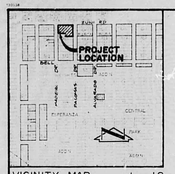
PUBLIC WORKS/HYDROLOGY

L18/D47



VICINITY MAP L-18

SCALE 1" = 800'

LEGAL DESCRIPTION

PARCELS A-1 & B-1, MOLL INDUSTRIAL ADDITION, BLOCK 5 OF THE PARADISE HEIGHTS ADDITION.

PROJECT BENCHMARK

B.M. NO. B-K18, A SQUARE, ⊡, CHISELED ON TOP OF THE CONC. CURB LOCATED AT THE SSE RETURN AT THE INTERSECTION OF COAL AVE S.E. & SAN MATEO BLVD S.E.
ELEVATION = 5262.129 FEET (M.S.L.D)

SCALE 1" = 20'

20 10 0 20

T.B.M. # 1

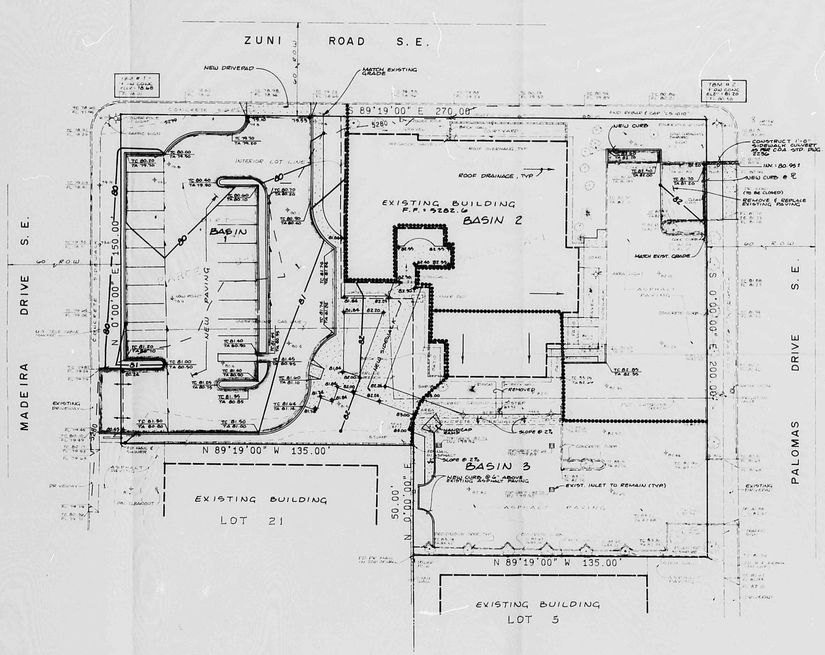
A + ON TOP OF CONC. LOCATED @ THE PROJECTION OF THE EAST PROPERTY LINE ON TO THE SOUTH CURB OF ZUNI RD. S.E.
ELEVATION = 5278.66 FEET (M.S.L.D)

T.B.M. # 2

A + ON TOP OF CONC. LOCATED @ THE PROJECTION OF THE WEST PROPERTY LINE ON TO THE SOUTH CURB OF ZUNI RD. S.E.
ELEVATION = 5281.20 FEET (M.S.L.D)

LEGEND

- EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- TC TOP OF CURB
- FL FLOWLINE
- TA TOP OF ASPHALT
- TSW TOP OF SIDEWALK
- PROPOSED SPOT ELEVATION
- PROPOSED CONTOUR
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- BASIN BOUNDARY



Construction Notes

1. Two (2) working days prior to any excavation, contractor must contact Line Locating Service 765-1234, 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 lines are shown, the location is based on 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 to ascertain the location and depth of existing utility lines, pipelines, or underground utility lines. This investigation is not comprehensive in nature. The contractor should make 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 prior to and during the course of work ahead of and during excavation work. The contractor is fully responsible for any and all damage caused by the failure to locate, identify and preserve any and all existing utilities, pipelines, or underground utility lines. Prior to and during conducting excavation, the contractor shall comply with state statutes, municipal and local ordinances, and industry standards, with regard pertaining to the location of these lines and facilities.
6. An Excavation/Construction Permit will be required before beginning any work within City right-of-way. Application for this permit should be submitted at the time of application for this permit.
7. Backfill compaction shall be according to Maximum street use.
8. Maintenance of these facilities shall be the responsibility of the owner of the property served.
9. 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 mud erodes from the site into public right-of-way or onto private property. This may be accomplished by placing a temporary berm on the property line and wetting the soil to keep it from blowing.
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.

