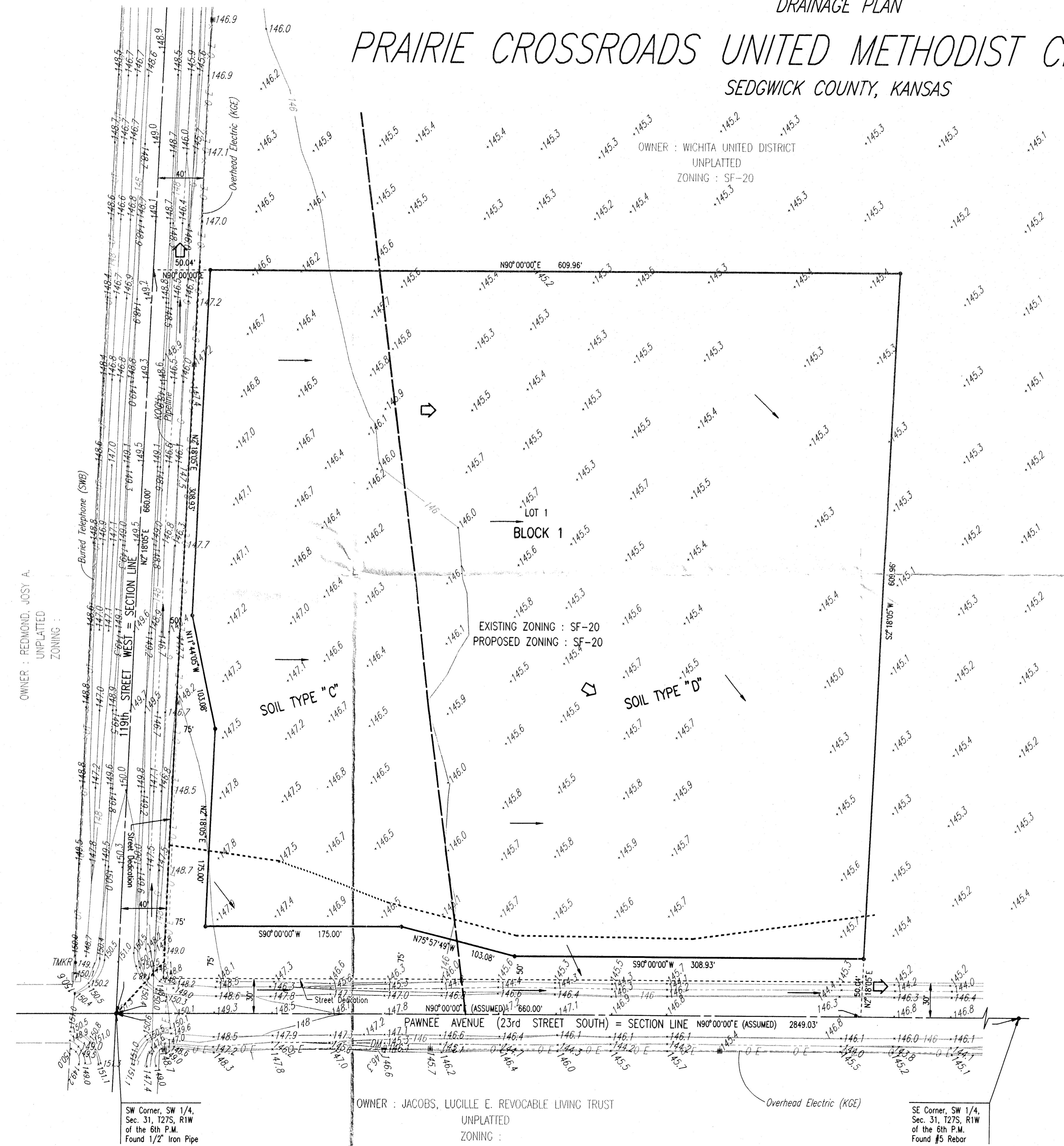


DSNR: KER OPER: KER SCALE: 1=50.00
 Q:\1999\1997\1\CROSSROADS U.M.C. ADDITION.dwg\DRAINAGE 09-14-1999 08:12:50 am

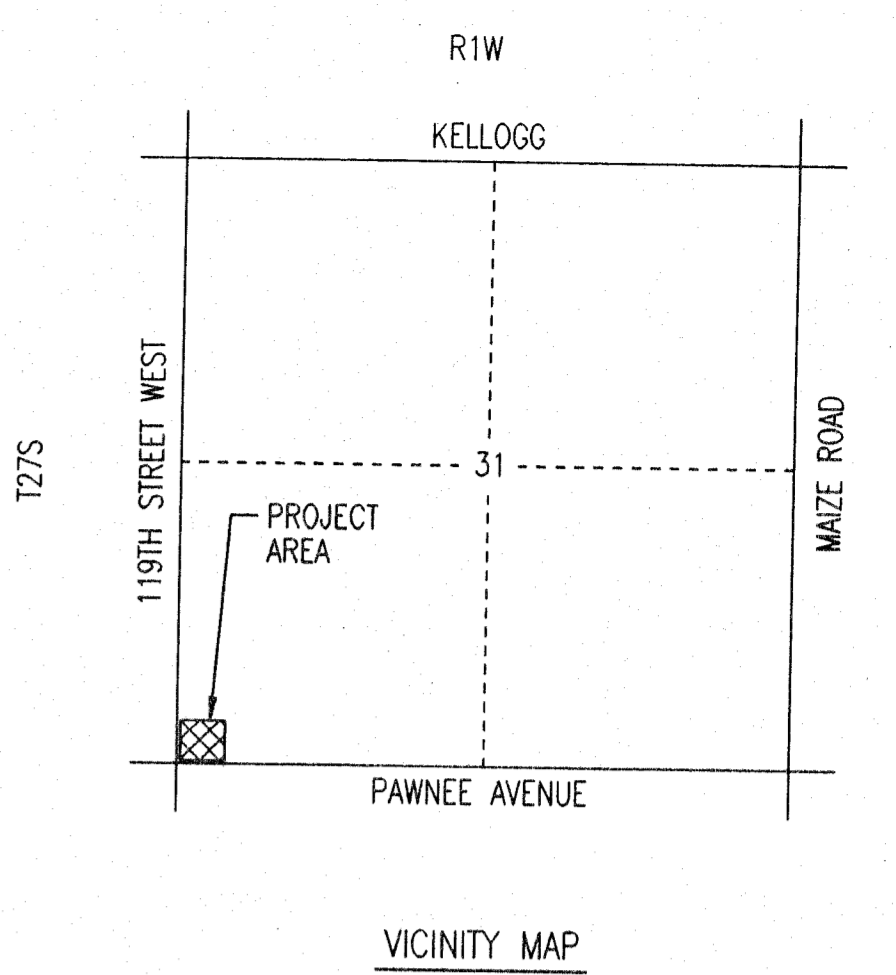
DRAINAGE PLAN

PRAIRIE CROSSROADS UNITED METHODIST CHURCH ADDITION

SEDGWICK COUNTY, KANSAS



SCALE: 1 = 50'
 DATE: 7-13-1999
 TOPOGRAPHY: 6-1999
 • = IRON SET UNLESS NOTED OTHERWISE



- LEGEND**
- SOIL GROUP BOUNDARY
 - - - - - BASIN BOUNDARY
 - ➔ MAJOR STORM WATER OVERFLOW (Q100)
 - ➔ MINOR STORM WATER FLOW (Q2)

HYDROLOGY
 AREA = 8.7 Acres
 SOIL: 2.9 Acres - Type "C"
 5.8 Acres - Type "D"

| EXISTING CONDITIONS | DEVELOPED CONDITIONS |
|-----------------------------|-----------------------------|
| Cultivated Farmland | 10-20% Impervious |
| C ₂ = 0.23 | C ₂ = 0.40 |
| C ₁₀₀ = 0.55 | C ₁₀₀ = 0.68 |
| T _c = 15 minutes | T _c = 15 minutes |
| i ₂ = 3.80 | i ₂ = 3.80 |
| i ₁₀₀ = 7.36 | i ₁₀₀ = 7.36 |
| Q ₂ = 7.6 cfs | Q ₂ = 13.2 cfs |
| Q ₁₀₀ = 35.2 cfs | Q ₁₀₀ = 43.5 cfs |

Simplified Detention Storage Routing
 -from City of Derby Stormwater Management Criteria
 Figure 9

100 Year Design Storm
 A = 8.7 Acres
 Type C & D Soils
 CN = 82
