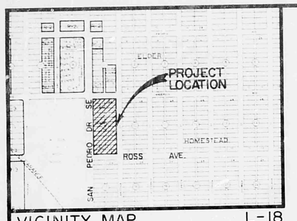
HYDROLOGY

L18/D42
1 PLAN

L 18/D42

1 Plan



VICINITY MAP L-18

SCALE 1" = 800'

LEGEND

- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXISTING CONTOUR
- PROPOSED CONTOUR
- T.C. TOP OF CURB
- F.L. FLOWLINE
- SWALE
- PROPERTY LINE

PROJECT BENCHMARK

A SQUARE "□" CHISELED ON TOP OF CONCRETE CURB AT THE NINE RETURN. STATION IS LOCATED AT THE INTERSECTION OF SAN PEDRO DR. AND ROSS AVE. SE. ELEVATION = 5308.428 FEET (M.S.L.D.)

TEMPORARY BENCHMARK

SAME AS PROJECT BENCHMARK

LEGAL DESCRIPTION

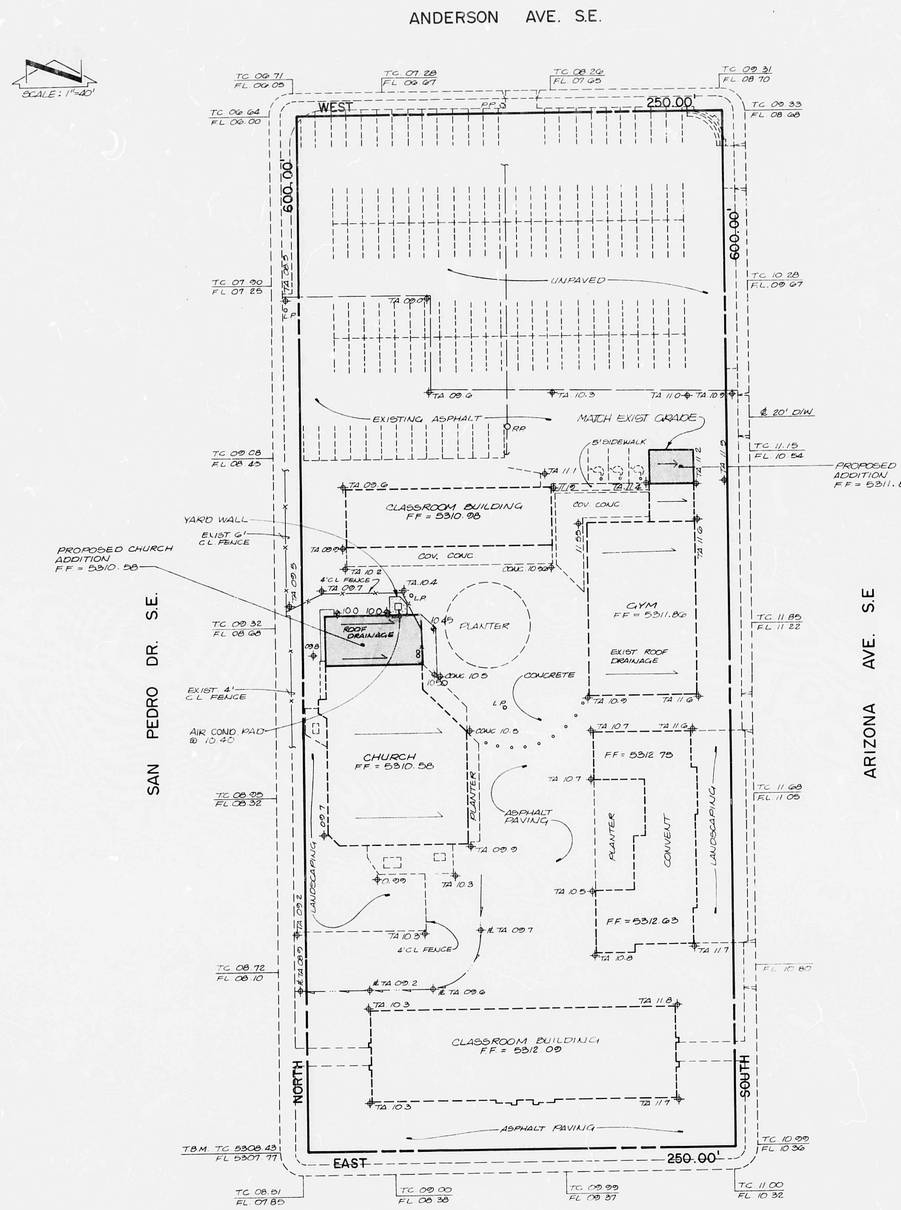
1 THRU 24, BLOCK 9, ELDER HOMESTEAD ADDITION (B2-37) 01-21-27

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 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 UNDERTAKEN NO FIELD VERIFICATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES, 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.

