HYDROLOGY

H16/D40
2 PLANS

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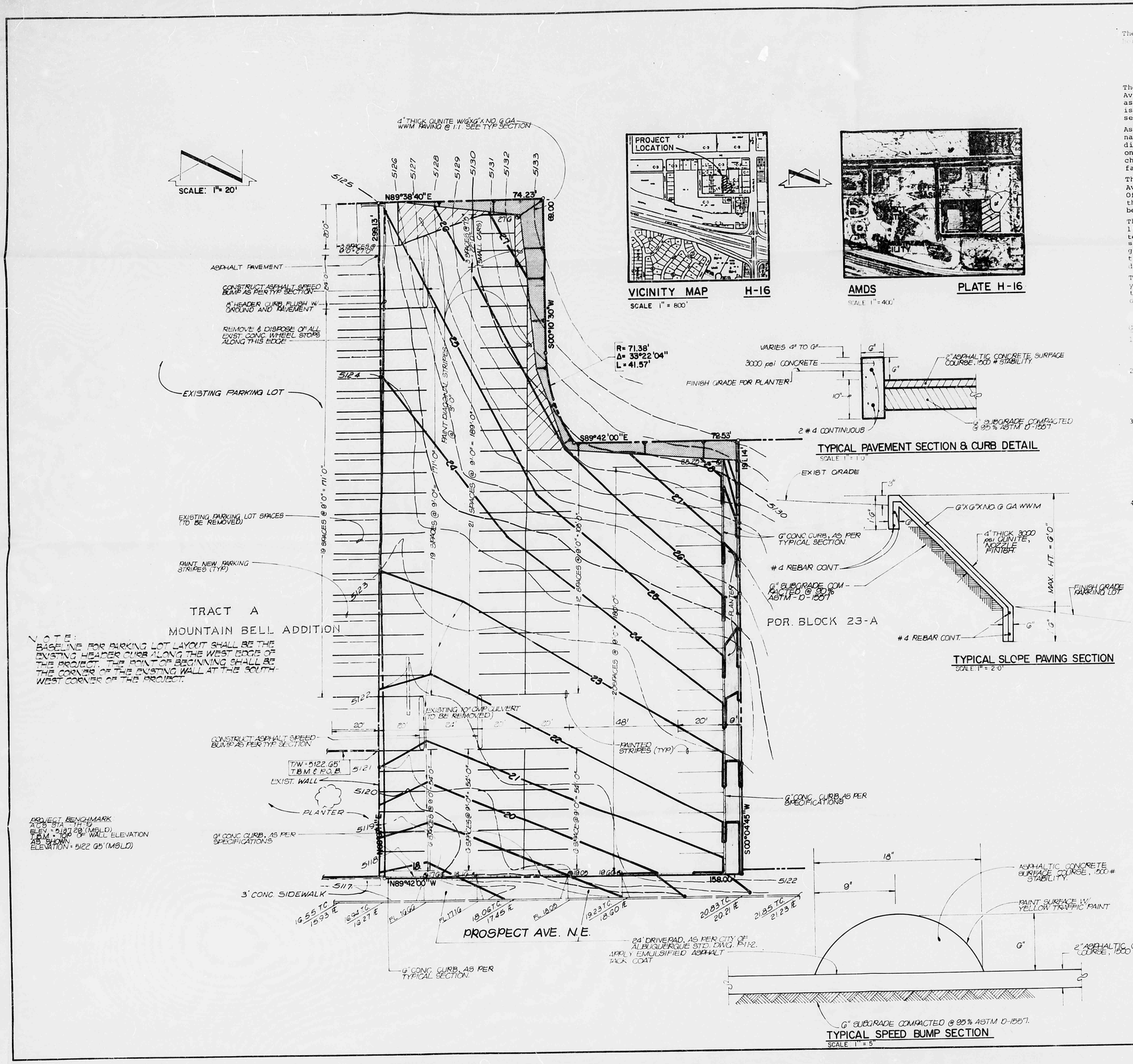

DRAINAGE PLAN

The following items concerning the Mountain Bell Parking Lot Extension Drainage Plan are contained herein:

1. Vicinity Map
2. AMDS Plate H16
3. Grading Plan
4. Calculations

The proposed improvements, as shown by the Vicinity Map, are located on the north side of Prospect Avenue N.E., south of Menaul N.E. and west of Carlisle N.E. The site is more particularly described as a portion of Block 25, west 1/2 vacated Amherst and vacated 20-foot alley. At present, the site is undeveloped; however, cars and trucks are presently parked on the site. Adjacent sites are presently developed.

