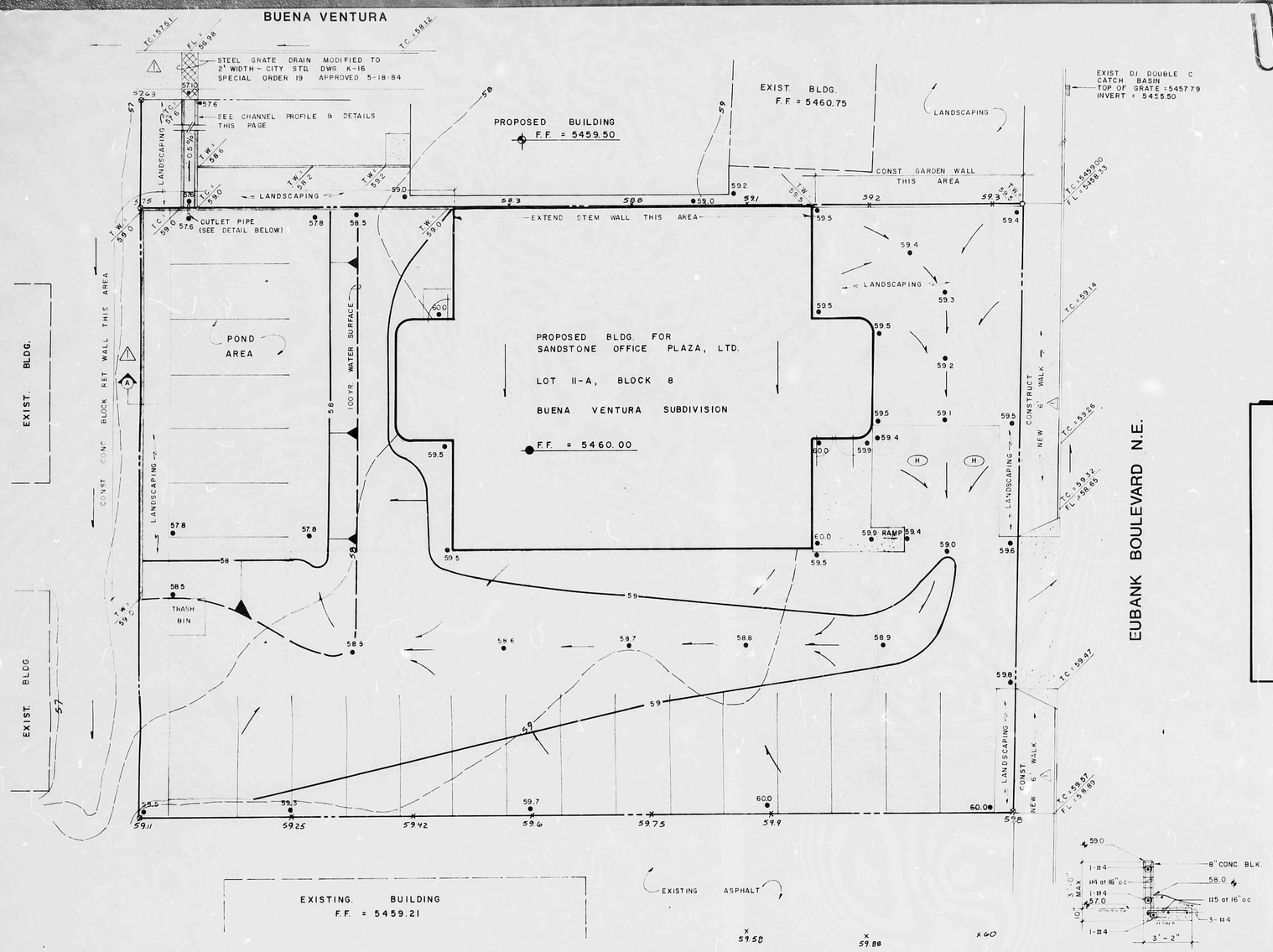
HYDROLOGY K20/D22 SANDSTONE OFFICE PLAZA

K20/D22

SANDSTONE OFFICE PLAZA

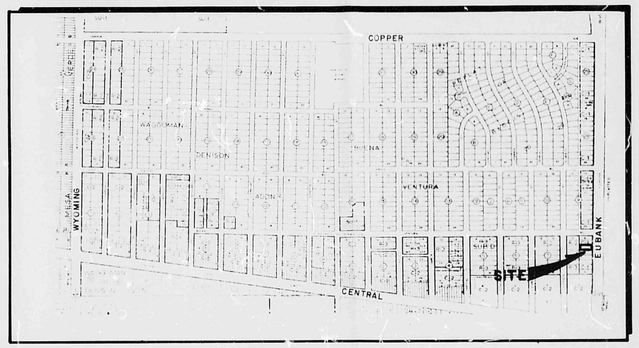
1 PLAN



SCALE: 1" = 10'