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES 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.



DRAINAGE PLAN

The following items concerning the Holy Ghost Church Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, this site consists of an entire block bounded by Anderson Avenue S.E. on the north, Arizona Avenue S.E. on the east, Ross Avenue S.E. on the south, and San Pedro Drive S.E. on the west. At present, the site is developed. Much of the surrounding area is also developed.

As shown by Plate L-18 of the Albuquerque Master Drainage Study, this site does not lie within a designated flood hazard zone. The mapping does show adjacent flooding in Anderson Avenue S.E. and Ross Avenue S.E. It should be noted however, that this area contributes to the Fairgrounds Stormwater Relief System which has relieved the flooding in this area. In particular, this site is served by System 206-02A.

The Grading Plan shows 1) existing grades indicated by spot elevations, 2) proposed elevations indicated by spot elevations, 3) the limit and character of the existing improvements, and 4) the limit and character of the proposed improvements. As shown by this plan, the proposed improvements consist of a small church addition and an even smaller storage room addition. The finished floor elevations of these buildings have been established based upon the existing structures to which they will be connected. Furthermore, the proposed improvements will not require the alternation of the existing grading of the site. Because of this, the existing drainage pattern of the site will be maintained. The existing drainage pattern is one in which runoff is discharged to San Pedro Drive S.E. At this point, San Pedro Drive S.E. drains both to the north and to the south. The apparent high point is located approximately at the midpoint of the site. Based upon this, it can be estimated that approximately half of the runoff of the site will flow south within San Pedro Drive S.E. with the other half of the runoff flowing to the north within the street.
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 determine the peak discharge of runoff and the SCS Method has been used to determine the volume of runoff generated. Both methods have been used in accordance with the City of Albuquerque Development Process Manual, Volume II, along with the Mayor's Emergency Rule dated January 14, 1986. As shown by these Calculations, a very minor increase in runoff is anticipated due to the proposed improvements. Because of this negligible increase in runoff, the fact that this is a modification to an existing site, the fact that this is an already developed watershed, and the existence of adequate downstream facilities, the free discharge of runoff from this site is appropriate.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey,
Plate: 31 MWA - Madurez - Wink Association
Hydrologic Soil Group: B
Existing Pervious CN = 61 (DPM Plate 22.2 C-2; Open Space: Good condtion)
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

$P_6 = 2.32$ in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: $Q = CiA$

where C varies
$i = P_6\ (6.84)\ T_c^{-0.51} = 4.90$ in/hr
$P_6 = 2.32$ in (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

A_{total} = 150,000 sf = 3.44 Ac
Roof area = 35,700 sf (0.24)
Paved area = 64,850 sf (0.43)
Landscaped area = 12,700 sf (0.08)
Dirt area = 36,750 sf (0.25)
C = 0.74 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = 0.74(4.90)(3.44) = 12.5$ cfs
% impervious = 67%
Composite CN = 85 (DPM Plate 22.2 C-3)
DRO = 1.1 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 13{,}740$ cf

Developed Condition

A_{total} = 150,000 sf = 3.44 Ac
Roof area = 38,000 sf (0.25)
Paved area = 64,350 sf (0.43)
Landscaped area = 10,900 sf (0.07)
Dirt area = 36,750 sf (0.25)
C = 0.75 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = 0.75(4.90)(3.44) = 12.6$ cfs
% impervious = 68 %
Composite CN = 85.5 (DPM Plate 22.2 C-3)
DRO = 1.15 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)\ A = 14{,}360$ cf

Comparison

$\Delta Q_{100} = 12.6 - 12.5 = 0.1$ cfs (increase)
$\Delta V_{100} = 14{,}360 - 13{,}740 = 620$ cf (increase)

HARRY G. MONTOYA NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

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TONN, MONTOYA & ASSOCIATES, P.C. 811 DALLAS N.E. · ALBUQUERQUE · NEW MEXICO · 87110 ENGINEERS	NO. / DATE / BY / REVISIONS	DESIGNED BY J.G.M. DRAWN BY P.A.T. APPROVED J.G.M.	JOB NO. 61741 DATE 12 · 86	GRADING & DRAINAGE PLAN HOLY GHOST CHURCH	FILE NO. SHEET 1 OF 1