As shown by Plate H16 of the Albuquerque Master Drainage Study, the site does not lie within a designated flood hazard zone. Furthermore, the review of Plate H16 reveals that downstream flooding conditions do not exist and that downstream facilities do exist. These downstream facilities, as shown on the plate at the left, consist of a curb cut along the south side of Prospect Avenue and an earthen channel which connects to a rundown to the AMAFCA North Diversion Channel. The flow path to this facility is also shown on the AMDS plate.

The existing drainage pattern of the site is one in which runoff flows from north to south into Prospect Avenue N.E. From this point, runoff flows westerly to the aforementioned existing drainage facility. Offsite flows do exist for the project site. The 100-year, 6-hour peak discharge rate associated with the offsite flow is a mere 0.34 cfs which flows onto the project site as sheet flow. This flow will be accepted and conveyed through the project site.

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 and (3) the limit and character of the proposed improvements. As shown by this plan, the proposed improvements include the construction of an asphalt parking lot and a planter for landscaping along the east property line. The grading required by these improvements will not alter the existing drainage pattern. Runoff will continue to flow from north to south into Prospect Avenue N.E. This discharge of runoff will be via two driveway cuts.

The calculations which appear below 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 2. Lastly, the calculations determine the offsite flow rate for the 100-year, 6-hour rainfall event.

CALCULATIONS

GROUND COVER INFORMATION

1. From SCS Bernalillo County Soil Survey, Plate 31:

   Cu Cut and Fill Land A Soil

2. From DPM Plate 22.2C-2

   $CN_{imp} = 95$

   $CN_{dirt} = 72$

   $CN_{perv} = 54$

3. Existing

   $A_{dirt} = A_{Total}$

   $A_{Total} = 0.8834$

   $A_c = 38,481$ sf

   From DPM Plate 22.2C-3, dirt is equivalent to 40% impervious.

   From DPM Plate 22.2C-1, C = 0.34

4. Developed

   $A_{imp} = 36,861$ sf

   $A_{landscaped} = 1,620$ sf

   % impervious = $\frac{36,861}{38,481} = 96\%$

   From DPM Plate 22.2C-1, C = 0.86

RATIONAL METHOD

1. Discharge: $Q = CiA$

   C varies

   $i = P_6(6.84)T_c^{-0.51} = 4.69$ in/hr

   where $P_6 = 2.22$ in (DPM Plate 22.2D-1)

   $T_c = 10$ min (Minimum)

   $A = 0.88$ Ac

2. Volume: $V = CP_6A(\frac{1}{12})$

   C varies

   $P_6 = 2.22$ in (DPM Plate 22.2D-1)

   $A = 38,481$ sf

EXISTING CONDITION

$Q_{100} = CiA = 0.34(4.69)(0.88) = 1.40$ cfs

$V_{100} = CP_6A(\frac{1}{12}) = 0.34(\frac{2.22}{12})(38,481) = 2,420$ cf

DEVELOPED CONDITION

$Q_{100} = CiA = 0.86(4.69)(0.88) = 3.55$ cfs

$V_{100} = CP_6A(\frac{1}{12}) = 0.86(\frac{2.22}{12})(38,481) = 6,122$ cf

COMPARISON

$\Delta Q_{100} = 3.55-1.40 = 2.15$ cfs

$\Delta V_{100} = 6122-2420 = 3702$ cf

OFFSITE FLOW

$A_{offsite} = 0.4$ Ac

C = 0.18 (% imperv., DPM Plate 22.2C-1)

$Q_{100} = 0.18(4.69)(0.40) = 0.34$ cfs (Sheetflow)

