

VICINITY MAP
SCALE 1"=800'

APPROVED FOR DRAWING
1-24-83
Robert Montana
ADVISOR
Engineer Certification
OK'd on 1-24-83

EXISTING BUILDING
(PNM SUBSTATION)

EXISTING RETAINING WALL / CURB

EXISTING ASPHALT PAVING

EXISTING FLOWLINE

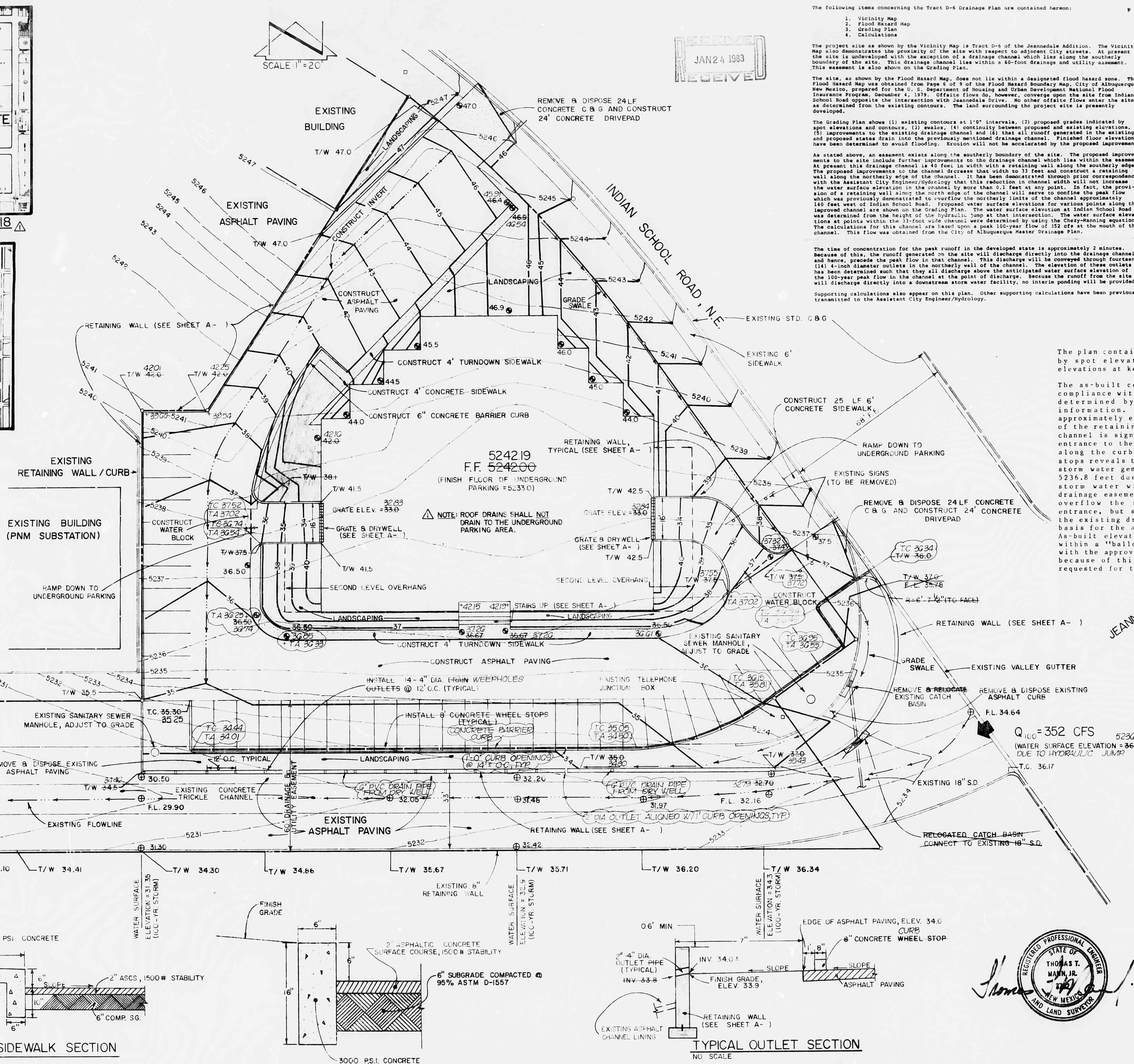
EXISTING SANITARY SEWER MANHOLE, ADJUST TO GRADE

REMOVE & DISPOSE EXISTING ASPHALT PAVING

EXISTING CONCRETE WHEEL STOP

EXISTING ASPHALT PAVING

EXISTING 6" RETAINING WALL



TYPICAL TURNDOWN SIDEWALK SECTION
NO SCALE

CURB & PAVEMENT SECTION
NO SCALE

TYPICAL OUTLET SECTION
NO SCALE

Drainage Plan

The following items concerning the Tract D-6 Drainage Plan are contained herein:

1. Vicinity Map
2. Flood Hazard Map
3. Grading Plan
4. Calculations

The project site as shown by the Vicinity Map is Tract D-6 of the Jeannette Addition. The Vicinity Map also demonstrates the proximity of the site with respect to adjacent City streets. At present the site is undeveloped with the exception of a drainage channel which lies along the southern boundary of the site. This drainage channel lies within a 60-foot drainage and utility easement. This easement is also shown on the Grading Plan.

The site, as shown by the Flood Hazard Map, does not lie within a designated flood hazard zone. The Flood Hazard Map was obtained from Page 4 of 9 of the Flood Hazard Boundary Map, City of Albuquerque, New Mexico, prepared for the U. S. Department of Housing and Urban Development National Flood Insurance Program, December 4, 1979. Offsite flows do, however, converge upon the site from Indian School Road opposite the intersection with Jeannette Drive. No other offsite flows enter the site as determined from the existing contours. The land surrounding the project site is presently undeveloped.

The Grading Plan shows (1) existing contours at 1'0" intervals, (2) proposed grades indicated by spot elevations and contours, (3) walls, (4) continuity between proposed and existing elevations, (5) improvements to the existing drainage channel and (6) that all runoff generated in the existing and proposed states drain into the previously mentioned drainage channel. Finished floor elevations have been determined to avoid flooding. Erosion will not be accelerated by the proposed improvement.

