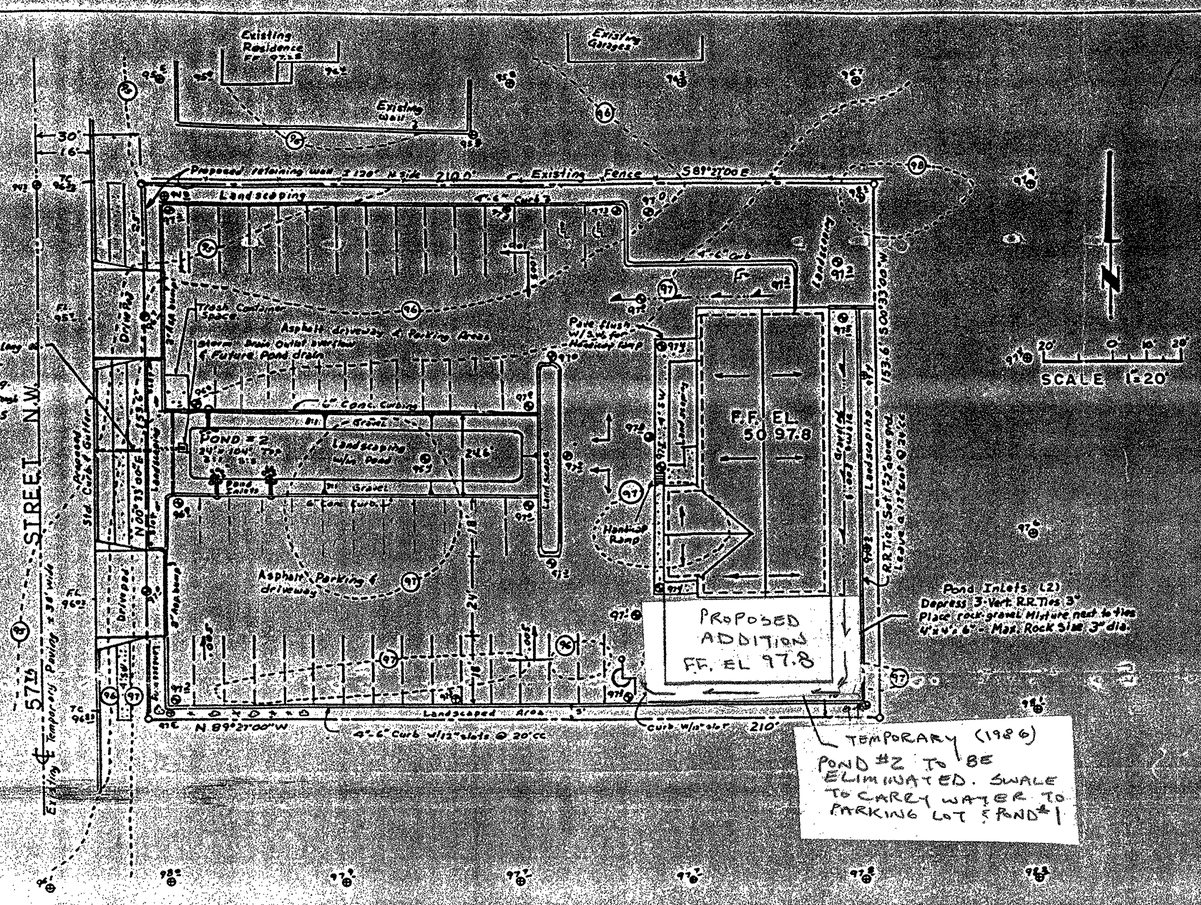


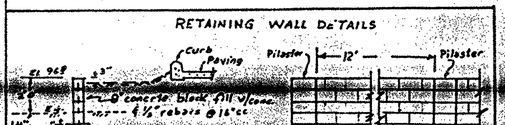
Legal:
Portion of Tract 281
within Town of Atrisco Grnt
Albuquerque, Bernalillo County
New Mexico

Address:
1946 57th Street N.W.

