HYDROLOGY

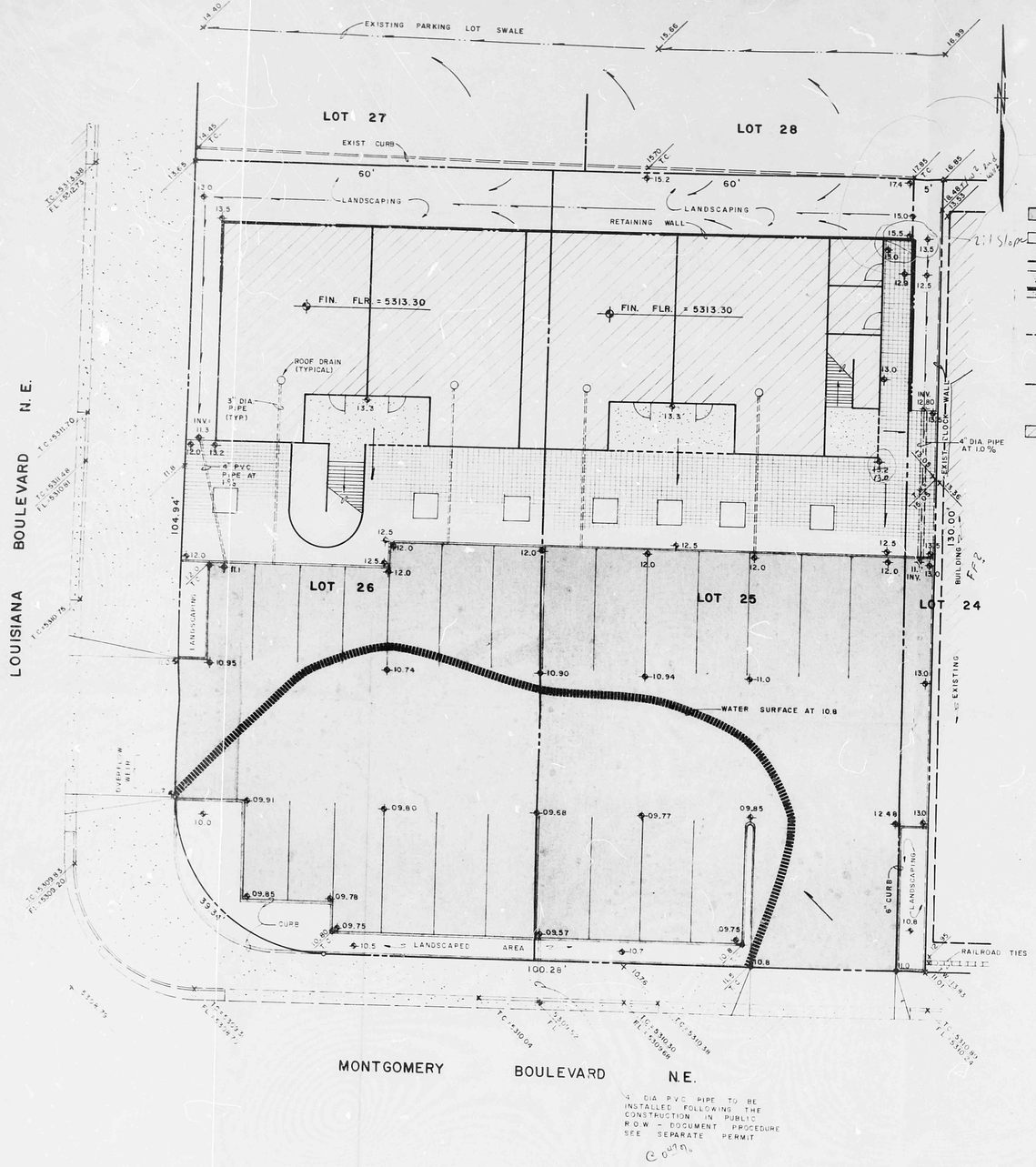
F19/D26

ONE PLAN

PLAN FOR

MONTGOMERY BIDG.

