8 + 3.0) = 6.7 cfs (increase)
V_{100} = 3840-(7070 + 3160 + 5200) = 11,590 cf (increase)

FIRST DRAFT — CITY OF ALBUQUERQUE — HYDROLOGY SECTION — 1/18/84

Δ 2/6/84 - DELETE ROLLED CURB

SHEET NO C-2 OF

M15-D5A

BUSINESS CENTER PHASE III
NEWPORT BUSINESS PARK

GEORGE SANDERS AIA ARCHITECT 2309 RENARD PLACE S.E. SUITE 400 ALBUQUERQUE NEW MEXICO 87106 (505)842-9136