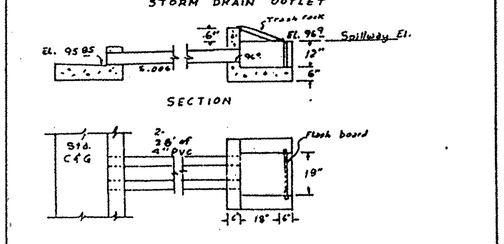
LEGEND

- Property boundary lines
- Existing contour lines
- Existing spot elevations
- Proposed spot elevations
- Proposed swales
- Proposed sidewalks

RETAINING WALL DETAILS



STORM DRAIN OUTLET



CALCULATIONS

HYDROLOGY: (Used Rational Formula for Q100 & SCS Procedures for Volume 100)

Total Area of Tract = 32,256 SF = 0.740 Acs.
100 yr - 6 hr. rain = 2.2" (Plate 22.2 D-1) 10 yr. factor = 0.657
I = 2.18 (Plate 22.2 D-2) ∴ Intensity i = 4.75 (Chr. Vol. = I)
Soils: MWA - Madurez-Wink Association - Gently sloping
"B" Hydrologic Soils Group (SCS Standard Soil Survey of Bernalillo Co.

UNDEVELOPED: C = 0.40 CN = 70 (range fair condition)
Runoff Vol. = 0.38" (Plate 22.2 C-4)
$Q_{100} = C_i A = 0.4 \times 4.75 \times 0.740 = 1.41$ c.f.s.
$Vol_{100} = (RO \div 12)(A) = (0.38 \div 12)(32,256) = 1,021$ cu.ft.

DEVELOPED:

	POND #1 Area	C or CN	C x Area	POND #2 Area	C or CN	C x Area
Impervious	2,165 SF ÷ 43,560 = 0.050 Ac.	98	0.050 x 98 = 4.949	19,956 SF ÷ 43,560 = 0.458 Ac.	98	0.458 x 98 = 18.958
Pervious	3,235 = 61%	0.25	0.25 x 61 = 809	6,900 SF = 16%	0.25	0.25 x 16 = 1.725
Totals	5,400 SF	40.305	2.758	26,856 SF	2,376,588	20.683
Composite CN = 40.305 ÷ 5,400 = 75.8 use 76				2,376,588 ÷ 26,856 = 88		
Composite C = 2.758 ÷ 5,400 = 0.51				20,683 ÷ 26,856 = .77		
RO = 0.70 (Plate 22.2 C-4)				RO = 1.2"		
$Q_{100} = C_i A = 0.51 \times 4.75 = 0.124 = 0.30$ c.f.s.				$Q_{100} = 0.77 \times 4.75 \times .617 = 2.25$ c.f.s.		
$Vol_{100} = (RO \div 12) DA = (0.70 \div 12)(5,400) = 315$ cu.ft.				$= (1.2 \div 12)(26,856) = 2,686$ cu.ft.		

Storage Capacity: Pond #1 = 336 cu.ft. Pond #2 = 2,952 cu.ft.

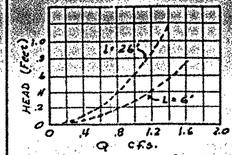
OFFSITE:
Area (East & South) = 72,350 SF = 1.661 Acs. (Area Undeveloped)
$Q_{100} = C_i A = 0.4 \times 4.75 \times 1.661 = 3.16$ c.f.s.
$Vol_{100} = (RO \div 12) A = (0.38 \div 12) 72,350 = 2,291$ cu.ft.

HYDRAULICS

Half Street: 5'-0" d Crown (from Plate 22.3 D-1)
d = 0.2' Q = 0.4 c.f.s
d = 0.3' Q = 1.55 c.f.s

Storm Drain Outlet Spillway
L = 4.5' Assume H = 0.2' C = 3.3
$Q = CLH^{3/2} = 1.33$ c.f.s.

Pipe: 6" PVC
A = 0.196 SF



Used: $H = Kp \cdot L \cdot \frac{V^2}{2g} + Ke \cdot \frac{V^2}{2g}$

WHEN: Kp = 0.03783
Ke = 0.5

DRAINAGE AND GRADING PLAN

The following items concerning the drainage and grading plan for the Jehovah's Witnesses, west Side Congregation, Kingdom Hall are contained herein: 1. Vicinity Map 2. Drainage Plan 3. Grading Plan 4. Calculations 5. Erosion Control Plan.

A church building with parking areas, landscaping areas and combination ponding and landscaping areas are being planned at this site. The Tract is located east of 57th Street, N.W. and north of Rice Road N.W. and is shown as Portion of Tract 281 on the Zone Atlas Map No. H-11. The building will be located toward the rear, east side of the Tract. Driveway-parking areas will be located toward the front with landscaping around the perimeter of the Tract, in the ponding areas and at other locations within the Tract.

At present this Tract is undeveloped. It is bounded on the north by a residential lot with a house and garages in-place. The lot is at a lower elevation and therefore no runoff comes in from there. To the east and south is undeveloped land, extending to 55th Street on the east and to Rice Road on the south. No runoff enters this Tract from both sides. To the west is 57th Street, which is at a lower elevation and therefore no runoff comes in from this side. At present, 57th Street has temporary paving and no curb and gutter. Proposed improvements, show the planned grades, elevations, a 32 feet wide street and a note that a storm drain is needed which would drop into the existing concrete lined ditch along the south side of I-40.

