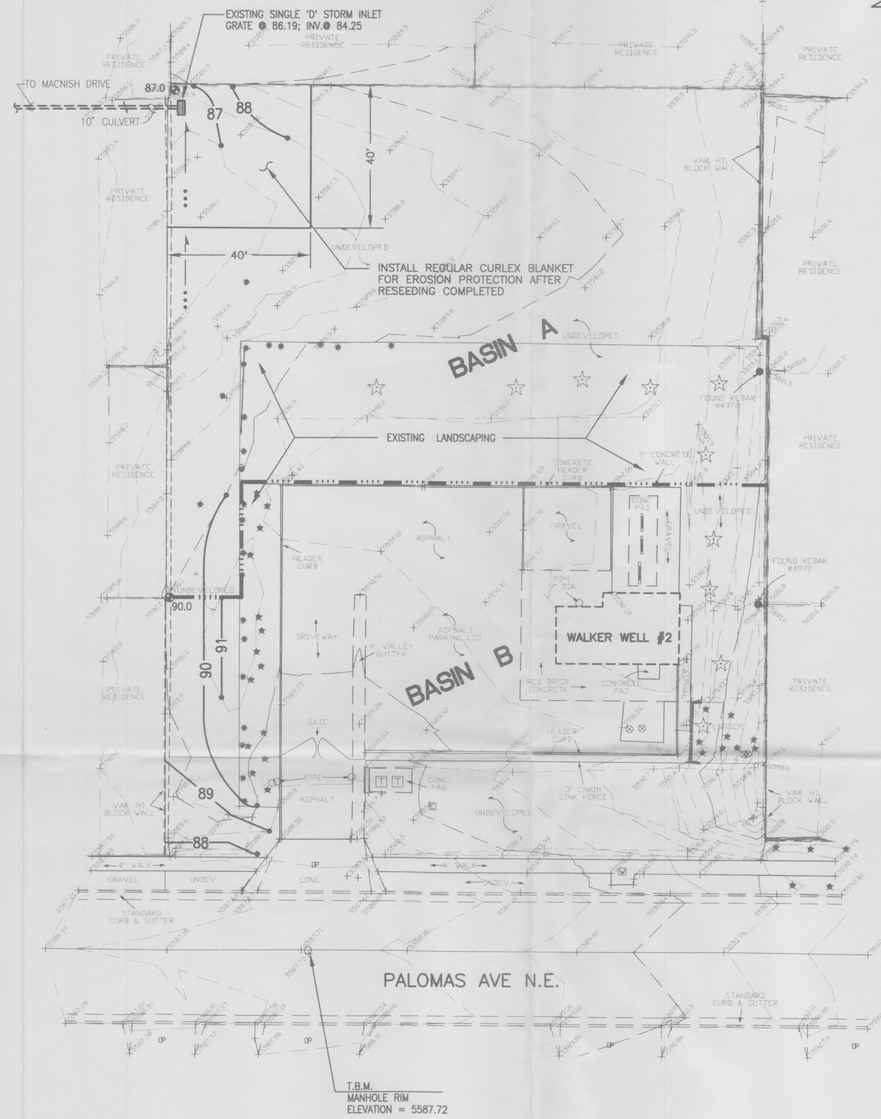

SCALE: 1" = 20'

10 0 20
5 10

DRAINAGE PLAN

The following items concerning the Walker Well No. 2 Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, the site is located on the north side of Palomas Avenue N.E. between MacNish Drive N.E. and Scoresby Drive N.E. This is an existing well site that lies within a new residential subdivision. The development of the well site preceded the residential subdivision.

As shown by Panel 10 of the 50 of the National Flood Insurance Program Flood Insurance Rate Maps published by F.E.M.A. for the City of Albuquerque, New Mexico dated October 14, 1983, this site does not lie within a designated flood hazard zone. Further review of this panel indicates that the site does contribute runoff to a designated flood hazard zone where the 100-year flood is confined to the constructed channel (South Arroyo de Domingo Baca). At present, the southerly portion of the site discharges directly into Palomas Avenue N.E. The rear portion of the site drains to the northwest corner where runoff ponds. The residential development which surrounds this site blocked the discharge from this site via the construction of CMU walls. Those CMU walls surround the site on three sides.

The Grading Plan shows: 1) existing grades indicated by spot elevations and contours at 1'0" intervals as determined by the City of Albuquerque Survey Section, 2) proposed grades indicated by spot elevations and contours at 1'0" intervals, 3) the limit and character of the existing improvements as obtained from the above referenced survey, 4) the limit and character of the proposed improvements, and 5) continuity between existing and proposed grades. As shown by this plan, that runoff generated by the rear portion of the site will now drain to an existing storm inlet constructed by the surrounding developer. That inlet drains via a 10" dameter drain line to MacNish Drive N.E. Previously, runoff generated by Basin A ponded against the existing CMU wall.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. These Calculations are limited to Basin A which is the rear portion of the site. Basin B is the existing developed portion of the site which already discharges directly to Palomas Avenue N.E. The Procedure for 40-acre and Smaller Basins, as set forth in the Revision of Section 22.2, Hydrology of the Development Process Manual, Volume 2, Design Criteria, dated January, 1993, has been used to quantify the peak rate of discharge and volume of runoff generated. As shown by these calculations, no increase in runoff draining to Palomas Avenue N.E. is anticipated as part of this project. Discharge from the site from Basin A will increase by 1.3 cfs. The free discharge of runoff from this site is consistent with the surrounding subdivision, Ridgefield North, Unit 2.