APPROVALS	NAME	DATE
A.C.E. / DESIGN	D. Hadley	11/1/89
INSPECTOR		
A.C.E. / FIELD		

DRAINAGE PLAN

The following items concerning the F.H.P. Grading and Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, this site is located on the south side of Zuni Road S.E. between Madeira Drive S.E. and Palomas Drive S.E. At present, the site is developed. Much of the surrounding area is currently developed both residentially and commercially making this a modification to an existing site within an infill area. As shown by Plate D-18 of the Albuquerque Master Drainage Study, this site does not lie within a designated flood hazard zone. This site does lie within a designated flood prone area. This area is served, however, by the Fairgrounds stormwater discharge to this designated flood zone. This area is served, however, by the Fairgrounds stormwater relief system (ARDS System 205-01A) and the Highland Detention Pond which have alleviated the flooding in Zuni Road S.E. per the ARDS.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'-0" intervals, 2) the limit and character of the existing improvements, 3) the limit and character of the proposed improvements, and 4) continuity between existing and proposed grades. As shown by the Grading Plan, the proposed improvements will divide the site into three basins. Runoff generated by Basin 1 will be routed from south to north onto Zuni Road S.E. From that point, runoff will flow to the west as discussed above. Runoff generated by Basin 2 will be routed from west to east onto Palomas Drive S.E. via a new sidewalk culvert. From that point, runoff will flow north to Zuni Road S.E. which drains to the west. Runoff generated by Basin 3 will continue to drain to Palomas Drive S.E. which drains to the south. Runoff from Basin 3 will be intercepted by a new inlet which is part of a series of French drains. Based upon the fact that this site is a modification to an existing site within an infill area, the proximity of downstream facilities, and the minor increase in runoff anticipated, the free discharge of runoff from this site is appropriate. This pattern is also consistent with existing site drainage.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used to quantify the peak rate of discharge and the SCS Method has been used to quantify the volume of runoff. Both Methods have been used in accordance with the City of Albuquerque Development Process Manual, Volume II, and the Mayor's Emergency Rule adopted January 14, 1986. As shown by these calculations, the proposed improvements will result in a decrease in the peak discharge from Basin 1 of approximately 1.6 cfs. Basin 2 will be approximately 0.4 cfs. Basin 3 will result in no change in the peak discharge. The net increase in runoff will be approximately 0.4 cfs which will not affect the capacity of Zuni Road S.E.

Fully improved streets are located on the west, north and east sides of the site. The streets appear to contain the runoff entering the right-of-way. A wall is situated on the south property line effectively blocking runoff from the south. In view of the above information, offsite flows do not impact this site.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 31; ESC = Embudo - Tijeras complex
Hydrologic Soil Group = C
Existing Pervious CN = 70 (DPM Plate 22.2 C-2)
Pasture or Range Land: fair condition)
Developed Pervious CN = 61 (DPM Plate 22.2 C-2
Open Space: good condition)

Time of Concentration/Time to Peak

$T_c = 0.0078\ L^{0.77}/S^{0.385}$ (Kirpich Equation)

$T_p = T_c + 10$ min.

Point Rainfall

$P_6 = 2.24$ in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: Q = CIA

where C varies
$I = 2.16.6H\ T_c^{-0.51} = 4.95$ in/hr
$T_c = 2.16$ hr (DPM Plate 22.2D-1)
T_c = 10 min (minimum)
A = area, acres

SCS Method

Volume: V = 3630(DRO) A

Where DRO = Direct runoff in inches
A = area, acres

Existing Condition

Basin 1
Atotal = 18,850 sf = 0.43 Ac
C = 0.82 (Weighted average per Emergency Rule, 1/14/86)
Q100 = CIA = (0.82)(4.95)(0.43) = 0.9 cfs
Composite CN = 70 (DPM Plate 22.2 C-2)
DRO = 0.33 in (DPM Plate 22.2 C-4)
V100 = 3630 (DRO)A = 515 cf