As stated above, an easement exists along the southern boundary of the site. The proposed improvements to the site include further improvements to the drainage channel which lies within the easement. At present this drainage channel is 40 feet in width with a retaining wall along the southern edge. The proposed improvements to the channel decrease that width to 33 feet and construct a retaining wall along the northern edge of the channel. It has been demonstrated through prior correspondence with the Assistant City Engineer/Hydrology that this reduction in channel width will not increase the water surface elevation in the channel by more than 0.1 feet at any point. In fact, the provision of a retaining wall along the north edge of the channel will serve to confine the peak flow which was previously demonstrated to overflow the northern limits of the channel approximately 140 feet west of Indian School Road. Proposed water surface elevations for various points along the improved channel are shown on the Grading Plan. The water surface elevation at Indian School Road was determined from the height of the hydraulic jump at that intersection. The water surface elevations at points within the 140-foot wide channel were determined by using the Chézy-Manning equation. The calculations for this channel are based upon a peak 100-year flow of 152 cfs at the mouth of the channel. This flow was obtained from the City of Albuquerque Master Drainage Plan.

The time of concentration for the peak runoff in the developed state is approximately 2 minutes. Because of this, the runoff generated on the site will discharge directly into the drainage channel and hence, precede the peak flow in that channel. This discharge will be conveyed through fourteen (14) 4-inch diameter outlets in the northern wall of the channel. The elevation of these outlets has been determined such that they all discharge above the anticipated water surface elevation of the 100-year peak flow in the channel at the point of discharge. Because the runoff from the site will discharge directly into a domestic storm water facility, no interim ponding will be provided. Supporting calculations also appear on this plan. Other supporting calculations have been previously transmitted to the Assistant City Engineer/Hydrology.

