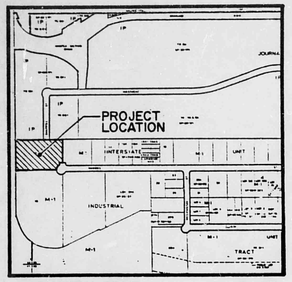
HYDROLOGY D17/D54 CASCO INDUSTRIAL DEVELOPMENT

D17 / D54

CASCO INDUSTRIAL DEVELOPMENT

1 PLAN



VICINITY MAP D-17

SCALE: 1" = 800'

LEGEND

- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- 55 — PROPOSED CONTOUR
- 55G5 — EXISTING CONTOUR
- SWALE
- PROPERTY LINE
- CONCRETE
- PROPOSED ASPHALT
- PROPOSED FENCE
- EXISTING FENCE
- T.C. 02.00 — TOP OF CURB
- F.L. 01.G5 — FLOW LINE

TEMPORARY BENCHMARK:

A BRASS CAP IN A.M.A.F.C.A. R.O.W., AS SHOWN. ELEVATION: 5077.57 FEET (M.S.L.D.)

PROJECT BENCHMARK:

A STANDARD U.S.C.&G.S. BRASS TABLET, STAMPED "REEVES 1968," SET IN TOP OF A CONCRETE POST PROJECTING 0.1 FT. THE STATION IS LOCATED 0.5 MILES N.E. OF DOWNTOWN ALBUQUERQUE. TO REACH THE STATION FROM THE INTERSECTION OF CENTRAL AVE. & SECOND STREET (U.S. 85 ALT.), GO NORTH ON SECOND ST. 0.3 MILES TO LOS ANGELES AVE. THEN GO EAST ON LOS ANGELES AVE. 1.1 MILES TO INTERSECTION WITH A NORTH-SOUTH ROAD (PRIVATE) ON THE WEST SIDE OF THE A.M.A.F.C.A. NORTH DIVERSION CHANNEL. THEN GO SOUTH ON THE PRIVATE ROAD 0.45 MILES TO THE STATION ON THE LEFT. ELEVATION: 5075.27 FEET (M.S.L.D.)

LEGAL DESCRIPTION:

