

KANSAS FOOD BANK WAREHOUSE ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS

OWNER: AMERICAN NATIONAL RED CROSS
LOT 1, BULGER ADDITION
ZONED: "L" LIMITED INDUSTRIAL

DRAINAGE PLAN

UNDER EXISTING CONDITIONS SHOWN, APPROXIMATELY 95% OF THE SITE (LOT 1, BLOCK 1) IS IMPERVIOUS. PROPOSED CONDITIONS OF THE KANSAS FOOD BANK WAREHOUSE AND PARKING LOT CONSIST OF APPROXIMATELY THE SAME AMOUNT OF IMPERVIOUS AREA. THEREFORE, THE PROPOSED SITE SHALL BE GRADED TO DRAIN VIA APPROVED DRAINAGE CONVEYANCE METHODS TO MATCH THE EXISTING HYDROLOGY. NO DETENTION STORAGE IS REQUIRED.

EXISTING HYDROLOGY: RATIONAL METHOD, $Q=CIA$

BASIN A

-RUNOFF FLOWS TO THE ALLEY AND IS CARRIED SOUTH
-AREA=4.0 AC

*INTENSITY: ASSUME MINIMUM TIME OF CONCENTRATION FOR ALL BASINS. THEREFORE, AT $T_c=15$ MINUTES:

$i_1=3.8$ in/hr, $i_2=4.62$ in/hr, $i_{100}=7.4$ in/hr

-RUNOFF COEFFICIENTS

% IMPERVIOUS=80
 $C_1=0.74$, $C_2=0.76$, $C_{100}=0.84$

$-Q_1=C_1 i_1 A=0.74(3.8 \text{ in/hr})(4.0 \text{ AC})=11.2 \text{ CFS}$

$Q_2=C_2 i_2 A=0.76(4.62)(4.0)=14.0 \text{ CFS}$

$Q_{100}=C_{100} i_{100} A=0.84(7.4)(4.0)=24.9 \text{ CFS}$

BASIN B

-RUNOFF FLOWS TO CUL-DE-SAC AND IS THEN CARRIED SOUTHEAST TO MINNESOTA AVE

-AREA=7.7 AC

% IMP=70: $C_1=0.68$, $C_2=0.69$, $C_{100}=0.80$

$-Q_1=0.68(3.8)(7.7)=19.9 \text{ CFS}$

$Q_2=0.69(4.62)(7.7)=24.5 \text{ CFS}$

$Q_{100}=0.80(7.4)(7.7)=45.6 \text{ CFS}$

BASIN C

-RUNOFF FLOWS TO THE NORTH AND ENTERS DOUGLAS AVE SWS

-AREA=5.6 AC

% IMP=75: $C_1=0.67$, $C_2=0.70$, $C_{100}=0.80$

$-Q_1=0.67(3.8)(5.6)=14.3 \text{ CFS}$

$Q_2=0.70(4.62)(5.6)=18.1 \text{ CFS}$

$Q_{100}=0.80(7.4)(5.6)=33.2 \text{ CFS}$

BASIN D

-RUNOFF FLOWS TO THE WEST AND IS CARRIED SOUTH BY MINNEAPOLIS AVE

-AREA=8.7 AC

% IMP=99: $C_1=0.87$, $C_2=0.88$, $C_{100}=0.93$

$-Q_1=0.87(3.8)(8.7)=28.8 \text{ CFS}$

$Q_2=0.88(4.62)(8.7)=35.4 \text{ CFS}$

$Q_{100}=0.93(7.4)(8.7)=59.9 \text{ CFS}$

SCALE: 1"=30'
• = 3/4" IRON PIPE W/PEC CAP UNLESS OTHERWISE NOTED
○ = FOUND #4 BAR UNLESS OTHERWISE NOTED

- LEGEND**
- BM BENCH MARK
 - u ELECTRIC POLE
 - LP LIGHT POLE
 - DM DEADMAN
 - EM ELECTRIC METER
 - ELR ELECTRIC RISER
 - EYL ELECTRIC YARD LIGHT
 - AC AIR CONDITIONER
 - U E BURIED ELECTRIC
 - O E OVERHEAD ELECTRIC
 - TR TELEPHONE RISER
 - WM WATER METER
 - WW WATER WELL
 - WL WATER LINE
 - SS SANITARY SEWER MANHOLE
 - CO SANITARY SEWER CLEANOUT
 - GM GAS METER
 - TSP TRAFFIC SIGNAL POLE
 - TSM TRAFFIC SIGNAL MANHOLE

- DRAINAGE LEGEND**
- A BASIN IDENTIFIER
 - BASIN BOUNDARY
 - STORM WATER FLOW