Basin 2
Atotal = 17,200 sf = 0.39 Ac
Roof area = 7,280 sf (0.17)
Paved area = 8,820 sf (0.20)
Landscaped area = 1,100 sf (0.02)
C = 0.90 (Weighted average per Emergency Rule, 1/14/86)
Q100 = CIA = (0.90)(4.95)(0.39) = 1.7 cfs
Composite CN = 98 (DPM Plate 22.2 C-2)
DRO = 1.9 in (DPM Plate 22.2 C-4)
V100 = 3630 (DRO)A = 2,134 cf

Basin 3
Atotal = 11,200 sf = 0.26 Ac
Roof area = 1,470 sf (0.15)
Paved area = 7,600 sf (0.69)
Landscaped area = 1,910 sf (0.17)
C = 0.81 (Weighted average per Emergency Rule, 1/14/86)
Q100 = CIA = (0.81)(4.95)(0.26) = 1.1 cfs
V100 = 3630 (DRO)A = 1,510 cf

Developed Condition

Basin 1
Atotal = 18,850 sf = 0.43 Ac
Roof area = 1,470 sf (0.03)
Landscaped area = 6,150 sf (0.22)
C = 0.82 (Weighted average per Emergency Rule, 1/14/86)
Q100 = CIA = (0.82)(4.95)(0.43) = 1.0 cfs
Composite CN = 70 (DPM Plate 22.2 C-2)
DRO = 0.33 in (DPM Plate 22.2 C-4)
V100 = 3630 (DRO)A = 2,340 cf

Basin 2
Atotal = 17,200 sf = 0.39 Ac
Roof Area = 7,280 sf (0.17)
Paved area = 8,820 sf (0.20)
Landscaped area = 1,100 sf (0.02)
C = 0.90 (Weighted average per Emergency Rule, 1/14/86)
Q100 = CIA = (0.90)(4.95)(0.39) = 1.7 cfs
Composite CN = 98 (DPM Plate 22.2 C-2)
DRO = 1.6 in (DPM Plate 22.2 C-4)
V100 = 3630 (DRO)A = 2,245 cf

Sidewalk Culvert Capacity (1'-0" Opening - Weir Equation)
$Q = (2.67)(1.4) = 3.1$ cfs
$Q = C\sqrt{2g}\,A = 1.1$ cfs - Q10
Where C = 0.60
g = 32.2
h = 0.5'

Basin 3
Atotal = 11,200 sf = 0.26 Ac
Roof Area = 1,470 sf (0.15)
Paved area = 7,600 sf (0.69)
Landscaped area = 1,910 sf (0.17)
C = 0.81 (Weighted average per Emergency Rule, 1/14/86)
Q100 = CIA = (0.81)(4.95)(0.26) = 1.1 cfs
V100 = 270 sf/ 5 impervious = 54 ℄
Composite CN = 92 (DPM Plate 22.2 C-2)
DRO = 1.0 in (DPM Plate 22.2 C-4)
V100 = 3630 (DRO)A = 1,510 cf

Comparison

Basin 1
Q100 = 1.7 - 0.9 = 0.8 cfs (increase)
∆V100 = 2,340 - 515 = 1,825 cf (increase)

Basin 2
Q100 = 1.5 - 1.1 = 0.4 cfs (decrease)
∆V100 = 2,245 - 2,134 = 141 cf (increase)

Basin 3
Q100 = 1.1 - 1.1 = 0 cfs (no change)
∆V100 = 1,510 - 1,510 = 0 cf (no change)

NOTARY E. MORTENSEN
NEW MEXICO
8547
PROFESSIONAL ENGINEER

09-28-89

RECEIVED
OCT 0 7 1989
HYDROLOGY SECTION

DESIGNED BY J.G.M.		DATE	890863
DRAWN BY S.G.H.		SCALE	8 - 89
REVIEWED BY J.G.M.		SHEET	1 OF 1

JMA — JEFF MORTENSEN & ASSOCIATES, INC.
4010 DALAS N.E. ALBUQUERQUE, NM 87108
ENGINEERS - TELEPHONE (505) 265-5711

GRADING AND DRAINAGE PLAN
F. H. P.

REF. 28 DATE 3-29-02 ON EDP

CITY OF ALBUQUERQUE

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DIRECTOR

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PLANS/PLATS ON FILE

FILE DESC: L18/D47

PLANS/PLATS 1

E 30 D 24 C 20 B 16 A 12 CITY OF ALBUQUERQUE C D F