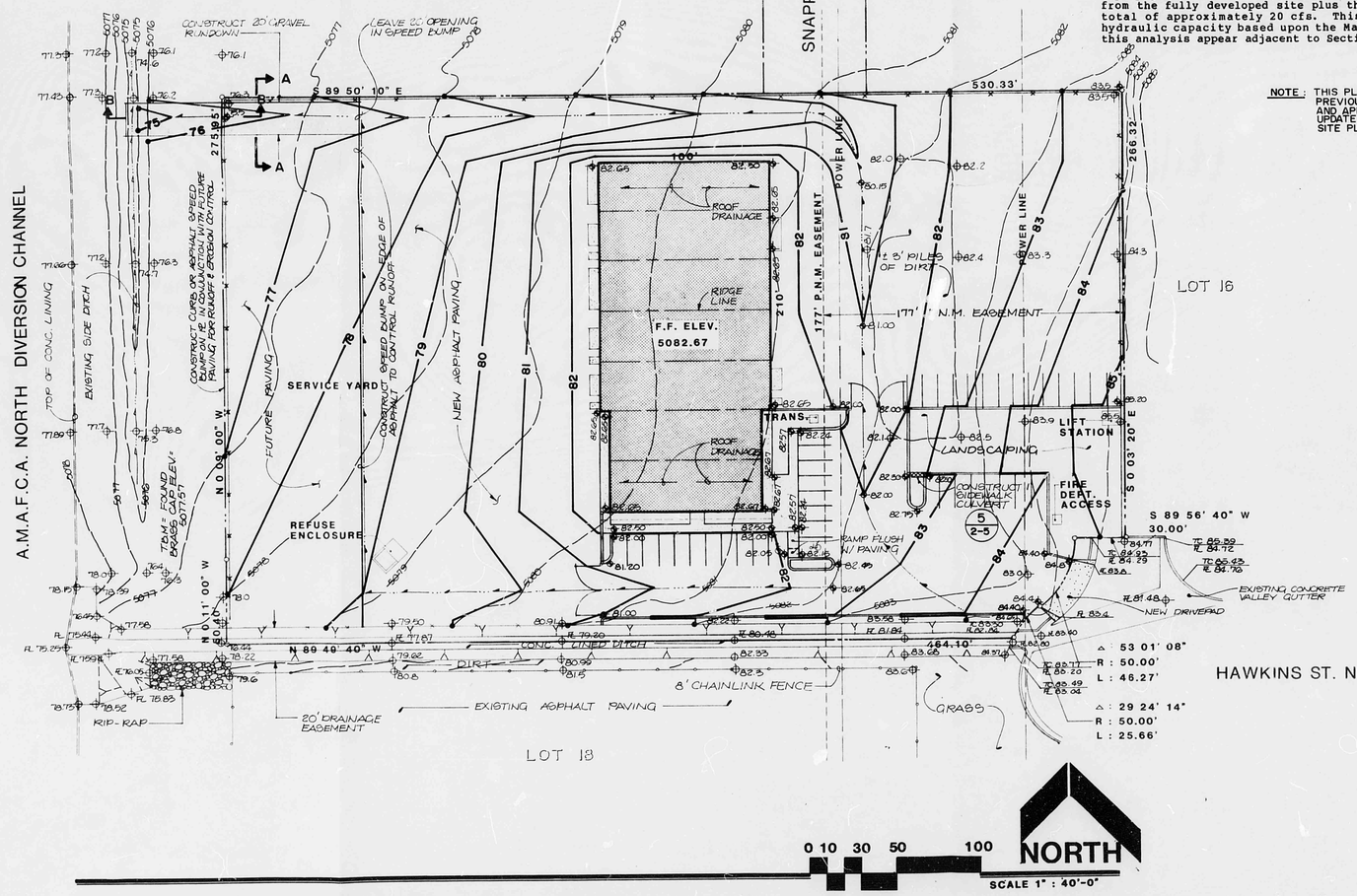
LOT 17, UNIT IV, INTERSTATE INDUSTRIAL TRACT

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.

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.



DRAINAGE PLAN

The following items concerning the 3701 Hawkins Street N.E. Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located at the west end of Hawkins Street N.E. just east of the A.M.A.F.C.A. North Diversion Channel. At present, the site is undeveloped. Several parcels to the east are developed industrially.

As shown by Panel 9 of the National Flood Insurance Program Flood Boundary and Floodway Maps, City of Albuquerque, New Mexico, this site does not lie within a designated Flood Hazard Zone. Furthermore, this map indicates that the flows within the North Diversion Channel are confined to that channel, and that there are no other adjacent Flood Zones. Further study of this map reveals an offsite contributing drainage area of slightly less than two acres. This small contributing area, in the undeveloped state, will generate approximately 1.5 cfs sheetflow. This offsite flow will be accepted and conveyed through this site and discharged to the North Diversion Channel right-of-way.

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) the limit and character of the existing improvements, 4) the limit and character of the proposed improvements, and 5) additional construction detail for the riprap rundown. As shown by this plan, the proposed improvements include the construction of a commercial building along with adjacent asphalt paving and landscaping. At present, the site drains from east to west to the A.M.A.F.C.A. North Diversion Channel right-of-way. At this point, the runoff is intercepted by an existing ditch along the side of the North Diversion Channel. This ditch flows to the north to an existing rundown which permits the runoff to enter the lined portion of the North Diversion Channel. A riprap gravel rundown has been proposed to permit the introduction of developed runoff to this existing side ditch without any adverse erosion of the side ditch. Because of the close proximity of this site to the A.M.A.F.C.A. North Diversion Channel, 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 for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. This same method was used in the calculation of the offsite flow determined above. The developed condition calculations quantify the increase in runoff due to development for a present phase of construction along with the future paving of the west 80 feet of the service yard. The riprap gravel rundown has been sized for the peak discharge of runoff from the fully developed site plus the additional offsite flow for a total of approximately 20 cfs. This rundown has been analyzed for hydraulic capacity based upon the Manning Equation. The results of this analysis appear adjacent to Section A-A.

