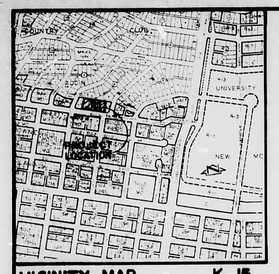
HYDROLOGY

K15/D40
1 PLAN

X15/D40

1 PLAN



VICINITY MAP K-15

SCALE 1" = 800'

PROJECT BENCHMARK
THE STATION MARK IS A STANDARD ACS ALUMINUM CAP STAMPED "3-K-15 1983" SET FLUSH WITH THE CURB LOCATED AT THE W.N.W. P.C. OF THE CURB RETURN AT THE INTERSECTION OF CENTRAL AVE. AND SPRUCE ST. N.E.
ELEVATION: 5077.94 FT. (M.S.L.D.)

TEMPORARY BENCHMARK
TOP OF EXISTING MANHOLE RIM ON GRAND AVENUE N.E. AS SHOWN HEREON.
ELEVATION: 5104.14 FT. (M.S.L.D.)

LEGAL DESCRIPTION
LOT A-2-A
BLOCK 7, COUNTRY CLUB ADDITION

KEYED NOTES

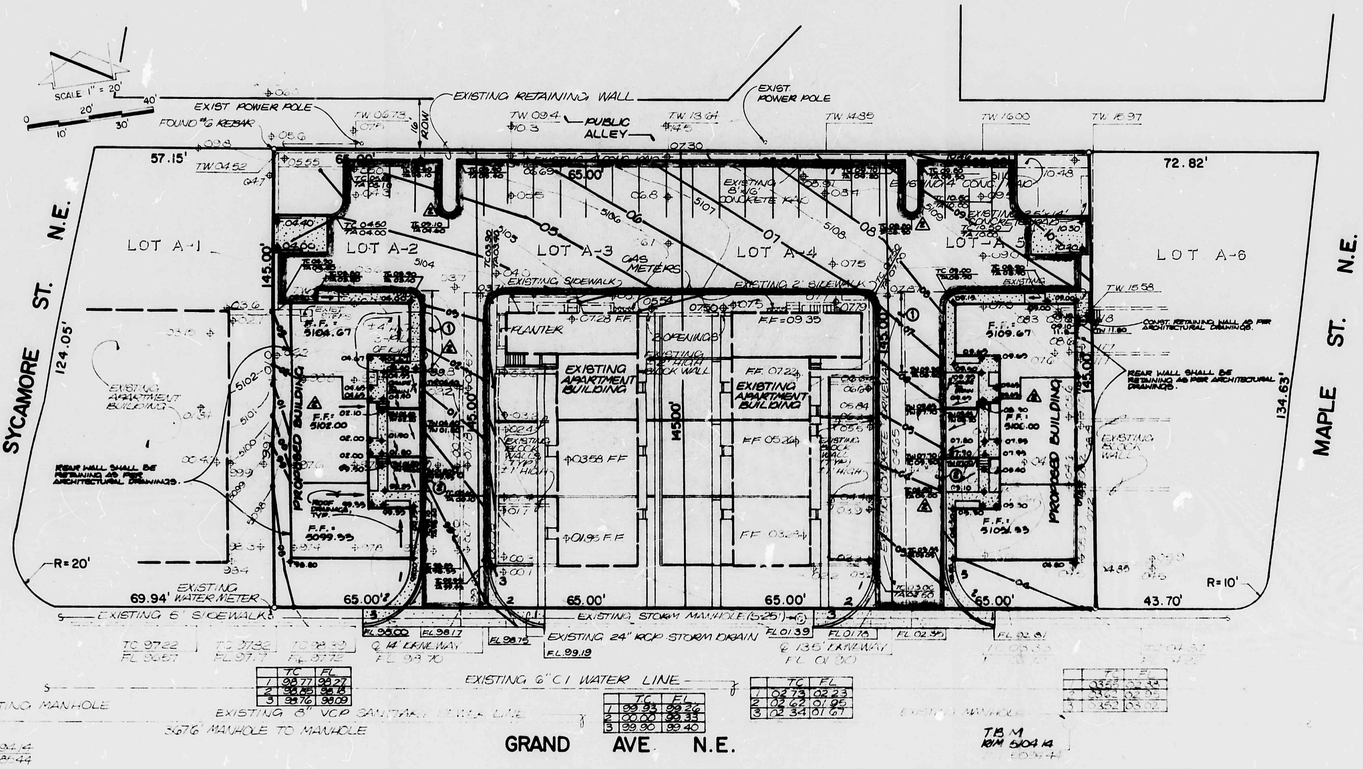
1. TRANSITION FROM CURB TO RETAINING WALL AS PER ARCHITECTURAL DRAWINGS.
2. TRANSITION FROM RETAINING WALL TO CURB AS PER ARCHITECTURAL DRAWINGS.

NOTE:

CURB SHALL NOT EXCEED 18" IN HEIGHT. SHOULD CURB EXCEED 18" IN HEIGHT, CONTRACTOR SHALL CONSTRUCT RETAINING WALL AS PER ARCHITECTURAL DRAWINGS.

