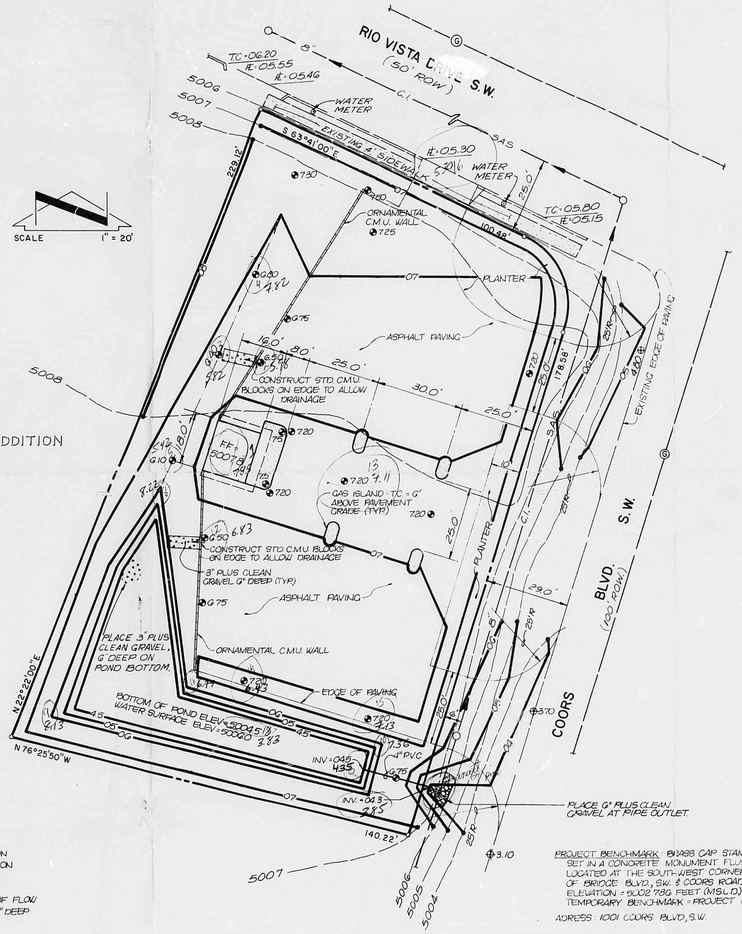
HYDROLOGY L11/D10 1 PLAN

L11 / D10

1 Plan

CITY OF ALBUQUERQUE

VICINITY MAP L-II
SCALE 1" = 800'



LEGEND

5007	EXISTING CONTOUR
05	PROPOSED CONTOUR
03.3	EXISTING SPOT ELEVATION
05.75	PROPOSED SPOT ELEVATION
	P.C. CONCRETE
	PROPOSED LANDSCAPE
	SWALE WITH DIRECTION OF FLOW
	3" PLUS CLEAN GRAVEL 6" DEEP

PROJECT BENCHMARK: BW498 CAP STAMPED "STA N.M.-45-4" SET IN A CONCRETE MONUMENT FLUSH WITH THE GROUND LOCATED AT THE SOUTH-WEST CORNER OF THE INTERSECTION OF BRIDGE BLVD., S.W. & COORS ROAD, S.W.
ELEVATION = 5002.736 FEET (MSLD)
TEMPORARY BENCHMARK = PROJECT BENCHMARK

ADRESS: 1001 COORS BLVD, S.W.

Drainage Plan

The following items concerning the Roberts Oil Co. 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 intersection of Coors Blvd. S.W. and Rio Vista Dr. S.W., more particularly described as Tract 'A' of the Land Division Plat of Lot 14 and a portion of Lot 13, and a portion of Commercial Area, Block 5, Los Altos Subdivision, Bernalillo County, New Mexico. Proposed improvements consist of 270 s.f. of building space and 15,300 s.f. of parking area. The soil is classified by the Soil Conservation Service as Madurez-Wink Association, belonging to hydrologic soil group B.

At present, the site slopes at less than 1% to the southwest. No offsite flows enter the site at present, as flows contained in Rio Vista Drive are directed into Coors Blvd. The proposed grading is such that no offsite flows will enter the site. The site does not lie within a flood hazard zone, as determined by current flood hazard maps of Bernalillo County.

The Grading Plan shows (1) existing grades indicated by contours at 1'-0" intervals, (2) proposed grades indicated by spot elevations and contours at 1'-0" intervals, (3) continuity between proposed and existing grades, and (4) limit and character of proposed improvements.

The purpose of this drainage plan is to address the runoff generated by the construction of a gas station and parking lot. The extent of drainage improvements include the construction of a pond and a drain pipe for discharge to Coors Blvd. Upon discharging into Coors Blvd., the runoff flows south to Bridge Blvd., where a flood hazard condition exists. Because of this situation, a controlled outlet has been proposed for this site, limiting the discharge to a lesser magnitude than the existing 100-year, 6-hour flow rate.

The calculations which appear below determine the 100-year, 6-hour peak discharge rates and runoff volumes in both the existing and developed states, using the Rational Formula. Additional calculations determine the pond size and drain pipe size.

Rational Method

1. DISCHARGE $Q = CiA$

   C = Rational Coefficient from DPM Plate 22.2C-1

   $i = P_6\ (6.84)\ T_c^{-0.51}$

   where P_6 = rainfall = 2.2 inches (NOAA Atlas)

   T_c = time of concentraion = $0.00013L^{0.77}\ S^{-03.85}$

   A = Area of Basin

2. VOLUME $V = CP_6A$

EXISTING CONDITION

1. Area of site = 0.6389 A_c = 27800 s.f.
   % impervious = 0
   C = 0.34
   T_c = 10 min. (minimum)
   i = 4.65 in/hr
   Q = 1.0 cfs
   V = 1730 cf

DEVELOPED CONDITIONS

1. Area of site = 27800 s.f.
   Pervious Area = 12500 s.f.
   % impervious = 55
   C = 0.60
   t_c = 10 min (minimum)
   i = 4.65 in/hr
   Q = 1.8 cfs
   V = 3060 cf

POND VOLUME:

By average end area, using planimeter:
A ELEV 106.0 = 3700 s.f. Vol = 3175 c.f.
A ELEV 105.0 = 2650 s.f. Vol = 1075 c.f.
A ELEV 104.5 = 1650 s.f. Σ Vol = 4250 c.f.

Water surface elevation for V_{100} is 105.75. One ft. of freeboard is provided; therefore, no spillway has been proposed.

ORIFICE EQUATION:

$Q_a = C_d A_e \sqrt{2gh}$

or $A_o = \dfrac{Q_a}{C_d\sqrt{2gh}}$

$C_d = C_v \times C_c = 1 \times 0.74 = 0.74$
H = 1.5'
g = 32.2 ft per sec^2
$Q_a = Q_{100}$, undev = 1.0 c.f.s.
d = 0.42' use 4"

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
THOMAS T. MANN
LAND SURVEYOR
10/14/82

JOHN MATT ASSOCIATES, P.C. 811 DALLAS, N.E. • ALBUQUERQUE • NEW MEXICO • 87110 ENGINEERS	NO. / DATE / BY / REVISIONS	DESIGNED BY SKS DRAWN BY B.S. APPROVED T.T.M.	JOB NO. 21051 DATE 10/82	GRADING AND DRAINAGE PLAN ROBERTS OIL COMPANY	FILE NO. SHEET 1 OF 1

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