 $S = \left(\frac{1000}{CN}\right) - 10$ P = 7.8 inches
 S = 2.195
 $Q = \frac{(P - 0.2S)^2}{(P + 0.8S)}$
 Q = 5.67 inches of runoff
 VR = Cubic Feet Inflow to Detention
 $VR = \left(\frac{Q}{12}\right) \cdot A \cdot 43560$ VR = 179067 cu. ft
 Q_{existing} = 35.2 cfs
 Q_{developed} = 43.5 cfs
 $\frac{Q_{existing}}{Q_{developed}} = 0.809$
 From Figure 9:
 (Type II Storm)
 VS = 0.18-VR
 $\frac{VS}{43560} = 0.74$ Ac-ft of Storage Required

OWNER/DEVELOPER TO BE RESPONSIBLE FOR CONSTRUCTION OF 0.74 AC-FT OF DETENTION STORAGE AT THE TIME OF DEVELOPMENT. THIS STORAGE MAY CONSIST OF A DETENTION POND, PARKING LOT STORAGE, OVERSIZED DITCHES OR OTHER APPROVED METHODS. ALL ON-SITE DRAINAGE SHALL BE ROUTED TO THIS DRAINAGE IMPROVEMENT VIA DRIVES, FLUMES, PRIVATE STORM WATER SEWERS, SWALES OR OTHER APPROVED DRAINAGE DEVICES. FLOWS IN EXCESS OF THE 100-YEAR STORM TO BE ROUTED TO THE DITCH ON THE NORTH SIDE OF PAWNEE AVENUE.

SW Corner, SW 1/4,
 Sec. 31, T27S, R1W
 of the 6th P.M.
 Found 1/2" Iron Pipe

OWNER : JACOBS, LUCILLE E. REVOCABLE LIVING TRUST
 UNPLATTED
 ZONING :

SE Corner, SW 1/4,
 Sec. 31, T27S, R1W
 of the 6th P.M.
 Found #5 Rebar