CALCULATIONS

AREAS:

Impervious area = 40,350 sq ft
Building = 15,350 sq ft
Walks = 1,750 sq ft
Parking = 1,100 sq ft
Previous area (landscaping) = 15,350 sq ft
Total area = 55,200 sq ft = 1.26 Ac

TIME OF CONCENTRATION:
 $L = 265'$
 $S = 0.0044$
 $t_c = 0.00013 \times 265^{0.785} = 0.03 \text{ hrs} = 2 \text{ min}$
Use $t_c = 10 \text{ min}$ and $S = 5.4 \text{ in/hr}$

UNDEVELOPED CONDITIONS:
By Rational Formula, $Q = CIA$
 $Q_{100} = 0.4015(4)(1.30) = 2.01 \text{ cfs}$
where $C = 0.40$, $S = 5.4 \text{ in/hr}$ and $A = 1.30 \text{ Ac}$

DEVELOPED CONDITIONS:
Composite $C = 0.40350(0.95) + 15,350(0.40) = 9.79$
 $Q_{100} = 0.79(5.4)(1.30) = 5.55 \text{ cfs}$

OUTLET CONDITIONS:
 $V_{100} = C_u \sqrt{gh} = 4.65 \text{ fps}$
where $C_u = 0.82$, $g = 32.2 \text{ ft/sec}^2$
and $h = 6" \text{ or } 0.5'$

Using 4" drains, $A = \frac{Q}{V} = \frac{5.55}{4.65} = 0.0073 \text{ sq ft}$
 $Q = VA = 4.65(0.0073) = 0.04 \text{ cfs/drain}$
Over drain $\frac{5.55}{0.04} = 14 \text{ drains}$

Install 14" 4" drain outlets from parking area to the existing channel.

DRAINAGE CERTIFICATION

The plan contained herein shows (1) design grades indicated by spot elevations and contours and (2) as-built spot elevations at key locations.

The as-built conditions of the project are in substantial compliance with the approved drainage plan. This has been determined by field visits and the review of survey information. The building finish floor elevation is approximately equal to that which was designed. The elevation of the retaining wall along the north side of the drainage channel is significantly lower than the design grades at the entrance to the channel. Review of as-built spot elevations along the curb which was built in lieu of concrete wheel stops reveals that the curb height is sufficient to deflect storm water generated within public right-of-way (i.e. WSI = 5236.8 feet due to hydraulic jump), in following, public storm water will not enter private property for which a drainage easement does not exist. Storm water may, however, overflow the north side of the drainage channel at the entrance, but should stay within public right-of-way and/or the existing drainage easement. Survey information is the basis for the as-built spot elevations shown on this plan. As-built elevations are either shown above design grades or within a "balloon". The as-built conditions are compatible with the approved drainage plan and adjacent property. It is because of this that a Certificate of Occupancy is hereby requested for the new office building.

GENERAL NOTES

1. All construction shall be in accordance with the New Mexico Standard Specifications for Public Works Construction, 1979 Edition, and the City of Albuquerque Contract Documents for City-Wide Utilities and Cash Paving No. 30.
2. The Contractor shall be responsible for verifying all existing dimensions & location of all existing utilities prior to any construction. The Engineer shall be promptly notified of any problems or conflicts that are encountered.
3. The 8" concrete wheel stops shall be pre-cast with a minimum one-inch drainage space between the wheel stop and the pavement.

CITY OF ALBUQUERQUE MUNICIPAL DEVELOPMENT DEPARTMENT ENGINEERING DIVISION				
TITLE: TRACT D-6 GRADING & DRAINAGE PLAN				
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER
City Engineer			Liquid Waste	
A.C.E.-Design			Traffic	
A.C.E.-Hydrology			Water	
DRAWING NO.	SHEET 1 OF 1			