LEGEND

- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- --5104-- EXISTING CONTOUR
- —04— PROPOSED CONTOUR
- EXISTING CONCRETE
- PROPOSED CONCRETE
- PROPOSED ASPHALT
- PROPOSED RETAINING WALL



DRAINAGE PLAN

The following items concerning the Grand/Maple Apartments Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, the site is located on the north side of Grand Avenue N.E. between Sycamore Street N.E. and Maple Street N.E. At present, the site is developed. Also the surrounding area is developed residentially. As shown by Plate K-15 of the Albuquerque Master Drainage Study, this site does not lie within a designated Flood Hazard Zone, therefore downstream flooding is not apparent, and therefore does not appear to be a problem. At present, the site flows from north to south onto Grand Avenue N.E. Grand Avenue N.E. drains west to existing storm drain inlets located in Grand Avenue N.E. No offsite flows enter the site along the south property line since the adjacent street routes runoff away from the project site. No offsite flows enter the site along the west and north property lines since the adjacent lot and alley route runoff away from the project site. No offsite flows enter the site along the east property line since the existing retaining wall routes runoff away from the project site.

The Grading Plan shows 1) existing grades indicated by spot elevations and contours at 1'0" intervals, 2) continuity between existing and proposed grades, and 3) the limit and character of the proposed improvements. As shown by this Plan, the proposed improvements consist of the renovation of existing apartment complex and the construction of a new apartment complex along with adjacent paving and landscaping. Flows generated by this site will be routed from north to south onto Grand Avenue N.E. From that point, the runoff will flow west along the north edge of Grand Avenue N.E. to existing storm drain inlets located in Grand Avenue N.E. This pattern is consistent with existing site drainage. Based upon the fact that this site is an infill site and the proximity of downstream facilities, the free discharge of runoff from this site is appropriate.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used to quantify the peak rate of discharge and the SCS Method has been used to quantify the volume of runoff. Both Methods have been used in accordance with the City of Albuquerque Development Process Manual, Volume II and the Mayor's Emergency Rule adopted January 14, 1986. As shown by these Calculations, the proposed improvements will increase the discharge by approximately 1.4 cfs.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey,
Plate 31: Cu, Cut and fill land
Hydrologic Soil Group: A
Existing Pervious CN = 54 (DPM Plate 22.2 C-2
Pasture or Range Land: fair condition)
Developed Pervious CN = 39 (DPM Plate 22.2 C-2)

Time of Concentration/Time to Peak

$T_c = 0.0078\ L^{0.77}/S^{0.385}$ (Kirpich Equation)

$T_p = T_c = 10$ min.

Point Rainfall

$P_6 = 2.27$ in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: $Q = CiA$

where C varies
$i = P_6\ (6.84)\ T_c^{-0.51} = 4.80$ in/hr
$P_6 = 2.27$ in (DPM Plate 22.2D-1)
$T_c = 10$ min (minimum)
A = area, acres

SCS Method

Volume: $V = 3630(DRO)\ A$

Where DRO = Direct runoff in inches
A = area, acres

Existing Condition

A_{total} = 37,700 sf = 0.87 Ac
Roof area = 4,610 sf (0.12)
Paved area = 5,050 sf (0.13)
Landscaped area = 28,040 sf (0.75)
C = 0.42 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = (0.42)(4.80)(0.87) = 1.8$ cfs
A_{imp} = 9,660 sf; % impervious = 25 %
Composite CN = 54 (DPM Plate 22.2 C-3)
DRO = 0.1 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 315$ cf

Developed Condition

A_{total} = 37,700 sf = 0.87 Ac
Roof area = 9,710 sf (0.26)
Paved area = 18,690 sf (0.50)
Landscaped area = 9,300 sf (0.24)
C = 0.76 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = (0.76)(4.80)(0.87) = 3.2$ cfs
A_{imp} = 28,400 sf; % impervious = 76 %
Composite CN = 83 (DPM Plate 22.2 C-3)
DRO = 0.9 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)\ A = 2840$ cf

Comparison

$\Delta Q_{100} = 3.2 - 1.8 = 1.4$ cfs (increase)
$\Delta V_{100} = 2840 - 315 = 2525$ cf (increase)

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 CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
5. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS UNDERTAKEN NO FIELD VERIFICATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
1. THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION.

JEFFREY S. BOSTWICK
NEW MEXICO
8894
REGISTERED PROFESSIONAL ENGINEER

12-19-86
07-13-87

RECEIVED
JUL 28 1987
HYDROLOGY SECTION

BOHNAN ASSOCIATES INC.
ENGINEERS
811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110

NO	DATE	BY	REVISIONS
1	12/86	LPJ	REVISED GRADES & INDICATE ROOF DRAINAGE
2	07/87	LPJ	REVISED BUILDING LAYOUTS & GRADES

DESIGNED BY L.P.J.
DRAWN BY R.A.R.
APPROVED J.G.M.

JOB NO. 61233
DATE 9-86

GRADING AND DRAINAGE PLAN
GRAND / MAPLE APARTMENTS

FILE NO.
SHEET ___ OF ___