This Tract does not lie in a flood plain, does not lie adjacent to any natural or artificial water course and does not have any drainage easements attached to the property at this time.

Existing conditions indicate minimal runoff into and away from this Tract. It and the land to the east and the south have low areas, relatively flat grades and paths where flows are ponded or intercepted. The soils are sandy, being "B" hydrologic soil condition, with high permeability rates and therefore slow runoff rates. Estimated 100 year volume of runoff from this tract is 1020 cu.ft.. The 100 year volume of runoff estimated from the land east and south is 2300 cu.ft.. Actual volumes are probably lower because ponding areas were not taken into consideration. The runoff occurs as overland flow with no defined channels. The off-site flows will be allowed to enter this tract, as they have in the past, by leaving slots in any curbs or walls installed along the east and south sides of the property.

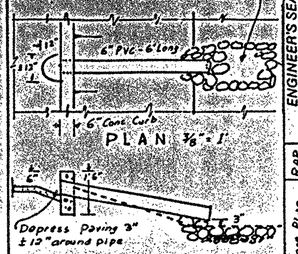
The parking-driveways planned, will be paved with asphalt and will be graded so that the runoff flows into the temporary pond located in the middle of the center parking areas. This pond will store the runoff volume from the 100 year rain produced from the paved areas and from part of the building roof. Runoff from the remaining area will flow in a swale graded to flow south into another small temporary pond on the south side of the building. Both ponding areas will be landscaped with trees, bushes, grass and/or mulching materials.

Until 57th Street is improved, sometime in the future, and a storm drain system is installed, the 100 year runoff volume will be stored in the temporary ponds. In the future, after the improvements are installed, the ponds can be filled-in and runoff allowed to flow into the street and to the planned storm drain.

The grading plan shows: existing contours, proposed grades as indicated by spot elevations, swales with direction of flow, pond locations and also the need for a retaining wall at the northwest corner of the Tract. The retaining wall will hold fill material needed to raise the planned parking area to an elevation high enough to slope toward the ponding area.

The erosion control plan consists of the following:

1. Existing site conditions to remain basicly the same until the parking-driveway areas are graded to final grades for paving. A minimum of rough grading will be done during construction of the building. Soil materials needed for the building slab grade will be taken from the ponding sites.
2. When entrances to the property are built, they will be graded to include shallow swales sloped toward the ponding areas. The swales will direct runoff and the associated sediment to the ponds and away from the street.
3. The planned retaining wall will be built during the early stages of construction. The wall will help to retain any runoff and sediment that may flow toward the northwest corner, the low area, of the tract.



RIVERA ENGINEERING
2624 Valencia Dr. N.E.
Albuquerque, NM 87110

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE:
DRAINAGE AND GRADING PLAN
JEHOVAH'S WITNESSES KINGDOM HALL W.SIDE CONGREGATION

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste		
A.C.E.-Design			Traffic		
A.C.E.-Hydrology			Water		

DRAWING NO. | MAP NO. | SHEET 4 OF 5

Z-86-80-1

SURVEY INFORMATION — NO. | FIELD NOTES | BY | DATE

BENCH MARKS
1. City of Albuquerque Sta. 2+41.11 E. 5091.53
NW Stm. drainage Alum. 12" inflow pipe at Comer Rd.
Mark 1 Tiff Rd. Standard Alt. Bronze
Site TBM #1 - El. 5091.53 - Top center
Site TBM #2 - El. 5091.57 - Top center
W/Joint, Curb & W/Corner of Sidewalk

"AS BUILT" INFORMATION
CONTRACTOR
WORK STARTED ON — DATE
WORK COMPLETED BY — DATE
FIELD VERIFIED BY — DATE
AS-BUILTED BY — DATE
CONSTRUCTION ACCEPTANCE BY — DATE

MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

ENGINEER'S SEAL
NEW MEXICO — Paul A. Rivera — 1987

NO.	DATE	REVISIONS	BY
1	3/87	Prel. Concept. to Drainage Plan	R.A.R.
2	6/87	Changed M.E. Cor. Addit. EL'd Grades	R.A.R.
3	7/87	Corrected Curb designation & Elev.	R.A.R.

DESIGNED BY R.A.R. — DATE 12/86
DRAWN BY R.A.R. — DATE 12/86
CHECKED BY — DATE