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



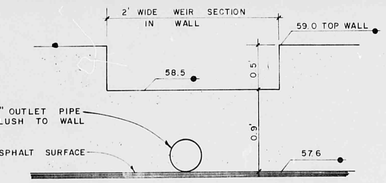
VICINITY MAP K 20

RESUBMITTAL

REVISED 6-12-84
1. SHOW NEW 6' WALK ALONG EUBANK
2. SECTION "A" ADDED
3. ADDITIONAL CHANNEL INFORMATION SHOWN IN N.W. CORNER

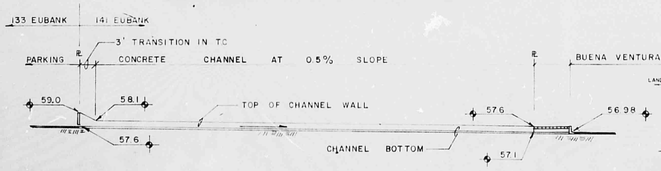
RECEIVED AUG 29 1984 HYDROLOGY SECTION

SECTION A

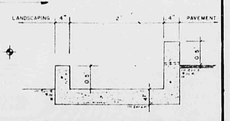


SPILLWAY & OUTLET PIPE DETAIL

POND VOLUME			
ELEV.	AREA	INTERVAL	VOL.
57.6	0		
57.8	1550	0.2	155
58.5	2480	0.7	1410
			1565 ft³



CHANNEL PROFILE



CHANNEL SECTION

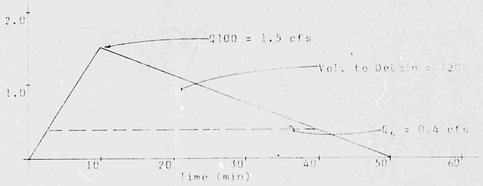
OFFSITE CHANNEL DETAILS

NOTES:

1. Legal: Lot 11-A, Blk. 8, Buena Ventura Subdivision.
2. Surveyor: WayJohn Surveying Company 4-84.
3. B.M.: City of Albuquerque 5L21 (R) Elevation 5466.54 SE Corner of Eubank and Central.
4. T.B.M.: T.C. North R projection on Eubank, Elevation 5459.00
5. Soils: SCS Soils Map Page 32, Soil Type "IgB", Soil Hydrologic Group "B".
6. Flood Hazard: None
7. Offsite Flows: None; East side bordered by Eubank Blvd., North and South sites parallel site for drainage to west.
8. Flow Rates:
   a) Undeveloped Q100 = (2.15)(2.4)(0.34)(0.34 Ac) = 0.6 cfs
   b) Developed Q100 = (2.15)(2.4)(0.88)(0.34 Ac) = 1.5 cfs
9. Design Criteria: Site required to pond increased runoff with discharge rate @ Q5 Undeveloped = (2.15)(2.4)(0.41)(0.34)(0.34Ac) = 0.3 cfs. Use 1-4" dia. pipe (or equiv. min. pipe size allowable per City requirements) for a head of 0.6', outflow rate will = 0.4 cfs.

Pond and Outlet Control Requirements:

a) From triangular design hydrograph and allowable discharge Q_a = 0.4 cfs, pond must detain 1,205 cu. ft.



b) Based on parking lot elevations shown for N.W. corner of Lot 11-A, ponding to elevation 58.5' will provide 1,565 cu. ft. of detainage volume.

c) A 4" outlet pipe with invert elevation = 57.6' will control the discharge to below 0.4 cfs until pond reaches elevation 58.5. Short tube formula, King and Brater, 5th ed., p. 4-19 used to calculation

$Q = CA\sqrt{2gh}$
$Q = 0.75\ (.087)(8.02)(.6)^{1/2}$
$Q = 0.4$ cfs

d) Use 2' wide broad crested weir with crest elevation = 58.5 as overflow spillway. Construct weir in block wall immediately above the 4" outlet pipe. Weir capacity calculation based on Table 5-3, King and Brater, 5th ed., p. 5-46.

$Q = CLH^{3/2}$
$Q = 2.61\ (2.0)(0.5)$
$Q = 1.84$ cfs > Q100 O.K.

Total outlet capacity with 4" pipe = 1.84 + 0.40 = 2.24 cfs

e) Use 2' x 0.5' concrete channel to convey flows to Buena Ventura. For Q100 = 3.0 cfs, n = 0.015 and S = .005, depth = 0.46' O.K.

K20/D22

C.T.S. INC. ENGINEERING
1100 ALVARADO N.E. SUITE A
ALBUQUERQUE, NEW MEXICO 87110
(505) 256-3444

REVISIONS | DATE
DESIGNED
DRAWN
CHECKED

DRAINAGE / GRADING PLAN
SANDSTONE OFFICE PLAZA
133 EUBANK N.E.

SHEET ___ OF ___