F 19-D 26




0 5 10 20

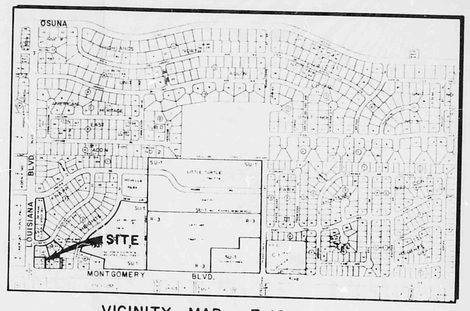
SCALE: 1" = 10'

need to look @ grades.

2:1 Slope

**LEGEND**

- ASPHALT PAVING
- LANDSCAPED AREA
- PROPERTY LINE
- EXISTING CURB & GUTTER W/SIDEWALK
- 12.7 EXISTING SPOT ELEVATION
- 12 EXISTING CONTOUR
- 12.7 PROPOSED SPOT ELEVATION
- 12 PROPOSED FINISHED CONTOUR
- SURFACE FLOW DIRECTION
- BUILDING STRUCTURE




VICINITY MAP - F-19

F19-D26

Drainage and General Notes

1. Legal Description: Lots 25, 25 & West 5' of Lot 24 Block 3, KNAPP HEIGHTS SUBDIVISION.

2. Zoning: C-2.

3. Soil Type: As per the USDA Soil Conservation Report on Soils of Bernalillo County, this soil is defined as sandy loam of Hydrologic soils group B.

4. Offsite flows: This site is on the North east corner of Louisiana and Montgomery and used to be a gas station. The site drains naturally to the south west. The north boundary is bounded by a parking lot. The parking lot has a swale which diverts the flows to the west and no flows cross into this lot. On the east side is a building with no roof drains on the west side, therefore there are no offsite flows to be considered.

5. Undeveloped Condition: This site has been developed for years and the existing gas station and paving has been removed. Previously, this site had no controlled discharge, but freely discharged into Montgomery. In its true undeveloped state, the site would be generating the following flows:

   C = 0.34 (Plate 22.2C1)
   I = (2.11)(2.4) = 5.06 inches/hour (Plate 22.2D2)
   A = 120 x 130/43560 = 0.36
   Q = CIA = (0.34)(5.1)(.36) = 0.6 c.f.s.

6. Developed Drainage Management Plan: Using the A.M.D.S. the downstream facilities are apparently operating at over capacity, see analysis point 205 on plate P18 Volume III of the A.M.D.S., hence this site will route the developed flows through a parking lot pond and release this at a 4" diameter pipe release rate.

   The required pond volume is calculated as follows:

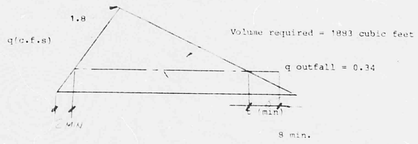
   Q = CIA = (1.0)(5.1)(.36) = 1.8 c.f.s.
   assume 0.2 inches of abstractions during the 6 hour storm thru interception, evaporation and infiltration

   100 year 6 hour Volume = (2.4 - 0.2)(1/2)(120)(130) = 2,860 ft.$^3$

   Derive triangular hydrograph

   $$\text{base time} = \frac{2(2860)}{(1.8)(60)} = 53 \text{ minutes}$$

   $$q \text{ outfall} = C_d\sqrt{2gh} = 0.34 \text{ c.f.s.}$$




Actual pond volume provided

| Elev. | Area | Ave. Area | Depth | Incr. Vol | Volume |
|---|---|---|---|---|---|
| 09.57 | 0 | | | | |
| | | 356 | 0.13 | 46 | |
| 09.70 | 711 | | | | 46 |
| | | 1594 | 0.50 | 797 | |
| 10.2 | 2477 | | | | 843 |
| | | 2953 | 0.30 | 886 | |
| 10.5 | 3430 | | | | 1729 |
| | | 3824 | 0.30 | 1150 | |
| 10.8 | 4239 | | | | 2879 |

F19/D26

C.T.S. INC. ENGINEERING
1100 ALVARADO N.E. SUITE A
ALBUQUERQUE, NEW MEXICO 87110
(505) 266 - 3444

REVISIONS | DATE
DESIGNED
DRAWN
CHECKED

# DRAINAGE / GRADING PLAN
# MONTGOMERY OFFICE BLDG.
# 7001 Montgomery N.E.

11-7-84

SHEET ___ OF ___