NOTE: THIS PLAN IS AN UPDATE TO D17-D54 PREVIOUSLY DATED DECEMBER 19, 1984 AND APPROVED FEBRUARY 4, 1985. UPDATE REQUIRED TO REFLECT MINOR SITE PLAN & TITLE CHANGE.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 21:
EmB - Embudo gravelly fine sandy loam
Hydrologic Soil Group B

Rational Method

Discharge: $Q = CiA$
where C varies
$i = P_6(6.84)T_c^{-0.51} = 4.65$ in/hr
$P_6 = 2.2$ in (DPM Plate 22.2 D-1)
$T_c = 10$ min (minimum)
A = area, acres

Volume: $V = CP_6A(1/12)$
where C varies
$P_6 = 2.2$ in (DPM Plate 22.2 D-1)
A = area, sf

Existing Condition

$A_{total} = 170,380$ sf $= 3.91$ Ac
$A_{IMP} = 0$ sf; % impervious = 0%
'C' = 0.34 (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.34(4.65)(3.91) = 6.2$ cfs
$V_{100} = CP_6A = 0.34(2.2/12)(170,380) = 10,620$ cf

Developed Condition

1. Partial Development

$A_{total} = 170,380$ sf $= 3.91$ Ac
$A_{IMP} = 141,860$ sf; % impervious = 83%
'C' = 0.79 (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.79(4.65)(3.91) = 14.4$ cfs
$V_{100} = CP_6A = 0.79(2.2/12)(170,380) = 24,680$ cf

2. Full Development

$A_{total} = 170,380$ sf $= 3.91$ Ac
$A_{IMP} = 163,940$ sf; % impervious = 96%
'C' = 0.93 (DPM Plate 22.2 C-1)
$Q_{100} = CiA = 0.93(4.65)(3.91) = 16.9$ cfs
$V_{100} = CP_6A = 0.93(2.2/12)(170,380) = 29,050$ cf

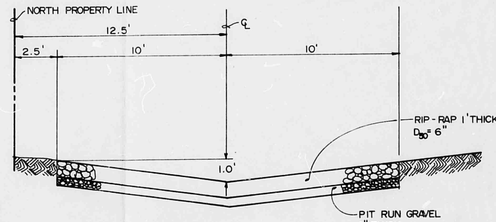
Comparison

1. Partial Development

$\Delta Q_{100} = 14.4 - 6.2 = 8.2$ cfs (increase)
$\Delta V_{100} = 24,680 - 10,620 = 14,060$ cf (increase)

2. Full Development

$\Delta Q_{100} = 16.9 - 6.2 = 10.7$ cfs (increase)
$\Delta V_{100} = 29,050 - 10,620 = 18,430$ cf (increase)



Q = 20 cfs
S = 0.014
n = 0.04
d = 0.9'
v = 2.6 fps

SECTION A-A
SCALE: 1" = 4'

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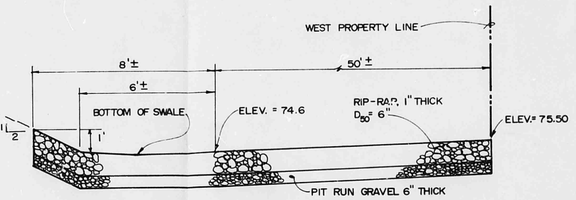
HYDROLOGY SECTION



HAWKINS ST. N.E.

SECTION B-B
SCALE: 1" = 3'

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