CALCULATIONS

Site Characteristics

1. Precipitation Zone = 3
2. $P_{6,100} = P_{360} = 2.60$ in.
3. Total Area (A_T) = 18,100 sf/0.42 ac
4. Existing Land Treatment

Treatment	Area (sf/ac)	%
B	5,800/0.13	31
C	12,300/0.29	69

5. Developed Land Treatment

Treatment	Area (sf/ac)	%
B	5,800/0.13	31
C	12,300/0.29	69

Existing Condition (Basin A)

1. Volume (Retained on site)

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = (0.92)(0.13)+(1.29)(0.29)/0.42 = 1.18$ in.

$V_{100} = (E_W/12)A_T$

$V_{100} = (1.18/12)0.42 = 0.041$ ac.ft.; 1,800 cf (Retained on site)

2. Peak Discharge (Retained on site)

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_p = Q_{100} = (2.60)(0.13)+(3.45)(0.29) = 1.3$ cfs

Developed Condition (Basin A)

1. Volume (Discharges via 10" culvert)

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = (0.92)(0.13)+(1.29)(0.29)/0.42 = 1.18$ in.

$V_{100} = (E_W/12)A_T$

$V_{100} = (1.18/12)0.42 = 0.041$ ac.ft.; 1,800 cf

2. Peak Discharge (Discharges via 10" culvert)

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_p = Q_{100} = (2.60)(0.13)+(3.45)(0.29) = 1.3$ cfs

3. Storm Drain Capacity

a. Orifice Equation

$Q = CA * (2gh)^{1/2}$

Where: C = 0.6
A = 0.55 sf
g = 32.2 ft/sec^2
h = unknown
Q = 1.3 cfs
Solve for "h"

h = 0.24 ft = 2.9 in.

b. Manning's Equation

Using Feild's Hydraulics Calculator for Gravity Flow in Pipes

For: d = 10"
s = 1.6%
n = 0.013

Then Q = 2.8 cfs > Q_{100}

c. Conclusion

10" pipe has adequate capacity to drain Basin A.

Comparison

1. ΔV_{100} = 0.041 - 0.041 = 0 ac.ft. = 0 cf (no change)
2. ΔQ_{100} = 1.3 - 1.3 = 0 cfs (no change)

LEGAL DESCRIPTION

TRACT D, RIDGEFIELD NORTH, UNIT 1

LEGEND

- 5598.74 — EXISTING SPOT ELEVTION
- — — — EXISTING CONTOUR
- = = = EXISTING CURB & GUTTER
- 89.5 — PROPOSED SPOT ELEVATION
- 90 — PROPOSED CONTOUR
- PROPOSED CURB & GUTTER
- DIRECTION OF FLOW
- BASIN BOUNDARY
- PROPOSED CONCRETE

VICINITY MAP
SCALE: 1" = 750±

D-20

Construction Notes:

1. Two (2) working days prior to any excavation, contractor must contact New Mexico One Call System 260-1990 (Albuquerque Area), 1-800-321-ALERT(2537) (Statewide), 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 in writing 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.
5. If any utility lines, pipelines, or underground utility lines are shown on these drawings, they are shown in an approximate manner only, and such lines may exist where none are shown. If any such existing lines are shown, the location is based upon information provided by the owner of said utility, and the information may be incomplete, or may be obsolete by the time construction commences. The engineer has conducted only preliminary investigation of the location, depth, size, or type of existing utility lines, pipelines, or underground utility lines. This investigation is not conclusive, and may not be complete, therefore, makes no representation pertaining thereto, and assumes no responsibility or liability therefor. The contractor shall inform itself of the location of any utility line, pipeline, or underground utility line in or near the area of the work in advance of and during excavation work. The contractor is fully responsible for any and all damage caused by its failure to locate, identify and preserve any and all existing utilities, pipelines, and underground utility lines. In planning and conducting excavation, the contractor shall comply with state statutes, municipal and local ordinances, rules and regulations, if any, pertaining to the location of these lines and facilities.
6. The design of planters and landscaped areas is not part of this plan. All planters and landscaped areas adjacent to the building(s) shall be provided with positive drainage to avoid any ponding adjacent to the structure. For construction details, refer to landscaping plan.

Erosion Control Measures:

1. The contractor shall ensure that no soil erodes from the site into public right-of-way or onto private property.
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.
3. The contractor shall secure "Topsoil Disturbance Permit" prior to beginning construction.
4. Any areas of excess disturbance (traffic access, storage yard excavated material, etc.) shall be re-seeded according to C.O.A. Specification 1012 "Native Grass Seeding". This will be considered incidental to construction, therefore, no separate payment will be made.

SURVEY INFORMATION
FIELD NOTES BY: NO. N/A. BY: CITY OF ALBUQUERQUE DATE: 11-95

BENCH MARKS
NONE PROVIDED.

AS BUILT INFORMATION
CONTRACTOR
WORK ISSUED BY
DATE
INSPECTOR'S ACCEPTANCE BY
DATE
AS-BUILTS VERIFICATION BY
DATE
CHANGES DIRECTED BY
DATE

MICRO-FILM INFORMATION
RECORDED BY
DATE
NO.

ENGINEER'S SEAL
JEFF G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER
08-20-96

NO.	DATE	REMARKS	BY
		Revisions	
		DESIGN	
		Designed By	J.G.M.
		Drawn By	S.G.H.
		Checked By	J.G.M.

Date 08-96
Date 08-96
Date 08-96

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE NEW MEXICO 87109
ENGINEERS SURVEYORS (505) 345-4250

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPEMENT GROUP

AUG 21 1996
HYDROLOGY SECTION

TITLE: GRADING AND DRAINAGE PLAN
WALKER WELL #2

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

960093

City Project No.

Zone Map No. D-20

Sheet 1 Of 1

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