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ARCHITECTS ENGINEERS

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10/15/82

Staff Manager — Real Estate/Design Construction
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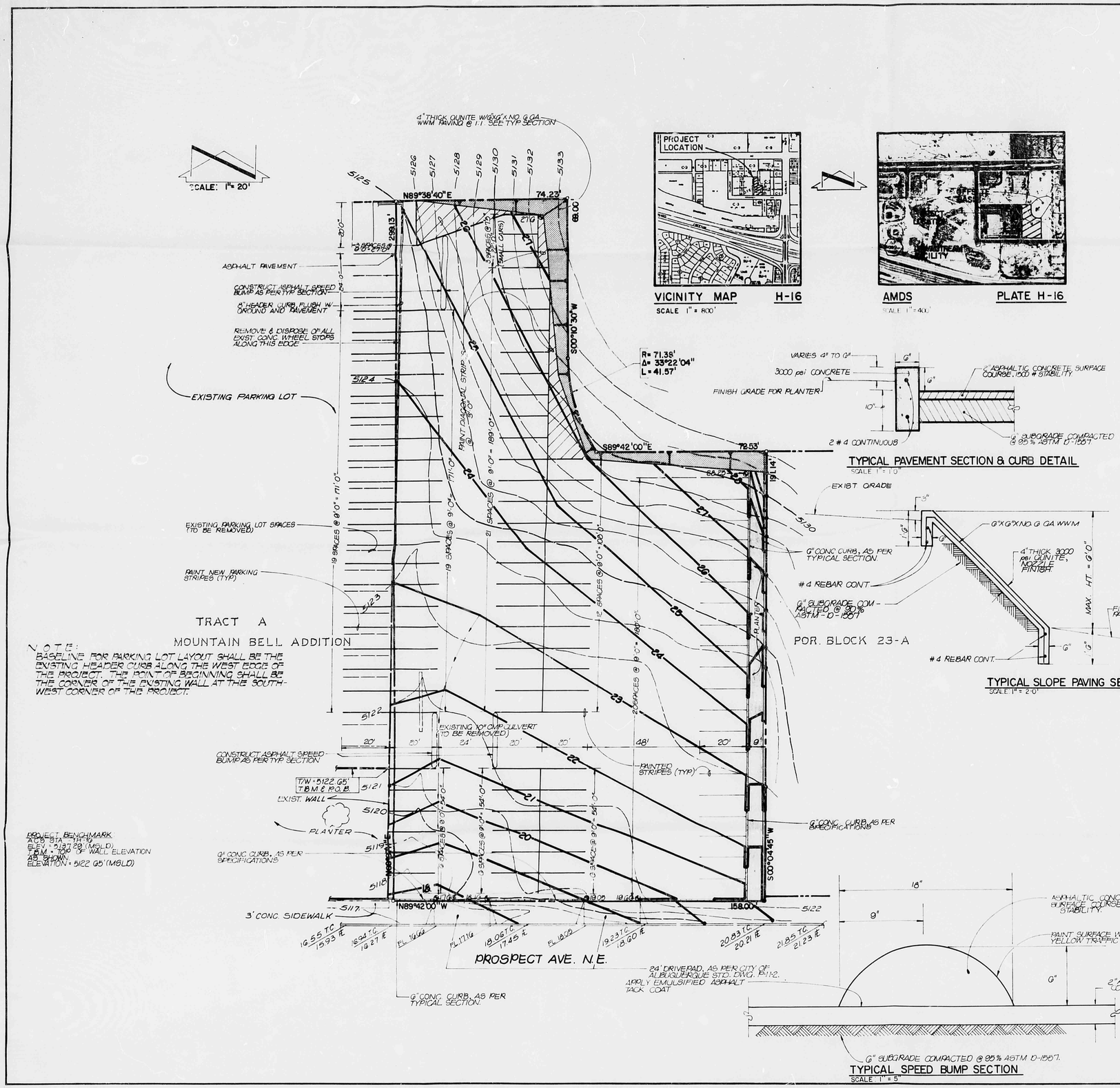

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